# Van Gogh RGS Targets Project

YMIP 13 - 017

Soil, Silt and Rock Geochemical Survey

# To Target the Very Highly Anomalous Polymetallic RGS Targets and the Targets Identified in 2011

in the

Van Gogh (West) / Van Gogh (East) Claim Blocks Area

18 Km West-Southwest of Km 160, Robert Campbell Hwy.

Claims Map 105 H/04

Watson Lake Mining District

**YMIP Focused Regional Module** 

Van Krichbaum

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#### **1. INTRODUCTION**

#### LOCATION & ACCESS

The Van Gogh (East and West) claim blocks will be treated in two separate portions for most aspects of this report. Although both claim blocks share some geological features, they are also somewhat different in mineral potential deposit types. The two claim blocks are located approximately 18 Km west-southwest of Km 160 of the Robert Campbell Highway and will be referred to as Van Gogh (West) and Van Gogh (East).

The claims area and surrounding region covers the western slope of a rounded mountain plateau of the southern Campbell Range which rises to the west of the Robert Campbell Highway north of Tuchitua Junction. The 1600 metre mountain plateau rises 600 metres from the Whitefish Lake valley floor @ 1000 metres. The claims area slope is moderately west-facing down to the base of the Whitefish Lake valley. Treeline is approximately 1500m elevation.

Both Van Gogh claim blocks (Van Gogh (West) and Van Gogh (East)) were eventually accessed by helicopter after an unsuccessful attempt to reach the area by Argo ATV. The map on page 4 shows the 3 attempted access routes by Argo ATV. The 10 day work window before the pre-scheduled helicopter pickup was reduced due to several days of very adverse hypothermia-type weather that the helicopter pilot characterized as "horrific" at the 3Ace Northern Tiger camp where the helicopter was stationed. Sampling was correspondingly reduced for Van Gogh (East), and this report represents a best possible effort to complete the work program, although it falls short of the program work objectives. There was no possibility to extend the helicopter provided work window (and also stay on budget) due to lack of communication because we had no 'sat' phone. To have the helicopter come back days later to take us out would have increased the helicopter (transportation) component of this project by 50%.

The two claim blocks work program called for soil, silt and rock sampling to be done from two separate base camps. The Van Gogh (West) claim block area was fairly well sampled within the 6 days allotted for this area, and base camp was attempted to be moved later on day 6 in adverse weather. During the move (on foot) we were caught in a severe very cold rainstorm above treeline and had to take shelter in the closest trees available. The weather then got progressively worse for the next three days with temperatures near 0 °C with long periods of rain and ice fog - severe hypothermia conditions - that prevented moving camp. The second project area was only reached late on day 9. As a result the sampling at Van Gogh (East) was less than planned.



Map 1. Access, Camps and Argo ATV Traverses. Map shows the three unsuccessful access attempts by Argo ATV (red line) from the western end point of finely dotted black line gazetted "cat-trail" from Km 160, Robert Campbell Hwy. Access was accomplished by utilizing the closest helicopter (from the nearby 3Ace camp) for a set-in and pick-up. The survival camp was necessary to escape hypothermia conditions when caught in the open and soaked by a large very cold rainstorm which persisted for 3 days.

### **PROPERTY & CLAIM STATUS**

Van Gogh (West)



Map 2. Claims map, northwest corner of 105H/04. Van Gogh (West) claims.

Grant#	RegType	Claim Name	Claim	Recording	Staking Date	Claim	Status
			#	Date	-	Expiry Date	
YD64121	Quartz	VAN GOGH	1	31/08/2011	26/08/2011	31/08/2014	Active
YD64122	Quartz	VAN GOGH	2	31/08/2011	26/08/2011	31/08/2014	Active
YD64124	Quartz	VAN GOGH	3	31/08/2011	26/08/2011	31/08/2014	Active
YD64123	Quartz	VAN GOGH	4	31/08/2011	26/08/2011	31/08/2014	Active
YD64128	Quartz	VAN GOGH	5	31/08/2011	26/08/2011	31/08/2014	Active
YD64127	Quartz	VAN GOGH	6	31/08/2011	26/08/2011	31/08/2014	Active
YD64130	Quartz	VAN GOGH	7	31/08/2011	26/08/2011	31/08/2013	Active
YD64129	Quartz	VAN GOGH	8	31/08/2011	26/08/2011	31/08/2013	Active
YD64132	Quartz	VAN GOGH	9	31/08/2011	26/08/2011	31/08/2013	Active
YD64131	Quartz	VAN GOGH	10	31/08/2011	26/08/2011	31/08/2013	Active
YD64119	Quartz	VAN GOGH	17	31/08/2011	27/08/2011	31/08/2014	Active
YD64118	Quartz	VAN GOGH	18	31/08/2011	27/08/2011	31/08/2014	Active
YD64116	Quartz	VAN GOGH	19	31/08/2011	27/08/2011	31/08/2014	Active
YD64125	Quartz	VAN GOGH	20	31/08/2011	27/08/2011	31/08/2014	Active
YD64120	Quartz	VAN GOGH	21	31/08/2011	27/08/2011	31/08/2015	Active
YD64126	Quartz	VAN GOGH	22	31/08/2011	27/08/2011	31/08/2014	Active
YD64135	Quartz	VAN GOGH	25	31/08/2011	27/08/2011	31/08/2013	Active
YD64110	Quartz	VAN GOGH	26	31/08/2011	27/08/2011	31/08/2013	Active
YD64113	Quartz	VAN GOGH	27	31/08/2011	27/08/2011	31/08/2013	Active
YD64112	Quartz	VAN GOGH	28	31/08/2011	27/08/2011	31/08/2013	Active
YD64114	Quartz	VAN GOGH	29	31/08/2011	27/08/2011	31/08/2013	Active
YD64115	Quartz	VAN GOGH	30	31/08/2011	27/08/2011	31/08/2013	Active
YD64105	Quartz	VAN GOGH	89	31/08/2011	27/08/2011	31/08/2014	Active
YD64106	Quartz	VAN GOGH	90	31/08/2011	27/08/2011	31/08/2014	Active

#### Table 1. VAN GOGH (West) Claims Ownership - 100% Everett Van Krichbaum PROPERTY & CLAIM STATUS

#### Van Gogh (East)



Map 3. Claims map, northwest corner of 105H/ 04. Van Gogh (East) claims.

RegType	Claim Name	Claim	Recording	Staking Date	Claim	Status
		#	Date		Expiry Date	
Quartz	VAN GOGH	73	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	74	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	75	22/09/2011	08/09/2011	22/09/2015	Active
Quartz	VAN GOGH	76	22/09/2011	08/09/2011	22/09/2015	Active
Quartz	VAN GOGH	77	22/09/2011	08/09/2011	22/09/2015	Active
Quartz	VAN GOGH	78	22/09/2011	08/09/2011	22/09/2015	Active
Quartz	VAN GOGH	79	22/09/2011	08/09/2011	22/09/2015	Active
Quartz	VAN GOGH	80	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	81	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	82	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	83	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	84	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	85	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	86	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	87	22/09/2011	08/09/2011	22/09/2014	Active
Quartz	VAN GOGH	88	22/09/2011	08/09/2011	22/09/2014	Active
	RegType Quartz	RegTypeClaim NameQuartzVAN GOGHQuartzVAN GOGH	RegTypeClaim NameClaimQuartzVAN GOGH73QuartzVAN GOGH74QuartzVAN GOGH75QuartzVAN GOGH76QuartzVAN GOGH77QuartzVAN GOGH77QuartzVAN GOGH78QuartzVAN GOGH79QuartzVAN GOGH80QuartzVAN GOGH81QuartzVAN GOGH81QuartzVAN GOGH83QuartzVAN GOGH83QuartzVAN GOGH84QuartzVAN GOGH85QuartzVAN GOGH86QuartzVAN GOGH87QuartzVAN GOGH87QuartzVAN GOGH88	RegType         Claim Name         Claim         Recording           Quartz         VAN GOGH         73         22/09/2011           Quartz         VAN GOGH         74         22/09/2011           Quartz         VAN GOGH         74         22/09/2011           Quartz         VAN GOGH         75         22/09/2011           Quartz         VAN GOGH         76         22/09/2011           Quartz         VAN GOGH         77         22/09/2011           Quartz         VAN GOGH         77         22/09/2011           Quartz         VAN GOGH         78         22/09/2011           Quartz         VAN GOGH         79         22/09/2011           Quartz         VAN GOGH         80         22/09/2011           Quartz         VAN GOGH         81         22/09/2011           Quartz         VAN GOGH         82         22/09/2011           Quartz         VAN GOGH         83         22/09/2011           Quartz         VAN GOGH         85         22/09/2011           Quartz         VAN GOGH         86         22/09/2011           Quartz         VAN GOGH         86         22/09/2011           Quartz         VAN G	RegType         Claim Name         Claim         Recording         Staking Date           Quartz         VAN GOGH         73         22/09/2011         08/09/2011           Quartz         VAN GOGH         74         22/09/2011         08/09/2011           Quartz         VAN GOGH         74         22/09/2011         08/09/2011           Quartz         VAN GOGH         75         22/09/2011         08/09/2011           Quartz         VAN GOGH         76         22/09/2011         08/09/2011           Quartz         VAN GOGH         77         22/09/2011         08/09/2011           Quartz         VAN GOGH         77         22/09/2011         08/09/2011           Quartz         VAN GOGH         78         22/09/2011         08/09/2011           Quartz         VAN GOGH         79         22/09/2011         08/09/2011           Quartz         VAN GOGH         81         22/09/2011         08/09/2011           Quartz         VAN GOGH         82         22/09/2011         08/09/2011           Quartz         VAN GOGH         82         22/09/2011         08/09/2011           Quartz         VAN GOGH         83         22/09/2011         08/09/2011 <tr< td=""><td>RegType         Claim Name         Claim         Recording Date         Staking Date         Claim Expiry Date           Quartz         VAN GOGH         73         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         74         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         74         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         75         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         76         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         77         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         78         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         80         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         81         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         82         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         83         22/09/2011         08/</td></tr<>	RegType         Claim Name         Claim         Recording Date         Staking Date         Claim Expiry Date           Quartz         VAN GOGH         73         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         74         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         74         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         75         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         76         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         77         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         78         22/09/2011         08/09/2011         22/09/2015           Quartz         VAN GOGH         80         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         81         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         82         22/09/2011         08/09/2011         22/09/2014           Quartz         VAN GOGH         83         22/09/2011         08/

Table 2. VAN GOGH (East) Claims Ownership - 100% Everett Van Krichbaum

### PREVIOUS WORK HISTORY

There appears to be no work history for the immediate Van Gogh (West) and Van Gogh (East) area as reported on the MinFile Occurrence Map below.



Map 4. Minfile Occurrence Map.

The nearest work histories for the immediate claims area as reported on the MinFile Occurrence Map are:

- Minfile Occurrence Numbers 105H 016A & 105H 016B were for Nephrite Jade.
- <u>Minfile Occurrence Number 105H 080</u>; Occurrence Name KNEIL; Occurrence Type Polymetallic Veins Ag-Pb-Zn+/-Au ; Location: 61°6' 27" N -129°54' 13" W; NTS Mapsheet 105H/04. Claims (Previous & current) CHIT, CHIT, JAYS, JAYS, KNEIL, TUA, TUA, TUC

Staked as Kneil cl 1-48 (YA66651) and cl 51-60 (YA66699) in Jul/81 by Cyprus Anvil Mining Corporation, which performed mapping and geochemical sampling later in the year.

Restaked within Chit cl 1-146 (YB51060) in Jul/94 by Cominco Ltd, following a regional airborne geophysical survey. The company staked Tua cl 1-23 (YB51037) 13 km to the east at the same time. Cominco carried out preliminary geological mapping and geochemical sampling on both properties and completed ground HLEM, magnetic and gravity geophysical surveys on the Tua claims. In Dec/94 Cominco staked Tua cl 24-71 (YB56931).

In May/95 Cominco staked Jays cl 1-172 (YB59412) to the northeast. In 1995 the company carried out ground HLEM, magnetic and gravity surveys on the Chit claims followed by further geological mapping, prospecting and soil sampling. On the Jays claims, Cominco carried out a helicopter-borne geophysical survey and a silt sampling program. In Oct/95 Cominco staked Tua cl 75-122 (YB68990) and Jays cl 172-431 (YB63270). In Nov/95 the company staked Chit cl 147-216 (YB71033).

In Jan/96 Cominco staked Tuc cl 1-84 (YB71767) 7 km to the northeast. The company added Tuc cl 85-96 (YB5735) in Jul/96. During the 1996 field season the company carried out a HLEM/Mag ground geophysics program on the Jay claims followed by detailed geological mapping, soil and rock sampling programs. On the Chit claims the company carried out detailed geological mapping, soil sampling and ground geophysics on 4 grids and on the Tua and Tuc claims limited geological mapping, geochemical sampling and prospecting programs.

In Jul/97 Cominco carried out two days of detailed geological mapping to further define the area west of the Kneil showing.

<u>Minfile Occurrence Number 105H 085;</u> Occurrence Name BEANS; Occurrence Type Hard-rock; Location: 61 °13'15" N -129 °38'16" W; NTS Mapsheet 105H/04.

Claims (Previous & current) BEANS, CAMPBELL, CHIEF, GOFPHER, JADE, JOE, LIMA, PIKA, TACK, TRAPPER, JULSEY D

Beginning in Oct/83 the occurrence was staked within various small claim groups including Beans cl 1 (YA70692) by J. and H. Caesar, Pika cl 1-4 (YA70700) by H. Caesar, and Jade cl 1 (YA91081) by B. McGeorge. T. Dickson staked Joe cl 1 (YA71347) 3 km to the northwest in Jul-Sep/84.

H. Caesar, T. Dickson and others staked Campbell cl 1-2 (YA73625) 2 km to the north in Aug/85 and Jun/86. G. Edzerza staked Lima cl 1-4 (YA99397) 1 km northeast of the Jade claim in Sep/86. J. Chief tied on Chief cl 1-2 (YB14552) to the south in Jul/88. Later in the month, H. Caesar staked Gofpher cl 1 (YB14426) and D. Morris staked Trapper cl 1 (YB14427) beside the Jade claim. No assessment reports were filed for any of these claim groups.

Restaked within Tack cl 1-550 (YB78704) in Mar/96 by Westmin Resources Ltd, which explored with soil and stream sediment sampling later in the year. In Mar/98 Westmin was acquired by Boliden Ltd and in Sep/98 ownership in the claims was transferred to Boliden Westmin Limited. In Apr/99 the claims were transferred to Archer Cathro and Associates (1981) Ltd. The last remaining claims lapsed in Mar/2000.

The original claims were mostly staked over units located in the footwall of the Jules Creek Thrust. According to Murphy (2001) nephrite jade is locally developed near the basal contact of the ultramafic body (unit PPum) and is the presumed cause of the staking activity in the 1980's.

Wide spaced soil sampling by Westmin, searching for volcanogenic massive sulphide (VMS) deposits, yielded only spotty Cu (<195 ppm), Pb (<26 ppm) and Zn (<140ppm) values. Gold analysis returned only background values (Terry et al.,1997). Additional soil sampling by Westmin in 1997 yielded a small gold in soil anomaly (<90 ppb) over a chert - ultramafic contact (Terry et al, 1998). Spotty soil anomalies were returned for Cu (<105 ppm), Pb (<36 ppm) and a small coherent, multi sample, anomaly for Zn (<1125 ppm). Geologic mapping by Westmin in 1996 and 1997 failed to locate stratigraphy similar to that hosting the Wolverine VMS deposit (Minfile Occurrence #105G 072) and the Tack claims were allowed to gradually lapse.

#### 2013 WORK PROGRAM

On July 6, 2013 access was attempted to reach the area of the two Van Gogh claim by 8 wheel Argo utilizing the gazetted cat trail at Km 160 to the West of the Campbell Highway and over-land to try to get to the proposed base camp 3.5 km north-northeast of the Van Gogh (East) claims, but the previous route taken was not found. Other possible routes were explored but did not provide secure access because steepness of terrain meant that access downhill to the proposed camp area was probably possible, but did not have a guarantee of a successful return route back up the steep slopes. Due to the access problem using the Argo, this method of access (Argo) was changed in favor of helicopter access.

After getting funding permission from YMIP, a helicopter was chartered from the 3Ace camp for a drop in for camp and crew access, and a corresponding pick up for access out. A 10 day window including set out and pick up was all that was possible, so all sampling work was done from July 14 - 23, 2013. Work on the Van Gogh claims and immediate area was carried out by a 2 person prospecting / sampling crew.

Prospecting was carried out by walking the ground, observing outcrops, etc. using standard prospecting tools. The geochemical survey consisted of sampling silts, soils and rocks that were assayed later in the fall. The silts were collected from the active part of the stream-course. The GPS waypoint location # was marked on the kraft 4x10 in. silt sample bag with indelible ink. Soils were collected from the B horizon approximately 20 cm deep, with rootlets and any larger stones discarded first. The GPS waypoint location # was also marked on the kraft 4x10 in. soil sample bag with indelible ink. Any notable conditions such as unusual soil colour were recorded in the journal. Most rocks were collected from exposed bedrock. Grab samples were from colluvial float. The analytical results for these silt, soil and rock samples are included in the Appendix of this report along with a table of their UTM coordinates.

Most traverses and soil samples were taken on high-ground / ridges. Gossans were explored and rock samples taken at the gossans. Bedrock was prospected where encountered for visible mineralization. Interesting highlights are noted in the Silt and Rock Samples and Discussion sections. Most of the silt samples collected were taken on a traverse downstream within the Van Gogh (West) claim block. Rock samples were taken during the stream traverse and an extensive very rusty stream sediment 'gossan' was explored and sampled. Other silt samples were taken where traverses crossed watercourses. The Van Gogh (East) work program was brief and consisted of silt, soil and rock sampling.

Geophysical magnetic maps were examined "on line" from the Yukon MapMaker Online website and are presented in the Regional Geology section along with regional geology mapping by Murphy (2000). Please refer to the Property Geology section for the maps showing the Van Gogh (West) and (East) claims local area geology.

### SAMPLE PREPARATION & ANALYTICAL PROCEDURES

Samples were sent for assay to Acme Analytical Lab in Vancouver, B.C. Soil samples were assayed for 36 elements by the ICP-MS method 'Group 1DX2', using the 15g split size (instead of the 0.5g) for more representative Au analysis. Sample splits were leached in hot (95 °C) Aqua Regia. Refractory and graphitic samples possibly limited Au solubility. Sample analysis quality control was done by Acme Analytical Labs inserting blanks and running duplicates. Quality control results are presented in the Appendix with the Acme assay certificates.

### 2. REGIONAL GEOLOGY

The Finlayson Lake district is underlain by the Yukon-Tanana Terrane: a Late Proterozoic to Paleozoic metamorphosed volcano-sedimentary assemblage. This terrane hosts several known volcanogenic massive sulphide (VMS) deposits and occurrences, including Kudz Ze Kayah (Minfile Occurrence #105G 117), Wolverine (Minfile Occur. #105G 072) and Ice (Minfile Occur. #105G 118).

The Yukon -Tanana Terrane in the Frances Lake area consists of several fault or unconformity-bound successions. These rock packages are bound to the southwest by the Tintina Fault zone and on the northeast by the Finlayson Lake Linear. Prominent regional scale thrust faults are along the Jules Creek Thrust.

Devine et al. (2004) reports the southern Campbell Range is underlain by greenschist facies volcaniclastic, epiclastic and sedimentary units of the Tuchitua River and Money Creek formations. Stratigraphy is deformed by at least three syn- to post-Early Permian folding events. Northwest-striking, high-angle faults imbricate the folded metasedimentary package with sheets of serpentinite. These rocks are juxtaposed against basinal rocks of the Fortin Creek group to the east, along the Jules Creek Thrust fault.

The area at Van Gogh (West) is underlain by a sequence of Devonian to Mississippian metavolcanic and metasedimentary rocks which have not yet been assigned a specific succession. These rocks are overlain by Pennsylvanian to Permian mafic and ultramafic rocks formerly believed to belong to the Slide Mountain Terrane, but recently assigned by Murphy and Piercey (2000) to the Campbell Range Succession. Murphy and Piercey's work suggests that the contact between the two units is depositional in nature and that the entire package, including the Campbell Range Succession represents a transitional island arc/continental arc to marginal basin/ocean (back-arc?) basin environment and together constitute Yukon-Tanana Terrane.

A large Mississippian age, porphyry stock, tentatively identified as part of the Simpson Range Plutonic Stock intrudes the sequence to the south. A large mid-Cretaceous post-accretionary pluton, specifically the 85Ma granite-granodiorite Money Plug intrusion, is only 2 km west of the Van Gogh (West) claim block.

The Van Gogh (West) [and Van Gogh (East)] regional residual total field aeromag map below and the 1<sup>st</sup> vertical derivative aeromag map on the next page show prominent northwest linear trends in the regional geology. Both maps were acquired from the Yukon MapMaker Online website.



Map 5. Residual Total Field Aeromag. Van Gogh (West) and Van Gogh (East) regional area showing prominent Northwest linear trends in the regional geology. (From Yukon MapMaker Online web site).





The regional area is very anomalous for Hg at almost all RGS silt sites. Two RGS silt samples in the area (marked 'A' and 'B') had multi-element 95<sup>th</sup> 98<sup>th</sup> and 99<sup>th</sup> percentile anomalies for Yukon-Tanana.

For convenience, the property area geology and the soil, silt and rock sampling sites and results will be discussed in different sections of this report for Van Gogh (West) area and the Van Gogh (East) area - with the Van Gogh (West) area presented first, starting on the next page. The Van Gogh (East) area presentation starts on page 23.

All precentiles referred to in this report are based on the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs Table in the Appendix. They refer to previous (2011) samples by Northern Tiger Resources (NTR) and to the Yukon Gov. RGS silts.

### 3. PROPERTY GEOLOGY - Van Gogh (West) Area

Van Gogh (West) area. 105H/04. This area has several important geological features: - regional northwest structural alignment, - abundant anticline folded carbonate platform(?) rock capped by carbonaceous argillite, - highly anomalous multi-element RGS and NTR silt sediment assays, - (reverse?) faulting, - proximity to a large mid-Cretaceous stock, - rectangular stream pattern (faults?) near intrusion.



Map 7. Van Gogh (West) Property Geology Map. Highly anomalous multi-element RGS silt sample site is 3km downstream (West) from area of interest and is only 650 m from mKqS intrusion. Notice rectangular stream pattern going away from intrusion. Mv and Pc were the current area of interest. Mv is mineralized and bounded by a prominent (reverse?) fault to the south, also of interest. Map from Murphy, Open File 2000-16.

A map presentation of the soil, silt and rock sampling results are in the Soil, Silt and Rock Samples Results section. Assays and UTM's are in the Appendix.

The Van Gogh (West) area on map 105H/04 has several important geological features. Three major rock packages are present as designated on the geology map by Murphy (2000). Their descriptions are as follows:



Dark grey to black carbonaceous argillite, dark grey chert, dark grey matrix-supported diamictite, grey chert-pebble conglomerate, grey-brown, poorly sorted, quartzofeldspathic greywacke, uncommon tan quartz sandstone. Uncommon limestone-pebble conglomerate at base.

#### unconformity?



Massive to thickly bedded, light to medium grey, light grey-weathering marble. Locally crinoidal. Pennsylvanian to Early Permian conodonts have been reported from this unit elsewhere (Orchard, M. in Gordey and Makepeace, 1999).

### MISSISSIPPIAN



Light to medium green, locally quartz- and feldspar-phyric, intermediate meta-volcanic rocks. Locally, this unit comprises maroon and green tuff breccia. A Mississippian U-Pb age has been reported for a similar tuff breccia in 105H/4, south of the area mapped (Mortensen, 1992).

Claim staking identified one gossanous rock site and one gossanous silt site in unit **Mv**. They were one major area of interest for this project. Please refer to the Soil, Silt and Rock Samples mapping and the Discussion section for Van Gogh (West) assay highlights, traverses and sample locations and descriptions of the gossans and other sites.

Another major area of interest for Van Gogh (West) was the folded  $P_{\rm C}$  carbonate rock south of the east-west fault on the southern edge of unit Mv. It is interesting for 3 reasons.

- It is an anticline structure that represents a favorable site for mineralization.
- The anticline structure butts against the mapped east-west fault structure on the north  $\mathbf{P}_{\mathbf{C}}$  boundary, increasing the chance of mineralizing fluids reaching the reactive carbonate anticline.
- Favorable results for a silt assay done while staking in this carbonate unit near the anticline crest indicates possible hydrothermal activity with anomalous Au and pathfinder minerals for possibly carbonate hosted Au mineralization (Schroeter, et al., 1996) or hot spring Au-Ag (Panteleyev, A. 1996).

### 4. SOIL, SILT and ROCK SAMPLES - Van Gogh (West) Area

### PRESENTATION OF RESULTS

In general, soil samples were taken in the Van Gogh (West) area on ridges / high ground or along carbonate anticline crests as presented by the geological mapping of Murphy, Open File 2000-16. Silt samples were taken mostly from the stream that had a known gossanous section found during staking. Other silt samples were taken from watercourses as they were encountered during traverses.

Van Gogh (West) silt sample highlights known prior to this project are mapped below as percentiles for the silt sample locations. The data for the major elements for the NTR silt sample assays was compared to the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs table to calculate these percentiles.



Map 8. Van Gogh (West) Previously Known Silt Percentile Results. *Percentile highlights for the 3 previous silt assays are shown above, along with the highly anomalous multi-element RGS silt sample site.* NTR 361 occurs near the crest of the carbonate anticline. Silt sample NTR 362 was very rusty and rocks in the stream were stained rusty red. The 2 gossans and the crest of the carbonate anticline were high priority targets for this project. Map from Murphy, Open File 2000-16.

The next 6 maps show the traverses that were made in the soil, silt and rock sampling within the Van Gogh (West) [VGW] claim area. A common traverse from camp to 4 daily sampling areas is not presented so that the sampling portion of the traverse could be shown in more detail on the maps. The first day's sampling traverse is presented in 2 maps, again to show more detail on the maps. Traverses from camp are mapped for the 2 other days' sampling traverses within the Van Gogh (West) claim area. Numbers on the maps and Appendix tables for soil, silt and rock sample assay results and UTM coordinates correspond to the GPS Waypoint #'s used on the following maps.



Map 9. VGW Southern Traverse (Northern section). The southern section is on the next page. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches assay #. This area is basically unmineralized along the traverse sampling line except for rock #401 (see Map 14, page 22). Black diamond is a traverse waypoint only.



Map 10. VGW Southern Traverse (Southern section). The northern section is on the previous page. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay #. This area is basically unmineralized along the traverse sampling line. It roughly corresponds to the carbonate anticline crest target for this project (see 'NTR 361Sed' result on the geology map, page 16).



Map 11. VGW Western Traverse. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay #. This area is well mineralized along the traverse sampling line for 1.4km, and is parallel to and approximately 600m north of the fault mapped by Murphy (2000) and the highly anomalous 'NTR 361 Sed' silt sample - see the geology map, page 16. NTR Sed sample percentiles are from the Yukon-Tanana RGS percentiles chart (included in the Appendix). Of further note is the very rusty stream 500m north of this sampling traverse where further highly anomalous silt samples were taken previously (See NTR 360 and NTR 362 Sed results on the geology map, page 16). In addition, the very eastern portion of this sampling line was further sampled another day as part of the sampling traverse for the rusty stream noted above - see Map 14, page 22. Further sampling in this map area is very highly recommended, in particular between samples #152 to #175 and 'NTR 361 Sed' and 'NTR 360 -NTR 362 Seds' (the rusty stream area).



Map 12. VGW Southwestern Traverse. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay #. This area is very poorly mineralized along the traverse sampling line. Black diamonds are traverse waypoints only, and no samples were taken at these points on this ridge except rock #341. It was planned to sample this ridge on the return traverse back toward camp but this was the furthest traverse from camp which took longer to reach than any of the other traverses and a heavy rain and lightning storm while on the ridge (#353-358) caused a 3 hour delay and these did not leave enough time to soil sample that part of the traverse on the way back to camp. NTR 361 Sed is noted for reference location.



Map 13. VGW Northwestern Traverse. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay #. This area is poorly mineralized for gold / silver along the traverse sampling line. It is weakly anomalous for Zn, Ni, Co and Cr at a few sample sites, and more strongly anomalous for these at sample site #377. This could signify that the **PPum** (ultramafic rock) mapped by Murphy on the geology map on page 16 extends further south than indicated. Only soil samples were collected on this traverse.



Map 14. VGW Stream Traverse. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay #. Black diamonds are traverse waypoints only. This area is well mineralized near the convergence of the 2 streams, which was a high priority target for this project. The 'NTR 360 Sed' silt sample done in 2011 is included for reference - see the geology map, page 16. Sample site #395 corresponds to the 2011 reported gossanous stream silt sample 'NTR 362 Sed' (see the geology map, page 16), and the stream is very rusty downstream from sample site #394. In addition, the eastern portion of the sampling traverse was well mineralized near #400 and #401. The previously soil sampled site #182 and the red circled Au anomalous area are also included for reference location (see the 'Western Traverse' map, page 19). Further sampling is highly recommended, in particular between samples #391 and 'NTR 360 Sed', between sample site #395 and the red circled area, and between sites #400-401.

### 5. PROPERTY GEOLOGY - Van Gogh (East) Area

The geology map below by Murphy (2000) shows the primary project target carbonate unit that trends northwesterly through the Van Gogh (East) claim block.



Map 15. Locations of Cross-section Lines A-A', B-B'. There are not many strike-dip symbols to use to construct the 2 cross-sections, but there are some, particularly along cross-section line B-B'. Elevations were used along with the strike-dip symbols to construct the correct thickness of the various layers in the crosssection for the diagram on the next page.

Claim staking in 2011 identified one gossanous silt site just downstream of an abundant angular chalcopyrite and pyrite sulphide mineralized rock site at the streambed. The regional northwest structural alignment is easily seen in the aeromag maps on pages 24-25 and on the Van Gogh area geology map above. Structural folding locally consists of two anticlines and two synclines over a horizontal distance of 5 km. The area of primary interest is a linear anticline carbonate unit Pc and the contact with Unit Pcl that occurs in the Van Gogh (E) claim block. VMS and Au pathfinders occur in RGS and 2011 NTR silt samples

and at the 2011 NTR rock site 20939 sulphide mineralized boulders occur in the streambed. This mineralized occurrence is on strike with the E-W fault on the southern border of unit MV to the west (see the geology map, page 16).



Please refer to the cross-sections below for the discussion on page 25.

Cross-section 1. Cross-sections at Lines A-A', B-B'. View looking NNW. Layers are to scale but exaggerated vertically 6X. The aeromag high follows a SSE direction under the point noted above for line B-B'. The Van Gogh (E) claim block is approximately on B-B' at the right anticline for Limestone / Marble.

What is impressive in the cross-section (on page 24) is the thickness of the carbonate package. Along the northern line A-A' the carbonate package is approximately 130 m thick. However, the thickness increases markedly as one goes southeast toward the Van Gogh (E) claims, reaching approximately 280-300 m thickness. This greatly improves the deposit size potential for carbonate hosted mineral deposits for Van Gogh (E). Further amplifying the potential, the carbonate anticline structure for Van Gogh (E) has many parallel on-strike recessional surface linements (faults?) visible even at the low resolution of Google Earth, along the anticline crest. Please refer to the image below.



Map 16. Van Gogh (E) Area Recessional Features. The area has many linear recessive linements (faults?) (coloured brown) parallel to the stream and at the crest of the carbonate anticline (coloured yellow gold) which is to the west of the main stream. Other recessional features (faults?) intersect the carbonate anticline crest axis. BOLD assay highlights are 98-99<sup>th</sup> percentile (ex. HG), normal are 90-95<sup>th</sup> percentile (ex. Fe). View looking NNW.

### 6. SOIL, SILT and ROCK SAMPLES - Van Gogh (East) Area

### PRESENTATION OF RESULTS

In general, soil samples were taken in the Van Gogh (East) area on ridges / high ground or along carbonate anticline crests as presented by the geological mapping of Murphy, Open File 2000-16. Silt samples were taken from stream gullies that were near to and parallel with the carbonate anticline crest axis that was a primary target for this project on Van Gogh (East).



Map 17. VGE Southwest Ridge Traverse. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay #. This area is basically poorly unmineralized along the traverse sampling line. It is weakly anomalous for Cu,Zn, and Mn at a few sample sites, and weakly anomalous for gold at the beginning of the traverse. Perhaps more soil sampling south of the traverse line would reveal a gold mineralized area.



Map 18. VGE Carbonate GulliesTraverse. Traverse is bold black line with directional arrows. GPS waypoint # of sample matches the assay. This traverse covers a primary target for this project, the recessional gullies and ridges (structures?) that are parallel to and next to the linear carbonate anticline crest (see Google Earth image, page 25). Results are positive, especially for the possibility for Carlin type carbonate hosted gold. The 53 ppb gold silt assay is anomalous for gold @98<sup>th</sup> percentile and anomalous for Carlin gold pathfinders - As, Sb, Hg and Tl (+Se), and near the RGS silt anomalous for 9 metals @99<sup>th</sup> percentile (map, page 26). Further sampling is highly recommended.

### 7. DISCUSSION

### <u>GENERAL</u>

The RGS silt sample data on the Yukon MapMaker Online website for the westfacing basin that comprises the majority of the Van Gogh (West) property is very anomalous for several elements. That site was anomalous at the 95<sup>th</sup> percentile for Au, Sb, Fe, Mn and very anomalous at the 98<sup>th</sup> percentile for Hg, Fe, Cu, Cd, and Zn. The RGS silt sample for the east-facing basin just east of the red arrow tip is also very anomalous for 9 major elements at the 99<sup>th</sup> percentile. The dotted and red line between these 2 exceptionally anomalous RGS samples is in direct alignment with gold mineralized samples from this project in both Van Gogh (West) and Van Gogh (East). This gold mineralized trend parallels the fault structure of Murphy's geological mapping in Open File 2000-16. This suggests the possibility of a mineralized deep seated regional fault along this line.



Map 19. Structural Interpretation Based on Project Results.

The possibility of a mineralized deep seated regional fault along this line is further amplified by the YGS MapMaker Online mapping of the residual total magnetic field (200m). This is shown on the map below.



Map 20. Residual Total Magnetic Field (200m). The 2 very anomalous multi-element RGS silt samples discussed on page 28 are the 2 RGS sample locations' circles at the 2 ends of the red line on this map. This red line is the same as the line shown on 'Map 18 Structural Interpretation Based on Project Results' on the previous page. The linear aeromag high is interrupted and possibly slightly offset by the proposed mineralized deep seated regional fault along this red line.

Most of the discussion of results will be divided in 2 sections, Van Gogh (West) and Van Gogh (East). The Van Gogh (West) section will be first, and starts below. The Van Gogh (East) discussion of results starts on page 33. Traverses will be discussed using the names in the map title for each traverse. For the most part the traverses are separate with no / little overlap.

### VAN GOGH (WEST)

The 2 main project targets that were sampled for Van Gogh (West) yielded opposite results - the carbonate anticline crest axis was essentially unmineralized while the gossanous / red rusty stream area mineralization was expanded. In addition, a new unexpected mineralized trend was discovered along a ridge, and that area is shown as the red line section on the map on the previous page 28.

The <u>VGW Southern Traverse</u> was unexpectedly essentially unmineralized along the carbonate anticline crest axis. This leaves the source of the very anomalous NTR 361 silt undiscovered, and eliminates one of the possibilities that seemed very likely. That silt sample was taken near the carbonate anticline crest in a section of stream that heads west, near to and paralleling the fault mapped by Murphy (2000). It seems probable that the NTR 361 silt sample is associated with the fault instead. Also see comments for the VGW Western Traverse gold mineralized corridor below as it is also associated with the same fault. Further sampling near the NTR 361 site is recommended to find the source of that silt sample's mineralization.

The VGW Western Traverse was unexpectedly mineralized, and shows the potential for mineralization in the upthrusted Mv meta-volcanic unit. The rocks along the ridge were silicified but did not appear mineralized. Gold was anomalous in all but one of 11 consecutive soil and silt samples covering a strike length of over 1km, with anomalous Ag as well, and this strike is open at both ends. Within this gold mineralized corridor are weak Pb and W anomalies. One sample in particular, #175 (soil assay VG(W)-13-S-175) was exceptionally anomalous in Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Ba, Sb, Hg, Tl and Se, as well as As and Au. This site clearly stands out, and the silt sample 100m away (#174, assay VG(W)-13-SED-174) backs it up with anomalous results for Mo, Cu, Zn, Ag, Mn, Ba, Sb, and Hg, as well as As and Au. Gold assay values generally increase going eastward from site #143, maxing out between sample sites #173-175. The gold pathfinders As, Sb, Hg and TI are also elevated to very anomalous between these sample sites. This basically fits the exploration guide geochemical signature for the Panteleyev (1996) hot spring Au-Ag deposit model. The pathfinders for this deposit type model are Au, Sb, As, Hg, and TI near surface. Also, in the hot spring Au-Ag deposit model. Hg mineralization may overlie deeper gold ores. The Hg assay for silt sample site #174 (assay VG(W)-13-SED-174) was 940 ppb, which is in the 99<sup>th</sup> percentile compared to all RGS Yukon-Tanana silt samples.

This mineralized corridor is further supported by its alignment eastward with the highest Au assayed rock for this project, 115 ppb Au, sample site #401 (rock assay VG W -13-R401). This Au anomalous corridor is also parallel to and within 200m of the east-west fault mapped by Murphy (2000), and along the proposed deep-seated regional fault (see pages 28-29). It is also sandwiched between the gold anomaly 'NTR 361 Sed' to the south and the rusty streambed gold anomaly to the north, which are 1km apart. As a group, this gold anomaly covers 1km<sup>2</sup>. Further sampling is highly recommended to test the width of the gold mineralization and the strike length along this east west mineralized corridor.

The <u>VGW Southwestern Traverse</u> is very poorly mineralized along the traverse sampling line, being weakly mineralized only for Zn at site #358. Because the steep east-west ridge at the southern end of the traverse is so prominent and at a right angle to the probable glacial ice flow, it was thought that it could be very silicified and, as such, a potential mineralized site. It was a hard competent carbonate with no visual sign of mineralization, and soil and rock assays proved to be basically un-mineralized. No further work is recommended for this area.

The <u>VGW Northwestern Traverse</u> is also poorly mineralized along the traverse sampling line which targeted a carbonate anticline mapped by Murphy (2000). It is weakly anomalous for Zn, Ni, Co and Cr at a few sample sites, and exceptionally anomalous for Ni, Co and Cr at sample site #377. This sample site had the highest Ni, Co and Cr assays by far for the entire project, and warrants further soil sampling at this site and further north, targeting the **PPum** (ultramafic rock) mapped by Murphy on the geology map on page 16. Otherwise no further work is recommended for this area.

The <u>VGW Stream Traverse</u> area is well mineralized near the convergence of the 2 streams, which was a high priority target for this project because the 'NTR 360 Sed' silt sample done in 2011 reported an anomalous gossanous stream silt sample ('NTR 362 Sed' - see the geology map, page 16). The 'NTR 362 Sed' corresponds to this projects' sample site #395. The stream was very rusty downstream from sample site #394 (the source) to past #395.

Almost the entire stretch of stream from silt sample number #381-395 was high in manganese. Au was slightly anomalous right from the beginning of the traverse, and peaked at silt sample #391, approximately 80m before the rusty precipitate / gossan appeared, so it is possible that the Au downstream at the rusty silt samples #394-395 actually comes from the area upstream at (or just upstream of) #391. Sample site #391 was also anomalous for Ag, As, TI and slightly anomalous for Pb. The silt sample taken just downstream of the first red rusty sediment was the most mineralized, being very anomalous for Mo, Cu, Zn, Ag, Ni, Co, Fe, Cd, Mn, Se and somewhat anomalous for Au, As, Sb and Tl. <u>This outstanding silt sediment at sample site #394 ranks in the 99<sup>th</sup> percentile for Mo, Cu, Zn, Ag, Ni, Co, Mn, Fe, Cd and Sb for all Yukon-Tanana when compared to the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs table in the Appendix. Soil sampling is highly recommended upslope of the area between and including sites #391-394 and between samples #391 and 'NTR 360 Sed'.</u>

The eastern portion of the sampling traverse was also well mineralized near site #400 and the rock sampled from #401, which was beside a white quartz field. Sample site #400 corresponds to a gossan previously explored in 2011 during claim staking. This gossan is pointed out on the geology map, page 16, as is the one corresponding to #395. The assay values for anomalous metals at site #400 matches previous sampling done in 2011, and were expected. Site #401 assay results were a pleasant surprise. It lies on the fault mapped by Murphy (2000). Further soil sampling is also recommended between sites #400-#401.

### VAN GOGH (WEST) SUMMARY

- 1. The gold mineralized east-west <u>VGW Western Traverse</u> alignment with regionally significant very highly anomalous multi-element RGS silt samples, coupled with the fault mapped by Murphy (2000), suggests the possibility of a mineralized deep seated regional fault along the line on the structural interpretation map on page 28.
- The 1+km long gold mineralized east-west <u>VGW Western Traverse</u> is also sandwiched between the gold anomaly 'NTR 361 Sed' to the south and the rusty streambed gold anomaly to the north, which are 1km apart. As a group, this gold anomaly covers 1km<sup>2</sup>.
- 3. The gold pathfinders As, Sb, Hg and Tl are also elevated to very anomalous between sample sites #173-175 on the <u>VGW Western Traverse</u>, as are Au and Ag. This basically fits well with the exploration guide geochemical signature for the Panteleyev (1996) hot spring Au-Ag deposit model.
- 4. The Au anomalous assay for the rock at site #401 may represent an extension of the gold mineralized ridge along the <u>VGW Western Traverse</u>.
- The <u>VGW Stream Traverse</u> assays for silt #391 have higher Au and a very different assay signature from the next silt assay downstream (#394 see '6.' below). This indicates it is possible that these 2 silts are sampling 2 different Au sources.
- 6. The <u>VGW Stream Traverse</u> established that the source of the previously discovered highly anomalous rusty red streambed 'NTR 362 Sed' (corresponds to this projects' silt sample site #395) was just above sample site #394. Sample site #394 (rusty spring) is exceptionally anomalous at or above the 99<sup>th</sup> percentile for Mo, Cu, Zn, Ag, Ni, Co, Mn, Fe, Cd and Sb for all Yukon-Tanana when compared to the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs table in the Appendix. The abundance of primary VMS pathfinders Pb, Zn, Ag, as well as Cu and Au strongly point to the leakage being from a local VMS source. The Mississippian meta-volcanic rock is host to VMS deposits elsewhere in the Findlayson District. The Kudz Ze Kayah (KZK) and Wolverine deposits are volcanogenic massive sulphide deposits hosted by Early Mississippian meta-rhyolites, marine metasedimentary rocks and intermediate to mafic metatuffs of the Yukon Tanana Terrane in the Finlayson Lake area (Nelson, 1997).
- 7. The disappointing assay results for the <u>VGW Southern Traverse</u>, <u>VGW</u> <u>Northwestern Traverse</u> and the <u>VGW Northwestern Traverse</u> indicate that the carbonate Unit **Pc** and carbonate anticline crest targets for this project are only very weakly mineralized.
- 8. The <u>VGW Northwestern Traverse</u> has one very notable soil assay at sample site #377. It is exceptionally anomalous for Ni, Co and Cr. This sample site had by far the highest Ni, Co and Cr assays for the entire project. The soil sampling at this site is probably overtop of the **PPum** (ultramafic rock) Unit mapped by Murphy on the geology map on page 16. Such high assay values point to the Unit **PPum** as a brand new target for Ni-Cr-Co.

#### VAN GOGH (EAST)

The geology map on page 23 shows the northwest trending linear carbonate Unit **Pc** that is one of the main targets for the Van Gogh (East) claim area. The main project target for sampling the Van Gogh (East) claims was the carbonate anticline crest axis that is near the center of the claims. The topo lines on the claim map on page 6 shows a surface disrupted by a series of northwest trending gullies and ridges on the Van Gogh 85 claim that appear to be structural features. These are just offset of and parallel to the carbonate anticline crest as mapped by Murphy (2000).

The <u>VGE Southwest Ridge Traverse</u> is weakly anomalous for Cu, Zn, and Mn at a few sample sites, and weakly anomalous for gold at the beginning of the traverse. The **PcI** Unit so far seems weakly or poorly unmineralized. Perhaps more soil sampling south of the traverse line would reveal more gold mineralization.

The <u>VGE Carbonate Gullies Traverse</u> results validated the target selection for this project. The 53 ppb gold silt assay (VG(E)-SED-13-408) at site #408 is anomalous for gold @98<sup>th</sup> percentile for Yukon-Tanana and it and several nearby samples are anomalous for the geochemical signature Carlin gold pathfinders - As, Sb, Hg and TI. Site #408 is also extremely anomalous for vanadium as is the nearby soil sample at site #416. Further sampling is very highly recommended.

Schroeter et al. (1996) report that the alteration mineralogy for carbonate-hosted disseminated Au-Ag is strongly controlled by local stratigraphic and structural features, and deep structural faulting. The northwest trending gullies and ridges on the Van Gogh 85 claim appear to be structural features, and these are just offset of and parallel to the linear carbonate anticline crest (stratigraphy) as mapped by Murphy (2000). Additionally, they are on line with the proposed regional deep seated mineralized fault presented on pages 28-29. Another prominent structural feature that may be important is the erosion resistant stream diverting bluff to the northeast that shows in the upper right corner of Map 18, page 27. Its projection is directly in line with the carbonate 'gullies and ridges' target. The stream gorge was rusty (mineralized?) when viewed from the helicopter, and is the likely source of the abundant angular mineralized rock reported by the Northern Tiger Resources stakers from the streambed just downstream in 2011.

Besides being very anomalous for Au and Carlin gold pathfinders, the silt sample VG(E)-SED-13-408 is so exceptional in Ag and Hg that I don't know quite what to make of it. Both Ag and Hg exceed the entire Yukon-Tanana database for RGS silt samples - in other words, they exceed the maximum reported values for ALL 8000+ Yukon-Tanana RGS silt samples for Ag and Hg in the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs Table in the Appendix. The Ag assay exceeds the Yukon-Tanana RGS max by a factor of 2 and the Hg by 3!! Either there was a really big error at the assay lab or something exceptional is happening at site #408. This area continues to be a very high priority target for Van Gogh (East).

### VAN GOGH (EAST) SUMMARY

- 1. The **PcI** Unit so far seems weakly or poorly unmineralized based on results from the <u>VGE Southwest Ridge Traverse</u>. This fits with what I expected, but such a generalization can not be made from just one traverse.
- 2. The <u>VGE Carbonate Gullies Traverse</u> appears to have resulted in a discovery of a silver enriched Carlin type gold or carbonate-hosted disseminated Au-Ag type deposit area. Au, Ag and the Carlin Au pathfinders As, Sb, Hg and Tl were found in a structurally disrupted carbonate anticline near the axis crest.
- 3. The <u>VGE Carbonate Gullies Traverse</u> silt sample VG(E)-SED-13-408 is so exceptional in Ag and Hg that it <u>exceeds the maximum reported values for</u> <u>ALL 8000+</u> Yukon-Tanana RGS silt samples for Ag and Hg in the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs Table in the Appendix. Unless there was a really big error at the assay lab then something exceptional is happening at site #408. This site is now a high priority.

### 7. CONCLUSIONS

The exploration results for the Van Gogh (West) claim block has indicated potential for possibly a hot-spring Au-Ag deposit type and a VMS deposit type in Unit **Mv**. The possible hot-spring Au-Ag type deposit is along a silicious rounded ridge parallel to and near to the fault mapped by Murphy (2000) along the 'VGW Western Traverse'. The possible VMS type deposit is associated with the rusty spring fed rusty precipitate stream to the north at site #394.

The rusty spring VMS suspected sample site #394 is exceptionally anomalous at or above the 99<sup>th</sup> percentile for Mo, Cu, Zn, Ag, Ni, Co, Mn, Fe, Cd and Sb for all Yukon-Tanana when compared to the Yukon-Tanana RGS Silt Percentile Threshold Cut-offs table in the Appendix. Leakage from VMS mineralization in the intermediate meta-volcanic unit **Mv** is suspected.

A new target deposit type, Ni-Co-Cr was identified at the southern edge of the **PPum** ultramafic rock unit, just north of the VGW Northwestern Traverse. The carbonate anticlines target for the Van Gogh (West) part of the project turned out to not be mineralized to any significant degree. However, the carbonate anticline target for the Van Gogh (East) part of the project was significantly mineralized.

The carbonate 'gullies and ridges' assay results for Au-Ag and Carlin type gold pathfinders point to a possible candidate for a Carlin type gold deposit ie. a carbonate-hosted disseminated Au-Ag deposit type gold deposit. The Ag and Hg levels at the most anomalous Au and Au site (#408) are beyond exceptional, and could be described as phenomenal. The site has other Carlin features as well - carbonate anticlines, proximity to the anticline crest, structural depressions parallel to the anticline axis, and on line with a proposed mineralized deep seated structural fault, all within an area with strong northwest regional structural alignment.

### 8. RECOMMENDATIONS

- No further work is warranted for the <u>VGW Southwestern Traverse</u> area.
- No further work is warranted for the <u>VGW Southern Traverse</u> area.
- Further sampling near the <u>'NTR 361 Sed' site</u> taken in 2011 is recommended to find the source of that silt sample's mineralization.
- For the <u>VGW Western Traverse</u>, further sampling is highly recommended to test the width of the gold mineralization and the strike length along this 1km long east-west mineralized corridor.
- No further work is warranted for the <u>VGW Northwestern Traverse</u> in general except for site #377 (below).
- Soil sample site #377 on the <u>VGW Northwestern Traverse</u> had the highest Ni, Co and Cr assays by far for the entire project, and warrants further soil sampling at this site and further north, targeting the **PPum** (ultramafic rock) mapped by Murphy on the geology map on page 16.
- For the <u>VGW Stream Traverse</u> area, soil sampling is highly recommended between and upslope of sites #391-394 and between samples #391 and 'NTR 360 Sed'.
- Also for the <u>VGW Stream Traverse</u> area, soil sampling is highly recommended between sites #400-#401, and further beyond #401.
- No further work is warranted for the <u>VGE Southwest Ridge Traverse</u> except perhaps more soil sampling south of the traverse line would reveal a gold mineralized area.
- Further sampling is very highly recommended for the <u>VGE Carbonate Gullies</u> <u>Traverse</u> area, especially in the vicinity of site #408.

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10.	STATEMENT	<b>OF EXPENDITURES</b>
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Expense Items	Comment	Units	Rate	Subtotal	Totals
		_	_		
Exploration Personnel	Field Days (list actual days)	Days	Rate	Subtotal	
Geo-tech	July 6, 2012, - July 23, 2012	16	\$350/day	\$5600.00	
Assistant/labourer	July 2, 2012, & July 3, 2012	16	\$250/day	\$4000.00	
		_	_		\$ 9600.00
Equipment and Fuel		Days	Rate	Subtotal	
4X4 truck		2	\$50/day	\$ 100.00	
Argo 8 wheel industrial ATV		6	\$56/day	\$ 336.00	
Argo transport trailer		2	\$16/day	\$ 32.00	
Fuel for Argo			Receipt	\$ 181.25	
Helicopter set in and pick up		2	Receipt	\$ 3866.94	
					\$ 4515.94
Geochemical Surveying	Assayer	# samples	Rate	Subtotal	
Soil samples	Acme Labs	82	\$ 25.03 ea	\$2052.46	
Silt samples	Acme Labs	17	\$ 25.03 ea	\$425.51	
Rock samples	Acme Labs	21	\$ 25.89 ea.	\$543.69	
					\$ 3021.66
	<b>"</b> ( <b>D</b>	Person	Dub	0.1.1.1	
Accommodation & Food	# of Person Days	Days	Rate	Subtotal	
Camp (incl. GPS, chain saw)	2 persons X 16 days	32	\$100/day	3200.00	
	= 32 Person Davs		, , , , , , , , , , , , , , , , , , ,		
	<b> </b>				
		I			\$ 3200.00
Office work		Hours	Rate	Subtotal	
Report Writing	Includes writing, mapping, printing,	70 hr	\$30/hr	\$2100.00	
· · · · · · · · · · · · · · · · · · ·	sending hardcopy and digital copy				
					\$ 2100.00
Table 3. Statement of	Expenditures			Total =	\$ 22 437 60

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#### **11. STATEMENT OF QUALIFICATIONS**

- □ 34 years experience doing geological prospecting in Yukon.
- Author of several Yukon YMIP reports on mineral property evaluations or grassroots prospecting programs, plus previous Yukon assessment reports.
- **1**3 years Geology teaching experience at first year University equivalent.
- □ Past operator of one mine property in Yukon (for Nephrite Jade).
- Owner of 75 Yukon quartz claims.
- Many geological short courses including ones on diamonds, platinum, geophysics, glacial drift prospecting, VMS deposits, rare earth elements, MMI, exploration geochemistry, and several on gold exploration.
- Exploration manager and technical report writer for Crusader Gold in B.C. 2007-2013, including ARIS Reports 28546, 30293, and 31281.
- BSc degree in Biology, (including some university geology courses)

#### "Everett Van Krichbaum", Jan 23, 2014

### **12. APPENDICES**

### UTM SAMPLE LOCATIONS

	Sample		
Assay	type	UTM Zone	9V, NAD 83
Sample #	(Rock, silt,	- · ·	Northerly
	soil)	Easterly	
VG(W)-13-S-143	Soil	451545	6785895
VG(W)-13-S-144	Soil	451625	6785898
VG(W)-13-S-145	Soil	451681	6785895
VG(W)-13-S-148	Soil	451742	6785882
VG(W)-13-S-150	Soil	451903	6785846
VG(W)-13-S-151	Soil	451996	6785860
VG(W)-13-S-152	Soil	452085	6785828
VG(W)-13-S-172	Soil	452169	6785782
VG(W)-13-S-173	Soil	452260	6785755
VG(W)-13-S-175	Soil	452432	6785849
VG(W)-13-S-176	Soil	452501	6785903
VG(W)-13-S-177	Soil	452571	6785975
VG(W)-13-S-178	Soil	452639	6785939
VG(W)-13-S-179	Soil	452683	6785868
VG(W)-13-S-181	Soil	452774	6785822
VG(W)-13-S-182	Soil	452845	6785802
VG(E)-13-S-203	Soil	456117	6784697
VG(E)-13-S-207	Soil	456166	6784779
VG(E)-13-S-209	Soil	456177	6784853
VG(E)-13-S-210	Soil	456194	6784928
VG(E)-13-S-212	Soil	456240	6785029
VG(E)-13-S-213	Soil	456307	6785096
VG(E)-13-S-214	Soil	456333	6785166
VG(E)-13-S-216	Soil	456449	6785356
VG(W)-13-S-307	Soil	453541	6784520
VG(W)-13-S-308	Soil	453491	6784604
VG(W)-13-S-309	Soil	453454	6784691
VG(W)-13-S-310	Soil	453442	6784777
VG(W)-13-S-311	Soil	453440	6784868
VG(W)-13-S-312	Soil	453415	6784952
VG(W)-13-S-313	Soil	453344	6784996
VG(W)-13-S-314(A)	Soil	453180	6785082
VG(W)-13-S-314(B)	Soil	453180	6785082
VG(W)-13-S-315	Soil	453094	6785139
VG(W)-13-S-316	Soil	453002	6785163
VG(W)-13-S-318	Soil	452925	6785177
VG(W)-13-S-319	Soil	452845	6785219
VG(W)-13-S-320	Soil	452753	6785195
VG(W)-13-S-324	Soil	453681	6785914
VG(W)-13-S-325	Soil	453623	6785990
VG(W)-13-S-326	Soil	453562	6786067
VG(W)-13-S-327	Soil	453503	6786136
VG(W)-13-S-328	Soil	453437	6786224
VG(W)-13-S-329	Soil	453358	6786294

	Sample		
Assay	type	UTM Zone	9V, NAD 83
Sample #	(Rock, silt,		Northerly
	soil)	Easterly	
VG(W)-13-S-331	Soil	453305	6786392
VG(W)-13-S-332	Soil	453274	6786491
VG(W)-13-S-333	Soil	453258	6786585
VG(W)-13-S-334	Soil	453250	6786683
VG(W)-13-S-335	Soil	453207	6786784
VG(W)-13-S-353	Soil	452036	6783567
VG(W)-13-S-354	Soil	451961	6783598
VG(W)-13-S-355	Soil	451883	6783632
VG(W)-13-S-356	Soil	451808	6783670
VG(W)-13-S-357	Soil	451732	6783692
VG(W)-13-S-358	Soil	451649	6783721
VG(W)-13-S-359	Soil	451705	6783695
VG(W)-13-S-363	Soil	453186	6786923
VG(W)-13-S-364	Soil	453153	6786999
VG(W)-13-S-365	Soil	453115	6787129
VG(W)-13-S-366	Soil	453024	6787181
VG(W)-13-S-367	Soil	452938	6787217
VG(W)-13-S-368	Soil	452844	6787252
VG(W)-13-S-369	Soil	452764	6787279
VG(W)-13-S-370	Soil	452679	6787303
VG(W)-13-S-371	Soil	452589	6787313
VG(W)-13-S-372	Soil	452473	6787398
VG(W)-13-S-373	Soil	452397	6787467
VG(W)-13-S-374	Soil	452327	6787531
VG(W)-13-S-375	Soil	452240	6787574
VG(W)-13-S-376	Soil	452145	6787601
VG(W)-13-S-377	Soil	452050	6787648
VG(W)-13-S-378	Soil	451949	6787707
VG(W)-13-S-379	Soil	451821	6787701
VG(W)-13-S-380	Soil	451713	6787733
VG(W)-13-S-398	Soil	452777	6785828
VGW)-13-S-399	Soil	452853	6785849
VG(E)-13-S-413	Soil	456840	6785828
VG(E)-13-S-414	Soil	456834	6785827
VG(E)-13-S-415	Soil	456823	6785786
VG(E)-13-S-416	Soil	456798	6785780
VG(E)-13-S-417	Soil	456614	6785640
VG(E)-13-S-420	Soil	456567	6785455

Assav	Sample	LITM	Zone 9V
Sample #	(Bock, silt,	0110	Northerly
eap.e "	soil)	Easterly	
VG(W)-13-SED-174	Silt	452351	6785797
VG(W)-13-SED-317	Silt	452992	6785170
VG(W)-13-SED-321	Silt	452725	6785290
VG(W)-13-SED-336	Silt	453045	6785398
VG(W)-13-SED-337	Silt	453018	6785345
VG(W)-13-SED-338	Silt	453002	6785174
VG(W)-13-SED-381	Silt	452858	6786869
VG(W)-13-SED-382	Silt	452698	6786718
VG(W)-13-SED-385	Silt	452635	6786659
VG(W)-13-SED-389	Silt	452583	6786544
VG(W)-13-SED-391	Silt	452462	6786325
VG(W)-13-SED-394	Silt	452393	6786272
VG(W)-13-SED-395	Silt	452310	6786226
VG(E)-13-SED-406	Silt	455955	6785598
VG(E)-13-SED-408	Silt	456818	6785693
VG(E)-13-SED-411	Silt	456841	6785806
VG(E)-13-SED-412	Silt	456888	6785829
_	Sample		
Assay	type	UTM Zone	9V, NAD 83
Sampla #	(ROCK, SIII,	Factorly	Northorly
	Book		6795200
VGW-13-R3210	Rock	452692	6785309
VGW-13-R323	Bock	452092	6785927
VGW-13-R330	Bock	453727	6786327
VGW-13-R3/1	Rock	450000	6784302
VGW-13-B354	Bock	452225	6783598
VGW-13-B360	Bock	452005	6783756
VGW-13-B387C	Bock	452605	6786641
VGW-13-B388	Bock	452608	6786623
VGW-13-B390	Bock	452488	6786371
VGW-13-B393	Bock	452412	6786294
VGW-13-B394	Bock	452393	6786272
VGW-13-B396	Bock	452532	6785975
VGW-13-B397	Bock	452618	6785948
VGW-13-B400	Rock	452860	6785835
VGW-13-R401	Rock	453190	6785773
VGE-13-R407	Rock	456778	6785698
VGE-13-R409	Rock	456844	6785738
VGE-13-R410	Rock	456833	6785798
VGE-13-R416	Rock	456798	6785780
VGE-13-B418	Bock	456568	6785635

Table 3. Sample Locations - Van Gogh Claims



Acme Analytical Laboratories (Vancouver) Ltd. 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA PHONE (604) 253-3158

#### CERTIFICATE OF ANALYSIS

**DBA Advantage Geoconsulting** Box 382 New Denver BC V0G 1S0 CANADA

Submitted By: Van Krichbaum Receiving Lab: Canada-Whitehorse Received: July 25, 2013 Report Date: August 20, 2013 Page: 1 of 4

Client:

#### WHI13000183.1

CLIENT JO	BINFORMATION	SAMPLE P	SAMPLE PREPARATION AND ANALYTICAL PROCEDURES											
Project: Shipment ID:	Van Gogh	Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab							
P.O. Number		Dry at 60C	82	Dry at 60C			WHI							
Number of Same	oles: 82	SS80	82	Dry at 60C sieve 100g to -80 mesh			WHI							
		RJSV	82	Saving all or part of Soll Reject			WHI							
SAMPLE D	ISPOSAL	1DX2	82	1:1:1 Aqua Regia digestion ICP-MS analysis	15	Completed	VAN							
DISP-PLP	Dispose of Pulp After 90 days	ADDITION	AL COMMENT	rs										
DISP-RJT	Dispose of Reject After 90 days													

www.acmelab.com

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

DBA Advantage Geoconsulting Invoice To: Box 382 New Denver BC V0G 1S0 CANADA

CC:



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. "" asterick indicates that an analytical result could not be provided due to unsually high review of interference throm other elements.

### CERTIFICATE OF ANALYSIS

CERTIFICATE OF ANALYSIS WHI13000183.1																						
		Method	1DX15																			
		Analyte	Mo	Cu	Pb	Zn	Ag	NI	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	BI	v	Ca	P	La
		Unit	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm							
		MDL	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
VG(W)-13-S-143	Soll		1.3	8.5	14.3	46	<0.1	11.6	5.7	605	2.07	5.8	11.6	5.1	7	0.1	0.6	0.3	52	0.05	0.035	18
VG(W)-13-S-144	Soll		1.8	10.4	43.6	87	<0.1	16.2	4.3	196	2.05	6.9	13.3	8.9	19	0.2	0.7	0.4	38	0.12	0.028	32
VG(W)-13-S-145	Soll		1.6	9.8	32.6	97	<0.1	10.7	3.7	297	1.79	3.4	12.8	14.2	15	0.1	0.4	0.3	25	0.08	0.023	48
VG(W)-13-S-148	Soll		1.7	9.2	40.6	58	<0.1	12.8	4.7	155	2.33	8.0	18.5	7.7	9	0.3	0.6	0.4	37	0.07	0.027	22
VG(W)-13-S-150	Soll		1.3	8.8	17.1	33	0.3	10.2	3.3	121	1.48	11.7	8.8	4.2	8	<0.1	1.1	0.4	33	0.07	0.029	16
VG(W)-13-S-151	Soll		1.9	28.2	38.9	70	0.8	46.6	8.4	758	4.42	26.4	7.1	5.1	14	0.2	1.2	0.6	71	0.09	0.170	17
VG(W)-13-S-152	Soll		1.9	14.1	22.3	57	0.2	14.3	5.0	179	2.06	7.2	15.7	4.0	10	0.1	1.0	0.5	46	0.05	0.053	19
VG(W)-13-S-172	Soll		1.8	19.6	25.7	68	0.6	48.8	8.9	366	5.12	16.5	10.3	5.2	8	0.2	1.3	0.5	90	0.07	0.152	14
VG(W)-13-S-173	Soll		3.2	21.4	36.7	85	1.4	32.9	7.7	449	4.08	25.5	25.3	5.8	10	0.2	1.9	0.5	59	0.08	0.136	12
VG(W)-13-S-175	Soll		8.8	111.4	65.8	154	2.4	68.6	45.2	3679	2.76	38.0	31.4	1.5	74	1.1	6.7	0.5	50	0.57	0.157	16
VG(W)-13-S-176	Soll		4.1	27.2	44.3	64	0.5	27.5	3.8	101	3.16	36.8	2.8	2.5	124	0.2	4.9	0.4	49	0.07	0.235	17
VG(W)-13-S-177	Soll		2.0	20.5	17.9	78	1.2	77.2	8.5	290	3.53	9.4	5.7	4.8	9	0.3	1.4	0.2	54	0.09	0.059	14
VG(W)-13-S-178	Soll		5.1	9.4	37.1	31	0.4	13.1	2.8	83	1.99	21.6	8.5	3.1	6	<0.1	1.9	0.5	50	0.04	0.028	12
VG(W)-13-S-179	Soll		1.4	14.8	8.9	29	0.4	20.5	2.7	61	1.36	3.4	5.9	0.2	7	0.2	1.0	0.2	34	0.03	0.027	15
VG(W)-13-S-181	Soll		1.3	33.3	14.8	116	0.9	99.4	9.2	376	4.10	10.0	7.1	4.2	10	0.6	1.1	0.2	61	0.05	0.063	15
VG(W)-13-S-182	Soll		2.9	37.2	20.7	156	1.4	93.6	14.2	309	3.38	15.3	23.5	4.8	8	0.4	1.6	0.4	55	0.06	0.060	13
VG(E)-13-S-203	Soll		3.8	38.8	15.8	67	0.2	20.1	9.1	893	3.40	13.2	8.3	1.1	24	0.1	1.3	0.3	58	0.04	0.131	22
VG(E)-13-S-207	Soll		1.9	23.7	34.5	66	0.1	22.1	7.6	263	3.71	10.5	4.7	4.0	9	0.3	0.7	0.3	34	0.06	0.073	27
VG(E)-13-S-209	Soll		2.3	32.1	21.2	74	⊲0.1	27.7	10.1	774	3.12	8.3	4.8	0.4	14	0.2	0.6	0.3	41	0.09	0.151	29
VG(E)-13-S-210	Soll		2.0	28.6	20.1	61	0.1	19.3	7.9	411	2.71	7.4	2.7	0.8	18	<0.1	0.9	0.3	34	0.05	0.076	25
VG(E)-13-S-212	Soll		2.1	26.4	14.8	62	0.3	24.9	9.9	341	3.82	8.5	7.0	1.4	10	0.1	0.8	0.2	37	0.05	0.073	14
VG(E)-13-S-213	Soll		3.3	54.4	22.5	118	0.2	30.8	12.4	2658	2.65	10.0	6.3	0.8	52	1.3	1.3	0.3	36	1.22	0.220	25
VG(E)-13-S-214	Soll		1.4	20.0	41.6	166	0.2	16.3	14.1	2060	2.19	7.6	5.8	1.1	22	1.5	0.5	0.2	22	0.74	0.075	25
VG(E)-13-S-216	Soll		0.6	12.0	6.3	17	⊲0.1	3.2	1.7	87	0.65	3.9	1.0	<0.1	9	<0.1	0.2	<0.1	13	0.03	0.042	4
VG(W)-13-S-307	Soll		0.8	19.0	12.3	73	<0.1	33.8	9.5	368	2.30	8.3	1.0	2.1	23	1.5	0.9	0.2	37	1.32	0.129	22
VG(W)-13-S-308	Soll		1.1	43.8	9.3	68	⊲0.1	28.2	11.9	507	2.76	6.8	4.9	2.8	19	0.2	0.8	0.1	43	0.65	0.084	15
VG(W)-13-S-309	Soll		1.0	19.6	14.6	112	⊲0.1	19.3	6.9	395	2.56	5.3	2.7	0.5	10	0.9	0.7	0.2	28	0.11	0.078	19
VG(W)-13-S-310	Soll		1.3	9.9	13.8	103	0.4	14.1	3.6	157	1.95	4.4	<0.5	0.4	9	0.8	0.6	0.2	25	0.06	0.071	12
VG(W)-13-S-311	Soll		1.2	16.4	17.2	43	0.1	13.6	3.6	215	2.07	14.4	3.9	3.4	5	0.1	0.9	0.3	55	0.02	0.061	23
VG(W)-13-S-312	Soll		1.2	23.6	14.1	55	0.2	16.3	5.7	201	2.61	5.6	1.7	0.5	7	0.2	0.4	0.2	35	0.04	0.079	27

## CERTIFICATE OF ANALYSIS

## WHI13000183.1

	Method	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15						
	Analyte	Cr	Mg	Ba	п	в	AI	Na	ĸ	w	Hg	Sc	п	S	Ga	Se	Те
	Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
VG(W)-13-S-143 Soll		27	0.22	102	0.067	<1	0.83	0.003	0.06	0.3	0.01	1.1	<0.1	<0.05	6	<0.5	<0.2
VG(W)-13-S-144 Soll		27	0.22	207	0.036	1	0.93	0.002	0.05	0.2	0.02	1.4	<0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-145 Soll		14	0.15	129	0.017	<1	0.99	0.006	0.05	0.2	0.02	1.0	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-148 Soll		19	0.20	88	0.042	<1	0.91	0.002	0.04	0.4	0.02	1.2	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-150 Soll		21	0.23	202	0.049	<1	0.86	0.002	0.04	0.3	0.03	1.4	<0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-151 Soll		64	0.56	339	0.039	1	1.84	0.002	0.10	0.3	0.02	2.6	0.2	<0.05	9	<0.5	<0.2
VG(W)-13-S-152 Soll		23	0.19	296	0.050	1	0.93	0.002	0.08	0.3	<0.01	1.6	0.2	<0.05	6	<0.5	<0.2
VG(W)-13-S-172 Soll		69	0.50	213	0.043	<1	2.19	<0.001	0.05	0.4	0.05	2.8	<0.1	<0.05	9	<0.5	<0.2
VG(W)-13-S-173 Soll		47	0.37	139	0.044	1	1.78	0.003	0.07	0.3	0.14	2.5	0.1	<0.05	7	1.0	<0.2
VG(W)-13-S-175 Soll		32	0.32	1587	0.008	3	1.52	0.007	0.08	0.2	1.20	3.4	0.3	0.15	4	8.5	0.4
VG(W)-13-S-176 Soll		35	0.14	449	0.018	<1	0.98	0.002	0.08	0.2	0.08	2.3	0.2	0.11	5	0.6	0.3
VG(W)-13-S-177 Soll		39	0.43	251	0.031	1	1.86	0.001	0.06	0.2	0.05	3.1	<0.1	<0.05	6	<0.5	<0.2
VG(W)-13-S-178 Soll		17	0.17	115	0.041	1	0.82	0.002	0.04	0.2	0.03	1.3	<0.1	<0.05	5	1.6	0.9
VG(W)-13-S-179 Soll		18	0.06	140	0.020	2	0.80	0.005	0.03	<0.1	0.04	0.7	0.1	<0.05	6	<0.5	<0.2
VG(W)-13-S-181 Soll		57	0.41	121	0.029	<1	2.10	<0.001	0.05	0.2	0.09	2.9	0.1	<0.05	7	<0.5	<0.2
VG(W)-13-S-182 Soll		60	0.59	258	0.019	1	2.77	<0.001	0.08	0.2	0.23	3.5	<0.1	0.06	5	4.4	0.9
VG(E)-13-S-203 Soll		27	0.26	110	0.015	1	1.32	0.002	0.09	0.2	0.06	1.3	0.2	0.06	5	<0.5	<0.2
VG(E)-13-S-207 Soll		29	0.38	83	0.017	2	1.56	0.003	0.11	0.2	0.09	1.8	<0.1	<0.05	5	<0.5	<0.2
VG(E)-13-S-209 Soll		39	0.43	102	0.008	2	1.58	0.003	0.10	0.1	0.04	0.5	0.1	0.08	5	<0.5	<0.2
VG(E)-13-S-210 Soll		23	0.34	193	0.011	2	1.56	0.005	0.08	0.2	0.05	1.0	0.2	0.06	5	<0.5	<0.2
VG(E)-13-S-212 Soll		33	0.41	79	0.011	2	1.42	0.001	0.06	0.1	0.15	2.2	0.1	<0.05	4	<0.5	<0.2
VG(E)-13-S-213 Soll		28	0.27	477	0.010	3	1.34	0.005	0.10	<0.1	0.11	2.3	0.2	0.12	4	<0.5	0.2
VG(E)-13-S-214 Soll		21	0.46	799	0.031	3	1.38	0.007	0.14	<0.1	0.07	1.9	0.2	0.05	5	<0.5	<0.2
VG(E)-13-S-216 Soll		7	0.04	243	0.010	2	0.60	0.018	0.06	<0.1	0.03	0.2	<0.1	<0.05	2	<0.5	<0.2
VG(W)-13-S-307 Soll		31	0.47	123	0.027	2	1.33	0.009	0.05	0.3	0.19	2.3	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-308 Soll		27	0.63	201	0.016	2	1.76	0.006	0.06	0.2	0.63	3.9	<0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-309 Soll		24	0.40	248	0.008	1	1.57	0.002	0.08	<0.1	0.02	1.0	0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-310 Soll		16	0.30	103	0.015	1	1.37	0.003	0.05	0.2	0.03	1.1	0.2	<0.05	4	<0.5	<0.2
VG(W)-13-S-311 Soll		21	0.06	53	0.054	3	0.60	0.001	0.05	0.2	0.01	1.6	0.1	<0.05	8	<0.5	<0.2
VG(W)-13-S-312 Soll		27	0.32	245	0.007	2	2.28	0.001	0.08	<0.1	0.06	0.9	0.2	<0.05	7	0.6	<0.2

## CERTIFICATE OF ANALYSIS

WHI13000183.1

		Method	1DX15																			
		Analyte	Mo	Cu	Pb	Zn	Ag	NI	Co	Mn	Fe	As	Au	Th	Sr	Cđ	Sb	BI	v	Ca	P	La
		Unit	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm							
		MDL	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
VG(W)-13-S-313	Soll		1.3	32.8	17.3	80	0.2	22.5	8.1	295	2.86	7.2	4.0	0.4	14	0.2	0.9	0.2	35	0.09	0.065	26
VG(W)-13-S-314A	Soll		1.1	16.1	15.5	79	<0.1	18.1	8.0	615	1.55	7.4	0.5	0.1	11	0.8	0.6	0.2	22	0.11	0.077	17
VG(W)-13-S-314B	Soll		1.2	24.8	14.8	68	0.3	31.6	9.1	897	2.45	8.5	2.3	1.7	38	0.2	0.7	0.2	24	1.10	0.111	30
VG(W)-13-S-315	Soll		1.3	33.8	12.8	63	0.4	113.8	11.4	632	2.55	10.4	5.1	1.8	25	0.2	0.9	0.1	29	0.75	0.056	26
VG(W)-13-S-316	Soll		0.8	38.7	18.2	95	<0.1	27.0	6.2	254	1.83	3.6	1.8	1.8	29	0.3	0.4	0.2	26	0.80	0.067	16
VG(W)-13-S-318	Soll		1.0	16.9	11.3	58	<0.1	24.1	7.3	334	1.84	4.9	<0.5	1.8	20	0.1	0.5	0.1	27	0.37	0.048	16
VG(W)-13-S-319	Soll		0.9	17.2	19.9	49	<0.1	36.6	7.2	308	2.07	7.1	6.5	2.5	26	0.1	0.7	0.4	33	0.44	0.076	16
VG(W)-13-S-320	Soll		1.3	27.3	17.4	92	0.3	25.9	8.1	651	1.84	6.4	6.5	0.6	57	1.3	1.4	0.5	26	1.46	0.199	13
VG(W)-13-S-324	Soll		0.6	15.2	10.9	135	0.1	15.9	5.2	894	1.41	3.8	2.8	0.3	35	3.0	0.5	0.3	21	2.72	0.194	19
VG(W)-13-S-325	Soll		0.6	17.3	13.2	73	0.2	26.2	6.5	298	2.19	6.0	4.5	2.5	19	0.3	0.6	0.2	34	0.48	0.092	22
VG(W)-13-S-326	Soll		0.6	22.1	10.4	73	0.1	31.8	8.5	368	2.03	6.8	2.7	2.8	30	0.7	0.9	0.2	33	1.23	0.137	25
VG(W)-13-S-327	Soll		0.9	16.4	10.9	124	0.1	26.3	6.5	656	1.66	5.0	1.5	0.3	45	2.5	1.3	0.3	20	2.65	0.197	21
VG(W)-13-S-328	Soll		0.7	19.0	14.2	231	0.2	24.1	8.6	1768	2.02	2.8	<0.5	0.3	39	12.9	1.0	0.2	24	3.83	0.120	22
VG(W)-13-S-329	Soll		0.6	15.7	9.2	80	⊲0.1	24.6	5.6	409	1.60	4.4	1.4	0.5	26	0.9	0.9	0.1	24	1.52	0.087	15
VG(W)-13-S-331	Soll		0.6	17.5	12.0	80	0.1	30.1	8.6	230	1.98	5.9	3.0	3.1	24	1.0	0.8	0.2	34	1.01	0.110	21
VG(W)-13-S-332	Soll		0.8	12.3	9.8	66	⊲0.1	23.9	7.0	321	1.73	6.5	2.9	2.4	78	0.8	0.8	0.2	30	6.38	0.107	18
VG(W)-13-S-333	Soll		0.6	12.3	11.4	110	⊲0.1	22.9	6.6	493	1.70	4.6	2.8	0.7	26	3.1	0.9	0.2	23	1.69	0.110	21
VG(W)-13-S-334	Soll		0.3	14.1	4.9	49	⊲0.1	11.8	3.2	202	0.96	2.3	1.4	0.4	19	0.5	0.4	<0.1	16	0.99	0.054	7
VG(W)-13-S-335	Soll		0.4	9.7	9.8	61	⊲0.1	15.6	4.7	484	1.20	3.2	<0.5	0.5	23	1.1	0.6	0.1	17	1.09	0.100	13
VG(W)-13-S-353	Soll		0.6	8.9	7.3	44	⊲0.1	9.9	2.3	799	0.67	1.7	0.7	0.1	40	2.3	0.4	0.2	10	5.45	0.314	10
VG(W)-13-S-354	Soll		0.5	5.3	9.4	62	⊲0.1	10.5	2.7	389	1.10	2.3	<0.5	0.4	15	1.6	0.7	0.1	28	0.82	0.040	8
VG(W)-13-S-355	Soll		0.6	6.9	12.7	102	⊲0.1	15.5	4.8	867	1.69	1.9	<0.5	0.7	34	1.9	0.7	0.6	36	2.28	0.204	17
VG(W)-13-S-356	Soll		0.6	4.6	8.5	71	⊲0.1	8.6	1.9	267	0.75	1.8	0.8	0.1	10	1.2	0.9	0.3	15	1.13	0.057	13
VG(W)-13-S-357	Soll		0.5	10.1	16.5	75	<0.1	22.4	7.0	418	2.54	4.8	0.5	3.2	13	0.6	1.2	0.3	56	0.71	0.068	20
VG(W)-13-S-358	Soll		0.2	18.6	5.3	154	0.2	6.4	1.9	810	0.48	0.9	<0.5	0.2	29	3.5	0.1	0.3	7	3.03	0.154	6
VG(W)-13-S-359	Soll		0.7	9.2	16.7	71	⊲0.1	23.9	7.3	309	2.62	4.8	<0.5	5.1	13	0.8	0.7	0.3	56	0.54	0.049	18
VG(W)-13-S-363	Soll		2.5	15.8	11.2	25	0.2	9.1	2.8	166	1.28	5.0	1.6	<0.1	7	0.2	0.5	0.2	30	0.04	0.102	13
VG(W)-13-S-364	Soll		1.5	16.0	16.3	60	0.2	18.2	4.9	266	2.72	10.0	<0.5	0.3	11	0.1	0.9	0.3	46	0.09	0.133	15
VG(W)-13-S-365	Soll		1.1	12.3	11.8	40	0.1	18.6	4.2	233	1.66	3.4	<0.5	0.3	8	0.2	0.4	0.3	30	0.05	0.048	23
VG(W)-13-S-366	Soll		0.9	14.7	9.0	43	0.2	23.2	3.9	287	1.19	2.4	<0.5	<0.1	11	0.4	0.3	0.2	21	0.07	0.100	15

## CERTIFICATE OF ANALYSIS

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	Method	1DX15															
	Analyte	Cr	Mg	Ba	п	в	AI	Na	ĸ	w	Hg	Sc	п	S	Ga	Se	Te
	Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
VG(W)-13-S-313 Soll		28	0.43	220	0.008	2	1.72	0.005	0.07	<0.1	0.05	0.8	0.1	<0.05	5	0.7	<0.2
VG(W)-13-S-314A Soll		19	0.18	191	0.008	<1	0.89	0.008	0.06	0.1	0.04	0.5	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-314B Soll		25	0.46	349	0.011	2	1.65	0.006	0.05	<0.1	0.18	2.5	0.1	0.07	4	0.6	<0.2
VG(W)-13-S-315 Soll		66	0.79	835	0.011	1	1.35	0.006	0.05	<0.1	0.16	3.4	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-316 Soll		30	0.56	354	0.027	2	1.19	0.007	0.06	0.2	0.11	2.5	<0.1	0.05	3	0.6	<0.2
VG(W)-13-S-318 Soll		27	0.45	271	0.026	<1	1.07	0.004	0.05	0.2	0.03	1.8	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-319 Soll		30	0.48	317	0.019	1	1.22	0.005	0.04	0.3	0.06	2.2	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-320 Soll		28	0.27	465	0.013	3	1.09	0.012	0.06	0.1	0.20	1.5	<0.1	0.15	4	1.0	<0.2
VG(W)-13-S-324 Soll		20	0.21	131	0.008	4	0.97	0.010	0.04	0.2	0.33	0.9	<0.1	0.16	3	0.5	<0.2
VG(W)-13-S-325 Soll		27	0.50	196	0.024	2	1.30	0.007	0.06	0.3	1.70	2.6	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-326 Soll		29	0.44	184	0.037	3	1.23	0.011	0.07	0.2	0.22	3.6	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-327 Soll		25	0.23	105	0.007	4	0.93	0.016	0.05	0.2	0.22	1.1	<0.1	0.16	2	<0.5	<0.2
VG(W)-13-S-328 Soll		26	0.15	169	0.020	3	1.12	0.014	0.04	<0.1	0.09	1.4	<0.1	0.09	3	<0.5	<0.2
VG(W)-13-S-329 Soll		21	0.45	93	0.013	4	0.94	0.012	0.05	0.2	0.43	1.6	<0.1	0.09	3	<0.5	<0.2
VG(W)-13-S-331 Soll		27	0.43	109	0.030	2	1.17	0.009	0.06	0.3	0.36	2.9	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-332 Soll		23	0.41	88	0.029	3	0.97	0.012	0.06	0.4	0.08	2.3	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-333 Soll		24	0.29	79	0.015	2	1.12	0.008	0.04	0.2	0.14	2.6	<0.1	0.08	2	<0.5	<0.2
VG(W)-13-S-334 Soll		11	0.21	79	0.016	2	0.82	0.028	0.03	<0.1	0.07	1.2	<0.1	0.06	2	<0.5	<0.2
VG(W)-13-S-335 Soll		13	0.20	91	0.013	3	0.84	0.022	0.04	0.1	0.27	1.4	<0.1	0.06	2	<0.5	<0.2
VG(W)-13-S-353 Soll		24	0.14	94	0.006	8	0.66	0.023	0.07	<0.1	0.22	0.4	<0.1	0.18	2	<0.5	<0.2
VG(W)-13-S-354 Soll		23	0.14	57	0.017	2	1.01	0.010	0.03	0.2	0.04	1.1	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-355 Soll		48	0.21	112	0.023	3	1.54	0.006	0.05	0.2	0.10	2.2	0.1	0.06	4	<0.5	<0.2
VG(W)-13-S-356 Soll		23	0.10	51	0.011	4	0.66	0.004	0.03	0.1	0.07	0.9	<0.1	0.05	2	<0.5	<0.2
VG(W)-13-S-357 Soll		46	0.34	303	0.021	1	2.18	0.006	0.04	0.2	0.07	3.7	0.1	<0.05	6	<0.5	<0.2
VG(W)-13-S-358 Soll		11	0.07	383	0.011	8	0.51	0.012	0.09	<0.1	0.13	0.5	<0.1	0.09	1	<0.5	<0.2
VG(W)-13-S-359 Soll		41	0.38	182	0.026	2	2.20	0.011	0.12	0.2	0.02	4.0	0.1	<0.05	6	<0.5	<0.2
VG(W)-13-S-363 Soll		16	0.07	150	0.002	<1	0.82	0.005	0.04	0.1	0.03	0.1	0.2	<0.05	5	<0.5	<0.2
VG(W)-13-S-364 Soll		28	0.35	400	0.036	1	1.26	0.005	0.08	0.2	0.05	1.1	<0.1	0.07	7	0.6	<0.2
VG(W)-13-S-365 Soll		30	0.17	124	0.018	<1	1.03	0.005	0.10	0.1	0.02	0.7	0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-366 Soll		40	0.19	179	0.003	1	1.02	0.012	0.07	<0.1	0.04	0.2	<0.1	0.07	4	<0.5	<0.2

### CERTIFICATE OF ANALYSIS

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	Method	10715	10115	10115	10115	10115	10115	10115	10715	10715	10715	10115	10715	10115	10115	10115	10115	10115	10115	10715	10115
	Analyte	Mo	Cu	Dh	70	40	NI	Co	Mn	Fe	100,10	A11	Th	Sr	Cd	Sh	BI	V	Ca	D	10010
	Unit	0000	000	0000	0000	-9 00m	0000	000	0000	96	0000	nob	0000	0000	000	000	000	0.000	94		000
	MDL	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
VG(W)-13-S-367 Sc	1	1.1	23.6	18.8	99	0.2	88.5	13.1	347	3.83	9.7	0.7	4.1	11	0.5	1.0	0.2	39	0.12	0.147	20
VG(W)-13-S-368 Sc	1	1.4	15.8	11.1	56	0.2	59.3	8.0	575	1.69	4.2	3.5	0.3	18	0.9	0.5	0.1	32	0.17	0.058	22
VG(W)-13-S-369 Sc	11	0.5	40.0	15.1	59	0.2	241.3	9.0	560	2.75	18.1	<0.5	1.8	33	0.3	0.5	0.2	25	0.35	0.179	32
VG(W)-13-S-370 Sc	1	0.3	12.6	9.5	41	<0.1	297.0	13.2	189	2.07	3.4	2.6	6.8	12	<0.1	0.2	<0.1	20	0.16	0.042	30
VG(W)-13-S-371 Sc	1	0.7	16.9	12.5	43	0.1	29.6	6.0	188	1.88	4.7	1.6	0.5	10	0.1	0.6	0.1	26	0.08	0.042	29
VG(W)-13-S-372 Sc		0.8	26.4	19.3	65	<0.1	32.2	11.3	482	2.63	7.2	1.8	5.8	13	0.1	0.8	0.2	25	0.13	0.054	45
VG(W)-13-S-373 Sc		1.3	19.0	19.6	214	0.2	25.4	12.1	873	3.84	4.3	<0.5	0.4	9	2.3	0.7	0.3	52	0.06	0.138	26
VG(W)-13-S-374 Sc		1.2	19.6	13.2	52	0.1	17.8	5.7	311	2.76	5.1	<0.5	0.3	7	0.1	0.7	0.2	38	0.05	0.093	27
VG(W)-13-S-375 Sc		1.6	25.9	15.8	85	<0.1	28.0	8.9	671	4.04	8.1	<0.5	2.6	12	0.3	0.9	0.2	58	0.06	0.099	23
VG(W)-13-S-376 S0		1.9	24.7	18.5	74	0.1	27.1	9.5	1774	4.21	8.5	1.3	0.5	8	0.3	0.9	0.3	52	0.06	0.173	23
VG(W)-13-S-377 Sc	1	0.9	16.1	15.8	110	<0.1	362.3	57.4	1230	4.15	2.7	<0.5	0.4	22	0.6	0.3	0.1	27	0.29	0.138	11
VG(W)-13-S-378 Sc	1	0.8	15.1	9.7	19	0.3	10.0	3.7	151	1.04	1.8	<0.5	<0.1	20	0.3	0.2	0.1	14	0.27	0.121	25
VG(W)-13-S-379 Sc	1	1.1	29.4	12.5	52	0.2	27.5	7.7	565	2.07	6.5	0.5	0.6	20	0.3	0.7	0.2	29	0.34	0.091	20
VG(W)-13-S-380 Sc	1	1.1	18.9	11.5	66	0.1	45.2	9.4	425	2.04	8.1	2.5	2.0	34	0.8	0.9	0.2	37	4.15	0.091	16
VG(W)-13-S-398 Sc	1	1.4	28.0	16.4	173	0.4	143.6	11.8	347	4.46	11.6	4.6	5.4	7	0.4	1.4	0.2	58	0.06	0.068	15
VG(W)-13-S-399 Sc	1	15.3	27.6	187.3	26	6.4	2.6	0.2	7	3.35	25.6	56.2	4.2	18	0.1	6.5	1.5	22	0.01	0.041	10
VG(E)-13-S-413 Sc		3.2	5.7	10.7	16	0.7	6.7	1.3	34	0.75	9.1	2.0	0.7	17	<0.1	2.9	0.1	35	0.03	0.023	14
VG(E)-13-S-414 S0	1	6.6	9.0	15.7	31	4.6	16.2	3.9	120	2.13	22.4	5.4	2.5	69	<0.1	7.3	0.2	69	0.15	0.055	11
VG(E)-13-S-415 S0	1	6.9	11.1	14.6	31	3.3	9.4	2.5	95	3.02	28.4	6.6	3.2	21	<0.1	9.7	0.3	85	0.02	0.035	10
VG(E)-13-S-416 Sc	1	10.5	19.9	14.5	26	4.3	12.4	2.9	81	2.06	29.9	11.7	2.4	88	<0.1	14.6	0.2	138	0.06	0.055	9
VG(E)-13-S-417 Sc	1	0.5	18.4	34.7	53	0.2	14.6	4.6	883	1.46	3.7	<0.5	0.5	23	1.0	0.5	0.2	27	1.85	0.096	14
VG(E)-13-S-420 Sc	1	0.9	19.7	14.6	54	0.2	30.8	8.7	641	1.59	7.7	<0.5	2.5	58	0.9	0.8	0.1	21	8.26	0.108	16

## CERTIFICATE OF ANALYSIS

WHI13000183.1

		Method	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15
		Analyte	Cr	Mg	Ba	т	в	AI	Na	ĸ	w	Hg	Sc	П	S	Ga	Se	Тө
		Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		MDL	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
VG(W)-13-S-367	Soll		128	0.92	143	0.031	3	1.69	0.004	0.11	0.2	0.05	2.5	<0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-368	Soll		95	0.52	389	0.018	3	1.20	0.009	0.13	0.2	0.03	1.1	0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-369	Soll		101	0.81	445	0.012	3	1.78	0.009	0.15	0.1	0.05	3.0	0.1	0.09	6	0.6	<0.2
VG(W)-13-S-370	Soll		121	2.54	184	0.028	4	0.88	0.007	0.06	<0.1	0.02	2.4	<0.1	<0.05	3	<0.5	<0.2
VG(W)-13-S-371	Soll		36	0.42	125	0.017	1	1.36	0.004	0.07	0.1	0.04	1.0	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-372	Soll		32	0.50	203	0.021	2	1.35	0.004	0.10	0.1	0.03	2.0	0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-373	Soll		44	0.28	187	0.055	3	1.64	0.004	0.16	0.2	0.05	1.3	0.1	0.08	9	<0.5	<0.2
VG(W)-13-S-374	Soll		30	0.31	253	0.022	1	1.59	0.003	0.13	0.2	0.04	1.0	0.2	0.06	6	<0.5	<0.2
VG(W)-13-S-375	Soll		41	0.52	189	0.027	2	1.70	0.003	0.11	0.2	0.06	2.3	<0.1	<0.05	7	<0.5	<0.2
VG(W)-13-S-376	Soll		45	0.36	150	0.026	2	1.31	0.003	0.11	0.2	0.07	1.1	0.1	<0.05	6	0.8	<0.2
VG(W)-13-S-377	Soll		384	2.83	198	0.013	6	0.96	0.012	0.08	0.1	0.03	1.7	<0.1	0.08	4	<0.5	<0.2
VG(W)-13-S-378	Soll		11	0.10	177	0.003	2	1.15	0.016	0.05	0.1	0.05	0.2	<0.1	0.12	3	<0.5	<0.2
VG(W)-13-S-379	Soll		26	0.48	283	0.010	3	1.27	0.010	0.06	0.1	0.02	1.2	<0.1	0.05	4	<0.5	<0.2
VG(W)-13-S-380	Soll		31	0.47	135	0.021	2	1.29	0.010	0.06	0.2	0.05	2.3	<0.1	<0.05	4	<0.5	<0.2
VG(W)-13-S-398	Soll		66	0.50	135	0.023	<1	2.19	0.004	0.06	0.2	0.08	3.6	<0.1	<0.05	6	<0.5	<0.2
VG(W)-13-S-399	Soll		12	0.01	316	<0.001	<1	0.22	0.009	0.15	<0.1	0.05	1.1	0.1	0.34	2	9.0	1.2
VG(E)-13-S-413	Soll		10	0.02	201	0.010	<1	0.37	0.004	0.04	0.2	0.04	0.5	0.2	<0.05	2	1.9	<0.2
VG(E)-13-S-414	Soll		28	0.20	1044	0.007	<1	1.42	0.005	0.12	0.7	0.52	2.3	0.8	0.18	4	8.0	<0.2
VG(E)-13-S-415	Soll		24	0.15	165	0.022	<1	0.97	0.003	0.05	0.6	0.34	1.5	0.6	<0.05	5	4.2	<0.2
VG(E)-13-S-416	Soll		34	0.14	675	0.009	<1	0.96	0.004	0.10	0.8	0.90	1.9	1.3	0.16	4	12.7	<0.2
VG(E)-13-S-417	Soll		17	0.21	635	0.010	1	1.22	0.014	0.05	0.1	0.08	1.6	<0.1	0.09	4	<0.5	<0.2
VG(E)-13-S-420	Soll		21	0.39	253	0.019	<1	0.95	0.008	0.08	0.2	0.08	2.6	0.2	<0.05	3	<0.5	<0.2

### QUALITY CONTROL REPORT

	Method	1DX15	1DX15	1DX15																	
	Analyte	Mo	Cu	Pb	Zn	Ag	NI	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	BI	v	Ca	P	La
	Unit	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm							
	MDL	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
Pulp Duplicates																					
VG(E)-13-S-213	Soll	3.3	54.4	22.5	118	0.2	30.8	12.4	2658	2.65	10.0	6.3	0.8	52	1.3	1.3	0.3	36	1.22	0.220	25
REP VG(E)-13-S-213	QC	2.7	51.6	22.9	109	0.1	31.0	11.0	2443	2.62	9.4	12.0	0.9	50	0.9	1.1	0.3	35	1.22	0.228	24
VG(W)-13-S-315	Soll	1.3	33.8	12.8	63	0.4	113.8	11.4	632	2.55	10.4	5.1	1.8	25	0.2	0.9	0.1	29	0.75	0.056	26
REP VG(W)-13-S-315	QC	0.9	35.0	13.2	59	0.3	115.5	11.7	640	2.59	10.5	2.2	1.8	26	0.2	0.9	0.1	30	0.77	0.057	26
VG(W)-13-S-364	Soll	1.5	16.0	16.3	60	0.2	18.2	4.9	266	2.72	10.0	<0.5	0.3	11	0.1	0.9	0.3	46	0.09	0.133	15
REP VG(W)-13-S-364	QC	1.4	16.7	16.8	61	0.2	18.8	5.0	260	2.71	10.1	4.2	0.3	11	0.1	0.9	0.3	46	0.09	0.127	14
VG(W)-13-S-371	Soll	0.7	16.9	12.5	43	0.1	29.6	6.0	188	1.88	4.7	1.6	0.5	10	0.1	0.6	0.1	26	0.08	0.042	29
REP VG(W)-13-S-371	QC	0.6	17.7	13.9	45	0.1	30.7	6.1	198	1.98	4.7	1.9	0.4	10	0.1	0.6	0.1	28	0.08	0.044	30
VG(W)-13-S-399	Soll	15.3	27.6	187.3	26	6.4	2.6	0.2	7	3.35	25.6	56.2	4.2	18	0.1	6.5	1.5	22	0.01	0.041	10
REP VG(W)-13-S-399	QC	13.2	25.7	170.0	30	5.5	1.9	0.1	8	3.20	24.5	54.8	3.8	17	<0.1	6.3	1.2	23	0.01	0.037	9
VG(E)-13-S-420	Soll	0.9	19.7	14.6	54	0.2	30.8	8.7	641	1.59	7.7	<0.5	2.5	58	0.9	0.8	0.1	21	8.26	0.108	16
REP VG(E)-13-S-420	QC	0.7	21.0	15.1	56	0.2	32.2	9.5	672	1.73	8.6	<0.5	2.8	62	1.1	1.0	<0.1	23	7.54	0.116	19
Reference Materials																					
STD DS9	Standard	12.3	106.1	126.7	316	1.8	38.0	7.5	589	2.34	25.8	110.4	6.3	68	2.5	5.7	5.9	40	0.71	0.081	13
STD DS9	Standard	11.8	101.5	120.7	285	1.6	36.7	7.2	559	2.19	23.4	105.9	6.0	70	2.4	5.6	5.8	38	0.70	0.081	13
STD DS9	Standard	12.1	109.5	128.9	297	1.7	39.1	7.6	543	2.29	24.1	98.1	5.7	64	2.4	5.7	5.7	37	0.67	0.077	11
STD DS9 Expected		12.84	108	126	317	1.83	40.3	7.6	575	2.33	25.5	118	6.38	69.6	2.4	4.94	6.32	40	0.7201	0.0819	13.3
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1

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## QUALITY CONTROL REPORT

QUALITY CO	NTROL	REF	OR	Г												WH	1113
	Method	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15
	Analyte	Cr	Mg	Ba	п	в	AI	Na	ĸ	w	Hg	Sc	TI	S	Ga	Se	Te
	Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
Pulp Duplicates																	
VG(E)-13-S-213	Soll	28	0.27	477	0.010	3	1.34	0.005	0.10	⊲0.1	0.11	2.3	0.2	0.12	4	<0.5	0.2
REP VG(E)-13-S-213	QC	28	0.26	448	0.010	3	1.33	0.004	0.10	0.2	0.10	2.3	0.2	0.12	3	<0.5	0.4
VG(W)-13-S-315	Soll	66	0.79	835	0.011	1	1.35	0.006	0.05	⊲0.1	0.16	3.4	<0.1	<0.05	3	<0.5	<0.2
REP VG(W)-13-S-315	QC	69	0.81	847	0.011	2	1.37	0.006	0.05	⊲0.1	0.15	3.5	<0.1	<0.05	3	1.1	<0.2
VG(W)-13-S-364	Soll	28	0.35	400	0.036	1	1.26	0.005	0.08	0.2	0.05	1.1	<0.1	0.07	7	0.6	<0.2
REP VG(W)-13-S-364	QC	27	0.35	383	0.035	<1	1.23	0.005	0.08	0.3	0.02	1.1	0.1	0.07	6	0.7	<0.2
VG(W)-13-S-371	Soll	36	0.42	125	0.017	1	1.36	0.004	0.07	0.1	0.04	1.0	<0.1	<0.05	4	<0.5	<0.2
REP VG(W)-13-S-371	QC	39	0.43	133	0.017	<1	1.39	0.004	0.07	0.1	0.04	1.0	<0.1	<0.05	5	<0.5	<0.2
VG(W)-13-S-399	Soll	12	0.01	316	<0.001	<1	0.22	0.009	0.15	⊲0.1	0.05	1.1	0.1	0.34	2	9.0	1.2
REP VG(W)-13-S-399	QC	10	0.01	390	<0.001	<1	0.20	0.008	0.13	⊲0.1	0.03	1.3	<0.1	0.30	2	8.3	1.2
VG(E)-13-S-420	Soll	21	0.39	253	0.019	<1	0.95	0.008	0.08	0.2	0.08	2.6	0.2	<0.05	3	<0.5	<0.2
REP VG(E)-13-S-420	QC	24	0.41	265	0.025	2	0.98	0.007	0.10	0.3	0.10	2.6	0.2	<0.05	2	<0.5	<0.2
Reference Materials																	
STD DS9	Standard	121	0.61	294	0.111	2	0.93	0.083	0.40	2.9	0.20	2.4	5.2	0.17	5	6.4	5.4
STD DS9	Standard	109	0.58	271	0.105	2	0.94	0.092	0.39	2.6	0.19	2.2	4.9	0.16	4	5.3	4.9
STD DS9	Standard	118	0.60	271	0.101	3	0.87	0.071	0.37	2.9	0.20	2.1	5.0	0.16	4	4.2	5.2
STD DS9 Expected		121	0.6165	295	0.1108		0.9577	0.0853	0.395	2.89	0.2	2.5	5.3	0.1615	4.59	5.2	5.02
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	< 0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2



Acme Analytical Laboratories (Vancouver) Ltd. 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA PHONE (604) 253-3158

### CERTIFICATE OF ANALYSIS

#### CLIENT JOB INFORMATION

CLIENT JOB INFO	ORMATION	SAMPLE P	REPARATION	AND ANALYTICAL PROCEDURES			
Project: Shipment ID:	Van Gogh	Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
P.O. Number		Dry at 60C	17	Dry at 60C			WHI
Number of Samples:	17	SS80	17	Dry at 60C sleve 100g to -80 mesh			WHI
		RJSV	17	Saving all or part of Soll Reject			WHI
SAMPLE DISPOS	AL	1DX2	17	1:1:1 Aqua Regia digestion ICP-MS analysis	15	Completed	VAN

ADDITIONAL COMMENTS

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

CC:

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

DBA Advantage Geoconsulting Invoice To: Box 382 New Denver BC V0G 1S0 CANADA

CERTIN COUL HSHID CLARENCE LEONG

WHI13000182.1

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. Acree 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 invested for other elements.

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### CERTIFICATE OF ANALYSIS

Method 1DX15	1DX15							
Analyte Mo Cu Pb Zn Ag Ni Co Min Fe As Au Th	Sr	Cd	Sb	BI	v	Ca	P	La
Unit ppm ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppb ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm
MDL 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.01 0.5 0.5 0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
VG(W)-13-SED-174 Sediment 4.1 62.5 18.4 132 1.1 51.9 11.4 1040 2.12 21.0 8.9 1.0	59	2.0	4.4	0.4	33	1.21	0.149	13
VG(W)-13-SED-317 Sediment 0.8 32.4 9.0 85 0.4 25.0 4.5 252 1.44 3.7 2.7 0.6	64	1.0	0.6	0.3	17	2.09	0.137	15
VG(W)-13-SED-321 Sediment 2.4 38.8 19.3 191 0.8 32.2 5.7 444 1.69 9.5 10.3 0.9	93	2.1	1.6	0.5	16	2.75	0.171	20
VG(W)-13-SED-336 Sediment 1.4 41.8 20.3 90 0.4 22.3 10.7 3520 2.53 7.9 10.0 1.6	88	1.1	0.9	0.2	19	1.48	0.111	27
VG(W)-13-SED-337 Sediment 1.1 37.5 11.0 65 1.0 22.4 3.8 172 1.01 2.0 3.3 0.7	93	1.0	0.7	0.2	10	1.94	0.155	22
VG(W)-13-SED-338 Sediment 0.8 34.6 11.6 69 0.3 34.2 6.1 379 1.69 4.3 1.9 0.8	50	1.0	0.6	0.1	20	1.53	0.112	17
VG(W)-13-SED-381 Sediment 0.6 19.7 11.0 134 0.4 32.8 5.0 1414 1.18 2.2 5.8 <0.1	49	3.5	0.1	0.1	13	1.32	0.247	14
VG(W)-13-SED-382 Sediment 1.1 33.6 16.8 206 0.3 69.8 6.3 801 1.81 4.4 4.5 0.4	47	1.8	0.5	0.1	23	1.42	0.191	25
VG(W)-13-SED-385 Sediment 0.6 18.6 9.3 220 0.1 48.0 4.1 956 0.90 4.4 3.8 0.4	45	2.4	0.7	0.2	11	2.20	0.180	19
VG(W)-13-SED-389 Sediment 0.8 25.5 14.1 156 0.1 93.9 11.8 1852 2.44 7.1 4.9 1.8	24	1.3	1.7	0.1	21	0.83	0.092	21
VG(W)-13-SED-391 Sediment 1.7 50.3 30.3 130 1.1 41.9 8.4 195 1.77 30.8 28.8 1.2	52	0.6	2.9	0.3	19	1.01	0.080	14
VG(W)-13-SED-394 Sediment 7.5 142.5 18.2 1205 1.0 593.6 448.7 >10000 8.87 19.2 17.5 2.1	50	17.2	3.5	0.2	16	1.01	0.074	21
VG(W)-13-SED-395 Sediment 15.2 82.5 9.3 131 0.9 32.1 6.5 268 23.71 58.2 17.5 1.5	15	0.9	1.3	<0.1	10	0.22	0.074	12
VG(E)-13-SED-406 Sediment 0.9 48.6 10.8 41 0.8 18.6 5.2 234 0.97 2.6 3.8 0.3	60	0.4	0.4	< 0.1	12	1.19	0.194	26
VG(E)-13-SED-408 Sediment 12.0 158.9 25.3 19 6.5 54.7 1.7 153 1.87 25.2 53.1 0.9	120	0.3	14.4	0.4	161	0.95	0.181	8
VG(E)-13-SED-411 Sediment 5.4 14.1 20.1 14 2.2 6.5 2.1 750 1.02 11.6 7.9 0.8	75	0.1	4.8	0.3	37	0.94	0.098	9
VG(E)-13-SED-412 Sediment 1.2 9.9 3.4 4 0.9 3.6 0.6 25 0.50 5.9 3.4 <0.1	11	0.2	1.5	<0.1	19	0.09	0.046	2

#### **DBA Advantage Geoconsulting**

New Denver BC V0G 1S0 CANADA

Submitted By: Van Krichbaum Receiving Lab: Canada-Whitehorse July 25, 2013 Received: Report Date: August 20, 2013 Page: 1 of 2

#### WHI13000182.1

Client: Box 382

## CERTIFICATE OF ANALYSIS

### WHI13000182.1

	Method	1DX15															
	Analyte	Cr	Mg	Ba	п	в	AI	Na	ĸ	w	Hg	Sc	п	S	Ga	Se	Тө
	Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
VG(W)-13-SED-174	Sediment	25	0.36	1138	0.017	4	1.05	0.013	0.05	0.2	0.94	2.6	0.1	0.15	3	5.9	0.4
VG(W)-13-SED-317	Sediment	21	0.38	315	0.012	6	1.21	0.014	0.05	<0.1	0.25	1.6	<0.1	0.22	3	4.8	<0.2
VG(W)-13-SED-321	Sediment	18	0.37	761	0.012	8	1.17	0.012	0.10	<0.1	0.29	2.4	<0.1	0.17	2	2.5	0.4
VG(W)-13-SED-336	Sediment	18	0.52	750	0.006	6	1.29	0.020	0.07	<0.1	0.28	2.3	0.2	0.15	3	3.0	<0.2
VG(W)-13-SED-337	Sediment	15	0.19	551	0.008	6	1.25	0.021	0.06	<0.1	0.35	2.3	0.1	0.28	2	6.1	⊲0.2
VG(W)-13-SED-338	Sediment	23	0.46	312	0.014	7	1.17	0.029	0.07	0.1	0.23	2.2	<0.1	0.14	3	4.0	<0.2
VG(W)-13-SED-381	Sediment	15	0.20	600	0.007	6	1.02	0.014	0.12	<0.1	0.16	0.3	<0.1	0.20	2	<0.5	0.3
VG(W)-13-SED-382	Sediment	27	0.45	573	0.009	5	1.63	0.008	0.08	0.2	0.19	1.1	<0.1	0.12	3	0.6	⊲0.2
VG(W)-13-SED-385	Sediment	17	0.21	599	0.012	9	0.91	800.0	0.14	0.1	0.26	0.9	0.1	0.15	1	<0.5	<0.2
VG(W)-13-SED-389	Sediment	40	0.57	538	0.017	5	0.89	0.005	0.11	0.3	0.16	4.0	<0.1	<0.05	2	<0.5	<0.2
VG(W)-13-SED-391	Sediment	15	0.22	320	0.006	2	0.88	0.006	0.07	<0.1	0.28	2.3	0.4	0.10	3	2.6	<0.2
VG(W)-13-SED-394	Sediment	15	0.22	752	0.009	4	2.02	0.006	0.06	0.1	0.29	3.7	1.5	0.12	3	7.6	<0.2
VG(W)-13-SED-395	Sediment	11	0.11	159	0.010	4	0.75	0.010	0.04	<0.1	0.50	2.7	0.2	1.05	1	0.7	0.2
VG(E)-13-SED-406	Sediment	15	0.19	223	0.006	4	1.17	0.018	0.08	0.1	0.23	1.1	<0.1	0.23	2	1.9	<0.2
VG(E)-13-SED-408	Sediment	40	0.05	1631	0.003	5	1.18	0.008	0.09	0.7	10.79	3.1	3.4	0.19	5	13.5	0.8
VG(E)-13-SED-411	Sediment	11	0.04	668	0.003	2	0.64	0.009	0.05	<0.1	0.98	0.8	0.7	0.11	2	3.8	0.2
VG(E)-13-SED-412	Sediment	2	0.03	109	0.012	1	0.47	0.031	0.02	0.2	0.60	0.3	0.1	<0.05	2	1.7	<0.2

QUALITY CO	NTROL	REP	OR	Г												WF	113	000	182.	1	
	Method	1DX15	1DX15	1DX15																	
	Analyte	Mo	Cu	Pb	Zn	Ag	NI	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	BI	v	Ca	P	La
	Unit	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm							
	MDL	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
Pulp Duplicates																					
VG(W)-13-SED-391	Sediment	1.7	50.3	30.3	130	1.1	41.9	8.4	195	1.77	30.8	28.8	1.2	52	0.6	2.9	0.3	19	1.01	0.080	14
REP VG(W)-13-SED-391	QC C	1.9	52.3	30.3	130	1.2	42.5	8.9	202	1.86	31.9	41.2	1.5	54	0.9	3.3	0.3	20	1.05	0.078	14
Reference Materials																					
STD DS9	Standard	12.1	108.8	125.7	299	1.7	40.4	7.4	558	2.25	24.0	108.4	5.9	67	2.2	5.7	5.6	36	0.70	0.081	12
STD DS9 Expected		12.84	108	126	317	1.83	40.3	7.6	575	2.33	25.5	118	6.38	69.6	2.4	4.94	6.32	40	0.7201	0.0819	13.3
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1

## QUALITY CONTROL REPORT

### WHI13000182.1

	Method	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15
	Analyte	Cr	Mg	Ba	п	в	AI	Na	к	w	Hg	Sc	TI	s	Ga	Se	Те
	Unit	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
Pulp Duplicates																	
VG(W)-13-SED-391	Sediment	15	0.22	320	0.006	2	0.88	0.006	0.07	<0.1	0.28	2.3	0.4	0.10	3	2.6	<0.2
REP VG(W)-13-SED-391	QC	16	0.21	329	0.010	4	0.92	0.006	0.08	0.2	0.24	2.6	0.3	0.10	2	3.8	<0.2
Reference Materials																	
STD DS9	Standard	110	0.59	289	0.102	2	0.90	0.081	0.39	2.7	0.20	2.2	5.1	0.16	4	5.2	5.4
STD DS9 Expected		121	0.6165	295	0.1108		0.9577	0.0853	0.395	2.89	0.2	2.5	5.3	0.1615	4.59	5.2	5.02
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2

Table 5.	Analy	<i>ytical</i>	Results ·	- Silt	Sam	ples

#### **ROCK ASSAYS**



Acme Analytical Laboratories (Vancouver) Ltd. 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA PHONE (604) 253-3158

#### CERTIFICATE OF ANALYSIS

#### **CLIENT JOB INFORMATION**

Van Gogh Project: Shipment ID: P.O. Number Number of Samples: 21

www.acmelab.com

Client:

#### **DBA Advantage Geoconsulting** Box 382

New Denver BC V0G 1S0 CANADA

Submitted By: Van Krichbaum Receiving Lab: Received: Report Date: Page: 1 of 2

Canada-Vancouver November 12, 2013 December 10, 2013

#### VAN13004795.1

#### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES Procedure Number of **Code Description** Test Report Lab Code Samples Status Wgt (g) R200-250 21 Crush, split and pulverize 250 g rock to 200 mesh VAN 1DX2 1:1:1 Aqua Regia digestion ICP-MS analysis 15 Completed 21 VAN

#### SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp 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:

DBA Advantage Geoconsulting Box 382 New Denver BC V0G 1S0 CANADA

CC:



VAN13004795.1

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. Arone 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.

### CERTIFICATE OF ANALYSIS

	Method	WGHT	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15							
	Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	NI	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	BI	v	Ca	Р
	Unit	kg	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%							
	MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
VG W -13-R321C Roc	k	0.10	<0.1	1.3	1.8	22	<0.1	4.6	0.7	96	0.25	1.7	0.9	0.2	205	1.0	0.6	<0.1	<2	29.91	0.016
VG W -13-R321D Roc	k	0.14	0.1	1.5	1.9	12	<0.1	1.9	1.0	117	0.44	8.3	6.5	0.4	432	0.2	0.4	<0.1	6	28.14	0.009
VG W -13-R323 Roo	k	0.25	<0.1	2.7	1.3	27	<0.1	4.3	0.9	59	0.29	<0.5	<0.5	0.6	237	0.7	0.3	<0.1	<2	29.06	0.006
VG W -13-R330 Roc	k	0.08	<0.1	3.9	1.4	9	<0.1	3.1	1.0	311	0.26	<0.5	1.6	0.2	80	0.2	0.1	<0.1	<2	16.78	0.024
VG W -13-R341 Roc	k	0.15	<0.1	2.6	1.5	15	<0.1	3.2	0.8	153	0.19	<0.5	0.7	0.2	73	1.2	<0.1	<0.1	<2	21.98	0.028
VG W -13-R354 Roc	k	0.09	0.4	19.5	2.1	37	0.1	8.3	0.5	97	1.04	11.1	1.1	<0.1	19	0.3	8.5	<0.1	112	4.00	0.037
VG W -13-R360 Roc	k	0.13	<0.1	1.6	0.7	7	<0.1	0.8	0.5	107	0.10	0.9	<0.5	<0.1	165	0.7	0.6	<0.1	2	32.66	0.015
VG W -13-R387C Roo	k	0.06	<0.1	3.1	1.3	7	<0.1	14.5	1.2	179	0.37	0.8	<0.5	0.4	517	0.9	0.5	<0.1	7	29.10	0.007
VG W -13-R388 Roc	k	0.14	0.1	4.5	3.3	69	<0.1	8.2	5.4	2876	2.20	2.5	2.4	5.1	12	0.6	1.2	<0.1	14	0.34	0.063
VG W -13-R390 Roc	k	0.07	0.1	4.9	3.6	41	<0.1	4.5	7.6	1804	1.68	1.1	1.7	4.7	8	0.1	0.5	<0.1	11	2.50	0.038
VG W -13-R393 Roo	k	0.10	0.2	7.6	20.8	82	<0.1	8.7	9.5	2837	3.21	1.8	1.5	4.7	16	0.8	1.9	<0.1	28	1.22	0.042
VG W -13-R394 Roc	k	0.07	2.7	375.8	15.5	582	0.5	262.0	628.1	>10000	9.19	15.2	5.7	3.8	26	7.9	2.5	0.1	27	0.22	0.046
VG W -13-R396 Roc	ĸ	0.09	1.7	1.6	143.6	1	1.7	0.5	0.6	52	0.39	9.8	2.7	0.9	4	<0.1	10.4	<0.1	6	0.02	0.012
VG W -13-R397 Roc	ĸ	0.04	7.2	5.1	11.2	4	1.7	1.8	1.8	90	1.03	28.2	12.5	0.6	3	<0.1	6.6	<0.1	7	0.02	0.006
VG W -13-R400 Roo	k	0.16	0.5	286.5	610.6	780	1.4	87.5	18.2	1585	9.34	65.7	25.1	2.4	9	1.5	2.3	0.4	34	0.03	0.043
VG W -13-R401 Roc	k	0.16	1.8	11.6	11.1	2	14.7	1.1	0.4	37	1.47	48.9	114.9	0.4	22	<0.1	9.0	3.5	4	0.01	0.004
VG E -13-R407 Roc	ĸ	0.07	10.8	143.9	17.4	23	0.1	19.0	4.3	146	4.61	56.1	3.6	5.0	20	0.3	9.2	0.3	24	0.02	0.088
VG E -13-R409 Roc	k	0.17	0.5	54.7	0.6	59	<0.1	40.7	22.8	608	4.32	1.6	<0.5	0.1	9	0.1	<0.1	<0.1	131	2.01	0.057
VG E -13-R410 Roo	ĸ	0.10	0.3	3.1	2.0	2	<0.1	1.2	0.3	34	0.36	2.1	2.6	<0.1	4	<0.1	1.1	<0.1	<2	0.02	0.001
VG E -13-R416 Roo	k	0.11	0.3	6.0	1.3	2	1.7	1.0	0.3	53	0.60	3.7	2.5	0.1	2	<0.1	12.9	<0.1	7	0.01	0.005
VG E -13-R418 R00	ĸ	0.17	<0.1	1.0	0.6	10	<0.1	4.2	2.0	624	0.09	<0.b	<0.5	<0.1	162	0.7	0.2	<0.1	<2	31.66	0.016

### ROCK ASSAYS

## CERTIFICATE OF ANALYSIS

### VAN13004795.1

	Method	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15
	Analyte	La	Cr	Mg	Ba	TI	в	AI	Na	ĸ	w	Hg	Sc	TI	s	Ga	Se	Те
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
VG W -13-R321C Rock		2	2	0.26	26	< 0.001	<1	0.06	0.001	0.02	<0.1	0.21	0.6	<0.1	<0.05	<1	0.8	<0.2
VG W -13-R321D Rock		2	2	0.15	19	0.001	1	0.10	0.001	0.07	<0.1	0.25	1.1	<0.1	<0.05	<1	0.5	<0.2
VG W -13-R323 Rock		5	3	0.21	8	< 0.001	<1	0.13	< 0.001	0.08	<0.1	0.08	1.7	<0.1	<0.05	<1	<0.5	<0.2
VG W -13-R330 Rock		3	2	0.18	8	< 0.001	1	0.11	< 0.001	0.03	<0.1	0.05	1.0	<0.1	<0.05	<1	<0.5	<0.2
VG W -13-R341 Rock		3	3	3.78	62	< 0.001	1	0.19	0.004	0.01	<0.1	0.01	0.9	<0.1	<0.05	<1	<0.5	<0.2
VG W -13-R354 Rock		<1	18	0.04	60	< 0.001	1	0.03	< 0.001	<0.01	1.8	0.10	0.1	<0.1	0.07	1	<0.5	0.4
VG W -13-R360 Rock		<1	3	0.12	12	<0.001	<1	<0.01	0.001	0.02	<0.1	0.09	0.2	<0.1	<0.05	<1	0.6	<0.2
VG W -13-R387C Rock		3	4	0.18	38	0.003	2	0.12	<0.001	0.07	<0.1	0.07	0.8	<0.1	<0.05	<1	<0.5	<0.2
VG W -13-R388 Rock		17	5	0.03	548	0.013	2	0.25	0.001	0.26	0.2	0.04	4.3	0.1	<0.05	<1	<0.5	<0.2
VG W -13-R390 Rock		14	5	0.04	626	0.005	2	0.32	0.003	0.35	<0.1	0.01	5.9	0.1	<0.05	<1	<0.5	<0.2
VG W -13-R393 Rock		15	7	0.03	472	0.023	1	0.25	0.002	0.25	0.1	0.09	5.0	0.2	<0.05	<1	<0.5	<0.2
VG W -13-R394 Rock	1	14	26	0.49	980	0.042	3	2.62	0.014	0.21	0.1	0.09	5.4	2.9	0.15	3	2.1	<0.2
VG W -13-R396 Rock	1	3	6	<0.01	366	< 0.001	1	0.13	0.002	0.09	<0.1	0.13	0.8	<0.1	0.06	<1	4.6	0.5
VG W -13-R397 Rock		- 1	7	<0.01	341	< 0.001	1	0.11	0.003	0.05	<0.1	0.06	0.4	<0.1	<0.05	<1	7.2	1.5
VG W -13-R400 Rock		7	18	0.76	107	< 0.001	<1	0.86	0.009	0.15	<0.1	0.07	7.7	<0.1	2.45	2	55.4	0.3
VG W -13-R401 Rock		<1	5	<0.01	571	<0.001	<1	0.04	< 0.001	0.03	<0.1	0.67	0.3	<0.1	0.23	<1	20.7	1.7
VG E -13-R407 Rock	1	14	8	0.05	170	< 0.001	2	0.52	0.004	0.24	<0.1	0.15	1.0	0.3	<0.05	2	3.6	<0.2
VG E -13-R409 Rock		2	19	1.67	148	0.378	6	2.77	0.080	0.02	<0.1	0.01	3.4	<0.1	<0.05	11	<0.5	<0.2
VG E -13-R410 Rock	(	<1	8	<0.01	192	0.003	<1	0.04	0.001	0.02	<0.1	0.07	0.1	<0.1	<0.05	<1	1.1	<0.2
VG E -13-R416 Rock		<1	9	<0.01	216	< 0.001	2	0.08	0.002	0.03	<0.1	0.89	0.4	0.1	<0.05	<1	1.8	<0.2
VG E -13-R418 Kock	(	1	1	0.20	42	< 0.001	<1	0.03	0.001	0.01	<0.1	0.02	0.2	<0.1	80.0	<1	<0.5	<0.2

#### QUALITY CONTROL REPORT VAN13004795.1

	Method	WGHT	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15
	Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	NI	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	BI	v	Ca	P
	Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
Pulp Duplicates																					
VG E -13-R418	Rock	0.17	<0.1	1.0	0.6	10	<0.1	4.2	2.0	624	0.09	<0.5	<0.5	<0.1	152	0.7	0.2	<0.1	<2	31.66	0.016
REP VG E -13-R418	QC		<0.1	1.2	0.6	9	<0.1	4.7	1.9	624	0.09	<0.5	< 0.5	<0.1	150	0.7	0.2	<0.1	<2	32.09	0.017
Reference Materials																					
STD DS10	Standard		14.3	150.0	151.0	354	2.0	74.6	13.0	862	2.85	44.2	84.3	7.3	66	2.4	8.5	11.5	48	1.13	0.081
STD OXC109	Standard		1.4	33.2	9.8	38	<0.1	69.7	18.7	402	2.84	0.6	185.7	1.3	132	<0.1	<0.1	<0.1	51	0.66	0.109
STD DS10 Expected			14.69	154.61	150.55	352.9	1.96	74.6	12.9	861	2.7188	43.7	91.9	7.5	67.1	2.48	9.51	11.65	43	1.0355	0.073
STD OXC109 Expected													201								
BLK	Blank		<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	< 0.001
Prep Wash																					
G1	Prep Blank		<0.1	2.3	2.9	38	<0.1	2.4	3.1	507	1.72	<0.5	2.4	5.0	53	<0.1	<0.1	<0.1	31	0.40	0.060
G1	Prep Blank		<0.1	2.4	2.9	37	<0.1	2.3	3.1	493	1.64	<0.5	2.4	4.8	53	<0.1	<0.1	<0.1	30	0.43	0.060

## QUALITY CONTROL REPORT

### VAN13004795.1

	Method	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15	1DX15
	Analyte	La	Cr	Mg	Ba	TI	в	AI	Na	к	w	Hg	Sc	TI	S	Ga	Se	Те
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	MDL	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
Pulp Duplicates																		
VG E -13-R418	Rock	1	1	0.20	42	<0.001	<1	0.03	0.001	0.01	<0.1	0.02	0.2	<0.1	0.08	<1	< 0.5	<0.2
REP VG E -13-R418	QC	1	1	0.20	42	<0.001	1	0.03	0.002	0.01	<0.1	0.01	0.2	<0.1	0.09	<1	<0.5	<0.2
Reference Materials																		
STD DS10	Standard	17	56	0.77	347	0.079	7	1.06	0.072	0.34	3.0	0.29	3.1	5.2	0.31	4	3.4	4.5
STD OXC109	Standard	11	56	1.40	53	0.358	1	1.49	0.649	0.41	0.1	<0.01	1.3	<0.1	< 0.05	5	<0.5	<0.2
STD DS10 Expected		17.5	54.6	0.7651	349	0.0817		1.0259	0.0638	0.3245	3.34	0.289	2.8	4.79	0.2743	4.3	2.3	4.89
STD OXC109 Expected																		
BLK	Blank	<1	<1	<0.01	<1	<0.001	<1	<0.01	< 0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
Prep Wash																		
G1	Prep Blank	12	6	0.43	150	0.085	<1	0.84	0.081	0.43	<0.1	<0.01	2.1	0.3	< 0.05	4	<0.5	<0.2
G1	Prep Blank	10	6	0.44	150	0.085	1	0.88	0.081	0.43	<0.1	<0.01	2.4	0.3	<0.05	4	<0.5	<0.2

### Table 6. Analytical Results - Rock Samples

### Rock Descriptions

Rock Assay Sample #	Description	Acid Test + / -
VGW-13-R321C	Jasper coloured, very fine grained marble with calcite patches in a few places. Odd reddish colour on smooth weathered surface. Some small black patches inside.	+
VGW-13-R321D	Massive very tiny grained marble (limestone) similar to 13-VG-R 321 B except limonitic throughout, somewhat heavy. Occasional dull black specs and patches.	+
VGW-13-R323	Laminated marble, brownish limonitic weathered surface, rare to abundant tiny to 1 mm dull black specs and cubes that are deep reddish brown and splintery inside – also nonmagnetic and non-metallic.	+
VGW-13-R330	Jasper coloured crudely laminated massive marble with some white bladed calcite patches.	+
VGW-13-R341	Mixed (brecciated?) tan white marble with distinct jasperized patches, limonitic weathering on surface and some quartz "eyes" along one surface.	+
VGW-13-R354	Coarse brecciated very fine grained jasper colour limestone with abundant small voids throughout large bleached zone. Siliciclastic rock marked weathered surface.	+
VGW-13-R360	Brecciated tan gray marble, rusty in patches with limonite and haematite? Some course calcite patches. No visible sulphides but a few patches crack coatings are intensely rusty.	+
VGW-13-R387C	Coarse rusty to yellowish brown coarsely layered marble with very abundant dull Black patches of many small irregular blebs and very small "grains".	+
VGW-13-R388	Coarsely banded competent (massive) micaceous siltstone with some 1 mm layering evident but mostly hard (silicious?) and weathering resistant Abundant limonite throughout with some peculiar red and yellowish orange (rust?) in one area (realgar and orpiment?). Some shiny to dull black coatings (manganese?), somewhat heavy.	-
VGW-13-R390	Coarsely banded competent (massive) micaceous siltstone, slightly phyllitic with some 1 mm layering evident but mostly hard (silicious?) and weathering resistant Abundant limonite throughout with some peculiar red and yellowish orange (rust?) in one area (realgar and orpiment?). Some shiny to dull black coatings (manganese?), somewhat heavy.	-
VGW-13-R393	Intensely limonitic to hematitic weathered surface. Finely laminated, slightly phyllitic micaceous siltstone that is very dark brownish black with rust overtones throughout. Hard competent noticeably heavy with manganese coatings along two outer surfaces.	-

Extremely limonitic and hematitic rusty porous hardened precipitate matrix around a	+
few small rocks from extremely rusty stream bank. Black manganese? mineralization	
present and increases in rock higher up the stream bank (darker piece). Lighter toned	
piece is similar but more hematitic and lacking black manganese? mineralization. Both	
sent as one assay.	
	Extremely limonitic and hematitic rusty porous hardened precipitate matrix around a few small rocks from extremely rusty stream bank. Black manganese? mineralization present and increases in rock higher up the stream bank (darker piece). Lighter toned piece is similar but more hematitic and lacking black manganese? mineralization. Both sent as one assay.

Rock Assay Sample #	Description	Acid Test + / -
VGW-13-R396	Limonitic and yellowish "rust" weathering dark gray laminated quartz with abundant kaolinite alteration. Somewhat heavier than expected by the appearance. Abundant black and dark brownish small irregular patches in some areas (manganese?)	-
VGW-13-R397	Tiny crystalline quartz with sericite laminations and large rusty patches and coatings. Contact coating on one surface is talc with abundant dull black inclusions that are non-magnetic.	+
VGW-13-R400	Limonitic weathering phyllite with thick metallic vein? parallel to phyllite layering. Vein? has very abundant, very small pyrite cube crystallized thickening that is heavily altered to limonite. The phyllite has undergone alteration to include large areas of bleaching. Somewhat heavy (to be expected due to large amount of pyrite crystals visible.	-
VGW-13-R401	Quartzite? / micro crystalline quartz? Tiny quartz crystals throughout. Abundant tiny crystals of pyrite and limonite weathered remnants, possible native gold? Heavy.	-
VGE-13-R407	Limonitic weathered phyllite with silicification by abundant quartz in alignment with the laminations. Some quartz veining up to 1 cm wide and mineralized by very small pyrite crystals although they are mostly weathered as rusty pits to dark brown.	-
VGE-13-R409	Limonite weathered dark gray black chert ?/ quartz that has occasional tiny pyrite crystals. Dark brown coatings on cracked faces. Noticeably heavy.	-
VGE-13-R410	Non-laminated chert? / tiny micro-crystalline dark gray quartz? Appears non- mineralized.	-
VGE-13-R416	White quartz matrix breccia with clasts of black quartz / fine grained quartzite? Some sericite is present and rock is limonite rust stained by meteoric fluids.	-
VGE-13-R418	Finely laminated gray marble with white decarbonated zones throughout at a fine scale with some sulphides? present as blackish brown spots and clots.	+

Table 7. Rock Descriptions

### **RGS Element Percentile Thresholds**

Yukon-Tanana T	errane											
SAMPLE	AG	AS	AS_INA	AU	AU_R	AU_INA	BA	BA_INA	BI	CD	CO	CO_INA
min	0.1	0.5	0.2	0.5	0.5	1	54	270	0.1	0.1	1	2.5
50th percentile	0.1	3.5	5.8	1	4	3	870	1100	0.1	0.1	8	13
90 th percentile	0.2	13.5	15.8	9	37	10	1247.9	1700	0.26	0.6	14	21
95th percentile	0.3	22	23.4	18	85	17	1493.35	1900	0.28	1.1	17	24
98th percentile	0.5	46.02	36	46.86	172	40.8	1900	2300	0.292	2.1	22	32
99th percentile	0.7	80	54.608	96.43	280	62	2222.9	2500	0.296	3.001	29	40
max	3.3	489	280	1680	1185	1050	11550	3600	0.3	46.8	180	160
n	8206	7200	1013	7158	801	1013	7472	1013	5	7900	8206	1013
	CU	FE	FE_INA	HG	MN	MO	NI	PB	SB	SB_INA	SN	
min	1	0.11	0.7	2.5	2.5	1	1	1	0.1	0.05	0.5	
50th percentile	18	1.95	3.76	30	330	1	18	7	0.3	0.6	1	
90 th percentile	37	2.97	5.6	84	780	2	41	16	0.9	1.6	4	
95th percentile	48	3.49	6.2	119	1479.5	3	58	23	1.4	2	5	
98th percentile	68	4.337	6.8	170.5	2900	5	96.9	36	2.42	2.876	7	
99th percentile	94	5.5195	7.788	245	4899.3	7	147	47	3.6	3.488	10	
max	4510	29.9	18	3349	40546	94	1000	694	170	9.1	138	
n	8206	8206	1013	8176	8206	8206	8206	8206	7191	1013	7876	
	TA_INA	U	U_INA	v	w	W_INA	ZN	PH	F_W	U_W		
min	0.25	0.2	0.8	2.5	1	0.5	2	4.1	10	0.02		
50th percentile	0.9	3.3	3.7	35	2	0.5	63	7.2	80	0.11		
90 th percentile	1.4	8.6	13	59	3	2	123	7.9	240	1.5		
95th percentile	1.5	13.1	19	68	5	3	165	8	350	2.746		
98th percentile	1.8	26.104	34.096	83	10	4	249.8	8.2	540	5.2		
99th percentile	2	40.104	60.291	92	16	7.88	350	8.3	720	8.272		
max	2.7	236	351	470	140	29	2510	8.6	3170	255		
n	1013	7499	722	7884	7475	1013	8206	8065	8066	8065		

Table 8. Yukon-Tanana RGS Silt Percentile Threshold Cut-offs