MAR 20140013: CROWSNEST NORTH

Crowsnest North - A report on precious metal exploration in the Crowsnest Pass area, southwest Alberta.

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A report for Assessment in reference to Metallic and Industrial Minerals Permit 9304091032
Crowsnest North Project
Sept. 16, 2014

Project Summary

This report details an exploration work program carried out on Metallic and Industrial Minerals Permit 9304091032.

Prospecting was carried out by the author or by others under his direction on a area of the permit in and around a talus slope in Metallic and Industrial Minerals Permit 9304091032 at approximately 49 48' 10.87" N and 114 33' 30.63" W. Prospecting was carried out over several site visits in the summer fall of 2013 and spring and summer of 2014 along the face of that slope and to the north of it.
This report also details further examination of samples gathered in previous work that have been part of an ongoing evaluation is to determine if a viable product can be produced. The long term testing and evaluation of various rock types from the area for use as decorative rock; either crushed or cut has been part of the ongoing prospecting effort.

The main purpose of the work carried out on site was to relocate a metallic mineral deposit located in the mid 1960's by Mike Czech, a prospector from the area. Mike had shown roughly where he had located a silvery white/grey metallic mineral in test pits dug along a slope located in the permit area. He indicated a general location on a topographic map and had confirmed the rough location from the Forestry Trunk Road by pointing to it and linking it to several local features.

In 1994 he showed samples of the mineral to the author and his partner and said he thought they might be platinum but from what examination that could be done at the time the sample more closely resembled a massive rich galena type ore. Three pieces, the largest approximately 1 cm by 1.5 cm by 0.3 cm thick, the smallest 0.5 cm by 0.2 by 0.2 thick and one slightly larger than that smallest piece. The surface was still rough and they were obviously heavy for their size. They had been recovered in a panned sample from a test pit dig in the hillside.
Efforts to secure a sample to test were unsuccessful as Mike wanted to send them for analysis himself. As far as is known the samples were never tested and their whereabouts is unknown after his death.

While no in situ metallic mineral occurrences were found the survey did locate two sediment samples with what appears to be fine grains of galena and several float samples from river worked volcanic rock that are shot through with infilling quartz.

Further work has been recommended and is ongoing in concert with continuing evaluation and exploration of the deposit for decorative rock use.

Introduction

Further to earlier studies submitted for assessment on this same permit in 2006 and 2010 to assess the potential for Crowsnest Volcanic rock to be used for decorative crushed rock and for decorative rock slabs there is ongoing study of the potential for mineral deposits in the area.

The primary reason for the investigation that is the subject of this report was to follow-up on data from studies in the late 1980's and early 1990's that indicated sulphide linked gold values in the Crowsnest Volcanics. The discovery of that sulphide link lead to a major mineral staking rush throughout the Crowsnest Pass, south to the US border and north to past the Old Man River. The studies at that time identified the link but considered it uneconomic. The potential for small localized bonanza type deposits was proposed at that time and there has been some anecdotal evidence as well as exploration results in the region that offer some support to the idea. The silver deposits found to the south along the Alberta/ B.C. border were well known and prospectors in the Crowsnest were certainly aware of them. According to Mike Czech a well known local prospector, and other prospectors from the area, samples of the ore to the south were in their collections and they always kept an eye out for anything that looked like it. Mike and several prospecting acquaintances said that they had found evidence of similar deposits to the north of Hwy 3 up into the area north of Crowsnest Mountain. Many of them, including Mike, were fixated on the search for gold spurred by stories of the Lost Lemon Mine and they were not as excited about the "low value" lead/silver potential. Like all good prospectors though they kept their eyes open for anything anomalous that might help them in their search and Mike mentioned several of his personal leads that he had not yet had a chance to follow up on. Prospecting notes taken from discussions with Mr. Czech in the late 1980's and early 1990's indicated that there is a potential for sulphide and metallic minerals like galena in the area. Mike told of a small bonanza deposit of silver rich galena found at the foot an outcrop just to the west of the townsite of Coalman. Discovered during road construction a worker found silver rich galena in broken rock taken from the base of the slope. He broke off chunks and gathered all he could find which was enough to fill a 5 gallon metal pail. He filled the container and did not realize the weight of the material and tore the handle off the pail attempting to lift it. It was never followed up on because that entire area was blasted out and re-contoured to put the highway through and no other potential ore came to light or at least was noted. Samples from the material that had been gathered circulated among a small group of local prospectors for years but the main sample was moved and then lost some years later. Mike said he had seen a large piece of the sample tossed in an empty lot in the old section of Coalman but had not bothered to collect it. Interestingly the story ties in with an even earlier story from that same area and may very well be part of the same deposit or share the same depositional characteristic. According to Mike a local resident wanted to dig a well to take advantage of a seep or spring at the very base of the outcrop where it met the flat area that extended out towards the river. As he dug down he hit a small, very rich, metallic mineral occurrence. Like the discovery during road construction this occurrence was small and restricted in extent; the entire deposit being represented by only a few fist sized chunks and small bits of broken rock. As Mike described it, the person digging the well hit this right where the wet loose material was against the hard rock underneath. Of the pieces he had a chance to examine it was very rich greyish metallic and extremely soft. It showed dents in it where a pick had hit it and was as soft as "lead sheet like used for roofing". A knife would cut pieces off "like cutting hard cheese". The only other interesting feature was that it looked like this metal had "grown around the rock and not really in the rock" that it was obviously a natural occurrence was clear but the minerals had formed like "a pool of metal around the rocks that were there". There was so little of it that other than being a curiosity nobody got excited about a "tiny lead deposit" but Mike retained a piece of it. It was not until years later that Mike had samples looked at and was told that the silver content was very high being over 100 ounces to the ton.

A geologist friend who saw the samples proposed that Mike had a piece of rich ore from a secondary silver deposit and wanted to know where it had been found. Once again road construction along that outcrop and surrounding area had covered the location and without any other clear evidence of mineral potential it faded into another curiosity in Mike's collection.
The focus of this reports prospecting was to follow up on one of Mike's prospecting leads that was in the permit area.
This program was carried out over 2013 and 2014.

Expenditures for Assessment

EXPENDITURE STATEMENT
BY ACTIVITY

AMOUNT SPENT	
1. Prospecting	$19,356.00
2. Geological mapping & petrography	$0
3. Geophysical Surveys	
a. Airborne	$0
b. Ground	$0
4. Geochemical Surveys	$0
5. Trenching and Stripping	$0
6. Drilling	$0
7. Assaying & whole rock analysis	$0
8. Other Work General Lab Work	$375.00
SUBTOTAL	**$19731.00**
9. Administration (10% of subtotal)	$1931.00
TOTAL	**$21704.00**

SIGNATURE ______________________ DATE ______________________

Location

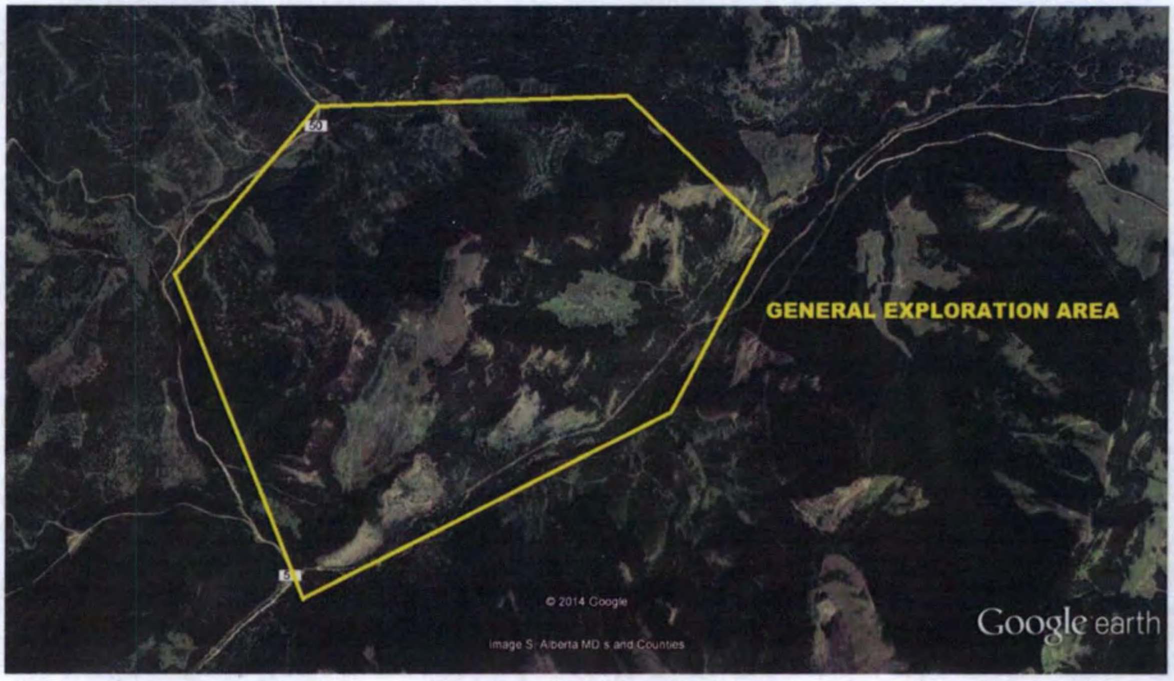
The site is located in the south west part of Alberta 20 km north of Highway 3

The program was carried out along the base of a talus slope made up of various types of volcanic rock at approximately 49 48' 10.87" N and 114 33' 30.63" W and across the top of the low plateau above it where Mike said he found the metallic minerals. Further work was carried out along the north slope of the plateau with North Racehorse Creek forming the north boundary of the exploration area. A larger map is attached to this document giving greater detail on the location.

The Forestry Trunk road goes north from Hwy 3 to a pipeline that comes through the Racehorse Pass. A road branches east from where the pipeline intersects the Trunk Road and can be used to access the base of the talus slope referred to above. Access to the upper portion of the plateau was by a trail system from previous work by logging companies that intersects the main road with mostly foot access from a clearing to the more rugged and overgrown areas. The location is shown in the Google Earth image below and can be referenced in the attached map as well.

Base camp for the work was near where North Racehorse Creek crosses the Forestry trunk road and quads were used from there to gain access to the project area. The quads were not as helpful as had been hoped but did serve to get workers close to the survey areas with access by foot being the general rule. Logging in the area has provided a number of trails but re-growth and logging debris hamper access. Combined with some wet conditions encountered during the program and even access by foot could, at times, be treacherous.

On two occasions workers were caught too far from camp to return safely at the end of the day and temporary camps were made for the night. Thankfully that potential was anticipated and proper equipment was carried on the quads. If field work is to be carried out for an extended period of time along the south side of the plateau a camp site should be established somewhere to the east of the Forestry Road along the trail that runs east along the South Racehorse Creek pipeline. The commute back to the current base camp location begins to get too far by quad if long days are to be spent in that area.



Google Earth view of prospecting area – it is located along the base of the talus slope immediately to the east of the main road and north of the pipeline road, on top of the plateau north of the talus slope and across to the north side of the plateau bordered along the north by North Racehorse Creek and the south by South Racehorse Creek

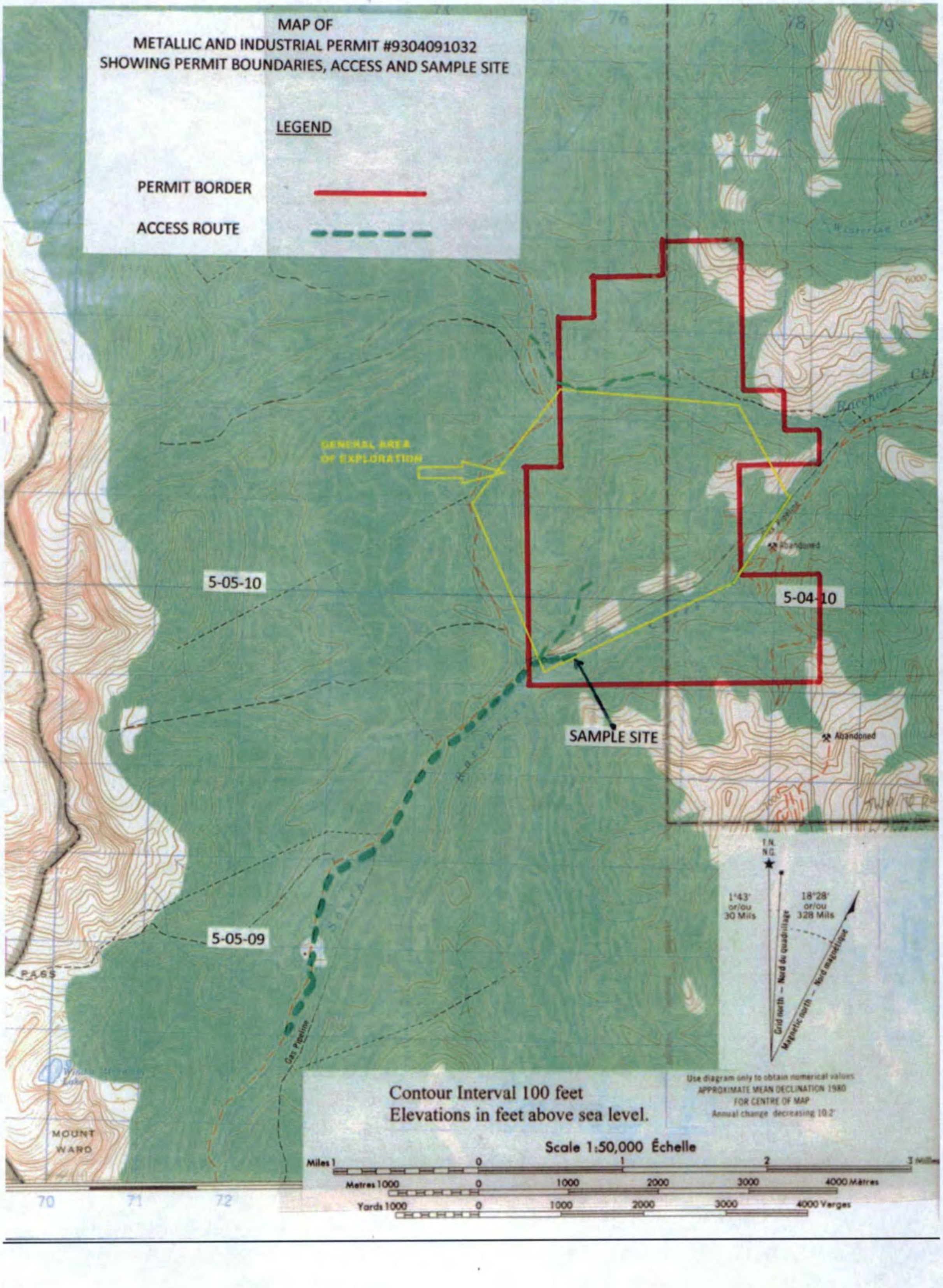
MINERAL AGREEMENT DETAIL REPORT

Agreement Number: 093 9304091032 **Agreement Area**: 1136.0000

LAND / ZONE DESCRIPTION

5-04-010: 07L9-L10,SE,SW,NW;18L9-L10,L15,SW,NW;19SW,NW

5-05-010: 12;13L11,L14,SE,SW,NE;24L3,L6,L9-L10,SE



MAP OF
METALLIC AND INDUSTRIAL PERMIT #9304091032
SHOWING PERMIT BOUNDARIES, ACCESS AND SAMPLE SITE
LEGEND
PERMIT BORDER
ACCESS ROUTE
GENERAL AREA OF EXPLORATION
5-05-10
5-04-10
SAMPLE SITE
5-05-09
PASS
MOUNT WARD
Abandoned
Contour Interval 100 feet
Elevations in feet above sea level.
Scale 1:50,000 Échelle
Miles
Metres
Yards
4000 Mètres
4000 Verges
70
71
72

Geology

The rocks in this study are from a volcanic unit defined by Robin Adair in his 1989 Master's thesis for the University of Alberta as the "Upper Member".
Adair describes that rock unit as "a thick sequence of massive pyroclastic breccias and minor agglomerates." The upper member is a prominent ridge former in the area and can be tracked for many kilometres in a north south trend from north of the study area to south of Hwy 3.
Two broad classifications can be used visually to categorize the volcanic units. One group is from a green coloured layer of volcanic rock and another from a pinkish coloured layer. Within those two very broad categories is a range of colours often zones or layered. The two broad categories was chosen because its easy to see from a distance when prospecting the difference between the darker units and the lighter/pinker units.
The green dark rock unit corresponds with Adair's definition of the "Upper Member" while the pink light coloured rock has characteristics similar to units he ascribes to the "Lower Member".
For the purposes of this study no further attempts were made to refine the categorization as examination in the field was meant to only oughly identify the local geology to confirm that we were working in the volcanics.

Prospecting Method

An area reconnaissance was done using an electronic metallic mineral detector called a Goldspear. The Goldspear is a contact probe instrument that can be used to detect minerals in metallic form. It is pushed into the soil and as the detection head passes a piece of metallic mineral in its native metal form ie gold, silver, lead , copper the operator receives both an audio and visual signal. Minerals in native metallic form as small as 200 Tyler Mesh, approx 74 microns, can be detected dependably. In good conditions detection can extend to even smaller with the manufacturer claiming a small as 300 mesh. The only interfering potential can be caused by un-oxidized man made metals but generally that is easily determined in the field. One advantage that the Goldspear has for searching for mineralized halos is that is can give a secondary signal to tell the operator that it has encountered oxides and sometimes sulphides of metallic minerals (depending on conductivity of that particular mineral grain) by both an audio and visual signal. Please see the next section for a more detailed overview of the instrument. The Goldspear enjoyed a period of popular use worldwide but many operators misunderstood its purpose and proper operation. The original design went through several iterations and the manufacturer stopped production after several years with the intention of incorporating the input from experienced successful users with enhanced electronics to deliver a superior design. That new design has not yet been released though the manufacturer continues to develop it. For those prospectors lucky enough to own one and know how it should be used the Goldspear has excellent potential for use in loaming techniques for detecting metallic mineral deposits. Enhanced oxide minerals of metallic minerals will also give a signal though it is sometimes difficult to determine how the signal translates to the mineral in ground. An operator getting a strong oxide metallic mineral signal (a crackling sound as the oxide minerals are detected) is best served by taking samples of sediments that show higher signal density and doing a closer examination.
Prospecting in the area was carried out in lines with the probe being pushed into loose surface materials to the point where strong down pressure would not move it further. In the soils in that area the average probe depth was around 10 cm.
The nature of the detection system does not lend itself to fixed station sample points, especially in an area like this where larger rock is found. Rather the best method is to choose a survey line or a path of travel that can be mapped and then walk that line taking probe measurements frequently along the

path of travel. It should be noted that the stations as mapped may be some distance apart and the actual number of tests or prob events can be hundreds between each station. In areas where some signals appear anomalous the operator might take numerous probes in the immediate area to determine if they are in a halo of mineralized material or if it was simply a single anomalous detection. Any signal locations that the operator considers interesting are flagged, GPS located and a soil sample gathered. If there is an area of anomalous readings an operator can map that as such and can either try at that time to follow the indicated path (usually up-hill or up drainage) towards a source or continue on to finish the planned survey route and then move to a parallel path up-hill or up drainage and probe along that path in an attempt to intersect the mineralization train. In very rough country it may not be possible to follow the mineralization from first detection towards source directly and the operator will have to move up-hill or up drainage where they can safely follow a path that should cross the mineral train if it is above them. If no signal is found then the working assumption is that the mineral source is between the two survey lines. This is only a working assumption as quite a few factors can complicate the evidence. Nevertheless, it provides mappable data that can be used to help tighten the search and some qualitative data that can also be used to determine the nature of the mineralization. The idea in most prospecting of this type is to get a reconnaissance evaluation in relatively short order that gives an idea on anomalous zones or areas with the potential for discovery and tracking of a metallic mineral trail back to source. The technique has been used successfully for as long as organized mineral prospecting has existed with refinements made as technology and geological understanding have progressed. In more recent times the technique has been used successfully in the gold fields of Australia where it is called loaming and in many other areas of the world. Diamond exploration using indicator minerals derived from soils and sediments has been a field proven technique and is an adaption on the loaming techniques. Traditional loaming relies on taking soil samples and panning each one down looking for metallic minerals to track back to source. The Goldspear eliminates the need for panning every sample site and allows an operator to concentrate on samples most likely to yield results.

An Overview Of The Goldspear With Excerpts From "The Modern Goldseekers Manual"

The Goldspear is an electronic detector for very fine particles of metal. In the case of prospecting this would be minerals in metallic form with gold, silver, copper, lead etc being represented in nature in their metallic form. The particles can be very small but must be loose in the soil so that a probe can come in contact with and scrub by to measure the conductivity of the particle. Essentially the instrument is a specially designed ohm meter with a finely laminated probe head that has non conductive layers sandwiched between contacts in a multi layered and multiple contacts pointed head. The head is made of hardened steel that is very abrasion resistant.
As the probe is shoved down through the soil a metallic particle comes in contact and scrubs up and across the contact layers. As that particle bridges the gap across a non conductive layer an internal microprocessor compares the conductivity of the particle with a set parameter and if it is conductive enough to match a good conductive metal a positive signal is made. This same system is configured so that marginally conductive materials like iron oxide minerals and some sulphides will give a different signal thereby informing the operator of the potential for heavy mineral concentrations.

The following are excerpts from The Modern Goldseekers Manual – a book written by this author and in continuous publication through 7 editions since 1988

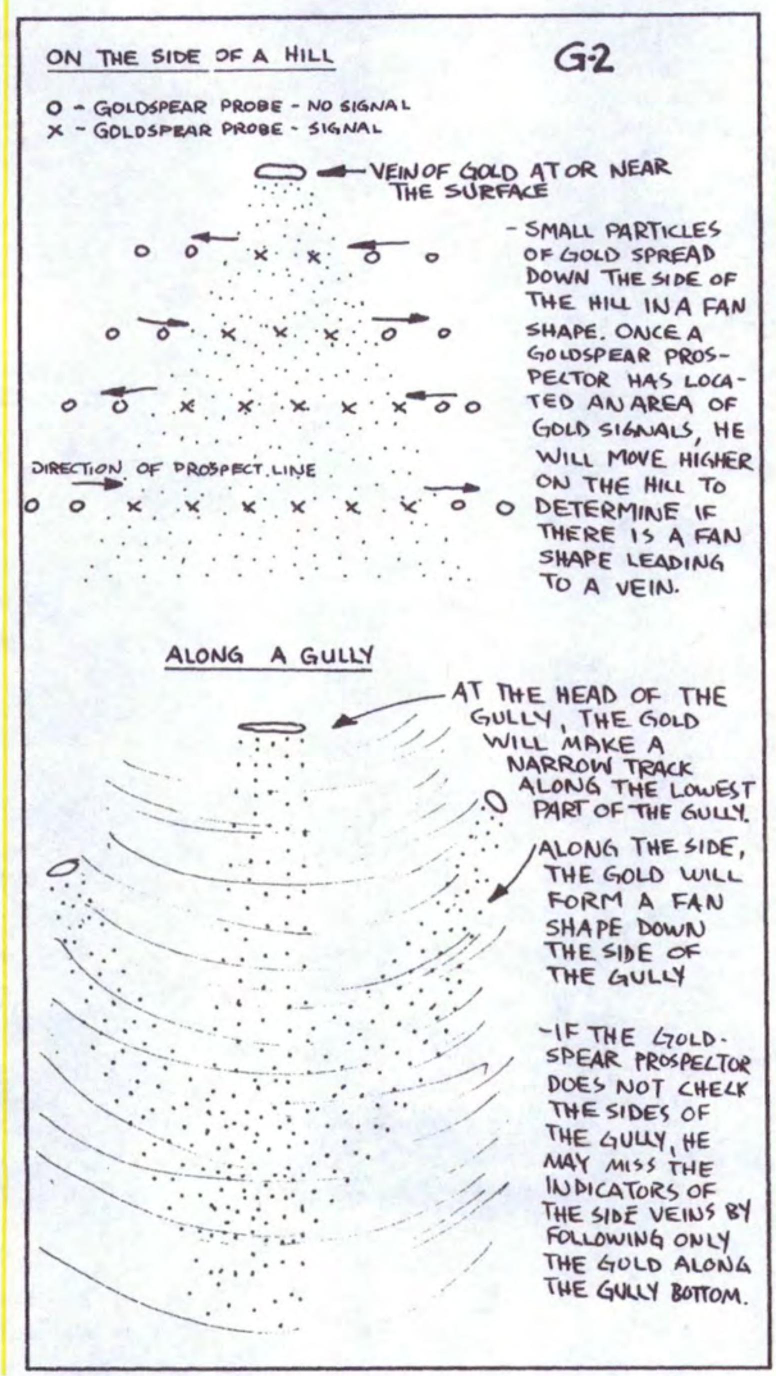
> "You have probably seen ads or reports in magazines on the Goldspear. It looks like a combination ray gun and fish spear. It is, to put it simply, a gold detector.

Metal detectors have been used for some time in the search for precious metals. They work well on large concentrations (veins or nuggets) of gold, silver, platinum, etc. No metal detector made can find flour gold. When looking for such deposits, the operator has to look for black sand concentrations that will, hopefully, carry find gold as well. Metal detectors find metal. Sophisticated ones can even rule out some "junk" metals, so you're not digging bottlecaps as a full-time occupation. However, even the most discriminating detector can only tell you that it's found a non-junk metal, not what that non-junk metal is."

" The Goldspear tells you that a valuable metal is present and can, as a bonus, tell you that black sand is present. This instrument detects gold, platinum, and mercury on the valuable metal readout and can detect particles of those metals as small as 300 mesh. That is 90,000 particles in 1 square inch, folks! Tiny stuff no matter how you look at it. On a separate readout, the Goldspear tells you when you have found black sand.
The Goldspear gives the operator both a visual and an audio signal. Pretty exciting! But, as with any specialized piece of equipment, the very design that lets it perform miracles also creates limitations.
Unlike a metal detector, which transmits and receives signals, the Goldspear transmits nothing. The spear section is pushed into the ground and when the probe head hits or rubs by a particle of gold and/or black sand a signal is heard and seen. The Goldspear is more a measuring device than a transmitting device. As particles pass along the probe head, their electrical fingerprints are taken, compared with acceptable limits, and accepted or rejected."

"It took Lars Guldstrom 15 years to design a machine to do it. Microchip technology is the key, but the machine must be used properly and with an understanding of its limitations.
For the Goldspear to take a fingerprint, the probe head must touch the gold, platinum, mercury, or black sand while the probe head is moving, so that the mineral rubs along its surface.
As you can see, those are some of the limitations. You can't wave the spear over bedrock like a magic wand, and find veins of gold. You must be able to push the probe into the ground being tested. Heavily impacted gravel will limit your probe depth to one or two inches, unless you can loosen it up. In areas with boulders or large stones you will, undoubtedly, run into one that you can't get through or around.

"Push the spear slowly and steadily into the test material. An audio signal comes through when you contact valuable metal, but it has a slight lag time. If you ran the spear too quickly, you might pass the gold by the time you hear the signal. This would gum up your depth calculations. There is a visual signal (blinking lights), but the audio signal is used more often.
The signal for gold, platinum, and mercury is a high-pitched warble. Black sand makes a crackling noise. Some people say the valuable metal signal sounds like something from a video arcade. When you hear it you won't mistake it.



A Goldspear can't tell you how big a piece of gold is."

"It is possible to receive only a few signals per square foot in an area and find coarse gold there with your **pan,** and then get a bunch of signals in another area and find that it's a **concentration** of ultra-fine gold. You have to determine what size gold you have found by panning. **Once** you have established the size the gold **runs,** you can begin tracking it down.

And tracking is a good word for **it.** You track down paystreaks by taking frequent probes and marking hot spots. The **paystreak will be the line that connects the hot spots.**

There are some people who object to the sensitivity of the Goldspear. They say that 300 mesh is too fine. **It may seem** so **to those who** find **a lot of** 300 **mesh gold in an area they're testing. Getting a signal nearly every time you push the probe into the ground is frustrating, but using a pan to check out hot spots helps. The spear's sensitivity may be frustrating to some, but it's an advantage to those searching for pockets or veins of gold or platinum.**

The ads say the Goldspear is for prospecting placer material, but if you limit yourself that way, you'll miss out on a side of prospecting where this instrument may prove invaluable - loaming. Loaming was used "way back when" to find and track veins and pockets of gold. Through erosion fine particles of gold where broke off and carried downhill. The early prospectors working the hillsides found gold in the upper layers of dirt or loam - thus the name "loaming". These old- timers had pretty limited resources. They had to either carry their samples down to the water or carry the water up to where they were working. When gold was found in a sample, the prospector would take samples higher and higher up the **hill until he found the source. More often than not he didn't find anything, despite hundreds of samples and hours, even days of panning.**

The Goldspear would have turned that back-breaking labor into the equivalent of a Sunday stroll. Walking along hillsides pushing his spear into the loose loam until he heard a signal, the prospector could then have headed uphill until the signals increased in number per area and pan-tested only productive loam.

Small particles fan out over a wider and wider area, the further downhill they travel from their source. They form a fan-like pattern, with the thin end at the source and the wide end downhill. When you get a signal with the spear, probe back and forth across the hill at that elevation. You should find the edges of the fan. Move uphill a **little** way and probe across the hill at that elevation. The edges of the fan should pull in and the numbers of particles should increase. This way you pan only productive samples for testing. Think of all the places that could be **prospected** this way that the old-timers missed."

"As for reliability, you couldn't ask for better from such a sensitive instrument. The controls are simple. One dial controls the on/off and the discriminate level. Another dial controls black sand sensitivity. You don't **need** to reset or **retune** the **instrument.** Just set it and forget it. The trick is not learning how to use it, it's learning where to use it."

"My probe has been pushed into everything from sand and gravel to "big rock" gravel. It's been bashed against big rocks and against bedrock underlying gravel, yet it has no signs of scratching or blunting. The shaft is tough and shows only polishing marks along its length. You could probably bend the shaft if you used it like a pry bar, but normal use hardly shows. The steel is extremely tough and can stand up to all kinds of abuse.

The control box, sealed against moisture, can handle splashing and probably even a dunking. The spear is waterproof right up to the control box connection."

"There are **three discrimination** levels. The **instructions** are vague as to the actual use of the higher discriminate levels. They are supposed to cut out false signals, but I found low **discrimination** fine for everything I did. Purer or larger gold didn't seem to make a difference. Sometimes you may get a signal that won't quit. It sounds like you have found gold, but when you move the probe the signal just keeps warbling. A quick wipe of the probe head with a rag usually cures it. A small piece of gold or mercury could have stuck to the probe. If the signal

persists, dry the probe head off and flip the control knob to test. This neutralizes the signal and away you go.

If the signal is a **continuous** high-pitched **beep** without the warble, the battery is low. The Goldspear uses one nine-volt battery, which should last **about** 50 hours.

The black sand detection is calibrated for a wide range of heavier specific gravity minerals including magnetite, pyrite, galena, etc. Just as you can spot hot spots for gold, you can spot black sand hot spots and track black sand stringers.

Because you can track both gold and black sand, you won't find yourself digging through rich black sand for no gold, which sometimes happens with a metal detector. Of course, you might be in an area that has heavies other than what you are prospecting for, if they're mixed in with the black sand. Columbite, tantalite, and cassiterite come to mind, as do gemstones.

The limitations of a Goldspear, ie: difficulty in probing hard packed material, extreme sensitivity, contact detection, etc., make some individuals dwell on the things a Goldspear can't do. They use these as reasons why you shouldn't get one. You have to accept the fact that you are dealing with a specialized instrument. A Magnetometer has a lot of limitations too, but it has led to fortunes for those prospectors smart enough to use it properly. Here are a few of the applications that I have experimented with:

1. **Location of gold-bearing bench material that was covered with three feet of barren sandy loam. It was evident that several prospectors had begun test pits, but quit. (There was no indication of pay until you hit gold-bearing gravel.) The loam was filled with tree roots that made digging tough. The spear had no problems getting through the stuff, and by measuring how deep I had to push the spear in before I got a gold signal, I knew how deep to dig.**

2 **Tracking gold and black sand stringers across gravel bars.**

3. Checking placer indications in flood gravel layers on bedrock.

3 **Prospecting for hardrock gold by loaming.**

5. Testing dry ancient river gravel that had been exposed by a road cut.

6. Testing old tailings piles. Rumor had it that these concentrates had been cyanided. I now know differently. Further testing may indicate that it is economically feasible to rework those tailings.

7. Tracking down gold-bearing portions of material sent through a
screening plant This plant produced washed screened gravel and the fine sand tailings carried substantial amounts of fine gold. **These** tailings had been left in large piles, and in the years since the plant closed, the piles had been eroded almost flat. Only certain parts of the gravel deposit had been gold-bearing, so only certain tailings piles had gold in them.

Without the Goldspear it would **have** been pretty tough to track down the gold-bearing sections of what had become a mish-mash of sand piles. With the Goldspear it was easy to walk along and track down the gold-bearing sand and to define its depth."

"These are only a few of the applications that the Goldspear has been used. for. **I'm** sure that many more uses will be found by people willing to accept the limitations and work with them."

Sample Preparation and Processing

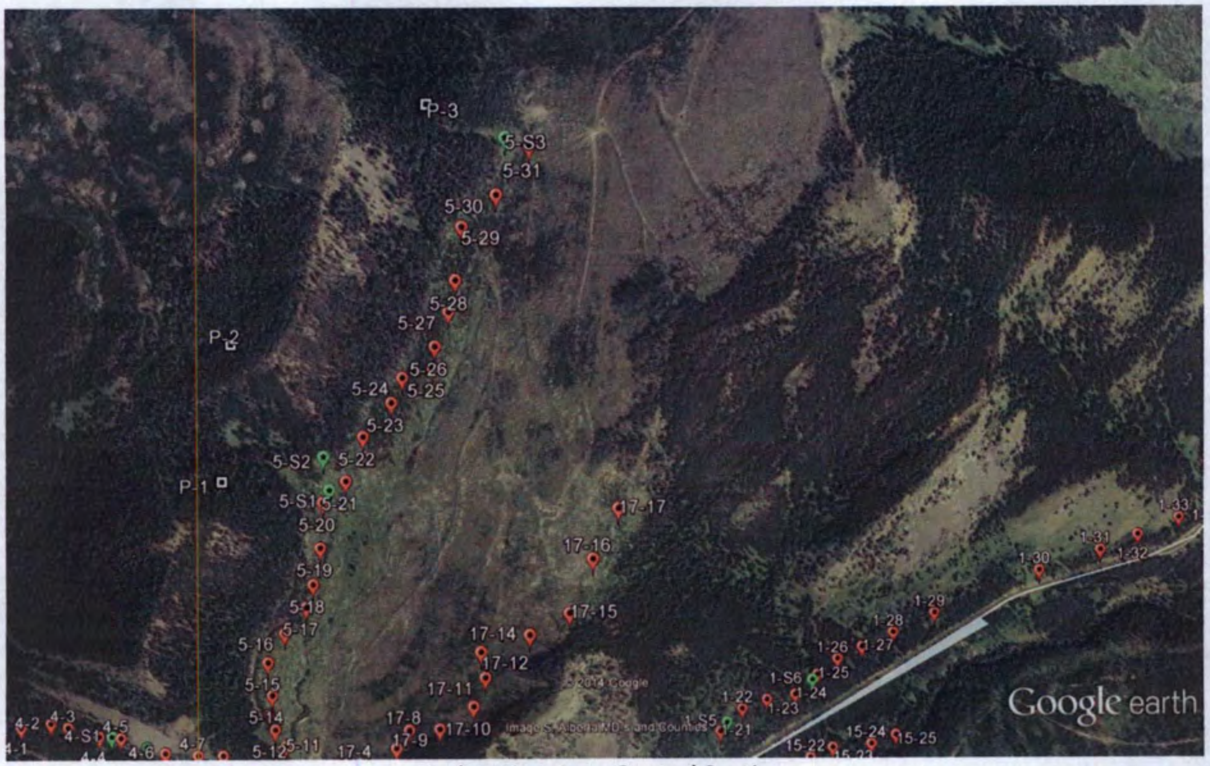
Since the expected minimum size of the metallic particle detected is in the plus 200 mesh range the sample can be concentrated by panning and examined immediately in the field. Soil samples should be in the 2 to 3 litre size of minus 1 cm material screened from the sample site. In most areas tested that would equate to over 5 litres of raw bank run material. This gives a good chance that any flakes of metallic mineral that could be causing a native metal signal will be captured and it gives a large enough sample so that the volume of metallic oxide minerals and general heavy mineral concentrate volume can be determined. Quick field tests can help qualify a sample. Material retained on the screen is examined and anything anomalous noted, the panned sample of fixed volume will begin to give the operator an idea of the background heavy minerals volume and a quick check with a magnet can be used to determine what the rough percentage of the concentrate is magnetic. All samples taken whether an oxide/sulphide mineral anomaly or metallic mineral hit should be checked for obvious metallic minerals A judgement call can be made to preserve the sample for more careful examination or notes taken about it. In the case of a metallic mineral hit the sample should be preserved even if no metallic minerals are seen on first examination in the field. In the case of an anomalous oxide signal the sample can be noted and a judgement call can be made by the operator.
Samples retained in the field for further examination were dried and screened then fractions examined under a USB microscope with images of interesting minerals saved directly to computer files for further work.

During the screening process and as the team moves along the path of travel the potential for anomalous float materials is always there. In this program several samples of rock were recovered from the oversize screens as samples were prepared for panning. The screening was done wet and the rocks making up the sample were retained on a 2 cm screen. They were reserved out because they were anomalous in colour and texture. The difference was subtle and further work in and around the location area should expand the range of samples giving a more complete idea of the nature of the deposit. The samples that were recovered were first examined with hand lens on a fresh face in the field and were sufficiently interesting that they were prepared for more thorough examination by sawing and polishing for more detailed microscopic examination.

Image of total exploration area with survey line stations and tests pit shown

Exploration Area North West Section

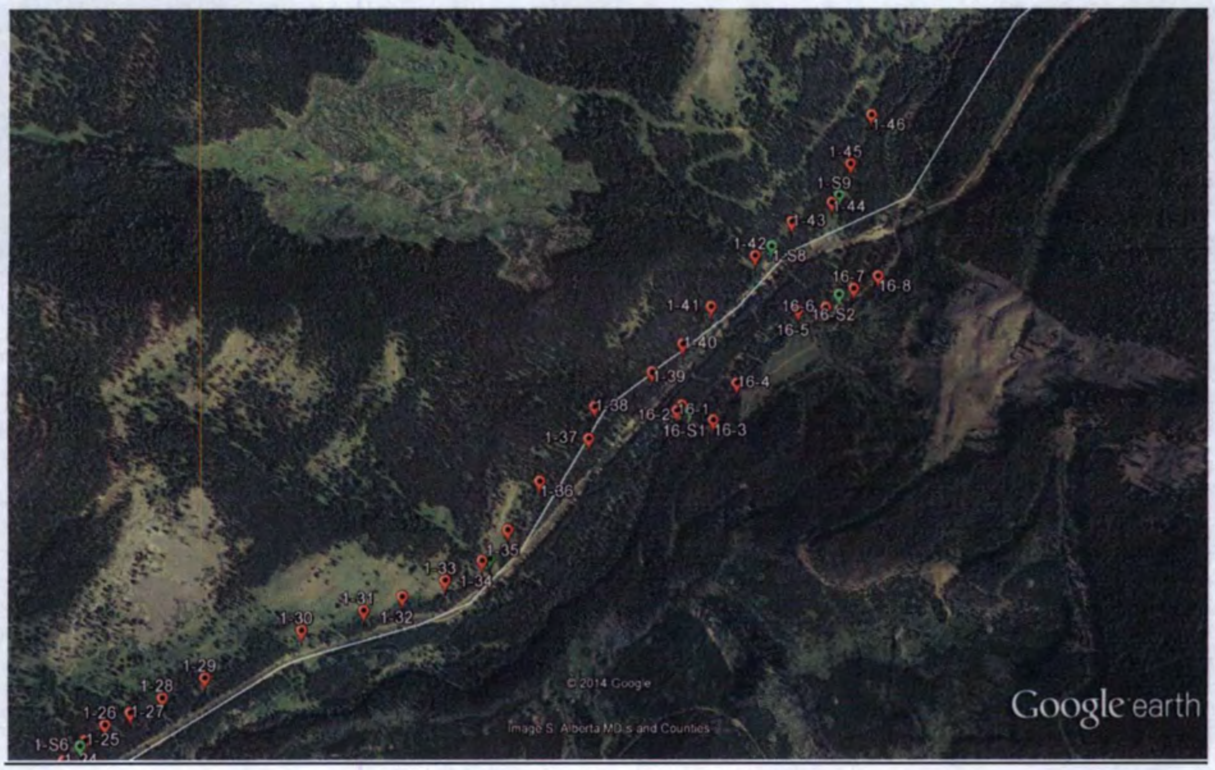
Exploration Area North East Section



Exploration Area Central Section

Exploration Area South West Section

Exploration Area South Central Section



Exploration Area South East Section

Discussion

The area of exploration was suggested in interviews with a local prospector who worked in the general vicinity over decades. Mike Czech had a large number of potential prospects developed over many years and advancing age was making it obvious that he would never be able to follow-up on many of them. The author and his partners were lucky enough to have been friends with Mike and he was always forthright and candid about his opinions on the exploration potential of the area. Over the years the information that Mike shared was evaluated and found to be dependable if somewhat vague due to years passing and the weight of data preserved largely in memory for so many prospects.
Nevertheless, the leads that Mike passed on for our area of interest were found to be accurate as to details of topography and general location and even though no deposit was found during this program sufficient information was gathered to indicate that the area does have the potential to host the type of mineralization that Mike had found and that there are hints at a local anomaly with quartz infilling the local country rock. The program has identified obvious target areas for continuing work.
Of the samples taken most were based on what the operator of the Goldspear determined to be higher concentrations of signals and for the entirety of the program those signals were of the low conductive oxide type. The average sample over a wide area shows essentially the breakdown minerals from the volcanics including heavy mineral black sand with most being magnetic or the black melanite garnet found throughout the volcanic country rock.
Only one signal area (1-S7) gave a positive native metals signal but panning determined it to be man-made metals from welding and grinding for some sort of repair work on equipment.
Two samples on the same line (4-S1 and 4-S2) gave oxide mineral signals indicating relatively high concentration but on panning were not above average for the area. This area will be sampled again to see if something not obvious contributed to the signal. Higher iron content garnet for instance might be conductive enough but bench testing did not find anything particularly anomalous with the recovered garnet.
Three test pits were dug to simply duplicate exactly what Mike indicated he had done and in areas that matched what he had described. He had dug some shallow pits to get below the organic layer and sample the underlying loose sediments. The three test pits done as part of this program duplicated that effort with the added benefit of using the Goldspear to test the pit as it was dug to see if anything was indicated. All three pits were shallow and easily backfilled and neither panned samples or the Goldspear gave anything but results considered average for the area. Pits were dug through the a thin top soil and into the soils below that were made up exclusively of weathered volcanic rock. No attempt was made to do anything other than duplicate Mike's described effort, so pits were between 1 and 1.5 metres deep. Pit sites were chosen for not only their location as indicated by Mike but also for their likelihood to have a depth of sediment to work on. There are many large rocks and bedrock is shallow in many areas so avoiding that was part of Mike's and our approach. There was no sign that we were in the exact spot Mike did his work. Time and logging efforts in the area have changed things too much.
Two samples (8-S2 and 12-S2) gave low level native metal readings. This type of signal is borderline conductivity between metallic oxides/sulphides and native metal and does have some potential for false readings going either way. Panned samples however showed fine silver white to grey particles with a metallic luster and the appearance and Specific Gravity characteristics of galena. The particles are generally very very small – from 2 mm and ranging down to the approximately 150 microns and only one was sufficient size (4mm) to do a streak test and then a fusion on charcoal blowpipe test. Streak was proper for galena and the fusion gave a small grey/silver metallic bead with a faint yellow blush of colour around it on the surface of the charcoal. That result is consistent with a lead sulphide so for the time being galena is considered the likely identification. Follow-up sampling should give enough samples to carry out work at a commercial lab to get a definitive result.

The volcanic rocks showing quartz infilling found in oversize were taken on the last day of the program thereby confirming Murphey's Laws of Exploration. i.e. The area of exploration will be found on the edges of two or more adjoining map sheets. In this case the rule would be that some of the most interesting results are obtained on the last day of the program. Three hand samples were recovered solely based on slight colour and textural differences and it was not until the end of the day on the last day of the program as time, budget and weather brought the program to a halt that closer examination revealed the quartz blebs in the volcanic host rock. First thoughts were that the infilling was calcite but an acid test showed no carbonate reaction. More detailed examination under higher magnification and with flat sawn and polished slabs shows extensive quartz invasion of the country rock. While examination of the recovered samples is ongoing that area will be a focus in upcoming exploration programs. The valley there pinches in to some extent and there could be contribution from either side of the valley or from upstream in the drainage that was being sampled. Closing in on potential source direction will be a first priority. Using the recovered rocks as type samples, reconnaissance up drainage will give a quick understanding of where the material could be coming into the system. If it is established that the quartz rich rocks are not from a distance upstream then attention will turn to searches for float along the mountains to either side beginning with the furthest upstream location that the quartz float can be found.

Conclusions

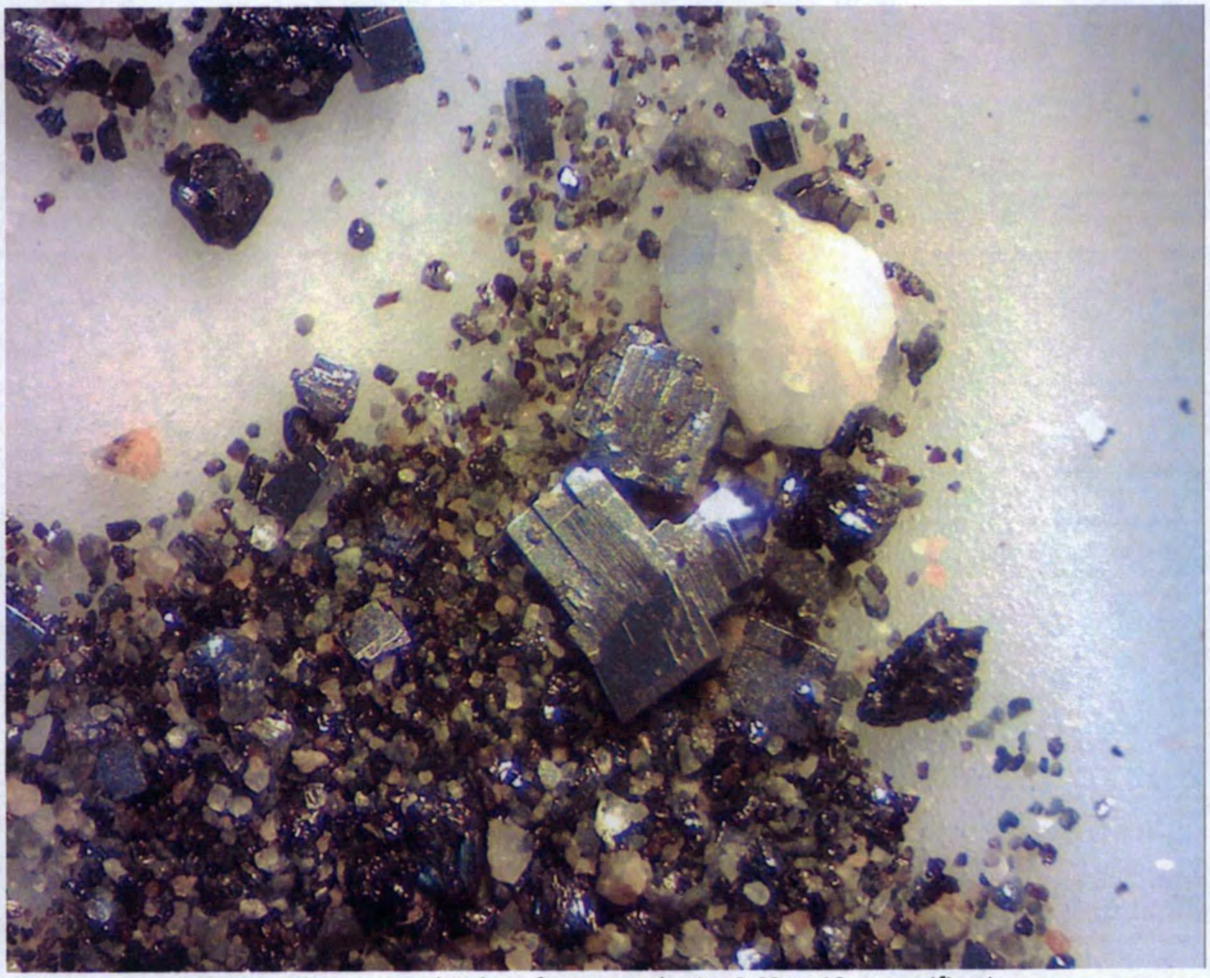
The intent of this program was to carry out an area examination in the vicinity of a suspected mineral location. The use of a specialized detection system allowed a broad area to be examined for obvious metallic minerals as native metals occurrences that shed metallic mineral grains of 74 microns and larger. The detection system has merit though no metallic minerals as metals were detected in this survey.

There was, however, some success in locating metallic minerals as sulphides after two surface sediment samples gave very low level metallic signals. On panning they were found to have fine grains of a heavy silver/white to grey metallic looking mineral. Galena was suspected and a tests for lead with sulphur was positive (obvious SG, streak, appearance and blowpipe on charcoal made fused lead looking bead with a yellow blush surrounding fusion) so for now the working premise is that its galena. More samples are needed to obtain sufficient sample for more complete testing.

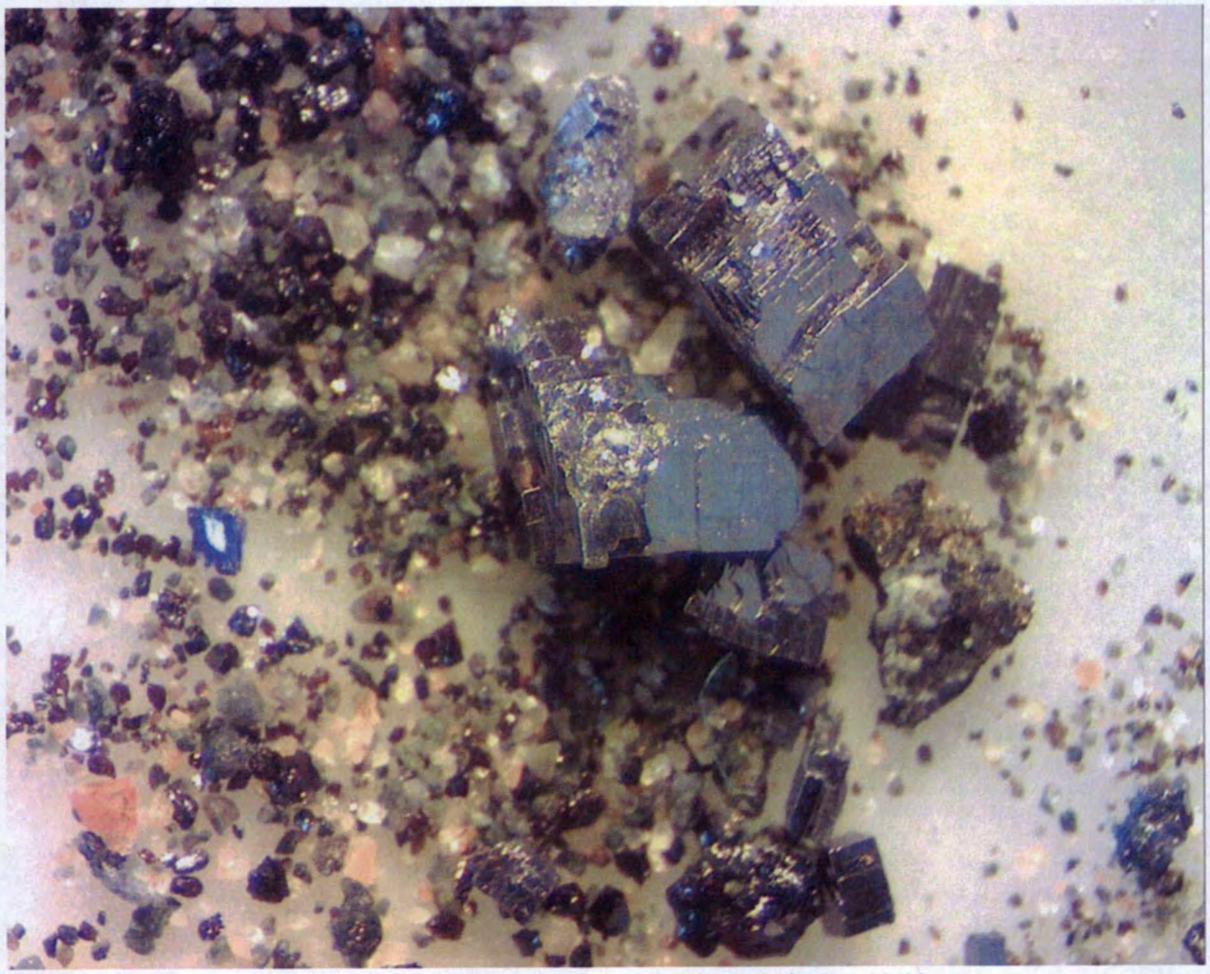
Prospecting did detect anomalous quartz rich country rock. The country rock being volcanic in origin this type of quartz mineralization appears to have come in as an infilling sequence and offers an interesting hint at potential mineral deposit formation linked with the quartz infiltration into the volcanic country rock.

The quartz rich volcanic rocks were recovered during field sample preparation in the oversize screened fraction and follow up work will need to be done to try to track a source of origin. The first samples were anomalous visually and therefore set aside in the field but it was not until further work on sawed samples with microscope support that the true nature of the samples was determined. Follow-up field work in the discovery location will be part of the next exploration phase.

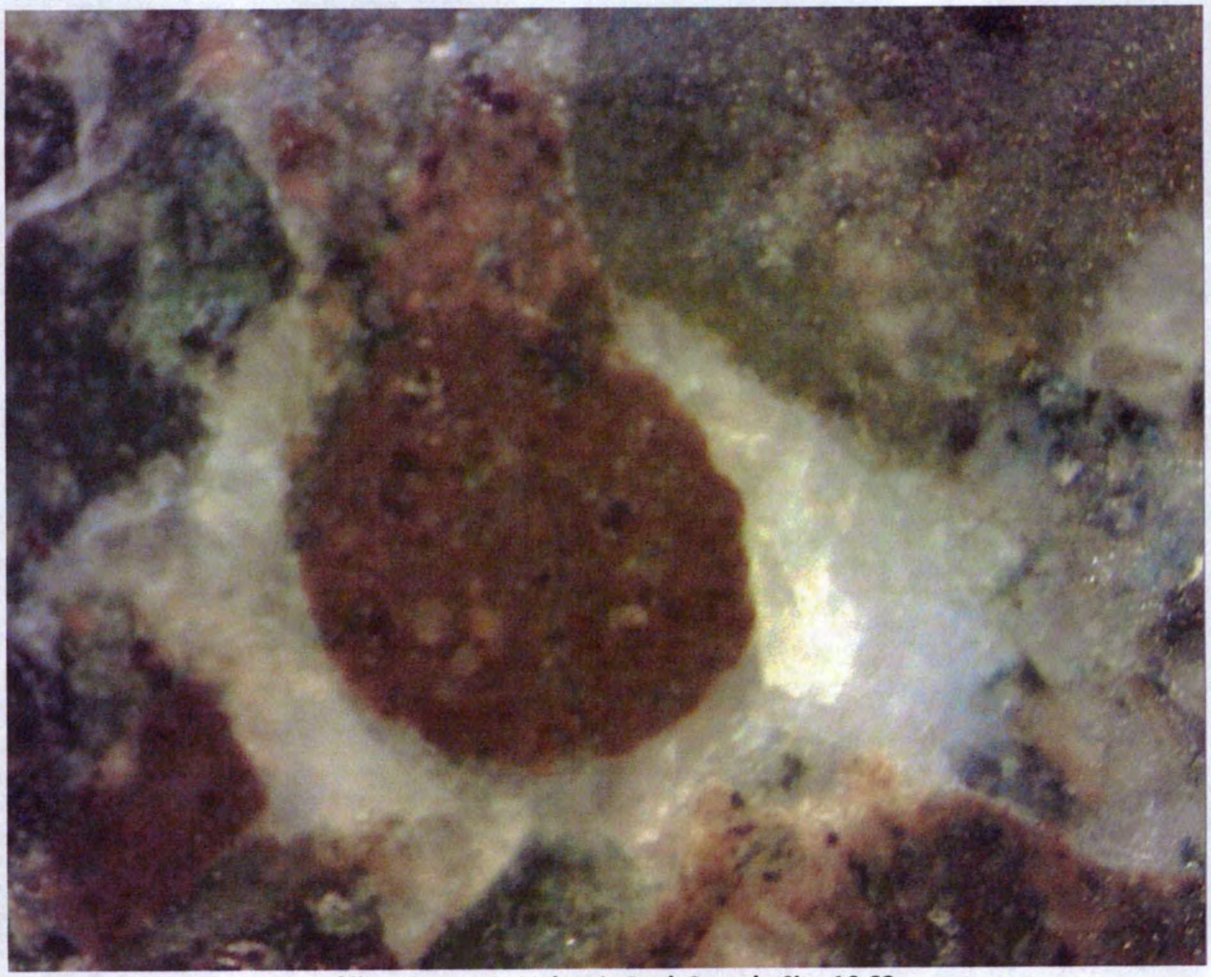
Work in the late 1980's indicated that there was a link between sulphides and gold. There may also be a link between sulphides in quartz and gold as well as other metallic minerals as sulphides including the suspected galena found during this program. The data from this program will serve to target specific areas for future exploration.



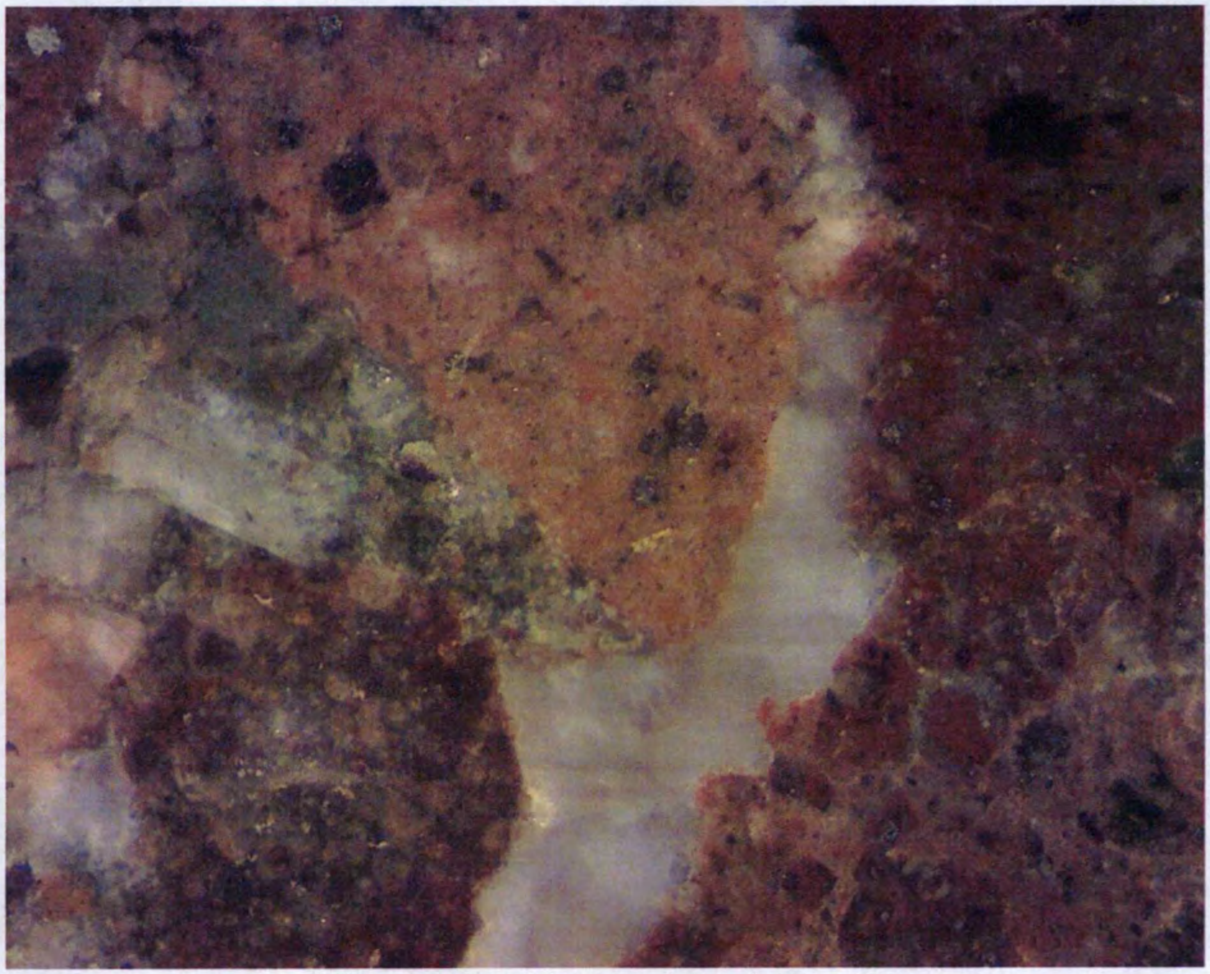
Photograph Suspected Galena from sample site 8-S2 at 12x magnification


Photograph of Suspected Galena From Sample Site 12-S2

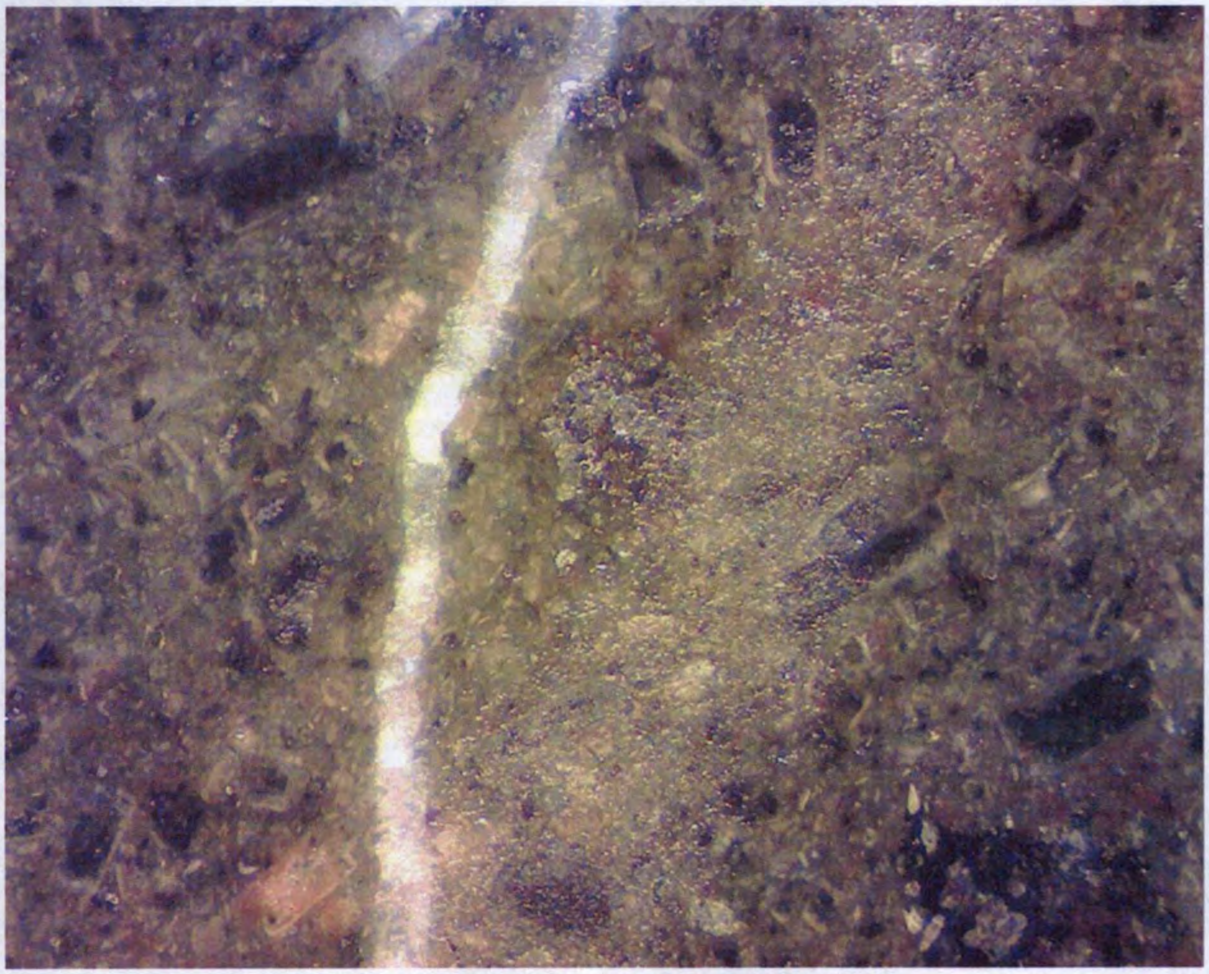
Infilling Quartz in Volcanic Rock Sample Site 16-S1



Infilling Quartz in Volcanic Rock Sample Site 16-S2



Infilling Quartz in Volcanic Rock Sample Site 16-S2



Infilling Quartz in Volcanic Rock Sample Site 16-S2

Recommendations

The two significant results from the survey should be followed up as soon as weather permits. The suspected galena grains roughly match with the historic exploration story from Mike Czech and now that the nature of the signal has been evaluated the area should be tested using the Goldspear on a tighter grid with the intent of tracking back to source.

The quartz in volcanics samples offer some potential for an expanded depositional model in the area and work on the recovered field samples will continue in an effort to gain as much knowledge about the nature of the deposit and where it might be in relation to where the float samples were found.

__LIST OF SURVEY LINE STATIONS AND SAMPLE SITES__

STATION ID	LATITUDE	LONGITUDE	COMMENTS
1-1	49°48'9.32"N	114°33'48.70"W	
1-2	49°48'9.06"N	114°33'46.66"W	
1-3	49°48'8.81"N	114°33'42.93"W	
1-4	49°48'9.07"N	114°33'37.90"W	
1-5	49°48'9.78"N	114°33'33.50"W	
1-6	49°48'10.80"N	114°33'31.53"W	
1-7	49°48'11.59"N	114°33'29.84"W	
1-8	49°48'12.52"N	114°33'27.17"W	
1-9	49°48'13.18"N	114°33'25.16"W	
1-10	49°48'14.41"N	114°33'22.88"W	
1-11	49°48'15.85"N	114°33'20.55"W	
1-12	49°48'16.78"N	114°33'18.83"W	
1-13	49°48'18.09"N	114°33'17.60"W	
1-14	49°48'18.62"N	114°33'14.77"W	
1-15	49°48'19.59"N	114°33'13.33"W	
1-16	49°48'19.60"N	114°33'11.61"W	
1-17	49°48'20.25"N	114°33'9.69"W	
1-18	49°48'20.94"N	114°33'8.27"W	
1-19	49°48'22.08"N	114°33'6.40"W	
1-20	49°48'22.83"N	114°33'3.19"W	
1-21	49°48'25.11"N	114°32'59.78"W	
1-22	49°48'26.41"N	114°32'57.84"W	
1-23	49°48'26.86"N	114°32'55.63"W	
1-24	49°48'27.07"N	114°32'53.08"W	
1-25	49°48'28.19"N	114°32'51.11"W	
1-26	49°48'29.07"N	114°32'49.32"W	
1-27	49°48'29.70"N	114°32'47.13"W	
1-28	49°48'30.48"N	114°32'44.31"W	
1-29	49°48'31.54"N	114°32'40.60"W	
1-30	49°48'34.09"N	114°32'32.06"W	
1-31	49°48'35.13"N	114°32'26.55"W	
1-32	49°48'35.90"N	114°32'23.10"W	
1-33	49°48'36.78"N	114°32'19.28"W	
1-34	49°48'37.87"N	114°32'15.99"W	
1-35	49°48'39.63"N	114°32'13.64"W	
1-36	49°48'42.43"N	114°32'10.72"W	
1-37	49°48'44.83"N	114°32'6.35"W	
1-38	49°48'46.68"N	114°32'5.78"W	
1-39	49°48'48.61"N	114°32'0.61"W	

1-40	49°48'50.28"N	114°31'57.79"W	
1-41	49°48'52.41"N	114°31'55.18"W	
1-42	49°48'55.37"N	114°31'51.11"W	
1-43	49°48'57.31"N	114°31'47.74"W	
1-44	49°48'58.43"N	114°31'44.04"W	
1-45	49°49'0.65"N	114°31'42.32"W	
1-46	49°49'3.45"N	114°31'40.40"W	
2-1	49°48'11.42"N	114°33'45.88"W	
2-2	49°48'12.46"N	114°33'44.49"W	
2-3	49°48'13.80"N	114°33'44.15"W	
2-4	49°48'15.02"N	114°33'44.80"W	
2-5	49°48'15.46"N	114°33'42.69"W	
2-6	49°48'16.41"N	114°33'41.52"W	
2-7	49°48'16.80"N	114°33'39.45"W	
2-8	49°48'16.51"N	114°33'38.28"W	
2-9	49°48'17.19"N	114°33'36.15"W	
2-10	49°48'17.43"N	114°33'34.24"W	
2-11	49°48'17.89"N	114°33'32.58"W	
2-12	49°48'19.21"N	114°33'30.31"W	
2-13	49°48'20.92"N	114°33'29.29"W	
2-14	49°48'22.01"N	114°33'29.26"W	
2-15	49°48'23.83"N	114°33'27.17"W	
3-1	49°48'23.46"N	114°34'0.44"W	
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3-4	49°48'20.96"N	114°33'52.71"W	
3-5	49°48'20.05"N	114°33'51.87"W	
3-6	49°48'19.05"N	114°33'50.62"W	
3-7	49°48'18.31"N	114°33'48.89"W	
3-8	49°48'18.61"N	114°33'47.52"W	
3-9	49°48'18.54"N	114°33'46.32"W	
3-10	49°48'18.44"N	114°33'44.30"W	
3-11	49°48'19.03"N	114°33'42.37"W	
3-12	49°48'19.13"N	114°33'40.75"W	
3-13	49°48'19.78"N	114°33'39.45"W	
3-14	49°48'20.34"N	114°33'37.51"W	
3-15	49°48'20.52"N	114°33'36.75"W	
3-16	49°48'21.80"N	114°33'34.69"W	
4-1	49°48'26.60"N	114°33'59.75"W	
4-2	49°48'26.94"N	114°33'56.85"W	

4-3	49°48'26.77"N	114°33'55.24"W	
4-4	49°48'26.40"N	114°33'52.29"W	
4-5	49°48'26.45"N	114°33'50.15"W	
4-6	49°48'25.69"N	114°33'46.33"W	
4-7	49°48'25.68"N	114°33'43.37"W	
4-8	49°48'25.75"N	114°33'41.14"W	
5-1	49°48'23.11"N	114°33'47.18"W	
5-2	49°48'22.97"N	114°33'45.59"W	
5-3	49°48'23.06"N	114°33'43.31"W	
5-4	49°48'23.69"N	114°33'42.16"W	
5-5	49°48'23.21"N	114°33'40.11"W	
5-6	49°48'23.01"N	114°33'38.44"W	
5-7	49°48'23.15"N	114°33'37.57"W	
5-8	49°48'23.66"N	114°33'37.19"W	
5-9	49°48'24.47"N	114°33'36.12"W	
5-10	49°48'25.48"N	114°33'35.64"W	
5-11	49°48'26.49"N	114°33'35.55"W	
5-12	49°48'27.42"N	114°33'36.27"W	
5-13	49°48'28.31"N	114°33'36.59"W	
5-14	49°48'29.36"N	114°33'36.16"W	
5-15	49°48'31.15"N	114°33'36.24"W	
5-16	49°48'32.60"N	114°33'34.87"W	
5-17	49°48'33.89"N	114°33'33.13"W	
5-18	49°48'35.06"N	114°33'32.50"W	
5-19	49°48'36.94"N	114°33'31.75"W	
5-20	49°48'39.25"N	114°33'31.31"W	
5-21	49°48'40.29"N	114°33'29.47"W	
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5-23	49°48'44.13"N	114°33'25.65"W	
5-24	49°48'45.34"N	114°33'24.71"W	
5-25	49°48'45.78"N	114°33'22.38"W	
5-26	49°48'46.81"N	114°33'22.12"W	
5-27	49°48'48.44"N	114°33'20.94"W	
5-28	49°48'49.89"N	114°33'20.30"W	
5-29	49°48'52.30"N	114°33'19.62"W	
5-30	49°48'53.67"N	114°33'17.00"W	
5-31	49°48'55.67"N	114°33'14.46"W	
6-1	49°49'33.28"N	114°33'43.70"W	
6-2	49°49'34.19"N	114°33'41.58"W	
6-3	49°49'35.39"N	114°33'36.63"W	
6-4	49°49'36.81"N	114°33'34.35"W	

6-5	49°49'38.18"N	114°33'31.40"W	
6-6	49°49'38.13"N	114°33'26.36"W	
6-7	49°49'38.16"N	114°33'22.50"W	
6-8	49°49'36.96"N	114°33'19.26"W	
6-9	49°49'37.75"N	114°33'14.30"W	
6-10	49°49'38.31"N	114°33'9.80"W	
7-1	49°49'38.51"N	114°32'56.73"W	
7-2	49°49'37.32"N	114°32'44.72"W	
7-3	49°49'37.34"N	114°32'38.89"W	
7-4	49°49'38.00"N	114°32'33.65"W	
7-5	49°49'37.85"N	114°32'28.86"W	
7-6	49°49'36.19"N	114°32'23.88"W	
8-1	49°49'33.98"N	114°33'16.06"W	
8-2	49°49'32.16"N	114°33'14.94"W	
8-3	49°49'30.80"N	114°33'16.56"W	
8-4	49°49'30.31"N	114°33'19.74"W	
8-5	49°49'30.21"N	114°33'21.11"W	
8-6	49°49'29.01"N	114°33'22.32"W	
8-7	49°49'28.13"N	114°33'23.17"W	
8-8	49°49'26.95"N	114°33'25.21"W	
8-9	49°49'25.45"N	114°33'27.73"W	
8-10	49°49'24.23"N	114°33'29.34"W	
8-11	49°49'23.42"N	114°33'30.21"W	
9-1	49°49'34.20"N	114°33'14.63"W	
9-2	49°49'34.28"N	114°33'12.12"W	
9-3	49°49'34.65"N	114°33'9.78"W	
9-4	49°49'34.91"N	114°33'7.68"W	
9-5	49°49'34.64"N	114°33'6.63"W	
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11-8	49°49'32.31"N	114°32'18.81"W	
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12-2	49°49'28.51"N	114°32'35.54"W	
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12-5	49°49'28.22"N	114°32'29.92"W	
12-6	49°49'26.78"N	114°32'28.30"W	
13-1	49°48'7.14"N	114°33'36.94"W	
13-2	49°48'7.60"N	114°33'35.95"W	
13-3	49°48'7.39"N	114°33'34.59"W	
13-4	49°48'6.90"N	114°33'33.68"W	
13-5	49°48'6.59"N	114°33'32.44"W	
13-6	49°48'6.71"N	114°33'31.90"W	
13-7	49°48'6.91"N	114°33'31.47"W	
14-1	49°48'9.39"N	114°33'27.57"W	
14-2	49°48'9.73"N	114°33'27.04"W	
14-3	49°48'9.92"N	114°33'26.65"W	
14-4	49°48'10.35"N	114°33'25.96"W	
14-5	49°48'10.11"N	114°33'25.42"W	
14-6	49°48'9.21"N	114°33'25.61"W	
14-7	49°48'8.76"N	114°33'26.02"W	
14-8	49°48'8.38"N	114°33'25.90"W	
14-9	49°48'8.25"N	114°33'25.48"W	
14-10	49°48'8.93"N	114°33'24.52"W	
14-11	49°48'10.01"N	114°33'23.59"W	
15-1	49°48'12.64"N	114°33'20.95"W	
15-2	49°48'13.04"N	114°33'20.06"W	
15-3	49°48'13.49"N	114°33'19.50"W	
15-4	49°48'13.94"N	114°33'18.85"W	
15-5	49°48'14.39"N	114°33'18.19"W	
15-6	49°48'14.52"N	114°33'17.31"W	
15-7	49°48'14.49"N	114°33'15.40"W	
15-8	49°48'14.88"N	114°33'13.90"W	
15-9	49°48'15.43"N	114°33'12.94"W	
15-10	49°48'15.94"N	114°33'12.59"W	
15-11	49°48'16.37"N	114°33'12.27"W	

15-12	49°48'16.64"N	114°33'11.18"W	
15-13	49°48'16.90"N	114°33'9.80"W	
15-14	49°48'16.87"N	114°33'6.96"W	
15-15	49°48'18.89"N	114°33'6.51"W	
15-16	49°48'20.11"N	114°33'4.87"W	
15-17	49°48'20.43"N	114°33'2.68"W	
15-18	49°48'20.36"N	114°32'58.38"W	
15-19	49°48'20.67"N	114°32'56.02"W	
15-20	49°48'20.99"N	114°32'54.10"W	
15-21	49°48'22.38"N	114°32'52.76"W	
15-22	49°48'23.62"N	114°32'51.95"W	
15-23	49°48'24.18"N	114°32'50.01"W	
15-24	49°48'24.49"N	114°32'46.76"W	
15-25	49°48'24.98"N	114°32'44.62"W	
16-1	49°48'46.36"N	114°31'58.43"W	
16-2	49°48'46.67"N	114°31'57.95"W	
16-3	49°48'45.77"N	114°31'55.21"W	
16-4	49°48'47.91"N	114°31'53.02"W	
16-5	49°48'52.14"N	114°31'47.32"W	
16-6	49°48'52.25"N	114°31'44.92"W	
16-7	49°48'53.31"N	114°31'42.42"W	
16-8	49°48'53.98"N	114°31'40.34"W	
SAMPLE LOCATIONS			
1-S1	49°48'8.91"N	114°33'42.50"W	Black sand
1-S2	49°48'9.44"N	114°33'35.84"W	Black sand
1-S3	49°48'9.59"N	114°33'34.88"W	black sand - minor pyrite
1-S4	49°48'11.68"N	114°33'29.34"W	Black sand - minor pyrite - garnet
1-S5	49°48'25.65"N	114°32'59.19"W	Black sand - significant garnet
1-S6	49°48'27.91"N	114°32'51.57"W	Black sand - minor pyrite - garnet
1-S7	49°48'37.97"N	114°32'15.32"W	Black sand - welding spatter - grinding waste
1-S8	49°48'55.91"N	114°31'49.58"W	Black sand - garnet
1-S9	49°48'58.85"N	114°31'43.37"W	Black sand - minor pyrite - garnet
3-S1	49°48'21.20"N	114°33'53.62"W	Minor Black sand - some garnet
4-S1	49°48'26.49"N	114°33'51.03"W	**BlackSand but minor compared to**

			signal
4-S2	49°48'25.98"N	114°33'47.90"W	**BlackSand but minor compared to signal**
5-S1	49°48'39.87"N	114°33'30.77"W	MC Prospect locality - average for area
5-S2	49°48'41.54"N	114°33'31.05"W	MC Prospect locality - average for area
5-S3	49°48'56.16"N	114°33'16.21"W	MC Prospect locality - average for area
8-S1	49°49'25.45"N	114°33'27.58"W	Black sand - minor garnet
8-S2	49°49'30.27"N	114°33'20.07"W	**Black sand - minor garnet - silver white sulphide?**
12-S1	49°49'28.30"N	114°32'34.83"W	Black Sand - garnet - silver white sulphide?
12-S2	49°49'28.37"N	114°32'33.65"W	**Black Sand - garnet - silver white sulphide?**
16-S1	49°48'46.34"N	114°31'57.26"W	**Alluvial concentration Black sand Silicious Float – 1 hand sample**
16-S2	49°48'52.99"N	114°31'43.71"W	**Alluvial concentration Black sand - Silicious Float – 2 hand samples**
TEST PITS			
P-1	49°48'41.43"N	114°33'37.68"W	4 cm organics - weathered vlcanics to 1.2 m
P-2	49°48'47.86"N	114°33'36.23"W	6 cm organic - weathered volcanics to 1.5 m
P-3	49°48'58.27"N	114°33'21.35"W	4 cm organics - weathered volcanics to 1.5 m

Statement of Qualifications

I, Tom Bryant, am the author of this report and either carried out the work detailed herein or caused that work to be done.

I am a mineral exploration and development professional with over 35 years of experience as prospector, project operator, public and private exploration company upper management and consultant to industry.

[redacted]

Tom Bryant

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