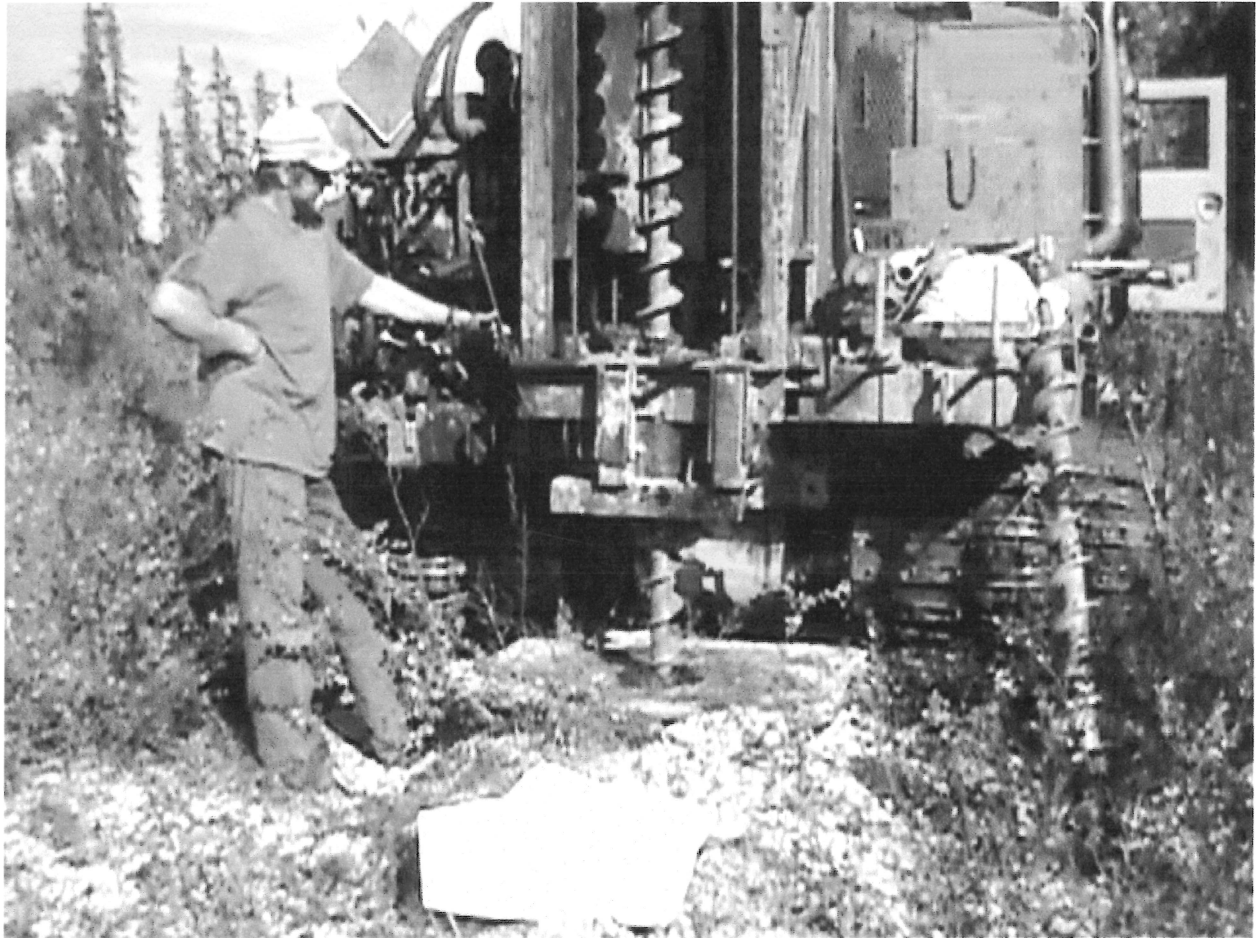


**Geological Assessment Report on the Placer Gold Occurrences on Hobo and Gem Creeks;**

**Comparative Heavy Minerals Concentrate Study**

120294



**Photo of Alluvial Drilling on Hobo Creek in September 2013, during the Author's Visit**

**Prepared By: Brian Lueck, P.Geo., APEGBC February 9, 2010**

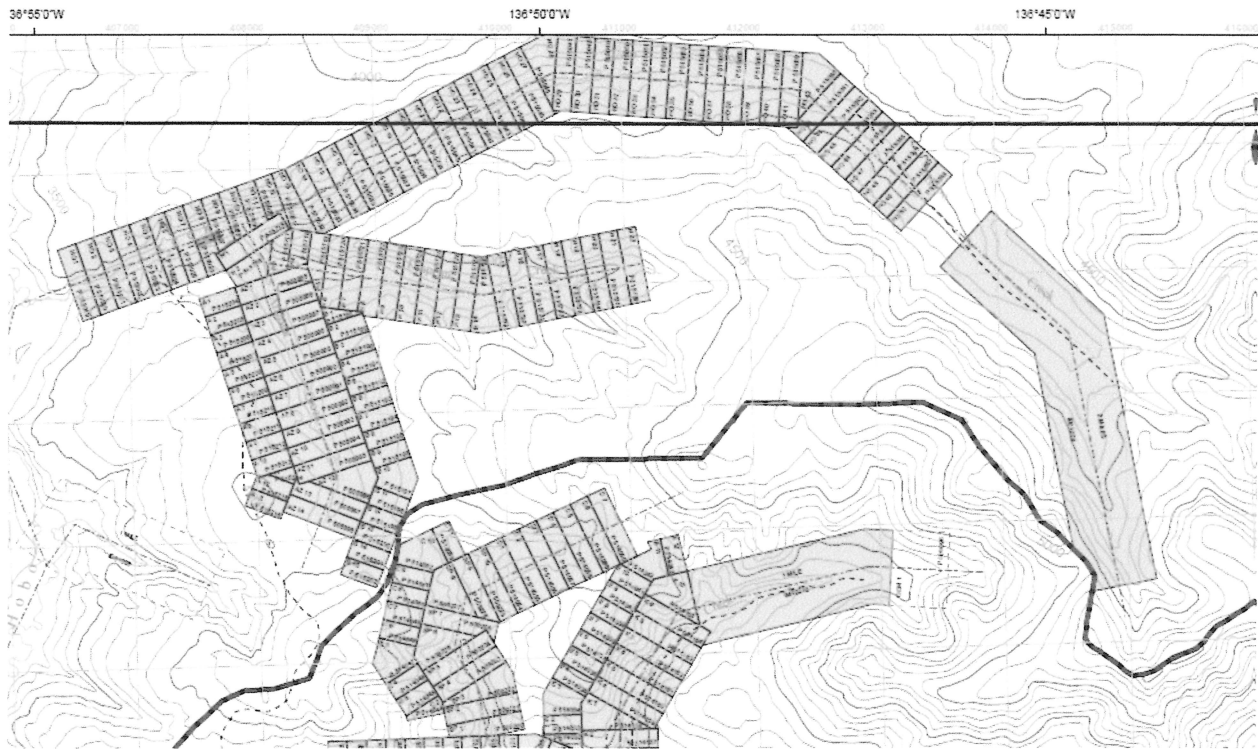
**Prepared For: 16406 Yukon Ltd.**

**For Assessment Purposes**



## Introduction

This study compares mineral pan concentrates collected on the upper reaches of both Hobo and Gem Creeks both located near the divide between the Dawson and Mayo Mining Districts on Map Sheet 115 P 15. Hobo Creek is situated within the Dawson Mining District and Gem Creek is situated in the Mayo Mining District.



**Map showing the location of the Placer Leases on upper Hobo and Gem Creeks (sheet 115 P 15)**

## Premise

Creeks draining Red Mountain have been historically mined for alluvial gold as evidenced by extensive old hand and machine worked ground and abandoned mining camps and equipment found on Hobo, Gem and Arizona Creeks. In the Dawson District, the lower reaches of Hobo Creek, Drapeau Creek and Arizona Creek were heavily mined by modern machinery. In the Mayo District, Gem Creek was also heavily mined by equipment. Both of these drainage systems drain a known gold deposit on Red Mountain. It is hypothesized that the source of the alluvial gold in both the Districts is sourced from the eroded portion of the hardrock gold deposit found on Red Mountain, and/or bench gravels derived from the same source.

This study compares heavy mineral pan concentrates from the area in terms of mineralogy and alluvial gold character, in order to get a better understanding of the source of the alluvial gold, and allow for more efficient exploration for the pay channels in the area.

### **Sampling Methodology**

The upper reaches of both Hobo Creek, covered by a 2 mile Placer Lease ID01009, and Gem Creek, covered by a 1 mile Placer Lease IM00210, were panned approximately every 500 feet, or where bedrock was visible. The panned concentrate samples were then collected in plastic bags. These samples for each lease were then combined into one composite sample for each of the two creeks. Each of the combined samples was then panned down to a final concentrate of approximately 100 grams in weight each.

The sampling on Hobo Creek occurred between the elevations of 4000ft to 4700ft, and the sampling on Gem Creek occurred between the elevations of 3500ft to 4000ft.

As well, samples of sluice box concentrate were collected from Arizona Creek and lower Gem Creek in order to compare the mineralogy of the proven pay streaks to the mineralogy of the gravel on the upper reaches of the drainage area. The concentrate collected on Arizona Creek was derived from mined gravels at an elevation of 3500ft, and the concentrate collected on Gem Creek was from mined gravels at an elevation of 3400 ft.

### **Sample Preparation and Analysis**

The collected samples were dried and weighed and then screened to leave only +40 mesh for mineral analysis. Some very fine gold was present in the -40 mesh which was viewed under magnification. Magnetite was separated using a standard miner's magnet. The none-magnetic fraction was then analyzed under magnification and the various mineral constituents separated and weighed. Scheelite was determined by color, cleavage and finally by using an ultraviolet light. Cassiterite was determined by its density and brown woody character. Garnet was determined by its crystal shape and color. Pyrite was determined by its crystal structure, color, cleavage and reflectivity. Zircon was determined by its clarity, density and refractive index. Gold was determined by its density, color and reflectivity. All other minerals occurred in insignificant amounts.

The various constituents were separated and weighed to determine their percent distribution by weight.

## Results

The results of the heavy mineral concentrate analyses are as follows:

Sample	Hobo Creek		Upper Gem Creek		Arizona Creek		Lower Gem Creek	
	weight	percent	weight	percent	weight	percent	weight	percent
Sample +40 mesh	82 grams	100	64 grams	100	50 grams	100	50 grams	100
Magnetite	47 grams	57.3	35 grams	54.7	12 grams	24	14 grams	28
Scheelite	16 grams	19.5	13 grams	20.3	22 grams	44	21 grams	42
Cassiterite	7 grams	8.5	4 grams	6.3	10 grams	20	9 grams	18
Pyrite	6 grams	7.3	6 grams	9.4	2 grams	4	1 gram	2
Zircon	2 grams	2.4	2 grams	3.1	2 grams	4	1 gram	2
Garnet	2 grams	2.4	3 grams	4.7	2 grams	4	3 grams	6
other unidentified	2 grams	2.4	1 gram	1.6	2 grams	4	2 grams	2
Gold	trace		trace		trace		trace	

Each fraction was weighed to the nearest gram after separation. Gold weights were in milligrams and do not form a significant part of the overall mineralogical percentages, however, it is of note that all of the gold has a very high fineness (estimated at 95 fine or greater) based on nitric acid tests of the gold grains.

Other trace constituents were only partly identified as likely to be ilmenite and chromite.

## Discussion



**The View of Red Mountain from the Benches between Arizona and Gem Creeks**

The mineralogy of the pan concentrates or heavy minerals found in the creeks draining Red Mountain is a fairly unique suite consisting predominately of magnetite, scheelite and cassiterite with other more minor constituents. This is typical of gold bearing creeks draining intrusive bodies of the Tombstone Suite such as Dublin Gulch and Hyatt Creek.

As well, the high fineness of the gold (95+) is unique to this area and is consistent for all the creeks tested that drain the Red Mountain intrusive.

The drainages around Red Mountain are surrounded by many levels of old alluvial bench gravels which occur at many different elevations between 4700ft and 3500ft in elevation. These benches contain well washed gravels derived from the local rocks in the area. The age of these benches is unknown but they may correlate with the age of the White Channel gravels found in the Klondike and may even be older.

The high fineness of the gold may also be explained by the presence of these high bench gravels, because theoretically, the long period of time that the gold remained in the bench gravels could have caused the silver to leach out of the grains leaving a very high gold to silver ratio in the ancient grains.



**Photo shows exposure of bench gravels found above Hobo and Arizona Creeks sitting on bedrock**

The bench gravels in the area are likely formed by rivers and streams which drained Red Mountain in the past and deposited alluvial gold along with other intrusive derived minerals such as scheelite and cassiterite. These bench gravels were then further eroded into the current stream profile in the area forming the recent alluvial gold deposits which have been exploited in the area.

The bedrock on Hobo, Gem, Arizona and Drapeau Creeks is largely shale with areas of quartzite. Neither of these rock units is known to host gold deposits associated with tungsten and scheelite, however, these types of gold deposits are common in intrusives of the Tombstone Suite and a large low grade gold deposit hosted by the Red Mountain intrusion has been recently identified.



**Photo shows the airstrip on the gravel bench above Hobo Creek. This bench may be the source of the alluvial gold deposits found on Hobo and Arizona Creeks**

### **Conclusion**

The mineralogy of the heavy minerals found on upper Gem and Hobo Creeks is consistent with the gold bearing channels being derived from the erosion of gold bearing rocks from the Red Mountain intrusion. This is evidenced by the high percentage of scheelite and cassiterite in the pan concentrates derived from the creek gravels. As well, AM Gold Inc. through recent drilling has identified an approximate 2 million ounces of gold remaining in situ on Red mountain at the headwaters of Hobo and Gem Creeks.

The high fineness of gold in the area is of interest as it is unusual. It may be a result of the gold being of high fineness to begin with, in the hardrock deposit, but this would be unusual. It is more likely that this unglaciated and largely thawed area (free of permamfrost) underwent a long period of slow erosion which left the liberated gold grains in bench or high level gravels for extended periods of time. Meteoric waters could then slowly leach the silver from the gold grains leaving behind the current alluvial gold with extremely high fineness.

All of the gold bearing creeks in the area have the same mineralogical suite of heavy minerals which points to a common source. The sluice box concentrates from Arizona and Gem Creeks have a higher percentage of scheelite and cassiterite than that found in the upper level pan concentrates. This is likely due to the sluicing process itself which would preferentially select the higher density minerals like scheelite and cassiterite over magnetite. However, the mineralogical suites are essentially identical which would point to the hypothesis that all of the gold in the area is derived from the same source, namely the Red mountain intrusion. The gold was then deposited in high level bench channels before finally being eroded into the streams which make up the current drainage profile of Red Mountain.

The bench gravels are probably very important in the overall picture that led to the formation of the economic alluvial deposits, in the same way that the White Channel Gravels were important for the formation of the Klondike placer gold deposits. Extensive areas of bench gravels are present and these need to be carefully tested for bench channels which may be gold bearing. These bench gravels occur along all the creeks in the area including Hobo and Gem Creeks.

### **Summary**

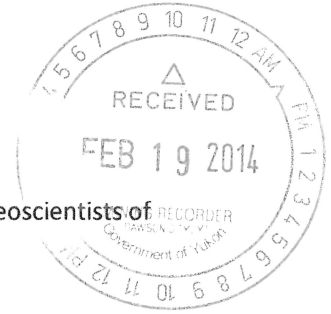
Upper Hobo and Gem Creeks contain a heavy mineral suite derived from the creek gravels which has a unique signature of containing high percentages of scheelite and cassiterite and high fineness gold. This suite is consistent with the exploited gold bearing gravels found at lower elevations on Gem, Hobo, Arizona and Drapeau Creeks.

It is hypothesized that these gold bearing gravels are derived from erosion of the Red Mountain intrusion which is known to host a hardrock gold deposit in the order of 2 million ounces.

The presence of extensive bench gravels found on the flanks of all creeks draining Red Mountain points to a long history of alluvial erosion, with the current gold bearing channels being derived from the bench gravels.




## Certificate of the Author



1. I, Brian Lueck am a member in good standing of the Professional Engineers and Geoscientists of British Columbia and am the author of this report.
2. I have been practicing my profession continually for over 25 years.
3. I am familiar with the area described in this report and was present in 2013 during the alluvial drilling program undertaken in the area.
4. I previously was active in test mining of Arizona Creek in the 1990's
5. The data presented in this report is true and accurate to the best of my knowledge.

I swear the contents of this certificate to be true this 25<sup>th</sup> day of January, 2014.

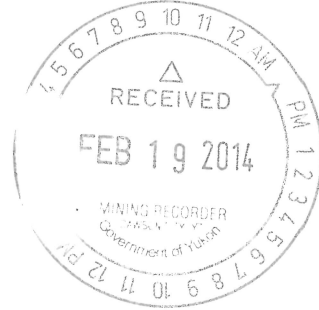
  
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Brian Lueck, P.Geol.



February 10, 2014

**Invoice**



**To: 16404 Yukon Ltd.**

**From: Brian Lueck, P.Geol.**

**For: Consulting work on Placer Leases in the Dawson and Mayo Mining Districts:**

2 Mile Placer Lease on Hobo Creek (Placer Lease ID01009) in the Dawson Mining District

And

1 Mile Placer Lease on Gem Creek (Placer Lease IM00210) in the Mayo Mining District

Note: There was twice the amount of pan concentrate samples collected from the Hobo Creek lease than from the Gem Creek Lease

**Total Invoice for professional services:**

**\$3000.00**

This invoice is due and payable upon receipt.

Signed:

  
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**Brian Lueck, P.Geol.**

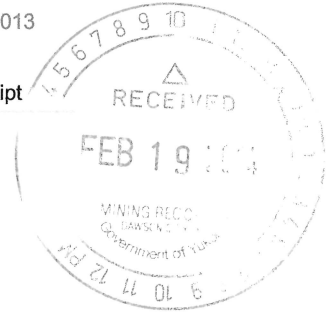


# Invoice

Tom Morgan

Bag 7080  
Dawson City, YT Y0B 1G0  
867-335 7027

Date: November 1, 2013  
Invoice #: 7 2013  
Payment Terms Due upon receipt



To: 16406 Yukon Inc.  
Bag 7080  
Dawson City, YT Y0B 1G0  
867-335 7027

Job

Sampling on Hobo (ID01009) and Gem (IM00210) Creek Leases

## Work description

Collecting pan concentrate samples with B.Lueck

Days	Description	Unit Price	Line Total
	<b>ID 01009 Hobo Creek</b>		
	<b>Sept 12 - 13,2013</b>		
2	Tom Morgan @ \$500 / day	\$ 500.00	\$ 1,000.00
	Total of 18 pan concentrate samples collected for composite sample to be analysed		
	Total work on lease		\$ 1,000.00
	<b>IM 00210 Gem Creek</b>		
	<b>14-Sep-13</b>		
1	Tom Morgan @ \$500 / day	\$ 500.00	\$ 500.00
	Total of 9 pan concentrate samples collected for composite sample to be analysed		
	Total work on lease		\$ 500.00