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Ministry of Energy, Mines & Petroleum Resources Mining & Minerals Division BC Geological Survey

Assessment Report Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Technical, Geochemical

TOTAL COST: \$2,638.75

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| ROPERTY NAME: Copper Claim Group | | |
| LAIM NAME(S) (on which the work was done): Copper 1, Copper 2, | Copper 3, Copper 4, Cop | per 5, Copper 6, Copper West |
| | | |
| COMMODITIES SOUGHT: Copper, Molybdenum, Gold, Silver, Zinc | , Cadmium | |
| IINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: | | |
| INING DIVISION: Vancouver | NTS/BCGS: 082L.02 | 2 and 082L.03 |
| ATITUDE: <u>49</u> ° <u>42</u> <u>'45</u> " LONGITUDE: <u>122</u> | <u> </u> | (at centre of work) |
| WNER(S): | 2) | |
| Billiken Gold Ltd. | _ 2) | |
| AILING ADDRESS: 561 Glenmary Road | | |
| Enderby, BC V0E1V3 | | |
| PERATOR(S) [who paid for the work]: | 1940 - 1 | |
| Billiken Gold Ltd. | 2) | |
| AILING ADDRESS: 561 Glenmary Road | | |
| Enderby, BC V0E1V3 | | |
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10761, 11121, 11679, 13028, 33960

Next Page

| THIS REPORT | (IN METRIC UNITS) | ON WHICH CLAIMS | APPORTIONEI (incl. support |
|--|-------------------|---|-------------------------------|
| GEOLOGICAL (scale, area) | | | |
| Ground, mapping | | | |
| Photo Interpretation | | | |
| GEOPHYSICAL (line-kilometres) | | | |
| Ground | | | |
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| DRILLING (total metres; number of holes, size | 9) | | |
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| RELATED TECHNICAL | | | |
| Sampling/assaying | | - | |
| Petrographic | | | |
| Mineralographic | | | |
| Metallurgic | | | |
| PROSPECTING (scale, area) | | | |
| PREPARATORY / PHYSICAL | | | |
| Line/grid (kilometres) | | | |
| Topographic/Photogrammetric (scale, area) | 1 | | |
| Legal surveys (scale, area) | | | |
| Road, local access (kilometre | s)/trail | | |
| Trench (metres) | | | |
| Underground dev. (metres) | | | |
| Other | | | |
| | | TOTAL COST: | \$2,638.7 |
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BC Geological Survey Assessment Report 34772

Sampling Report

on the

Pilot Soil / Till

Heavy Metal Concentrating Program

on the

Copper Claim Group

for Billiken Gold Ltd.

Tenure #'s 928859, 928858, 928856, 928851, 928846, 1016388 and 1023727.

Vancouver Mining Division

British Columbia

N.T.S. 082L.022 and 082L.023

49° 42' 45" N, 122° 55' 12" W

10U 505767 E, 5506669 N

Event Numbers: 5486439 and 5486670

Owner: Billiken Gold Ltd.,

561 Glenmary Road, Enderby,

BC, V0E 1V3

Operator: Billiken Gold Ltd.,

Contractor: Billiken Gold Ltd.,

Author: Eugene A. Dodd, Project Manager

Date: March 15, 2014

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<u>Summary</u>

The Copper claims are "underlain by quartz diorite of the coast range batholith within which is a nonplutonic pendant that has been metamorphosed and granitized into a granodiorite. The pendant is the host rock for the widespread copper and molybdenum mineralization that occurs on the property. Faults and fractures strike in four directions (N30W, N75E, N30E and S70E). Within the mineralized zone occur the following types of alteration; pyrite, chlorite, epidote and K - feldspar. The mineralization which seems to be related to the fractures and faults, is in the form of chalcopyrite, malachite, molybdenite, chalcocite and bornite and occurs as disseminations, splashes, and fracture fillings within the granodiorite" (David G. Mark P.Geo.,) ARIS Report # 4,467.

The property is comprised of seven mineral tenures covering 1,253.38 hectares located on the northeast side of the Mamquam River approximately 13 air km east of Squamish, British Columbia. Access to the property is easily gained by two wheel drive vehicle via a series of rough but solid based logging roads.

Exploration on the Mamquam River property began in the early 1970's and has continued intermittently until present. Since the original staking of the Lori claims in 1970 and 1971 several meaningful programs have been conducted on this property, all yielding positive results. Most of the programs were successful in further delineating the copper and molybdenum mineralization and have all culminated in repeated recommendations of diamond drilling.

The purpose of this sampling program was to try and determine whether a package of rocks exposed in a recently constructed road cut are gold bearing. These rocks look very similar to the Gambier group roof pendant found on the War Eagle / Slumach occurrences located at the headwaters of the Indian River. The War Eagle and Slumach are situated about 10 km south west of Tenure # 1023727. This freshly exposed roof pendent is highly prospective for both Gold Quartz Vein and VMS deposits similar to the world class Britannia Mine.

A total of 4 HMC Traverse samples and 1 HMC spot sample were gathered from soil on the high side of this fresh road cut. This by pass road has been built for the run of the river project presently being constructed on Skookum Creek.

The program was successful in further adding to the evidence that there is a possibility of a nearby gold deposit. This new area of interest will be followed up with further exploration next summer including sampling of the rocks exposed in this road cut. This preliminary target is in an area downslope of known gold values (8950 ppm and 6380ppm) on the old Ana Claims. A follow up program will hopefully develop a dispersal plume that can lead to a blind or semi blind copper / gold deposit.

Sampling Report

on the

Pilot Soil / Till

Heavy Metal Concentrating Program

on the

Copper Claims

Vancouver, M.D.

Mamquam River Area, British Columbia

Introduction

This report covers the pilot geochemical sampling program conducted during the month of November 2013 by Billiken Gold Ltd on their Mamquam River Copper claims. The claims are situated on the north side of the Mamquam River near Squamish, British Columbia.

The current project was designed to determine if this new exposure of Gambier Group roof pendant is worthy of the high cost of further geochemistry, geophysics and or trenching and drilling. An HMC program was carried out in an attempt to add gold value to the property by testing the Gambier Group and to further confirm the gold values previously established on the old "Ana" claims.

The soil / till HMC samples were not widespread and were gathered to try and find evidence of gold on the property by sampling the recently discovered Gambier Group. A total of 4 HMC Traverse samples and 1 HMC spot sample were gathered from soil on the high side of this fresh road cut.

The bibliography cites the works from which information was gathered to compile the data base of this area and the writing of this report. I have worked on the property and in this area many times over the past 40 years.

Physiography

The Mamquam Property lies at the western edge of the major physiographic region known as the Pacific Ranges which comprise the southern portion of the Coast Mountains. The claim group is steep and rugged at higher elevations with moderate to very steep slopes occurring along the Mamquam River. Elevation on the property varies between 500 m along the Mamquam River to a high of 1440 m on the northeast end. Several good sized creeks transect the property and drain from the north or northeast down to the Mamquam River. Martin Creek cuts through the eastern portion of the property and is at this time the main area of the known copper and molybdenum mineralization.

Most of the lower areas of the property can be quite easily traversed on foot but offer up little in the way of useful information as bedrock is completely masked by the overlying soil and till. The upper portions of the property can only be worked during ideal weather conditions as there are some dangerous cliffs. Travel on foot can at times be extremely hazardous especially when it is wet. Much of the property was logged and replanted in the early 1970's. The new trees that were planted are now about 50 to 80 cm in diameter at the butt.

The principal water source would likely be the Mamquam River or Skookum Creek; both are major drainages for the area. Crawford Creek situated at the south east end of the property is a major drainage and would also be an adequate source of water for mining purposes. Most of the claim block is well drained and is transected by several small creeks which would provide enough water for diamond drilling.

The area in general is quite sensitive environmentally as the Mamquam River drains into Howe Sound just south of Squamish. Industrial development has been permitted in the past as a run of the river power generation plant has been constructed downstream from the property on the Mamquam River and is being expanded at this time. Intensive clear cut logging, of all easily accessible timber in the Mamquam River basin, has also taken place over the last 40 years.

Location and Access

The property is located on the southwest coast of British Columbia approximately 50 km NNE of Vancouver and about 20 km northeast of the Britannia Mine. The claims are on the north and east sides of the Mamquam River approximately 13 air km east of Squamish, British Columbia. The property can be easily reached in a two wheel drive vehicle by turning east on the Mamquam Main logging road at the south end of Squamish and proceeding about 19 km up the Mamquam River.

Access to the interior of the property is gained via a series of old logging roads that are rough but otherwise in relatively good condition. The terrain is generally rugged but passable on foot in most places. There are many old logging roads on the property and most of them are overgrown with closely spaced immature Alder. The majority of these roads could easily be made passable with a small dozer.

Hillsides can become very steep at higher elevations on the property and extreme caution must be taken coming downhill, in a straight line, because of cliffs hidden by trees and brush. The Alder, at times is so thick on the old roads that it makes travel along them on foot very difficult, often you find it easier to travel just above or below the road than on the road itself. Heavy rainfall at times can render parts of the property unsafe to travel on by foot because of the slippery logs and vegetation. Rubber caulk boots are highly recommended when everything is soaking wet.





Copper Claim Group

| Tenure Number | <u>Type</u> | <u>Claim Name</u> | <u>Good Until</u> | <u>Area</u> (ha) |
|----------------|-------------|-------------------|-------------------|------------------|
| <u>1023727</u> | Mineral | COPPER WEST | 20161111 | 20.8869 |
| <u>1016388</u> | Mineral | COPPER 6 | 20170128 | 104.4913 |
| <u>928859</u> | Mineral | COPPER 5 | 20160110 | 83.5832 |
| <u>928858</u> | Mineral | COPPER 3 | 20151110 | 104.4348 |
| <u>928856</u> | Mineral | COPPER4 | 20151110 | 459.4988 |
| <u>928851</u> | Mineral | COPPER 1 | 20171110 | 125.3481 |
| <u>928846</u> | Mineral | COPPER 2 | 20151110 | 355.1509 |

Figure 1 - Table 3 Claim Information

Total Area: 1253.394 ha

Claim Information

The above noted expiry dates are dependent on this work program being accepted for assessment credit. The property consists of 7 contiguous claims covering an area of 1253.394 ha. The claims are situated within the Vancouver Mining Division on NTS Map sheet 92G/10. The center of the property is located at approximately 49° 42' 45" N, 122° 55' 12" W or 10U 505767 E, 5506669 N.

The claims are registered to Eugene Dodd and are held in trust for Billiken Gold Ltd. of Enderby British Columbia.

Mining History

Although, the Squamish area is host to a large number of mineral deposits and showings, the largest deposit, known as the Britannia Mine, was of the greatest importance to the economy of British Columbia through most of the last century. Many smaller deposits exist in the area but none have so far proven to be economically viable.

The Britannia Mine located 22 km southwest of the Copper claims was the largest producing copper mine in the British Empire. The mine operated for over 70 years and produced 53.63 million tons of ore grading: 1.15 % copper, 0.65 % zinc, 0.2 oz / ton silver, and 0.02 oz / ton gold.

Total production amounted to: 299 kg of gold, 180,438 kg of silver, 516,743,031 kg of copper (over 1 billion pounds) and 444,806 kg of cadmium. The Britannia Mine employed 60,000 people representing 50 nationalities.

History of Previous Relevant Work in the Area

A complete history of previous work can be found in ARIS Report # 33,960 which is a compilation report written by myself on the Copper claim group in January of 2013. The abbreviated historical information in that report should serve as a guide only and the listed original reports should be consulted for a more complete picture of previous work done.

Property Geology

The following geology was taken from Mr. P. M. McAndless November 6, 1973 report (<u>ARIS Report # 4,916</u>). For Noranda Exploration Company Ltd.

"The Mamquam property is underlain by Coast Plutonic rocks including a quartz diorite - diorite complex, enclosed "pendants" and dyke swarms. The quartz diorite - diorite (13-10-6) complex is typically heterogeneous with no uniformity in grain size or in ratio of feldspathic to dark minerals. Several discontinuous andesite porphyry (4-10-1) and granite aplite (11-10-1) "dykes" occur in isolated swarms in the Plutonic rocks. (J.A. Roddick G.S.C. Memoir 335 – suggests that some of these dikes are possibly prebatholithic). A few substantial areas of non - granitic rocks including andesite, granulite, and migmatite occur on the south side of the Mamquam River. These possibly represent partially disintegrated pendants. Structural features including dikes, faults and fractures strike in two principal directions. Dyke swarms generally trend north while faults and dominant fractures strike north-east to east. Mineralized fractures range from 050 to 090 and dip moderately to the south.

Alteration is widespread and occurs in a zoned pattern. A large propylitic zone extending across the northern section of the property is overprinted by a 3500 by 1000 foot (1067 m by 325 m) core of intense potassic - silica alteration that occurs adjacent to and north of Martin Creek. Propylitic alteration varies from minor mafic chloritization to wholesale saussuritization and albitization. Chlorite - sericite gouge zones are restricted to fault areas. Quartz and orthoclase occur primarily as fracture - filling constituents. Mineralization occurs predominantly on fractures and includes pyrite, chalcopyrite, molybdenite, bornite and malachite. Pyrite is ubiquitous although particularly evident in areas of intense propylitic alteration. Copper / molybdenum mineralization is coincident with the quartz - orthoclase alteration zone. Mineralization can be traced for over 200 feet (60 m) in two places within the zone. Assayed sections vary from 0.6% Cu and 0.05% Mo. to trace amounts".

What appears to be a Roof Pendent of Gambier Group rocks has only recently (2013) been exposed in a new road cut on Tenure # 1023727. Determination and confirmation that this new exposure of rocks is part of the Gambier Group has been made by Mr. Murray S. Morisson B.Sc., P.Geo., from samples gathered in the field. Mr. Morisson has not visited this site in person. This significant and important new discovery will be more fully investigated as soon as the snow has receded.

The Gambier Group is highly prospective for both Gold bearing Quartz Veins such as those found at the Slumach and War Eagle as well as Volcanogenic Massive Sulphides. The massive Britannia deposits were hosted entirely within the Gambier Group. The exact stratigraphic position in the Gambier Group of this new exposure, found on the Copper West Claim, is yet to be clearly established.

Glaciation

The lower elevations of the Copper claims, including the valley bottom of the Mamquam River, are filled with glacial till. During traverses of the property I observed that there is fairly good soil development lying overtop of this till at lower elevations.

The soil at the bottom of the steeper parts of the south slope covering the Copper claims has obviously been developed by the disintegration of the upslope lithology and has in all probability been responsible for the well-developed copper and molybdenum soil anomalies. The soil above these anomalies is very thin to nonexistent and may account for the lack of anomalous results in the upper parts of the geochemical survey grids.

During a traverse up the west side of Martin Creek, in 2012 I noticed that as we left the bottom terrace above the main road the rounded boulders got larger and larger the further up the creek I went. Just below the bare rock slope in the upper reaches of Martin Creek most of the boulders were very large (+10 m). These boulders are overgrown with moss everywhere and I realized that you could possibly break through the moss and fall for 10 m in the void that lies between these huge boulders. This is just one example of some of the dangers peculiar to conducting ground work the Squamish / Harrison Lake areas of British Columbia.

Purpose of Soil / Till HMC Program

This HMC program was carried out in an attempt to determine if there are any gold particles in the soil in the vicinity of the newly discovered Gambier Group. Previous evidence of gold occurring on the western end of the property and in the general area is described below.

- 1. The Ana Claims were staked on the ridge between Skookum Creek and the Mamquam River described in the above mentioned report, (ARIS Report # 11,121). Three select samples of fracture fillings taken by myself and assayed for gold in the area of the old Ana claims in 1985 yielded gold values of (8950 ppb, 6380 ppb, 160 ppb) as shown in Appendix A.
- 2. A number of narrow quartz veins filled with disseminated pyrite and traces of chalcopyrite are described by Mr. Timmins (geologist). "Magnetite, hematite, pyrite and rare chalcopyrite mineralization are widespread in this same area".
- **3.** Small but high copper and gold anomalies also occur in a road soil geochemical survey (ARIS Report # 11,679) conducted approximately 3 km to the southeast of Martin Creek on the previously existing Crow 3 Claim.

2012 Program Details

The Copper West claim was located on the morning of November 11, 2013. The HMC samples were gathered in the field on that same afternoon by Mr. John Cross, an experienced sampler trained in HMC sampling methods.

The sampling took place along the newly constructed road cut that has exposed a roof pendant of the Gambier Group that has been entirely masked by overburden up until now.

A total of 4 HMC Traverse samples were taken on the high side of the road as well as 1 HMC Spot sample taken on a shear zone. A quad was used to gain access and transport the samples which weighed an average of 35 kgs each.

The weather was overcast and cool during the sampling part of our program but began to deteriorate towards evening. My experience, working in this area, spans more than 40 years and I have learned that weather plays a significant part in how much work can be accomplished in a day.

Our HMC Sampling Method

After becoming familiar with a property, we try to choose the roads and trails in areas to be tested that will give the best HMC results. Soil type and availability on different sections of roads and trails can be very important. Some properties are more suited than others for this type of sampling program. The ideal soil condition would be undisturbed residual soil. However, it should be kept in mind that any soil cover forms the medium or carrier which could contain the traces of metals and or particles of gold being weathered or leached out of a mineralized zone. These traces or particles can spread into soils forming dispersal trains or plumes of gold radiating from a lode deposit. The soil conditions therefore can be less than ideal and the sampling program can still be successful.

Step 1a Taking the Soil / Till HMC Sample

To produce a sample, soil is gathered along roads or skid trails by taking a shovel full of the most promising looking soil every 5 to 10 m or so and placing it into a 30x30x50 cm (38 litres) plastic tote bin. The shovels full are generally taken as close to bedrock as possible and usually from the high side of the road. Some of the till covered areas on the Copper claims have a small amount of residual soil from upslope that has been draped on top of the underlying till (I'm assuming through downhill gravity migration). This residual soil is what makes up the bulk of our sample whenever possible.

When the tote bin is full, (usually after a traverse of 300 m or so depending on soil conditions) both the beginning and the end of a traverse sample interval is marked on the ground with numbered flagging tape and recorded on a tablet with GPS capabilities. To identify the sample bins a piece of flagging is marked with the sample number and dropped into the bottom of the bin before any sample is deposited. When the bin is full another piece of numbered flagging is buried in the top of the sample and as a further precaution the sample number is also written on the outside of the bin with a permanent type felt pen.

Sometimes a full bin of sample, (35 kg) is taken all from one location (at a gossan zone or shear zone for example). This sample type we refer to as a **Spot Sample**. A sample taken over a distance along a section of road or trail is simply called a **Traverse Sample**.

Step 2 Processing the HMC Sample

A tote bin of **HMC Sample** usually begins processing with a brief description of the soil forming the sample. The **Sample** is then vibrated through a 12.5 mm (1/2 inch) screen to remove any of the larger stones. This **Plus 12.5 mm** fraction of rocks is discarded after a quick examination for anything of interest (i.e.: mineralization, vein material, alteration etc.). Any rocks of interest are put in a sample bag, labeled with the sample number and set aside for closer examination later. A representative **Soil Sample** is sometimes taken and placed into a wet strength Kraft paper bag, and labeled with the sample number, cataloged and put into storage for further examination or analysis if desired.

The **Minus 12.5 mm** fraction is then weighed and the weight recorded. At this stage the screened sample (**Minus 12.5 mm fraction**) usually weighs about 35 to 40 kg on average. After each sample is screened the screen is removed and pressure washed completely clean to avoid cross contamination between samples.

Step 3 Concentrating

The samples are then transported to the nearest small creek or other water source and put very slowly through a small sluice box. Re-circulation of the water is not possible as cross contamination between samples must not be allowed. The sluice box is 21 cm wide x 10 cm deep and 125 cm long (8" wide x 4" deep x 48" long) and is of wood construction lined with aluminum so that it can be completely cleaned out to eliminate any possibility of cross contamination between samples. The sluice box has been fitted with special rubber matting full of small pockets which are very effective at catching small gold particles. At the head or feed section of the sluice box there is a hopper fitted with a 6.3 mm (1/4 inch) stainless steel screen.

The ideal slope of the sluice box is about 10 to 12 degrees and the volume of water should be about 25 Liters per Minute (LPM). Here again consistency must be maintained between all samples to avoid varied results. The sample is slowly fed through the hopper using the water flow and a small garden shovel to create the slurry. The sluicing has to be done slowly and consistently for each sample. It usually takes a good hour to concentrate a sample. After the sample has been sluiced the plastic bin that held the sample is carefully rinsed into the sluice box in case any particles have worked their way to the bottom of the bin during transport.

The slow and careful completion of this and all steps in the concentrating process is crucial. We must ensure that any very small particles of micron gold are not washed away. If for example, there are only three small particles of "angular gold" in an entire sample program one always has to be certain not to lose them by accident or sloppiness after they have been gathered in the field.

As the sample is being worked slowly through the screened hopper on the sluice box a careful watch is kept for vein material, mineralization, alteration etc.in the plus fraction. This **Plus 6.3 mm** fraction from the hopper is placed in a new plastic food container with a soft aluminum tag denoting the sample number and is further marked **Sluice Reject**. The lid is then placed on and duct taped in place to avoid accidental spillage. The lid and side of the container is then further marked with the sample number and "**Sluice Reject**". A small **Sluice Reject** sub sample is set aside for megascopy at a later date.

After all of the **Minus 12.5 mm** fraction has been put through the sluice box, the sluice concentrate is then rinsed thoroughly and completely out of the box and into a clean container. Pressurized water is used to clean out the sluice box and rubber matting as it must be absolutely clean for the next sample. At this point, the sluice concentrate enters the panning phase and is washed through an 850 micron sieve (No. 20 ASTM). The **Plus 850 Micron** fraction is examined labeled and set aside as **Pan Reject**.

All fractions are weighed from here on and (weights are accurately determined with a Fischer Scientific torsion balance) then recorded.

The remaining **Minus 850 Micron** fraction is then panned down to roughly 100 to 200 grams. The size of the pan con sample depends on how much heavy fraction is layered in the pan. A coarse sample fraction of (850 Micron) was chosen as we are looking for short transport gold such as that derived from disintegrated vein material.

This initial panning usually takes 1 to 1.5 hours to complete as it must be done very carefully. The panning is done in a spotlessly clean plastic tote bin using clean water between each sample. A couple of drops of detergent are put in the bin before the water is added as a surfactant.

The pan reject is thoroughly rinsed from the bin and added to the **Pan Reject container**. The **Pan Con** is placed into a clean plastic container labeled as "**Pan Con**" and labeled with the sample number. A

careful watch is kept for particles of gold while this initial panning is taking place but closer inspection comes later.

Step 4 Pan Con Fractioning

This initial **Pan Con** sample is then examined wet under a microscope before being dried and weighed. After drying and weighing, the next step is to remove the magnetic fraction carefully using a sheathed magnet. A two - step process has been developed to remove the magnetic fraction that ensures fine gold particles are not caught up and removed accidently in the process. The **Pan Con Magnetic** fraction is then weighed, labeled and set aside. The remainder of the **Pan Con** is then passed through a 300 micron (Tyler 50 mesh) sieve. The plus fraction is labeled weighed and set aside for microscopy as the **Plus 300 Micron** fraction.

The remaining **Minus 300 Micron** fraction is then re - panned by an experienced and patient panner down to about 20 to 35 grams (It can take up to and sometimes more than an hour to do this careful panning). The panning is done in a thoroughly clean plastic tote bin using fresh clean water. During the re - panning the **Re Pan Reject** is thoroughly rinsed from the bin and then both **Re Pan Reject** and the **Re Pan Con** are thoroughly dried, and set aside. At this time a 0.5 gram sample is often removed from the **Re Pan Con** labeled and placed in inventory for further reference or examination if needed.

The **Re Pan Con** fraction is visually inspected for gold particles during the panning and then dried. One to one and a half hours are spent looking for particles of gold under a microscope. When gold particles are found they are photographed whenever possible.

Step 5 Analysis

Having reached this point you usually have nine fractions at the forefront namely:

- Soil Sample (representative 200 to 300 grams)
- Sluice Reject
- Sluice Reject Sub Sample that was sent for megascopic analysis or description and returned to inventory
- Pan Reject
- Pan Con Magnetic Fraction
- Plus 300 Micron Fraction (Pan Con Non magnetic Fraction)
- Re Pan Reject Fraction
- Re Pan Con Fraction
- O.5 grams of Re Pan Con in inventory

All the fractions are now photographed and decisions are made as to what analytical methods, if any, to proceed with. Considering the fact that we are only looking for small but visible particles of low transport gold, if no visible angular gold is present we ordinarily do not waste money on assaying.

Field Observations

One of the great things about our HMC process is that a pretty good evaluation of the sample takes place on the spot, (sometimes in the field) after the first panning (i.e. visible gold or no visible gold). With the aid of a microscope the colors that you find can usually be examined closely to determine whether they are low transport gold (pristine particles) or rounded off and hammered placer products. Survey grids and sample sites can be immediately adjusted in the field according to these results as they become available.

If for example, 15 sample intervals have no visible gold in them but the 16th one obviously has low transport gold then efforts can be concentrated uphill or up ice depending on soil type (i.e. residual or glacial till). Typically, more sampling followed by trenching takes place. If a Geochemical survey is chosen, then the grid and sample locations can at least be more wisely placed in the field.

Analytical Procedures

The **Re Pan Con** from all 5 samples was combined to form one 300 gram sample. This sample was sent to ALS Minerals in North Vancouver where a screened metallic - double minus analysis was performed to both determine and confirm gold content. The certificate of analysis (work order VA14041233) is included in the back of this report as Appendix G.

Megascopic Examination of Sluice Reject Samples

Mr. Murray S. Morisson, P.Geo., was contracted to conduct a detailed megascopic examination and description of the 5 sluice reject samples in order to further understand their mineralogy, composition and genesis. Mr. Morisson's detailed descriptions can be found in Appendix E at the back of this report. Confirmation of the Gambier Group was determined by both; my observations in the field and by Mr. Morisson's megascopic examination of the sluice reject samples where he found the presence of many angular fragments of Gambier Group.

The entire original document <u>Report of Megascopic Examination of Sluice Reject Samples from the</u> <u>Copper West Claim</u> by Mr. Murray S. Morisson, P.Geo., is included in Appendix E.

Previous HMC Case Histories

Of relevant interest are two HMC case history signatures of mesothermal / epithermal gold occurrences in the Vernon camp from our previous studies.

Kalamalka Mine Site

ARIS Report # 21,454 dated April 20 1991

The author conducted a test to see if a geochemical signature exists using Soil / Till HMC on the Kalamalka gold deposit east of Vernon BC. Traverse HMC samples were taken immediately down slope from the main occurrence and yielded high gold values. It is important to note that these traverse samples from the Kalamalka were about 75 kg or twice the size of the ones from the Copper West claim.

| Figure | 2 - 7 | Table | of F | Results | Kalamal | ka Soil | HMC | (1991) |
|--------|-------|-------|------|---------|---------|---------|-----|---------|
| 0 | | | | | | | | · · · / |

| Sample # | Аи ррт |
|----------|---|
| 1 | 90 ppm |
| 2 | 1000 ppm (included some soil from right <u>below</u> the dump likely contaminated by mine muck) |
| 7 | 32 ppm |
| 8 | 23 ppm |

Brett Main Shear Zone

The author conducted a case history test immediately down slope from the main shear zone of the Brett gold deposit which produced definite signatures. The results are listed below. These traverse samples weighed about 35 kg or half the weight of the ones from the Kalamalka.

Figure 3 - Table of Results Brett Main Shear Zone 2012

| Sample # | Type of Sample | Findings |
|-------------|-------------------|--|
| 1124 | traverse | Some very fine particles of gold were seen in the Re Pan Con. This sample was taken immediately <u>above</u> the main shear zone and assayed 11.15 ppm in a random 30 gram fire assay with a gravimetric finish. |
| 1125 | traverse | This sample covered a distance of about 75 m and was taken 50 m <u>downslope</u> from the main shear zone of the Brett deposit. Visible particles of gold could be seen in the Re Pan Con. Total metallic analysis was chosen for this sample which yielded 10.05 ppm in the total metallic plus fraction. |
| 1126 | traverse | Taken along the <u>east side</u> (not downslope) of open cut and assayed 4.28 ppm in a random 30 gram fire assay with a gravimetric finish. |



"The average gold content of most soils is low, but the element is enriched in certain types of soils and in a variety of glacial and weathered products in the vicinity of gold – bearing rocks or auriferous deposits" (Boyle, 1979).

Discussion of Results

All 5 HMC samples contained fine particles of gold either in the **Re Pan Con** or in the **Plus 300 Micron** fraction. Ample pyrite as well as some chalcopyrite was also noted.

The HMC program was somewhat of a success as several particles of angular low transport gold were positively identified and photographed in all 5 samples. These 5 HMC samples were taken downslope from the old Ana claims where assays have confirmed the presence of gold in fracture fillings containing pyrite and chalcopyrite in dioritic rocks.

The following is a brief description of this dioritic host rock and has been taken from ARIS Report # 11,121 authored by W.G. Timmins P.Eng., geologist: "The quartz diorite and metadiorite rocks contain a number of narrow quartz veins filled with disseminated pyrite and traces of chalcopyrite. The veins are within fracture or shear zones with west–northwesterly trends and steep dips".

A small particle of gold was found in HMC18 (from 2012) but could not be retrieved as it was so small. A photograph of this wonderfully angular gold particle is included in the back of this report in Appendix I. HMC18 was taken immediately downslope from the gold bearing fracture fillings described above on the old Ana Claims.

When compared to other areas we have worked in on the Mamquam property the west end holds the most promise of hosting gold mineralization. The rest of the property has a distinct scarcity of gold particles in the soils and streams. Having said that, the particle of gold in HMC18 (2012) as well as those found in all 5 of the samples described in this report are very encouraging.

Generally speaking, the gold found in copper / molybdenum deposits is often low grade in nature. The very angular particles of gold found both in this program and in 2012 may be particularly meaningful as very few other suspected particles of gold were positively identified or recovered from any of the other soil / till or stream sediment samples on the rest of the property during the rather large sampling program (18 HMC samples and 16 Stream HMC samples) conducted in 2012.

Chalcopyrite was also observed in 3 of the 5 HMC samples from this (2013) program.

See Appendix C for the observations of the Microscopy of **Plus 300 Micron** fraction, and Microscopy of the **Re Pan Con** fraction.

Conclusions

The gold particles found in this program and the one found in HMC18 (2012) could be a possible indication of a gold occurrence upslope from these sample locations. The angular gold found in HMC18 and in M-13-1 to 5 inclusive may have been the products of weathering of the fracture fillings on the Ana claims or they could be from a completely unrelated occurrence.

Well focused programs have been conducted in the past over the property by some very competent Geological Engineers - all yielding positive results. Of the seven reports written by these geoscientists on the property <u>all</u> recommend diamond drilling or additional diamond drilling and one has recommended bulk sampling take place concurrent with the next phase of follow up diamond drilling.

In my opinion this copper / molybdenum property has the benefit of many thousands of dollars' worth of positive results available from previously conducted exploration programs - but has never been properly evaluated by diamond drilling.

It has been my experience, conducting HMC programs in other areas of the province, that many of the conventional gold soil sampling programs conducted have quite possibly yielded misleading results because of the widespread placement of placer gold particles in the soil and or till by glaciation. Concentration of our bulk samples tends to reduce the nugget effect and therefore the possibility of being misled by the many problems inherent with gold geochemistry in areas covered by glacial till.

Geochemical sampling for gold has never been conducted in the vicinity of the Copper claims to my knowledge, other than the very small road soil sampling program on the Crow claims. The Crow Claims were adjacent immediately east and southeast of the Copper Claim group (ARIS Report # 11,679).

The relative scarcity of gold particles in our previous Soil / Till and Stream Sediment HMC programs indicates a general lack of placer gold in the soil and till covering the Copper claims. This would seemingly help to eliminate many of the inherent interpretation problems of gold geochemical anomalies in glaciated environments. Therefore, I feel that unlike most areas in the Interior Plateau for example, the Mamquam River property could benefit from a conventional soil geochemical survey for gold that could yield both informative and reliable results.

Recommendations

I would recommend the following:

- Detailed sampling of this fresh road cut should take place with analysis not only for gold but also silver, copper, zinc and cadmium as the Gambier Group in this area is extremely prospective for both Gold bearing Quartz Veins and Volcanogenic Massive Sulphides (VMS).
- The fresh road cut should be examined by a competent geologist to determine what stratigraphic unit of the Gambier Group roof pendent has been exposed at this location.
- More HMC sampling should be completed in the area above the road cut in an attempt to develop a secondary dispersal train or plume below or in the general area of the known Ana gold occurrence. The area below the road cut quickly becomes buried by tens if not hundreds of metres of glacial till.
- Both the Martin Creek and the Skookum Ridge areas should be further prospected.
- Prospecting and sampling of the higher elevations above the showings on both the east and west sides of the lineament revealed by the airborne survey above Martin Creek could also reveal some positive results.
- A gold, copper, molybdenum, silver, lead, zinc and cadmium soil geochemical survey should be conducted over area I on the Base Map of Previous Programs (PDF Map 6) (ARIS Report # 33,960) to further delineate and expand the previously established anomalies.
- A reconnaissance rock geochemical survey should be carried out over favorable areas established by geological mapping in areas that do not have soil cover above the known mineralization.
- Thin sections of alteration zones should be prepared to determine where both alteration and mineralization events have taken place.
- A conventional soil sampling survey for gold on selected areas of the Copper claims could yield reliable results because of the relative scarcity of placer gold particles found to date in the soil / till covering the Copper claims.
- The higher elevations above the Martin Creek area have never been thoroughly prospected to my knowledge and need to be investigated for further possible gold / copper / molybdenum mineralization. A traverse could possibly be made from the end of the highest old logging road to the little lake in the circue at the headwaters of Martin Creek.

After reviewing the results of previous programs on the Copper claims a Professional Geological Engineer should be retained to recommend a program to further explore this property.

General Discussion

I first began using Soil / Till HMC about 1981. This process provided a way to explore gold properties when there were little or no funds to pay for assaying. Originally we used to run about 75 kgs of soil sample through a sluice box. Over time we concluded that 75 kg of sample was just too heavy to handle and we gradually (but reluctantly) reduced the size of our sample down to about 35 kgs (the size of our samples today).

Samples sometimes have to be carried a long way out on foot and consequently these samples range from 5 to 10 kgs. They are generally called a "**post - hole**" sample. Post - holing is an Australian method whereby the sampler digs a hole with a shovel about 0.5 to 1 m deep (depending on conditions), and then takes the entire sample from the very bottom of the hole. We usually refer to these samples as Spot HMC's and we try to get at least a 10 kg sample

After sluicing a sample, the sluice con was then carefully panned and visually inspected. If we thought we could see minute gold particles and could afford to assay the sample we would. With some samples it became obvious that there was absolutely no gold in the sample and with other samples you could say for sure you were seeing gold particles. Originally, we didn't realize the importance of determining whether the particles were low transport or placer.

In short, every time we conduct a HMC program changes are being made. We try to reduce the enormous amount of labour involved, speed things up, and continue to derive meaningful data, while trying to keep the process cost effective. Certainly, more improvements can and will be made as we continue to conduct HMC programs. I know that there is more information that we can glean from this process as we spend more time and energy understanding each fraction.

In the area of the Brett deposit on Whiteman Creek we have established that our **Plus 300 Micron** fraction shows up as a very distinct "Buff" colour. This has also proven to be true throughout the sample area whenever we were near alteration zones. From this I believe we are able to surmise that we can detect some alteration zones even when they are completely masked by overburden. I know of no other tool in use at present that can do this. In all environments locating alteration zones is very useful, especially if the alteration zone proves to bear mineralization in economic quantity.

There are many people who specialize in the science of gold particles, glaciation, heavy minerals, etc. Their understanding of certain aspects of this methodology far surpasses my ability to do so. I welcome any comments, questions or concerns that the reader may have about our HMC process. Any further discussion can only help us to continue to improve our methodology.

This HMC process may change the previous idea that soil samples are just gathered and sent to the lab. By processing the soil sample and separating out the fractions before assaying a whole new level of information is being revealed. I believe the whole story may be hidden in the soil once we have learnt how to read it.

My official duty on this and past programs is that of a data gatherer. The samples in this program were gathered and carefully processed to the very best of my ability. My conclusions and recommendations come from the experiences gained from each of the many HMC projects completed to date.

Statement of Qualifications

I Eugene Allan Dodd of Enderby, British Columbia do hereby certify that:

- 1. I am an experienced prospector having commenced prospecting professionally full time in the North West Territories on February 15 1968.
- 2. I am both President and Chief Exploration Manager for Billiken Gold Ltd. A position I have held for the past 2 years.
- 3. I am both President and Chief Exploration Manager for Trans Arctic Explorations Ltd. A position I have held for more than 45 years.
- 4. I was Chief Instrument Operator and then President of Columbia Airborne Geophysical Services Ltd. for 7 years. Specializing in detailed low level combined airborne geophysical surveys in rugged terrain.
- I have successfully completed at UBC, a course titled: Geophysics in Mineral Exploration. The course included detailed technical aspects of most types of geophysical surveys including some practical interpretation.
- 6. I have operated and understand the principles of conducting a wide variety of ground and airborne geophysical surveys. I have experience as both an instrument operator and helper on I.P. and S.P. surveys.
- 7. I have gained my experience by conducting numerous exploration programs for a wide variety of mining companies, oil and gas companies and consulting geologists and geophysicists.
- 8. I have supervised projects in the North West Territories, British Columbia, Ontario, Quebec, Labrador, Yukon, Washington, Oregon, Alaska, California, Idaho, Nevada, and Montana.
- 9. For 10 years I owned and operated a contract drilling division in Matheson Ontario. We operated two medium depth unitized drill rigs for a variety of mining companies.
- 10. As well as my practical experience I am constantly reading and researching the technical aspects of exploration (geological, geophysical, and geochemical).
- 11. I am the Author of this report, which is based on my personal observations made while in the field, and from knowledge gained from the works cited in my bibliography.

Dated at Enderby BC. This 5th day of January 2013

Respectfully submitted Eugene A. Dodd President - Billiken Gold Ltd.

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Appendix A



Appendix B

Table of Sample UTM's

| Sample Number | S | tart | Finish | | |
|------------------|---------|----------|---------|----------|--|
| | Easting | Northing | Easting | Northing | |
| M-13-1 | 501641 | 5507738 | 501777 | 5507720 | |
| M-13-2 | 501777 | 5507720 | 501943 | 5507637 | |
| M-13-3 | 501943 | 5507637 | 502019 | 5507578 | |
| M-13-4 | 502019 | 5507578 | 502103 | 5507497 | |
| M-13-5 | 501671 | 5507699 | 501671 | 5507699 | |

Appendix C

Table of Megascopic and Microscopic Observations

| Sample Number | Microscopic observation of the <u>"Plus 300 Micron"</u> fraction | Megascopic observation <u>of</u> <u>the ''Re Pan Con''</u> while panning | Microscopic observation of the <u>"Re Pan Con"</u> fraction |
|---------------|--|--|---|
| M-13-1 | 9 particles visible gold | lots of pyrite, some chalcopyrite no visible gold | 4 particles visible gold, 1 thin leaf, some chalcopyrite |
| M-13-2 | pyrite cubes | no visible gold | 1 flake, some chalcopyrite |
| M-13-3 | 1 particle of flat pristine gold | no visible gold | 13 particles very fine gold |
| M-13-4 | no visible gold | no visible gold | 5 particles total |
| M-13-5 | 1 particle gold | chalcopyrite and pyrite cubes | 3 very small particles |

Appendix D

Table of Weights

| Sample Number | Torsion weight of " <u>Pan Con</u> " fraction weight) (grams) | Torsion weight of " <u>Pan Con</u> <u>Magnetic</u> " fraction (grams) | Torsion weight of " <u>Plus 300 Micron</u> " fraction (grams) | Torsion weight of " <u>Re Pan Con</u> " fraction (grams) | Torsion weight of <u>"Re Pan Reject"</u> fraction (grams) |
|---------------|--|--|---|--|---|
| M-13-1 | 79.3 | 8.3 | 21 | 22.6 | 27.4 |
| M-13-2 | 61.8 | 30.9 | 6.5 | 14.7 | 9.7 |
| M-13-3 | 69.2 | 6.4 | 18.9 | 28.7 | 15.2 |
| M-13-4 | 63.7 | 9.4 | 9.3 | 21.5 | 23.5 |
| M-13-5 | 81.1 | 2.7 | 23.1 | 28.4 | 26.9 |

Appendix E

Report of Megascopic Examination Sluice Reject Samples For Billiken Gold Limited Mamquam Property, Vancouver Mining Division, British Columbia

| Descrip | tion of | Samp | le |
|---------|---------|------|----|
|---------|---------|------|----|

| Sample Number | Description of Sample |
|------------------|---|
| M-13-1 | 55% angular fragments of green to gray very fine grained felsic tuff with limonite staining on most surfaces (slaty as a result of regional metamorphism), 35% angular fragments of green fine grained intermediate tuff, 5% subrounded fragments of soft brown siltstone, 3% subrounded fragments of granodiorite, and 2% angular fragments of limonite stained quartz, or highly siliceous felsic tuff. |
| M-13-2 | 45% slaby to slaty angular fragments of light green chloritic fine grained felsic tuff with limonite staining most surfaces, 30% angular fragments of green chloritic fine grained intermediate tuff with limonite staining surfaces, 7% angular fragments of dark green chloritic fine grained mafic tuff with minor limonite staining, 10% angular fragments of dark green to black fine grained mafic tuff with minor limonite staining, 2% subrounded fragments of very limonite stained soft siltstone that appears to be of a much later age than the tuff and that is weakly cemented on to the edges of some of the earlier tuffs, 3% angular fragments of light green and gray very siliceous tuff and/or chert, and 3% sub- rounded fragments of granodiorite. |
| M-13-3 | The sample is comprised of only six large fragments as listed below: one 4x4x4 cm subrounded fragment of white quartz feldspar porphyry, one 4x2.5x2 cm subrounded fragment of granodiorite with some tan limonitic siltstone cemented on one side. one 5x3x3 cm angular fragment of green, limonite stained, very vesicular medium grained andesite with one slickenside surface. one 4x3x1.5 cm subrounded fragment of dark gray porphyry with 15% white feldspar phenocrysts set in an amorphous siliceous groundmass. one 3x3x1 cm angular fragment of light gray very siliceous felsic tuff. one 4x2x1.5 cm subangular fragment of dark green fine grained mafic tuff with limonite staining on one side. |
| M-13-4 | 25% subangular to subrounded fragments of granodiorite with limonite staining on some surfaces, 25% angular fragments of dark green fine grained mafic tuff with limonite staining on most surfaces, 25% subangular fragments of limonite stained fine grained intermediate tuff, 10% angular fragments of light green to white very siliceous felsic tuff or chert, 15% subrounded to angular tan limonite stained soft siltstone with 10% angular guartz grains throughout |
| M-13-5 | 99% angular slaty fragments of light green metamorphosed rock that was originally a very fine grained intermediate to felsic tuff; some slickenside surfaces, light to moderate limonite staining, and a trace of very fine grained pyrite with some fragments, <1% subrounded fragments of granodiorite and tan siltstone. |

Murray Morrison, B.Sc. Geology December 5, 2013

Appendix F



ALS Canada Ltd. 2103 Dollarton Hwy North Vancouver BC V7H 0A7 Phone: 604 984 0221 Fax: 604 984 0218 WWW.alsglobal.com To: BILLIKEN GOLD LTD 561 GLENMARY RD ENDERBY BC VOE 1V3

Page 1 of 1

| | 213 | | | | IN | VOICE NUMBER 3103 | 716 | |
|--|---|----|---|---|--|---|---|--|
| | BILLING INFORMATION | | QUANTITY | ANALYSE CODE - | D FOR DESCRIPTION | | UNIT | TOTAL |
| Certificate: Sample Type Account: Date: Proiect: P.O. No.: Quote: Terms: Comments: | VA14041233 Other BILGOL 27-MAR-2014 Due on Receipt | C3 | 1 | BAT-01 LOG-22 Au-SCR21 Au-AA25 Au-AA25D PUL-21 SCR-21 | Administration Fee Sample login - Rcd w/o BarCor Au Screen Fire Assay - 100 to Ore Grade Au 30g FA AA finish Ore Grade Au 30g FA AA Dup Pulverize entire sample Screen to -100 to 106 um | de 106 um , | 33.10 1.20 16.70 16.70 16.70 10.20 5.55 | 33.10 1.20 16.70 116.70 16.70 10.20 5.55 |
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Appendix G



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| IIInerais | | | | | | | | CERTIFICATE OF ANALYSIS | | | VA14041233 | | |
|--------------------|-----------------------------------|----------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------------------------------|-------------------------------|------------------------------|-------------------------------|------------|--|---|
| Sample Description | Method Analyte Units LOR | WEI-21 Recvd W1 kg 0.02 | Au-SCR21 Au Total ppm 0.05 | Au-SCR21 Au (+) F ppm 0.05 | Au-SCR21 Au (-) F ppm 0.05 | Au-SCR21 Au (+) m mg 0.001 | Au-SCR21 WT + Fr 9 0.01 | Au-SCR21 WT Fr g 0 1 | Au-AA25 Au ppm 0.01 | Au-AA25D Au ppm 0.01 | | | |
| M-13-1-5 | | 0.32 | 0.11 | <0.05 | 0.13 | <0.001 | 30.75 | 280.8 | 0.12 | 0.13 | | | i |
| | | | | | | | | | | | | | |
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····· See Appendix Page for comments regarding this certificate ·····

Appendix H

Detailed Cost Breakdown Mamquam River Project

Pilot Soil / Till, Heavy Metal Concentrating Program Mamquam River area Vancouver, M.D.

Labour:

| John Cross (Sampler) 11 Nov. ($\frac{1}{2}$ day), 12 Nov. ($\frac{1}{2}$ day) = 1 man day @ \$300.00 | \$300.00 |
|--|-------------------|
| Equipment: | |
| 1 Ton 4x4, 11 Nov. (1/2 Day), 12 Nov. (1/2 day) = 1 day @ 150 | |
| (includes mileage and fuel) | - \$150.00 |
| 1 Quad, 11 Nov. $(1/2 \text{ day})$, 12 Nov $(1/2 \text{ day}) = 1 \text{ day } @$ \$150.00 | \$150.00 |
| Meals: | |
| 1 man for 1 day @ \$60.00 per man day | \$60.00 |
| HMC Processing: | |
| Processing 5 – 35 kg HMC samples @ 9 hours per sample | |
| 45 hours @ 25.00 per hour | - \$1,125.00 |
| 5 Megascopic sample descriptions @ \$20.00 each by | |
| Murray S. Morisson B.Sc., P.Geo., | \$100.00 |
| Shipping | \$31.25 |
| Printing, map blow ups, etc. | \$22.50 |
| Report | <u>\$700.00</u> |
| Total | <u>\$2,638.75</u> |

(Taxes are not included in this total)

Respectfully submitted Eugene A. Dodd, President Billiken Gold Ltd.

Appendix I

Angular nugget from 2012 HMC18 anterior view



Angular nugget from 2012 HMC18 posterior view with insolubles



Angular nugget from M-13-3 with insolubles



M-13-2 HMC Pan Con fractions



Appendix J

Flow chart of Billiken Gold Ltd.'s HMC Process (steps 1 to 5 inclusive)











