

MAR 20130001: STILETTO RIDGE

Stiletto Ridge- A report on heavy mineral exploration near Wabasca, Central Alberta.

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PART B

ASSESSMENT REPORT
Metallic and Industrial Mineral Permit Numbers
9310110426 & 9310120525

Stiletto Ridge Project

(Townships 76 & 77, Range 22 & 23 west of the 4th Meridian)
NTS: 83P

And

PART C

APPENDICES
For
ASSESSMENT REPORT
Metallic and Industrial Mineral Permit Numbers
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Stiletto Ridge Project

(Townships 76 & 77, Range 22 & 23 west of the 4th Meridian)
NTS: 83P

For

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Submitted by:
Lester B. Vanhill

December 2012

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Summary:

The following is a "prospector style" Alberta mineral assessment report for the Stiletto Ridge Project property, located within parts of Townships 76 & 77, Range 22 & 23, west of the 4th Meridian in central Alberta, within NTS Map Sheet 83 P/11. The main focus of the Stiletto Ridge Project is the mineral occurrence that was once referred to as the Pelican Mountain Heavy Mineral Occurrence (PMHMO), and described in detail within Alberta Mineral Assessment Report # 20000019 (MIN_20000019). The PMHMO was discovered in 1999 by New Blue Ribbon Resources Ltd. during mineral exploration activities searching for the elusive source(s) of the well documented Calling Lake diamond indicator mineral occurrences. According to MIN_20000019, the PMHMO is a 1,400m x 250m Wapiti aged (72 Ma) fossil marine beach placer deposit with an estimated inferred open pit mineable resource containing 13.72 million tonnes with an average of 3.33% TiO₂ as well as significant volumes of iron, vanadium and zircon.

During the first two year term of the Stiletto Ridge Project, (7) separate days were spent conducting field exploration and/or sampling of the property. 98 rock samples, 5 sand/sandstone pail samples, 2 till samples and 4 stream sediment pan samples were taken from the property. All but 2 rock samples, 1 till sample and the 4 stream sediment pan samples were taken from an old abandoned quarry site's open pit or abandoned ore stockpile. The majority of these samples were processed and studied in-house. The in-house method of sample processing and study varied and evolved over a period of time from simple washing, crushing and rewashing of the split samples, to washing, crushing, digesting in 40% HCl, rewashing and pan concentrating.

Once rewashed, sample concentrates were sized then separated into magnetic and non-magnetic fractions then both fractions were viewed under a professional binocular microscope for heavy mineral concentrations and for evidence of kimberlite related minerals. To confirm the results that were being observed during the in-house study, selected duplicate (split) samples were sent to professional geoanalytical laboratories for professional confirmation analysis. This confirmation analysis did confirm the suspected KIM results that were being observed during the In-house sample analysis, with the overwhelming highlight being the identification by ODM Laboratories of >100 possible KIMs from the -0.25mm size fraction of one 25.9g pan concentrate that was derived from only 1 kg of calcite rich fine-grained sandstone (Sample # S10-50) digested in a 40% HCl solution.

The earliest deposited beds of the mineralized sandstone, appears to show an anomalous enrichment in possible kimberlite indicator minerals such as KIM garnets, sapphire corundum, chromite, picro-ilmenite, perovskite and diopside. Some of these observed heavy minerals, such as diopside, are known to have a short (<4 km) depositional travel distance survivability in tropical environments. Based on short travel distance survivability, under the Cretaceous tropical conditions, it is reasonable to conclude that the PMHMO bedrock deposit was derived from the weathering and re-depositing of mafic minerals from a surface exposed mafic volcanic-type parent rock that was located within 4 kms of the abandoned quarry site located on the Stiletto Ridge property.

Based on all of the information on hand, the author suspects the most reasonable kimberlite target in the project area to be the "Stiletto #1 target", which is a magnetic low anomaly visible in the historical MIN_20000019 data. This "Stiletto # target" is approximately 150m in diameter and located 200m from the edge of the linear placer deposit near its widest point. Due to the location of this target, the majority of the 1st term land base for these permits has been reduced in size from a combined 17,920 ha to only 1,664 ha for the projects 2nd term of exploration.

Introduction:

The Stiletto Ridge Project property is located within Townships 76 & 77, Range 22 & 23, west of the 4th Meridian in central Alberta, within NTS Map Sheet 83 P/11. The main focus of the Stiletto Ridge Project is the mineral occurrence that was once referred to as the Pelican Mountain Heavy Mineral Occurrence (PMHMO), and described in detail within Alberta Mineral Assessment Report # 20000019 (MIN_20000019). The PMHMO was discovered in 1999 by New Blue Ribbon Resources Ltd. during mineral exploration activities searching for the elusive source(s) of the well documented Calling Lake diamond indicator mineral occurrences. According to MIN_20000019, the PMHMO is a 1,400m x 250m Wapiti aged (72 Ma) fossil marine beach placer deposit with an estimated inferred open pit mineable resource containing 13.72 million tonne with 3.33% TiO₂ as well as significant volumes of iron, vanadium and zircon.

The lands which contain the main central PMHMO were continuously held by an Alberta Mineral Lease since 2001. The southern portion of the known PMHMO was held by a competing group via an Alberta Mineral Exploration Permit. In 2010, Lester Vanhill (the Author) acquired (2) mineral permits covering 100% of the known PMHMO via staking, shortly after the previous lease & permit both lapsed.

The first term of these current Alberta Mineral permits # 093 9310110426 & 093 9310120525 collectively referred to as the Stiletto Ridge Project property, had three main objectives for exploration.

- 1) The first objective for exploration was the confirmation and quality assessment of the previous documented exploration work done on the project lands during the initial PMHMO discovery period. This was done in an effort to best determine a cost effective approach for new exploration without unnecessarily duplicating exploration work that had previously occurred on the project area, in a satisfactory method based on currently accepted exploration standards. This first objective of exploration was also sought to uncover areas of previous exploration that did not live up to the author's standards and therefore needed to be redone with a refined focus to detail.
- 2) The second objective of exploration was to determine if the mafic and heavy minerals in the placer deposit could have been originally sourced from a diamond bearing, primary source-rock(s) or if the mafic minerals in this Cretaceous placer deposit were derived from a parent rock completely unrelated to the areas suspected, yet elusive, diamond indicator source rock(s) locally known as the Calling Lake Kimberlites.
- 3) The third objective of exploration for the Stiletto Ridge Project was to determine the potential transport distance and direction of the placer minerals from primary source-rock to their currently deposited location. This focus of exploration was conducted to determine if the placer deposit's potential kimberlite indicator minerals were derived from a local source or if they could have been transported over 100 kms from a known kimberlite cluster.

The resulting details of the Stiletto Ridge Project's current exploration work conducted over the last two years was done in an effort to achieve these three objectives and is compiled below in the main body of this report.

Location & Access:

The Stiletto Ridge Project is located within Townships 76 & 77, Range 22 & 23, west of the 4th Meridian in central Alberta, within NTS Map Sheet 83 P/11. The central portion of the project area is accessible via paved Provincial Highway 813, approximately 125 road kms north of the town of Athabasca, Alberta. At log-haul marker "103" on Highway 813 a rough ungraveled yet high-grade bush road heads west for 2.2 kms and leads directly to an abandoned 2001 quarry site complete with un-reclaimed deep open pit and large weathered ore stockpile.

From the main old quarry site the rest of the placer deposit area is only accessible by a sparse network of overgrown cutlines or by foot. See the map in back pocket for exact property boundaries.

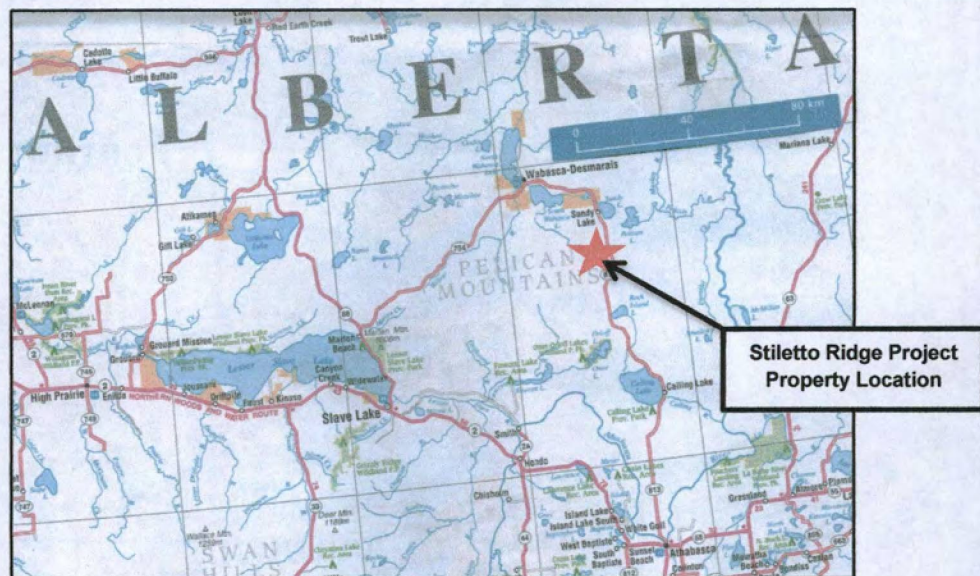


Figure 1: Highway map showing property location



Figure 2: Photo of quarry bush-road from Highway 813

Topography, Climate & Vegetation:

The Stiletto Ridge Project is located at an elevation of 900m above sea level on the east-central edge of a large east / west trending rugged highlands that at their highest reach 1000m above sea level. These hills are referred to on maps and various government agencies as the Pelican Mountains but are locally known as the East-Side of the Martin Hills. The area immediately to the north of the Stiletto Ridge Project and running the entire north side of the Martin Hills from Highway 88 to Highway 813 is locally referred to as the North Slope, Alberta. The south side of the Martin Hills tends to be dominated by large boreal spruce & poplar covered rolling hills gaining elevation until they reach a flat plateau on the top of the main hills. This plateau tends to be dominated by black spruce muskegs, poplar ridges and jack pine burns. Both the south slopes and the plateau areas of the martin hills are crisscrossed with various access trails from forestry and petroleum development.

In sharp contrast the North Slope of the eastern Martin Hills is a very rugged, steep and wild area. The timber tends to be dominated by stands of large black poplar, birch and old spruce interrupted by large expanses of jack pine burns. Much of the large timber on the north-slope shows various signs of lightning and wind damage. The steep topography of the north-slope limits the amount of industrial activity in the area and therefore has limited access from the top of the Martin Hills.

The Martin Hills run directly east, of one of Alberta's largest lakes, Lesser Slave Lake. This location combined with the increased 300 m of elevation over the surrounding low lands contributes to the Martin Hills receiving a higher than average precipitation of 0.75m/year as well as higher rate of thunder storms and severe wind as compared to the larger flat areas surrounding the hills. Weather forecast temperatures tend to be very similar to those of Slave Lake, Alberta.

Regional Geology:

The Stiletto Ridge Project is located within the Western Canadian Sedimentary Basin (WCSB), on the southern edge of the Peace River Arch (PRA). The basement underneath the area surrounding the Stiletto Ridge Project area has not been properly mapped by Oil & Gas basement drilling, as with every other area of Alberta's WCSB, as the area contains a deep deposit of 17% to 24% H₂S gas that effectively deters drilling to basement in the area. However, based on non-drill hole data for the area it has been extrapolated that the project area overlays a geological basement that is 36 km to 38 km thick at a point where the southeastern edge of the Buffalo Head Terrane (BHT) borders the Taltson Magmatic Zone (TMZ).

Above the Project's basement geology, lies a 1,400m thick sequence of sedimentary deposits. At depth the sedimentary package consists of evaporates and shales, grading to carbonates and shales, then finally to near surface sandstones and shales which terminate under shallow (<15m) glacial till deposits. See the following Figure 3 table for details of upper formations.

Figure 3: Table of upper geological formations

Epoch / Period	Group	Age (Ma)	Formation	Lithology
Pleistocene		recent		Glacial Till
Tertiary		6.5-recent		Preglacial Sands & Gravels
Upper Cretaceous	Smoky	70-80	Wapitti	Sandstone, mudstone, coal
		75-86	Puskwaskau	Shale, ironstone, 1 st white specks
		86-88	Badheart	Sandstone
		88-92	Kaskapau	Shale, ironstone, 2 nd white speck
		92-95	Dunvegan	Siltstone, sandstone
	Fort St. John	95-98	Shaftsbury	Shale, Fish-scale
Lower Cretaceous	Colorado	98-100	Pelican	Glauconitic sandstone, mudstone
		100-103	Joli Fou	Glauconitic sandstone, shale

Geology of Focus:

The most interesting geology, from a mineral exploration point of view, on the Stiletto Ridge Project property and the geology that has been the main focus of the property's 1st term of exploration, is the previously documented Pelican Mountain Heavy Mineral Occurrence (PMHMO). The PMHMO is a late Cretaceous, Wapiti aged beach placer deposit consisting of various mafic heavy minerals including but not limited to, magnetite, ilmenite, hematite, rutile, zircon, diopside, corundum, hornblende, epidote, garnet and chromite. These heavy minerals are entrained within a unique localized assemblage of laminated to semi-laminated consolidated to unconsolidated sandstone. The historical (2000) magnetic geophysical signature (>120 nT above the surrounding area) of the main PMHMO combined with the limited historical core hole drilling results indicated that the PMHMO is a minimum of 1400m x 250m in size and has an average thickness of 10m. The PMHMO resource is open along strike to the north-west as that portion of the PMHMO was located across a property boundary held by a different company and therefore was not included in the original 2000 National Instrument 43-101, 13,720,000 tonne resource of 3.33% TiO₂.

Historically published specific gravity data for two distinctive types of sandstone within the PMHMO are listed as follows:

Black magnetic consolidated sandstone	= 2.85 g/cc
Brown / tan non-magnetic unconsolidated sand/sandstone	= 2.55 g/cc

A whole rock sample of the lower calcite-KIM rich sandstone (non-magnetic) from the PMHMO that was submitted to Vancouver Petrographics Ltd by the author was classified as:

"This rock is best classified as a volcanic arenite. It appears devoid of quartz, and the overall mineralogy (dominated by plagioclase, hornblende and carbonate) is consistent with andesitic derivation." See Part "C" of this report for full description.

The ultimate exploration focus of the Stiletto Ridge Project during its 1st term was to analyze various aspects of the PMHMO in an effort to determine if the heavy mineral deposit was directly related to a nearby kimberlitic source rock and if so to determine the location of such source rock.



Figure 4: Photograph of quarry open pit



Figure 5: Photograph of abandoned ore stockpile

Field Exploration Work Performed:

During the first two year term of the Stiletto Ridge Project, (7) separate days were spent conducting field exploration and/or sampling of the property. Descriptions of activities on each day are listed below. Results and data collected from the field exploration work performed are compiled and described within the "Results" section of this report.

On November 15th 2010, a two man crew with 1 ATV, traveled to the old quarry site on the property and conducted a 1-day sample collecting program. The main focus of this sampling program was to obtain representative samples from every rock type exposed within the quarry pit wall as well as samples from each respective rock type contained within the exposed areas of the abandoned ore stockpile. In total 73 (approx. 1kg) rock samples were collected, bagged and documented. To compliment this rock sampling program, 3 (approx. 22kg) pail samples were obtained. (2) samples consisting of unconsolidated sandstone, (bedrock sand) and the third consisting of glacial till from directly above the quarry east pit wall's top coal seam. See section C of this report for sample locations and details.

On June 12th 2011, a one man crew traveled to the Stiletto Ridge property in hopes of obtaining more sandstone samples from the lower portion of the open quarry pit. The access road was very muddy so an ATV was used to access the abandoned quarry site. The pit was partially filled with water so the sampling focused on acquiring the desired rock type, green calcite banded sandstone, from boulders located in the abandoned ore pile. Due to the carrying limitation of the ATV only 25 (approx. 1kg) samples were collected, bagged and documented during this field visit. The trip was cut short due to increasing high winds and the extremely high fire hazard in the area.

On September 28th, 2011, a two man crew traveled to the Stiletto Ridge property and conducted a night time (dark) UV light spot survey of the bedrock boulders located on the exposed sides of the abandoned ore pile. For safety reasons the quarry pit was not an option for a night survey. The UV light survey was conducted in hopes of discovering layers of sandstone rich in visible UV light florescence reactive minerals such as zircon. While waiting for the sky to darken enough to conduct the UV light survey, the two man crew spent several hours locating and cleaning up the numerous scrap iron pieces and chunks

scattered over the quarry site from the undocumented 2001 bulk sampling program conducted by the previous mineral tenure holders. The clean-up & removal of this scrap iron was necessary for future safety (ie tire preservation) and to decrease cultural effects on the future planned ground magnetic survey. The UV survey did not provide any useful information as the intense bright moon and starlight interfered with the UV lights intensity. As a note: some of the numerous large fossilized bones fluoresced under the UV light. No concentrations of zircon were found within the ore piles sandstone boulders.

On May 5th 2012, a one man crew traveled to the Stiletto Ridge Project property and conducted a one day ATV recognisance traverse of the property directly south of the abandoned quarry site. The main focus of this recognisance tour was to explore for a rumored yet undocumented 2nd quarry pit site and to explore for suitable sample sites of exposed bedrock. Due to the extensive amount of deadfall on the south cutline system, the distance covered by this traverse was limited to only 2kms. A wide spot in the cutline system appeared to be a reclaimed large test pit dug by heavy equipment but no other signs of a 2nd quarry site were discovered. A suspected culturally caused magnetic anomaly east of the PMHMO from the 1999 historic airborne survey was investigated and was deemed to be an abandoned husky gas wellsite.

On July 25th 2012, a one man crew traveled to the Stiletto Ridge property but due to heavy rains and thunderstorms, exploration was limited to sampling the small drainages next to Highway 813. Four pan samples were taken from three different small drainages and processed at a later date. See map in back pocket for sample sites.

On September 9th, 2012, a one man crew traveled to the Stiletto Ridge property and conducted a one day ATV and walking traverse of the northern portion of the PMHMO area. Deadfall was cleared from the north running cutline up to the site of historical DDH-04. A walking traverse through the bush was conducted in an effort to re-establish the original (2000) ground mag survey base line and to determine if the magnetic low picked as "Stiletto # 1" target had ever been historically drilled or tested at depth. There was no evidence that the Stiletto # 1 target had ever been drilled or test-pitted. Evidence of the old magnetic survey grid was found in the form of colored survey ribbons that matches that commonly used by Geolink (the 2000 ground mag contractor), but the base line appears to have been lost to the woods over the last 12 years. Of note, "ALPAC Road" flagging was discovered that appeared to mark an access trail that was planned for the northern portion of the PMHMO but was never logged. At the end of this field exploration day, one (approx. 24kg) pail sample was taken from the weathered sandstone material covering the top of the abandoned ore stockpile.

On September 13th, 2012, a one man crew traveled to the Stiletto Ridge property and conducted a (diurnal corrected) magnetic spot check survey to determine if both the historical 1999 airborne mag survey and the historical 2000 ground mag survey covering the PMHMO were accurate representations of the geophysical magnetic signature of the known portions of the PMHMO as well as to determine the best approach for extending the ground mag survey data to cover the north western end of the known PMHMO. During this day, a brief spot check was also conducted over the center of the magnetic low "Stiletto # 1" target to determine if the target truly had a magnetic low signature or if the magnetic low shown by the historic surveys was just an artifact of the data. The "Stiletto # 1" magnetic low anomaly appeared to be a real anomaly and not an artifact in the data of the original historical surveys. See Figure # 11 for details.

Sample Results:

During the first 2-year term of the Stiletto Ridge Project, 98 rock samples, 5 sand/sandstone pail samples, 2 till samples and 4 stream sediment pan samples were taken from the property. All but 2 rock samples, 1 till sample and the 4 stream sediment pan samples were taken from the old abandoned quarry site locations open pit or abandoned ore stockpile. The majority of these samples were processed and studied in-house. The in-house method of sample processing and study varied and evolved over a period of time from simple washing, crushing and rewashing of the split samples, to washing, crushing, digesting in 40% HCl, rewashing and pan concentrating.

Once rewasher, sample concentrates were sized then separated into magnetic and non-magnetic fractions then both fractions were viewed under a professional binocular microscope for heavy mineral concentrations and for evidence of kimberlite related minerals. To confirm the results that were being observed during the in-house study, selected duplicate (split) samples were sent to professional geoanalytical laboratories for professional confirmation analysis.

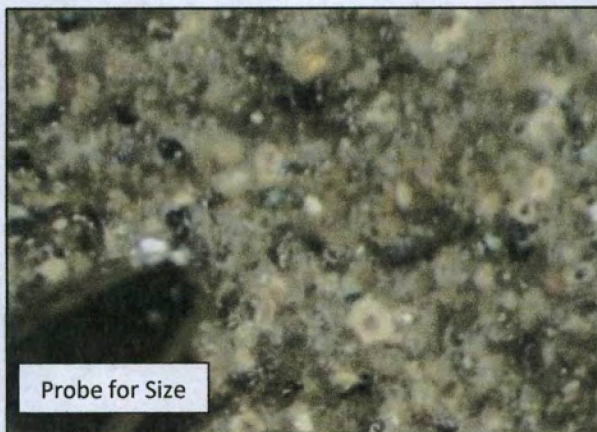


Figure 6: Photograph of washed PMHMO sandstone close-up (probe for size scale).

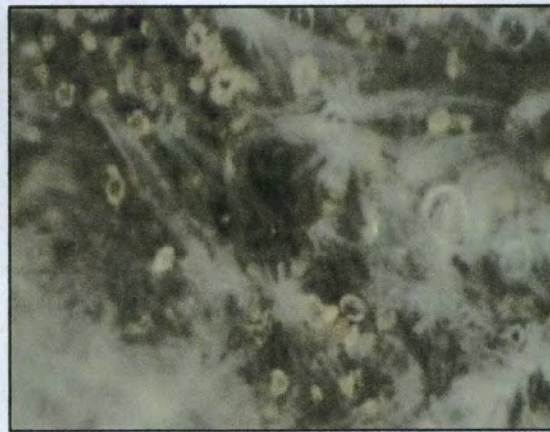


Figure 7: Photograph of same sandstone reacting with 10% HCl.

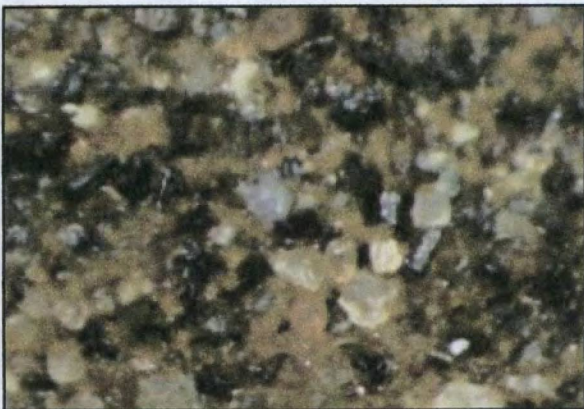


Figure 8: Photograph of partly digested with 10% HCl Acid.

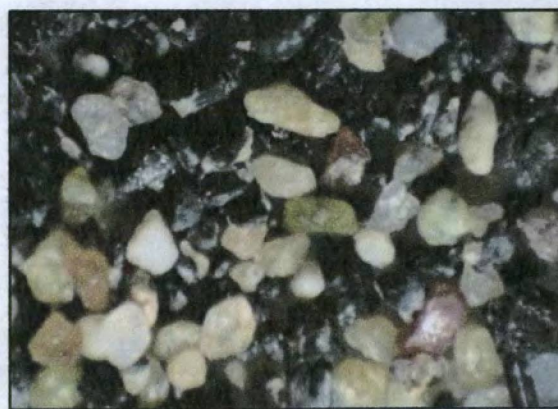


Figure 9: Loose mineral grains (- 0.25mm) from digested sandstone.

A list of samples types sent to the professional geoanalytical laboratories for professional confirmation analysis are listed below:

- (2) representative samples were sent to ALS laboratories for whole-rock as well as trace element (including RRE & gold) analysis. (Samples # P12-01 & P12-02).
- (4) representative 1 kg rock samples were sent to SRC Geoanalytical Laboratories for whole rock KIM analysis with follow-up micro-probing of the picked KIMs. *(only (1) sample was fully processed Sample # P10-22).
- (1) pan sample derived from a 1 kg piece of calcareous sandstone dissolved in 40% HCl acid was sent to ODM Laboratories (ODM) for KIM analysis. (Sample # S10-50).
- (1) 14.2 Kg sand (unconsolidated sandstone) sample (un-prepped) was sent to ODM Laboratories for KIM analysis. (Sample # S12-25).

The various professional laboratory analysis listed above confirmed the suspected KIM results that were being observed during the In-house sample analysis. The overwhelming highlight of this confirmation sample analysis was the identification by ODM of >100 possible KIMs from a 25.9g pan concentrate that was derived from only 1 kg of calcite rich fine-grained sandstone (Sample # S10-50) digested in a 40% HCl solution. The KIMs picked were found in the (-0.25mm) size fraction of the sample.

Highlights of ODM's results for Sample # S10-50

Mineral	Count picked / (Estimated)
Diopside (ODM low-Cr)	12
Chromite	20 (80)
Sapphire Corundum	19 (29)

Figure 10: ODM KIM results for sample # S10-50

The pan concentrate from sample # S10-50 was described as a hornblende-ilmenite-orthopyroxene / epidote-zircon assemblage by ODM.

As well, ODM was able to find a previously undetected gold grain concentration from a sample of unconsolidated sandstone. A complete list of sample locations, descriptions and results are included in part C of this report. A complete list of sample results from the professional laboratories is also included in part C of this report.

The (4) stream sediment pan samples did not provide any minerals for interest to the author as the heavy fraction contained mostly fine-grained magnetite and crustal garnets.

Results from in-house sample work and confirmed by two separate professional laboratories strongly suggests that a portion of the heavy mineral suite contained within the PMHMO fossil placer deposit were derived from a nearby volcanic source and potentially in part derived from a nearby (<4 km) kimberlite-type mafic volcanic rock source. The basis for this is discussed below in the "Interpreted Results" section of this report.

Magnetic Spot Survey Results:

Figure 11: Magnetometer Orientation Spot-Survey Data

Location	Surface Location	Northing	Easting	Elevation	nT
Background Mag	Road 400m east of quarry open pit	6167990	348545	873m	0.00*
Mag high	25m north of quarry open pit	6167995	348125	875m	+98.50
Mag Low Stiletto #1 target	Forested area 950m north of quarry open pit	6168900	347840	861m	-63.25

*Corrected Magnetic Data Background "Zeroed" from 19245.50nT (UTM: NAD 83; Zone 12U)
Proton Magnetometer GSM-19TG; Mobile unit s/n: 705670, Base unit s/n: 705669

Interpreted Results & Conclusions:

The Stiletto Ridge Project property hosts a near surface historically documented Cretaceous aged marine-beach, heavy-mineral placer deposit known as the PMHMO. This fossil beach placer deposit is believed to contain more than 13 million tonnes of mineralized sandstone, with an average TiO_2 content of 3.3%. Magnetic surveys, combined with historical drill-hole data, indicate that the main placer deposit is definable via magnetic geophysical surveys due to the high concentrations of magnetite within the upper mineralized sandstone.

The best KIM picking results were achieved when the sandstone samples were partially dissolved in a 40% HCl acid solution to remove calcite rims from individual mineral grains. The removal of these thick calcite rims allowed the individual mineral grains to be effectively separated by conventional heavy liquids and/or panning methods.

Heavy mineral processing, observing and picking of the fine grained (0.25 to 0.125 mm) size fraction, within the lower portions (earliest deposited) of the mineralized sandstone appear to show an anomalous enrichment in possible kimberlite indicator minerals such as KIM garnets, sapphire corundum, chromite, picro-ilmenite, perovskite and diopside. Some of these observed heavy minerals, such as diopside, are known to have a short (<4 km) depositional travel distance survivability in tropical environments. Based on short travel distance survivability, under the Cretaceous tropical conditions, it is reasonable to conclude that the PMHMO bedrock deposit was derived from the weathering and re-depositing of mafic minerals from a surface exposed mafic volcanic-type parent rock that was located within 4 kms of the abandoned quarry site located on the Stiletto Ridge property.

The <4 km distance from the sandstone sample site coupled with the author's theoretical vision of the magnetic signature that would be exhibited from a Cretaceous aged kimberlite intruding Wapiti formation sandstones, leads the author to conclude there is a high priority, kimberlite target on the Stiletto Ridge Project property. This suspected kimberlite target (Stiletto #1) is a magnetic low anomaly in the MIN_20000019 data that is approximately 150m in diameter and located 200m from the edge of the linear placer deposit near its widest point. The rational for this conclusion is listed below.


- The Calling Lake area down ice of the Stiletto Ridge Project area contains numerous, Alberta Geological Survey (AGS) documented, high quality kimberlite indicator minerals (KIMs) sample sites.

- These documented high quality kimberlite indicator mineral sample sites appear to have an up-ice cut off at or near the top of the Pelican Mountains near the Stiletto Ridge Project area.
- No known source rock for these documented KIMs has been discovered so far in the Calling Lake / Pelican Mountains area.
- At least one source rock of these KIMs must have been contacted by glacial ice at some point in time to be spread in such a large area and is therefore unroofed, unlike standard large roofed deep buried prairie-type kimberlites from other areas of western Canada.
- Any unroofed kimberlite pipes located within Wapiti aged sandstones would have a smaller surface expression and geophysical signature than that of a typical prairie-type or buffalo-head-type kimberlite pipe that intrudes mudstone.
- Past exploration efforts of the Calling Lake / Pelican Mountains area focused on discovering a kimberlite with a prairie-type or buffalo-head-type geophysical signature, this approach resulted in no discovered kimberlites.
- In 1999 & 2000 the Alberta kimberlite exploration industry appeared to only be focused only on magnetic high anomalies, yet some of Alberta's best diamond content kimberlites exhibit magnetic low anomalies.
- Since the central part of the Stiletto Ridge Project property was covered by a mineral lease for over 10 years, the lands were not properly explored by the highly proficient (10+) professional diamond exploration companies that hunted for the suspected, yet elusive Calling Lake Kimberlites during the years of the Alberta diamond rush.
- Past heavy mineral observations of the PMHMO rocks failed to recognize the KIMs concentrated in the very lower calcite rich portion of the sandstone placer deposit.
- The only mafic rocks exposed in the near surface within the north central plains of Alberta are kimberlites; therefore any reasonable geologist that looks at the location, age, surrounding KIM data and depositional environment of the PMHMO should suspect a nearby kimberlite or similar mafic rock type as the source for the heavy minerals in the PMHMO placer deposit. The PMHMO is located more than 1 km from the geological basement and more than 100 kms from the closest documented mafic mineral source (Bat Lake Volcanic Complex) and more than 400 kms from other non-kimberlitic near surface mafic source rocks of the front ranges, the likes of which are suspected of providing mafic minerals for the other well documented Alberta fossil placer deposits, such as the Burmis deposit.

Author's Qualifications:

I, Lester B. Vanhill, of Dapp, Alberta, Canada do hereby certify that:

1. I am currently a Canadian prospector and recognized as such by the Canada Revenue Agency.
2. I am a graduate of the Northern Alberta Institute of Technology (N.A.I.T.) with an honours diploma in Geological Technology (2003) and a diploma in Business Administration (1997).
3. Since 2002, I have made the majority of my livelihood from geological exploration activities and/or resource mining activities.
4. I have been an active mineral exploration prospector at various times within the Yukon, NWT, Nunavut, British Columbia and Alberta since 1994.
5. I have worked for (7) separate diamond exploration companies performing and/or supervising various aspects of indicator mineral sampling, field geophysics and drilling.
6. I have continuously owned Alberta Mineral Permits since 2001.
7. I do not belong to any professional association(s).
8. I currently hold 100% beneficial interest in this property.
9. I am not currently aware of any geological facts or information that has been omitted from this report.
10. The contents of this report are based on information and observations deemed to be accurate and complete at the time of its printing.



Lester B. Vanhill
Sign at: Dapp, Alberta, Canada
December 28, 2012

Detailed Expenditure Statement:

Metallic and Industrial Mineral Permit Numbers 9310110426 & 9310120525

Stiletto Ridge Project:

(Township 77 & 76, Range 22 & 23 west of the 4th Meridian) NTS: 83P

Categories	Description	Total Cost
Cause to Spend Exploration:		
Days of Work: "LBV"		
	6 days = Field Exploration	
	3 days = In-house Sample Prep, Processing & Picking	
	1 day = Background Research	
	Total: 9 days @ \$600/day	\$5400.00
Sub:	6 days @ \$50/day	\$300.00
Days of Work: "HWG"		
	2 days = Field Exploration	
	Total: 2 days @ \$250/day	\$500.00
Sub:	2 days @ \$50/day	\$100.00
Travel: "4x4 truck"	2310 km @ \$1.00/km	\$2310.00
ATV: "4x4"	5 days @ \$125/day	<u>\$ 625.00</u>
		\$9235.00
Out of Pocket Expenses:		
Sample Shipping (Ottawa & Saskatoon)	\$ 85.00	
ALS Labs	\$ 178.00	
ODM Labs	\$ 775.00	
SRC Labs	\$ 750.00	
Maps	\$ 125.00	
Communication Costs	\$ 100.00	
Truck Wash (Athabasca) x 4	\$ 32.00	
Sample Pails, Bags & misc consumables	\$ 75.00	
Acid 35 to 40% HCl	\$ 110.00	
		\$2,230.00
Assessment Report Writing & Delivery:		
Days of Work:	2 day @ \$600/day	\$1200.00
Binding:	3 @ \$5 each	\$ 15.00
Office Consumables	Flat Rate	<u>\$ 35.00</u>
		<u>\$1250.00</u>
Total Cost (Without 10% Overhead Cost)		\$12,715.00
10% Overhead Allowance		<u>\$ 1,271.50</u>
Total Assessment Expenditures:		<u>\$13,986.50</u>

I, Lester Vanhill, certify that these expenditures are valid and were incurred while conducting assessment work on the metallic and industrial mineral permit associated with this assessment report.


Report Author

December 28, 2012

Date

Stiletto Ridge Project, Part B & C

L.B. Vanhill

December, 2012

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References:

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Vanhill, L.B.: Internal Data Base "KIM samples of Alberta", 2001-2012. Unpublished Regional Data.

PART C

APPENDICES

For

ASSESSMENT REPORT

Metallic and Industrial Mineral Permit Numbers
9310110426 & 9310120525

Stiletto Ridge Project

(Townships 76 & 77, Range 22 & 23 west of the 4th Meridian)
NTS: 83P

For

Lester Bonnard Vanhill

Submitted by:
Lester B. Vanhill

December 2012

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Petrographic Data	(5 pages)
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Overburden Drilling Management Ltd. Data (S10-50)	(5 pages)
Overburden Drilling Management Ltd. Data (S12-25)	(5 pages)
SRC Geoanalytical Laboratories Data (P10-22)	(4 pages)
Government Geological Map of Alberta with KIM Data	(2 pages)
1:50,000 Resource Access Map showing prospecting traverses	(Back Pocket)

**MINERAL AGREEMENT DETAIL REPORT**

Report Date: August 23, 2012 6:40:01 PM

Agreement Number: 093 9310110426

Status: ACTIVE
Agreement Area: 9216.0000**Term Date:** 2010/11/12
Continuation Date:

DESIGNATED REPRESENTATIVE**Client Id:** 8028548
Client Name: VANHILL, LESTER BONNARD**Address:** SITE 1 BOX 241RR 1
DAPP, AB
CANADA T0G 0S0

LAND / ZONE DESCRIPTION4-22-076: 30;32
4-22-077: 05-8
4-23-076: 19-36
4-23-077: 01-12**METALLIC AND INDUSTRIAL MINERALS**



MINERAL AGREEMENT DETAIL REPORT

Report Date: August 23, 2012 6:41:29 PM

Agreement Number: 093 9310120525

Status: ACTIVE
Agreement Area: 8704.0000

Term Date: 2010/12/14
Continuation Date:

DESIGNATED REPRESENTATIVE

Client Id: 8028548
Client Name: VANHILL, LESTER BONNARD

Address: SITE 1 BOX 241

RR 1
DAPP, AB
CANADA T0G 0S0

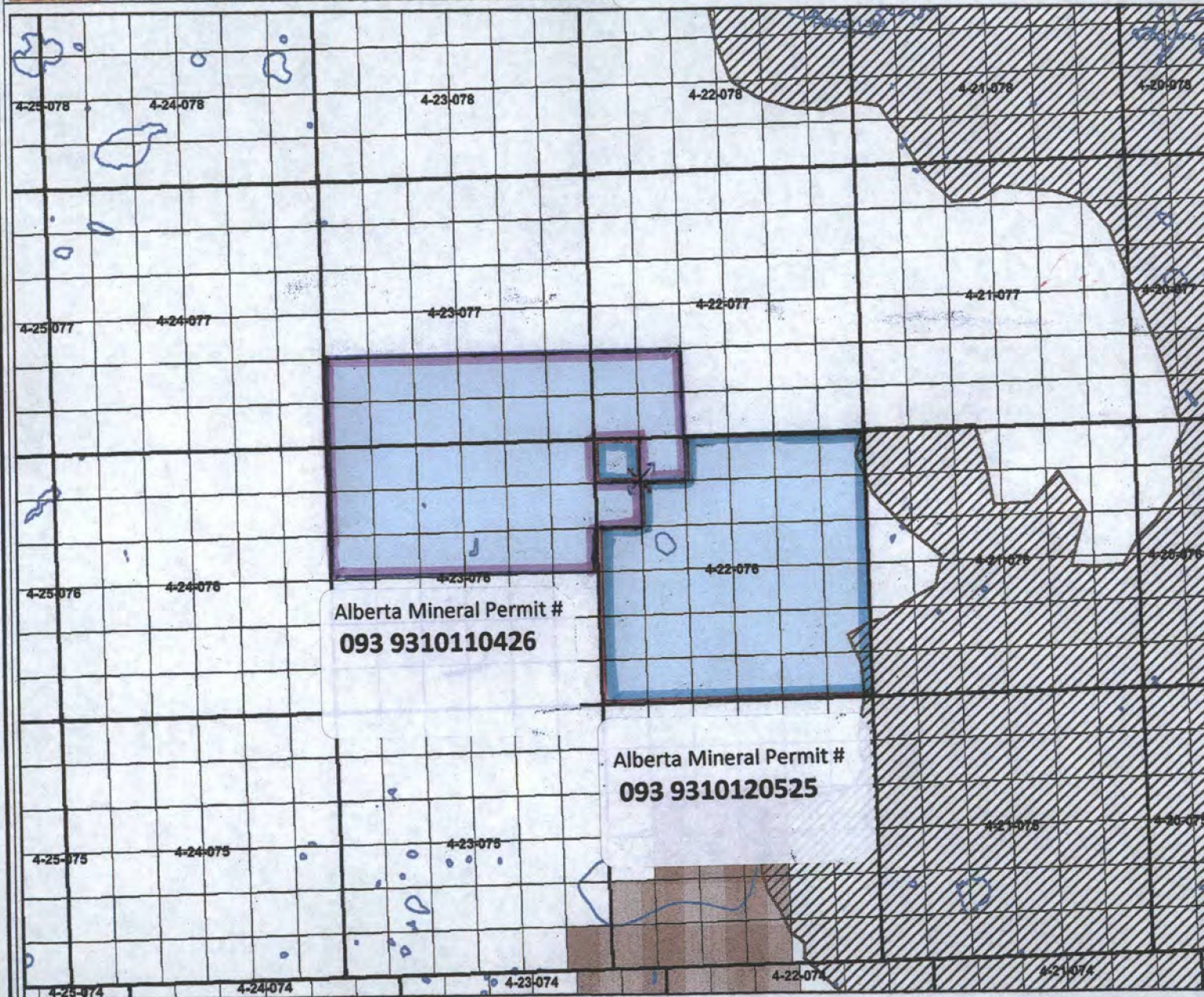
LAND / ZONE DESCRIPTION

4-22-076: 01-29;31;33-36

METALLIC AND INDUSTRIAL MINERALS

Metallic and Industrial Minerals

Stiletto Ridge Project



Legend

- 30 Day Reserved
- Alberta Boundary
- Meridian
- Section
- Township
- Major River
- Major Lake
- Major Road
- Reserved/Withdrawn - Restrictions
- No Surface Access - Restrictions
- Subject To - Restrictions
- Other - Restrictions
- Municipality
- 037 - Special Mineral Lease
- 096 - Secondary Mineral Lease
- 093 - Met & Ind Permit
- 042 - Other
- 059 - carbon sequestration evaluation lease
- 058 - carbon sequestration evaluation permit
- 036 - Natural Gas Storage
- 094 - Met & Ind Lease
- A37 - Application Special Lease
- A96 - Application Secondary Mineral Lease
- A93 - Application Met & Ind Permit
- A42 - Application Other
- A59 - application carbon sequestration evaluation lease
- A58 - application carbon sequestration evaluation permit
- A36 - Application Natural Gas Storage
- A94 - Met & Ind Application Lease
- Mineral Ownership Under Review
- Minerals Not Owned by the Alberta Crown

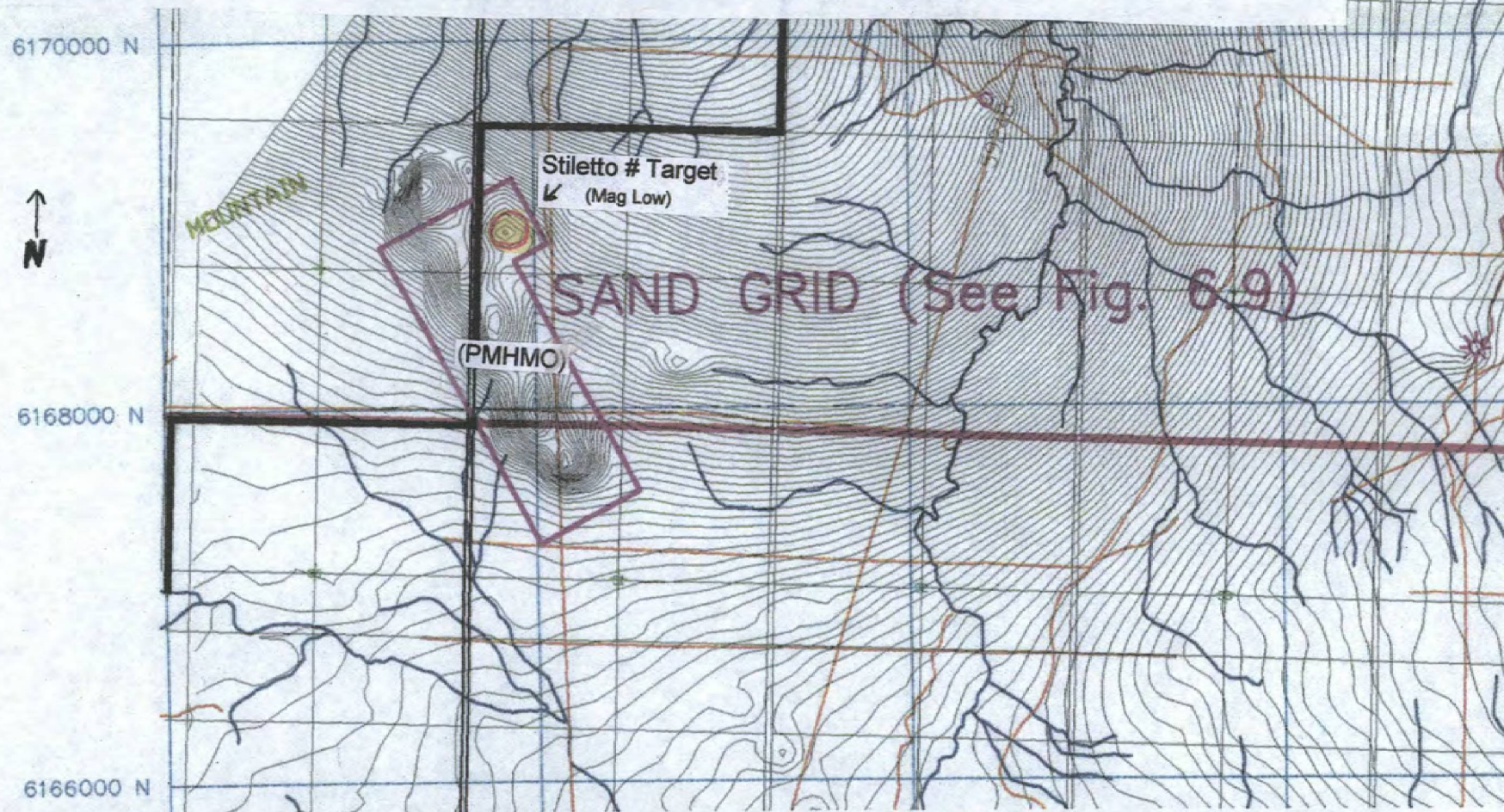
September 21, 2012

DISCLAIMER: Information presented on this map originates from various sources and is for general use only. Please be advised that some information may have been added, amended and deleted since this map was created.

Base Data Provided by Spatial Data Warehouse Ltd. Copyright of Government of Alberta.

Map center: 55°36' N, 113°24' W

Magnetic Survey Data
Pelican Mountain Heavy Mineral Occurrence (PMHMO)
Source: MIN_20000019; New Blue Ribbon Resources Ltd. (2000)



Sample Location Data

November 15, 2010									
Sample		Location: within 10m NAD 83			Approx.	Consolidated			Lab ID #
Year	Sample #	Northing	Easting	Elevation	Size (kg)		Rock type	Description (color)	
		East side of pit		Above Pit Floor					
P-10	-1	61679990	348125	N/A	1	Y	SS	brown sand	
P-10	-2	61679990	348125	N/A	1	Y	SS	brown sand	
P-10	-3	61679990	348125	0.2m	1	Y	SS	brown sand with cracks	
P-10	-4	61679990	348125	0.2m	1	Y	SS	green / brown sand	
P-10	-5	61679990	348125	N/A	1	Y	Shale	green	
P-10	-6	61679990	348125	0.4m	1	Y	SS	green / brown sand	
P-10	-7	61679990	348125	0.6m	1	Y	SS	green / brown / red coated sand	
P-10	-8	61679990	348125	0.6m	1	Y	SS	green / brown / red coated sand	
P-10	-9	61679990	348125	1m	1	Y	SS	green / brown / red coated sand	
P-10	-10	61679990	348125	1.1m	1	Y	SS	green / brown / red coated sand	
P-10	-11	61679990	348125	1.2m	1	Y	SS	green / brown / red coated sand	
P-10	-12	61679990	348125	1.2m	1	Y	SS	brown /black	P1012
P-10	-13	61679990	348125	2.0m	1	Y	SS	brown /black	
P-10	-14	61679990	348125	3.0m	1	Y	SS	brown /black with white infill	P1014
P-10	-15	61679990	348125	4.0m	1	Y	SS	brown /black	P-12-01
P-10	-16	61679990	348125	3.6m	1	Y	SS	brown /black with white infill	
P-10	-17	61679990	348125	N/A	1	Y	SS	black coated green	
P-10	-18	61679990	348125	N/A	1	Y	SS	black coated green	
P-10	-19	61679990	348125	N/A	1	Y	SS	black coated green	
P-10	-20	61679990	348125	3.2	1	N	Sand	brown light	
P-10	-21	61679990	348125	3.2	1	N	Sand	brown dark	
P-10	-22	61679990	348125	1.5m	1	Y	SS	black coated green	P1022
P-10	-23	61679990	348125	0.4m	1	Y	SS	green banded SS black coated	P1023
P-10	-24	61679990	348125	0.2m	1	Y	SS	olive green w. white calbands	P-12-02
P-10	-25	61679990	348125	Pit Floor	1	Y	SS	olive green w. white calcite	S10-25
P-10	-26	61679990	348125	N/A	1	Y	SS	olive green with white infilled cracks	
P-10	-27	61679990	348125	N/A	1	Y	SS	olive green, red coating	
P-10	-28	61679990	348125	3.0m	1	Y	SS	dark green	P1028
P-10	-29	61679990	348125	3.2m	1	Y	SS	dark green, black coating	
P-10	-30	Reject pile on Pit Floor			1	Y	SS	dark green, red coating	
P-10	-31	61680025	348105	Pit Floor	1	Y	SS	black / dark brown	
P-10	-32	61680025	348105	Pit Floor	1	Y	SS	green banded	
P-10	-33	61680025	348105	Pit Floor	1	Y	SS	dark green banded	
P-10	-34	61680025	348105	Pit Floor	1	Y	SS	black	
P-10	-35	61680025	348105	Pit Floor	1	Y	SS	black / green / red	
P-10	-36	61680025	348105	Pit Floor	1	Y	SS	black	
P-10	-37	61680025	348105	Pit Floor	1	Y	SS	bone	
P-10	-38	61680025	348105	Pit Floor	1	Y	SS	red edged bone	
P-10	-39	61680025	348105	Pit Floor	1	?	?	white clay	
P-10	-40	61680025	348105	Pit Floor	1	Y	SS	brown	
P-10	-41	61680025	348105	Pit Floor	1	Y	SS	light brown	
P-10	-42	61680025	348105	Pit Floor	1	?	SS	salt & pepper with green	
P-10	-43	61680025	348105	Pit Floor	1	Y	SS	loose banded white & black	
P-10	-44	61680035	348100	Pit Floor	1	Y	SS	loose banded green & black & white	
P-10	-45	61680035	348100	Pit Floor	1	Y	SS	loose banded green & black & white	
P-10	-46	61680035	348100	Pit Floor	1	Y	SS	loose banded green & black & white	
P-10	-47	61680035	348100	Pit Floor	1	?	SS	loose green banded with white	
P-10	-48	61680035	348100	Pit Floor	1	Y	SS	green banded with white	
P-10	-49	61680035	348100	Pit Floor	1	Y	SS	green banded with white, red oxide on edge	
P-10	-50	61680035	348100	Pit Floor	1	Y	SS	green banded with white	

Sample Location Data

November 15, 2010					Sample Location Data				
Sample Year Sample #		Location: within 15m NAD 83			Approx. Size (kg)	Consolidated			Lab ID #
		Northing	Easting	Elevation			Rock type	Description (color)	
		Ore Stock Pile							
P10	-51	6168125	348100	881m	1.5	Y	SS	green / brown	
P10	-52	6168125	348100	881m	1.5	Y	SS	green / brown	
P10	-53	6168125	348100	881m	1	Y	SS	black hard	
P10	-54	6168125	348100	881m	1	Y	SS	black hard	
P10	-55	6168125	348100	881m	1.5	Y	SS	black hard	
P10	-56	6168125	348100	881m	0.5	Y	Fossil	small bones	
P10	-57	6168125	348100	881m	0.5	Y	Fossil	small bones	
P10	-58	6168125	348100	881m	1	Y	SS	shinny black	
P10	-59	6168125	348100	881m	1	Y	SS	shinny black	
P10	-60	6168125	348100	881m	1	Y	SS	black hard	
P10	-61	6168125	348100	881m	1	Y	SS	black but crumbing	
P10	-62	6168125	348100	881m	1	Y	SS	black but crumbing	
P10	-63	6168125	348100	881m	1	Y	SS	red /brown	
P10	-64	6168125	348100	881m	1	Y	SS	red /brown/ banded white	
P10	-65	6168125	348100	881m	1	Y	SS	red /brown/ banded white	
P10	-66	6168125	348100	881m	1	Y	SS	red /brown/ banded white	
P10	-67	6168125	348100	881m	1	Y	SS	green / brown / banded white	
P10	-68	6168125	348100	881m	1	Y	SS	green / brown / banded white	
P10	-69	6168125	348100	881m	1	Y	SS	green / brown / banded white	
P10	-70	6168125	348100	881m	1	Y	SS	brown very hard	
P10	-71	6168125	348100	881m	1	Y	SS	brown very hard	
P10	-72	6168125	348100	881m	1	Y	SS	dark brown very hard	
P10	-73	6168110	348100	879 m	3	Y	SS	green banded white & sparkly	
P10	-T-01	61679980	348125	Above Coal	22	N	Till	Grey	
P10	-S-02	61679980	348125	Pit Floor	22	N	BR Sand	med brown	
P10	-S-03	61679990	348125	+3.2m	22	N	BR Sand	light brown	

June 12, 2011

S11	-100	6168125	348100	881m	1	Y	SS	Green / white banded
S11	-101	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-102	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-103	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-104	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-105	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-106	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-107	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-108	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-109	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-110	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-111	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-112	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-113	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-114	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-115	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-116	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-117	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-118	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-119	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-120	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-121	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-122	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-123	6168125	348100	880m	1	Y	SS	Green / white banded
S11	-124	6168125	348100	880m	1	Y	SS	Green / white banded

September 9, 2012

S12	-S-200	6168125	348100	880m	22	N	BR Sand	medium brown (side of ore pile)
S12	-T-02	6168900	347840	861m	10	N	Till	Grey sandy
S12	-S-201	6168125	348100	880m	22	N	BR Sand	brown (top of ore pile)
S12	-S-202	6168100	348095	879m	22	N	BR Sand	brown: edge of cut

S12-25

In-House KIM Data

Sample		Approx. Size (kg)			Lab ID #	Processed	In-House Kim Data		
Year	Sample #		Rock type	Description (color)			Oxides	Garnet	Diopside
P-10	-1	1	SS	brown sand		Y	>10	1/?	5
P-10	-2	1	SS	brown sand		Y	>10	1	2
P-10	-3	1	SS	brown sand with cracks		Y	>10		>20?
P-10	-4	1	SS	green / brown sand		Y	>10	2	10
P-10	-5	1	Shale	green					
P-10	-6	1	SS	green / brown sand		Y	>10	4	4
P-10	-7	1	SS	green / brown / red coated sand		Y	5	1	4
P-10	-8	1	SS	green / brown / red coated sand		Y	5		
P-10	-9	1	SS	green / brown / red coated sand		Y	>10	2	?
P-10	-10	1	SS	green / brown / red coated sand		Y	>10	1	?
P-10	-11	1	SS	green / brown / red coated sand		Y	SPILLED		
P-10	-12	1	SS	brown / black	P1012				
P-10	-13	1	SS	brown / black		Y	>10	0	0
P-10	-14	1	SS	brown / black with white infill	P1014				
P-10	-15	1	SS	brown / black	P-12-01				
P-10	-16	1	SS	brown / black with white infill		Y	>10	0	0
P-10	-17	1	SS	black coated green		Y	8	?	0
P-10	-18	1	SS	black coated green					
P-10	-19	1	SS	black coated green		Y	>10	0	3/?
P-10	-20	1	Sand	brown light		Y	>10	0	1
P-10	-21	1	Sand	brown dark					
P-10	-22	1	SS	black coated green	P1022				
P-10	-23	1	SS	green banded SS black coated	P1023				
P-10	-24	1	SS	olive green w. white calbands	P-12-02				
P-10	-25	1	SS	olive green w. white calcite	S10-25	Y	5	2	5
P-10	-26	1	SS	olive green with white infilled cracks		Y	>10	?	15
P-10	-27	1	SS	olive green, red coating		Y	0	1	0
P-10	-28	1	SS	dark green	P1028				
P-10	-29	1	SS	dark green, black coating					
P-10	-30	1	SS	dark green, red coating		Y	>10	2	6
P-10	-31	1	SS	black / dark brown		Y	>10	1	0
P-10	-32	1	SS	green banded		Y	>20	1	10
P-10	-33	1	SS	dark green banded		Y	>10	00-Jan	5
P-10	-34	1	SS	black					
P-10	-35	1	SS	black / green / red		Y	NOT OBSERVED		
P-10	-36	1	SS	black					
P-10	-37	1	SS	bone					
P-10	-38	1	SS	red edged bone					
P-10	-39	1	?	white clay					
P-10	-40	1	SS	brown					
P-10	-41	1	SS	light brown					
P-10	-42	1	SS	salt & pepper with green		Y	>10	2	>5
P-10	-43	1	SS	loose banded white & black		Y	>10	>10	>10
P-10	-44	1	SS	loose banded green & black & white					
P-10	-45	1	SS	loose banded green & black & white					
P-10	-46	1	SS	loose banded green & black & white		Y	>5	4	>10
P-10	-47	1	SS	loose green banded with white					
P-10	-48	1	SS	green banded with white					
P-10	-49	1	SS	green banded with white, red oxide on edge					
P-10	-50	1	SS	green banded with white					

In-House KIM Data

Sample		Approx. Size (kg)			Lab ID #	Processed	In-House Kim Data		
Year	Sample #		Rock type	Description (color)			Oxides	Garnet	Diopside
P10	-51	1.5	SS	green / brown					
P10	-52	1.5	SS	green / brown					
P10	-53	1	SS	black hard					
P10	-54	1	SS	black hard					
P10	-55	1.5	SS	black hard					
P10	-56	0.5	Fossil	small bones					
P10	-57	0.5	Fossil	small bones					
P10	-58	1	SS	shinny black					
P10	-59	1	SS	shinny black					
P10	-60	1	SS	black hard					
P10	-61	1	SS	black but crumbing		Y	>10	0	0
P10	-62	1	SS	black but crumbing					
P10	-63	1	SS	red /brown					
P10	-64	1	SS	red /brown/ banded white					
P10	-65	1	SS	red /brown/ banded white					
P10	-66	1	SS	red /brown/ banded white		Y	0	0	0
P10	-67	1	SS	green / brown / banded white					
P10	-68	1	SS	green / brown / banded white					
P10	-69	1	SS	green / brown / banded white					
P10	-70	1	SS	brown very hard					
P10	-71	1	SS	brown very hard					
P10	-72	1	SS	dark brown very hard					
P10	-73	3	SS	green banded white & sparkly					
P10	-T-01	22	Till	Grey		Y	Nothing of Interest		
P10	-S-02	22	BR Sand	med brown		Y	Nothing of Interest		
P10	-S-03	22	BR Sand	light brown		Y	>10	2	1

June 12,2011

S11	-100	1	SS	Green / white banded		Y	>10	2	>10
S11	-101	1	SS	Green / white banded		Y	>10	1	>10
S11	-102	1	SS	Green / white banded		Y	>20	5	9
S11	-103	1	SS	Green / white banded					
S11	-104	1	SS	Green / white banded					
S11	-105	1	SS	Green / white banded		Y	>25	2	>10
S11	-106	1	SS	Green / white banded		Y	>10	0	3
S11	-107	1	SS	Green / white banded					
S11	-108	1	SS	Green / white banded					
S11	-109	1	SS	Green / white banded		partly	Not Observed		
S11	-110	1	SS	Green / white banded		partly	Not Observed		
S11	-111	1	SS	Green / white banded		partly	Not Observed		
S11	-112	1	SS	Green / white banded					
S11	-113	1	SS	Green / white banded					
S11	-114	1	SS	Green / white banded					
S11	-115	1	SS	Green / white banded					
S11	-116	1	SS	Green / white banded		partly	Not Observed		
S11	-117	1	SS	Green / white banded		partly	Not Observed		
S11	-118	1	SS	Green / white banded		partly	Not Observed		
S11	-119	1	SS	Green / white banded		partly	Not Observed		
S11	-120	1	SS	Green / white banded					
S11	-121	1	SS	Green / white banded					
S11	-122	1	SS	Green / white banded					
S11	-123	1	SS	Green / white banded					
S11	-124	1	SS	Green / white banded					

S12	-S-200	22	BR Sand	medium brown (side of ore pile)		1/2	>10	??	>10?
S12	-T-02	10	Till	Grey sandy		Y	hing of Interest		
S12	-S-201	22	BR Sand	brown (top of ore pile)	S12-25				
S12	-S-202	22	BR Sand	brown: edge of cut		Y	>10	1	?/5



Vancouver Petrographics Ltd.

8080 GLOVER ROAD, LANGLEY, B.C. V1M 3S3

PHONE: 604-888-1323 • FAX: 604-888-3642

email: vanpetro@vanpetro.com

Website: www.vanpetro.com

Report for:

[REDACTED]

[REDACTED]

Sample:

A rock sample (un-numbered) was submitted by Sanja Jovanovic-Milosevic with a request for thin section preparation and petrographic description.

Description:

VOLCANIC ARENITE

Estimated mode

Mineral Grains	
Plagioclase	30
Hornblende	10
Carbonate	15
Lithic Clasts	
Felsite	20
Altered glass	5
Cement and Veinlets	
Carbonate	10
Mineral X	10

The off-cut corresponding to the sectioned area of this sample has the appearance of an evenly fine-grained sandstone or volcaniclastic.

Thin section examination confirms this observation, revealing that the rock consists of a cemented aggregate of individual mineral grains and lithic clasts, ranging in size from 0.1 - 0.4 mm, and in shape from sharply angular to well-rounded.

These sand grains are mineralogically diverse. They include crystal clasts of plagioclase (mostly fresh but, in a few cases, more or less strongly saussuritized or carbonated); hornblende (almost always strikingly fresh), and carbonate. There are also major

proportions of lithic clasts - mainly various minutely felsitic volcanics, plus lesser proportions of what appears to be more or less altered mafic volcanic glass.

The clasts show rather loose, random packing, and the considerable original porosity is now cemented by an optically indeterminate brown, fibrous component resembling a form of mafic secondary product (chlorite/clay?). This material forms rims to the individual sand grains. Pockets of residual porosity are infilled by sparry carbonate.

A few parallel zones, 0.5 - 2.0 mm or so in thickness, incorporate swarms of concordant hairline stringers of carbonate. These penetrate the rock in a crenulate, concordant interclast relationship (see photo).

This rock is best classified as a volcanic arenite. It appears devoid of quartz, and the overall mineralogy (dominated by plagioclase, hornblende and carbonate) is consistent with andesitic derivation.

The disparate shapes of the clasts, their rather close sizing, and the lack of any detectable layering are features which should be taken into consideration when postulating a mode of formation for this rock.

Photomicrographs:

Photos are of typical fields in transmitted light at a scale of 1 cm = 170 microns, except where otherwise stated.

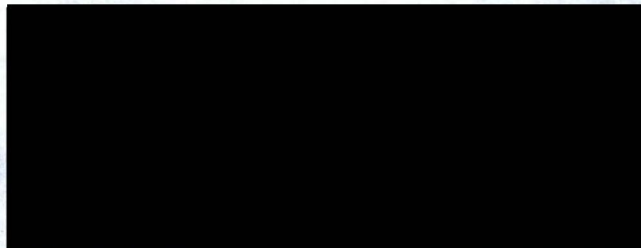
Neg. 581-3: Note rather even sizing and varied degrees of rounding in the constituent sand grains. White are plagioclase crystal clasts or felsitic lithic clasts. Olive colours are hornblende. Brownish are clasts of altered mafic glass (e.g. bottom left). Similar material also occurs throughout as thin fringes cementing the sand grains. Interstitial pockets are infilled with carbonate (white).

Neg. 581-4: Same field as 581-3 in cross-polarized light. The felsitic lithic clasts appear as speckled greys. Carbonate porosity fillings appear light tan in colour. Illustrates the polyolithic/polymineralic character of this rock.

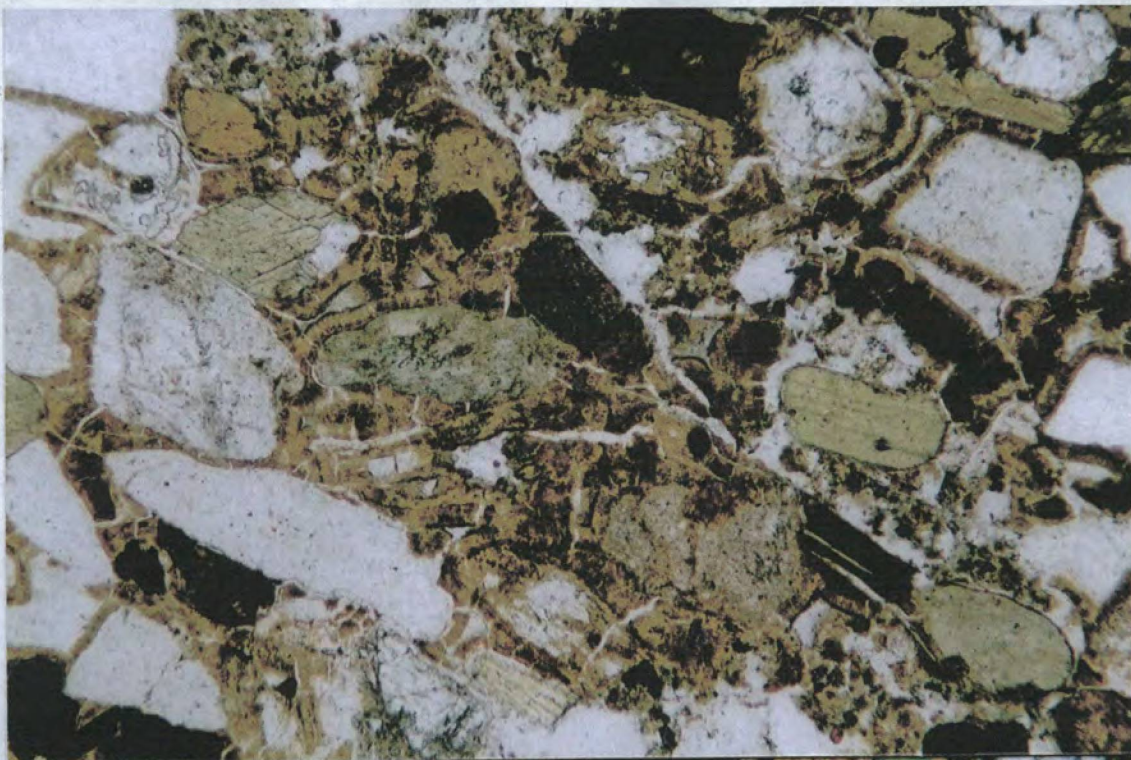
Neg. 581-5: Cross-polarized transmitted light. A different field, from a zone of crenulate hairline veining by carbonate (light tan).

Neg. 581-0: Scale 1 cm = 85 microns. Higher magnification to show details of brown fibrous cement rimming the clasts. Residual porosity is filled by carbonate.

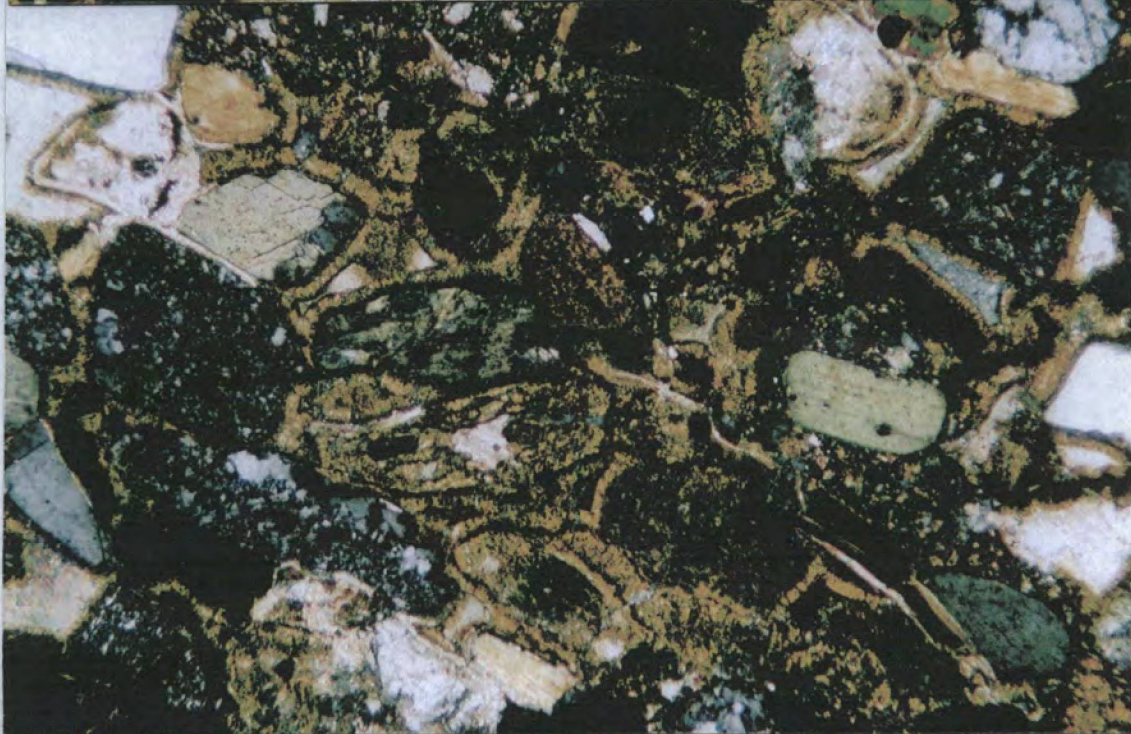
Neg. 581-1: Same field as 581-0 in cross-polarized light. Clasts in this field include felsitic material (speckled dark grey); altered glass (orange e.g. lower left centre); hornblende (smooth pale olive or orange grains, sometimes showing cleavage); plagioclase (white) and carbonate (pale pinkish-tan).



J.F. Harris Ph.D.



581-0

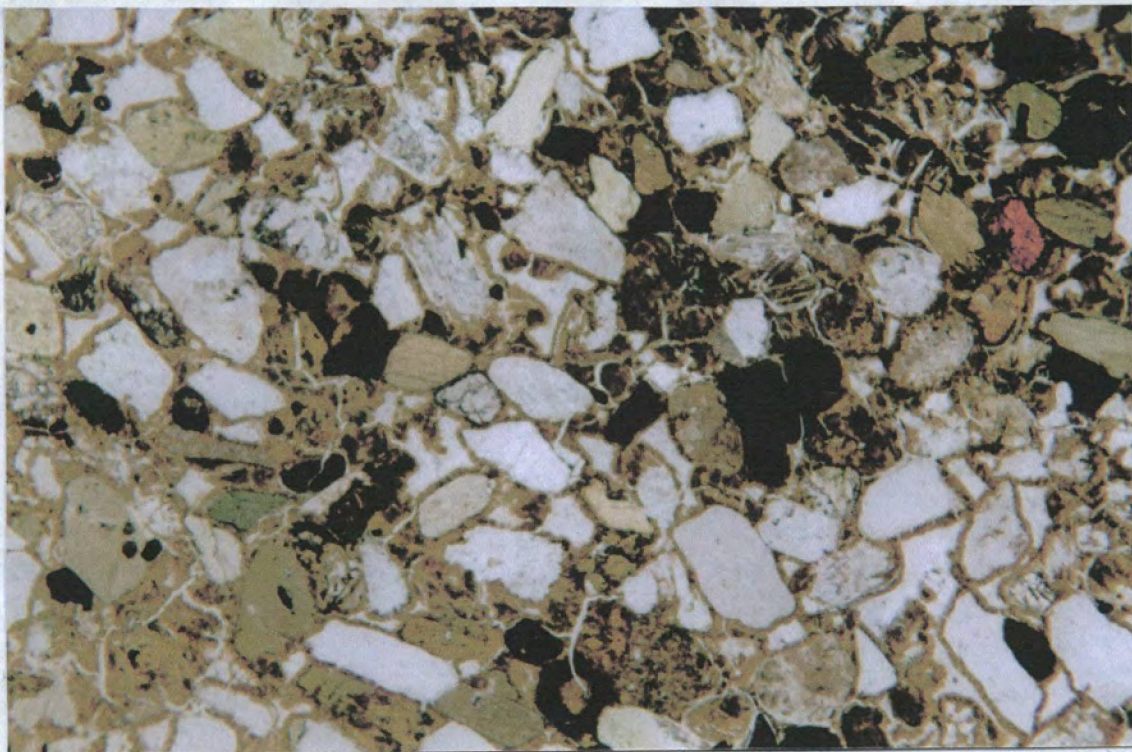


581-1



581-2

#581-3



#581-4



VA12070895 - Finalized

CLIENT : "VANLES - Lester Vanhill"

of SAMPLES : 6

P=Stiletto Ridge Project

DATE RECEIVED : 2012-04-05 DATE FINALIZED : 2012-04-18

PROJECT : "Black Butt Alberta", "Alberta Titanium" & "Bonny Fault"

CERTIFICATE COMMENTS : ""

PO NUMBER : " "

	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06
SAMPLE	SiO2	Al2O3	Fe2O3	CaO	MgO	Na2O	K2O	Cr2O3	TiO2	MnO	P2O5	SrO	BaO
DESCRIPTI	%	%	%	%	%	%	%	%	%	%	%	%	%
P-12-01	9.2	2.58	17.85	31.4	1.22	0.16	0.11	0.2	9.79	0.42	0.23	0.02	0.04
P-12-02	12.0	2.07	50.70	4.71	3.67	0.18	0.08	0.22	9.54	0.41	0.44	0.01	0.04

	C-IR07	S-IR08	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
SAMPLE	C	S	Ba	Ce	Cr	Cs	Dy	Er	Eu	Ga	Gd	Hf	Ho
DESCRIPTI	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
P-12-01	6.68	0.01	371	123	1380	0.19	4.05	2.47	1.1	21.8	4.98	40.3	0.83
P-12-02	4.65	0.01	352	102	1140	0.15	3.34	2.11	0.98	24.1	4.39	31.1	0.68

	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
SAMPLE	La	Lu	Nb	Nd	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th	Tl
DESCRIPTI	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
P-12-01	71.1	0.61	29.2	45.2	13.6	3.5	7.44	6	183.5	1.6	0.72	15.55	<0.5
P-12-02	54.7	0.52	23.1	37.9	11.35	2.7	6.43	5	92.2	0.9	0.61	12.75	<0.5

	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS42	ME-MS42	ME-MS42	ME-MS42	ME-MS42	ME-MS42
SAMPLE	Tm	U	V	W	Y	Yb	Zr	As	Bi	Hg	Sb	Se	Te
DESCRIPTI	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
P-12-01	0.43	3.6	1030	1	24.9	3.09	1640	<0.1	0.03	0.029	0.18	0.8	<0.01
P-12-02	0.37	3.33	1050	1	20.8	2.62	1340	0.1	0.03	0.016	0.21	0.4	<0.01

OA-GRA05 TOT-ICP06			ME-4ACD8	ME-4ACD8	ME-4ACD8	ME-4ACD8	ME-4ACD8	ME-4ACD8	ME-4ACD8	ME-4ACD8	ME-4ACD8	Au-ICP21
SAMPLE	LOI	Total	Ag	Cd	Co	Cu	Mo	Ni	Pb	Zn	Au	
DESCRIPTI	(%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
P-12-01	26.1	99.33	<0.5	<0.5		16	27	3	15	10	352	0.055
P-12-02	16.3	100.37	<0.5	<0.5		46	22	2	28	13	404	0.002


OVERBURDEN DRILLING MANAGEMENT LIMITED
107-15 CAPELLA COURT, NEPEAN, ONTARIO, K2E 7X1
TELEPHONE: (613) 226-1771
FAX NO.: (613) 226-8753
EMAIL: odm@storm.ca

DATA TRANSMITTAL REPORT

DATE: **22-Aug-12**

ATTENTION: **Mr. Lester Vanhill**

CLIENT: **Lester Vanhill**
Box 241, Site, RR 1
Dapp, Alberta
T0G 0S0

E-MAIL: 

NO. OF PAGES: _____

PROJECT: **Stiletto Ridge**

FILE NAME: **20125910 - SandSwamp - Vanhill - (S10-50)**

SAMPLE NUMBERS: **S10-50**

BATCH NUMBER: **5910**

NO. OF SAMPLES: **1**

THESE SAMPLES WERE PROCESSED FOR: **KIMBERLITE INDICATORS**

SPECIFICATIONS:

1. Submitted by client: One 25.9 g pan concentrate.
2. Heavy liquid separation specific gravity: 3.20.
3. 0.125 to 0.5 mm nonferromagnetic heavy mineral fraction picked for indicator minerals.

REMARKS: _____

Lester Vanhill
Box 241, Site 1, RR 1
Dapp, Alberta T0G 0S0
(780)910-7059


August 13, 2012

Overburden Drilling Management
15 Capella Crt, Unit 107
Nepean, ON K2E 7X1
(613)226-1771

Attention: Remy

RE: KIM sample # S10-50; Stiletto Ridge Property

Included in this package are (2) vials of mineral grains. (1) vial is rough sized to +0.25mm the other vial is rough sized -0.25mm. The sizing was done wet with uncalibrated screens for my own use so I suggest resizing the material to ODM standards if needed. (I did not have any large vials).

The material was derived from soaking a 1 kg whole-rock sample in approximately 4.5L of 40% HCl acid, then flush rinsing with clean water to clear off any residual acid. The material was then rough panned and rough sized before drying. Otherwise no other chemicals or preparation was done to these samples on my end.

If you find the material suitable to work with, I would like it looked at for KIMs and if found, any significant (and large enough) KIMs picked & saved for future probe/scan work. I am mainly interested **(high priority)** in confirming the existence of Olv, KIM-CD, KIM-garnets (E&P) and any possible diamond fragments in the material. If possible (& budget permits) I would also like a sample population (10 grains each max) of Ilmenite &/or Chromite picked (if able) **(low priority)**. I realize that the sample has a large percentage of heavy minerals in it and that the material grain size is small. I hope you can work with it. This sample analyse is to determine if some of the source material of the sandstone was derived from a nearby (<50 km) weathered/eroded Kimberlite or similar rock type. Any information you can contribute from observing the KIMs and other accompanying mineral grains, including surface textures would be greatly appreciated.

Enclosed is a Cheque for \$500, if the sample costs are going to exceed that amount or if you have questions please contact me first. If the sample cost is under the paid amount please set the extra aside as a credit to go towards future sample processing fees that I hope to send to ODM this year.

Sincerely;

Lester Vanhill

OVERBURDEN DRILLING MANAGEMENT LIMITED LABORATORY ABBREVIATIONS

SEDIMENT LOG

Largest Clasts Present:

G: Granules
P: Pebbles
C: Cobbles

Clast Composition:

V/S: Volcanics and/or sediments
GR: Granitics
LS: Limestone, carbonates
OT: Other Lithologies (refer to footnotes)
TR: Only trace present
NA: Not applicable
OX: Very oxidized, undifferentiated

Matrix Grain Size Distribution:

S/U: Sorted or Unsorted
SD: Sand (F: Fine; M: Medium; C: Coarse)
ST: Silt
CY: Clay
Y: Fraction present
+: Fraction more abundant than normal
-: Fraction less abundant than normal
N: Fraction not present

Matrix Organics:

ORG: Y: Organics present in matrix
N: Organics absent or negligible in matrix
+: Matrix is mainly organic

Matrix Colour:

Primary:
BE: Beige
GY: Grey
GB: Grey-beige
GN: Green
GG: Grey-green
PP: Purple
PK: Pink
PB: Pink-Beige

Secondary (soil):

OC: Ochre
BN: Brown
BK: Black

Secondary Colour Modifier:

L: Light
M: Medium
D: Dark

GOLD GRAIN LOG

Thickness:

VG: Visible gold grains
M: Actual measured thickness of grain (microns)
C: Thickness of grain (microns) calculated from measured width and length

KIM (kimberlite indicator mineral) LOG

GP: Purple to red peridotitic garnet (G9/10 Cr-pyrope)
GO: Orange mantle garnet; includes both eclogitic pyrope-almandine (G3) and Cr-poor megacrystic pyrope (G1/G2) varieties; may include unchecked (by SEM) grains of common crustal garnet (G5) lacking diagnostic inclusions or crystal faces
DC: Cr-diopside; distinctly emerald green (paler emerald green low-Cr diopside picked separately)
IM: Mg-ilmenite; may include unchecked (by SEM) grains of common crustal ilmenite lacking diagnostic inclusions or crystal faces
CR: Chromite
FO: Forsterite

MMSIM (metamorphosed or magmatic massive sulphide indicator mineral) and PCIM (porphyry Cu indicator mineral) LOGS

Adr: Andradite	Cr: Chromite	Ky: Kyanite	Sil: Sillimanite	Ttn: Titanite
Ap: Apatite	Fay: Fayalite	Mz: Monazite	Spi: Spinel	
Ase: Anatase	Gh: Gahnite	Ol: Olivine	Sps: Spessartine	
Ax: Axinite	Gr: Grossular	Opx: Orthopyroxene	St: Staurolite	
Cpy: Chalcopyrite	Gth: Goethite	Py: Pyrite	Tm: Tourmaline	

**OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG
KIMBERLITE INDICATOR MINERAL COUNTS**

Project: Stiletto Ridge
Filename: 20125910 - SandSwamp - Vanhill - (S10-50)
Total Number of Samples in this Report = 1

Sample Number	Weight (g)											Number of Grains																					
	Field Concentrate Heavy Liquid Separation S.G 3.20											Selected PseudoKIMs			KIMs																	Total	
	Total	Heavy Liquid Lights	Mag HMC	Nonferromagnetic HMC								0.25 to 0.5 mm	0.18 to 0.25 mm	0.125 to 0.18 mm	0.25 to 0.5 mm					0.18 to 0.25 mm					0.125 to 0.18 mm								
				Processed Split																													
				Total																													
				Total	%	Weight	<0.125 mm (wash)	-0.125 mm	0.125 to 0.18 mm	0.18 to 0.25 mm	0.25 to 0.5 mm																						
											Low-Cr diopside	Low-Cr diopside	Low-Cr diopside	GP	GO	DC	IM	CR	FO	GP	GO	DC	IM	CR	FO	GP	GO	DC	IM	CR	FO		
S10-50	25.9	16.7	3.6	5.6	100	5.6	2.4	2.8	2.3	0.4	0.01	0	6	6	0	0	0	0	0	0	0	0	0	0	10(20)	0	0	0	0	0	10(60)	0	(80)

* Values greater than 0.1 g were weighed only to one decimal place; the zero was added in the second decimal position to facilitate column alignment.

** Numbers in brackets are estimated total indicator grains present in samples where not all of the grains were picked.

OVERBURDEN DRILLING MANAGEMENT LIMITED
KIMBERLITE INDICATOR MINERAL PICKING FOOTNOTES

Project: Stiletto Ridge
Filename: 20125910 - SandSwamp - Vanhill - (S10-50)
Total Number of Samples in this Report = 1

ENTER ASSEMBLAGE AND REMARKS DATA HERE

SAMPLE NO.	REMARKS:	INPUT ASSEMBLAGE	INPUT REMARKS
S10-50	Hornblende-ilmenite-orthopyroxene/epidote-zircon assemblage. SEM checks from 0.18-0.25 mm fraction: 10 CR versus ilmenite candidates = 10 CR. Also picked 9 sapphire corundum from 0.18-0.25 mm fraction and 10 of ~20 sapphire corundum from 0.125-0.18 mm. The "clear light/medium green mineral" referred to in your August 16 email appears to be light green, glassy diopside and light pistachio green epidote.	Hornblende-ilmenite-orthopyroxene/epidote-zircon	SEM checks from 0.18-0.25 mm fraction: 10 CR versus ilmenite candidates = 10 CR. Also picked 9 sapphire corundum from 0.18-0.25 mm fraction and 10 of ~20 sapphire corundum from 0.125-0.18 mm. The "clear light/medium green mineral" referred to in your August 16 email appears to be light green, glassy diopside and light pistachio green epidote.

OVERBURDEN DRILLING MANAGEMENT LIMITED
107-15 CAPELLA COURT, NEPEAN, ONTARIO, K2E 7X1
TELEPHONE: (613) 226-1771
FAX NO.: (613) 226-8753
EMAIL: odm@storm.ca

DATA TRANSMITTAL REPORT

DATE: November 1, 2012

ATTENTION: **Mr. Lester Vanhill**CLIENT: **SandSwamp Exploration Ltd.**
Box 241, Site 1, RR.1
Dapp, Alberta
T0G 0S0E-Mail: ~~l.vanhill@storm.ca~~

NO. OF PAGES: _____

PROJECT: **Sandswamp**FILE NAME: **20126033 - SandSwamp - VanHill - (S12-25) - December**SAMPLE NUMBERS: **S12-25**BATCH NUMBER: **6033**NO. OF SAMPLES: **1**THESE SAMPLES WERE PROCESSED FOR: **KIMBERLITE INDICATORS
SELECTED MMSIMs
GOLD**SPECIFICATIONS:

1. Submitted by client: One 14.2 kg cemented sample.
2. Heavy liquid separation specific gravity: 3.20.
3. 0.25-2.0 mm nonferromagnetic heavy mineral fraction picked for indicator minerals.

REMARKS: _____

Remy Huneault, P.Geo.
Laboratory Manager

**OVERBURDEN DRILLING MANAGEMENT LIMITED
DETAILED GOLD GRAIN DATA**

Project: Sandswamp

Filename: 20126033 - SandSwamp - VanHill - (S12-25) - December

Total Number of Samples in this Report = 1

Batch Number: 6033

Sample Number	Panned Yes/No	Dimensions (microns)			Number of Visible Gold Grains				Nonmag HMC Weight (g)	Calculated V.G. Assay in HMC (ppb)	Metallic Minerals in Pan Concentrate
		Thickness	Width	Length	Reshaped	Modified	Pristine	Total			
S12-25	No	3 C	15	15	1			1			
		5 C	25	25	1			1			
		8 C	25	50	1			1			
		13 C	50	75	1			1			
		15 C	50	100	1			1			
		18 C	50	125	2			2			
		15 C	75	75	1			1			
								8	46.8	81	

OVERBURDEN DRILLING MANAGEMENT LIMITED
GOLD GRAIN SUMMARY

Project: Sandswamp

Filename: 20126033 - SandSwamp - VanHill - (S12-25) - December

Total Number of Samples in this Report = 1

Batch Number: 6033

Sample Number	Number of Visible Gold Grains				Nonmag HMC Weight (g) *	Calculated PPB Visible Gold in HMC			
	Total	Reshaped	Modified	Pristine		Total	Reshaped	Modified	Pristine
S12-25	8	8	0	0	46.8	81	81	0	0

OVERBURDEN DRILLING MANAGEMENT LIMITED
HEAVY MINERAL PROCESSING WEIGHTS AND KIMBERLITE INDICATOR MINERAL DATA

Project: Sandswamp
Filename: 20126033 - SandSwamp - VanHill - (S12-25) - December
Total Number of Samples in this Report = 1

Sample Number	Weight (g)											Number of Grains																											Total KIMs
	<2.0 mm Table Concentrate											Selected MMSIMs									KIMs																		
	0.25-2.0 mm Heavy Liquid Separation S.G 3.20											1.0 to 2.0 mm			0.5 to 1.0 mm			0.25 to 0.5 mm			1.0 to 2.0 mm					0.5 to 1.0 mm					0.25 to 0.5 mm								
	Nonferromagnetic HMC																																						
	Processed Split																																						
	Total																																						
	Total	-0.25 mm	Heavy Liquid Lights	Mag HMC	Total	%	Weight	<0.25 mm (wash)	0.25 to 0.5 mm	0.5 to 1.0 mm	1.0 to 2.0 mm	Low-Cr diopside	Cpy	Gh	Low-Cr diopside	Cpy	Gh	Low-Cr diopside	Cpy	Gh	GP	GO	DC	IM	CR	FO	GP	GO	DC	IM	CR	FO	GP	GO	DC	IM	CR	FO	
042-25	3,061.5	2,849.9	155.1	8.8	47.7	100	47.7	12.2	5.7	11.0	18.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

* Values greater than 0.1 g were weighed only to one decimal place; the zero was added in the second decimal position to facilitate column alignment.

** Numbers in brackets are estimated total indicator grains present in samples where not all of the grains were picked.

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 1/250th of the table feed.

OVERBURDEN DRILLING MANAGEMENT LIMITED
KIMBERLITE INDICATOR MINERAL PICKING FOOTNOTES

Project: Sandswamp
Filename: 20126033 - SandSwamp - VanHill - (S12-25)
Total Number of Samples in this Report = 1
Batch Number: 6033

ENTER ASSEMBLAGE AND REMARKS DATA HERE

SAMPLE NO.	REMARKS:	INPUT ASSEMBLAGE	INPUT REMARKS
S12-25	Homblende/epidote assemblage. HMC consists mostly of calcite-cemented sand particles, containing homblende, magnetite, almandine and other heavy minerals. SEM checks from 0.25-0.5 mm fraction: 1 blue sapphire corundum candidate = 1 sapphire corundum. Also picked 8 unchecked sapphire corundum from 0.25-0.5 mm fraction.	Homblende/epidote	HMC consists mostly of calcite-cemented sand particles, containing homblende, magnetite, almandine and other heavy minerals. SEM checks from 0.25-0.5 mm fraction: 1 blue sapphire corundum candidate = 1 sapphire corundum. Also picked 8 unchecked sapphire corundum from 0.25-0.5 mm fraction.
*sandstone			

* Calculated PPB Au based on assumed nonmagnetic HMC weight equivalent to 1/250th of the table feed.

SandSwamp Exploration Ltd.

Attention: Lester Vanhill

PO #/Project:

Samples: 5

SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8

Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geolab@src.sk.ca

Report No: G-11-898

Revision 1

Date of Report: July 29, 2011

Kimberlite Indicator Minerals

Sample Number	Chr + Counts	Chr - Counts	Observer	+0.5mm g	+1.0mm g	-0.250mm g	+0.25mm g
P1012	N/A	N/A	N/A	93.0	398.5	262.5	111.6
P1014	N/A	N/A	N/A	63.4	497.6	320.7	82.6
P1022	0	0	CM	68.0	506.0	296.3	89.2
P1023	N/A	N/A	N/A	83.2	401.9	401.6	86.0
P1028	0	0	CM	63.1	518.9	310.0	76.5

Sample P-1022.

All indicators were found in -0.25 +0.15mm fraction.

N/A - Not Observed.

SandSwamp Exploration Ltd.

Attention: Lester Vanhill

PO #/Project:

Samples: 1

SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8

Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geolab@src.sk.ca

Report No: G-11-898

Date of Report: July 28, 2011

Kimberlite Indicator Minerals

Column Header Details

LW/UP Fraction -0.250MM Not Observed Weight in grams (-0.250)

Methylene Iodide SG 3.30 Sinks Weight in grams (MIS)

Methylene Iodide SG 3.30 Float Weight in grams (MIF)

Ferro Mags -0.25 Weight in grams (FM -0.25)

Pyrope Peridotitic Grains -0.25 +0.15mm in Counts (Pyr-p -0.25)

Pyrope Eclogitic Grains -0.25 +0.15mm in Counts (Pyr-e -0.25)

Chrome Diopside Grains -0.25 +0.15mm in Counts (Chr D -0.25)

Olivine Grains -0.25 +0.15mm in Counts (Olv -0.25)

Chromite Grains -0.25 +0.15mm in Counts (Chr -0.25)

Picrolimenite Grains -0.25 +0.15mm in Counts (Picrolim -0.25)

Total Weight Observed -0.25 +0.15 in grams (Obs)

Sample Number	-0.250 g	MIS g	MIF g	FM -0.25 g	Pyr-p -0.25 Counts	Pyr-e -0.25 Counts	Chr D -0.25 Counts	Olv -0.25 Counts	Chr -0.25 Counts	Picrolim -0.25 Counts	Obs g
P1022 (-0.250)	296.3	19.58	249.25	9.63	1	2	6	0	0	6	9.94

Sample P-1022.

All indicators were found in -0.25 +0.15mm fraction.

SRC Geoanalytical Laboratories

SandSwamp Exploration Ltd.

Attention: Lester Vanhill

PO #/Project:

Samples: 5

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geolab@src.sk.ca

Report No: G-11-898

Revision 1

Date of Report: July 29, 2011

Kimberlite Indicator Minerals

Column Header Details

LST Sinks >2.96 -1.0 +0.25 in grams (LST +0.25)
LST Sinks >2.96 -1.0 +0.50 in grams (LST +0.5)
Ferro Mags -1.0 +0.25mm in grams (FM +0.25)
Ferro Mags -1.0 +0.50 in grams (FM +0.5)
Pyrope Peridotitic Grains -1.0/+0.5mm in Counts (Pyr-p +)

Pyrope Peridotitic Grains -0.5/+0.25mm in Counts (Pyr-p -)
Pyrope Eclogitic Grains -1.0/+0.5mm in Counts (Pyr-e +)
Pyrope Eclogitic Grains -0.5/+0.25mm in Counts (Pyr-e -)
Chrome-Diopside Grains -1.0/+0.5mm in Counts (Chr D +)
Chrome-Diopside Grains -0.5/+0.25mm in Counts (Chr D -)

Olivine Grains -1.0/+0.5mm in Counts (Olv +)
Olivine Grains -0.5/+0.25mm in Counts (Olv -)
Picroilmenite Grains -1.0/+0.5mm in Counts (Picroilm+)
Picroilmenite Grains -0.5/+0.25mm in Counts (Picroilm-)
Chromite Grains -1.0/+0.5mm in Counts (Chr +)

Chromite Grains -0.5/+0.25mm in Counts (Chr -)
Observer's Initials in (Observer)
-1.0 +0.50 Fraction Weight in grams (+0.5mm)
+1.0mm Fraction Weight in grams (+1.0mm)
-0.250mm Fraction Weight in Sieve Size in grams (-0.250mm)

-0.50+0.25mm Fraction Weight in grams (+0.25mm)

Sample Number	.ST +0.25 g	LST +0.5 g	FM +0.25 g	FM +0.5 g	Pyr-p + Counts	Pyr-p - Counts	Pyr-e + Counts	Pyr-e - Counts	Chr D + Counts	Chr D - Counts	Olv + Counts	Olv - Counts	Picroilm+ Counts	Picroilm- Counts
P1012	26.93	14.11	6.17	5.58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P1014	4.90	0.16	0.79	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P1022	2.86	0.32	0.66	0.18	0	0	0	0	0	0	0	0	0	0
P1023	66.25	70.15	39.48	58.39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
P1028	8.43	0.95	2.09	0.74	0	1	0	0	0	0	0	0	0	0

Lester Vanhill
Samples: 3

SRC Advanced Microanalysis Centre
125 - 15 Innovation Blvd, Saskatoon, SK, S7N 2X8
Tel: 306.933.7893 Fax: 306.933.5656 Email: microlab@src.sk.ca

Report No.: 12850-08C11

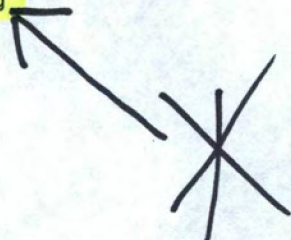
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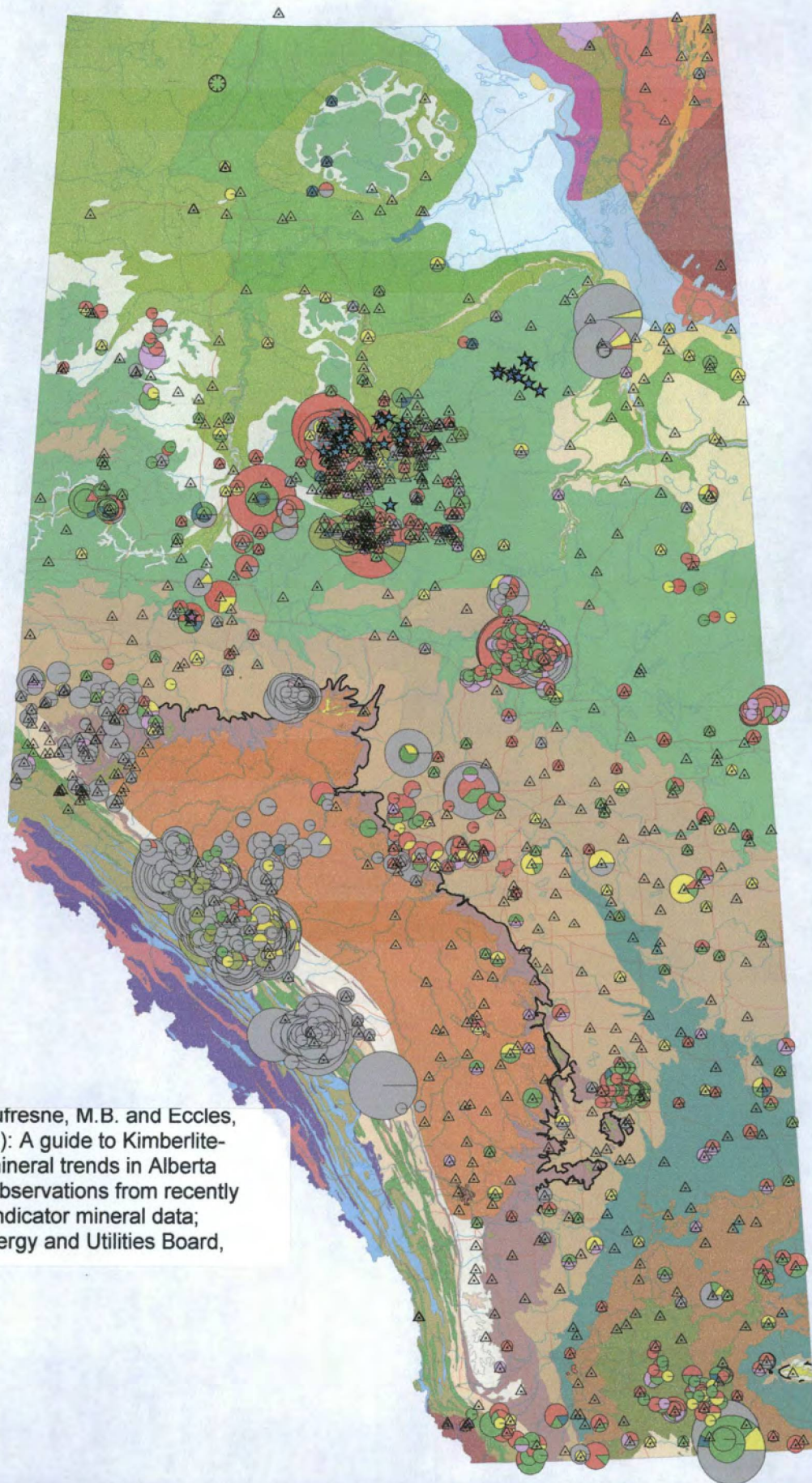
Electron Probe Microanalysis

Samples	SiO ₂	TiO ₂	Al ₂ O ₃	Cr ₂ O ₃	FeO	MnO	NiO	MgO	CaO	V ₂ O ₃	Na ₂ O	K ₂ O	TOTAL
1022 CD3	34.06	0.60	0.58	18.18	9.78	0.05	b.d.	0.18	33.20	0.06	b.d.	b.d.	96.70
1028 Py1	37.32	0.08	12.20	12.37	2.62	0.88	b.d.	0.04	33.13	0.15	0.01	b.d.	98.81

b.d. = below detection limit (100 ppm oxide)

other grains lost during polishing





Source: Dufresne, M.B. and Eccles, D.R. (2005): A guide to Kimberlite-indicator mineral trends in Alberta including observations from recently compiled indicator mineral data; Alberta Energy and Utilities Board,

Appendix 8. Exploration and government indicator-minerals in Alberta (see previous page)

LEGEND

- ★ Birch Mountain Kimberlite
- ★ Buffalo Head Hills Kimberlite
- ★ Possible Buffalo Head Hills Kimberlite
- Mountain lake kimberlite.shp
- ★ Mountain Lake Kimberlite
- Formation Boundary
- Major Highway
- Major River
- Bad Heart Whitemud
- National Park
- Major City

TERTIARY

- Gravels
- Porcupine Hills Fm
- upper Porcupine Hills Fm
- Willow Creek Fm

TERTIARY AND CRETACEOUS

- Paskapoo Fm
- Upper Paskapoo Fm
- Lower Paskapoo Fm
- Ravenscrag Fm

CRETACEOUS

- Sweet Grass Intrusive - dark basic (minette) dykes
- Sweet Grass Intrusive - pale green gray diorite porphyry plug

- Scofield Fm
- St. Mary River Fm
- Blood Reserve Fm
- Eastend Fm
- Horseshoe Canyon Fm
- Bearpaw Fm
- Oldman Fm
- Foremost Fm
- Belly River Grp
- Wapiti Grp
- Pakowki Fm
- Milk River Fm
- Puskwaskau Fm
- Lea Park Fm
- Alberta Group
- Kaskapau Fm
- Smoky Grp
- Dunvegan Fm
- Shaftesbury Fm
- LaBiche Fm
- Peace River Fm
- Pelican Fm
- Joli Fou Fm
- Loon River Fm
- Grand Rapids Fm
- Clearwater Fm
- McMurray Fm
- Keg River Fm
- Chinchaga Fm
- Coalspur Fm
- Brazeau Fm
- Paskapoo Fm
- Brazeau Fm
- Belly River
- St. Mary River Succession

DEVONIAN

- Grosmont Fm
- Milkwa Fm
- Ireton Fm
- Waterways Fm
- Hay River Fm
- Slave Point Fm
- Nyarling Fm
- Fort Vermilion Fm
- Muskey Fm
- Fitzgerald Fm
- Middle Devonian (undivided)

MESOZOIC

- Lower Mesozoic-Lower Cretaceous

PALEOZOIC

- Upper Paleozoic
- Lower Paleozoic

PROTEROZOIC

- Miette Grp
- Purcell Supergroup

ARCHEAN

- Undivided Archean
- Granitoids
- AxMylonitic Rocks
- Charles lake Granitoids
- High-grade metasedimentary Rocks
- Granite Gneisses
- Low Grade Metasedimentary & Metavolcanic Rocks

- Astrobleme
- Government sample locations

Olivine

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 38

Poss Eclogitic Garnets

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 13

Eclogitic Garnets >5% MgO & <23% Fe2O3

- 1
- 2
- 3 - 4
- 5 - 10
- 11

High NaAl Clinopyroxenes >2% Na2O & >2% Al2O3

- 1
- 2
- Eclogitic Clinopyroxenes
- 1
- 2
- 3

Chrome Diopside >0.5% Cr2O3 & <5% Fe2O3

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 18

Cr-Picrolilmenite >8% MgO & >1.5% Cr2O3

- 1
- 2
- 3
- Picromentite >8% MgO
- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 16

Pyropes >15.5% MgO

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 405

Mantle Chromites >8% MgO & >58% Cr2O3

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 52

Kimberlitic Chromites >2% TiO2 & >40% Cr2O3

- 1
- 2
- 3 - 4
- 5 - 9

Chromites >5% MgO & 20% Cr2O3

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 94

Megacryst Pyrope

- 1
- 2
- 3

Low Ti Pyrope <0.4% TiO2

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 289

Hi Ti Pyrope >0.4% TiO2 & >2% Cr2O3

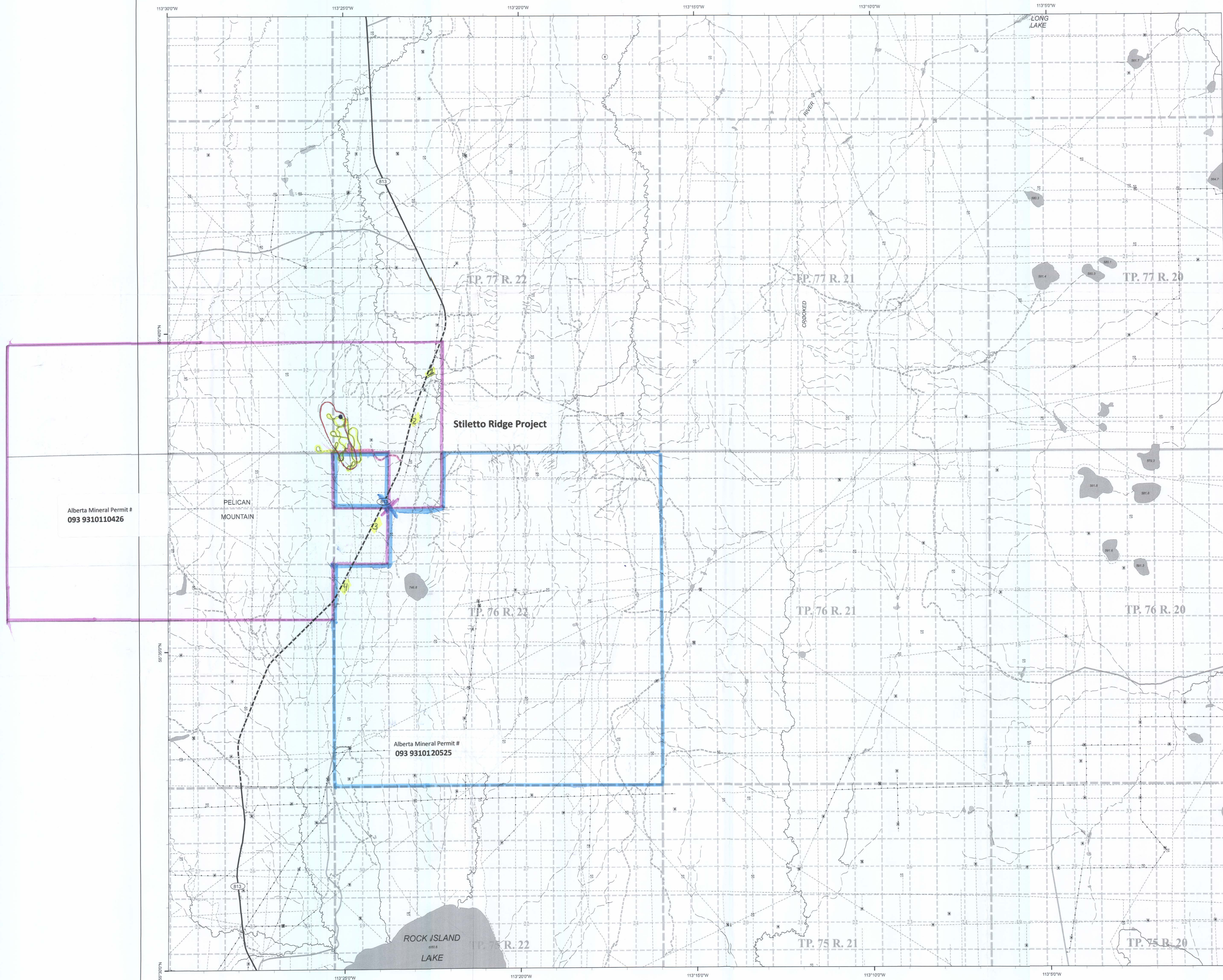
- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 114

High Cr2O3 Pyrope >8%

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 41

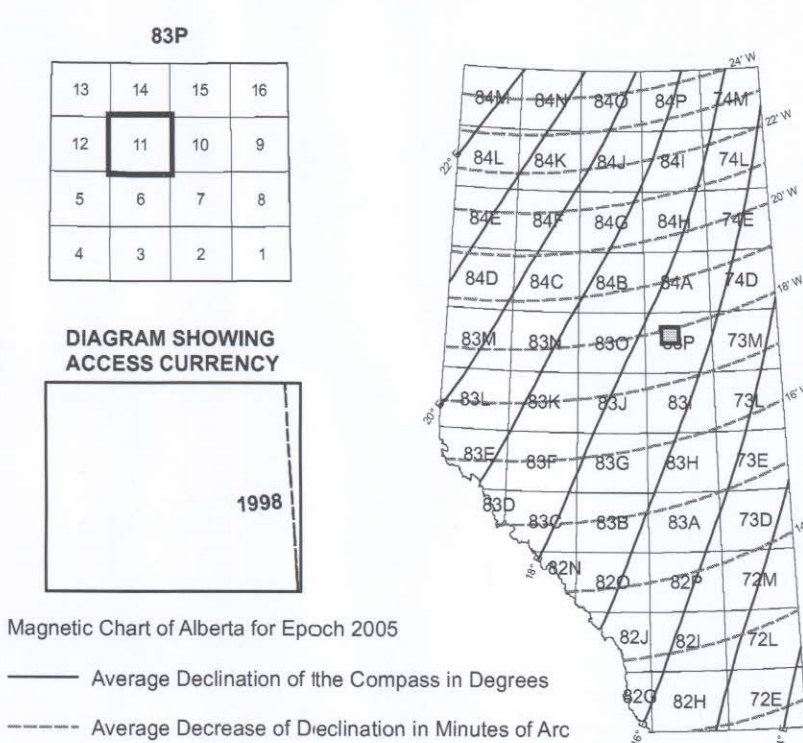
G10 Pyrope

- 1
- 2
- 3 - 4
- 5 - 10
- 11 - 33



- Paved Road
- - - 2 Lane Gravel Road
- - - 1 Lane Gravel Road
- - - Unimproved Road
- - - Truck Trail
- - - Winter Road
- - - Cutlines
- - - Railway
- - - Railway - Abandoned
- - - Pipeline **
- - - Major Powerline
- - - Township
- - - Township (Unsurveyed)
- - - Section
- - - Section (Unsurveyed)
- - - Quarter Section
- - - Permit Boundaries
- - - Perennial Stream/River
- - - Intermittent/ Indefinite Stream/River
- - - Lake (water level in metres A.S.L.)
- - - Sandbar
- - - Intermittent Lake
- - - Icefield
- Hamlet/Locality
- ⊗ Wildfire Lookout
- ⊙ Major Tower
- ⊠ Well
- ⊠ Well - Abandoned
- ⊠ Helipoint
- ⊠ Prospecting Traverse
- ⊠ Stream Sed Sample Site
- ⊠ Quarry Site / Access Road
- ** Pipelines that run parallel to roads may not be visible.
- Stiletto #1 Target
- PMHMO Edge

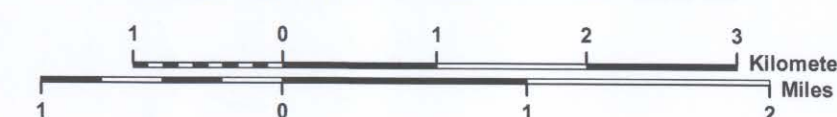
PUBLISHED IN APRIL 2008



Magnetic Chart of Alberta for Epoch 2005
— Average Declination of the Compass in Degrees
— Average Decrease of Declination in Minutes of Arc

Note: Information as depicted, is subject to change, therefore the Government of Alberta assumes no responsibility for discrepancies at time of use

WEST OF THE FOURTH MERIDIAN



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Base Data provided by Spatial Data Warehouse Ltd.
Wellsite Data provided by HSE Energy (Canada) Ltd.
Major Tower Data provided by NIAV Canada, 1998.
Prepared by the Resource Information Management Branch,
Alberta Sustainable Resource Development.