

## **Report of 2011 Drilling**

### **On the Portland Property**

<b>PORT 1</b>	<b>YC63808</b>
<b>PORT 2</b>	<b>YC84057</b>
<b>PORT 3 to 12</b>	<b>YC84092 to YC84101</b>
<b>PORT 13 to 18</b>	<b>YC84286 to YC84291</b>
<b>PORT 19 to 32</b>	<b>YC98171 to YC98184</b>
<b>PT 1 to 43</b>	<b>YD19901 to YD19943</b>

**Dawson Mining District, Yukon  
NTS Sheet 115O15 (Flat Creek)  
63°48'08" N. Lat., 138°47'34" W. Long.**

**Operated by and Recorded to**



**(held under option from Franz Vidmar)**

**By  
Mark Fekete, P.Geo.  
Neda Dokic, B.Sc., GIT  
December 20, 2011**

## Summary

From August 1 to December 20, 2010 Taku Gold Corp. completed a drilling program on the 75-claim (1,525ha) Portland property located at the headwaters of Portland Creek, a tributary of Dominion Creek, some 45km southeast of Dawson City, Yukon. The goal of the work was to test the continuity of a gold-bearing structure first identified historically as the Gold Run showing.

Portland lies within the Yukon-Tanana Terrane which consists of several successions of complexly deformed Late Proterozoic to Late Permian sedimentary and volcanic rocks episodically intruded by various intrusive rocks in the Permian, Jurassic, Cretaceous and Tertiary periods. The intrusive events have been accompanied by volcanic activity especially in the Upper Jurassic to Lower Cretaceous. Limited mapping on Portland indicates that Permian Klondike schists on the west side of the Property have been structurally emplaced over Devonian to Mississippian quartz mica schists to the east by the west-dipping Sulphur Creek thrust fault.

The Property lies within an underexplored part of the loosely defined Tintina Gold Belt. The underexplored nature of the Klondike-White Gold district's hard rock potential was highlighted by Underworld's discovery of the Saddle and Arc zones in May 2009 on the White property located 75km southeast of Portland, and more recently by the Supremo discovery on Kaminak's Coffee property located approximately 100km south of Portland. Taku's exploration effort at Portland is not adhering to any firm deposit model but is instead based on practical survey methods, including detailed geochemical surveys that generate drill targets and have led to discoveries by other groups working in the area.

In 2010, Taku Gold conducted a surface exploration program on the Property including 1,001 preliminary, widely-spaced soil samples over most of the Property followed by trenching and sampling at the Gold Run showing. The gold-in-soil results identified four parallel, northwest-trending, linear, weak to moderate gold anomalies. The rock samples collected from the five Gold Run trenches returned spectacular, high grade results. Previous trenching and shafting indicate that the Gold Run structure is at least 250m long.

Exploration work in 2011 consisted of 975m of drilling in seven holes. The drilling generally cut quartz-biotite schist and chlorite schist. Numerous zones of silica flooding-type alteration were noted and often associated with quartz stockwork veining. Very narrow zones of strong limonite altered "crackle breccia" were intersected in holes PT11-01, 02, 04 and 07.

The highest gold value intersected by the drilling was 2.29 grams per tonne gold (gpt Au) over 1.0m in hole PT11-02 from 46.3m. Notable gold grades were also intersected in holes PT11-01, PT11-05 and PT11-07. It appears that the Gold Run structure was intersected in holes PT11-01, 02, 05 and 06. The structure has an apparent dip of 85° to the southwest. Hole PT11-07 intersected a parallel zone grading 0.2gpt Au over 3.0m from 41.2m.

The drill program met its primary goal of testing the continuity of the gold-bearing structure exposed at the historical Gold Run showing. The drill results did not reflect the high-grade values obtained from the trenches done in the previous season and were overall below expectations. One positive result of the drilling was the gold-bearing structure intersected in hole PT11-07. Although this zone is narrow and low grade, it does provide direct evidence for the existence of gold-bearing zones parallel to the Gold Run structure.

No further drilling can be recommended on the Portland property at this time. The gold-bearing zone intersected in hole PT11-07 should be further tested by surface trenching. Prospecting and sampling work should be done to follow up the more favourable geochemical results determined in 2010. It is estimated that up to \$25,000 should be spent on these exploration activities. Deep auger-type soil sampling has proven to be a very effective exploration tool in the Dawson area. The amount of this type of sampling done on Portland to date is very wide-spaced and preliminary. The estimated cost to complete a detailed, 2000-sample, deep auger-type soil geochemical program is \$150,000. This work should be considered as an alternative to trenching, prospecting and sampling subject to available financing.

## Certificate of Qualifications

I, Mark Fekete, having my place of residence at 178 Dennison Boulevard in Val d'Or in the Province of Quebec do hereby certify that:

1. I obtained a Bachelor of Science Degree in Geology from the University of British Columbia in 1986, I have been engaged as a Geologist continuously since 1986 and I am a Member in good standing of the Order of Geologists of Quebec (OGQ #553) and the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC #31440), and I am a "qualified person" as defined in Section 1.2 in and for the purposes of National Instrument 43-101;
2. I have visited the Portland property on numerous occasions including most recently in August 2011;
3. I co-wrote and I am, as the senior author and qualified person, responsible for the contents of this technical report entitled "Report of 2011 Drilling on the Portland Property, Dawson Mining District, Yukon, NTS Sheet 115O15 (Flat Creek), 63°48'08" N. Lat., 138°47'34" W. Long.," based on my professional experience, a review of relevant reports and maps made available to me from government and corporate sources and my participation in the work programs described in the report;
4. I am not aware of any material fact or material change with respect to the subject matter of the report that is not disclosed in the report which, by its omission, makes the report misleading;
5. I am an Officer and Director and I beneficially hold a number of shares in Taku Gold Corp.;
6. I hold no direct interest in the Portland property as a result of my prior involvement with the property; and
7. I have read, and this report has not been prepared for the purposes, nor in full compliance with, National Instrument 43-10,1 and according to Form 43-101F1.

Respectfully submitted this 20th day of December 2011,

(s) "**Mark Fekete**"

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Mark Fekete, P.Geo.

## Certificate of Qualifications

I, Neda Dokic, having my place of residence at 60 Stope Way in Whitehorse in the Territory of the Yukon do hereby certify that:

1. I obtained a Bachelor of Science Degree in Geology from Acadia University in May 2011, I have been engaged as a Geologist in Training (“GIT”) continuously since May 2011 and I am not a “qualified person” as defined in Section 1.2 in and for the purposes of National Instrument 43-101;
2. I have visited the Portland property on numerous occasions including most recently in September 2011;
3. I co-wrote this technical report entitled “Report of 2011 Drilling on the Portland Property, Dawson Mining District, Yukon, NTS Sheet 115O15 (Flat Creek), 63°48’08” N. Lat., 138°47’34” W. Long.,” under the supervision of Mark Fekete, P.Geo.;
4. I am not aware of any material fact or material change with respect to the subject matter of the report that is not disclosed in the report which, by its omission, makes the report misleading;
5. I do not beneficially hold a number of shares in Taku Gold Corp.;
6. I hold no direct interest in the Portland property as a result of my prior involvement with the property; and
7. I have read, and this report has not been prepared for the purposes, nor in full compliance with, National Instrument 43-101 and according to Form 43-101F1.

Respectfully submitted this 20<sup>st</sup> day of December 2011,

(s) “*Neda Dokic*”

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Neda Dokic, GIT.

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## 1. Introduction and Terms of Reference

Breakaway Exploration Management Inc. (“Breakaway”) was retained by Taku Gold. Corp. (“Taku”) to write a technical report (the “Report”) describing the drilling program carried out on the Portland property (“Portland” or the “Property”) in Yukon in 2011. The Report describes results obtained during the 975m drilling program. The goal of the work was to test the continuity of a gold-bearing structure first identified historically as the Gold Run showing.

The Report is based primarily on the results of the work completed on Portland in 2011 but also contains information obtained from a review of relevant reports and maps cited throughout the Report. The Report was prepared by Geologist in Training Neda Dokic (the “Junior Author”) under the supervision of Professional Geologist Mark Fekete (the “Senior Author”). Both Authors have visited and personally inspected the Property on numerous occasions. The Senior Author is the designated “qualified person” as defined in Section 1.2 in and for the purposes of National Instrument 43-101. The main purpose of the Report is to complete statutory assessment work filings required under the Yukon Quartz Mining Act. It is not intended to and does not fully comply with National Instrument 43-101. The Report contains specific recommendations and proposes a budget for further work.

The metric system is used for all units of measure mentioned in the Report and all dollar amounts are in Canadian funds unless otherwise stated. All figures presented in the Report are plotted in map projection UTM NAD 83, Zone 7 unless otherwise stated.

## 2. Reliance on Other Experts

The Authors may have relied on the technical data and interpretation found in various sources cited throughout the report. The Authors may not have verified this information and takes no responsibility for its accuracy or completeness. Reference to the compliance or non-compliance with NI 43-101 standards of historical information and data referred to in this Report are made where appropriate. The Authors do not offer any opinion concerning legal, title, environmental, political or other non-technical issues that may be relevant to the Report. The Report may contain links to several web-sites. The Authors take no responsibility for the security, accuracy or availability of these web-sites.

## 3. Location and Property Description

The Property covers an approximate area of 1,525 hectares within the Dawson Mining Division of Yukon. It is located at the headwaters of Portland Creek, a tributary of Dominion Creek, some 45km southeast of Dawson City (Figure 1). The approximate centre of the Property is described by 63°48’08” North Latitude and 138°47’34” West Longitude on N.T.S. Sheets 115O15 (Flat Creek). The Property includes 75 contiguous, un-surveyed mineral titles (Figure 2) more fully described in Table 1 below.

**Table 1 - List of Claims**

<b>Claim Name No.</b>	<b>Tag No.</b>	<b>Expiry Date</b>	<b>#</b>
PORT 1	YC63808	24-Dec-2015	1
PORT 2	YC84057	24-Dec-2015	1
PORT 3 to 12	YC84092 to YC84101	24-Dec-2015	10
PORT 13 to 18	YC84286 to YC84291	24-Dec-2015	6
PORT 19 to 32	YC98171 to YC98184	24-Dec-2015	14
PT 1 to 43	YD19901 to YD19943	24-Dec-2015	43
			75

600,000

620,000

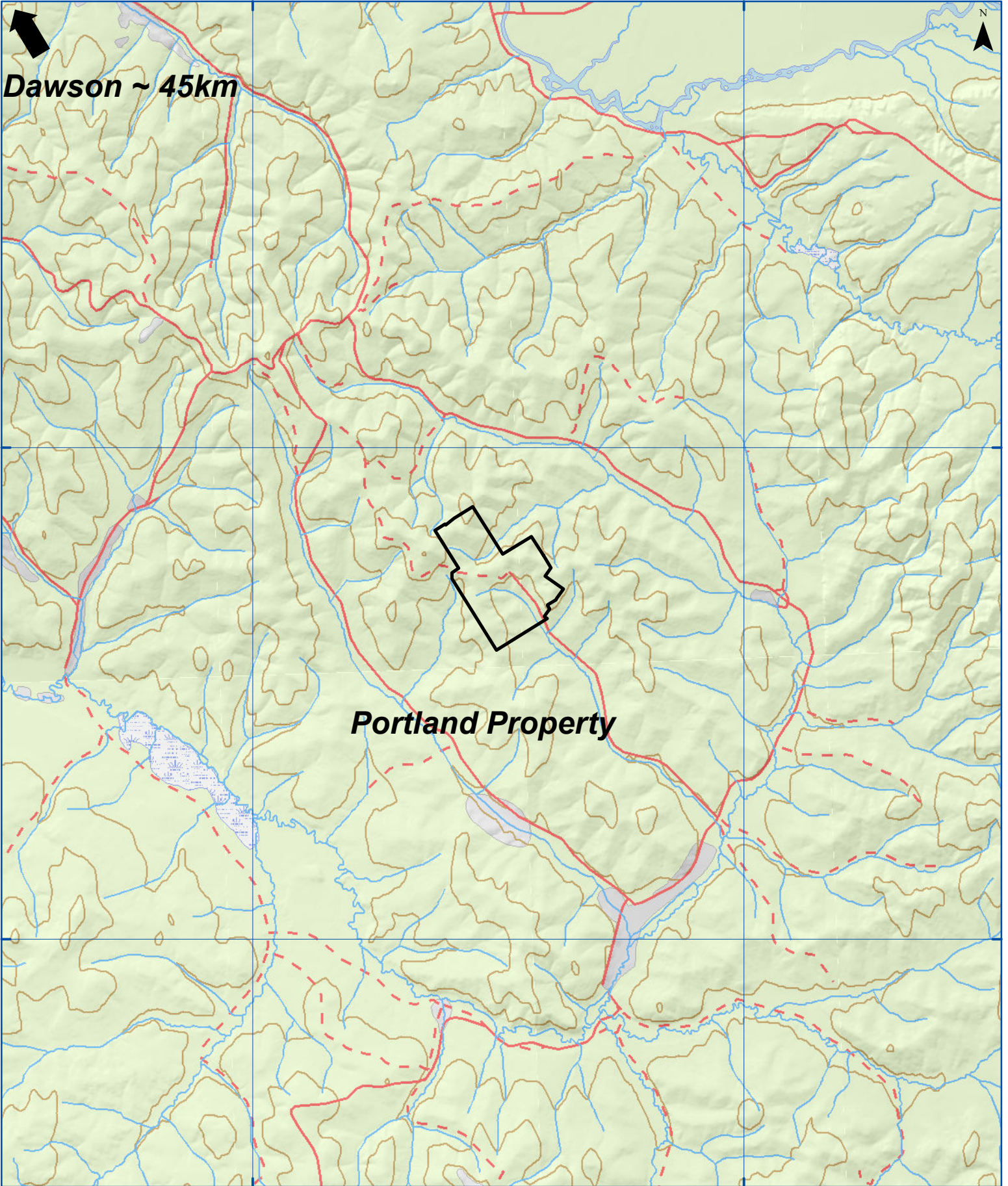


**Dawson ~ 45km**



7,080,000

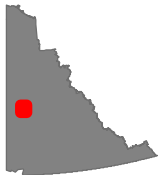
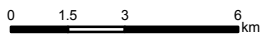
7,060,000



**Portland Property**

**PORTLAND PROPERTY**  
**Figure 1. GENERAL LOCATION**

Universal Transverse Mercator Zone 7  
 World Geodetic System 1984  
 Scale 1:200 000



Portland Property  
 Figure 1. General Location  
 Taku Gold Corp.  
 NTS Sheet: 115O  
 Date: November 29, 2011

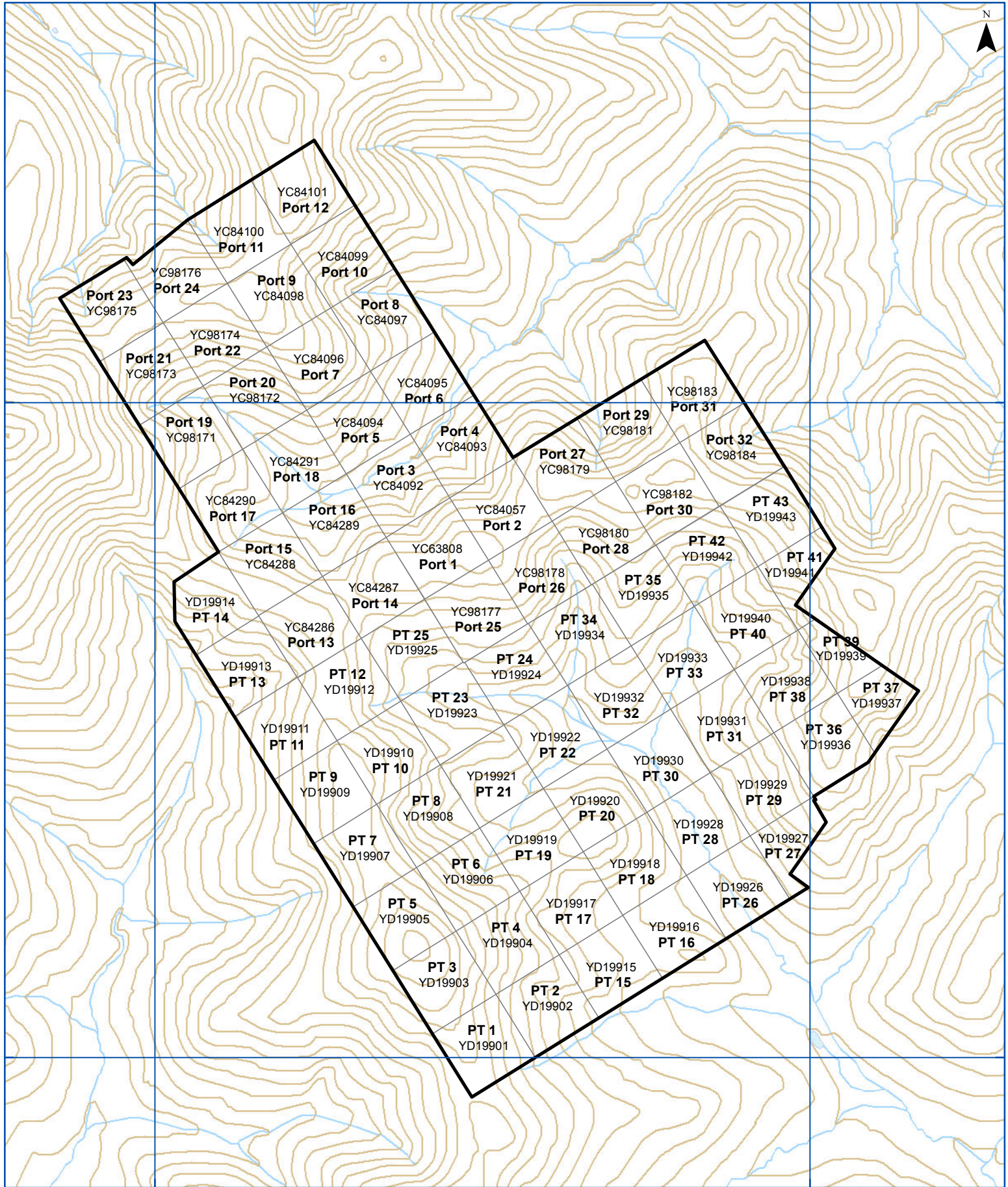
608000

612000

N

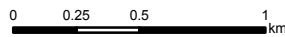
7076000

7072000



**PORTLAND PROPERTY**  
**Figure 2. CLAIM MAP**

Universal Transverse Mercator Zone 7  
 World Geodetic System 1984  
 Scale 1:30 000



Portland Property  
 Figure 2. Claim Map  
 Taku Gold Corp.  
 NTS Sheet: 1150/15  
 Date: November 29, 2011

On October 1, 2010 Taku entered into an option agreement with Mr. Franz Vidmar (the “Vendor”) of Dawson City, Yukon. Under the terms of the option, Taku has agreed to pay \$40,000 cash and issue 400,000 shares to the Vendor and complete \$500,000 of exploration work scheduled over a three year period to earn a 100% interest in the Property subject to a 2% royalty on mineral production. Hinterland will have the option to purchase 1% of the royalty for \$1 Million and will have the right of first refusal on the remaining 1%. The transaction was subject to TSX Venture Exchange approval which was obtained on November 2, 2010.

The mineral claims included in the Property were acquired under the Yukon Quartz Mining Act which grants only the hard rock mineral rights to the claim holder. The surface rights for the area of the Property are held by the Crown. To maintain the claims in good standing, a minimum of \$100 assessment work per claim must be completed annually. There are provisions to apply for more than one year work at a time up to a maximum of five years, to apply work from one claim to other adjoining claims (grouping) up to a maximum of 750 contiguous claims and to pay cash in lieu of work up to a maximum of five years. The Quartz Mining Land Use Regulations consist of a classification system based on varying levels of specific activities. These threshold levels categorize exploration activities into four classes of operation. Classes 1 through 4 represent activities with increasing potential to cause adverse environmental impacts.

Activities within a Class 1 program are defined as “grassroots” exploration with low potential to cause adverse environmental effects, and where activities and reclamation are completed within a year. A Class 1 program does not require government approval but the operator must comply with the certain operating conditions. An assessment under the Yukon Environmental and Socio Economic Assessment Act (“YESAA”) is not required for a Class 1 program.

Class 2 programs are considered to represent the upper level of “grassroots” exploration activities. A notification submitted through the Mining Lands Office which outlines the activities and how they will be reclaimed is required. These programs comprise activities that have a moderate potential to cause adverse environmental effects and therefore require an assessment through YESAA. All work and reclamation must be completed within one year.

All Class 3 and Class 4 programs require submission of a detailed “Operating Plan” to the Mining Lands Office. A YESAA assessment is required. The Operating Plan must be approved before any exploration activities can be undertaken. Operating Plans may entail multi-year exploration programs to allow greater flexibility for the operator.

The work described in this Report was completed as a Class 1 program.

#### **4. Accessibility, Local Resources, Infrastructure, Physiography and Climate**

Access to the Property is relatively good compared to other parts of the Dawson City area as it is reachable by a network of summer roads (Figure 2). To get to the Property from Dawson City one takes the Hunker Creek Road and then left onto the Sulphur Creek Road to a point 2km south of the Hunker-Sulphur junction. From this point one follows a narrow road on the left that travels along a ridge in a southeast direction for a distance of approximately 15km before crossing the west boundary of the Property. The road continues along the ridge for another 2km before dropping into Gold Run Creek. It continues on the east side of the creek for additional 3km before crossing the south boundary of the Property.

Portland is located in an isolated part of Yukon with relatively few local resources or infrastructure. The Property can be worked from Dawson City by truck or, as in the case of the work described in this Report, it can be worked from an exploration camp built on the Property. A camp can be supported from Dawson City, where services are limited, or from Whitehorse where a full range of services are locally available including line-cutting, geophysics, drilling, assaying, aircraft charters etc.

The Property covers the headwaters of Portland Creek in the Dawson Range of Yukon. Unlike most parts of Yukon, the Dawson Range was not affected by the last period of continental glaciations and so it is characterized by low rolling hills incised with steep sided, V-shaped valleys. Bedrock is typically deeply

weathered and there is very little (perhaps less than 5%) outcrop exposed; usually on ridges above tree-line or in rare canyons in the creek valleys. Elevations on the Property range from 700m to 920m above sea level. Most of the Property lies below tree-line and is covered by a typical boreal mixture of pine, spruce, balsam fir, aspen and birch trees and willow and alder brush. North and west slopes are often covered with thick moss blanketing permafrost.

The Dawson City area is characterized by a semi-arid, sub-arctic continental climate with mild to hot summers and cold winters. Precipitation is generally light in the summer and overall clear skies and warm temperatures prevail. Heavy morning fog can be a problem for aircraft especially towards the end of the summer season. Forest fires are common and thick smoke at times may impede exploration work. Maximum snow accumulations in the winter are typically less than one metre. Due to the northerly latitude of the region, summer days are long and winter days very short. The best season for exploration is during the summer months from mid-May to mid-October. Although it is possible to work during the winter months, costs rise exponentially due to cold temperatures, inclement weather and short daylight hours.

## 5. Exploration History

The following exploration history of the Property has been compiled from the Yukon Energy and Mines and Resources Library and Yukon Geological Survey MINFILE database. There has been limited exploration work on the property. Table 2 below lists all known assessment reports that describe work done within the boundaries of the present Property in whole or in part.

**Table 2 - Previous Assessment Work Files**

Company	Year	AFR No.	Author	Work	Link
Dawson Eldorado Gold Expl. Ltd.	1984	091559	J.K. Mortensen	Soil geochem	<a href="#">091559.pdf</a>
Dawson Eldorado Gold Expl. Ltd.	1984	091565	J.K. Mortensen	n/a	n/a
UKHM Ltd.	1985	091634	D.R. Prince	Percussion drilling	<a href="#">091634.pdf</a>
UKHM Ltd.	1988	092600	A.J. McFaull	Soil Geochem/Trenching	<a href="#">092600.pdf</a>
UKHM Ltd.	1989	092743	A.J. McFaull	Mechanical trenching	<a href="#">092743.pdf</a>
Klondike Reef Mines Ltd.	1997	092974	D.Mark	Geophysics	<a href="#">092974.pdf</a>
Otis J Exploration Ltd.	1993	093158	P. Southam	Soil geochem	<a href="#">093158.pdf</a>
Barramundi Gold Ltd.	1997	093711	R. Stevens	Regional geochem	<a href="#">093711.pdf</a>
Barramundi Gold Ltd.	1999	094021	W.A. Sears	Airborne geophysics	<a href="#">094021.pdf</a>
KSL Expl. (Yukon) Ltd.	2001	094268	R.G. Adamson & C.M. Thomas	MMI geochem	<a href="#">094268.pdf</a>
KSL Expl. (Yukon) Ltd.	2003	094355	R.G. Adamson & C.M. Thomas	MMI geochem	<a href="#">094355.pdf</a>

There are a number of mineral showings documented within the area of the Property listed in Table 3 below:

**Table 3 - MINFILE Showings**

MINFILE No.	MINEFILE Name	Link
1150 063	Gold Run	<a href="#">1150 063</a>
1150 065	Dominion	<a href="#">1150 065</a>
1150 138	Cowan	<a href="#">1150 138</a>

Quartz or hard rock prospecting in the Dominion Mountain area dates back to the Klondike Gold Rush and has continued sporadically since then. Most of this work appears to have concentrated on the Gold Run showing (1150 063) that was first staked in 1910 by W.D. MacKay and N.J. Donahue who tested the showing with extensive surface hand trenching and about 30m of shafting and 23m of adits until 1924. MacLean (1914) reported that three samples of quartz were taken from this structure. One of them was taken from an outcrop and two of them were taken from a hand trench; all panned colours of gold. The two latter samples assayed 1.8 ounces per ton gold and 5.7 ounces per ton gold, respectively.

No other work is documented in the area until 1983 when Dawson Eldorado Gold Ltd. completed a reconnaissance soil geochemistry survey consisting of five lines spaced approximately 1000m with sample intervals of 250m over the Klun 1 to 32 claims (AFR No. 091559). No significant results were reported.

In 1984 United Keno Hill Mines Ltd. Completed 375m of percussion drilling in a fence of five holes spaced approximately 30m apart on the Run 42 claim as part of a larger regional gold exploration program (AFR No. 091634). This work was done just south of the Property. No significant results were reported.

In 1993 Otis J Exploration collected 194 soil samples at 25m intervals on two lines along the 875m contour on the Property at the headwaters of Portland and Gold Run creeks on the King 1 to 60 claims (AFR No. 093158). Two samples located directly down slope from the Gold Run Showing returned strong gold values of 45 and 140ppb Au.

In 1996 Barramundi Gold Ltd. carried out a regional silt sampling, mapping, prospecting, and rock sampling program over a very large block of claims that included the area of the Property (AFR No. 093711). No significant results were reported. In 1999 Barramundi flew an airborne geophysical survey over the area (AFR No. 094021).

In 2001 KSL (Yukon) Ltd. completed an MMI geochemical survey on the Strike 1 to 31 claims (AFR No. 094268) at the headwaters of Gold Run Creek. No significant results were reported. In 2003 KSL (Yukon) Ltd. did additional MMI geochemical sampling on the Strike 14 to 31 claims with no significant results reported (AFR No. 094355).

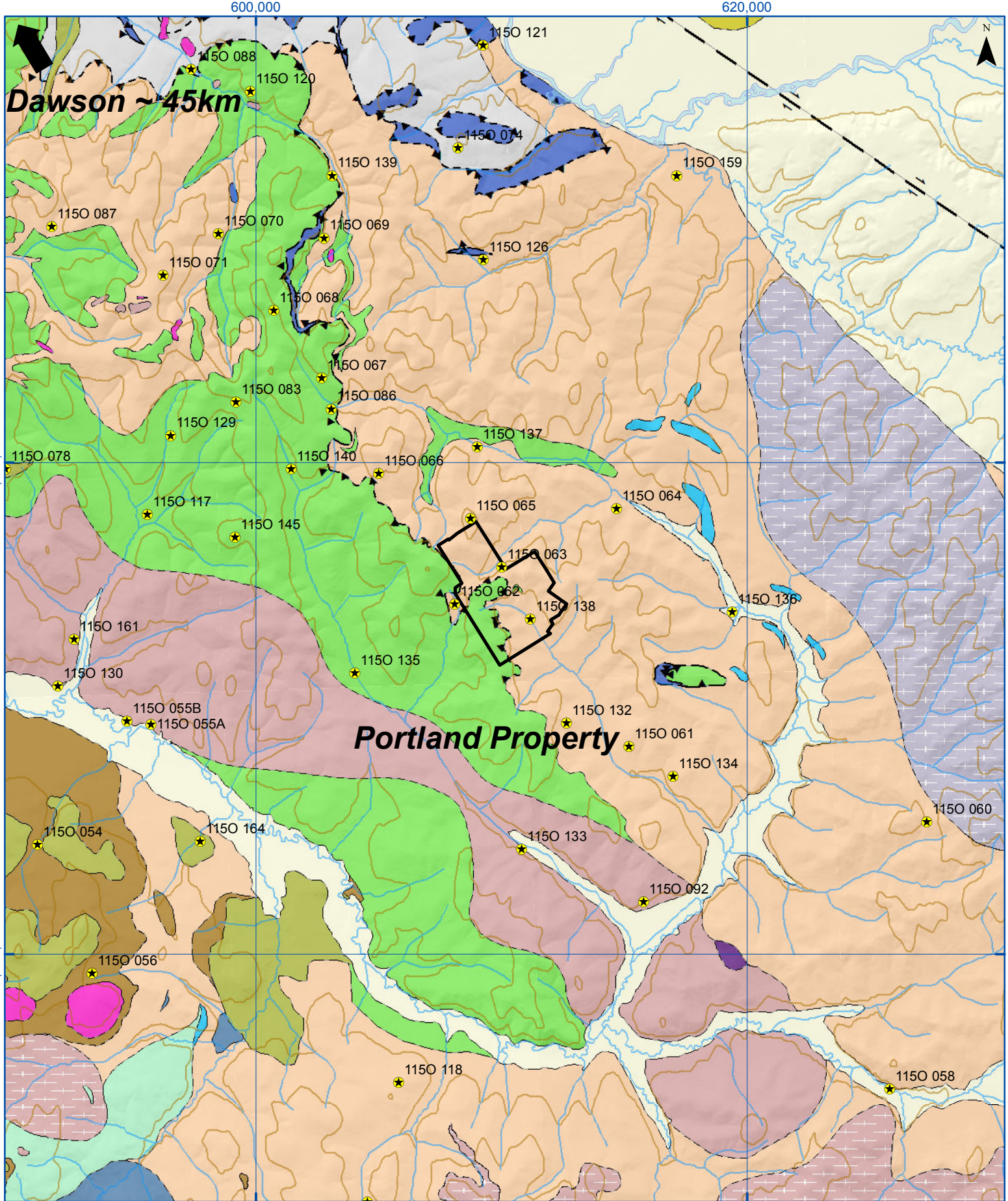
In 2010 Taku collected 1,001 preliminary, widely-spaced soil samples over most of the Property followed by trenching and sampling at the Gold Run showing (Fekete, 2010). The gold-in-soil results identified four parallel, northwest-trending, linear, weak to moderate gold anomalies. The best value was 46ppb Au. The Gold Run showing is not marked by a distinct geochemical signature and returned a maximum soil value of only 31ppb Au. The rock samples collected from the five Gold Run trenches returned spectacular, high-grade results. The best values were obtained in Trench No. 4 where the vein structure averaged 97.23gpt Au (uncut) over 7.0m with a maximum value of 455.76gpt Au. Clearly the gold is directly related to the quartz veins but is probably coarse-grained and subject to nugget effect. Previous trenching and shafting indicate that the Gold Run structure is at least 250m long (Fekete, 2010).

## **6. Geology**

The Property lies within the Yukon-Tanana Terrane which, due to large areas with little or no bedrock exposure and limited modern regional or detailed mapping, remains very poorly understood. Generally it consists of several successions of layered sedimentary and volcanic rocks ranging from Late Proterozoic to Late Permian age that overlay the older Nisling Terrane. These complexly deformed layered rocks have been episodically intruded by various intrusive rocks in the Permian, Jurassic, Cretaceous and Tertiary periods. The intrusive events have been accompanied by volcanic activity especially in the Upper Jurassic to Lower Cretaceous. The Yukon-Tanana has been subjected to numerous prolonged deformational events including subduction and accretion that has led to significant structural thickening. Imbricated allochthonous terranes such as Slide Mountain Terrane are evidenced by altered ultramafic fragments.

The Property lies within the Klondike gold district (Figure 3) which, according to limited regional mapping and compilation (Mortensen, 1996) is underlain primarily by Devonian to Mississippian quartz mica schists, quartzites and carbonaceous quartzites with occasional intervals of marble, orthogneiss, amphibolite, mafic schist and metaconglomerate, and Permian rocks including the Klondike (muscovite-chlorite-quartz-feldspar) schist and orthogneiss presumed to be derived from quartz monzonite (sometimes referred to as Sulphur Creek orthogneiss).

Limited mapping on the Property (Ryan and Gordey, 2004) indicates that it is underlain mainly by Devonian to Mississippian quartz mica schists (DMps). Permian Klondike (PKs) schists on the west side of the Property have been structurally emplaced over the Devonian to Mississippian rocks by the west-dipping Sulphur Creek thrust fault (Figure 4).



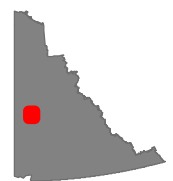
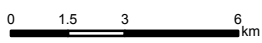
**Dawson ~45km**

**Portland Property**

**PORTLAND PROPERTY  
Figure 3. REGIONAL GEOLOGY**



★ Mineral Occurrence

Universal Transverse Mercator Zone 7  
World Geodetic System 1984  
Scale 1:200 000




Portland Property  
Figure 3. Regional Geology  
Taku Gold Corp.  
NTS Sheet: 1150  
Date: November 29, 2011

## QUATERNARY

-  Qs  
Fluvial silt, sand and gravel
-  Qb  
Basalt

## TERTIARY

-  Ts  
Conglomerate, sandstone, shale

## DEVONIAN TO MISSISSIPPIAN?


-  DME  
Earn group

## TERTIARY EOCENE

-  Er  
Porphyry

## CRETACEOUS

### UPPER CRETACEOUS

-  uKcV  
Carmacks Group

### MID?-CRETACEOUS

-  Kg/Kgd  
Granite/Granodiorite

### LOWER CRETACEOUS

-  IKToG  
Tantalus(?) Formation


## JURASSIC

### EARLY JURASSIC

-  EJgd  
Granodiorite

## TRIASSIC

### LATE TRIASSIC

-  LTrum  
Pyroxene Mountain Body

## PALEOZOIC AND/OR MESOZOIC

-  PMd  
Gabbro





## CARBONIFEROUS

-  CD  
Dawson-Clinton Creek Assemblage

## MID(?) - TO LATE PALEOZOIC

-  mPum/mPums  
Ultramafic-Gabbro

## PERMIAN

-  Pv  
Foliated volcanic
-  PKs  
Klondike Schist
-  Pg  
Jim Creek Pluton
-  Pogg, Pogq/Poga  
Pogt  
Orthogneiss (Younger, 264-259 Ma)

## DEVONIAN TO MISSISSIPPIAN

-  DMNq/DMNI  
Nasina Assemblage
-  DMogg/DMoga  
DMogt  
Orthogneiss (Older, 363-343 Ma)
-  DMogta  
Undivided DMogt (Orthogneiss (older))  
and DMA (Amphibolite)
-  DMA  
Amphibolite
-  DMm  
Mafic schist
-  DMc  
Marble
-  DMps  
Quartz-Mica schist
-  DMcg  
Metaconglomerate
-  DMq  
Quartzite

## SYMBOLS


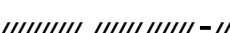
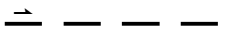
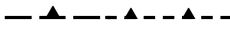
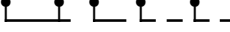

-  ————— Geological contact  
(defined, approximate, assumed)
-  - - - - - Fault, sense of movement uncertain  
(defined, approximate, assumed)
-  - - - - - Fault, transcurrent, dextral  
(approximate)
-  - - - - - Fault, thrust (teeth on upper plate)  
(defined, approximate, assumed)
-  - - - - - Fault, normal (teeth on upper plate)  
(defined, approximate, assumed)
-  - - - - - Fault, low-angle normal  
(teeth on upper plate)  
(approximate, assumed)

Figure 3 continued. Legend for Regional Geology

608000

612000

N

1150 065

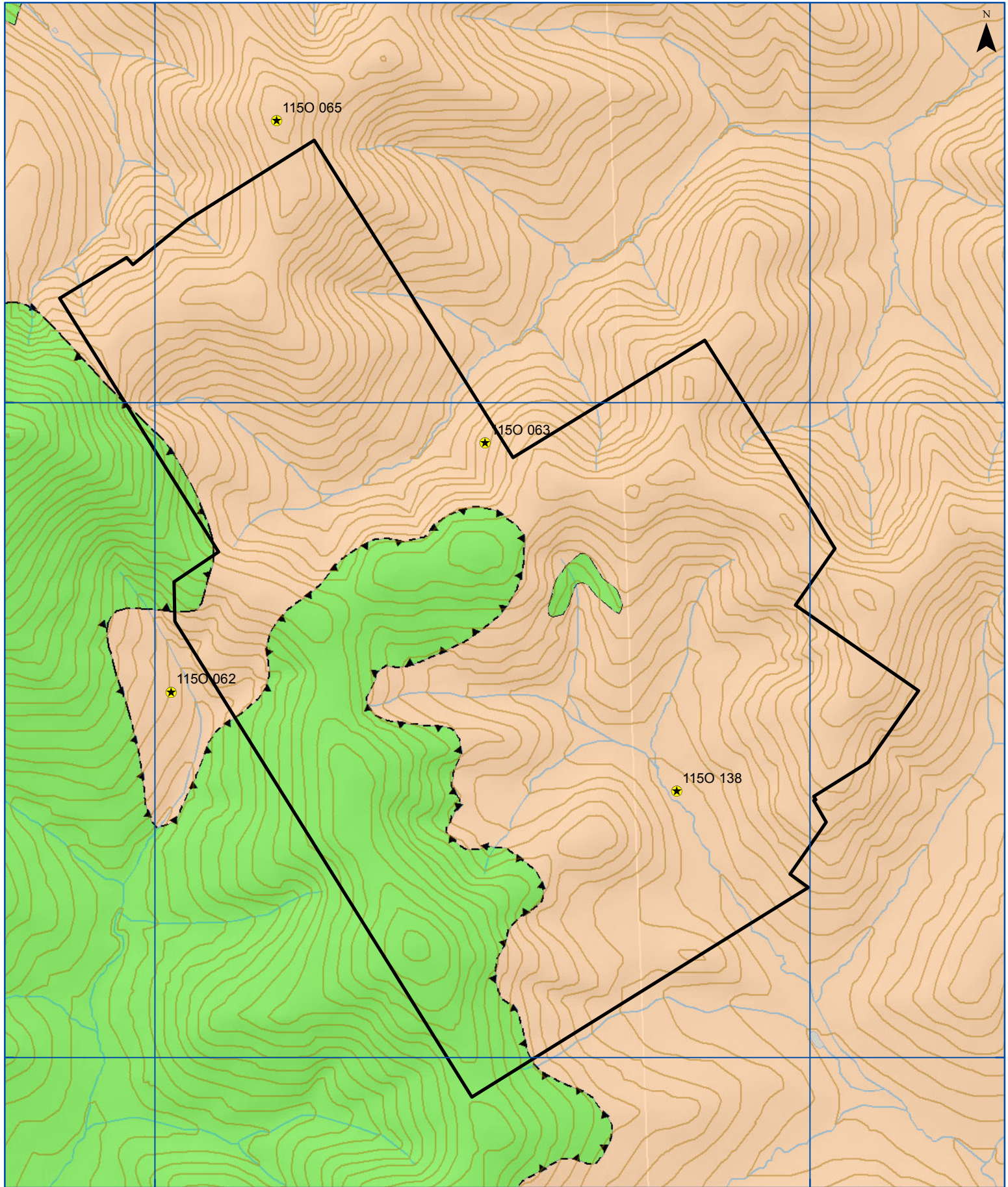
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1150 062

1150 138

7076000

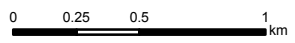
7072000



**PORTLAND PROPERTY**  
**Figure 4. PROPERTY GEOLOGY**

★ Mineral Occurance

Universal Transverse Mercator Zone 7  
 World Geodetic System 1984  
 Scale 1:30 000



Portland Property  
 Figure 4. Property Geology  
 Taku Gold Corp.  
 NTS Sheet: 1150/15  
 Date: November 29, 2011

## **7. Deposit Types**

The Property lies within an underexplored part of the loosely defined Tintina Gold Belt. This metallogical province has past production of 29.9 million ounces and 39.3 million ounces of resources for total gold resources of 69.2 million ounces. Notable gold deposits are Donlin Creek, Ft. Knox, Pogo and Brewery Creek. The underexplored nature of the Klondike-White Gold district's hard rock potential was highlighted by Underworld's discovery of the Saddle and Arc zones in May 2009 on the White property located 75km southeast of Portland, and more recently by the Supremo discovery on Kaminak's Coffee property located approximately 100km south of Portland.

The Klondike-White Gold district lies within the larger Dawson Range area where a number of known gold and porphyry copper deposits show a wide range of styles, geological settings and geochemical associations. Taku's exploration effort at Portland is not adhering to any firm deposit model but is instead based on practical survey methods that generate drill targets and have led to discoveries by other groups working in the area.

Detailed geochemical surveys have proven to be effective in the area, as shown by Shawn Ryan's success on the White and Coffee properties. The Dawson Range generally shows deeply weathered, oxidized soils in an unglaciated periglacial environment. This simply means that in order to collect soils that best represent the underlying bedrock it is necessary to take relatively deep soil samples that are likely less weathered and less oxidized. Another useful exploration tool is to fly closely spaced, low altitude, helicopter-borne geophysical surveys to assist in interpreting bedrock units, structure, and alteration.

## **8. Mineralization**

The Gold Run showing is the best exposed mineralization found on the Property to date. It occurs as a series of outcrops of white quartz over a distance of approximately 250m trending northwest from the ridge downhill towards Portland Creek. It is not certain if these quartz outcrops represent a single vein or a series of veins. The quartz is generally very white but is in places stained rusty with iron oxides probably derived from pyrite and other sulphides. Visible gold as well as galena is found locally within the vein. The veining is sub-vertical and variably dips northeast and southwest. It appears to be subparallel to the schistosity of the surrounding bedrock.

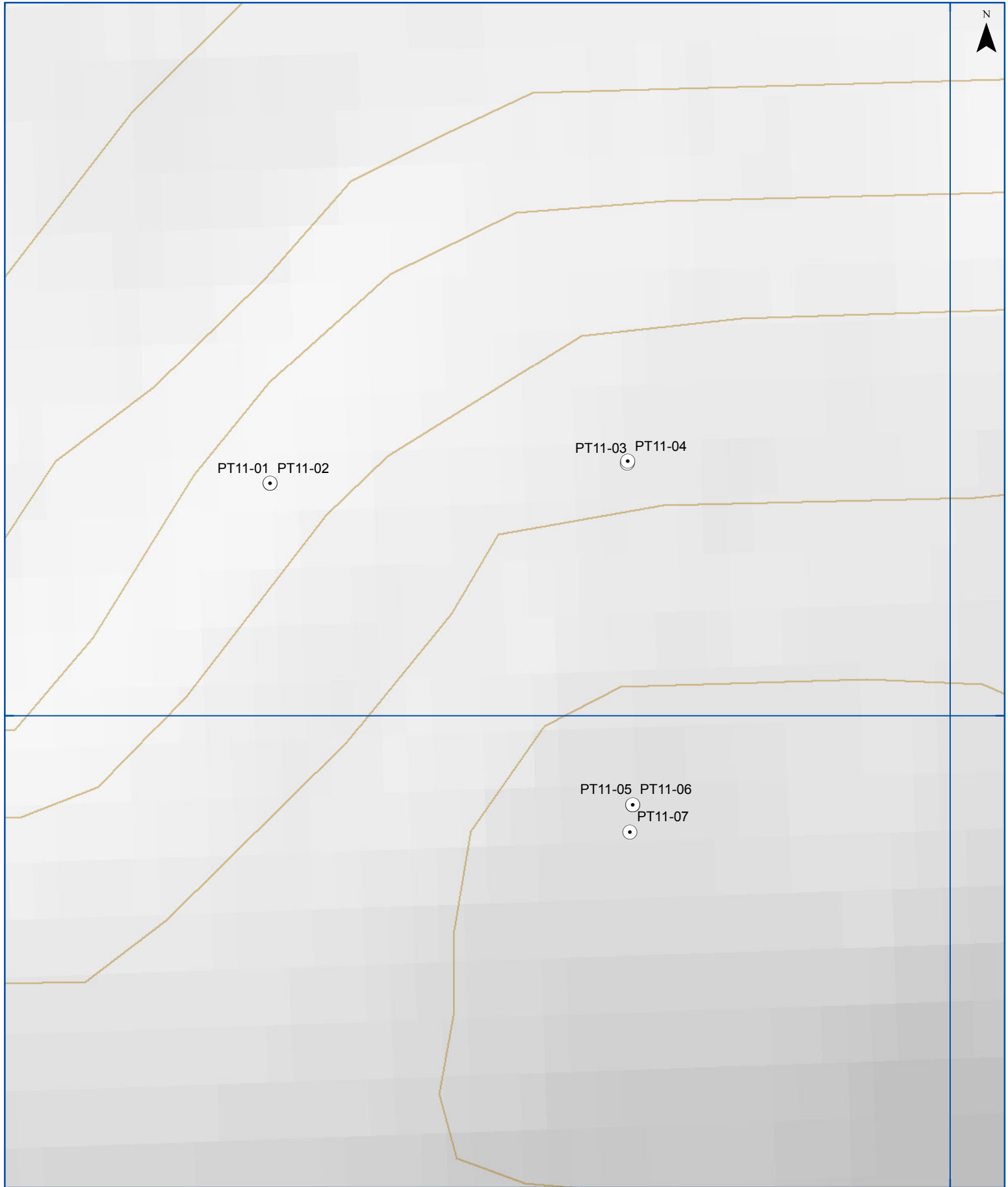
## **9. 2011 Diamond Drilling Program**

### **9.1. Introduction**

The drilling, including preparations and demobilization, was done from August 1, 2011 to September 3, 2011 under the supervision of the Senior Author. A total of 975m of NQ2-diameter core drilling was completed in seven holes. The drilling contractor was Earth-Tek Drilling Ltd of Whitehorse, Yukon. A detailed Statement of Work is included herein as Appendix A.

The core was logged and sampled by the Junior Author. The core was split by technician Darrell Kraemer, of Whitehorse, Yukon. Food and Lodging for the drill and geological crew was provided at the Taku Gold camp located near Dominion Creek at the historical village of Granville approximately 13km southeast of the Property. All drill core locations were recorded with HP iPAQ 200 series field computers running GeoInfoMobile and Tierra Mapper software paired with Holux GPS receivers in map datum UTM WGS 84 Zone 7.

Collar locations, dips, azimuths and depths are summarized in the table included as Appendix B. Drill logs are included as Appendix C. Figure 5 provides a plan view of the drilling and Figures 6, 7 and 8 provide cross sections. The primary goal of the drilling was to test the continuity of a gold-bearing structure first identified historically as the Gold Run showing. The Junior Author compiled the field data into digital maps and wrote this Report up to December 20, 2011.



7075200

PT11-01 PT11-02

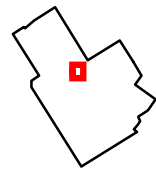
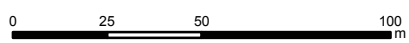
PT11-03 PT11-04

PT11-05 PT11-06  
PT11-07

○ Drill Collar

### PORTLAND PROPERTY Figure 5. DRILLHOLE COLLAR LOCATIONS

Universal Transverse Mercator Zone 7  
World Geodetic System 1984  
Scale 1:2 000



Portland Property  
Figure 5. Drillhole Collar Locations  
Taku Gold Corp.  
NTS Sheet: 1150/15  
Date: November 29, 2011



1,700 mE

609,800 mE

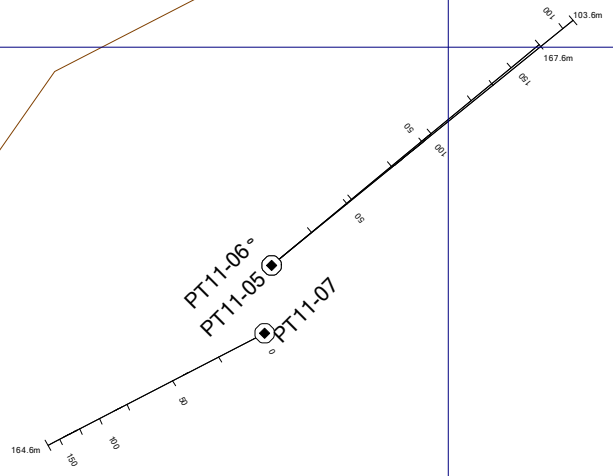
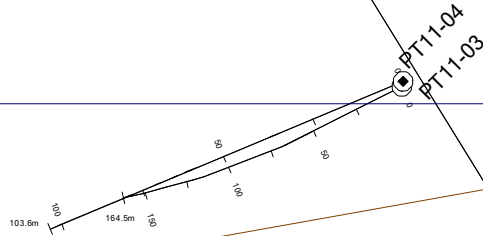
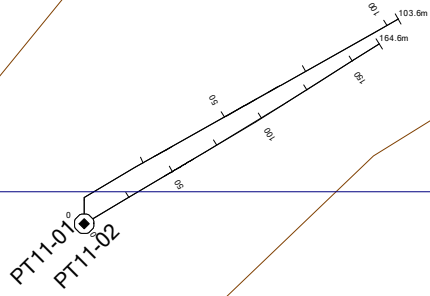
609,900 mE



7,075,300 mN

7,075,200 mN

7,075,100 mN



**Taku Gold Corp.**

**PORTLAND PROPERTY**

**DDH Plan  
2011 Drilling**

Date: 11/12/2011

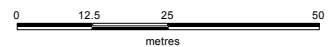
Author: NDokic

Office: Dawson

Drawing: Figure 6

Scale: 1:1250

Projection: UTM Zone 7, Northern Hemisphere (WGS 84)



## 9.2. Sampling and Analytical Procedures

Drill core was delivered to the core shack, in Dawson City, on a daily basis by designated camp personnel in sealed core boxes. All sample intervals were recorded in the core logs and marked on the core boxes with numbered waterproof tags stapled at the beginning of the sample interval. The core was split with a hydraulic core splitter. One-half of each split core sample interval was returned to its appropriate core box location. The remainder of each sample was placed with the appropriate sample tag in a plastic bag marked in indelible ink with the proper sample number and sealed with a plastic tie-wrap. A batch of samples was subsequently sealed in rice bags with security plastic tie-wraps bearing unique serial numbers. A shipping manifest was sent with the batch of samples. The samples were delivered to Acme Analytical Laboratories Ltd. (“Acme”) in Whitehorse, Yukon where they were prepared by crushing 1kg to 80% passing -10 mesh and then pulverizing a 250g sub-sample to 85% passing -200 mesh. Each sub-sample was analyzed for gold by 30g fire assay, ICP-ES finish. Assay results were determined for a total of 121 samples including blanks, duplicates and standards and are included as Appendix D.

It is the Authors’ opinion that the sampling procedures, security measures, sampling preparations and analytical methods applied to the drill core samples were diligently followed and are adequate to meet industry standards commonly accepted for this level of exploration. The Authors have relied upon the adequacy and accuracy of the analytical results and verification of those results as discussed below.

## 9.3. Data Verification

The drill core sampling was done according to a QA/QC protocol, independently designed by consulting Geologist Tracy Armstrong, P.Geo. of Magog, Quebec. Samples were organized into batches of 35 samples that contained two reference standards (Appendix E), one core duplicate and one blank. Each batch was subsequently sealed into three rice bags with security plastic tie wraps. Blank core was unavailable due to the early stages of exploration on the Property, so sterile, broken boulders from a gravel pit were used as a substitute.

## 9.4. Drill Results

Six holes were aimed to intersect the historical Gold Run structure that was exposed at surface by the 2010 mechanical trenching. One hole was aimed in the opposite direction, away from the Gold Run showing, towards a hand dug trench likely dating back to early 1900’s (MacLean, 1914). Rock fragments on the dump of this trench showed similar mineralization to the Gold Run structure. The seventh hole was drilled to test the possibility of a parallel structure.

The geology intersected by the drilling is simple, generally consisting of quartz-biotite schist and chlorite schist. The quartz-biotite schist is fine-grained, well banded and varies from pale pink to orange to green. The chlorite schist is a distinct green colour, medium-grained with visible mica flakes and appears to occur as wide lenses within the quartz-biotite schist. Both lithologies likely belong to the Permian Klondike schist (PKs).

Quartz-carbonate lenses of varying width are found throughout the quartz-biotite schist and in certain intervals of the chlorite schist. Other intervals of the chlorite schist are marked by minor amounts of disseminated pyrite in cubes typically less than one centimeter in size. Numerous zones of silica flooding-type alteration were noted. These zones are often associated with quartz stockwork veining and may or may not show sulphide mineralization. Very narrow zones of strong limonite altered “crackle breccia” were intersected in holes PT11-01, 02 and 04. It was presumed that the crackle breccia zones corresponded to the Gold Run structure but they did not return any notable gold values. A similar narrow crackle breccia zone was intersected in hole PT11-07, which could indicate that the Gold Run showing is potentially a vein system, this zone was also poorly mineralized.

Gold values intersected by the drilling ranged from below detection limit (2ppb Au) to a maximum of 2.29gpt Au. The highest gold value intersected was 2.29 grams per tonne gold (gpt Au) over 1.0m in hole PT11-02 from 46.3m. Notable gold grades were also intersected in holes PT11-01, PT11-05 and PT11-07. Generally the elevated gold grades are found within the quartz stockwork veins which show slight limonite

alteration and disseminated pyrite throughout. It appears that the Gold Run structure was intersected in holes PT11-01, 02, 05 and 06 but the gold grades are spotty and inconsistent within the structure. The structure has an apparent dip of 85° to the southwest. Holes PT11-03 and 04 were drilled from northeast to southwest (“down dip”) and missed the Gold Run structure entirely. Hole PT11-07 intersected a parallel zones grading 0.2gpt Au over 3.0m from 41.2m.

Weight average intersections from the drilling are listed in the following table.

**Table 4 – Weight Averaged Gold Intersections**

<b>Hole No.</b>	<b>From (m)</b>	<b>To (m)</b>	<b>Interval (m)</b>	<b>Au g/t</b>
PT11-01	29.4	33.0	3.6	0.5
PT11-01	54.9	57.9	3.0	0.6
PT11-02	45.3	50.3	5.0	0.5
PT11-02	59.3	61.3	2.0	0.5
PT11-05	96.0	99.0	3.0	0.2
PT11-07	41.2	44.2	3.0	0.2
PT11-07	78.8	79.8	1.0	0.7

## **10. Adjacent Properties**

No gold deposits are known to exist on properties immediately adjacent to the Property. Significant gold mineralization has been found approximately 75km southeast of Portland at Kinross’s White Gold deposit with a current resource estimation at the Golden Saddle zone of 1,004,570 indicated ounces at 3.2gpt Au and 407,413 inferred ounces at 2.5gpt Au; and at the Arc Zone of 170,470 inferred ounces at 1.2gpt Au (Underworld News Release - January 19, 2010). Kaminak’s discovery hole of 15.5m over 17.1gpt Au at the Supremo zone (Kaminak News Release - May 26, 2010) lies about 100km south of Portland.

The Author has not verified the information made public on these adjacent properties and cautions that **any such information is not necessarily indicative of the mineralization on the Portland property.** However, this information does indicate that the Klondike-White Gold district is an underexplored area that has solid potential for hosting significant gold deposits.

## **11. Mineral Processing and Metallurgical Testing**

To date no mineral processing or metallurgical testing has been completed on the Property.

## **12. Mineral Resource and Mineral Reserve Estimates**

To date no mineral resource or mineral reserve estimates have been completed on the Property. It is at a “grassroots” level of exploration such that it is too early to make any resource or reserve estimates.

## **13. Other Relevant Data and Information**

The Author is not aware of any other relevant data and information or explanation to make this report more understandable and not misleading.

## **14. Interpretation of Results and Conclusions**

The drill program completed by Taku Gold Corp. met its primary goal of testing the continuity of the gold-bearing structure exposed at the historical Gold Run showing. The structure appears to be narrow and discontinuous with a global average gold grade that is quite low. The drill results did not reflect the high-grade values obtained from the trenches done in the previous season (Fekete, 2010). Visible gold has been noted at surface suggesting that the gold in the Gold Run structure is relatively coarse-grained and subject to a nugget effect. Overall the drill results were below expectations. One positive result of the drilling was the gold-bearing structure intersected in hole PT11-07. Although this zone is narrow and low grade, it does provide direct evidence for the existence of gold-bearing zones parallel to the Gold Run structure. Finally, the drill results give the impression that gold mineralization on the Property is restricted to narrow structures with spotty gold values that likely do not have the potential to form economic deposits.

## 15. Recommendations

No further drilling can be recommended on the Portland property at this time. The gold-bearing zone intersected in hole PT11-07 should be further tested by surface trenching. Prospecting and sampling work should be done to follow up the more favourable geochemical results determined in 2010. It is estimated that up to \$25,000 should be spent on these exploration activities. Deep auger-type soil sampling has proven to be a very effective exploration tool in the Dawson area. The amount of this type of sampling done on Portland to date is very wide-spaced and preliminary. The estimated cost to complete a detailed, 2000-sample, deep auger-type soil geochemical program is \$150,000. This work should be considered as an alternative to trenching, prospecting and sampling dependent upon available financing.

## 16. References

Fekete, M., 2010

Report on Surface Work Performed from August 25 to December 10, 2010 on the Portland Property (unpub.)

Gordey, S.P. and Makepeace, A.J. (1999)

Yukon Digital Geology; Geological Survey of Canada, Open File D3826.

MacKenzie, D.J., Craw, D. and Mortensen, J., 2008a

Structural controls on orogenic gold mineralization in the Klondike goldfield, Canada. *Mineralium Deposita*, vol. 43, p. 435-448.

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Thrust slices and associated deformation in the Klondike goldfields, Yukon. *In: Yukon Exploration and Geology 2007*, D.S. Emond, L.R. Blackburn, R.P. Hill and L.H. Weston (eds.), Yukon Geological Survey, p. 199-213.

MacLean, T.A., 1914

Lode Mining in Yukon; Mines Branch Publication 222, p. 83-85.

Mortensen, J.K., 1996

Geological compilation maps of the northern Stewart River map area, Klondike and Sixtymile Districts (115N/15, 16; 115O/13, 14; and parts of 115O/15, 16). Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada, Open File 1996-1(G), 43 p.

Ryan, J.J. and Gordey, S.P., 2004.

Geology, Stewart River Area (Parts of 115 N/1,2,7,8 and 115-O/2-12), Yukon Territory. Geological Survey of Canada, Open File 4641, 1:100 000 scale.

## **Appendix A - Statement of Work**

**APPLICATION FOR A CERTIFICATE OF WORK**

*Version française*

Office Date Stamp

I, \_\_\_\_\_ ,  
 \_\_\_\_\_  
 of \_\_\_\_\_  
 Phone \_\_\_\_\_  
 make oath and say that:

1. I am the owner, or agent of the owner, of the mineral claim(s) to which reference is made herein.
2. I have done, or caused to be done, work, on the following mineral claim(s): (Here list claims on which work was actually done by number and name)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

situated at \_\_\_\_\_ Claim sheet No. \_\_\_\_\_

in the \_\_\_\_\_ Mining District, to the value of at least \_\_\_\_\_ dollars,

since the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_ ,

to represent the following mineral claims under the authority of Grouping Certificate No. \_\_\_\_\_ .  
 (Here list claims to be renewed in numerical order, by grant number and claim name, showing renewal period requested).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. The following is a detailed statement of such work: (Set out full particulars of the work done indicating dates work commenced and ended in the twelve months in which such work is required to be done as shown by Section 56).

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Sworn before me at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_ .

\_\_\_\_\_  
 Notary Public

\_\_\_\_\_  
 Owner or Authorized Agent

*Access to Information and Protection of Privacy Act*

The personal information requested on this form is collected under the authority of and used for the purpose of administering the *Quartz Mining Act*. Questions about the collection and use of this information can be directed to the Mining Records Office, Mineral Resources, Department of Energy, Mines and Resources, Yukon Government, Box 2703, Whitehorse, Yukon Territory, Y1A 2C6 (867) 667-3190

Claim List for Cert of Work 2011 Portland

Type	Claim Information				Work Done	Renewal		
	Grant No.	Claim Name	Claim No.	Expiry Date	Drilling	Years	Annual Fee	Total
Quartz	YC63808	Port	1	12/24/2015	\$ 258,927.18	4	\$ 5.00	\$ 20.00
Quartz	YC84057	Port	2	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YC84092	Port	3	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YC84093	Port	4	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YC84094	Port	5	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
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Quartz	YD19934	PT	34	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19935	PT	35	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19936	PT	36	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19937	PT	37	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19938	PT	38	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19939	PT	39	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19940	PT	40	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19941	PT	41	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19942	PT	42	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
Quartz	YD19943	PT	43	12/24/2015	\$ -	4	\$ 5.00	\$ 20.00
				Column Total	\$ 258,927.18			\$ 1,500.00
				From Statement of Cost	258,927.18			\$ 1,500.00
				No. Claims	75			

Drilling 2011 Taku Portland

Supplier	Invoice	Date	Drilling							Total
			Wages & Contract	F&L	Supplies	Transport	Rentals	Drafting Maps etc.	Assays	Total
Name	Ref No.	Date	5450	5451	5452	5453	5454	5455	5456	Total
Acme	VANI105598	23-Nov-11							2,229.96	2,229.96
AFD	YT2089-4741	8-Aug-11			3,000.00					3,000.00
AFD	YT6006-4441	25-Aug-11			3,469.54					3,469.54
ALX Expl.	704	28-Jul-11			15,300.00					15,300.00
ALX Exploration	760	22-Aug-11			400.00					400.00
Arctic Inland	2081310	15-Jul-11			4006.15					4,006.15
Arctic Inland	2081524	23-Jul-11			160.90					160.90
Arctic Inland	2081737	29-Jul-11			79.00					79.00
ASL	4213	2-Sep-11							231.61	231.61
Breakaway	703	20-Sep-11	28,960.00							28,960.00
Breakaway	703	20-Sep-11				6,157.56				6,157.56
Breakaway	703	20-Sep-11					1,267.50			1,267.50
Breakaway	718	13-Oct-11	1,700.00	682.46		300.00	135.00			2,817.46
Breakaway	732	31-Oct-11	1,700.00	200						1,900.00
Breakaway	746	31-Nov-11	1,575.00	350.00			52.50			1,977.50
CDN Resource Labs	310915	6-Sep-11			136.94					136.94
Earth Tek	1009	1-Aug-11	9,050.00							9,050.00
Earth Tek	1011	9-Aug-11	7,040.00							7,040.00
Earth Tek	1014	2-Sep-11	85,583.08							85,583.08
Earth Tek	1015	6-Sep-11	27,754.98							27,754.98
Heli Dynamics	11902	2-Aug-11				625.50				625.50
Heli Dynamics	11906	6-Aug-11				1,459.50				1,459.50
Heli Dynamics	11907	7-Aug-11				1,251.00				1,251.00
Heli Dynamics	11908	8-Aug-11				2,085.00				2,085.00
Heli Dynamics	11871	15-Aug-11				834.00				834.00
Heli Dynamics	11919	18-Aug-11				7,506.00				7,506.00
Heli Dynamics	11920	19-Aug-11				3,127.50				3,127.50
Heli Dynamics	11881	20-Aug-11				1,876.50				1,876.50
Heli Dynamics	11882	21-Aug-11				2,710.50				2,710.50
Heli Dynamics	11883	22-Aug-11				2,919.00				2,919.00
Heli Dynamics	11884	23-Aug-11				5,421.00				5,421.00
Heli Dynamics	11888	25-Aug-11				4,795.50				4,795.50
Heli Dynamics	11889	26-Aug-11				3,127.50				3,127.50
Heli Dynamics	11890	27-Aug-11				1,251.00				1,251.00

Drilling 2011 Taku Portland

Supplier	Invoice	Date	Drilling							Total
			Wages & Contract	F&L	Supplies	Transport	Rentals	Drafting Maps etc.	Assays	Total
Name	Ref No.	Date	5450	5451	5452	5453	5454	5455	5456	Total
Heli Dynamics	11891	28-Aug-11				4,170.00				4,170.00
Heli Dynamics	11892	29-Aug-11				4,587.00				4,587.00
Heli Dynamics	11895	30-Aug-11				3,753.50				3,753.50
Heli Dynamics	11898	31-Aug-11				2,085.00				2,085.00
Small's Exp.	K7280	15-Aug-11	1,470.00							1,470.00
Small's Exp.	K7295	15-Aug-11	150.00							150.00
Small's Exp.	K7309	15-Aug-11	120.00							120.00
Small's Exp.	K7173	18-Aug-11				350.00				350.00
Small's Exp.	K7173	18-Aug-11	150.00							150.00
Small's Exp.	K7134	18-Aug-11				350.00				350.00
Small's Exp.	K7134	18-Aug-11	60.00							60.00
Small's Exp.	K7135	18-Aug-11				75.00				75.00
Small's Exp.	K7189	19-Aug-11				31.75				31.75
Small's Exp.	K7189	19-Aug-11	10.00							10.00
Small's Exp.	K7262	20-Aug-11				100.00				100.00
Small's Exp.	K7339	27-Aug-11				710.00				710.00
Small's Exp.	K7514	31-Aug-11	90.00							90.00
Small's Exp.	K7487	31-Aug-11					75.00			75.00
Small's Exp.	K7569	13-Sep-11		78.25						78.25
bottom			165,413.06	1,310.71	26,552.53	61,659.31	1,530.00	0.00	2,461.57	258,927.18

## **Appendix C – DDH Core Logs**

**Breakaway Exploration Management inc.**

<b>DDH:</b>	<b>PT11-01</b>	Claims title:	YC 63808	Section:	
		Township:	NTS 115O15	Level:	
		Range:		Work place:	Dawson City, BXM
Drilled by:	Earth Tek	Lot:			Warehouse
Described by:	Neda Dokic	From:	20/08/2011	Description date:	26/08/2011
		To:	21/08/2011		

Collar

			UTM7N_WGS84	LocalIPT
Azimuth:	55.00°	East	609,723	2,724
Dip:	-50.00°	North	7,075,294	4,117
Length:	103.60 m	Elevation	884	884

Down hole survey

Type	Depth	Azimuth	Dip	Invalid	Description
Reflex	45.00	55.00°	-51.50°	No	
Reflex	102.00	56.10°	-52.00°	No	

Description

Core size:	NQ2	Cemented:	No	Stored:	Yes
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Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	6.10	OB <b>Over Burden</b> Overburden						
6.10	67.10	M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; schistosity at 85° to core; >1cm quartz and carbonate lenses throughout Quartz-Biotite Schist	28.40	29.40	527301	1.00		64
			29.40	30.40	527302	1.00		1,096
29.60	33.20	Gl01; Py01 <b>Galena 1%; Pyrite 1%</b> 1% disseminated pyrite and galena						
29.60	33.20	STW;;;C;;Qz15 Gl01 Py01; <b>Stockwork Compression Quartz 15% Galena 1% Pyrite 1%</b> White; medium-grained; perpendicular to schistosity; moderate alteration; 1% disseminated pyrite and galena; >1cm stockwork vein	30.40	31.20	527303	0.80		872
			31.20	32.00	527304	0.80		58
			32.00	33.00	527305	1.00		115
			33.00	34.00	527306	1.00		77
			49.90	50.90	527308	1.00		2
50.90	53.70	STW;;;C;;Qz02; <b>Stockwork Compression Quartz 2%</b> <1cm crackle breccia stockwork veins; perpendicular to schistosity; weak alteration	50.90	51.90	527309	1.00		<2
			51.90	52.90	527310	1.00		<2
			52.90	53.90	527311	1.00		<2
			53.90	54.90	527312	1.00		<2
			54.90	55.90	527313	1.00		505
55.20	58.10	Lm; s; <b>Limonite; Strong; Pervasive</b> orange; strongly altered; pervasive in section						
55.20	58.10	STW;75%;;C;;Qz05; <b>Stockwork 75% Compression Quartz 5%</b> Possible Gold Run Zone; orange intensely altered; vuggy; <1cm stockwork veins; no mineralization visible due to strong alteration	55.90	56.90	527314	1.00		844
			56.90	57.90	527316	1.00		489
			57.90	58.90	527317	1.00		77
			58.90	59.90	527318	1.00		21
			63.40	64.40	527319	1.00		86
			64.40	65.40	527320	1.00		52
			65.40	66.40	527321	1.00		<2
67.10	95.70	M8Cl; LAM <b>SchistChlorite; Parallel Laminations</b> Green;						

Breakaway Exploration Management inc.

Description			Assay				
			From	To	Number	Length	Au (ppb)
95.70	103.60	Medium-grained; Schistose; schistosity at 85° to core; Laminated M8; CHL <b>Schist; Chloritic</b> Green; Fine-grained; schistose; schistosity at 85° to core; 2% disseminated pyrite throughout Quartz Biotite Chlorite Schist					
95.70	103.60	Py02 <b>Pyrite 2%</b> disseminated fresh pyrite cubes; <1cm throughout					
103.60	End of DDH Number of samples: 19 Number of QAQC samples: 2 Total sampled length: 18.60						

**Breakaway Exploration Management inc.**

<b>DDH:</b>	<b>PT11-02</b>	Claims title:	YC 63808	Section:	
		Township:	NTS 115O15	Level:	
		Range:		Work place:	Dawson City, BXM
Drilled by:	Earth Tek	Lot:			Warehouse
Described by:	Neda Dokic	From:	22/08/2011	Description date:	28/08/2011
		To:	23/08/2011		

Collar

			UTM7N_WGS84	LocalPT
Azimuth:	55.00°	East	609,723	2,724
Dip:	-70.00°	North	7,075,295	4,118
Length:	164.60 m	Elevation	884	884

Down hole survey

Type	Depth	Azimuth	Dip	Invalid	Description
Reflex	45.72	54.80°	-70.40°	No	
Reflex	91.44	54.30°	-69.60°	No	
Reflex	137.16	53.00°	-69.10°	No	
Reflex	164.60	53.00°	-68.70°	No	

Description

Core size:	NQ2	Cemented:	No	Stored:	Yes
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Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	4.00	OB <b>Over Burden</b> Overburden						
4.00	62.50	M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; milky white quartz and carbonate lenses throughout. Quartz Biotite Schist						
32.80	34.80	Lm; m; <b>Limonite; Moderate; Pervasive</b> orange; limonitic alteration along veins						
32.80	34.80	Py01 <b>Pyrite 1%</b> disseminated pyrite within veins						
32.80	34.80	STW;50%;;Qz05 Py01; <b>Stockwork 50% Quartz 5% Pyrite 1%</b> discordant stockwork quartz veins; disseminated pyrite within veins; orange limonitic alteration along veins	45.30	46.30	527339	1.00		244
46.30	62.00	Lm; m; <b>Limonite; Moderate; Pervasive</b> orange; limonitic alteration along veins						
46.30	62.00	Py02 <b>Pyrite 2%</b> disseminated fine grained pyrite within veins						
46.30	62.00	STW;;;;;Qz05 Py02; <b>Stockwork Quartz 5% Pyrite 2%</b> Potential Gold Run Zone; <1cm discordant stockwork veins throughout section; orange limonitic alteration along veins; disseminated pyrite within veins; vuggy	46.30	47.30	527340	1.00		2,287
			47.30	48.30	527341	1.00		34
			48.30	49.30	527343	1.00		3
			49.30	50.30	527344	1.00		128
			50.30	51.30	527345	1.00		9
			51.30	52.30	527346	1.00		<2
			52.30	53.30	527347	1.00		<2
			53.30	54.30	527348	1.00		<2
			54.30	55.30	527349	1.00		6
			55.30	56.30	527351	1.00		<2
			56.30	57.30	527352	1.00		46

Breakaway Exploration Management inc.

Description			Assay				
			From	To	Number	Length	Au (ppb)
62.50	96.60	M8Cl; LAM <b>SchistChlorite; Parallel Laminations</b> Green; Fine-grained; schistose; laminated; rare quartz and carbonate lenses throughout	57.30	58.30	527353	1.00	21
			58.30	59.30	527354	1.00	41
			59.30	60.30	527355	1.00	829
			60.30	61.30	527356	1.00	201
			61.30	62.30	527357	1.00	<2
96.60	103.60	M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; lacks quartz and carbonate lenses Large 0.5m barren quartz vein at the start of section Quartz Biotite Schist					
96.60	97.20	Lm; w; <b>Limonite; Weak; Pervasive</b> Weak limonitic alteration along fractures in vein					
96.60	97.20	VEI;0.6 m;;;Qz100; <b>Vein 0.6 m Quartz 100%</b> milky white quartz vein; very weak limonitic alteration.					
103.60	111.90	M8; RUB; Bo <b>Schist; Banded; Biotitic</b> Black; Fine-grained; schistose; biotite rich; laminated sections; lacks quartz and carbonate lenses Quartz Biotite Schist					
111.90	125.40	M8; RUB <b>Schist; Banded</b> Grey to pink;					

Breakaway Exploration Management inc.

Description		Assay				
		From	To	Number	Length	Au (ppb)
125.40	132.00					
fine-grained; schistose; lacks milky white quartz and carbonate lenses throughout. Quartz Biotite Schist M8; RUB; Bo <b>Schist; Banded; Blotitic</b> Black; Fine-grained; schistose; biotite rich; laminated sections; rare quartz and carbonate lenses throughout Quartz Biotite Schist						
127.40	129.40					
STW;10%;;;;Qz01; <b>Stockwork 10% Quartz 1%</b> <1cm discordant stockwork quartz veins; no mineralization visible						
132.00	164.60					
M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; milky white quartz and carbonate lenses throughout. Quartz Biotite Schist						
138.50	140.00					
STW;10%;;;;Qz02; <b>Stockwork 10% Quartz 2%</b> <1cm discordant stockwork quartz veins; stron limonitic alteration within fractures and along veinletts from 143.8-144m						
143.80	144.00					
Lm; s; <b>Limonite; Strong; Pervasive</b> strong limonitic alteration along veinletts						
164.60	End of DDH Number of samples: 17 Number of QAQC samples: 2 Total sampled length: 17.00					



Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	3.70	OB <b>Over Burden</b> Overburden						
3.70	64.00	M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; milky white quartz and carbonate lenses throughout. Quartz Biotite Schist	50.80	51.80	527358	1.00		<2
51.80	66.70	Lm; m; <b>Limonite; Moderate; Pervasive</b> limonitic alteration along veins						
51.80	66.70	Py01 <b>Pyrite 1%</b> disseminated pyrite within veins						
51.80	66.70	STW;25%;;Qz05 Py01; <b>Stockwork 25% Quartz 5% Pyrite 1%</b> <1cm discordant stockwork quartz veins; disseminated pyrite within veins; vuggy; limonitic alteration within veins	51.80	52.80	527359	1.00		<2
			52.80	53.80	527361	1.00		<2
			53.80	54.80	527362	1.00		<2
			54.80	55.80	527363	1.00		<2
			55.80	56.80	527364	1.00		<2
			56.80	57.80	527365	1.00		<2
			57.80	58.80	527366	1.00		<2
			58.80	59.80	527367	1.00		<2
			59.80	60.80	527368	1.00		<2
			60.80	61.80	527369	1.00		20
			61.80	62.80	527371	1.00		7
			62.80	63.80	527372	1.00		5
			63.80	64.80	527373	1.00		<2
64.00	120.80	M8C; LAM <b>SchistChlorite; Parallel Laminations</b> Green; Fine-grained; scistose; laminated; rare quartz and carbonate lenses; rare kink folds	64.80	65.80	527374	1.00		<2
			65.80	66.80	527375	1.00		<2
			66.80	67.80	527376	1.00		<2

Breakaway Exploration Management inc.

Description			Assay				
			From	To	Number	Length	Au (ppb)
120.80	131.10	M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; lacks milky white quartz and carbonate lenses throughout. Quartz Biotite Schist					
120.80	124.90	STW;10%;;;Qz01; <b>Stockwork 10% Quartz 1%</b> <1cm discordant stockwork veins; no mineralization visible					
129.00	130.00	STW;10%;;;Qz01; <b>Stockwork 10% Quartz 1%</b> <1cm discordant stockwork veins; no mineralization visible					
131.10	137.20	M8; RUB; Bo <b>Schist; Banded; Blotitic</b> Black; fine-grained; schistose; laminated; rare milky white quartz and carbonate lenses throughout. biotite rich Quartz Biotite Schist					
137.20	158.50	M8; RUB <b>Schist; Banded</b> Grey to pink; fine-grained; schistose; rare milky white quartz and carbonate lenses throughout. slightly more biotite rich then 120.8-131.1m section Quartz Biotite Schist					
158.50	164.50	M8; RUB; Bo <b>Schist; Banded; Blotitic</b> Black; fine-grained; schistose; laminated; rare milky white quartz and carbonate lenses throughout. biotite rich; minor folds at end of section; Quartz Biotite Schist					

**Breakaway Exploration Management inc.**

<b>DDH:</b>	<b>PT11-04</b>	Claims title:	YC 63808	Section:	
		Township:	NTS 115O15	Level:	
		Range:		Work place:	Dawson City, BXM
Drilled by:	Earth Tek	Lot:			Warehouse
Described by:	Neda Dokic	From:	28/08/2011	Description date:	01/09/2011
		To:	29/08/2011		

Collar

			UTM7N_WGS84	LocalPT
Azimuth:	238.00°	East	609,869	2,853
Dip:	-50.00°	North	7,075,304	4,048
Length:	103.60 m	Elevation	914	914

Down hole survey

Type	Depth	Azimuth	Dip	Invalid	Description
Reflex	103.60	242.80°	-54.80°	No	

Description

Core size:	NQ2	Cemented:	No	Stored:	Yes
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Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	4.60	OB <b>Over Burden</b> Overburden						
4.60	100.60	M8; RUB <b>Schist; Banded</b> Grey to pink; more pinkish due to hematite alteration; fine-grained; schistose; milky white quartz and carbonate lenses throughout. Quartz Biotite Schist	34.60	35.60	527322	1.00		82
35.60	36.30	Hm; m; <b>Hematite; Moderate; Pervasive</b> moderate hematite alteration throughout section						
35.60	36.30	Py01 <b>Pyrite 1%</b> disseminated pyrite throughout section						
35.60	36.30	STW;50%;;;;Qz02 Py01; <b>Stockwork 50% Quartz 2% Pyrite 1%</b> <1cm discordant stockwork veins; moderate hematite alteration; disseminated pyrite throughout	35.60	36.60	527323	1.00		50
			36.60	37.10	527324	0.50		<2
44.10	44.30	Py02 <b>Pyrite 2%</b> disseminated pyrite throughout veins						
44.10	44.30	STW;50%;;;;Qz05 Py02; <b>Stockwork 50% Quartz 5% Pyrite 2%</b> stockwork quartz veins; disseminated pyrite throughout veins	57.70	58.70	527326	1.00		3
58.70	59.60	Lm; s; <b>Limonite; Strong; Pervasive</b> strongly limonite altered						
58.70	62.10	STW;50%;;;;Qz05 Py02; <b>Stockwork 50% Quartz 5% Pyrite 2%</b> Possible Zone; discordant stockwork quartz veins; intensely altered from 58.7 to 59.6; >1cm quartz vein with disseminated pyrite within at 61.4m;	58.70	59.70	527327	1.00		<2
			59.70	60.70	527328	1.00		<2
			60.70	61.70	527329	1.00		4
61.40	61.50	Py02 <b>Pyrite 2%</b> disseminated pyrite within >1cm quartz vein	64.00	65.00	527330	1.00		<2
64.90	65.80	VEI;50 m;;;Qz15 Py02; <b>Vein 50 m Quartz 15% Pyrite 2%</b> discordant quartz vein; disseminated pyrite around vein contact,	65.00	65.60	527331	0.60		<2
			65.60	66.30	527332	0.70		<2
			69.10	70.10	527333	1.00		21

Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
70.10	70.80	Lm; s; <b>Limonite; Strong; Pervasive</b> highly limonite altered section						
70.10	70.80	STW;75%;;Qz05; <b>Stockwork 75% Quartz 5%</b> highly limonite altered; brecciated; quartz veinlets throughout; no mineralization visible due to high alteration state.	70.10	71.10	527334	1.00		<2
			78.20	79.20	527336	1.00		6
79.20	80.50	Lm; s; <b>Limonite; Strong; Pervasive</b> intensely altered; brecciated section						
79.20	80.50	STW;50%;;Qz05; <b>Stockwork 50% Quartz 5%</b> Possible Gold Run Zone; intensely limonite altered; discordant quartz veins; brecciated;	79.20	80.20	527337	1.00		2
			80.20	81.20	527338	1.00		<2
100.60	103.60	M8; RUB; CHL <b>Schist; Banded; Chloritic</b> Green; fine-grained; schistose; disseminated pyrite throughout. Quartz Chlorite Biotite Schist						
103.60	End of DDH Number of samples: 15 Number of QAQC samples: 2 Total sampled length: 13.80							



Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	7.30	OB <b>Over Burden</b> Overburden						
7.30	113.00	M8; RUB <b>Schist; Banded</b> Grey to pink; Fine-grained; schistose; milky white quartz and carbonate lenses throughout; Quartz Biotite Schist						
79.20	83.90	STW;25%;;;Qz02; <b>Stockwork 25% Quartz 2%</b> <1cm discordant stockwork veins	93.00	94.00	527378	1.00		<2
			94.00	95.00	527379	1.00		4
94.50	99.00	Lm; w; >L<</p> <b>Limonite; Weak; Local</b> weak limoniti alteration within veins						
94.50	99.00	Py02 <b>Pyrite 2%</b> disseminated pyrite within veins						
94.50	99.00	STW;25%;;;Qz05 Py02; <b>Stockwork 25% Quartz 5% Pyrite 2%</b> <1cm discordant stockwork quartz veins; disseminated pyrite within veins; weak liminitic alteration within veins	95.00	96.00	527380	1.00		72
			96.00	97.00	527381	1.00		101
			97.00	98.00	527382	1.00		289
			98.00	99.00	527383	1.00		108
			99.00	100.00	527384	1.00		10
113.00	155.50	M8Cl; LAM <b>SchistChlorite; Parallel Laminations</b> Green; Fine-grained; schistose; laminated; rare milky white quartz and carbonate lenses throughout; Chlorite Schist						
155.50	163.20	M8; RUB <b>Schist; Banded</b> Grey to pink; Fine-grained; schistose; rare milky white quartz and carbonate lenses throughout; Quartz Biotite Schist						

Breakaway Exploration Management inc.

Description			Assay				
			From	To	Number	Length	Au (ppb)
163.20	167.60	M8; Bo <b>Schist; Biotitic</b> Black; Fine-grained; schistose; biotite rich; lacks milky white quartz and carbonate lenses throughout; Quartz Biotite Schist					
167.60	End of DDH Number of samples: 7 Number of QAQC samples: 0 Total sampled length: 7.00						

**Breakaway Exploration Management inc.**

<b>DDH:</b>	<b>PT11-06</b>	Claims title:	YC 63808	Section:	
		Township:	NTS 115O15	Level:	
		Range:		Work place:	Dawson City, BXM
Drilled by:	Earth Tek	Lot:			Warehouse
Described by:	Neda Dokic	From:	30/08/2011	Description date:	03/09/2011
		To:	31/08/2011		

Collar

			UTM7N_WGS84	LocalPT
Azimuth:	44.00°	East	609,871	2,780
Dip:	-50.00°	North	7,075,164	3,929
Length:	103.60 m	Elevation	939	939

Down hole survey

Type	Depth	Azimuth	Dip	Invalid	Description
Reflex	103.60	46.40°	-53.40°	No	

Description

Core size:	NQ2	Cemented:	No	Stored:	Yes
------------	-----	-----------	----	---------	-----

Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	6.70	OB <b>Over Burden</b> Overburden						
6.70	103.60	M8; RUB; LAM <b>Schist; Banded; Parallel Laminations</b> Grey to pink; Fine-grained; schistose; laminated; milky white quartz and carbonate lenses throughout; Quartz Biotite Schist						
34.80	37.60	Lm; m; >L<</p> <b>Limonite; Moderate; Local</b> moderate limonite alteration along veins						
34.80	37.60	STW;25%;;;;Qz02; <b>Stockwork 25% Quartz 2%</b> <1cm discordant stockwork veins; moderate limonite alteration along veins	39.00	40.00	527386	1.00		<2
40.00	50.00	Lm; m; <b>Limonite; Moderate; Pervasive</b> limonitic alteration at vein contacts throughout section						
40.00	50.00	Py02 <b>Pyrite 2%</b> disseminated pyrite within veins						
40.00	50.00	STW;25%;;;;Qz05 Py02; <b>Stockwork 25% Quartz 5% Pyrite 2%</b> <1cm discordant stockwork quartz veins; disseminated pyrite within veins; vuggy; limonitic alteration within veins	40.00	41.00	527387	1.00		43
			41.00	42.00	527388	1.00		<2
			42.00	43.00	527389	1.00		35
			43.00	44.00	527390	1.00		5
			44.00	45.00	527391	1.00		14
			45.00	46.00	527392	1.00		8
			46.00	47.00	527393	1.00		<2
			47.00	48.00	527394	1.00		<2
			48.00	49.00	527396	1.00		<2
			49.00	50.00	527397	1.00		<2
			50.00	51.00	527398	1.00		<2
51.80	53.00	STW;25%;;;;Qz02; <b>Stockwork 25% Quartz 2%</b> <1cm discordant stockwork quartz veins						

Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
67.50	73.20	STW;;;;Qz01; <b>Stockwork Quartz 1%</b> <1cm discordant stockwork quartz veinlets						
94.50	97.50	>L<; m; <b>Local; Moderate; Pervasive</b> moderate limonite alteration along vein contacts throughout section						
94.50	97.50	STW;;;;Qz02; <b>Stockwork Quartz 2%</b> <1cm discordant stockwork veinlets; moderate limonite alteration along vein contacts						
103.60	End of DDH Number of samples: 12 Number of QAQC samples: 2 Total sampled length: 12.00							



Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
0.00	6.10	OB <b>Over Burden</b> Overburden						
6.10	155.40	M8; RUB <b>Schist; Banded</b> Grey to pink; Fine-grained; schistose; milky white quartz and carbonate lenses throughout; Quartz Biotite Schist						
22.30	33.50	Lm; s; <b>Limonite; Strong; Pervasive</b> Very strong limonite alteration throughout section; veins completely altered in sections forming a soft breccia-textured rock						
22.30	33.50	STW;75%;;Qz20; <b>Stockwork 75% Quartz 20%</b> stockwork quartz veins; strong limonitic alteration; veins completely altered in sections forming a soft breccia-textured rock						
40.00	46.10	Lm; s; >L<</p> <b>Limonite; Strong; Local</b> strong limonite alteration at bottom of section						
40.00	46.10	Py05 <b>Pyrite 5%</b> fresh pyrite cubes within and surrounding quartz veinlets						
40.00	46.10	STW;25%;;Qz10 Py05; <b>Stockwork 25% Quartz 10% Pyrite 5%</b> <1cm discordant stockwork veins; fresh pyrite cubes within and surrounding veinlets; strong limonitic alteration with vuggy veins near bottom of section; disseminated pyrite throughout	41.20	42.20	527399	1.00	127	
			42.20	43.20	527400	1.00	385	
			43.20	44.20	527401	1.00	158	
49.80	51.80	Lm; m; <b>Limonite; Moderate; Pervasive</b> limonitic alteration along edges of veins						
49.80	51.80	Py05 <b>Pyrite 5%</b> disseminated pyrite within alteration and host schist						
49.80	51.80	STW;25%;;Qz10 Py05; <b>Stockwork 25% Quartz 10% Pyrite 5%</b> <1cm discordant stockwork quartz veins; limonitic alteration around edges of veins; disseminated pyrite within alteration and host schist;						
75.20	75.70	Lm; w; <b>Limonite; Weak; Pervasive</b>						

Breakaway Exploration Management inc.

Description			Assay					
			From	To	Number	Length	Au (ppb)	
75.20	75.70	weak alteration along fractures Py02 <b>Pyrite 2%</b> disseminated pyrite within fractures						
75.20	75.70	VEI;0.5 m;;;Qz95 Py02; <b>Vein 0.5 m Quartz 95% Pyrite 2%</b> large 0.5m quartz vein; orange limonite alteration along fractures; disseminated pyrite within fractures						
76.30	82.20	Lm; s; <b>Limonite; Strong; Pervasive</b> strong limonitic alteration within veins						
76.30	82.20	Py05 <b>Pyrite 5%</b> disseminated pyrite within veins; fresh pyrite cubes areound edges of veins						
76.30	82.20	STW;25%;;;Qz10 Py05; <b>Stockwork 25% Quartz 10% Pyrite 5%</b> <1cm discordant stockwork veins; strong limonitic alteration within veins; vuggy; disseminated pyrite within veins; fresh pyrite cubes around edges of veins	77.80	78.80	527402	1.00	78	
			78.80	79.80	527403	1.00	663	
			79.80	80.80	527404	1.00	28	
			80.80	81.80	527406	1.00	<2	
97.80	128.00	STW;10%;;;Qz05; <b>Stockwork 10% Quartz 5%</b> <1cm discordant stockwork quartz veins; rare limonite alteration in sections						
128.00	140.00	Lm; s; <b>Limonite; Strong; Pervasive</b> very strong limonitic alteration throughout section						
128.00	140.00	Py05 <b>Pyrite 5%</b> disseminated pyrite within veins						
128.00	140.00	STW;75%;;;Qz20 Py05; <b>Stockwork 75% Quartz 20% Pyrite 5%</b> <1cm discordant stockwork quartz veins; very strong limonitic alteration; disseminated pyrite within veins; vuggy	128.00	129.00	527407	1.00	<2	
			129.00	130.00	527408	1.00	<2	
			130.00	131.00	527409	1.00	<2	
			131.00	132.00	527410	1.00	18	
			132.00	133.00	527411	1.00	<2	
132.10	133.70	BRE <b>Breccia</b> brecciated rock; fill consists of highly limonite altered vuggy quartz veins; disseminated pyrite within; clasts range from mm to >1cm in size and consist mainly of host quartz schist	133.00	134.00	527413	1.00	<2	
			134.00	135.00	527414	1.00	27	
			135.00	136.00	527415	1.00	<2	
			136.00	137.00	527416	1.00	<2	
			137.00	138.00	527417	1.00	<2	

Breakaway Exploration Management inc.

Description			Assay				
			From	To	Number	Length	Au (ppb)
			138.00	139.00	527418	1.00	<2
			139.00	140.00	527419	1.00	<2
			140.00	141.00	527421	1.00	<2
153.80	156.00	STW;25%;;;;;;Qz05; <b>Stockwork 25% Quartz 5%</b> <1cm discordant stokwork quartz veins					
155.40	164.60	M8Cl; LAM <b>SchistChlorite; Parallel Laminations</b> Green; Fine-grained; schistose; laminated; rare milky white quartz and carbonate lenses throughout; Chlorite Schist					
164.60	End of DDH Number of samples: 20 Number of QAQC samples: 3 Total sampled length: 20.00						

## **Appendix D – Assay Certificates**



1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Acme Analytical Laboratories (Vancouver) Ltd.

www.acmelab.com

**Client:** Taku Gold Corp.  
PO Box 2010  
Dawson City BC Y0B 1G0 Canada

Submitted By: Mark Fekete  
Receiving Lab: Canada-Whitehorse  
Received: September 16, 2011  
Report Date: November 23, 2011  
Page: 1 of 6

# CERTIFICATE OF ANALYSIS

WHI11001693.1

## CLIENT JOB INFORMATION

Project: Portland  
Shipment ID: 20110914092919  
P.O. Number  
Number of Samples: 121

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Method Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
R200-250	114	Crush, split and pulverize 250 g rock to 200 mesh			VAN
3B01	121	Fire assay fusion Au by ICP-ES	30	Completed	VAN

## SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp After 90 days  
DISP-RJT Dispose of Reject After 90 days

## ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Taku Gold Corp  
680 3rd Ave, Suite 203  
Val D'Or QC J9P 1S5  
Canada

CC: Lauren Wilson



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



Acme Analytical Laboratories (Vancouver) Ltd.  
 1020 Cordova St. East Vancouver BC V6A 4A3 Canada  
 Phone (604) 253-3158 Fax (604) 253-1716

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Client: **Taku Gold Corp.**  
 PO Box 2010  
 Dawson City BC Y0B 1G0 Canada

Project: Portland  
 Report Date: November 23, 2011

Page: 2 of 6 Part 1

CERTIFICATE OF ANALYSIS

WHI11001693.1

Method	WGHT	3B
Analyte	Wgt	Au
Unit	kg	ppb
MDL	0.01	2
527301	Drill Core	2.49 64
527302	Drill Core	2.69 1096
527303	Drill Core	1.78 872
527304	Drill Core	1.73 78
527305	Drill Core	3.37 115
527306	Drill Core	2.21 77
527307	Rock Pulp	0.10 247
527308	Drill Core	2.71 2
527309	Drill Core	2.91 <2
527310	Drill Core	2.24 <2
527311	Drill Core	2.84 <2
527312	Drill Core	2.41 <2
527313	Drill Core	2.30 505
527314	Drill Core	2.49 844
527315	Drill Core	0.67 <2
527316	Drill Core	2.62 489
527317	Drill Core	1.65 77
527318	Drill Core	2.75 21
527319	Drill Core	2.17 86
527320	Drill Core	2.23 52
527321	Drill Core	2.52 <2
527322	Drill Core	2.47 82
527323	Drill Core	2.51 50
527324	Drill Core	1.58 <2
527325	Rock Pulp	0.09 879
527326	Drill Core	2.65 3
527327	Drill Core	1.59 <2
527328	Drill Core	2.30 <2
527329	Drill Core	3.12 4
527330	Drill Core	2.77 <2

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Project: Portland
Report Date: November 23, 2011

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CERTIFICATE OF ANALYSIS

WHI11001693.1

Table with 4 columns: Method, Analyte, Unit, MDL, WGHT, Wgt, 3B, Au, ppb, 2. Rows include sample IDs (527331-527360) and sample types (Drill Core, Rock Pulp) with corresponding weight and concentration values.



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Project: Portland  
 Report Date: November 23, 2011

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CERTIFICATE OF ANALYSIS

WHI11001693.1

Method	WGHT	3B
Analyte	Wgt	Au
Unit	kg	ppb
MDL	0.01	2
527361	Drill Core	2.67 <2
527362	Drill Core	1.98 <2
527363	Drill Core	2.32 <2
527364	Drill Core	1.90 <2
527365	Drill Core	2.14 <2
527366	Drill Core	2.18 <2
527367	Drill Core	2.51 <2
527368	Drill Core	1.65 <2
527369	Drill Core	1.62 20
527370	Drill Core	1.51 20
527371	Drill Core	1.95 7
527372	Drill Core	2.57 5
527373	Drill Core	2.51 <2
527374	Drill Core	3.18 <2
527375	Drill Core	2.11 <2
527376	Drill Core	2.33 <2
527377	Rock Pulp	0.10 248
527378	Drill Core	2.72 <2
527379	Drill Core	2.27 4
527380	Drill Core	1.88 72
527381	Drill Core	2.30 101
527382	Drill Core	3.11 289
527383	Drill Core	2.51 108
527384	Drill Core	2.34 10
527385	Drill Core	1.07 <2
527386	Drill Core	2.54 <2
527387	Drill Core	2.04 43
527388	Drill Core	2.26 <2
527389	Drill Core	2.79 35
527390	Drill Core	2.05 5

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# AcmeLabs

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Phone (604) 253-3158 Fax (604) 253-1716

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**Client:** Taku Gold Corp.  
PO Box 2010  
Dawson City BC Y0B 1G0 Canada

**Project:** Portland  
**Report Date:** November 23, 2011

**Page:** 5 of 6 Part 1

## CERTIFICATE OF ANALYSIS

WHI11001693.1

	Method	WGHT	3B
	Analyte	Wgt	Au
	Unit	kg	ppb
	MDL	0.01	2
527391	Drill Core	2.58	14
527392	Drill Core	1.93	8
527393	Drill Core	2.40	<2
527394	Drill Core	2.20	<2
527395	Rock Pulp	0.10	1029
527396	Drill Core	3.16	<2
527397	Drill Core	2.05	<2
527398	Drill Core	2.67	<2
527399	Drill Core	2.78	127
527400	Drill Core	2.28	385
527401	Drill Core	1.77	158
527402	Drill Core	2.50	78
527403	Drill Core	2.63	663
527404	Drill Core	1.61	28
527405	Drill Core	1.39	32
527406	Drill Core	2.13	<2
527407	Drill Core	1.70	<2
527408	Drill Core	2.57	<2
527409	Drill Core	2.45	<2
527410	Drill Core	2.28	18
527411	Drill Core	2.06	<2
527412	Rock Pulp	0.10	257
527413	Drill Core	2.46	<2
527414	Drill Core	2.44	27
527415	Drill Core	2.29	<2
527416	Drill Core	2.70	<2
527417	Drill Core	2.04	<2
527418	Drill Core	2.24	<2
527419	Drill Core	2.39	<2
527420	Drill Core	0.93	3



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1020 Cordova St. East Vancouver BC V6A 4A3 Canada  
Phone (604) 253-3158 Fax (604) 253-1716

[www.acmelab.com](http://www.acmelab.com)

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**Project:** Portland  
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**Page:** 6 of 6 Part 1

## CERTIFICATE OF ANALYSIS

WHI11001693.1

	Method	WGHT	3B
	Analyte	Wgt	Au
	Unit	kg	ppb
	MDL	0.01	2
527421	Drill Core	0.93	<2



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**Project:** Portland  
**Report Date:** November 23, 2011

**Page:** 1 of 2 **Part** 1

## QUALITY CONTROL REPORT

WHI11001693.1

	Method	WGHT	3B
Analyte		Wgt	Au
Unit		kg	ppb
MDL		0.01	2
Pulp Duplicates			
527327	Drill Core	1.59	<2
REP 527327	QC		<2
527370	Drill Core	1.51	20
REP 527370	QC		23
527386	Drill Core	2.54	<2
REP 527386	QC		<2
Core Reject Duplicates			
527304	Drill Core	1.73	78
DUP 527304	QC		58
527339	Drill Core	2.46	273
DUP 527339	QC		244
527374	Drill Core	3.18	<2
DUP 527374	QC		<2
527409	Drill Core	2.45	<2
DUP 527409	QC		<2
Reference Materials			
STD OXC88	Standard		195
STD OXC88	Standard		191
STD OXC88	Standard		221
STD OXC88	Standard		185
STD OXH82	Standard		1284
STD OXH82	Standard		1324
STD OXH82	Standard		1286
STD OXH82	Standard		1302
STD OXH82	Standard		1288
STD OXC88 Expected			203
STD OXH82 Expected			1278
BLK	Blank		<2



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Project: Portland

Report Date: November 23, 2011

Page: 2 of 2 Part 1

QUALITY CONTROL REPORT

WHI11001693.1

Table with 4 columns: Sample ID, Description, Wght (kg), and Au (ppb). Rows include BLK Blank, Prep Wash, and G1 Prep Blank.

## **Appendix E – Reference Standards**

# CDN Resource Laboratories Ltd.

#2, 20148 – 102<sup>nd</sup> Avenue, Langley, B.C., Canada, V1M 4B4, 604-882-8422, Fax: 604-882-8466 (www.cdnlabs.com)

## REFERENCE MATERIAL: CDN-GS-P2A

Recommended value and the "Between Laboratory" two standard deviations

**Gold concentration:  $0.229 \pm 0.030$  g/t (30g Fire Assay / instrumental finish)**

**PREPARED BY:** CDN Resource Laboratories Ltd.  
**CERTIFIED BY:** Duncan Sanderson, B.Sc., Licensed Assayer of British Columbia  
**INDEPENDENT GEOCHEMIST:** Dr. Barry Smee., Ph.D., P. Geo.  
**DATE OF CERTIFICATION:** August 16, 2011

### **ORIGIN OF REFERENCE MATERIAL:**

Standard CDN-GS-P2A was prepared using ore supplied by Barrick Gold Inc. from their Bald Mountain Mine in Nevada, USA. It is Carlin Style Mineralization in the prolific Battle Mountain-Eureka Trend in Northern Nevada, USA. The material is from breccias near the contact between the Mississippian Pilot Shale and the underlying Devonian Guilmette formation. Near the center of the system, micron-sized native Au occurs with base metal sulfides and sulfosalts. In peripheral deposits and in later stages of mineralization, Au is typically submicron in size and resides in pyrite or arsenopyrite.

### **METHOD OF PREPARATION:**

Reject ore material was dried, crushed, pulverized and then passed through a 270 mesh screen. The +270 material was discarded. The -270 material was mixed for 5 days in a double-cone blender. Splits were taken and sent to 15 commercial laboratories for round robin assaying. Round robin results are displayed below:

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15
SAMPLE	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t
GS-P2A-1	0.241	0.268	0.242	0.245	0.228	0.228	0.216	0.207	0.238	0.238	0.230	0.271	0.23	0.220	0.234
GS-P2A-2	0.262	0.247	0.232	0.235	0.226	0.231	0.218	0.217	0.230	0.230	0.232	0.232	0.24	0.217	0.215
GS-P2A-3	0.252	0.256	0.244	0.250	0.215	0.211	0.204	0.204	0.223	0.250	0.225	0.253	0.21	0.211	0.212
GS-P2A-4	0.262	0.252	0.241	0.245	0.225	0.222	0.217	0.206	0.226	0.227	0.229	0.247	0.26	0.235	0.214
GS-P2A-5	0.252	0.266	0.229	0.245	0.232	0.235	0.206	0.211	0.236	0.221	0.225	0.261	0.25	0.234	0.231
GS-P2A-6	0.254	0.269	0.248	0.235	0.21	0.220	0.217	0.215	0.217	0.233	0.209	0.230	0.22	0.238	0.211
GS-P2A-7	0.266	0.264	0.247	0.230	0.215	0.223	0.222	0.202	0.230	0.217	0.239	0.252	0.20	0.230	0.220
GS-P2A-8	0.253	0.269	0.226	0.225	0.228	0.212	0.207	0.204	0.218	0.220	0.241	0.246	0.26	0.235	0.202
GS-P2A-9	0.264	0.266	0.248	0.260	0.227	0.192	0.232	0.201	0.232	0.227	0.223	0.244	0.23	0.232	0.235
GS-P2A-10	0.270	0.260	0.244	0.220	0.237	0.233	0.204	0.206	0.213	0.225	0.220	0.236	0.22	0.239	0.229
Mean	0.258	0.262	0.240	0.239	0.224	0.221	0.214	0.207	0.226	0.229	0.227	0.247	0.232	0.229	0.220
Std. Dev'n	0.0087	0.0077	0.0084	0.0122	0.0084	0.0130	0.0091	0.0054	0.0084	0.0097	0.0093	0.0128	0.0204	0.0096	0.0113
%RSD	3.37	2.94	3.50	5.11	3.75	5.88	4.23	2.59	3.71	4.25	4.08	5.18	8.81	4.21	5.14

*Note: Results from Laboratory 2 were removed for failing the t test.*

### APPROXIMATE CHEMICAL COMPOSITION:

	Percent			Percent			ppm
SiO <sub>2</sub>	87.7		Na <sub>2</sub> O	< 0.1		As	540
Al <sub>2</sub> O <sub>3</sub>	1.0		MgO	0.1		Sb	60
Fe <sub>2</sub> O <sub>3</sub>	4.5		K <sub>2</sub> O	0.2			
CaO	1.4		TiO <sub>2</sub>	0.5			
MnO	< 0.1		LOI	2.1			
Total S	0.6		Total C	0.3			

**REFERENCE MATERIAL: CDN-GS-P2A**

**Statistical Procedures:**

The final limits were calculated after first determining if all data was compatible within a spread normally expected for similar analytical methods done by reputable laboratories. Data from any one laboratory was removed from further calculations when the mean of all analyses from that laboratory failed a t test of the global means of the other laboratories. The mean and standard deviation were calculated using all remaining data. Any analysis that fell outside of the mean  $\pm 2$  standard deviations was removed from the ensuing data base. The mean and standard deviations were again calculated using the remaining data. This method is different from that used by Government agencies in that the actual "between-laboratory" standard deviation is used in the calculations. This produces upper and lower limits that reflect actual individual analyses rather than a grouped set of analyses. The limits can therefore be used to monitor accuracy from individual analyses, unlike the Confidence Limits published on other standards.

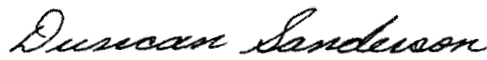
Participating Laboratories: (not in same order as table of assays)

Acme Analytical Laboratories Ltd., Vancouver, B.C., Canada  
Activation Laboratories, Ancaster, Ontario, Canada  
Activation Laboratories, Thunder Bay, Ontario, Canada  
AGAT Laboratories Ltd., Mississauga, Ontario, Canada  
ALS Chemex, North Vancouver, B.C., Canada  
American Assay Laboratories, Nevada, USA  
Alex Stewart, Mendoza, Argentina  
Alex Stewart, Kamloops, B.C., Canada  
Genalysis Lab Services, Australia  
Inspectorate, Richmond, B.C., Canada  
OMAC Laboratories Ltd., Ireland  
SGS, Lima, Peru  
Skyline, Tucson, USA  
TSL Laboratories Ltd., Saskatoon, SK, Canada  
Ultra Trace Laboratories Ltd., Australia

Legal Notice:

This certificate and the reference material described in it have been prepared with due care and attention. However CDN Resource Laboratories Ltd. nor Barry Smee accept any liability for any decisions or actions taken following the use of the reference material. Our liability is limited solely to the cost of the reference material.

Certified by



Duncan Sanderson, Certified Assayer of B.C.

Geochemist



Dr. Barry Smee, Ph.D., P. Geo.



**ORE RESEARCH & EXPLORATION PTY LTD**

6-8 Gatwick Drive, Bayswater North, Vic 3153 AUSTRALIA

Telephone: 61-3-9729 0333 Facsimile: 61-3-9729 4777

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**CERTIFICATE OF ANALYSIS FOR**  
**GOLD ORE REFERENCE MATERIAL**  
**OREAS 2Pd**

**SUMMARY STATISTICS**

<b>Constituent</b>	<b>Recommended Value</b>	<b>95% Confidence</b>		<b>Tolerance limits</b>	
		<b>Interval</b>		<b>1-<math>\alpha</math>=0.99, <math>\rho</math>=0.95</b>	
		<b>Low</b>	<b>High</b>	<b>Low</b>	<b>High</b>
Gold, Au (ppm)	0.885	0.871	0.898	0.869	0.900

*Prepared by:*  
*Ore Research & Exploration Pty Ltd*  
*December 2006*

## INTRODUCTION

OREAS reference materials (RM) are intended to provide a low cost method of evaluating and improving the quality of precious and base metal analysis of geological samples. To the analyst, they provide an effective means of calibrating analytical equipment, assessing new techniques and routinely monitoring in-house procedures. To the explorationist, they provide an important control in analytical data sets related to exploration from the grass roots level through to resource definition.

As a rule, only source materials exhibiting an exceptional level of homogeneity of the element(s) of interest are used in the preparation of these materials. This has enabled Ore Research & Exploration to produce a range of gold RM exhibiting homogeneity that matches or exceeds that of currently available international reference materials. In many instances RM produced from a single source are sufficiently homogeneous to produce a relatively coarse-grained form designed to simulate drill chip samples. These have a grain size of minus 3mm and are designated with a "C" suffix to the RM identification number. These standards are packaged in 1kg units following homogenisation and are intended for submission to analytical laboratories in subsample sizes of as little as 250g. They offer the added advantages of providing a check on both sample preparation and analytical procedures while acting as a blind standard to the assay laboratory. The more conventional pulped standards have a grain size of minus 75 microns and a higher degree of homogeneity. These standards are distinguished by a "P" suffix to the standard identification number. In line with ISO recommendations successive batch numbers are now designated by the lower case suffixes "a", "b", "c", "d", etc.

## SOURCE MATERIALS

OREAS 2Pd was prepared from a blend of oxidised ore and barren material taken from the flanks of a mineralised shear zone within Ordovician flysch sediments in the Blackwood area of central Victoria. The sedimentary succession hosting the shear zone consists predominantly of medium-grained greywackes together with subordinate interbedded siltstone and slate. Hydrothermal alteration in the vicinity of the mineralisation is indicated by the development of phyllite. The shear zone, in which gold grades attain a maximum, is manifested by foliated sericitic and chloritic fault gouge and goethitic quartz veins.

Although no ore mineragraphy or scanning electron microscopy has been undertaken to determine the nature of occurrence of the gold, the very homogeneous distribution on a mesoscopic scale and uniform concentration gradient away from the ore zone suggests the gold is extremely fine-grained and evenly disseminated. Limited percussion drilling indicates that sulphides are rare to absent at depth in the shear zone.

The approximate major and trace element composition of this oxidised, quartz-veined metagreywacke comprising gold ore standard OREAS 2Pd is given in Table 1. The constituents SiO<sub>2</sub> to Total are the means of duplicate XRF analyses determined using a borate fusion method, S and C are means of duplicate IR combustion furnace analyses, while the remaining constituents, Ag to Zr, are means of duplicate analyses determined by ICP-OES and ICP-MS.

Gold homogeneity has been evaluated and confirmed by INAA on twenty 0.5 gram sample portions and by a nested ANOVA program using conventional fire assay. The tolerance interval is determined from the INAA data while the recommended value and confidence

interval are based on a round robin program incorporating a total of 116 analyses at 17 laboratories.

## COMMINUTION AND HOMOGENISATION PROCEDURES

The gold-bearing basaltic material comprising OREAS 2Pd was prepared in the following manner:

- a) *jaw crushing to minus 3mm*
- b) *drying to constant mass at 105°C*
- c) *milling of the barren material to 98% minus 75 micron*
- d) *milling of the gold-bearing material to 100% minus 20 micron*
- e) *blending in appropriate proportions to achieve the desired grade*
- f) *bagging into 25kg sublots*

Table 1. Approximate major and trace element composition of gold-bearing reference material OREAS 2Pd; wt.% - weight percent; ppm - parts per million.

Constituent	wt. %	Constituent	ppm	Constituent	ppm	Constituent	ppm
SiO <sub>2</sub>	75.5	Ag	<0.05	Gd	5.0	Sb	62
TiO <sub>2</sub>	0.62	As	827	Hf	8.0	Sc	14.5
Al <sub>2</sub> O <sub>3</sub>	12.1	Ba	575	Ho	0.75	Sm	7.0
Fe <sub>2</sub> O <sub>3</sub>	4.84	Be	5.9	In	0.06	Sn	4.0
MnO	0.007	Bi	0.10	La	23	Sr	58
MgO	0.55	Cd	<0.5	Li	30	Ta	1.0
CaO	0.02	Ce	82	Lu	0.33	Tb	0.72
Na <sub>2</sub> O	0.12	Co	<5	Mo	2.0	Te	<0.2
K <sub>2</sub> O	2.83	Cs	6.9	Nb	15	Th	14.7
P <sub>2</sub> O <sub>5</sub>	0.08	Cu	36	Nd	34	U	3.4
LOI	2.88	Dy	4.0	Ni	31	W	10.0
Total	99.5	Er	2.0	Pb	20	Y	29
C	0.06	Eu	1.3	Pr	10.1	Yb	2.2
S	0.01	Ga	16	Rb	164	Zn	66
						Zr	240

## ANALYSIS OF OREAS 2Pd

Seventeen laboratories participated in the analytical program and are listed in the section headed Participating Laboratories. To maintain anonymity laboratories have been randomly designated the letter codes A through Q. With the exception of Laboratory Q, each laboratory received two scoop-split 120 gram subsamples from each of two 1kg test units taken at regular intervals during the bagging stage. They were instructed to carry out one 20-50 gram fire assay gold determination on each subsample. This two-stage nested design for the interlaboratory programme was amenable to analysis of variance (ANOVA) treatment and enabled a comparative assessment of within- and between-unit homogeneity.

For the determination of a statistical tolerance interval, a 10 gram scoop split was taken from each of the twenty test units and submitted to Laboratory Q for gold assay via instrumental neutron activation analysis on a reduced analytical subsample weight of 0.5 gram.

Individual assay results for the fire assay and INAA methods are presented in Tables 2 and 3 together with the mean, median, standard deviations (absolute and relative) and percent deviation of the lab mean from the corrected mean of means for each data set (PDM<sup>3</sup>). Interlaboratory agreement of the means is good with all labs lying within 5% relative of the corrected mean of means of 0.885 ppm Au.

## STATISTICAL EVALUATION OF ANALYTICAL DATA FOR OREAS 2Pd

### Recommended Value and Confidence Limits

The recommended value was determined from the mean of means of accepted replicate values of accepted laboratory data sets A to Q according to the formulae

$$\bar{x}_i = \frac{1}{n_i} \sum_{j=1}^{n_i} x_{ij}$$

$$\dot{x} = \frac{1}{p} \sum_{i=1}^p \bar{x}_i$$

where

$x_{ij}$  is the  $j$ th result reported by laboratory  $i$ ;

$p$  is the number of participating laboratories;

$n_i$  is the number of results reported by laboratory  $i$ ;

$\bar{x}_i$  is the mean for laboratory  $i$ ;

$\dot{x}$  is the mean of means.

The confidence limits were obtained by calculation of the variance of the consensus value (mean of means) and reference to Student's- $t$  distribution with degrees of freedom ( $p-1$ ):

$$\hat{V}(\ddot{x}) = \frac{1}{p(p-1)} \sum_{i=1}^p (\bar{x}_i - \dot{x})^2$$

$$\text{Confidence limits} = \dot{x} \pm t_{1-x/2}(p-1) \left( \hat{V}(\ddot{x}) \right)^{1/2}$$

where  $t_{1-x/2}(p-1)$  is the  $1-x/2$  fractile of the  $t$ -distribution with  $(p-1)$  degrees of freedom.

The distribution of the values is assumed to be symmetrical about the mean in the calculation of the confidence limits.

The test for rejection of individual outliers from each laboratory data set was based on  $z$  scores (rejected if  $|z_i| > 2.5$ ) computed from the robust estimators of location and scale,  $T$  and  $S$ , respectively, according to the formulae

$$S = 1.483 \frac{\text{median} / x_j - \text{median} (x_i)}{j=1 \dots n \quad i=1 \dots n}$$

$$z_i = \frac{x_i - T}{S}$$

where

*T* is the median value in a data set;

*S* is the median of all absolute deviations from the sample median multiplied by 1.483, a correction factor to make the estimator consistent with the usual parameter of a normal distribution.

Table 2. Analytical results for gold (ppm) in OREAS 2Pd by 50g fire assay/ flame AAS/OES/ES (Std. Dev. - one sigma standard deviation; RSD – one sigma relative standard deviation; PDM<sup>3</sup> – percent deviation of lab mean from corrected mean of means; outliers in bold).

Replicate	Lab A	Lab B	Lab C	Lab D	Lab E	Lab F	Lab G	Lab H	Lab I	Lab J
	FA*OES	FA*AAS	FA*AAS	FA*AAS	FA*AAS	FA*OES	FA*OES	FA*AAS	FA*AAS	FA*AAS
1	0.898	0.903	0.890	0.870	0.860	0.920	0.960	0.896	0.860	0.804
2	<b>0.811</b>	0.895	0.890	0.883	0.920	0.930	0.935	0.898	0.800	0.835
3	0.904	0.897	0.890	0.856	0.940	0.940	0.963	0.895	0.840	0.812
4	0.910	0.888	0.890	0.865	0.890	0.930	0.980	<b>0.874</b>	0.810	0.813
5	0.898	0.900	0.880	0.879	0.910	0.920	0.968	0.886	0.840	0.823
6	0.869	<b>0.873</b>	0.870	0.887	0.900	0.920	0.935	0.894	0.860	0.832
Mean	0.882	0.893	0.885	0.873	0.903	0.927	<b>0.957</b>	0.891	0.835	<b>0.820</b>
Median	0.898	0.896	0.890	0.875	0.905	0.925	0.962	0.895	0.840	0.818
Std.Dev.	0.037	0.011	0.008	0.012	0.027	0.008	0.018	0.009	0.025	0.012
Rel.Std.Dev.	4.24%	1.22%	0.95%	1.35%	3.02%	0.88%	1.91%	1.02%	3.01%	1.49%
PDM <sup>3</sup>	-0.34%	0.90%	0.03%	-1.29%	2.11%	4.74%	8.15%	0.66%	-5.62%	-7.33%

Table 2. Continued.

Replicate	Lab K	Lab L	Lab M	Lab N	Lab O	Lab P
	FA*AAS	FA*AAS	FA*AAS	FA*AAS	FA*OES	FA*AAS
1	0.883	0.888	<b>0.870</b>	<b>0.850</b>	0.836	<b>0.900</b>
2	0.893	0.893	0.900	0.890	0.851	0.870
3	0.828	0.886	0.900	0.880	0.840	0.880
4	0.905	<b>0.863</b>	0.900	0.880	0.819	0.880
5	0.908	0.883	0.910	<b>0.910</b>	0.813	0.890
6	0.833	0.892	0.910	0.880	0.858	0.880
Mean	0.875	0.884	0.898	0.882	0.836	0.883
Median	0.888	0.887	0.900	0.880	0.838	0.880
Std.Dev.	0.036	0.011	0.015	0.019	0.018	0.010
Rel.Std.Dev.	4.07%	1.25%	1.64%	2.20%	2.10%	1.17%
PDM <sup>3</sup>	-1.10%	-0.06%	1.54%	-0.34%	-5.49%	-0.16%

The same principles were applied in testing for outlying laboratory means. In certain instances statistician's prerogative has been employed in discriminating outliers. Individual and mean outliers are shown in bold type in Tables 2 and 3, and have been omitted in the determination of recommended values.

The magnitude of the confidence interval is inversely proportional to the number of participating laboratories and interlaboratory agreement. It is a measure of the reliability of the recommended value, i.e. the narrower the confidence interval the greater the certainty in the recommended value.

Table 3. Analytical results for gold (ppm) in OREAS 2Pd by instrumental neutron activation analysis on 0.5 gram analytical subsample weights (abbreviations as for Table 2).

Replicate Number	Lab Q INAA
1	0.949
2	0.837
3	0.847
4	0.818
5	0.946
6	0.983
7	0.903
8	0.959
9	0.841
10	0.851
11	0.888
12	0.860
13	0.978
14	0.916
15	0.890
16	0.900
17	0.881
18	0.884
19	0.920
20	0.849
Mean	0.895
Median	0.889
Std.Dev.	0.049
Rel.Std.Dev.	5.48%
PDM <sup>3</sup>	1.16%

Table 4. Recommended value and 95% confidence interval

Constituent	Recommended value	95% Confidence interval	
		Low	High
Gold, Au (ppm)	0.885	0.871	0.898

### Statement of Homogeneity

The variability of replicate assays from each laboratory is a result of both measurement and subsampling errors. In the determination of a statistical tolerance interval it is therefore necessary to eliminate, or at least substantially minimise, those errors attributable to measurement. One way of achieving this is by substantially reducing the analytical subsample weight to a point where most of the variability in replicate assays is due to inhomogeneity of the reference material and measurement error becomes negligible. This approach was adopted in the INAA data set (Table 3) where a 0.5 gram subsample weight was employed. The homogeneity was determined from tables of factors for two-sided tolerance limits for normal distributions (ISO Guide 3207) in which

$$\text{Lower limit is } \bar{x} - k'_2(n, p, 1 - \alpha)s$$

$$\text{Upper limit is } \bar{x} + k'_2(n, p, 1 - \alpha)s$$

where

$n$  is the number of results reported by laboratory  $Q$ ;

$1 - \alpha$  is the confidence level;

$p$  is the proportion of results expected within the tolerance limits;

$k_2'$  is the factor for two-sided tolerance limits ( $m, \sigma$  unknown);

and  $s$  is computed according to the formula

$$s = \left[ \frac{\sum_{j=1}^n (x_j - \bar{x})^2}{n - 1} \right]^{1/2}$$

**No individual outliers were removed from the results prior to the calculation of tolerance intervals.**

Table 5. Recommended value and tolerance interval.

Constituent	Recommended value	Tolerance interval $1-\alpha=0.99, p=0.95$	
		Low	High
Gold, Au (ppm)	0.885	0.869	0.900

From the INAA data set an estimated tolerance interval of  $\pm 0.01$  ppm at an analytical subsample weight of 50 gram was obtained (using the sampling constant relationship of Ingamells and Switzer, 1973) and is considered to reflect the actual homogeneity of the material under test. The meaning of this tolerance interval may be illustrated for gold (refer Table 5), where 99% of the time at least 95% of 50g-sized subsamples will have concentrations lying between 0.869 and 0.900 ppm. Put more precisely, this means that if the same number of subsamples were taken and analysed in the same manner repeatedly, 99% of the tolerance intervals so constructed would cover at least 95% of the total population, and 1% of the tolerance intervals would cover less than 95% of the total population (ISO Guide 35).

### Performance Gates

Performance gates provide an indication of a level of performance that might reasonably be expected from a routine laboratory being monitored by this standard in a QA/QC program. They incorporate errors attributable to bias, precision and inhomogeneity and are simply calculated from the standard deviation of the pooled individual analyses (fire assay data only) generated from the certification program. All individual and lab dataset (batch) outliers are removed prior to determination of the standard deviation. These outliers can only be removed after the absolute homogeneity of the CRM has been independently established, i.e. the outliers must be confidently deemed to be analytical rather than arising from inhomogeneity of the CRM.

Table 6. Proposed performance gates for 2Pd

Constituent	Recommended value	Performance Gates					
		1SD		2SD		3SD	
		Low	High	Low	High	Low	High
Gold, Au (ppm)	0.885	0.855	0.914	0.826	0.943	0.797	0.973

Performance gates have been calculated for one, two and three standard deviations of the accepted pool of certification data and are presented in Table 6. As a guide these intervals may be regarded as informational (1SD), warning or rejection for multiple outliers (2SD), or rejection for individual outliers (3SD) in QC monitoring although their precise application should be at the discretion of the QC manager concerned.

## PARTICIPATING LABORATORIES

Acme Analytical Laboratories Ltd, Vancouver, BC, Canada  
 Activation Laboratories, Ancaster, Ontario, Canada  
 Amdel Laboratories, Perth, WA, Australia  
 Amdel Laboratories Ltd, Thebarton, SA, Australia  
 ALS Chemex, Garbutt, QLD, Australia  
 ALS Chemex, La Serena, Chile, South America  
 ALS Chemex, Reno, Nevada, USA  
 ALS Chemex, Val-d'or, Quebec, Canada  
 ALS Chemex, Vancouver, BC, Canada  
 ANSTO, Lucas Heights, NSW, Australia  
 Genalysis Laboratory Services Pty Ltd, Maddington, WA, Australia  
 Intertek Testing Services, Jakarta, Indonesia  
 McPhar Laboratories, Legaspi Village, Makati City, Philippines  
 OMAC Laboratories Ltd, Loughrea, County Galway, Ireland  
 SGS Indonesia, Balikpapan, Kalimantan Timur, Indonesia  
 SGS, Townsville, Qld, Australia  
 SGS, Welshpool, WA, Australia  
 Ultra Trace, Canning Vale, WA, Australia

## PREPARER AND SUPPLIER OF THE REFERENCE MATERIAL

The gold ore reference material, OREAS 2Pd has been prepared and certified and is supplied by:

Ore Research & Exploration Pty Ltd  
 6-8 Gatwick Road  
 Bayswater North, VIC 3153  
 AUSTRALIA

Telephone (03) 9729 0333 International +613-9729 0333  
 Facsimile (03) 9729 4777 International +613-9729 4777

It is available in unit sizes of 60g foil packets and 1kg jars.

## **INTENDED USE**

OREAS 2Pd is a reference material intended for the following:

- i) for the calibration of instruments used in the determination of the concentration of gold;
- ii) for the verification of analytical methods for gold;
- iii) for the preparation of secondary reference materials of similar composition;
- iv) as an arbitration sample for commercial transactions.

## **STABILITY AND STORAGE INSTRUCTIONS**

OREAS 2Pd has been prepared from a blend of gold-bearing and gold-free sedimentary materials obtained from the oxidised zone of a mineralised shear zone. The CRM is therefore considered to have long-term stability under normal storage conditions.

## **INSTRUCTIONS FOR THE CORRECT USE OF THE REFERENCE MATERIAL**

The recommended value for OREAS 2Pd refers to the concentration level of gold after removal of hygroscopic moisture by drying in air to constant mass at 105<sup>0</sup> C. If the reference material is not dried by the user prior to analysis, the recommended value should be corrected to the moisture-bearing basis.

## **LEGAL NOTICE**

Ore Research & Exploration Pty Ltd has prepared and statistically evaluated the property values of this reference material to the best of its ability. The Purchaser by receipt hereof releases and indemnifies Ore Research & Exploration Pty Ltd from and against all liability and costs arising from the use of this material and information.

**CERTIFYING OFFICER:** Dr Paul Hamlyn

## **REFERENCES**

Ingamells, C. O. and Switzer, P. (1973), *Talanta* 20, 547-568.

ISO Guide 35 (1985), Certification of reference materials - General and statistical principals.

ISO Guide 3207 (1975), Statistical interpretation of data - Determination of a statistical tolerance interval.