

# 2016 Geology and XCam, 2017 Soil Sampling and DIGHEM Report on the Toonie Property Dawson, Yukon Territory

Toonie 1 - 28	YF00081 - 108
Toonie 29 - 68	YF00629 - 68
Toonie 281 - 496	YD98541 - 756

### NTS: 115N09, 115N16, 115O12

### Latitude 63°45'N

Longitude 139°56'W

### **Dawson Mining District**

Geology: October 1<sup>st</sup> and 2<sup>nd</sup> 2016 XCam: October 25<sup>th</sup> 2016 DIGHEM Survey: May 24<sup>th</sup> 2017 Soil Sampling: August 29<sup>th</sup> 2017

Prepared for White Gold Corporation By GroundTruth Exploration

Written By: Matthew Hanewich Compilation Date: March 14<sup>th</sup> 2018

### Summary

This report covers the geology work and XCam done in 2016, also the airborne geophysics (DIGHEM) and soil sampling done in 2017 on the Toonie property. The geological mapping and prospecting combined with XCam aerial imagery in 2016 was meant to provide information on where to undertake the 2017 soil sampling and DIGHEM work. Soil sampling and aerial geophysics were used to narrow areas of interest on the Toonie. There were several linear features found in the radiometrics and magnetics, and one linear soil anomaly feature produced across the soil sample grid.

The Toonie property is situated in West-Central Yukon within the Dawson Mining District. Geographically, its situated on the West side of the Yukon River between the Yukon and Sixtymile River. The Toonie property is approximately 45km Southwest of Dawson City, Yukon, by air. The Toonie is comprised of 284 contiguous quartz claims and is geographically centered at 7070000N, 552500E.

History of exploration on Toonie includes a regional airborne magnetic/radiometric survey was flown by Shives et al. and was published in 2002. A 2011 exploration program consisted of 2200 ridge and spur soil samples conducted by GroundTruth Exploration and funded by White Pine Resources. Multi-station gold anomalies were collected on parallel North-South oriented spur ridges.

The Majority of the property is overlain by Carmacks group volcanic rocks described as volcanic succession dominated by basic volcanic strata, including intermediate volcanic rocks. In the very southeast corner of the property there are two other rock units; Snowcap assemblage which is dominantly metasiliciclastic rocks with minor marble, and the Indian River Assemblage which is clast-supported pebble to cobble conglomerate with clasts of vein quartz and foliated quartzite.

The geological information and aerial imaging in 2016 on the Toonie property gave enough information to assist planning of soil sampling grids and a geophysical survey in 2017. The DIGHEM survey showed WSW to ENE subparallel structures in the radiometric figures and there is east-west trending Au soil anomaly in the southern part of the soil sampling grid. More analysis into whether the geophysical structures are related to the soil anomaly trend is needed. This may need to be done by a more subsurface approach. Radiometric and magnetic features from the geophysical survey that haven't been overlapped by soil sampling can be done in future field seasons to seek out other possible areas of interest.

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All appendices listed below are included as digital files with the electronic copy of this report.

Volume 2:	Appendix A: Claims List Appendix B: Soil Sample ICP Certificates Appendix C: Soil Sample Descriptions
Volume 3:	Appendix A: Sample Location Map Appendix B: Geological Unit Legend
Volume 4:	Appendix A: 2016 XCam Summary

Appendix B: 2017 DIGHEM Report

### Introduction

This report covers the geology work and XCam done in 2016, also the airborne geophysics (DIGHEM) and soil sampling done in 2017 on the Toonie property.

The geological mapping and prospecting combined with XCam aerial imagery in 2016 was meant to provide information on where to undertake the 2017 soil sampling and DIGHEM work.

Soil sampling and aerial geophysics were used to narrow areas of interest on the Toonie. There were several linear features found in the radiometrics and magnetics that will need to be further explored. There was one main linear feature found in the soil anomalies that will have to be explored further into the subsurface in future field seasons.

The sources of information pertaining to the Toonie property are found in other geological reports found in the archives of the Yukon Government, Department of Energy Mines and Resources, and the Canadian government at Natural Resources Canada.

### Property Location, Access and Description

The Toonie property is situated in West-Central Yukon within the Dawson Mining District. Geographically, its situated on the West side of the Yukon River between the Yukon and Sixtymile River. The Toonie property is approximately 45km Southwest of Dawson City, Yukon, by air (Figure 1). The Toonie is comprised of 284 contiguous quartz claims and is geographically centered at 7070000N, 552500E.

Access to the Toonie property is currently restricted to helicopter, based in Dawson City 50 km to the Northeast. Dawson City is accessed by year-round highway approximately 540 km North from Whitehorse, Yukon. Daily flight service is also available from Whitehorse to Dawson City. The property border is less than 10km from the Yukon River but no known ferry landing is in that area.

The Toonie property area has a subarctic continental climate with a summer mean of 10 degrees Celsius and winter mean temperature of -23 degrees Celsius. Summer temperatures can reach up to +35°C and winter temperatures can drop to -55°C. The Toonie is located within the Klondike Plateau. This area is characterized by low rolling hills with highly incised V shaped valleys. Elevations on the property range from: 1000m to 335m. The project area is completely below the tree line, with a mix of White Spruce, Birch and Poplar on the South, East and West aspects and Black Spruce on the North facing slopes. Discontinuous permafrost occurs throughout the property on the Northerly aspects. The Toonie property area was not affected by the last continental glaciation. Bedrock is typically intensely weathered and near surface, there is very little outcrop exposure on the property (< 2%).

## **Claim Information**

The Toonie property is comprised of 284 contiguous quartz claims (Figure 2). All claims are active and under full ownership of White Gold Corporation. A full list of Claims can be found in Volume 2: Appendix A, a summary is shown in Table 1.

Claim Name (From-To)	Grant # (From-To)	Expiry Date	Claim Owner	Sum Claims
Toonie 1 - 28	YF00081 - 108	2020-06-24	White Gold Corp 100%	28
Toonie 29 - 68	YF00629 - 68	2019-12-08	White Gold Corp 100%	40
Toonie 281 - 336	YD98541 - 596	2018-11-16	White Gold Corp 100%	56
Toonie 337 - 496	YD98597 - 756	2019-11-16	White Gold Corp 100%	160
			Total:	284

Table 1: Claims Summary



Figure 1: Location of Toonie Property



Figure 2: Claims Map

### History

There are no significant Minfile occurrences documented at Toonie by the Yukon Geological Survey. In 2010, a small ridge and spur soil sampling program conducted by Shawn Ryan on the Money property (Nickel, Penny and Toonie properties) returned additional gold anomalies with maximum values of 47ppb Au.

The Toonie property contains several stream sediment samples from the Yukon Regional Geochemical Database (Heon, 2003). On the easterly flowing creek draining much of the TOONIE claims two silts returned values of 37 ppb and 35 ppb Au. These silts are coincident with anomalous soil results on the White Pine 2011 ridge and spur sampling program mentioned below (Fage, 2012).

A regional airborne magnetic/radiometric survey was flown by Shives et al. and was published in 2002. This survey identifies the prominent North trending magnetic low lineaments that are inferred to be prospective structures on the Toonie (Fage, 2012).

The 2011 exploration on the Toonie consisted of 2200 ridge and spur soil samples conducted by GroundTruth Exploration and funded by White Pine Resources. Multi-station gold anomalies were collected on parallel North-South oriented spur ridges on the Toonie. There was a 10-station anomaly with Gold values over 13ppb and up to 84.4ppb Au. Also, a 4-station anomaly with all Gold values exceeding 48.6 ppb Au and a maximum value of 115.9 ppb Au. There are additional anomalous gold values on adjacent ridges in the areas of the multi-station anomalies. These gold anomalies are coincident with anomalous Copper in soil and are not correlated to Arsenic (Fage, 2012).

## Geology

### **Regional Geology**

The Toonie property is situated within the Yukon-Tanana Terrane (YTT), which spans part of the Yukon Territory and east-central Alaska. This terrane is part of the intermontane superterrane, and is bounded to the northeast by the right-lateral Tintina-Kaltag fault system and to the southwest by the Denali-Farewell fault system.

Metallogenesis in the YTT is strongly governed by tectonics from the accretionary period of the Canadian Cordillera. Metallic mineral deposits preserved within the northern Cordillera range in age from 1.6 billion to less than 20 million years ago (J.L. Nelson, 2007).

### **Property Geology**

The Toonie is underlain by Devono-Mississippian metasedimentary rocks which include orthogneiss, amphibolite schist and gneiss and local horizons of quartzite. The metasedimentary rocks are overlain by massive flows of andesite and basalt (S.P. Gordey, 2005). The Majority of the property is overlain by Carmacks group volcanic rocks (**Ukc1**) described as volcanic succession dominated by basic volcanic strata, including intermediate volcanic rocks (M. Colpron, 2016). In the very southeast corner of the property there are two other rock units; Snowcap assemblage (**PDs1**) which is dominantly metasiliciclastic rocks with minor marble, and the Indian River Assemblage (**IKIR**) which is clast-supported pebble to cobble conglomerate with clasts of vein quartz and foliated quartzite (M. Colpron, 2016) (Figure 3). A full legend for the geological units in Figure 3 is contained in Volume 3: Appendix B.



Figure 3: Property Geology

## 2016 Exploration Program and Results

### Geologic Mapping and Prospecting

#### Method and Approach

There were two days of mapping and prospecting on the Toonie property (October 1<sup>st</sup> and 2<sup>nd</sup> 2016). Two geologists were transported by helicopter to gather further geologic knowledge of the property.

#### Results

Geologic mapping indicates that gold in soil anomalies on the Toonie are associated disseminated and, locally, vein-controlled sulfides with sericite to chlorite altered felsic to mafic units of the Carmacks volcanics (Geologist J. Paulter personal communication). The alteration and mineralization are unusual compared to other, primarily structurally controlled, gold showings in the district. However, the Toonie does share some similarities with the X-Man prospect on the JP Ross property, approximately 40km to the WSW (Lucy Hollis, 2011).

#### XCam Aerial Imaging

#### Method and Approach

The XCam consists of two Canon cameras inside a pod that is attached to the wing struts of a small plane so that the pod is parallel to the ground. Mission parameters (ie. target area, elevation, flight lines) are chosen before the flight and cannot be changed during the mission. The plane flies its specified lines so that the cameras can capture images of the desired target on the ground. The mission was flown on October 25<sup>th</sup> 2016. More detailed explanations of the setup can be found in the XCam report in Volume 4: Appendix A.

#### Results

Results of the Toonie property aerial imagery can be seen below in Figure 4. The total area covered by the XCam imagery on this property is approximately 50 square kilometers.



Figure 4: XCam aerial imagery over Toonie

## 2017 Exploration and Program Results

### Soil Sampling

#### Method and Approach

Soil surveys are typically conducted by crews of 5 samplers, one of which is the Crew Boss who oversees the survey. The Crew Boss is responsible for coordinating safe and efficient operation of survey and ensuring survey is conducted as planned. All samplers run solo traverses proximal to each other so that radio contact with other crew members can be maintained.

Field technicians navigated to sample sites using handheld GPS units. A C-Horizon sample is collected using an Eijklcamp brand hand auger at a depth of between 20cm and 110cm. Where necessary, in rocky or frozen ground, a mattock is used to obtain the sample. Photos are taken of the sample site 5m from sample hole with auger inserted. Typically, 400 to 500 g of soil is placed in a pre-labeled bag. An aluminum metal tag inscribed with the sample identification number is attached to a rock or branch in a visible area at the sample site along with a length of pink flagging tape. A field duplicate sample is taken once for every 25 samples. The GPS location of the sample site is recorded with a Garmin 60cx or 76cx GPS device in UTM NAD 83 format, and the waypoint is labeled with the project name and the sample identification number. A weather-proof handheld device equipped with a barcode scanner is used in the field to record the descriptive attributes of the sample collected, including sample identification number, soil colour, soil horizon, slope, sample depth, ground and tree vegetation and sample quality and any other relevant information.

#### Sample Preparation and Analysis

Once received in the lab, soil samples are prepared using the SS80 method. Samples are dried at 60 degrees Celsius and sieved such that up to 100 grams of material passes 180 microns (80 mesh). The samples are then analyzed by the AQ201+U method which involves dissolving 15 grams of material in a hot Aqua Regia solution and determining the concentration of 37 elements of the resulting analyte by the ICP-MS technique.

Analytical certificates and sample descriptions are compiled in Volume 2: Appendix B and C respectively.

#### Results

There were 474 total soil and representative samples that were taken from the Toonie property on August 9<sup>th</sup> 2017. Samples that have the same UTM coordinates are usually representative samples that are taken from the same location as its soil counterpart. A map showing Au in soil can be seen below in Figure 5 and the sample locations map is located in Volume 3: Appendix A.

The notable soil sample Au concentrations from 2017 are 21.5 ppb, 19.4 ppb and 15.4 ppb Au. There are another 6 samples that fall between 10 and 15 ppb Au.



Figure 5: 2017 Soil Sampling Au in Soil Map

### **DIGHEM Geophysical Survey**

#### Methods and Approach

The survey was conducted in a block (Block-3) in the northwest part of the property (Figure 6) on May 24<sup>th</sup> 2017. The method and appraoch is discussed in the: "GEOPHYSICAL REPORT on the AIRBORNE FDEM AND MAGNETIC SURVEY on the Toonie Property", by Amir Radjaee, Phd, P.Geo, contained in Volume 4: Appendix B.

#### Results

A total of 180 line kilometers were flown over the Toonie property. The apparent resistivity maps of airborne FDEM survey allow the geological structures to be remapped based on their conductivity. The EM results define a pronounced SE-NW trending lineament moderately conductive at the northwest, broken across with is a set of sub-parallel linear features striking WSW-ENE. Also, the results allow us to identify several moderately conductive zones located at the southwestern and northeastern of the Block-3 (Radjaee, 2018).

The magnetic intensity is higher in the northeastern part of the block relative to the other areas. The magnetic results define a linear magnetic feature striking SE-NW and almost coincident with similar lineament resulted from the EM (Radjaee, 2018). The EM and magnetic intensity results are shown in figures within the geophysical report.



## Interpretation and Recommendations

The geological information and aerial imaging in 2016 on the Toonie property gave enough information to assist planning of soil sampling grids and an aerial geophysical survey in 2017.

The DIGHEM survey showed WSW to ENE subparallel structures in the radiometric figures and there is east-west trending Au soil anomaly (Figure 5) in the southern part of the sampling grid. More analysis into whether the geophysical structures are related to the soil anomaly trend is needed. This may need to be done by a more subsurface approach.

Radiometric and magnetic features from the geophysical survey that haven't been overlapped by soil sampling can be done so to seek out other possible areas of interest.

## Costs

# 2016 Toonie Property - Statement of Expenditures

Toonie 1 - 28 (YF00081 - YF000108)

Toonie 281 - 496 (YD98541 - YD98756)

<b>GEOLOGIC MAPPING/PROJECT MANAGEM</b>	1ENT

Geologist/Project Management	Amount		Description
Wages	\$	3,560.00	2 Geologists - Prospecting
Field Equipment/Electronics	\$	220.00	
Sampling Supplies	\$	-	
Program Prep, Mobe/Demobe Rate, Expediting	\$	-	
			Geological Interpretation
Reporting/Data Interpretation/Data Mangement	\$	1,000.00	and report writing
Total Geologist/Project Management	\$	4,780.00	

AERIAL SURVEYS						
Survey	Amount	Description				
Direct Cost for Survey & Processing (\$50/ sq km)	\$ 2,424.00	48.48 sq km				
Total Aerial Surveys	\$ 2,424.00					
LOGISTICAL SUPPORT						
Helicopter	Amount	Description				
ASTAR B2 and/or Jet Ranger	\$ 4,290.00	2.2 hrs @ \$1950/hr wet				
Fixed Wing	Amount	Description				
Islander, 206, Skyvan, etc.	\$-					
Total Logistical Support	\$ 4,290.00					
Total Project Budget Tracking	\$ 11,494.00					

Toonie Project - 2017 Statement of Expenditures Airbonre DIGHEM Survey (May 24th, 2017) Soil Sampling (Aug. 9th, 2017)						
<b>GEOLOGIC MAPPING/PROJECT MANAGEM</b>	ENT					
Geologist/Project Management	Am	ount	Description			
Reporting/Data Interpretation/Data Mangement	\$	500.00	Management			
Geologist/Project Management	\$	500.00				
GEOCHEMICAL SURVEYS						
Soil/Till Survey	Am	ount	Description			
			474 samples @			
Per Soil Sample Charge (All-in - crew, camp, & assay)	\$	23,463.00	\$49.50/sample			
Soil/Till Surveys	\$	23,463.00				
GEOPHYSIAL SURVEYS						
DIGHEM Airbrone Survey	Am	ount	Description			
Survey @ \$50/line-km (including crew and processing)	\$	8,425.00	168.5 line-km			
Crew Room and Board (\$200/man-day)	\$	600.00	3 man crew over 1 days Management, QA/QC of data, interpretation, &			
Project Management and Interpretation	\$	1,850.00	reporting			
DIGHEM Airbrone Survey	\$	10,875.00				
	-					
LOGISTICAL SUPPORT			-			
Helicopter	Am	ount	Description			
ASTAR B2 and/or Jet Ranger - Soils (Trans North Heli)	\$	7,570.50	4.2hrs ASTAR B2 @ \$1802.50/hr			
ASTAR B2 - DIGHEM (Canadian Heli)	\$	7,517.50	4.85hrs @ \$1550/hr			
DIGHEM Fuel	\$	1,746.00	873 litres @ \$2.00/litre			
Fixed Wing	Am	ount	Description			
Islander, 206, Skyvan, etc.	\$	-				
Logistical Support	\$	16,834.00				
			r			
Total Project Expenditures	\$	51,672.00				

### References

- Fage, I. (2012). Geochemical Report on the Money Property: TOONIE PROPERTY, PENNY PROPERTY, NICKEL PROPERTY, Dawson, Yukon Territory. White Pine Resources Inc.
- Heon, D. (2003). *Regional Stream Geochemistry*. Yukon Regional Geochemical Database.
- J.L. Nelson, M. C. (2007). Tectonics and Metallogeny of the British Columbia, Yukon, and Alaskan Cordillera, 1.8 Ga to the present. In Mineral Deposits of Canada: A synthesis of Major Deposit Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods, 755-791.
- Lucy Hollis, S. B. (2011). *Geological and Geochemical Report on the JP Ross claim groups (Group 1,2,3)*. Vancouver: Kinross Gold Corporation.
- M. Colpron, S. I. (2016). Yukon Bedrock Geology Map, Open file 2016-1, 1:1,000,000 scale map and legend. Yukon Geological Survey.
- R.B.K. Shives, J. C. (2002). *Multisensor airborne geophysical survey, Stewart River Area, Yukon,* phases 1 and 2; GSC Open File, 4311, Shelf No. 15-63 or YGS/DIAND Open File 2002-17(D). Geological Survey of Canada.
- Radjaee, A. (2018). *GEOPHYSICAL REPORT AIRBORNE FDEM AND MAGNETIC SURVEY.* GroundTruth Exploration Inc.
- S.P. Gordey, J. R. (2005). *Geology, Stewart River (115NO), Yukon, Open File 4970.* Geological Survey of Canada.

## Statements of Qualification

I, Matthew Hanewich, do hereby declare that:

- 1. I am currently assisting with end of season report writing for GroundTruth Exploration Inc. of Dawson City, Yukon.
- 2. I graduated from Carleton University in 2015 with a B.Sc. Honor's degree in Earth Sciences.
- 3. I have worked as a geologist for 3 field seasons both during and post University.
- 4. I am not aware of any material fact or material change with respect to the subject matter of this report, the omission to disclose which makes this report misleading.

Dated this 14<sup>th</sup> day of March, 2018

Matthew Hanewich

Claim Name	Grant #	Expiry Date	Recording Date	NTS Map #	Claim Owner
Toonie 1	YF00081	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 2	YF00082	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 3	YF00083	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 4	YF00084	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 5	YF00085	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 6	YF00086	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 7	YF00087	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 8	YF00088	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 9	YF00089	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 10	YF00090	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 11	YF00091	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 12	YF00092	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 13	YF00093	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 14	YF00094	2020-06-24	2016-06-24	115N09	White Gold Corp 100%
Toonie 15	YF00095	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 16	YF00096	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 17	YF00097	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 18	YF00098	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 19	YF00099	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 20	YF00100	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 21	YF00101	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 22	YF00102	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 23	YF00103	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 24	YF00104	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 25	YF00105	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 26	YF00106	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 27	YF00107	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 28	YF00108	2020-06-24	2016-06-24	115012	White Gold Corp 100%
Toonie 29	YF00629	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 30	YF00630	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 31	YF00631	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 32	YF00632	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 33	YF00633	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 34	YF00634	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 35	YF00635	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 36	YF00636	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 37	YF00637	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 38	YF00638	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 39	YF00639	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 40	YF00640	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 41	YF00641	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 42	YF00642	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 43	YF00643	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 44	YF00644	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 45	YF00645	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 46	YF00646	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 47	YF00647	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 48	YF00648	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 49	YF00649	2019-12-08	2016-12-08	115N16	White Gold Corp 100%

Claim Name	Grant #	Expiry Date	Recording Date	NTS Map #	Claim Owner
Toonie 50	YF00650	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 51	YF00651	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 52	YF00652	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 53	YF00653	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 54	YF00654	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 55	YF00655	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 56	YF00656	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 57	YF00657	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 58	YF00658	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 59	YF00659	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 60	YF00660	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 61	YF00661	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 62	YF00662	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 63	YF00663	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 64	YF00664	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 65	YF00665	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 66	YF00666	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 67	YF00667	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 68	YF00668	2019-12-08	2016-12-08	115N16	White Gold Corp 100%
Toonie 281	YD98541	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 282	YD98542	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 283	YD98543	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 284	YD98544	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 285	YD98545	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 286	YD98546	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 287	YD98547	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 288	YD98548	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 289	YD98549	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 290	YD98550	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 291	YD98551	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 292	YD98552	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 293	YD98553	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 294	YD98554	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 295	YD98555	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 296	YD98556	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 297	YD98557	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 298	YD98558	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 299	YD98559	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 300	YD98560	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 301	YD98561	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 302	YD98562	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 303	YD98563	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 304	YD98564	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 305	YD98565	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 306	YD98566	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 307	YD98567	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 308	YD98568	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 309	YD98569	2018-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 310	YD98570	2018-11-16	2010-10-20	115012	White Gold Corp 100%

Claim Name	Grant #	Expiry Date	Recording Date	NTS Map #	Claim Owner			
Toonie 311	YD98571	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 312	YD98572	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 313	YD98573	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 314	YD98574	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 315	YD98575	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 316	YD98576	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 317	YD98577	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 318	YD98578	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 319	YD98579	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 320	YD98580	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 321	YD98581	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 322	YD98582	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 323	YD98583	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 324	YD98584	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 325	YD98585	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 326	YD98586	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 327	YD98587	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 328	YD98588	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 329	YD98589	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 330	YD98590	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 331	YD98591	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 332	YD98592	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 333	YD98593	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 334	YD98594	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 335	YD98595	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 336	YD98596	2018-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 337	YD98597	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 338	YD98598	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 339	YD98599	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 340	YD98600	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 341	YD98601	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 342	YD98602	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 343	YD98603	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 344	YD98604	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 345	YD98605	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 346	YD98606	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 347	YD98607	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 348	YD98608	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 349	YD98609	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 350	YD98610	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 351	YD98611	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 352	YD98612	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 353	YD98613	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 354	YD98614	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 355	YD98615	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 356	YD98616	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 357	YD98617	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 358	YD98618	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 359	YD98619	2019-11-16	2010-10-20	115012	White Gold Corp 100%			

Claim Name	Grant #	Expiry Date	Recording Date	NTS Map #	Claim Owner
Toonie 360	YD98620	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 361	YD98621	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 362	YD98622	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 363	YD98623	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 364	YD98624	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 365	YD98625	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 366	YD98626	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 367	YD98627	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 368	YD98628	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 369	YD98629	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 370	YD98630	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 371	YD98631	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 372	YD98632	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 373	YD98633	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 374	YD98634	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 375	YD98635	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 376	YD98636	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 377	YD98637	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 378	YD98638	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 379	YD98639	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 380	YD98640	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 381	YD98641	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 382	YD98642	2019-11-16	2010-10-20	115012	White Gold Corp 100%
Toonie 383	YD98643	2019-11-16	2010-10-20	115012	White Gold Corp 100%
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TOONIE 385	YD98645	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 386	YD98646	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 387	YD98647	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 388	YD98648	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 389	YD98649	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 390	YD98650	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 391	YD98651	2019-11-16	2010-11-16	115012	White Gold Corp 100%
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TOONIE 394	YD98654	2019-11-16	2010-11-16	115012	White Gold Corp 100%
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TOONIE 397	YD98657	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 398	YD98658	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 399	YD98659	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 400	YD98660	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 401	YD98661	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 402	YD98662	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 403	YD98663	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 404	YD98664	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 405	YD98665	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 406	YD98666	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 407	YD98667	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 408	YD98668	2019-11-16	2010-11-16	115012	White Gold Corp 100%

Claim Name	Grant #	Expiry Date	Recording Date	NTS Map #	Claim Owner
TOONIE 409	YD98669	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 410	YD98670	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 411	YD98671	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 412	YD98672	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 413	YD98673	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 414	YD98674	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 415	YD98675	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 416	YD98676	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 417	YD98677	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 418	YD98678	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 419	YD98679	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 420	YD98680	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 421	YD98681	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 422	YD98682	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 423	YD98683	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 424	YD98684	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 425	YD98685	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 426	YD98686	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 427	YD98687	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 428	YD98688	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 429	YD98689	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 430	YD98690	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 431	YD98691	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 432	YD98692	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 433	YD98693	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 434	YD98694	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 435	YD98695	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 436	YD98696	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 437	YD98697	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 438	YD98698	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 439	YD98699	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 440	YD98700	2019-11-16	2010-11-16	115012	White Gold Corp 100%
TOONIE 441	YD98701	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 442	YD98702	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 443	YD98703	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 444	YD98704	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 445	YD98705	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 446	YD98706	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 447	YD98707	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 448	YD98708	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 449	YD98709	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 450	YD98710	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 451	YD98711	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 452	YD98712	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 453	YD98713	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 454	YD98714	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 455	YD98715	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 456	YD98716	2019-11-16	2010-11-22	115012	White Gold Corp 100%
TOONIE 457	YD98717	2019-11-16	2010-11-22	115012	White Gold Corp 100%

Claim Name	Grant #	Expiry Date	Recording Date	NTS Map #	Claim Owner			
TOONIE 458	YD98718	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 459	YD98719	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 460	YD98720	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 461	YD98721	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 462	YD98722	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 463	YD98723	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 464	YD98724	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 465	YD98725	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 466	YD98726	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 467	YD98727	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 468	YD98728	2019-11-16	2010-11-22	115012	White Gold Corp 100%			
TOONIE 469	YD98729	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 470	YD98730	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 471	YD98731	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 472	YD98732	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 473	YD98733	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 474	YD98734	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
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TOONIE 476	YD98736	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
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TOONIE 480	YD98740	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 481	YD98741	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
TOONIE 482	YD98742	2019-11-16	2010-12-03	115012	White Gold Corp 100%			
Toonie 483	YD98743	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 484	YD98744	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 485	YD98745	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 486	YD98746	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 487	YD98747	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 488	YD98748	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 489	YD98749	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
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Toonie 493	YD98753	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
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Toonie 495	YD98755	2019-11-16	2010-10-20	115012	White Gold Corp 100%			
Toonie 496	YD98756	2019-11-16	2010-10-20	115012	White Gold Corp 100%			



MINERAL LABORATORIES Canada

Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158

## CERTIFICATE OF ANALYSIS

#### **CLIENT JOB INFORMATION**

www.	bureauve	ritas.com	/um
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Dawson Yukon Y0B 1G0 Canada Indie Gibson

White Gold Corp.

Submitted By:	Jodie Gibson
Receiving Lab:	Canada-Whitehorse
Received:	August 14, 2017
Report Date:	August 25, 2017
Page:	1 of 10

Box 70

## WHI17000563.1

Project:	ТОО
Shipment ID:	TOO-20170809-001-SOIL
P.O. Number	
Number of Samples:	253

#### SAMPLE DISPOSAL

DISP-PLP	Dispose of Pulp After 90 days
DISP-RJT-SOIL	Immediate Disposal of Soil Reject

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

#### Ground Truth Exploration Inc. Invoice To: Box 70 Dawson Yukon Y0B 1G0 Canada

CC:

Isaac Fage Shawn Ryan

#### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Client:

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
DY060	253	Dry at 60C			WHI
SS80	253	Dry at 60C sieve 100g to -80 mesh			WHI
AQ201	252	1:1:1 Aqua Regia digestion ICP-MS analysis	15	Completed	VAN
SHP01	253	Per sample shipping charges for branch shipments			VAN

#### **ADDITIONAL COMMENTS**

MARCUS LAU oduction Manage

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. Bureau Veritas 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.

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 2 of 10 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1497378 Soil 0.9 17.0 11.6 62 <0.1 19.6 11.4 380 3.02 8.5 0.6 2.0 4.0 32 < 0.1 0.4 0.1 78 0.38 0.039 1497381 Soil 0.8 28.0 9.3 < 0.1 25.5 11.7 437 3.10 9.3 0.7 40 < 0.1 0.2 83 0.57 0.029 64 4.3 4.6 0.7 1497384 Soil 1.0 12.9 8.0 47 < 0.1 18.4 9.0 321 2.72 7.2 0.4 1.3 2.9 44 < 0.1 0.2 94 0.46 0.031 0.4 3.17 1497380 Soil 1.3 15.1 10.5 57 < 0.1 19.6 10.5 580 9.1 0.6 < 0.5 3.9 30 0.1 0.5 0.2 90 0.27 0.027 Soil 1.0 16.4 9.3 47 17.8 9.7 576 7.1 0.5 0.2 69 0.034 1497383 < 0.1 2.59 2.1 2.9 26 0.1 0.4 0.32 I.S I.S. I.S 1497389 Soil I.S. 1.S. I.S. Soil 46 0.8 30 0.1 0.44 0.03 1497382 0.8 18.0 8.5 < 0.1 17.9 8.6 357 2.55 6.0 4.2 3.0 < 0.1 0.5 68 Soil 1.0 0.5 78 1497393 13.9 6.1 53 < 0.1 12.6 8.3 359 2.78 4.4 1.7 2.0 46 0.1 0.3 0.1 0.54 0.056 1497385 Soil 0.7 26.2 9.0 60 < 0.1 22.7 11.0 435 2.83 7.0 0.6 5.4 3.3 51 0.2 0.5 0.1 82 0.86 0.050 1497386 Soil 0.8 25.2 8.9 53 <0.1 23.3 9.9 542 2.45 7.3 0.6 11.2 3.6 50 0.2 0.5 0.2 66 0.90 0.051 1497379 Soil 1.2 12.9 6.8 62 < 0.1 14.3 10.3 365 3.44 5.3 0.3 < 0.5 2.1 33 < 0.1 0.3 0.1 100 0.37 0.028 1497390 Soil 1.2 21.5 9.7 61 0.1 16.9 12.1 733 2.93 5.1 0.8 4.3 1.9 69 0.3 0.2 0.1 80 0.79 0.057 1497387 Soil 0.7 25.8 8.5 55 <0.1 23.0 9.8 365 2.75 7.8 0.9 2.8 4.2 52 0.1 0.5 0.1 71 0.74 0.051 1497388 Soil 1.1 24.5 12.4 69 0.2 19.6 9.1 566 2.58 6.4 0.9 3.7 2.4 86 0.4 0.5 0.1 61 1.24 0.073 Soil 1.2 20.0 8.2 82 15.6 8.7 560 2.64 5.2 0.6 2.4 41 0.2 0.3 0.2 81 0.42 0.035 1497391 0.1 1.7

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BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	тоо				
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 25, 2017				
9050 Shaughn	essy St Vancouver British Colu	mbia V6P 6E5 Canada						
PHONE (604) 2	253-3158		Page:	2 of 10	Part:	2 of 2		
CERTIF	ICATE OF ANAL	YSIS		WHI17000563.1				

	Method	AQ201																
	Analyte	La	Cr	Mg	Ba	Ti	в	AI	Na	к	w	Hg	Sc	ті	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
1497378 Soil		17	34	0.62	293	0.046	3	2.43	0.016	0.08	<0.1	0.02	6.0	0.1	<0.05	6	0.6	<0.2
1497381 Soil		23	38	0.67	249	0.078	1	2.05	0.038	0.08	0.1	0.05	9.1	0.1	<0.05	6	0.8	<0.2
1497384 Soil		10	34	0.51	226	0.092	2	2.50	0.018	0.06	0.1	0.03	4.0	0.1	<0.05	6	0.7	<0.2
1497380 Soil		13	42	0.58	304	0.075	1	2.88	0.014	0.06	0.1	0.02	4.3	0.2	<0.05	8	0.7	<0.2
1497383 Soil		11	27	0.46	307	0.041	2	1.99	0.012	0.05	0.1	0.02	3.9	<0.1	<0.05	5	<0.5	<0.2
1497389 Soil		I.S.																
1497382 Soil		16	28	0.57	265	0.039	1	1.62	0.013	0.04	0.2	0.03	5.8	<0.1	<0.05	5	<0.5	<0.2
1497393 Soil		12	24	0.64	300	0.031	<1	1.96	0.015	0.06	0.1	0.03	6.1	<0.1	0.05	5	<0.5	<0.2
1497385 Soil		17	35	0.62	200	0.092	1	1.88	0.031	0.08	0.1	0.04	7.1	<0.1	<0.05	6	<0.5	<0.2
1497386 Soil		17	32	0.52	309	0.085	2	1.70	0.029	0.07	0.2	0.04	5.1	<0.1	<0.05	5	1.1	<0.2
1497379 Soil		11	32	0.72	267	0.048	<1	2.71	0.015	0.06	<0.1	0.01	5.9	0.2	<0.05	8	<0.5	<0.2
1497390 Soil		19	27	0.56	302	0.042	<1	2.20	0.024	0.09	<0.1	0.04	7.7	0.1	<0.05	6	0.6	<0.2
1497387 Soil		17	33	0.56	314	0.082	1	1.83	0.031	0.08	0.2	0.02	5.6	0.1	<0.05	5	0.6	<0.2
1497388 Soil		19	27	0.53	356	0.045	1	1.47	0.025	0.10	0.1	0.04	6.5	<0.1	<0.05	4	0.8	<0.2
1497391 Soil		13	28	0.57	243	0.064	<1	2.21	0.021	0.10	0.1	0.02	5.8	0.1	<0.05	7	0.6	<0.2
1497395 Soil		18	30	0.75	358	0.054	<1	2.36	0.030	0.09	<0.1	0.03	8.5	0.1	<0.05	7	0.8	<0.2
1497396 Soil		15	23	0.55	379	0.026	<1	1.83	0.026	0.09	<0.1	0.03	8.3	<0.1	<0.05	5	0.5	<0.2
1497392 Soil		14	28	0.55	318	0.054	<1	2.22	0.024	0.08	<0.1	0.04	7.4	0.1	<0.05	6	0.6	<0.2
1497394 Soil		14	33	0.58	378	0.057	2	2.60	0.023	0.08	<0.1	0.03	7.2	0.1	<0.05	7	0.7	<0.2
1497367 Soil		12	31	0.63	262	0.086	<1	2.52	0.016	0.05	<0.1	0.01	5.0	<0.1	<0.05	7	0.5	<0.2
1497366 Soil		11	28	0.56	200	0.064	<1	2.24	0.012	0.05	<0.1	<0.01	4.7	0.1	<0.05	8	<0.5	<0.2
1497368 Soil		20	24	1.05	427	0.007	<1	3.37	0.020	0.08	<0.1	0.03	16.2	<0.1	<0.05	10	<0.5	<0.2
1497370 Soil		21	22	0.87	355	0.029	<1	2.72	0.019	0.11	0.1	0.08	9.8	<0.1	<0.05	7	0.8	<0.2
1497369 Soil		11	29	0.59	298	0.039	<1	3.46	0.017	0.05	<0.1	0.04	7.9	0.1	<0.05	8	<0.5	<0.2
1497371 Soil		19	31	0.53	415	0.059	<1	2.50	0.019	0.08	0.1	0.01	8.0	0.1	<0.05	7	<0.5	<0.2
1497374 Soil		16	36	0.84	370	0.024	<1	2.87	0.023	0.08	<0.1	0.01	10.5	<0.1	<0.05	9	0.6	<0.2
1497376 Soil		25	30	1.72	306	0.011	<1	3.12	0.012	0.12	<0.1	0.03	12.9	<0.1	<0.05	10	<0.5	<0.2
1497377 Soil		25	49	1.38	329	0.128	<1	2.44	0.063	0.09	<0.1	0.02	7.7	0.1	<0.05	7	<0.5	<0.2
1497372 Soil		16	29	0.66	445	0.021	2	2.34	0.019	0.07	<0.1	0.04	8.5	0.1	<0.05	6	0.7	<0.2
1497373 Soil		16	37	0.78	507	0.043	2	2.90	0.021	0.10	<0.1	0.01	7.9	0.2	<0.05	7	0.6	<0.2

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.

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 3 of 10 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.01 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1497375 Soil 1.0 15.0 8.8 52 <0.1 11.4 10.8 711 3.48 2.4 0.4 0.6 1.7 46 <0.1 0.2 <0.1 101 0.50 0.066 1536061 Soil 1.0 18.7 12.0 59 13.9 9.7 533 2.83 5.1 0.6 2.5 65 0.2 < 0.1 81 1.01 0.056 0.2 1.6 0.3 1536075 Soil 0.7 26.6 6.1 63 0.1 16.5 10.3 494 2.64 3.2 1.0 1.5 1.5 116 0.3 0.3 < 0.1 71 1.65 0.095 1536069 Soil 0.8 41.1 11.1 71 0.2 21.9 14.1 718 3.47 7.4 0.7 2.7 3.5 60 0.1 0.5 0.1 101 0.86 0.040 Soil 0.6 17.0 7.3 61 11.8 3.27 4.8 0.8 1.5 2.7 0.2 0.1 90 0.062 1536063 0.1 16.0 595 56 0.3 0.84 0.6 27.7 52 0.1 73 0.043 1515751 Soil 8.6 0.2 19.5 9.8 561 2.67 6.8 0.8 1.8 3.2 55 0.2 0.5 0.93 Soil 12.7 1.0 45 0.2 0.059 1536064 0.6 20.6 8.4 56 < 0.1 16.1 703 3.14 5.2 1.5 2.8 0.2 0.3 76 0.57 Soil 0.8 0.5 0.2 90 1536056 11.5 7.3 57 < 0.1 13.3 10.7 394 3.34 5.7 1.3 2.3 39 0.1 0.3 0.41 0.043 0.51 1515754 Soil 1.1 15.8 19.4 60 < 0.1 13.2 10.8 499 3.47 5.3 0.4 13.0 2.7 29 0.1 0.2 0.1 87 0.06 1515760 Soil 1.1 20.5 5.9 51 <0.1 14.7 9.3 666 2.60 4.5 1.0 0.6 0.8 101 0.2 0.4 0.2 67 1.05 0.074 0.48 1536058 Soil 0.9 13.2 7.3 54 < 0.1 15.4 9.7 388 2.92 6.2 0.7 1.0 2.7 43 < 0.1 0.3 0.1 75 0.044

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CERTIF	ICATE OF AN	ALYSI	S											WH	117	0005	63.1	
	Method	AQ201 AQ20	1 AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201 AQ20	1 AQ201 A	Q201	AQ201		

	Analvte	La	Cr	Ma	Ba	Ті	в	AI	Na	ĸ	w	На	Sc	т	s	Ga	Se	Те
	Unit	nnm	nnm	g	nnm	%		%	%	%	nnm	nnm	nnm	nnm	%	nnm	nnm	nnm
	MDL	ېرم 1	1	0.01	1	0.001	۲ ار	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
1497375	Soil	13	34	0.81	356	0.026	<1	2.78	0.016	0.07	<0.1	0.01	7.8	0.1	<0.05	9	<0.5	<0.2
1536061	Soil	15	29	0.56	348	0.029	<1	2.46	0.019	0.06	<0.1	0.05	7.2	0.1	<0.05	7	<0.5	<0.2
1536075	Soil	26	30	0.79	317	0.029	<1	2.06	0.036	0.09	<0.1	0.05	10.4	<0.1	<0.05	6	1.4	<0.2
1536069	Soil	25	40	0.77	395	0.062	<1	2.68	0.030	0.08	<0.1	0.07	11.6	<0.1	<0.05	8	0.7	<0.2
1536063	Soil	19	28	0.68	400	0.035	2	2.43	0.020	0.08	<0.1	0.03	9.1	0.1	<0.05	7	0.9	<0.2
1515751	Soil	22	29	0.53	333	0.056	<1	2.01	0.025	0.07	<0.1	0.04	8.0	<0.1	<0.05	6	1.1	<0.2
1536064	Soil	17	28	0.64	506	0.022	1	2.07	0.017	0.05	<0.1	0.04	8.6	<0.1	<0.05	6	<0.5	<0.2
1536056	Soil	12	32	0.84	336	0.042	1	2.31	0.016	0.03	<0.1	0.02	5.5	<0.1	<0.05	7	<0.5	<0.2
1515754	Soil	19	26	0.70	186	0.018	1	1.95	0.013	0.07	0.1	0.03	8.9	<0.1	<0.05	6	<0.5	<0.2
1515760	Soil	19	25	0.54	354	0.023	2	2.14	0.018	0.06	<0.1	0.07	7.0	<0.1	0.10	6	0.5	<0.2
1536058	Soil	15	29	0.67	324	0.036	<1	2.00	0.021	0.03	<0.1	0.02	6.3	<0.1	<0.05	6	<0.5	<0.2
1536062	Soil	16	23	0.68	381	0.008	<1	2.02	0.015	0.04	<0.1	0.05	9.3	<0.1	0.09	6	0.7	<0.2
1536072	Soil	29	25	0.95	302	0.011	<1	2.18	0.014	0.07	<0.1	0.03	13.1	<0.1	<0.05	7	<0.5	<0.2
1536059	Soil	29	17	0.59	438	0.004	<1	1.88	0.011	0.10	<0.1	0.07	11.2	0.1	0.06	5	0.5	<0.2
1536074	Soil	25	32	0.92	280	0.025	1	1.82	0.031	0.06	0.1	0.05	9.5	<0.1	0.09	5	0.5	<0.2
1536071	Soil	27	14	0.25	394	0.005	1	1.05	0.009	0.13	<0.1	0.05	7.3	0.1	0.07	2	<0.5	<0.2
1536060	Soil	30	27	0.69	404	0.015	2	2.20	0.017	0.07	<0.1	0.06	12.9	0.1	0.07	6	0.5	<0.2
1536068	Soil	29	29	0.92	467	0.030	<1	2.36	0.023	0.06	<0.1	0.05	12.2	<0.1	<0.05	7	<0.5	<0.2
1536070	Soil	13	31	0.85	288	0.036	2	2.33	0.019	0.05	<0.1	0.02	6.3	<0.1	<0.05	7	<0.5	<0.2
1536057	Soil	20	33	0.97	375	0.042	<1	2.62	0.042	0.04	<0.1	0.02	11.2	<0.1	<0.05	7	<0.5	<0.2
1536055	Soil	24	42	1.42	234	0.096	<1	2.19	0.046	0.03	<0.1	0.02	6.5	<0.1	<0.05	7	<0.5	<0.2
1515755	Soil	39	10	0.32	401	0.001	<1	1.06	0.009	0.12	<0.1	0.04	9.5	<0.1	0.11	2	0.6	<0.2
1515756	Soil	24	25	0.74	275	0.025	2	1.51	0.020	0.08	<0.1	0.04	10.5	<0.1	0.11	4	0.8	<0.2
1536073	Soil	20	34	0.65	340	0.032	<1	2.25	0.019	0.06	<0.1	0.04	9.1	<0.1	<0.05	6	0.6	<0.2
1536065	Soil	19	34	0.63	518	0.032	<1	2.45	0.021	0.06	0.1	0.03	9.8	0.1	<0.05	7	<0.5	<0.2
1515761	Soil	25	29	0.70	377	0.021	1	2.05	0.023	0.07	<0.1	0.04	9.5	<0.1	0.07	5	0.8	<0.2
1515757	Soil	24	30	0.67	435	0.041	2	1.96	0.021	0.11	0.1	0.03	12.2	<0.1	0.06	5	0.6	<0.2
1515758	Soil	20	29	0.65	267	0.036	<1	2.00	0.021	0.05	0.1	0.03	7.7	<0.1	<0.05	5	<0.5	<0.2
1536066	Soil	14	22	0.64	630	0.020	1	1.65	0.016	0.05	<0.1	0.04	5.6	<0.1	0.10	5	0.6	<0.2
1515752	Soil	16	30	0.57	319	0.058	1	1.58	0.020	0.05	0.2	0.03	6.0	<0.1	<0.05	5	<0.5	<0.2

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.

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 4 of 10 Part: 1 of 2 Page: CERTIFICATE OF ANALYSIS WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As υ Au Th Sr Cd Sb Bi ν Ca Ρ % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % 0.01 MDL 0.1 0.1 0.01 0.1 0.5 1 0.1 2 0.001 0.1 0.1 1 0.1 0.1 1 0.5 0.1 0.1 0.1 1515753 Soil 1.0 14.7 9.2 56 <0.1 17.2 10.4 376 3.07 7.5 0.7 0.6 2.8 42 <0.1 0.4 0.2 74 0.60 0.033 1536067 Soil 1.1 16.4 10.0 63 < 0.1 18.2 10.6 362 3.47 7.9 0.5 2.6 33 0.4 0.2 90 0.35 0.031 1.3 0.1 1515759 Soil 1.2 19.4 4.1 36 0.2 9.8 3.8 129 1.61 2.5 0.7 <0.5 0.5 88 0.5 0.3 0.1 44 0.98 0.061 0.097 1530913 Soil 0.5 24.1 8.9 73 0.1 15.8 11.5 905 3.18 3.8 0.8 2.7 1.5 88 0.2 0.3 < 0.1 84 1.32 Soil 1.0 24.8 8.7 51 <0.1 18.3 11.8 585 3.09 5.5 1.0 2.7 2.1 67 0.3 0.1 79 0.99 0.059 1530909 0.4 Soil 0.5 26.0 13.4 2.97 3.7 0.8 104 0.1 83 0.112 1530918 21.4 7.8 62 <0.1 579 1.5 1.8 0.2 0.3 1.15 1530917 Soil 0.9 31.5 6.4 22.4 13.5 495 1.4 1.5 415 <0.1 82 0.09 67 0.1 2.89 2.5 1.2 0.3 0.3 1.23 Soil 0.7 0.7 <0.1 85 1.40 0.099 1515296 15.9 7.9 68 <0.1 11.6 11.7 603 3.27 4.3 1.3 1.4 88 0.2 0.3 0.026 1530910 Soil 0.8 16.6 8.5 54 < 0.1 18.1 9.1 375 2.83 7.1 0.6 0.8 3.0 41 <0.1 0.5 0.2 71 0.53 1530916 Soil 1.1 32.7 7.0 54 <0.1 30.2 18.1 1473 3.94 2.0 0.3 <0.5 1.2 159 0.2 <0.1 < 0.1 96 1.73 0.068 1515297 Soil 0.6 18.3 9.4 67 0.1 12.9 11.0 574 3.32 4.3 0.6 2.2 1.9 67 0.2 0.3 < 0.1 87 1.02 0.079 1515293 Soil 0.6 19.8 7.2 60 0.1 17.8 10.7 558 2.90 3.8 0.7 2.8 1.1 87 0.2 0.3 <0.1 74 1.60 0.099 1530911 Soil 0.8 25.5 10.1 65 < 0.1 19.0 12.1 540 3.54 6.0 1.0 5.5 4.2 53 <0.1 0.6 0.3 99 0.68 0.053 1530912 Soil 0.5 18.0 8.0 65 <0.1 12.9 11.8 679 3.09 3.4 0.5 2.7 2.0 58 0.1 0.3 0.2 89 1.14 0.083

1530915	Soil	1.8	20.4	5.3	70	<0.1	68.4	20.2	341	4.72	1.1	0.3	0.9	1.1	79	0.1	<0.1	<0.1	136	0.51	0.031
1515288	Soil	0.9	16.1	7.7	61	0.2	13.6	9.0	802	2.69	3.5	1.1	1.7	2.7	60	0.4	0.2	0.1	69	0.76	0.091
1515295	Soil	0.8	17.7	7.1	59	<0.1	14.9	11.4	560	3.40	5.0	0.7	2.5	2.8	72	0.1	0.3	0.1	93	0.88	0.056
1530907	Soil	0.8	17.2	9.7	57	<0.1	15.2	11.2	496	3.12	6.1	0.9	4.1	3.1	50	<0.1	0.4	0.2	88	0.64	0.044
1515299	Soil	1.0	20.3	10.7	65	<0.1	18.2	13.1	590	3.58	6.8	0.7	1.9	3.2	58	0.1	0.4	0.1	99	0.84	0.055
1530904	Soil	1.1	25.9	12.0	69	0.2	17.4	11.8	503	3.63	5.6	0.7	3.1	2.6	77	0.3	0.4	0.1	92	1.17	0.085
1530902	Soil	0.8	16.6	10.5	67	0.1	16.5	13.5	613	3.55	5.6	0.7	9.2	2.7	56	0.2	0.3	0.1	103	0.77	0.050
1515300	Soil	0.9	21.5	10.9	68	<0.1	19.1	13.4	622	3.76	7.8	0.7	1.9	3.4	61	0.1	0.4	0.1	105	0.86	0.058
1530908	Soil	0.6	22.8	11.8	80	<0.1	22.8	14.0	504	3.80	2.8	0.7	1.7	1.6	87	0.3	0.2	<0.1	93	1.38	0.110
1516832	Soil	1.3	17.9	10.4	66	<0.1	17.9	12.9	553	3.71	6.0	0.5	2.5	2.2	41	0.2	0.4	0.2	105	0.50	0.040
1516839	Soil	0.6	18.7	6.5	57	<0.1	15.9	9.7	569	2.68	2.1	0.6	0.8	1.8	111	0.2	0.2	<0.1	69	1.23	0.093
1530905	Soil	0.7	26.9	12.1	64	0.1	18.9	11.0	433	3.03	5.4	0.8	2.9	3.2	62	0.1	0.4	0.1	85	0.74	0.043
1530906	Soil	0.6	22.6	19.6	113	0.2	8.6	13.9	801	4.64	1.5	0.5	5.1	1.9	57	0.2	0.1	<0.1	112	2.53	0.128
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1515287

1515298

1530914

Soil

Soil

Soil

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			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 C	anada	
BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	ТОО		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 25, 2017		
9050 Shaughne	essy St Vancouver British Colu	imbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	4 of 10	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI	17000563.1	

	Method	AQ201	AQ201	AQ201	AQ201													
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	ĸ	w	Hg	Sc	ті	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
1515753 Soil		14	33	0.56	193	0.053	1	1.97	0.019	0.07	0.1	0.02	6.2	<0.1	<0.05	6	<0.5	<0.2
1536067 Soil		12	32	0.68	322	0.028	<1	2.58	0.016	0.04	0.1	0.02	6.3	0.1	<0.05	7	<0.5	<0.2
1515759 Soil		12	17	0.33	223	0.025	1	1.17	0.018	0.06	<0.1	0.07	4.3	<0.1	0.14	4	<0.5	<0.2
1530913 Soil		19	25	1.06	348	0.020	2	2.10	0.021	0.07	<0.1	0.03	8.8	<0.1	0.09	6	0.6	<0.2
1530909 Soil		19	29	0.67	289	0.039	1	2.27	0.029	0.05	<0.1	0.04	8.8	<0.1	<0.05	6	<0.5	<0.2
1530918 Soil		21	54	1.16	250	0.031	2	2.08	0.020	0.06	<0.1	0.04	9.8	<0.1	0.07	6	0.5	<0.2
1530917 Soil		21	46	1.03	383	0.022	2	1.98	0.032	0.07	<0.1	0.04	11.6	<0.1	0.08	6	0.6	<0.2
1515296 Soil		14	21	0.81	304	0.022	1	1.79	0.017	0.05	<0.1	0.04	6.6	<0.1	0.10	5	0.5	<0.2
1530910 Soil		12	33	0.59	284	0.056	<1	1.97	0.020	0.05	0.1	0.02	5.0	<0.1	<0.05	6	<0.5	<0.2
1530916 Soil		22	58	1.24	666	0.001	<1	2.66	0.013	0.12	<0.1	0.02	21.5	<0.1	<0.05	7	<0.5	<0.2
1515297 Soil		17	23	0.86	415	0.020	1	1.99	0.016	0.08	<0.1	0.04	9.9	<0.1	<0.05	6	<0.5	<0.2
1515293 Soil		19	27	0.75	367	0.012	<1	1.96	0.016	0.05	<0.1	0.05	7.8	<0.1	0.10	6	0.6	<0.2
1530911 Soil		21	35	0.67	320	0.082	4	2.50	0.034	0.09	0.2	0.02	10.5	0.1	<0.05	7	1.5	<0.2
1530912 Soil		20	24	0.80	241	0.029	2	2.10	0.024	0.08	<0.1	0.03	10.4	<0.1	<0.05	6	0.5	<0.2
1515287 Soil		22	22	0.72	361	0.010	<1	2.36	0.018	0.07	<0.1	0.03	5.3	0.1	<0.05	7	<0.5	<0.2
1515298 Soil		16	25	0.72	410	0.028	2	1.98	0.024	0.07	<0.1	0.04	8.3	<0.1	<0.05	6	0.6	<0.2
1530914 Soil		26	22	1.23	370	0.010	2	2.83	0.014	0.15	<0.1	0.01	21.7	<0.1	<0.05	8	0.9	<0.2
1530915 Soil		8	167	1.37	231	0.010	2	3.19	0.017	0.06	<0.1	0.01	11.5	<0.1	<0.05	10	<0.5	<0.2
1515288 Soil		28	24	0.60	506	0.018	1	2.36	0.020	0.08	<0.1	0.04	6.2	0.1	<0.05	7	<0.5	<0.2
1515295 Soil		18	27	0.60	370	0.032	1	2.24	0.025	0.07	<0.1	0.06	9.7	<0.1	<0.05	6	0.8	<0.2
1530907 Soil		15	28	0.63	316	0.042	1	2.04	0.024	0.07	0.1	0.04	7.5	0.1	<0.05	6	0.6	<0.2
1515299 Soil		17	30	0.83	341	0.048	2	2.38	0.038	0.08	<0.1	0.03	8.5	0.1	<0.05	7	<0.5	<0.2
1530904 Soil		20	30	0.66	379	0.034	2	2.15	0.033	0.10	<0.1	0.04	13.0	<0.1	<0.05	6	0.7	<0.2
1530902 Soil		17	29	0.65	479	0.045	2	2.35	0.026	0.07	<0.1	0.03	8.5	<0.1	<0.05	6	<0.5	<0.2
1515300 Soil		17	32	0.85	361	0.052	2	2.47	0.039	0.08	<0.1	0.03	9.1	<0.1	<0.05	7	0.8	<0.2
1530908 Soil		22	53	1.16	263	0.046	1	2.48	0.049	0.08	<0.1	0.03	9.5	<0.1	<0.05	7	0.8	<0.2
1516832 Soil		11	33	0.74	286	0.061	2	2.74	0.027	0.06	<0.1	0.02	6.7	0.1	< 0.05	8	<0.5	<0.2
1516839 Soil		23	28	0.68	361	0.017	1	2.09	0.017	0.08	<0.1	0.03	7.8	<0.1	<0.05	6	0.5	<0.2
1530905 Soil		18	33	0.67	358	0.048	1	2.05	0.032	0.08	<0.1	0.04	8.1	<0.1	<0.05	6	<0.5	<0.2
1530906 Soil		23	20	1.10	262	0.023	<1	2.31	0.014	0.13	<0.1	0.04	12.7	<0.1	<0.05	7	<0.5	<0.2

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.

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 5 of 10 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1516836 Soil 0.3 18.1 8.0 66 <0.1 19.8 9.9 337 2.59 3.9 0.9 3.3 3.4 80 0.1 0.4 0.1 76 0.80 0.087 1516805 Soil 0.9 23.4 4.2 97 < 0.1 38.6 27.7 989 6.04 3.5 0.4 134 0.2 < 0.1 99 1.58 0.25 1.9 1.9 0.1 1530903 Soil 0.8 24.6 11.6 72 21.8 12.7 541 3.74 6.7 0.8 4.8 3.3 71 < 0.1 0.4 0.1 103 0.93 0.061 0.1 1530901 Soil 0.6 24.3 6.1 62 0.1 14.5 11.1 578 3.10 3.0 0.7 2.4 1.6 90 0.2 0.4 < 0.1 83 1.43 0.091 Soil 0.8 17.7 66 21.9 11.2 483 2.94 2.9 0.8 94 0.2 0.2 81 1.23 1516841 6.5 < 0.1 1.4 2.0 0.2 0.113 0.6 10.5 2.82 0.1 80 0.99 0.09 1516844 Soil 20.8 7.5 64 < 0.1 25.8 501 3.8 0.8 1.8 2.4 76 0.2 0.3 Soil 19.3 10.7 0.9 0.2 80 0.063 1516843 0.9 8.9 61 < 0.1 26.5 506 2.96 5.0 4.0 2.9 62 0.1 0.3 0.73 Soil 1.4 71 0.2 89 1534955 11.5 7.1 < 0.1 11.7 10.6 583 2.99 5.6 0.3 1.4 1.0 26 0.3 0.3 0.22 0.052 1534952 Soil 1.5 18.1 9.5 62 < 0.1 16.0 11.2 664 3.28 6.0 0.6 1.9 2.1 54 0.2 0.3 0.2 98 0.57 0.053 1534951 Soil 1.5 19.1 9.3 71 <0.1 14.3 11.5 562 3.47 5.7 0.7 2.1 2.9 48 0.2 0.3 0.2 94 0.61 0.073 1516837 Soil 0.5 12.9 6.3 82 < 0.1 19.8 12.0 388 3.47 3.0 0.7 4.4 2.8 111 0.2 0.2 < 0.1 71 1.02 0.095 1534954 Soil 1.4 25.9 13.3 84 < 0.1 15.9 11.3 723 3.89 8.1 0.9 2.4 2.7 59 0.2 0.3 0.1 113 0.77 0.076

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Soil

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			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Ca	nada	
B U R E A U V E R I T A S	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	ТОО		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 25, 2017		
9050 Shaughne	essy St Vancouver British Colu	mbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	5 of 10	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI	17000563.1	

	Me	ethod	AQ201	AQ201	AQ201	AQ201													
	An	nalyte	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	ті	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
1516836	Soil		18	33	0.65	245	0.071	2	1.92	0.040	0.08	0.1	0.04	7.1	<0.1	<0.05	5	<0.5	<0.2
1516805	Soil		28	58	1.89	241	0.096	1	2.52	0.112	0.07	<0.1	0.02	6.0	<0.1	<0.05	8	0.8	<0.2
1530903	Soil		21	37	0.80	478	0.049	1	2.61	0.034	0.09	<0.1	0.04	10.6	<0.1	<0.05	7	0.7	<0.2
1530901	Soil		20	24	0.64	570	0.029	2	1.80	0.021	0.09	<0.1	0.05	9.2	<0.1	<0.05	5	0.8	<0.2
1516841	Soil		23	37	0.76	285	0.026	2	2.14	0.022	0.07	<0.1	0.04	8.2	<0.1	<0.05	6	1.0	<0.2
1516844	Soil		23	48	0.70	356	0.043	1	2.26	0.026	0.06	<0.1	0.05	8.6	<0.1	<0.05	7	0.7	<0.2
1516843	Soil		20	47	0.72	323	0.051	1	2.66	0.025	0.06	<0.1	0.03	7.6	0.1	<0.05	7	<0.5	<0.2
1534955	Soil		11	24	0.41	244	0.036	3	1.81	0.022	0.07	<0.1	0.03	3.7	<0.1	<0.05	7	<0.5	<0.2
1534952	Soil		14	31	0.56	288	0.061	2	2.43	0.028	0.08	0.1	0.02	7.2	0.1	<0.05	7	<0.5	<0.2
1534951	Soil		16	27	0.64	322	0.037	1	2.09	0.025	0.08	<0.1	0.03	8.0	0.1	<0.05	6	0.6	<0.2
1516837	Soil		18	34	0.69	235	0.057	2	2.20	0.044	0.09	<0.1	0.03	7.6	<0.1	<0.05	6	<0.5	<0.2
1534954	Soil		21	30	0.66	435	0.046	1	1.95	0.035	0.08	0.1	0.04	9.8	<0.1	<0.05	6	<0.5	<0.2
1516842	Soil		23	39	0.80	330	0.032	1	2.55	0.022	0.06	<0.1	0.04	7.6	<0.1	<0.05	8	<0.5	<0.2
1516846	Soil		28	81	1.46	418	0.015	1	3.06	0.020	0.07	<0.1	0.04	10.7	<0.1	<0.05	10	<0.5	<0.2
1516847	Soil		35	105	1.89	293	0.005	1	3.22	0.011	0.07	<0.1	0.02	12.8	<0.1	<0.05	12	<0.5	<0.2
1534956	Soil		16	22	0.47	338	0.025	2	1.53	0.020	0.08	0.1	0.04	6.6	<0.1	<0.05	4	0.9	<0.2
1516829	Soil		18	37	1.10	240	0.067	1	2.24	0.044	0.06	<0.1	0.03	8.3	<0.1	<0.05	7	<0.5	<0.2
1516840	Soil		22	47	0.75	305	0.027	2	2.43	0.026	0.07	<0.1	0.03	8.0	<0.1	<0.05	7	0.6	<0.2
1516831	Soil		27	37	0.99	300	0.015	2	2.22	0.020	0.03	<0.1	0.05	8.3	<0.1	<0.05	7	0.7	<0.2
1534953	Soil		10	23	0.44	209	0.049	<1	1.59	0.013	0.06	0.1	0.02	4.3	<0.1	<0.05	7	<0.5	<0.2
1516806	Soil		11	24	0.59	193	0.050	1	2.05	0.024	0.05	<0.1	0.03	4.4	<0.1	<0.05	7	<0.5	<0.2
1516830	Soil		21	49	1.19	254	0.049	1	2.57	0.027	0.04	<0.1	0.04	9.9	<0.1	<0.05	8	0.7	<0.2
1516833	Soil		16	38	1.04	254	0.023	1	1.98	0.026	0.06	<0.1	0.04	7.1	<0.1	<0.05	6	<0.5	<0.2
1516804	Soil		13	17	0.90	508	0.005	<1	2.25	0.014	0.06	<0.1	0.03	5.9	<0.1	<0.05	7	<0.5	<0.2
1516828	Soil		14	40	1.08	228	0.058	1	2.00	0.039	0.06	<0.1	0.03	7.5	<0.1	<0.05	6	<0.5	<0.2
1516838	Soil		26	26	0.90	373	0.014	1	2.21	0.018	0.07	<0.1	0.03	8.9	<0.1	<0.05	7	0.7	<0.2
1516845	Soil		21	44	0.73	346	0.016	1	2.08	0.019	0.04	<0.1	0.06	7.7	<0.1	<0.05	7	<0.5	<0.2
1530823	Soil		15	30	0.98	225	0.050	1	2.00	0.039	0.04	<0.1	0.04	6.4	<0.1	<0.05	6	0.7	<0.2
1530819	Soil		18	34	0.74	292	0.052	1	2.14	0.067	0.05	<0.1	0.06	8.2	<0.1	<0.05	6	<0.5	<0.2
1530817	Soil		19	24	0.74	327	0.030	<1	2.35	0.022	0.04	<0.1	0.03	8.7	0.1	< 0.05	7	0.6	<0.2

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Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 6 of 10 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1530781 Soil 0.5 25.3 7.8 69 0.1 15.9 13.6 955 3.68 4.1 0.4 4.0 2.3 121 0.1 0.3 <0.1 110 1.14 0.111 1530820 Soil 0.6 20.4 8.5 78 < 0.1 26.0 18.8 902 4.25 2.5 0.7 2.4 2.1 82 < 0.1 83 1.12 0.193 0.1 0.1 1530824 Soil 0.7 17.0 6.7 65 < 0.1 14.4 10.9 532 2.86 3.8 0.7 1.6 1.3 91 0.2 0.2 0.1 80 1.28 0.089 1530818 Soil 0.7 14.3 7.8 63 < 0.1 13.9 10.7 500 3.26 4.7 0.8 6.3 2.1 62 0.1 0.3 0.1 90 0.88 0.067 Soil 0.6 14.9 60 15.1 9.8 402 2.96 0.8 <0.1 0.1 80 0.044 1530783 9.0 < 0.1 5.6 0.8 2.8 58 0.3 0.66 0.9 0.4 0.1 91 0.063 1530782 Soil 10.1 6.9 59 < 0.1 13.9 11.7 315 3.30 4.9 1.1 2.2 58 < 0.1 0.2 0.59 Soil 0.8 0.1 0.058 1530821 0.8 16.8 6.6 53 < 0.1 14.0 9.8 549 2.72 3.9 1.4 2.0 70 0.2 0.3 76 0.80 Soil 3.6 91 1530822 0.7 13.6 6.7 72 < 0.1 11.7 11.0 510 3.16 0.7 1.9 1.2 90 0.2 0.3 0.1 1.33 0.083 1530816 Soil 0.7 18.6 6.8 64 < 0.1 20.2 12.7 702 3.56 4.7 0.8 2.9 3.1 66 < 0.1 0.3 0.1 92 0.77 0.084 1530825 Soil 0.7 16.7 6.7 60 <0.1 14.2 10.0 508 2.75 3.6 0.7 1.4 1.0 92 0.2 0.3 0.3 67 1.24 0.084

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			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Cana	da	
B U R E A U V E R I T A S	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	ТОО		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 25, 2017		
9050 Shaughne	essy St Vancouver British Colu	mbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	6 of 10	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI17	7000563.1	

	Method	AQ201	AQ201	AQ201	AQ201													
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	ĸ	w	Hg	Sc	ті	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
1530781 Sc	bil	19	33	1.42	378	0.018	<1	2.47	0.021	0.08	<0.1	0.03	12.7	<0.1	<0.05	7	<0.5	<0.2
1530820 Sc	bil	23	39	1.80	195	0.089	<1	2.34	0.048	0.10	<0.1	0.01	6.7	<0.1	<0.05	8	<0.5	<0.2
1530824 Sc	pil	17	27	0.83	286	0.027	1	1.97	0.024	0.05	<0.1	0.04	7.1	<0.1	<0.05	6	0.5	<0.2
1530818 Sc	bil	16	28	0.91	300	0.030	<1	2.17	0.020	0.06	<0.1	0.03	7.7	<0.1	<0.05	7	<0.5	<0.2
1530783 Sc	bil	14	27	0.69	300	0.044	<1	2.07	0.020	0.04	0.1	0.03	6.2	<0.1	<0.05	7	<0.5	<0.2
1530782 Sc	bil	12	24	0.86	228	0.058	1	2.18	0.029	0.05	0.2	0.02	4.6	<0.1	< 0.05	7	<0.5	<0.2
1530821 Sc	bil	17	26	0.63	251	0.042	1	2.16	0.023	0.05	<0.1	0.05	7.0	<0.1	<0.05	7	0.5	<0.2
1530822 So	bil	15	22	0.90	264	0.025	<1	2.05	0.024	0.05	<0.1	0.03	7.4	<0.1	<0.05	6	0.6	<0.2
1530816 Sc	bil	20	40	0.99	370	0.023	<1	2.77	0.031	0.05	<0.1	0.02	9.7	<0.1	< 0.05	8	<0.5	<0.2
1530825 Sc	bil	16	25	0.78	301	0.019	2	1.75	0.017	0.04	<0.1	0.04	6.1	<0.1	<0.05	5	0.7	<0.2
1530831 Sc	bil	18	25	0.63	382	0.018	<1	1.94	0.020	0.06	<0.1	0.04	6.9	<0.1	<0.05	6	<0.5	<0.2
1530826 Sc	bil	17	43	1.11	267	0.082	<1	2.07	0.039	0.04	<0.1	0.04	7.4	<0.1	< 0.05	7	0.5	<0.2
1530836 Sc	bil	15	26	0.58	209	0.034	<1	1.49	0.025	0.05	<0.1	0.03	5.1	<0.1	<0.05	4	<0.5	<0.2
1530827 Sc	bil	17	53	1.50	250	0.097	<1	2.71	0.081	0.05	<0.1	0.02	7.2	<0.1	<0.05	8	<0.5	<0.2
1530829 So	bil	23	62	1.61	313	0.076	1	2.47	0.076	0.05	<0.1	0.03	7.8	0.1	<0.05	7	0.7	<0.2
1530830 Sc	bil	18	37	1.00	350	0.046	<1	2.33	0.033	0.06	<0.1	0.03	8.2	<0.1	< 0.05	8	<0.5	<0.2
1530834 So	bil	17	31	0.82	330	0.012	1	1.66	0.016	0.05	<0.1	0.05	5.7	<0.1	<0.05	5	0.9	<0.2
1530828 Sc	bil	16	27	0.76	287	0.017	<1	1.66	0.015	0.05	<0.1	0.04	6.3	<0.1	<0.05	5	0.6	<0.2
1530835 Sc	bil	15	40	0.94	291	0.020	1	1.65	0.022	0.05	0.1	0.04	6.7	<0.1	<0.05	5	0.8	<0.2
1530832 Sc	bil	16	22	0.61	438	0.012	<1	1.55	0.016	0.05	<0.1	0.05	5.4	<0.1	<0.05	4	0.9	<0.2
1530833 Sc	bil	17	23	0.58	411	0.010	1	1.46	0.014	0.04	<0.1	0.05	5.2	<0.1	<0.05	4	0.7	<0.2
1515289 Sc	bil	37	16	0.40	407	0.001	<1	1.36	0.008	0.11	<0.1	0.03	5.5	<0.1	<0.05	4	<0.5	<0.2
1515294 Sc	bil	15	27	0.73	323	0.027	<1	2.12	0.017	0.05	<0.1	0.04	9.3	<0.1	<0.05	6	0.6	<0.2
1515291 Sc	bil	19	31	0.78	401	0.018	<1	2.50	0.019	0.05	<0.1	0.04	9.6	<0.1	<0.05	7	0.5	<0.2
1515292 Sc	bil	22	14	0.76	246	0.005	<1	1.88	0.009	0.07	<0.1	0.01	12.1	<0.1	<0.05	6	<0.5	<0.2
1515290 Sc	bil	19	22	0.50	413	0.009	1	1.82	0.013	0.06	<0.1	0.05	8.6	0.1	<0.05	5	<0.5	<0.2
1495228 Sc	bil	12	26	0.56	220	0.033	<1	1.94	0.012	0.05	0.1	0.02	5.1	<0.1	<0.05	6	<0.5	<0.2
1495230 Sc	bil	21	22	0.47	723	0.010	<1	1.40	0.015	0.06	0.1	0.04	12.1	<0.1	<0.05	4	0.8	<0.2
1495225 Sc	bil	17	24	0.59	260	0.014	1	1.74	0.016	0.05	0.1	0.04	6.8	<0.1	< 0.05	6	0.6	<0.2
1495229 Sc	pil	24	28	0.47	409	0.026	1	2.02	0.020	0.06	<0.1	0.05	10.4	<0.1	< 0.05	6	0.6	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 7 of 10 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1495224 Soil 2.3 18.5 15.5 99 0.1 10.9 10.1 495 3.04 5.4 0.6 6.3 2.1 45 0.2 0.2 0.3 74 0.62 0.085 1495223 Soil 2.8 17.0 12.4 88 0.2 15.5 9.3 592 2.65 3.5 0.6 79 0.4 0.5 63 1.04 0.093 5.3 1.5 0.2 1495232 Soil 1.4 11.4 7.0 56 < 0.1 13.5 326 3.00 5.8 0.4 1.7 1.9 37 <0.1 0.3 0.2 81 0.49 0.065 8.1 1495231 Soil 1.5 15.3 10.9 64 < 0.1 12.6 11.3 522 3.37 9.0 0.6 2.3 2.0 54 0.3 0.3 0.3 80 0.70 0.064 Soil 1.9 22.6 13.1 361 3.54 0.9 52 0.2 0.4 78 0.087 1495227 11.1 60 < 0.1 15.7 7.2 2.8 2.6 0.4 0.64 1.5 8.4 0.6 97 58 0.05 1495226 Soil 16.0 9.6 55 0.1 8.7 438 2.30 3.8 2.7 1.5 0.4 0.2 0.3 1.09 Soil 7.5 22.5 13.6 0.7 0.1 0.072 1539882 0.7 22.1 63 < 0.1 503 3.24 5.1 2.8 2.5 56 0.2 0.3 87 0.77 Soil 0.5 70 0.077 1539880 23.5 11.9 73 0.2 19.9 11.0 623 2.55 3.6 1.1 1.8 1.2 100 0.3 0.3 0.1 1.44 1539879 Soil 0.6 20.2 5.9 59 < 0.1 21.4 9.7 351 2.47 2.9 0.6 0.8 1.2 99 0.1 0.3 0.1 69 1.29 0.086 1539875 Soil 0.5 21.6 5.9 65 0.1 22.8 12.8 522 2.69 3.5 0.8 1.2 1.5 98 0.2 0.2 0.1 74 1.23 0.084 1530837 Soil 0.5 18.6 6.3 59 < 0.1 21.5 9.9 246 2.51 2.4 0.6 0.9 1.6 79 0.2 0.2 < 0.1 70 1.11 0.104 1530843 Soil 0.9 24.2 22.2 98 0.2 28.7 15.5 713 3.63 6.3 0.6 2.4 2.6 57 0.3 0.4 0.2 87 0.82 0.092

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.

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Bureau Veritas	Commodities Canada Ltd									Repor	t Date:	August 25, 20	)17			
9050 Shaughn PHONE (604) 2	essy St Vancouver British 253-3158	Columbia Ve	6E5 Car	ada						Page:		7 of 10			Part:	2 of 2
CERTIF	ICATE OF AN	ALYSIS	6										WHI17	700056	63.1	
	Method	AQ201 AQ201	AQ201 AQ	201 AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201 AQ201	AQ201 AQ201	AQ201		

	Analyte	La	Cr	Mg	Ва	Ті	в	AI	Na	к	w	Hg	Sc	ті	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
1495224 Soil		14	24	0.62	230	0.016	<1	1.75	0.017	0.06	0.1	0.04	6.4	<0.1	<0.05	6	<0.5	<0.2
1495223 Soil		17	30	0.55	328	0.007	<1	1.41	0.015	0.05	<0.1	0.05	6.8	<0.1	<0.05	5	0.6	<0.2
1495232 Soil		10	25	0.54	183	0.036	<1	1.76	0.017	0.09	0.1	0.02	5.2	<0.1	<0.05	6	<0.5	<0.2
1495231 Soil		13	24	0.50	233	0.022	1	1.41	0.018	0.07	0.2	0.02	7.5	<0.1	<0.05	4	<0.5	<0.2
1495227 Soil		20	24	0.44	264	0.017	<1	1.28	0.013	0.05	0.1	0.04	8.4	<0.1	<0.05	4	<0.5	<0.2
1495226 Soil		13	18	0.48	334	0.009	<1	1.54	0.017	0.05	<0.1	0.03	5.7	<0.1	<0.05	5	<0.5	<0.2
1539882 Soil		18	55	0.93	252	0.053	2	2.04	0.023	0.05	<0.1	0.04	8.8	<0.1	<0.05	6	0.6	<0.2
1539880 Soil		18	51	0.90	297	0.025	1	1.96	0.021	0.04	<0.1	0.04	8.0	<0.1	<0.05	6	<0.5	<0.2
1539879 Soil		18	44	0.78	263	0.019	1	1.84	0.019	0.04	<0.1	0.04	7.8	<0.1	<0.05	6	<0.5	<0.2
1539875 Soil		18	53	0.97	303	0.037	1	1.94	0.027	0.04	<0.1	0.04	7.7	<0.1	<0.05	6	0.6	<0.2
1530837 Soil		18	41	0.68	260	0.014	1	1.83	0.016	0.05	<0.1	0.03	8.1	<0.1	<0.05	6	0.7	<0.2
1530843 Soil		20	61	1.23	355	0.035	1	2.34	0.023	0.06	<0.1	0.04	8.6	<0.1	<0.05	7	<0.5	<0.2
1530844 Soil		19	54	0.96	257	0.040	1	2.00	0.024	0.05	<0.1	0.04	10.7	<0.1	<0.05	6	<0.5	<0.2
1530840 Soil		20	39	0.98	270	0.027	1	2.11	0.016	0.04	<0.1	0.03	8.7	<0.1	<0.05	7	<0.5	<0.2
1530841 Soil		21	41	0.70	314	0.018	<1	2.03	0.016	0.04	0.1	0.05	7.3	<0.1	<0.05	6	<0.5	<0.2
1530839 Soil		22	44	0.81	307	0.022	2	2.04	0.020	0.05	<0.1	0.06	9.4	<0.1	<0.05	6	0.5	<0.2
1516834 Soil		17	33	0.90	297	0.024	2	1.91	0.027	0.05	<0.1	0.04	6.6	<0.1	<0.05	6	<0.5	<0.2
1516822 Soil		21	48	1.46	171	0.044	<1	2.45	0.028	0.06	<0.1	0.02	9.5	<0.1	<0.05	8	<0.5	<0.2
1530842 Soil		26	52	1.04	440	0.020	<1	2.33	0.020	0.05	<0.1	0.04	8.1	<0.1	<0.05	7	0.7	<0.2
1516803 Soil		21	6	1.20	417	0.004	<1	1.68	0.010	0.21	<0.1	<0.01	6.9	<0.1	<0.05	5	<0.5	<0.2
1516824 Soil		21	39	1.42	159	0.143	<1	2.59	0.031	0.05	0.1	0.01	8.8	<0.1	<0.05	9	<0.5	<0.2
1516835 Soil		19	36	0.80	346	0.013	1	1.89	0.019	0.07	<0.1	0.03	7.1	<0.1	<0.05	6	<0.5	<0.2
1530838 Soil		23	42	0.78	257	0.022	1	1.95	0.019	0.05	0.1	0.03	9.6	<0.1	<0.05	6	<0.5	<0.2
1516826 Soil		16	49	1.81	115	0.083	2	2.94	0.041	0.04	<0.1	0.02	8.8	<0.1	<0.05	8	<0.5	<0.2
1516825 Soil		23	28	1.11	172	0.104	<1	2.24	0.026	0.05	0.1	0.03	7.4	<0.1	<0.05	7	<0.5	<0.2
1516827 Soil		14	30	0.93	211	0.044	<1	1.97	0.024	0.05	<0.1	0.03	7.3	<0.1	<0.05	6	<0.5	<0.2
1516823 Soil		25	30	1.50	130	0.069	2	2.66	0.018	0.04	<0.1	0.02	8.4	<0.1	<0.05	9	<0.5	<0.2
1516807 Soil		16	32	0.93	275	0.050	1	2.38	0.031	0.06	<0.1	0.03	7.0	<0.1	<0.05	7	<0.5	<0.2
1516821 Soil		17	39	1.10	170	0.056	1	2.26	0.026	0.07	<0.1	0.03	9.2	<0.1	<0.05	7	<0.5	<0.2
1539860 Soil		16	23	0.74	288	0.020	<1	1.89	0.019	0.05	<0.1	0.06	7.7	<0.1	<0.05	6	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 Page: 8 of 10 Part: 1 of 2 CERTIFICATE OF ANALYSIS WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As υ Au Th Sr Cd Sb Bi ν Ca Ρ Unit % ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.1 0.1 0.01 0.5 0.1 0.5 0.1 1 0.1 0.1 2 0.01 0.001 0.1 0.1 1 0.1 0.1 1 0.1 2.54 1539862 Soil 0.7 18.3 8.4 58 0.1 13.8 10.1 450 4.0 0.9 1.7 1.4 90 0.2 0.3 0.1 67 1.17 0.081 1539863 Soil 0.6 20.9 6.3 58 < 0.1 14.9 13.0 630 3.18 4.0 0.9 1.0 1.3 92 0.2 0.3 0.1 81 1.42 0.089 1539867 Soil 1.4 20.9 28.6 77 0.2 15.7 11.5 804 3.10 4.6 1.0 2.1 1.8 83 0.4 0.3 0.1 65 1.10 0.088 12.6 70 0.2 0.092 1539868 Soil 1.5 24.8 20.9 74 0.1 15.2 662 3.48 6.5 0.8 2.0 1.6 0.2 0.3 71 1.20 Soil 1.1 19.9 30.0 74 0.2 13.3 10.3 617 2.58 4.8 0.9 6.2 1.6 85 0.3 0.2 59 1.18 0.080 1539869 0.3 Soil 0.6 7.5 11.5 482 3.31 4.0 0.6 72 0.2 0.1 89 0.073 1539865 17.5 62 < 0.1 15.6 1.1 1.6 0.2 1.16 1539876 Soil 0.5 27.6 8.3 67 26.3 12.7 0.7 1.8 97 <0.1 0.079 0.1 583 2.67 3.2 0.8 0.6 0.2 67 1.98 Soil 0.6 122.7 270.6 658 1.2 28.7 4.08 0.8 21.5 0.7 106 1539872 18.2 617 4.0 2.0 87 8.4 0.4 1.11 0.087 0.077 1539873 Soil 0.6 34.7 34.4 74 0.2 19.6 11.3 562 2.65 3.7 0.9 3.3 1.0 85 0.4 0.3 0.1 70 1.64 1539866 Soil 1.3 17.5 31.5 135 0.1 13.7 10.3 590 3.14 4.7 0.6 1.2 1.6 87 0.8 0.3 < 0.1 90 1.21 0.084 1539870 Soil 0.8 21.8 11.2 60 < 0.1 14.1 11.7 587 2.97 3.7 1.1 1.1 1.4 87 0.2 0.3 0.1 69 1.43 0.077

1534918	Soil	0.8	15.2	9.1	52	<0.1	16.5	7.6	274	2.54	7.5	0.6	1.4	3.8	24	<0.1	0.4	0.1	68	0.18	0.01
1534929	Soil	1.3	17.3	9.5	52	0.2	19.9	10.7	268	3.16	9.2	0.5	1.2	2.8	25	<0.1	0.4	0.2	75	0.25	0.020
1534920	Soil	1.9	14.3	10.7	52	0.2	14.6	7.5	409	2.91	7.3	0.5	0.7	1.5	25	0.2	0.4	0.2	78	0.21	0.033
1534927	Soil	0.9	12.1	8.7	53	0.1	14.1	8.8	404	2.80	6.2	0.7	1.0	2.6	31	0.1	0.3	0.2	78	0.35	0.024
1534917	Soil	1.0	13.7	7.9	54	0.2	15.5	8.7	305	2.91	6.8	0.5	0.8	1.7	34	0.1	0.4	0.2	84	0.37	0.028
1539864	Soil	1.0	17.0	7.8	59	<0.1	21.0	12.7	488	3.10	5.9	0.5	7.2	2.1	71	0.2	0.3	0.1	87	0.90	0.047
1539858	Soil	0.7	16.0	7.2	65	<0.1	12.2	8.2	306	2.68	3.7	0.7	0.8	1.2	76	0.2	0.3	<0.1	68	1.24	0.09
1539856	Soil	0.8	14.9	8.7	57	0.1	13.9	10.1	534	2.68	5.1	0.7	4.7	1.9	61	0.2	0.3	0.1	70	0.91	0.052
1539854	Soil	1.0	12.1	8.4	51	<0.1	16.5	8.1	257	3.06	7.6	0.4	<0.5	1.7	22	<0.1	0.4	0.2	74	0.25	0.03
1539853	Soil	0.7	16.4	8.0	68	0.1	11.0	10.5	767	3.16	3.4	0.7	2.0	1.7	78	0.2	0.3	<0.1	77	1.23	0.112
1539857	Soil	0.9	18.0	8.1	52	0.1	13.2	9.0	420	2.81	5.4	0.9	0.7	2.3	55	0.2	0.3	0.2	79	0.69	0.039
1539855	Soil	0.7	14.9	8.1	56	0.1	11.2	8.3	564	2.18	3.5	0.7	1.1	1.1	90	0.4	0.3	0.1	50	1.46	0.082
1539851	Soil	0.9	17.7	9.4	40	0.3	11.2	6.7	738	1.81	4.9	1.5	7.6	0.6	210	0.3	0.4	<0.1	27	2.45	0.083
1539859	Soil	0.8	16.5	8.7	70	<0.1	14.0	12.7	543	3.25	4.1	0.8	1.4	1.8	77	0.2	0.3	0.2	95	1.21	0.089
1539861	Soil	0.7	12.6	7.2	62	<0.1	11.1	10.0	444	2.73	3.4	0.7	0.7	1.7	76	0.2	0.2	0.1	71	1.09	0.072
1539852	Soil	0.8	11.8	5.5	54	<0.1	9.8	7.7	625	2.06	3.4	0.4	0.8	1.1	110	0.4	0.2	<0.1	48	1.77	0.08
1495211	Soil	0.9	22.7	10.3	56	0.1	16.8	13.0	597	3.08	6.6	0.9	3.2	2.2	71	0.1	0.4	0.1	81	1.12	0.073

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.

1539871

1534930

Soil

Soil

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Bureau Veritas	Commodities Canada Lto	ł.									Repor	t Date:	Augus	st 25, 20	17				
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CERTIF	ICATE OF AN	IALYS	IS												W	HI17	7000	563.1	
	Method	AQ201 AQ	201 AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201		

	Analyte	La	Cr	Mg	Ва	Ті	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
1539862	Soil	18	25	0.72	361	0.018	2	1.92	0.016	0.04	<0.1	0.04	6.9	<0.1	0.10	6	<0.5	<0.2
1539863	Soil	18	33	1.03	259	0.030	2	2.02	0.018	0.04	<0.1	0.04	7.4	<0.1	0.10	6	0.6	<0.2
1539867	Soil	22	23	0.58	321	0.011	2	1.64	0.015	0.06	<0.1	0.05	7.1	<0.1	0.06	5	<0.5	<0.2
1539868	Soil	22	24	0.58	387	0.009	1	1.60	0.016	0.06	<0.1	0.04	8.0	<0.1	0.06	5	0.5	<0.2
1539869	Soil	16	20	0.51	322	0.014	2	1.50	0.017	0.05	<0.1	0.05	5.6	<0.1	0.09	4	<0.5	<0.2
1539865	Soil	15	36	0.96	277	0.020	1	1.94	0.018	0.04	<0.1	0.03	8.9	<0.1	0.07	6	<0.5	<0.2
1539876	Soil	16	72	1.20	218	0.019	2	1.89	0.015	0.04	<0.1	0.06	7.8	<0.1	0.10	6	0.5	<0.2
1539872	Soil	20	73	1.59	368	0.069	1	2.44	0.037	0.05	<0.1	0.03	10.4	<0.1	<0.05	8	<0.5	<0.2
1539873	Soil	16	46	0.92	267	0.019	2	1.81	0.017	0.04	<0.1	0.05	7.0	<0.1	0.11	5	<0.5	<0.2
1539866	Soil	14	23	0.65	369	0.019	1	1.81	0.023	0.05	<0.1	0.04	8.1	<0.1	0.06	6	<0.5	<0.2
1539870	Soil	21	26	0.66	421	0.010	1	1.74	0.016	0.05	<0.1	0.06	7.7	<0.1	0.08	5	<0.5	<0.2
1539871	Soil	21	48	0.88	363	0.023	1	1.82	0.018	0.04	<0.1	0.04	9.7	<0.1	0.07	6	0.7	<0.2
1534930	Soil	9	34	0.71	298	0.026	<1	3.04	0.010	0.04	<0.1	0.01	5.3	0.1	<0.05	8	0.5	<0.2
1534918	Soil	14	31	0.56	206	0.050	<1	2.07	0.010	0.03	<0.1	0.02	4.0	<0.1	<0.05	6	<0.5	<0.2
1534929	Soil	11	30	0.54	295	0.026	<1	2.44	0.010	0.04	<0.1	0.01	4.3	0.1	<0.05	6	<0.5	<0.2
1534920	Soil	10	28	0.44	217	0.041	<1	2.00	0.014	0.05	0.1	0.01	3.1	0.1	<0.05	8	<0.5	<0.2
1534927	Soil	13	28	0.57	285	0.029	<1	1.93	0.012	0.03	<0.1	<0.01	5.2	0.1	<0.05	7	<0.5	<0.2
1534917	Soil	15	29	0.67	251	0.041	1	2.22	0.012	0.03	0.1	0.02	4.8	<0.1	<0.05	8	<0.5	<0.2
1539864	Soil	11	45	0.91	232	0.055	1	2.06	0.027	0.05	<0.1	0.02	6.0	<0.1	<0.05	7	<0.5	<0.2
1539858	Soil	16	22	0.72	293	0.021	1	1.92	0.019	0.04	0.1	0.04	6.0	<0.1	0.11	6	0.5	<0.2
1539856	Soil	14	25	0.63	296	0.027	<1	2.00	0.019	0.04	<0.1	0.04	5.4	<0.1	<0.05	6	<0.5	<0.2
1539854	Soil	11	27	0.57	169	0.043	<1	2.26	0.010	0.05	0.2	0.03	3.9	<0.1	<0.05	7	<0.5	<0.2
1539853	Soil	25	17	0.92	307	0.013	<1	2.27	0.021	0.05	<0.1	0.04	9.1	<0.1	0.06	6	0.5	<0.2
1539857	Soil	16	27	0.58	343	0.041	1	2.17	0.019	0.04	0.1	0.04	6.2	<0.1	<0.05	7	<0.5	<0.2
1539855	Soil	18	19	0.58	307	0.013	1	1.73	0.016	0.04	<0.1	0.05	5.4	<0.1	0.09	5	<0.5	<0.2
1539851	Soil	29	13	0.36	417	0.005	1	1.05	0.011	0.05	<0.1	0.07	3.6	<0.1	0.17	2	0.8	<0.2
1539859	Soil	18	26	0.89	288	0.023	1	2.07	0.023	0.06	<0.1	0.04	9.1	<0.1	<0.05	7	<0.5	<0.2
1539861	Soil	14	22	0.69	289	0.017	1	1.86	0.016	0.06	<0.1	0.05	7.0	<0.1	<0.05	6	<0.5	<0.2
1539852	Soil	14	16	0.60	241	0.015	1	1.30	0.015	0.04	0.1	0.04	4.8	<0.1	0.11	4	<0.5	<0.2
1495211	Soil	17	28	0.76	373	0.027	1	2.03	0.019	0.04	0.1	0.03	7.3	<0.1	0.08	7	0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 9 of 10 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1495209 Soil 1.4 18.8 11.4 66 <0.1 21.0 11.9 497 3.31 8.5 0.9 1.5 3.9 50 0.1 0.5 0.2 86 0.65 0.053 1539874 Soil 0.5 22.6 7.0 0.1 23.1 11.9 498 2.76 3.9 1.0 3.1 111 0.2 0.1 69 1.44 0.097 65 1.4 0.3 1495210 Soil 0.7 30.3 7.3 55 0.3 20.1 11.3 731 2.80 5.9 1.2 2.2 1.8 97 0.5 0.6 0.2 62 1.68 0.097 1495208 Soil 0.9 16.8 9.6 60 < 0.1 19.7 12.3 532 2.97 7.4 0.8 1.3 3.4 48 0.2 0.5 0.2 77 0.63 0.044 Soil 1.1 22.2 10.0 0.2 11.2 0.9 42 0.2 0.2 89 0.037 1495205 61 19.2 661 3.39 6.3 1.1 1.6 0.4 0.40 0.5 0.6 72 <0.1 66 0.082 1539878 Soil 16.0 5.9 62 <0.1 19.2 9.7 265 2.38 2.7 2.3 1.5 0.2 0.2 1.05 Soil 0.7 29 0.2 0.020 1495204 1.1 16.9 10.9 53 0.2 19.9 8.9 291 2.90 8.2 1.8 3.3 0.2 0.4 82 0.22 Soil 1.4 0.2 90 1495202 17.8 11.7 63 0.2 20.0 11.4 628 3.59 7.7 0.7 1.0 2.7 34 0.2 0.5 0.25 0.032 1495207 Soil 0.9 21.0 9.7 56 < 0.1 21.0 10.2 428 2.94 6.9 1.0 2.2 3.4 44 0.2 0.4 0.2 74 0.49 0.035

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9050 Shaughn PHONE (604) 2	essy St Vancouver British 253-3158	Columbia V6I	P 6E5 Canada	1						Page:	9 of <sup>2</sup>	10				Part:	2 of 2
CERTIF	ICATE OF AN	ALYSIS											Wł	4117	0005	63.1	
	Method	AQ201 AQ201	AQ201 AQ201	AQ201	AQ201 4	0201	AQ201	AQ201	AQ201	AQ201 AQ20 <sup>2</sup>	AQ201	AQ201	AQ201	AQ201	AQ201		

		70201	AQLUI	AQ201	AQ201	AQZUI	AQZUI	AQLUI	AQLUI	AQLUI	AQLUI	AQLUI	AQ201	AQZUI	AQZUI	AQ201	AQZUI	79201
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	ĸ	w	Hg	Sc	ті	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
1495209 So	bil	15	37	0.66	351	0.047	<1	2.31	0.019	0.05	0.1	0.02	6.1	<0.1	<0.05	7	<0.5	<0.2
1539874 So	bil	18	54	1.03	338	0.035	2	2.09	0.027	0.04	<0.1	0.05	7.4	<0.1	0.09	6	<0.5	<0.2
1495210 So	bil	26	27	0.51	476	0.023	1	1.94	0.020	0.05	0.1	0.05	7.7	<0.1	0.07	5	0.5	<0.2
1495208 So	bil	13	34	0.66	348	0.052	<1	1.98	0.017	0.04	0.1	0.01	5.2	<0.1	<0.05	6	<0.5	<0.2
1495205 So	bil	20	34	0.81	333	0.039	<1	2.67	0.015	0.05	0.1	0.03	6.4	<0.1	<0.05	8	<0.5	<0.2
1539878 So	bil	16	39	0.90	232	0.026	1	1.77	0.019	0.04	<0.1	0.04	7.0	<0.1	<0.05	6	<0.5	<0.2
1495204 So	bil	15	36	0.57	258	0.081	2	2.39	0.013	0.04	0.1	0.02	4.2	0.1	<0.05	8	<0.5	<0.2
1495202 So	bil	14	38	0.73	305	0.059	2	3.00	0.017	0.05	<0.1	0.02	5.4	0.1	<0.05	9	<0.5	<0.2
1495207 So	bil	17	36	0.66	325	0.060	2	2.36	0.017	0.04	0.1	0.03	6.0	0.1	<0.05	6	0.5	<0.2
1539881 So	bil	21	49	0.90	356	0.038	2	2.09	0.025	0.04	0.1	0.04	8.6	<0.1	0.06	7	<0.5	<0.2
1495206 So	bil	15	36	0.69	242	0.071	1	2.27	0.017	0.04	0.1	0.02	5.4	0.1	<0.05	6	<0.5	<0.2
1495203 So	bil	21	35	0.76	183	0.032	1	2.48	0.023	0.07	0.1	0.03	9.2	<0.1	<0.05	7	<0.5	0.5
1495201 So	bil	14	33	0.74	254	0.059	1	2.58	0.016	0.04	<0.1	0.02	5.0	0.1	<0.05	7	<0.5	<0.2
1539877 So	bil	18	30	0.57	350	0.044	3	1.78	0.025	0.07	<0.1	0.04	6.4	<0.1	0.09	5	<0.5	<0.2
1534926 So	bil	14	33	0.80	335	0.051	1	2.74	0.015	0.04	<0.1	0.02	5.9	<0.1	<0.05	8	<0.5	<0.2
1495219 So	bil	18	28	0.55	352	0.044	1	1.62	0.026	0.08	0.2	0.04	5.6	<0.1	0.08	5	0.6	<0.2
1495212 So	bil	22	26	0.82	364	0.023	2	2.03	0.020	0.10	<0.1	0.04	8.7	<0.1	0.08	6	0.7	<0.2
1495216 So	bil	22	32	0.65	394	0.055	2	1.91	0.028	0.07	0.2	0.04	7.3	<0.1	<0.05	6	<0.5	<0.2
1534928 So	bil	12	28	0.53	330	0.034	1	2.14	0.016	0.08	<0.1	0.01	4.5	0.1	<0.05	7	<0.5	<0.2
1495214 So	bil	16	35	0.61	276	0.065	2	2.10	0.020	0.07	0.1	0.03	5.4	0.1	<0.05	6	<0.5	<0.2
1495220 So	bil	17	27	0.63	270	0.034	1	1.69	0.023	0.06	0.1	0.04	6.2	<0.1	0.09	5	<0.5	<0.2
1495221 So	bil	29	25	0.44	633	0.015	1	1.49	0.016	0.06	<0.1	0.11	6.8	0.1	0.12	4	0.6	<0.2
1534933 So	pil	26	18	0.72	445	0.003	<1	1.94	0.011	0.15	<0.1	0.03	15.7	0.1	<0.05	6	<0.5	<0.2
1534919 So	bil	13	32	0.74	227	0.044	<1	2.69	0.015	0.04	<0.1	0.02	6.0	0.1	<0.05	9	<0.5	<0.2
1495217 So	pil	17	31	0.62	349	0.071	2	1.66	0.032	0.06	0.1	0.04	5.1	<0.1	0.07	5	<0.5	<0.2
1495213 So	bil	21	39	0.67	404	0.062	2	2.54	0.029	0.08	0.1	0.05	8.0	0.1	<0.05	7	<0.5	<0.2
1534931 So	bil	27	34	1.69	486	0.005	<1	3.41	0.009	0.07	<0.1	0.01	13.1	<0.1	<0.05	11	<0.5	<0.2
1495215 So	bil	23	28	0.63	397	0.030	2	2.02	0.021	0.09	<0.1	0.04	10.8	<0.1	<0.05	5	<0.5	<0.2
1495222 So	bil	22	20	0.52	364	0.011	2	1.95	0.020	0.09	<0.1	0.05	8.6	0.1	0.11	6	0.7	<0.2
1495218 So	bil	18	30	0.61	410	0.062	2	1.81	0.029	0.07	0.2	0.03	5.6	<0.1	< 0.05	5	<0.5	<0.2

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BUREAU VERITAS	<b>MINERAL LAB</b> Canada	ORATOR	IES		www	bureau	uverita	s.com/ı	um				Proje	ct:	тоо							
Bureau Veritas	Commodities C	anada Lt	d.										Repo	rt Date:	Augu	ust 25, 20	17					
9050 Shaughn PHONE (604) 2	essy St Vancou 253-3158	iver Britis	h Colurr	nbia V6	P 6E5 (	Canada							Page	:	10 of	f 10				Pa	art: 1	of 2
CERTIF	FICATE C	)F AN	IALY	′SIS													W	HI17	7000	563	.1	
		Method	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Analyte	Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	v	Ca	Р
		Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	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	0.1	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
1534945	Soil		3.3	14.0	11.8	87	<0.1	13.4	8.6	290	3.01	6.3	0.5	1.6	2.1	50	0.2	0.2	0.2	82	0.60	0.061
1534944	Soil		2.0	19.7	12.8	117	0.1	12.7	15.2	1061	3.29	6.8	0.6	2.7	2.0	63	0.5	0.3	0.2	79	0.76	0.101
1534937	Soil		0.9	21.5	9.4	70	<0.1	20.1	12.8	683	3.46	5.9	0.8	1.9	3.5	51	0.2	0.6	0.2	88	0.75	0.070

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1.1

24.7

11.3

21.2

30.2

11.5

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27.6

19.6

13.5

			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada	3	
B U R E A U VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	ТОО		
Bureau Veritas	s Commodities Canada Ltd.		Report Date:	August 25, 2017		
9050 Shaughn	essy St Vancouver British Colu	umbia V6P 6E5 Canada				
PHONE (604)	253-3158		Page:	10 of 10	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI17	000563.1	

		Method	AQ201	AQ201	AQ201	AQ201													
		Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	ті	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
1534945	Soil		16	26	0.55	220	0.031	1	2.01	0.023	0.07	0.1	0.03	5.5	<0.1	<0.05	6	<0.5	<0.2
1534944	Soil		19	24	0.66	273	0.022	1	1.93	0.027	0.08	<0.1	0.03	8.9	<0.1	<0.05	6	<0.5	<0.2
1534937	Soil		21	34	0.80	343	0.061	1	2.11	0.028	0.06	0.1	0.04	7.3	<0.1	<0.05	6	0.6	<0.2
1534941	Soil		26	36	0.73	382	0.067	2	2.06	0.031	0.07	0.1	0.04	8.1	<0.1	0.05	6	0.5	<0.2
1534932	Soil		25	23	1.41	496	0.003	<1	2.83	0.010	0.11	<0.1	0.03	14.0	<0.1	<0.05	9	<0.5	<0.2
1534935	Soil		19	35	0.78	361	0.038	<1	2.55	0.020	0.08	<0.1	0.04	8.6	0.1	<0.05	7	<0.5	<0.2
1534939	Soil		21	35	0.81	354	0.060	2	2.16	0.033	0.07	0.1	0.03	7.8	<0.1	<0.05	6	<0.5	<0.2
1534936	Soil		10	25	0.46	158	0.073	<1	1.53	0.017	0.07	0.1	0.02	3.2	<0.1	<0.05	6	<0.5	<0.2
1534943	Soil		20	27	0.75	427	0.065	2	1.34	0.035	0.07	0.1	0.03	5.2	<0.1	0.07	4	<0.5	<0.2
1534938	Soil		23	32	0.68	394	0.050	1	2.38	0.026	0.07	<0.1	0.04	8.1	0.1	<0.05	7	<0.5	<0.2
1534940	Soil		25	31	0.61	364	0.059	1	1.72	0.029	0.09	0.1	0.03	6.8	<0.1	< 0.05	5	<0.5	<0.2
1534934	Soil		17	29	0.92	332	0.018	<1	2.48	0.012	0.08	<0.1	0.02	8.3	0.1	<0.05	8	<0.5	<0.2
1534942	Soil		15	37	1.04	199	0.107	1	1.78	0.047	0.06	<0.1	0.02	6.4	<0.1	<0.05	5	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um VERITAS Canada Project: TOO Report Date: August 25, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 1 of 2 1 of 2 Page: Part: QUALITY CONTROL REPORT WHI17000563.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Са Unit % ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % 0.1 1 0.01 0.5 0.1 2 0.01 0.001 MDL 0.1 0.1 0.1 1 0.1 0.1 0.5 0.1 1 0.1 0.1 0.1 **Pulp Duplicates** Soil 10.5 580 3.17 0.6 <0.5 30 0.1 0.5 90 0.27 0.027 1497380 1.3 15.1 57 <0.1 19.6 10.5 9.1 3.9 0.2 REP 1497380 QC 1.2 10.2 54 3.15 <0.1 0.5 0.027 14.8 < 0.1 19.7 10.7 550 8.4 0.5 2.6 3.8 29 0.2 91 0.27 Soil 1.1 51 666 2.60 1.0 0.6 101 0.4 0.2 67 0.074 1515760 20.5 5.9 < 0.1 14.7 9.3 4.5 0.8 0.2 1.05 REP 1515760 QC 0.9 20.6 51 <0.1 15.1 2.57 103 0.4 0.2 0.077 5.9 9.1 658 4.6 1.1 0.8 0.8 0.2 63 1.04 1515298 Soil 0.5 19.1 7.5 57 0.1 15.0 10.2 575 2.77 3.7 0.9 2.7 1.6 85 0.2 0.4 0.2 81 1.52 0.068 REP 1515298 OC 0.5 19.4 7.9 60 < 0.1 15.3 10.6 590 2 91 5.4 0.9 3.7 1.9 88 <0.1 0.4 0.2 93 1.54 0.071 1516830 Soil 0.5 26.5 6.6 62 < 0.1 21.2 14.3 625 3.67 5.2 1.2 2.1 2.5 72 <0.1 0.2 0.2 94 0.97 0.071 REP 1516830 QC 0.5 25.5 6.7 59 <0.1 20.8 13.7 632 3.56 4.7 1.2 2.6 2.5 72 <0.1 0.2 0.2 99 0.97 0.068 1530828 Soil 0.4 19.9 16.3 62 0.1 14.8 9.2 468 2.55 2.9 0.7 1.7 0.8 101 0.4 0.3 0.2 67 1.56 0.075 REP 1530828 QC 0.4 22.0 16.5 65 0.1 15.4 10.0 493 2.64 3.8 0.7 <0.5 1.1 102 0.3 0.3 0.3 74 1.60 0.078 1495230 Soil 1.6 24.6 7.0 50 0.1 15.1 13.7 1008 3.32 6.8 0.9 2.5 1.8 87 0.3 0.3 0.3 80 1.08 0.078 REP 1495230 QC 1.7 25.2 6.6 15.2 1022 3.24 1.7 1.7 87 0.3 0.2 0.073 49 0.1 14.0 6.2 0.8 0.2 79 1.04 1539868 Soil 1.5 24.8 20.9 74 0.1 15.2 12.6 662 3 4 8 6.5 08 2.0 1.6 70 0.2 0.3 0.2 71 1.20 0.092 REP 1539868 QC 1.5 677 0.3 0.100 25.3 20.5 70 0.1 15.3 12.3 3.43 6.4 0.8 1.5 1.7 68 0.2 0.2 75 1.14 1539881 Soil 0.7 30.7 89.5 102 0.2 24.2 13.5 988 2.88 4.6 0.9 3.6 2.0 95 0.8 0.4 0.1 78 1.15 0.093 REP 1539881 QC 0.8 29.8 90.6 102 0.2 25.5 13.7 970 3.02 4.5 0.9 1.2 2.0 96 0.8 0.4 0.1 81 1.13 0.093 **Reference Materials** STD DS11 15.1 157.9 135.0 349 1.6 83.4 1033 3.28 40.8 72.7 7.7 73 10.8 60 0.070 Standard 14.9 2.6 2.3 8.5 1.06 STD DS11 Standard 13.5 150.4 132.8 344 1.6 78.5 1014 2.5 67.2 63 2.3 9.2 52 0.94 0.070 14.1 3.12 43.9 7.6 11.7 STD DS11 Standard 14.1 156.4 137.0 318 1.6 76.5 13.8 998 3 02 419 2.7 68.5 7.7 2.4 89 126 0.94 0.071 62 47 143.8 1.7 1037 2.7 0.071 STD DS11 Standard 13.5 164.8 352 80.9 14.5 3.23 42.3 58.6 7.5 64 2.4 9.6 13.0 49 1.00 STD DS11 14.5 156.3 141.1 345 1.6 84.1 13.9 1054 3.11 43.0 2.8 62.4 8.3 70 2.4 8.5 12.3 56 1.06 0.073 Standard STD DS11 Standard 15.2 146.9 136.3 333 1.6 77.2 13.6 1008 3.06 42.5 2.5 92.2 8.0 63 2.3 8.5 11.0 53 0.99 0.070 STD DS11 Standard 14.5 136.2 1.6 1037 3.14 2.5 73.6 7.5 61 2.3 9.0 11.0 57 0.070 153.1 349 80.5 14.3 42.3 1.01 STD DS11 Standard 14.4 149.6 134.6 343 1.6 79.2 3.11 43.0 73.2 7.4 64 2.4 9.0 11.0 0.067 14.1 1037 2.5 55 1.04 STD DS11 153.0 134.7 341 1.6 80.3 14.0 1016 3.21 40.9 2.8 67.0 8.4 71 2.2 8.2 11.4 54 1.05 0.068 Standard 15.6 0.068 STD DS11 Standard 13.8 146.3 129.0 317 1.7 77.0 13.5 942 2.95 42.7 2.5 72.7 7.3 62 2.3 8.2 11.1 49 1.01 0.103 29.1 6.1 46 < 0.1 84.3 22.3 454 3.23 0.7 199.3 1.8 210 <0.1 <0.1 < 0.1 62 0.85 STD OXC129 Standard 1.4 1.0

AL LAS			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada					
BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project: TOO Report Date: August 25, 2017						
Bureau Veritas	Commodities Canada Ltd.								
050 Shaughn	essy St Vancouver British Columbia V6	P 6E5 Canada							
PHONE (604) 2	253-3158		Page:	1 of 2	Part:	2 of 2			
QUALIT	Y CONTROL REPOR	Т		WHI170	000563.1				

	Method	AQ201																
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	ті	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																		
1497380	Soil	13	42	0.58	304	0.075	1	2.88	0.014	0.06	0.1	0.02	4.3	0.2	<0.05	8	0.7	<0.2
REP 1497380	QC	12	41	0.56	292	0.075	1	2.84	0.014	0.06	0.1	0.02	4.4	0.2	<0.05	7	<0.5	<0.2
1515760	Soil	19	25	0.54	354	0.023	2	2.14	0.018	0.06	<0.1	0.07	7.0	<0.1	0.10	6	0.5	<0.2
REP 1515760	QC	19	24	0.53	360	0.022	2	2.05	0.019	0.06	0.1	0.06	7.1	<0.1	0.10	6	<0.5	<0.2
1515298	Soil	16	25	0.72	410	0.028	2	1.98	0.024	0.07	<0.1	0.04	8.3	<0.1	<0.05	6	0.6	<0.2
REP 1515298	QC	17	26	0.72	425	0.040	5	2.06	0.023	0.08	0.1	0.04	8.5	<0.1	<0.05	6	1.3	<0.2
1516830	Soil	21	49	1.19	254	0.049	1	2.57	0.027	0.04	<0.1	0.04	9.9	<0.1	<0.05	8	0.7	<0.2
REP 1516830	QC	21	51	1.18	267	0.052	1	2.51	0.025	0.04	<0.1	0.04	10.0	<0.1	<0.05	7	<0.5	<0.2
1530828	Soil	16	27	0.76	287	0.017	<1	1.66	0.015	0.05	<0.1	0.04	6.3	<0.1	<0.05	5	0.6	<0.2
REP 1530828	QC	17	28	0.79	291	0.025	2	1.71	0.016	0.05	0.1	0.05	6.8	<0.1	0.08	5	1.2	<0.2
1495230	Soil	21	22	0.47	723	0.010	<1	1.40	0.015	0.06	0.1	0.04	12.1	<0.1	<0.05	4	0.8	<0.2
REP 1495230	QC	21	21	0.45	711	0.010	<1	1.41	0.016	0.06	<0.1	0.04	11.7	<0.1	<0.05	4	0.7	<0.2
1539868	Soil	22	24	0.58	387	0.009	1	1.60	0.016	0.06	<0.1	0.04	8.0	<0.1	0.06	5	0.5	<0.2
REP 1539868	QC	22	25	0.57	394	0.010	2	1.60	0.016	0.07	<0.1	0.04	7.8	<0.1	0.06	5	<0.5	<0.2
1539881	Soil	21	49	0.90	356	0.038	2	2.09	0.025	0.04	0.1	0.04	8.6	<0.1	0.06	7	<0.5	<0.2
REP 1539881	QC	21	51	0.93	356	0.040	2	2.03	0.026	0.05	<0.1	0.06	8.6	<0.1	0.07	7	0.6	<0.2
Reference Materials																		
STD DS11	Standard	21	64	0.83	369	0.108	8	1.23	0.073	0.40	2.9	0.25	3.9	4.8	0.27	5	2.6	4.6
STD DS11	Standard	18	58	0.82	382	0.090	7	1.07	0.071	0.37	3.4	0.27	3.1	4.8	0.27	5	2.7	4.9
STD DS11	Standard	19	57	0.77	337	0.089	7	1.05	0.062	0.35	2.9	0.27	3.0	4.9	0.28	5	2.5	4.4
STD DS11	Standard	18	60	0.80	361	0.092	7	1.02	0.068	0.37	3.0	0.26	3.1	4.9	0.31	5	2.5	4.7
STD DS11	Standard	21	62	0.84	360	0.103	7	1.15	0.072	0.38	2.8	0.25	3.4	4.7	0.30	5	2.3	4.5
STD DS11	Standard	19	60	0.84	383	0.094	7	1.14	0.070	0.37	3.0	0.27	3.3	4.7	0.25	5	2.4	4.5
STD DS11	Standard	18	60	0.82	365	0.091	7	1.07	0.069	0.37	3.2	0.24	3.1	4.8	0.27	5	1.7	4.2
STD DS11	Standard	18	60	0.82	361	0.091	7	1.10	0.067	0.39	3.1	0.26	3.3	4.9	0.25	5	1.8	4.5
STD DS11	Standard	21	63	0.81	353	0.109	6	1.22	0.064	0.39	3.0	0.25	3.4	4.9	0.28	5	2.5	4.9
STD DS11	Standard	17	57	0.77	341	0.087	6	1.10	0.066	0.40	3.0	0.27	3.0	4.6	0.28	5	2.6	4.3
STD OXC129	Standard	12	60	1.60	53	0.439	2	1.73	0.597	0.35	<0.1	<0.01	1.6	<0.1	<0.05	6	<0.5	<0.2

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BUREAU VERITAS	MINERAL LABORATOR	IES		www	.bureau	veritas	.com/u	m				Project	t:	тоо							
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QUALIT	QUALITY CONTROL REPORT															WF	117	000	563.	1	
		AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.1	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
STD OXC129	Standard	1.2	26.7	5.7	42	<0.1	79.7	20.6	422	3.08	<0.5	0.7	211.4	1.6	189	<0.1	<0.1	<0.1	51	0.63	0.100
STD OXC129	Standard	1.4	28.8	6.4	43	<0.1	83.4	21.3	439	3.12	0.8	0.7	192.4	1.8	180	<0.1	<0.1	<0.1	54	0.73	0.102
STD OXC129	Standard	1.3	27.8	6.2	41	<0.1	83.8	21.9	421	3.07	0.7	0.7	189.7	1.8	172	<0.1	<0.1	<0.1	53	0.61	0.105
STD OXC129	Standard	1.3	31.2	6.6	43	<0.1	88.3	21.1	416	3.29	0.7	0.8	194.3	1.9	202	<0.1	<0.1	<0.1	54	0.77	0.108
STD OXC129	Standard	1.3	26.9	5.9	44	<0.1	82.1	21.0	406	3.08	0.8	0.7	197.0	1.7	187	<0.1	<0.1	<0.1	58	0.68	0.099
STD OXC129	Standard	1.3	28.2	5.9	42	<0.1	80.3	21.5	432	3.16	1.1	0.7	199.5	1.7	187	<0.1	<0.1	0.2	53	0.70	0.097
STD OXC129	Standard	1.2	28.3	6.0	44	<0.1	82.2	21.7	439	3.18	0.6	0.7	209.5	1.7	190	<0.1	<0.1	<0.1	58	0.73	0.098
STD OXC129	Standard	1.4	27.9	6.2	41	<0.1	85.6	22.3	441	3.10	0.9	0.7	198.7	1.8	206	<0.1	<0.1	<0.1	58	0.94	0.100
STD OXC129	Standard	1.4	26.1	6.2	38	<0.1	79.1	20.5	415	3.06	0.5	0.7	203.0	1.8	181	<0.1	<0.1	<0.1	53	0.64	0.097
STD OXC129 E	xpected	1.3	28	6.3	42.9		79.5	20.3	421	3.065	0.6	0.72	195	1.9					51	0.665	0.102
STD DS11 Expe	ected	14.6	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	2.59	79	7.65	67.3	2.37	8.74	12.2	50	1.063	0.0701
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	0	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001
	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	~2	<0.01	<0.001
	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1		<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	~1	<0.1	<0.1	<0.1	~1	0.01	<0.5	<0.1	<0.5	<0.1	~1	<0.1	<0.1	<0.1	7	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	</td <td>&lt;0.01</td> <td>&lt;0.001</td>	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001
	Dialik	-0.1	×0. I	×0.1		-0.1	-0.1	-0.1	1	-0.01	-0.5	×0.1	×0.J	-0.1	- 1	-0.1	·0.1	×0.1	-2	-0.01	-0.001

				Client:	Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada						
BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project: Report Date:	TOO							
Bureau Veritas	Commodities Canada Ltd.			Roport Buto.	August 25, 2017						
9050 Shaughn PHONE (604)	essy St Vancouver British C 253-3158	olumbia V6P 6E5 Canada		Page:	2 of 2	Part:	2 of 2				
QUALIT	Y CONTROL R	EPORT			WHI17000	563.1					
	Α	Q201 AQ201 AQ201 AQ201 AQ201 AQ201 A	Q201 AQ201 AQ201 AQ201	AQ201 AQ201	AQ201 AQ201 AQ201 AQ201 AQ201						

		La	Cr	Mg	Ва	11	в	AI	Na	ĸ	w	Hg	Sc		5	Ga	Se	Ie
		ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		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
STD OXC129	Standard	12	52	1.47	48	0.383	<1	1.44	0.553	0.35	<0.1	<0.01	1.1	<0.1	<0.05	5	<0.5	<0.2
STD OXC129	Standard	13	57	1.61	51	0.417	1	1.51	0.602	0.36	<0.1	<0.01	0.7	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	13	52	1.57	48	0.391	<1	1.43	0.582	0.34	0.1	<0.01	0.8	<0.1	<0.05	5	<0.5	<0.2
STD OXC129	Standard	14	58	1.57	52	0.436	2	1.70	0.641	0.38	<0.1	<0.01	0.9	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	12	54	1.55	51	0.423	2	1.51	0.586	0.35	<0.1	<0.01	1.1	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	12	55	1.54	49	0.412	<1	1.55	0.572	0.34	<0.1	<0.01	1.0	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	13	55	1.52	50	0.414	1	1.51	0.563	0.36	<0.1	<0.01	1.0	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	13	60	1.54	50	0.453	2	1.77	0.568	0.35	0.1	<0.01	1.1	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	12	51	1.51	48	0.400	2	1.54	0.536	0.35	<0.1	<0.01	0.7	<0.1	<0.05	5	<0.5	<0.2
STD OXC129 Expected		13	52	1.545	50	0.4	1	1.58	0.6	0.37			1.1			5.6		
STD DS11 Expected		18.6	61.5	0.85	385	0.0976		1.1795	0.0762	0.4	2.9	0.3	3.4	4.9	0.2835	5.1	1.9	4.56
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
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
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
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
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
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
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
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
BLK	Blank	<1	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	0.2	<0.1	<0.05	<1	<0.5	<0.2
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



MINERAL LABORATORIES Canada

Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158

# CERTIFICATE OF ANALYSIS

#### **CLIENT JOB INFORMATION**

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Procedu Code

DY060

SS80

AQ201 SHP01 Receiving Lab: Received: Report Date:

Jodie Gibson Canada-Whitehorse August 14, 2017 August 26, 2017

# WHI17000576.1

#### TOO Project: TOO-20170810-001-SOIL Shipment ID: P.O. Number Number of Samples: 207

### SAMPLE DISPOSAL

DISP-PLP	Dispose of Pulp After 90 days
DISP-RJT-SOIL	Immediate Disposal of Soil Reject

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

#### Ground Truth Exploration Inc. Invoice To: Box 70 Dawson Yukon Y0B 1G0 Canada

CC:

Isaac Fage Shawn Ryan

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

ıre	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
	207	Dry at 60C			WHI
	207	Dry at 60C sieve 100g to -80 mesh			WHI
	207	1:1:1 Aqua Regia digestion ICP-MS analysis	15	Completed	VAN
	207	Per sample shipping charges for branch shipments			VAN

1 of 8

### **ADDITIONAL COMMENTS**



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. Bureau Veritas 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.

Client:

Submitted By:

Page:

White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 2 of 8 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1521641 Soil 0.8 45.4 10.9 101 0.2 51.0 12.1 634 3.12 8.5 0.4 3.7 3.0 26 0.3 0.6 0.3 52 0.44 0.073 1521631 Soil 1.0 13.7 10.2 80 < 0.1 18.9 1691 5.07 3.4 0.5 2.6 2.7 67 0.1 0.1 124 1.02 0.184 16.8 0.2 1521676 Soil 1.2 15.4 11.4 63 < 0.1 24.3 10.5 525 3.06 7.0 0.6 2.7 2.7 42 0.4 0.2 89 0.35 0.044 0 1 1521645 Soil 0.8 46.1 10.4 96 0.1 50.6 13.3 512 3.22 8.7 0.6 3.7 3.1 27 0.2 0.5 0.2 66 0.41 0.054 Soil 0.7 14.2 9.7 10.1 589 2.93 0.6 56 0.1 69 0.086 1521627 66 < 0.1 19.0 5.4 2.6 2.0 0.1 0.2 0.72 0.9 2.94 0.7 42 0.2 80 0.47 0.038 1521647 Soil 23.7 10.4 68 < 0.1 28.0 11.5 644 7.0 1.8 3.3 0.1 0.4 Soil 2.0 7.8 0.3 0.2 0.045 1521677 9.0 7.5 50 < 0.1 10.4 272 2.90 4.4 1.9 2.1 29 < 0.1 0.2 85 0.29 Soil 1.3 0.2 1521629 12.4 8.1 51 0.1 17.2 8.6 288 3.49 10.8 0.6 2.1 3.3 28 0.2 0.5 94 0.23 0.051

1521681

1521648

1515307

1515308

1515305

1515311

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1515312

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1515306

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1521649

1521634

1521635

1521637

1521628

Soil

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3.01

2.86

3.41

2.65

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2.90

3.13

3.32

2.80

3.38

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			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Can	ada	
BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:			
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 26, 2017		
9050 Shaughne	essy St Vancouver British Colu	mbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	2 of 8	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI1	7000576.1	

	Method	AQ201																
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	ті	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
1521641 Soil		9	40	0.85	164	0.003	4	1.96	0.007	0.11	<0.1	0.08	5.5	<0.1	<0.05	6	<0.5	<0.2
1521631 Soil		33	36	1.67	366	0.007	3	3.44	0.012	0.09	<0.1	0.01	14.6	<0.1	<0.05	11	<0.5	<0.2
1521676 Soil		15	39	0.83	179	0.105	3	2.16	0.022	0.07	0.2	0.02	5.8	<0.1	<0.05	9	<0.5	<0.2
1521645 Soil		11	44	0.76	174	0.011	4	1.95	0.009	0.11	<0.1	0.06	6.5	0.1	<0.05	7	0.6	<0.2
1521627 Soil		19	30	0.68	319	0.019	2	2.17	0.016	0.06	<0.1	0.02	5.9	<0.1	<0.05	7	<0.5	<0.2
1521647 Soil		24	40	0.80	196	0.057	3	1.96	0.019	0.08	<0.1	0.03	7.0	<0.1	<0.05	7	<0.5	<0.2
1521677 Soil		11	23	0.50	148	0.010	2	2.12	0.013	0.09	<0.1	0.02	4.0	0.2	<0.05	8	<0.5	<0.2
1521629 Soil		13	34	0.51	152	0.097	2	3.22	0.012	0.06	0.1	0.04	4.9	0.1	<0.05	8	0.5	<0.2
1521681 Soil		13	20	0.40	236	0.017	2	2.00	0.011	0.08	<0.1	0.01	2.9	0.1	<0.05	7	<0.5	<0.2
1521648 Soil		12	34	0.43	230	0.090	3	2.60	0.011	0.05	0.2	0.02	3.8	0.2	<0.05	8	<0.5	<0.2
1515307 Soil		16	30	0.52	147	0.085	3	2.07	0.012	0.07	0.1	0.02	3.7	0.1	<0.05	7	<0.5	<0.2
1515308 Soil		13	34	0.53	199	0.076	2	2.58	0.013	0.06	0.1	0.03	4.1	0.1	<0.05	6	<0.5	<0.2
1515305 Soil		26	25	0.71	251	0.009	1	2.13	0.011	0.09	<0.1	0.02	3.9	0.1	<0.05	7	<0.5	<0.2
1515311 Soil		13	37	0.38	169	0.072	2	2.64	0.010	0.04	0.1	0.03	3.7	0.3	<0.05	9	<0.5	<0.2
1515303 Soil		42	17	0.43	265	0.002	2	1.60	0.009	0.15	<0.1	0.03	4.3	0.1	<0.05	4	<0.5	<0.2
1515312 Soil		12	34	0.41	147	0.088	2	2.83	0.010	0.07	0.1	0.04	4.0	0.1	<0.05	9	<0.5	<0.2
1515302 Soil		31	21	0.86	162	0.006	1	2.24	0.008	0.09	<0.1	<0.01	2.8	<0.1	<0.05	6	<0.5	<0.2
1515310 Soil		15	38	0.51	214	0.089	3	2.57	0.015	0.06	0.1	0.03	4.6	0.1	<0.05	8	<0.5	<0.2
1515306 Soil		12	35	0.49	227	0.076	2	3.06	0.012	0.05	<0.1	0.03	4.0	0.1	<0.05	8	0.6	<0.2
1515304 Soil		25	23	0.39	328	0.005	1	1.92	0.013	0.10	<0.1	0.08	4.7	0.2	<0.05	5	0.5	<0.2
1515309 Soil		17	34	0.58	170	0.130	2	2.66	0.014	0.07	0.2	0.03	4.3	<0.1	<0.05	8	<0.5	<0.2
1515301 Soil		16	44	0.55	254	0.073	2	3.20	0.013	0.06	0.2	0.05	6.3	0.2	<0.05	8	<0.5	<0.2
1521644 Soil		8	45	0.71	162	0.014	3	1.89	0.011	0.11	<0.1	0.03	5.0	0.1	<0.05	6	<0.5	<0.2
1521642 Soil		7	54	0.91	248	0.004	4	2.44	0.008	0.14	<0.1	0.09	7.7	0.1	<0.05	7	<0.5	<0.2
1521630 Soil		21	26	1.01	311	0.017	2	3.27	0.014	0.07	<0.1	0.08	11.4	0.1	<0.05	9	<0.5	<0.2
1521649 Soil		27	27	0.52	159	0.036	2	1.95	0.013	0.12	<0.1	0.03	4.0	0.1	<0.05	7	<0.5	<0.2
1521634 Soil		21	34	1.10	346	0.030	1	2.82	0.015	0.04	<0.1	0.02	6.5	<0.1	<0.05	10	<0.5	<0.2
1521635 Soil		35	21	0.91	115	0.003	1	2.32	0.017	0.06	<0.1	0.01	15.4	<0.1	<0.05	10	<0.5	<0.2
1521637 Soil		23	46	0.65	239	0.089	1	2.75	0.012	0.05	0.1	0.02	7.6	0.2	<0.05	7	<0.5	<0.2
1521628 Soil		13	27	0.58	255	0.057	2	2.25	0.015	0.06	<0.1	0.02	4.7	<0.1	<0.05	7	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 3 of 8 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca Ρ % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.1 0.01 0.5 2 0.001 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1521678 Soil 2.2 7.0 11.4 43 < 0.1 8.6 4.5 290 1.74 4.8 0.5 2.9 0.4 54 < 0.1 0.2 0.2 62 0.47 0.041 1521643 Soil 1.6 7.8 11.9 59 < 0.1 4.8 194 2.68 7.6 0.4 0.9 2.6 13 0.3 0.2 90 0.13 0.030 11.7 0.4 1521636 Soil 0.8 17.8 8.6 53 < 0.1 21.9 9.4 274 3.06 10.3 0.5 1.9 3.7 38 < 0.1 0.5 0.2 87 0.26 0.025 1521626 Soil 0.9 12.4 10.9 74 < 0.1 15.2 9.5 507 2.89 5.0 0.6 1.4 2.1 53 0.2 0.3 < 0.1 72 0.72 0.075 Soil 1.4 14.4 9.8 57 18.7 7.5 5.9 0.3 < 0.5 1.7 15 0.2 0.2 83 0.038 1521646 0.1 368 2.59 0.4 0.13 Soil 0.9 1227 0.4 <0.1 37 2.36 0.146 1521638 17.5 17.2 66 0.2 35.7 14.0 2.83 1.1 < 0.5 2.7 91 0.2 <0.1 Soil 20.1 1574 0.4 <0.1 150 0.160 1521632 0.6 12.8 5.5 102 < 0.1 5.5 5.83 1.2 1.8 1.4 36 0.1 0.2 0.91 Soil 0.6 0.2 1495682 19.4 8.0 59 < 0.1 16.7 12.1 689 2.98 3.8 0.9 3.4 1.9 93 0.2 0.3 85 1.51 0.080 1521650 Soil 1.3 20.4 17.8 53 < 0.1 21.2 8.2 387 2.54 7.8 1.4 1.8 5.7 50 < 0.1 0.4 0.3 53 0.29 0.019

1495701	Soil	0.6	28.5	7.5	71	<0.1	29.0	14.9	467	3.58	3.8	0.7	1.2	2.2	113	0.2	0.3	<0.1	103
1495697	Soil	0.5	27.2	10.8	76	0.1	31.4	15.5	460	3.26	3.3	0.8	1.4	1.7	97	0.2	0.3	0.2	100
1495698	Soil	0.5	25.5	14.1	74	0.1	25.2	13.7	567	3.13	4.5	0.7	1.0	1.8	74	0.2	0.2	0.2	89
1495692	Soil	0.5	51.5	23.6	137	0.3	24.1	10.5	485	2.78	5.4	0.9	3.1	2.0	82	1.3	0.4	0.2	75
1495696	Soil	0.9	28.1	14.8	71	<0.1	23.0	12.4	572	3.25	6.1	0.6	2.6	3.5	62	0.2	0.4	0.1	94
1495695	Soil	0.6	20.0	12.4	70	0.1	13.0	9.5	514	2.95	3.6	0.6	3.9	1.8	85	0.2	0.3	<0.1	82
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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.

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									Client:	White Go Box 70 Dawson Yuko	old Corp. n Y0B 1G0 Canada		
BUREAL MINERAL LABORATORIES www.bureauveritas.com/um   VERITAS Canada									Project:	тоо			
Bureau Veritas	Commodities Canada Lto	Report Date: August 26, 2017											
9050 Shaughn PHONE (604) 2	essy St Vancouver British 253-3158	Columbia V6	P 6E5 Canada	I					Page:	3 of 8		Part:	2 of 2
CERTIF	ICATE OF AN	ALYSIS									WHI170	00576.1	
	Method	AQ201 AQ201	AQ201 AQ201	AQ201 A	Q201 AQ20	1 AQ201	AQ201	AQ201 A	Q201 AQ201	AQ201 AQ201	AQ201 AQ201 AQ	Q201	

	Analyte	La	Cr	Mg	Ва	Ti	В	AI	Na	к	w	Hg	Sc	ті	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
1521678	Soil	14	22	0.32	139	0.032	2	1.36	0.009	0.09	<0.1	0.02	1.8	0.1	<0.05	7	<0.5	<0.2
1521643	Soil	12	27	0.33	96	0.065	1	1.51	0.008	0.05	0.1	0.01	2.7	0.1	<0.05	8	<0.5	<0.2
1521636	Soil	12	38	0.58	237	0.101	2	2.90	0.012	0.05	0.1	0.02	4.4	0.1	<0.05	8	<0.5	<0.2
1521626	Soil	16	25	0.69	351	0.028	<1	1.97	0.018	0.06	<0.1	0.03	6.0	<0.1	<0.05	6	<0.5	<0.2
1521646	Soil	9	33	0.50	197	0.049	2	1.96	0.013	0.07	<0.1	0.02	3.5	0.1	<0.05	8	<0.5	<0.2
1521638	Soil	26	64	0.74	190	0.006	<1	2.12	0.009	0.15	<0.1	0.03	8.7	<0.1	<0.05	6	<0.5	<0.2
1521632	Soil	31	10	0.83	311	0.010	1	2.58	0.009	0.07	<0.1	0.03	19.7	<0.1	<0.05	10	<0.5	<0.2
1495682	Soil	17	26	0.77	384	0.030	2	2.07	0.025	0.07	<0.1	0.06	8.4	<0.1	<0.05	6	<0.5	<0.2
1521650	Soil	32	30	0.52	187	0.086	<1	2.13	0.013	0.11	0.2	0.04	4.8	0.1	<0.05	7	<0.5	<0.2
1521633	Soil	33	18	1.53	314	0.072	<1	3.24	0.024	0.07	<0.1	0.03	12.6	<0.1	<0.05	11	<0.5	<0.2
1521680	Soil	16	34	0.63	326	0.062	3	2.32	0.017	0.07	0.1	0.02	5.1	0.1	<0.05	8	<0.5	<0.2
1521640	Soil	9	54	0.84	134	0.005	2	2.04	0.008	0.11	<0.1	0.08	7.5	0.1	<0.05	6	<0.5	<0.2
1521679	Soil	27	14	0.33	621	0.003	<1	1.84	0.014	0.14	<0.1	0.03	5.3	0.1	<0.05	5	<0.5	<0.2
1495686	Soil	23	27	0.68	467	0.019	1	2.00	0.024	0.09	<0.1	0.06	11.0	<0.1	<0.05	6	<0.5	<0.2
1495684	Soil	17	24	0.55	454	0.027	1	1.83	0.028	0.06	0.1	0.05	7.4	<0.1	<0.05	5	0.5	<0.2
1495681	Soil	16	26	0.68	391	0.030	1	2.08	0.022	0.06	<0.1	0.06	8.0	<0.1	<0.05	6	<0.5	<0.2
1495683	Soil	19	28	0.80	370	0.033	1	2.27	0.025	0.08	<0.1	0.05	9.0	<0.1	<0.05	6	<0.5	<0.2
1495685	Soil	18	25	0.59	422	0.019	<1	1.84	0.022	0.08	<0.1	0.05	8.1	<0.1	<0.05	5	<0.5	<0.2
1495688	Soil	20	29	0.68	432	0.021	<1	2.29	0.024	0.08	0.1	0.04	10.4	<0.1	<0.05	6	<0.5	<0.2
1495690	Soil	21	29	0.99	274	0.028	1	2.32	0.028	0.11	<0.1	0.03	13.9	<0.1	<0.05	7	<0.5	<0.2
1495687	Soil	15	22	0.56	364	0.020	1	1.81	0.024	0.07	<0.1	0.04	7.5	<0.1	<0.05	5	<0.5	<0.2
1521639	Soil	28	41	1.03	267	0.011	<1	3.16	0.011	0.09	<0.1	0.06	11.4	0.1	<0.05	9	<0.5	<0.2
1495689	Soil	19	29	0.69	409	0.033	<1	2.03	0.031	0.07	<0.1	0.04	9.9	<0.1	<0.05	6	<0.5	<0.2
1495702	Soil	17	69	1.13	282	0.076	1	2.26	0.030	0.06	0.1	0.03	9.2	<0.1	<0.05	7	<0.5	<0.2
1495701	Soil	19	87	1.26	257	0.058	2	2.34	0.031	0.06	<0.1	0.04	13.8	<0.1	<0.05	7	<0.5	<0.2
1495697	Soil	18	81	1.35	307	0.044	<1	2.40	0.035	0.05	<0.1	0.06	10.1	0.1	<0.05	7	<0.5	<0.2
1495698	Soil	18	65	1.11	272	0.049	1	2.28	0.029	0.06	<0.1	0.04	9.9	<0.1	<0.05	7	<0.5	<0.2
1495692	Soil	20	42	0.72	427	0.036	1	2.07	0.027	0.06	0.1	0.07	8.3	<0.1	<0.05	6	0.6	<0.2
1495696	Soil	18	36	0.93	395	0.070	1	2.35	0.033	0.09	0.1	0.03	8.9	<0.1	<0.05	7	<0.5	<0.2
1495695	Soil	20	25	0.88	367	0.027	<1	2.20	0.026	0.10	<0.1	0.04	10.5	<0.1	<0.05	6	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 4 of 8 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1495693 Soil 0.9 23.8 13.0 67 <0.1 26.7 12.5 593 3.28 5.9 0.6 3.7 3.0 52 0.1 0.4 0.1 92 0.96 0.075 1495694 Soil 0.7 24.9 8.3 81 < 0.1 9.7 21.0 1695 3.73 3.0 0.1 99 < 0.1 81 2.01 0.085 1.4 0.4 1.7 0.1 1495691 Soil 0.5 38.7 7.3 100 < 0.1 43.0 23.7 922 4.88 3.0 0.4 < 0.5 1.7 72 0.2 < 0.1 135 0.83 0.097 0.1 1536107 Soil 1.0 16.9 16.9 68 0.2 15.7 10.1 567 2.78 5.7 0.7 1.8 1.5 69 0.2 0.3 0.4 73 0.78 0.065 Soil 4.0 16.4 191 0.3 15.7 10.5 742 4.5 0.8 19.4 2.0 92 1.3 0.2 61 0.074 1536110 58.8 2.79 0.3 1.48 3.8 10.5 9.7 <0.1 68 0.070 1536109 Soil 21.4 93 <0.1 9.7 832 2.57 2.2 0.8 11.5 1.7 96 0.4 0.2 1.51 Soil 4.4 0.8 0.3 0.068 1536108 15.7 23.3 104 0.2 11.1 8.8 788 2.52 4.9 6.4 2.3 53 0.5 0.2 68 0.62

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			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada		
B U R E A U V E R I T A S	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	ТОО		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 26, 2017		
9050 Shaughne	essy St Vancouver British Colu	mbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	4 of 8	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI170	000576.1	

		Method	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	κ	w	Hg	Sc	ті	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
1495693	Soil		19	43	0.99	285	0.040	1	2.27	0.028	0.08	<0.1	0.03	9.2	<0.1	<0.05	6	<0.5	<0.2
1495694	Soil		14	9	1.00	521	<0.001	<1	3.73	0.057	0.10	<0.1	0.03	14.5	<0.1	<0.05	8	<0.5	<0.2
1495691	Soil		15	155	2.88	193	0.035	2	3.24	0.019	0.06	<0.1	0.02	14.5	<0.1	<0.05	11	<0.5	<0.2
1536107	Soil		15	32	0.65	305	0.023	<1	1.87	0.020	0.07	0.1	0.04	6.1	0.1	<0.05	5	0.6	<0.2
1536110	Soil		22	24	0.45	365	0.017	<1	1.49	0.019	0.09	<0.1	0.07	7.6	0.1	0.05	4	<0.5	<0.2
1536109	Soil		14	18	0.58	299	0.013	<1	1.48	0.022	0.07	<0.1	0.04	6.1	0.1	<0.05	4	<0.5	<0.2
1536108	Soil		17	23	0.48	303	0.013	<1	1.68	0.015	0.11	0.1	0.05	5.7	0.2	<0.05	5	<0.5	<0.2
1536105	Soil		18	43	0.62	343	0.044	<1	1.97	0.024	0.06	0.1	0.05	6.8	0.1	<0.05	5	0.6	<0.2
1536104	Soil		20	42	0.69	346	0.036	<1	1.75	0.024	0.05	<0.1	0.06	7.0	<0.1	0.06	5	0.8	<0.2
1536111	Soil		19	23	0.49	349	0.021	<1	1.65	0.023	0.06	0.1	0.07	6.7	<0.1	0.05	5	<0.5	<0.2
1536113	Soil		22	24	0.47	345	0.015	<1	1.77	0.019	0.07	<0.1	0.04	5.6	0.1	<0.05	5	<0.5	<0.2
1536103	Soil		15	25	0.48	392	0.036	<1	1.59	0.023	0.05	0.2	0.04	5.5	<0.1	0.06	4	0.6	<0.2
1536112	Soil		30	18	0.34	369	0.015	2	1.23	0.015	0.04	<0.1	0.11	5.8	0.1	0.07	3	<0.5	<0.2
1515313	Soil		11	31	0.48	220	0.076	1	2.10	0.009	0.04	0.2	0.02	3.5	0.1	<0.05	7	<0.5	<0.2
1515318	Soil		14	31	0.86	216	0.121	2	2.23	0.016	0.04	0.2	0.02	5.3	<0.1	<0.05	7	<0.5	<0.2
1515314	Soil		10	25	0.30	138	0.049	<1	1.69	0.009	0.03	<0.1	0.02	2.7	0.1	<0.05	7	<0.5	<0.2
1536106	Soil		17	28	0.46	289	0.020	1	1.39	0.016	0.05	0.1	0.05	5.3	<0.1	<0.05	4	0.6	<0.2
1515315	Soil		21	32	0.77	249	0.046	<1	1.96	0.015	0.06	0.1	0.03	7.3	<0.1	<0.05	6	<0.5	<0.2
1515317	Soil		11	32	0.59	169	0.071	<1	2.31	0.010	0.04	0.1	0.03	4.0	0.1	<0.05	8	<0.5	<0.2
1515316	Soil		11	34	0.53	268	0.056	<1	2.02	0.010	0.05	0.1	0.02	3.8	<0.1	<0.05	7	<0.5	<0.2
1536114	Soil		35	27	0.57	542	0.028	<1	1.84	0.020	0.05	0.1	0.05	7.2	0.1	<0.05	5	<0.5	<0.2
1536115	Soil		20	31	0.71	303	0.021	<1	1.90	0.022	0.04	0.1	0.04	8.7	<0.1	<0.05	6	<0.5	<0.2
1495680	Soil		18	25	0.65	353	0.019	<1	1.84	0.016	0.07	<0.1	0.04	9.3	<0.1	<0.05	5	<0.5	<0.2
1495678	Soil		15	22	0.93	273	0.019	<1	2.17	0.018	0.04	<0.1	0.03	8.2	<0.1	<0.05	7	<0.5	<0.2
1536116	Soil		15	20	0.37	223	0.017	<1	1.21	0.015	0.04	0.1	0.05	5.4	<0.1	<0.05	3	<0.5	<0.2
1536118	Soil		16	22	0.40	301	0.013	<1	1.12	0.017	0.04	0.1	0.04	5.2	<0.1	<0.05	3	0.5	<0.2
1495679	Soil		16	23	0.64	366	0.018	1	1.71	0.017	0.04	<0.1	0.05	7.1	<0.1	<0.05	5	<0.5	<0.2
1536117	Soil		18	27	0.50	340	0.015	<1	1.54	0.017	0.04	0.1	0.04	6.4	<0.1	<0.05	4	<0.5	<0.2
1536119	Soil		17	24	0.48	270	0.017	<1	1.43	0.016	0.05	0.1	0.03	8.5	<0.1	<0.05	4	<0.5	<0.2
1495677	Soil		18	24	0.69	282	0.025	<1	1.87	0.022	0.05	<0.1	0.06	7.9	<0.1	<0.05	5	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 5 of 8 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1536120 Soil 1.9 16.5 6.5 47 <0.1 14.5 11.5 517 3.46 7.0 0.6 1.4 2.1 45 0.1 0.3 0.2 92 0.57 0.066 1536121 Soil 2.7 16.7 10.5 55 < 0.1 11.3 14.1 496 4.85 9.6 0.7 2.5 2.1 58 0.2 0.4 96 0.41 0.085 0.3 1495676 Soil 0.6 14.9 8.1 63 0.1 13.0 11.1 632 2.64 2.8 0.8 1.0 1.5 74 0.2 0.3 < 0.1 78 1.33 0.082 1495675 Soil 1.3 10.6 15.4 103 0.1 6.9 11.6 1585 3.87 1.3 0.3 1.8 1.5 48 0.8 0.1 < 0.1 92 0.97 0.118 Soil 1.8 132 12.4 2244 4.37 2.9 0.4 0.9 2.4 40 0.2 <0.1 101 0.120 1495674 10.6 11.9 <0.1 11.6 0.2 0.78 Soil 1.0 47 0.9 <0.1 49 0.098 1495670 14.5 11.5 0.1 13.6 9.1 740 2.23 2.5 3.1 1.1 100 0.2 0.2 1.42 Soil 0.6 0.9 87 0.1 0.089 1495673 16.4 10.4 56 0.1 13.8 9.9 573 2.49 4.0 3.3 1.9 0.2 0.2 67 1.26

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1536094 Soil	0.9	15.0	9.1	50	<0.1	18.6	8.0	283	2.75	7.4	0.5	0.9	2.9	20	<0.1	0.4	0.2	72
1536091 Soil	1.0	13.6	8.7	57	<0.1	16.1	10.1	366	3.39	6.7	0.6	1.1	3.0	50	<0.1	0.4	0.2	101
1536092 Soil	1.0	13.4	9.0	88	0.1	10.1	12.7	1345	4.32	8.0	0.4	4.9	1.9	25	<0.1	0.2	<0.1	101
1536099 Soil	0.7	19.9	7.1	51	0.1	18.4	9.2	462	2.10	4.2	2.8	2.2	1.6	172	0.2	0.4	0.1	58
1536096 Soil	1.0	12.9	8.7	51	<0.1	17.8	8.6	339	2.61	7.1	0.5	1.0	2.4	25	0.1	0.4	0.2	74
1536098 Soil	0.9	14.4	7.9	48	<0.1	16.2	7.0	315	2.35	5.1	0.8	2.4	2.8	42	<0.1	0.4	0.1	68

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.

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			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Can	nada	
B U R E A U V E R I T A S	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	ТОО		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 26, 2017		
9050 Shaughne	essy St Vancouver British Colu	mbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	5 of 8	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI1	7000576.1	

	Method	AQ201																
	Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	ті	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
1536120 Soil		16	26	0.57	310	0.023	<1	1.78	0.016	0.07	<0.1	0.03	7.7	<0.1	<0.05	5	<0.5	<0.2
1536121 Soil		18	23	0.54	271	0.015	<1	1.65	0.018	0.05	<0.1	0.02	8.9	<0.1	<0.05	5	0.5	0.7
1495676 Soil		18	23	0.73	298	0.017	1	1.84	0.016	0.05	<0.1	0.05	7.5	<0.1	<0.05	5	<0.5	<0.2
1495675 Soil		23	12	0.99	437	0.004	<1	2.39	0.010	0.08	<0.1	0.02	11.5	<0.1	<0.05	7	<0.5	<0.2
1495674 Soil		26	14	0.77	557	0.013	<1	2.03	0.012	0.10	<0.1	0.03	9.6	<0.1	<0.05	6	<0.5	<0.2
1495670 Soil		24	20	0.49	485	0.008	<1	1.68	0.020	0.05	<0.1	0.04	4.7	<0.1	<0.05	4	<0.5	<0.2
1495673 Soil		18	24	0.64	396	0.023	1	1.92	0.021	0.04	<0.1	0.05	6.4	<0.1	<0.05	6	<0.5	<0.2
1495672 Soil		13	22	1.01	305	0.018	<1	2.45	0.017	0.05	<0.1	0.01	7.5	0.1	<0.05	7	<0.5	<0.2
1495671 Soil		15	29	0.87	384	0.021	<1	2.52	0.034	0.05	<0.1	0.02	11.0	<0.1	<0.05	7	<0.5	<0.2
1498699 Soil		16	36	0.95	319	0.085	<1	2.40	0.019	0.04	<0.1	0.02	7.4	<0.1	<0.05	7	<0.5	<0.2
1498064 Soil		9	31	0.49	209	0.070	2	2.45	0.011	0.05	0.1	0.02	3.6	<0.1	<0.05	6	<0.5	<0.2
1498066 Soil		11	35	0.48	173	0.080	1	2.92	0.010	0.05	0.2	0.02	4.0	<0.1	<0.05	8	<0.5	<0.2
1495669 Soil		29	17	0.46	327	0.007	1	1.52	0.013	0.08	<0.1	0.05	6.9	<0.1	<0.05	4	<0.5	<0.2
1498067 Soil		15	34	0.71	234	0.075	1	2.31	0.014	0.04	<0.1	0.01	4.7	0.1	<0.05	7	<0.5	<0.2
1498696 Soil		18	35	0.65	280	0.053	<1	2.91	0.012	0.04	<0.1	0.03	5.0	0.1	<0.05	7	<0.5	<0.2
1498689 Soil		24	32	0.80	443	0.029	1	2.09	0.014	0.06	<0.1	0.05	5.9	<0.1	<0.05	7	<0.5	<0.2
1498068 Soil		18	35	1.08	284	0.112	1	2.95	0.038	0.04	<0.1	0.02	10.6	<0.1	<0.05	8	<0.5	<0.2
1498693 Soil		14	33	0.48	239	0.051	<1	2.30	0.009	0.04	0.1	0.03	4.1	0.1	<0.05	7	<0.5	<0.2
1498700 Soil		16	33	0.81	291	0.076	2	2.18	0.020	0.04	0.1	0.02	7.0	<0.1	<0.05	6	<0.5	<0.2
1498692 Soil		21	28	0.42	473	0.036	2	1.85	0.011	0.04	0.1	0.03	4.0	0.1	<0.05	6	<0.5	<0.2
1536095 Soil		9	33	0.53	353	0.050	1	2.28	0.009	0.07	0.2	0.02	3.5	<0.1	<0.05	8	<0.5	<0.2
1498687 Soil		25	25	0.67	382	0.021	1	2.05	0.014	0.06	<0.1	0.04	4.0	<0.1	<0.05	6	<0.5	<0.2
1536093 Soil		16	33	0.49	241	0.046	1	2.11	0.012	0.04	0.1	0.02	4.1	0.1	<0.05	7	<0.5	<0.2
1536097 Soil		10	38	0.52	207	0.062	2	2.44	0.009	0.05	0.1	0.02	3.6	0.1	<0.05	7	<0.5	<0.2
1536094 Soil		13	32	0.55	226	0.055	1	2.32	0.012	0.03	0.1	0.02	4.0	0.1	<0.05	7	<0.5	<0.2
1536091 Soil		14	34	0.75	302	0.087	2	2.91	0.016	0.03	<0.1	0.02	6.0	0.1	<0.05	8	<0.5	<0.2
1536092 Soil		15	23	0.49	333	0.010	<1	2.46	0.008	0.07	<0.1	0.02	9.3	0.3	<0.05	6	<0.5	<0.2
1536099 Soil		14	26	0.58	425	0.037	2	1.63	0.021	0.04	0.1	0.05	5.2	<0.1	<0.05	5	<0.5	<0.2
1536096 Soil		12	32	0.52	288	0.056	2	2.06	0.012	0.04	0.2	0.02	3.9	0.1	<0.05	7	<0.5	<0.2
1536098 Soil		15	30	0.50	307	0.057	2	1.62	0.015	0.04	0.2	0.02	4.4	<0.1	<0.05	5	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 6 of 8 Page: Part: 1 of 2 CERTIFICATE OF ANALYSIS WHI17000576.1 Method AQ201 Analyte Pb Ni Co Mn Fe υ Th Cd Sb Са Мо Cu Zn Ag As Au Sr Bi v Ρ Unit % % ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb 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 0.1 0.5 0.1 1 0.1 0.1 0.1 2 0.01 0.001 1536101 0.065 Soil 0.6 26.0 9.3 63 0.1 21.5 10.1 385 2.40 6.5 1.1 6.4 3.2 92 0.2 0.5 0.1 67 0.84 1536100 0.063 Soil 0.7 20.3 7.6 55 0.1 19.2 9.8 459 2.37 4.8 2.9 2.0 1.9 155 0.2 0.4 0.1 66 1.06 1536102 Soil 1.0 23.9 9.1 59 < 0.1 21.8 11.4 458 2.56 6.9 1.2 2.7 2.9 93 0.3 0.5 0.1 72 0.95 0.060 1515323 Soil 0.7 17.8 8.1 75 15.2 10.8 431 2.76 3.3 1.0 2.1 2.9 122 0.2 0.2 0.2 83 0.95 0.083 0.1

1515321	Soil	1.2	8.6	8.4	51	<0.1	9.6	6.8	477	2.96	4.5	0.5	<0.5	1.3	66	<0.1	0.3	0.2	104	0.31	0.059
1515320	Soil	1.0	15.8	7.5	35	<0.1	10.3	6.3	206	2.22	5.0	0.7	0.8	1.2	65	0.1	0.3	0.2	75	0.26	0.038
1515319	Soil	1.2	8.0	5.9	29	<0.1	6.2	4.5	161	2.51	4.1	0.3	<0.5	0.7	23	<0.1	0.2	0.2	104	0.13	0.051
1515322	Soil	4.1	12.4	91.3	91	0.4	11.8	6.9	270	3.28	6.3	0.5	1.6	1.2	37	0.7	0.3	0.1	97	0.28	0.056
1498686	Soil	0.8	16.0	8.6	55	<0.1	18.0	8.9	355	3.00	6.6	0.6	2.2	3.2	25	<0.1	0.4	0.1	74	0.21	0.015
1498690	Soil	0.8	20.4	16.8	54	0.2	17.0	10.4	928	2.56	5.5	0.8	1.9	1.4	74	<0.1	0.3	0.1	63	0.83	0.105
1498684	Soil	1.1	17.2	9.0	50	0.2	19.9	9.3	310	2.76	7.9	0.6	1.7	2.6	23	<0.1	0.4	0.2	75	0.21	0.023
1498688	Soil	1.1	10.3	9.9	53	<0.1	16.2	7.6	288	3.44	7.6	0.4	1.6	2.0	16	<0.1	0.3	0.1	82	0.14	0.038
1498691	Soil	1.1	12.8	10.7	58	<0.1	13.5	9.1	457	2.64	3.6	0.4	<0.5	1.7	43	0.5	0.2	<0.1	58	0.52	0.067
1498694	Soil	0.9	16.2	18.0	112	<0.1	31.1	14.3	1417	3.56	2.3	0.5	1.4	3.1	52	0.1	0.1	<0.1	74	0.78	0.146
1498685	Soil	1.0	17.8	7.9	67	0.2	19.0	11.3	770	3.66	7.8	0.5	0.9	1.3	67	0.1	0.4	0.2	77	0.35	0.042
1498683	Soil	1.0	18.4	9.0	63	<0.1	22.2	11.7	801	3.10	7.7	0.6	1.5	3.1	36	0.2	0.4	0.1	79	0.26	0.024
1498695	Soil	1.2	13.8	15.3	48	0.3	19.4	9.0	207	2.86	7.8	0.5	2.4	2.9	18	0.2	0.4	0.2	78	0.14	0.022
1498697	Soil	1.0	13.0	9.9	49	0.1	18.7	8.4	286	2.93	8.9	0.6	0.7	2.6	30	<0.1	0.4	0.2	80	0.25	0.030
1530966	Soil	0.6	13.3	7.8	51	<0.1	12.4	8.0	437	2.64	4.2	0.7	0.6	1.1	66	<0.1	0.2	0.1	77	0.57	0.080
1530963	Soil	0.8	6.6	9.7	43	<0.1	14.2	9.2	316	3.52	8.7	0.6	1.4	2.0	25	<0.1	0.4	0.2	90	0.25	0.044
1530972	Soil	0.3	13.5	4.3	74	<0.1	12.2	14.5	1523	4.00	1.6	0.2	<0.5	1.3	66	0.1	<0.1	<0.1	97	1.20	0.172
1530970	Soil	0.6	16.1	7.8	64	<0.1	16.5	11.4	615	3.14	5.3	0.8	0.6	3.0	53	<0.1	0.3	<0.1	80	0.56	0.084
1530973	Soil	0.8	25.3	12.3	71	<0.1	23.5	13.4	847	3.37	6.4	1.1	1.9	3.4	44	0.1	0.5	0.1	78	0.59	0.063
1530967	Soil	0.8	15.0	6.0	39	0.1	8.1	4.5	436	1.73	2.5	0.5	0.6	0.2	52	0.4	0.2	0.1	50	0.34	0.055
1530971	Soil	0.8	10.4	9.0	63	<0.1	15.3	7.2	343	3.16	7.2	0.4	2.7	0.7	22	0.3	0.3	0.2	90	0.13	0.054
1530965	Soil	0.9	10.0	9.0	48	<0.1	16.0	8.9	319	3.15	8.2	0.6	1.4	2.5	38	<0.1	0.3	0.2	90	0.29	0.044
1530964	Soil	0.6	23.7	7.5	56	<0.1	23.8	11.5	478	2.62	7.7	0.6	3.0	2.9	40	0.1	0.5	0.1	66	0.55	0.069
1530977	Soil	1.0	17.2	22.3	82	0.1	19.9	9.9	667	3.15	7.8	0.6	1.2	2.5	38	0.2	0.4	0.2	82	0.31	0.034
1530969	Soil	0.6	9.6	7.2	54	<0.1	14.9	9.9	479	3.16	5.4	0.5	2.3	2.3	45	<0.1	0.2	0.1	84	0.40	0.048
1530968	Soil	0.5	11.9	7.3	60	<0.1	18.3	10.2	381	3.01	5.7	0.4	0.7	1.5	37	<0.1	0.3	0.1	74	0.27	0.057

										Client	t:	White Box 70 Dawson `	<b>Gold</b> Yukon Y	<b>I Corp</b> ′0B 1G0	<b>).</b> Canada				
B U R E A U VERITAS	MINERAL LABORATORIE Canada	S	www.burea	uveritas	.com/u	m				Project	:	TOO							
Bureau Veritas	Commodities Canada Ltd.									Report	Date:	August 26	6, 2017						
9050 Shaughn PHONE (604)	essy St Vancouver British 253-3158	Columbia V6F	P 6E5 Canada	1						Page:		6 of 8					Part:	2 of 2	2
CERTIF	ICATE OF AN	ALYSIS												WH	17(	00057	76.1		
	Method	AQ201 AQ201	AQ201 AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201 AQ	201 A	Q201 A	Q201 A	0201			

	Analyte	12	Cr	Ma	Ra	Ti	R	AQ201	Na	K	W	Ha	50	TI	AQ201	G2	50	Та
	Unit	nnm	nnm	wig %	nnm	%	nnm	%	1 <b>1</b> a	۲X %	nnm	nnm	nnm		%	nnm	nnm	nnm
	MDL	1	1	0.01	<sub>ال</sub> مور 1	0.001	2 1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
1536101 Soil		18	31	0.60	359	0.061	2	1.67	0.026	0.05	0.2	0.05	5.4	<0.1	<0.05	5	<0.5	<0.2
1536100 Soil		16	29	0.64	442	0.041	2	1.84	0.022	0.05	0.1	0.04	6.0	<0.1	<0.05	5	<0.5	<0.2
1536102 Soil		16	30	0.60	310	0.057	1	1.56	0.026	0.05	0.2	0.06	5.8	<0.1	<0.05	5	0.6	<0.2
1515323 Soil		19	28	0.93	185	0.146	2	2.35	0.029	0.04	0.2	0.04	6.8	0.1	<0.05	8	<0.5	<0.2
1515321 Soil		11	21	0.50	101	0.148	1	1.73	0.017	0.04	0.1	0.04	3.4	<0.1	<0.05	9	<0.5	<0.2
1515320 Soil		17	22	0.37	165	0.074	1	2.00	0.015	0.03	0.1	0.04	3.8	<0.1	<0.05	8	<0.5	<0.2
1515319 Soil		8	17	0.28	70	0.101	1	1.44	0.012	0.03	0.1	0.03	2.0	<0.1	<0.05	7	<0.5	<0.2
1515322 Soil		12	23	0.46	93	0.137	2	2.15	0.014	0.03	0.2	0.08	3.5	0.3	<0.05	10	<0.5	<0.2
1498686 Soil		18	30	0.68	300	0.032	<1	2.27	0.011	0.03	<0.1	0.02	6.0	0.1	<0.05	7	<0.5	<0.2
1498690 Soil		22	29	0.49	496	0.013	1	2.04	0.011	0.04	<0.1	0.08	5.2	0.2	<0.05	6	<0.5	<0.2
1498684 Soil		13	33	0.48	240	0.071	<1	2.42	0.012	0.04	0.1	0.03	4.8	0.2	<0.05	7	0.5	<0.2
1498688 Soil		12	32	0.65	202	0.038	<1	2.47	0.009	0.05	<0.1	0.03	3.9	<0.1	<0.05	8	<0.5	<0.2
1498691 Soil		14	21	0.61	219	0.015	<1	2.01	0.009	0.05	<0.1	0.02	3.2	<0.1	<0.05	6	<0.5	<0.2
1498694 Soil		31	43	0.95	308	0.011	1	2.63	0.010	0.05	<0.1	0.02	9.8	<0.1	<0.05	7	<0.5	<0.2
1498685 Soil		11	30	0.74	272	0.067	2	2.88	0.017	0.04	<0.1	0.03	4.2	0.1	<0.05	8	<0.5	<0.2
1498683 Soil		13	36	0.57	374	0.067	<1	2.92	0.015	0.04	0.1	0.02	4.8	0.1	<0.05	7	<0.5	<0.2
1498695 Soil		12	37	0.43	192	0.064	1	2.47	0.011	0.04	0.1	0.03	3.7	0.1	<0.05	7	<0.5	<0.2
1498697 Soil		14	36	0.55	258	0.064	1	2.49	0.011	0.04	0.1	0.02	4.2	0.1	<0.05	8	<0.5	<0.2
1530966 Soil		21	25	0.62	183	0.071	<1	1.91	0.015	0.04	<0.1	0.01	5.6	<0.1	<0.05	8	<0.5	<0.2
1530963 Soil		11	32	0.56	206	0.052	<1	2.34	0.010	0.04	0.1	0.02	4.9	0.1	<0.05	8	<0.5	<0.2
1530972 Soil		30	21	1.31	384	0.009	<1	2.44	0.012	0.03	<0.1	<0.01	8.4	<0.1	<0.05	9	<0.5	<0.2
1530970 Soil		22	33	1.03	217	0.128	<1	2.47	0.016	0.05	<0.1	0.02	7.1	<0.1	<0.05	8	<0.5	<0.2
1530973 Soil		28	39	0.77	345	0.039	1	2.43	0.015	0.06	<0.1	0.04	9.1	0.1	<0.05	7	<0.5	<0.2
1530967 Soil		9	15	0.25	107	0.070	<1	1.23	0.020	0.04	<0.1	0.05	2.1	<0.1	<0.05	6	<0.5	<0.2
1530971 Soil		9	29	0.54	165	0.080	1	2.46	0.009	0.04	0.1	0.02	3.1	<0.1	<0.05	9	<0.5	<0.2
1530965 Soil		13	31	0.64	146	0.093	2	2.39	0.012	0.05	0.1	0.02	4.4	0.1	<0.05	8	<0.5	<0.2
1530964 Soil		15	32	0.62	235	0.060	2	1.64	0.025	0.05	0.1	0.04	5.5	<0.1	<0.05	5	<0.5	<0.2
1530977 Soil		13	33	0.57	359	0.041	1	2.91	0.013	0.05	<0.1	0.03	4.8	0.1	<0.05	7	<0.5	<0.2
1530969 Soil		16	30	1.02	223	0.060	<1	2.76	0.014	0.04	<0.1	0.02	5.6	<0.1	<0.05	8	<0.5	<0.2
1530968 Soil		12	30	0.74	207	0.052	<1	2.63	0.013	0.04	<0.1	0.03	4.2	<0.1	<0.05	7	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada BUREAU MINERAL LABORATORIES www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 7 of 8 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca F % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.01 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1498341 Soil 0.6 14.4 7.9 55 <0.1 18.9 9.7 254 2.87 6.4 0.7 4.4 3.5 41 < 0.1 0.4 0.1 75 0.34 0.040 1498698 Soil 0.9 13.1 7.7 56 < 0.1 17.5 8.6 305 2.91 5.8 0.5 2.0 2.1 59 0.1 81 0.37 0.040 0.1 0.4 1498338 Soil 0.6 12.8 7.5 61 < 0.1 15.7 9.2 363 3.02 4.7 0.5 0.9 2.7 42 < 0.1 0.4 0.1 90 0.36 0.038 1498065 Soil 0.5 13.6 15.0 71 < 0.1 16.4 10.6 571 3.12 4.3 0.7 1.0 2.9 66 < 0.1 0.2 < 0.1 85 0.61 0.055 Soil 0.8 11.2 7.2 47 13.4 203 4.8 0.4 2.3 0.1 80 0.016 1498069 0.1 6.6 2.51 1.8 30 < 0.1 0.3 0.25 0.6 0.6 0.1 77 0.058 1498339 Soil 17.2 8.5 64 < 0.1 17.8 10.2 615 2.81 5.5 2.5 3.6 55 0.1 0.4 0.51 Soil 22.6 0.8 40 74 0.036 1498071 0.7 7.3 54 < 0.1 23.8 9.1 333 2.78 7.7 2.2 4.0 < 0.1 0.5 0.1 0.40 Soil 0.5 27.2 71 1498340 8.4 0.2 20.7 9.1 402 2.60 6.2 0.6 2.3 3.0 108 0.2 0.6 0.2 69 0.85 0.081 1498337 Soil 0.8 13.3 6.7 62 < 0.1 14.5 9.6 457 3.19 4.3 0.5 1.4 2.6 53 < 0.1 0.3 0.1 102 0.48 0.045

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BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	тоо		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 26, 2017		
9050 Shaughne	essy St Vancouver British Colu	mbia V6P 6E5 Canada				
PHONE (604) 2	253-3158		Page:	7 of 8	Part:	2 of 2
CERTIF	ICATE OF ANAL	YSIS		WHI1	7000576.1	

		Method	AQ201	AQ201	AQ201	AQ201													
		Analyte	La	Cr	Mg	Ва	Ti	в	AI	Na	ĸ	w	Hg	Sc	ті	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
1498341	Soil		14	32	0.61	315	0.047	1	2.09	0.015	0.05	0.1	0.02	4.9	0.1	<0.05	6	<0.5	<0.2
1498698	Soil		16	35	0.76	160	0.084	2	2.21	0.019	0.04	0.1	0.02	4.7	<0.1	<0.05	7	<0.5	<0.2
1498338	Soil		15	32	0.75	292	0.088	1	2.36	0.017	0.04	<0.1	0.02	5.4	<0.1	<0.05	7	<0.5	<0.2
1498065	Soil		24	31	1.13	196	0.076	1	2.24	0.023	0.05	<0.1	0.02	7.8	<0.1	<0.05	7	<0.5	<0.2
1498069	Soil		10	33	0.66	214	0.090	1	2.38	0.013	0.04	0.1	0.02	4.6	0.1	<0.05	8	<0.5	<0.2
1498339	Soil		19	29	0.65	347	0.049	1	2.13	0.023	0.05	0.1	0.04	7.0	<0.1	<0.05	6	<0.5	<0.2
1498071	Soil		19	42	0.65	257	0.090	1	1.90	0.021	0.04	0.1	0.02	7.0	<0.1	<0.05	5	<0.5	<0.2
1498340	Soil		20	29	0.64	349	0.061	1	1.71	0.029	0.06	0.1	0.05	5.7	<0.1	<0.05	5	<0.5	<0.2
1498337	Soil		15	31	0.80	292	0.092	1	2.60	0.019	0.04	<0.1	0.02	6.2	<0.1	<0.05	8	<0.5	<0.2
1498070	Soil		20	41	0.68	243	0.089	1	2.44	0.015	0.04	0.1	0.03	7.6	<0.1	<0.05	7	<0.5	<0.2
1530953	Soil		22	31	0.52	258	0.076	1	3.06	0.015	0.05	0.1	0.05	7.5	0.1	<0.05	8	<0.5	<0.2
1530975	Soil		16	60	0.49	189	0.047	<1	2.48	0.009	0.05	<0.1	0.02	4.5	0.1	<0.05	7	<0.5	<0.2
1530982	Soil		19	39	1.07	369	0.027	<1	2.88	0.018	0.07	<0.1	0.03	11.0	<0.1	<0.05	8	<0.5	<0.2
1530980	Soil		13	30	0.56	264	0.031	1	3.64	0.012	0.04	<0.1	0.02	5.5	0.2	<0.05	9	<0.5	<0.2
1530974	Soil		14	27	0.53	193	0.039	1	2.33	0.009	0.05	<0.1	0.03	4.0	0.1	<0.05	8	<0.5	<0.2
1530981	Soil		18	31	0.62	261	0.028	<1	3.04	0.013	0.05	<0.1	0.03	7.3	0.2	<0.05	7	<0.5	<0.2
1497249	Soil		14	15	0.25	306	0.010	<1	1.38	0.010	0.07	<0.1	0.01	3.4	<0.1	<0.05	4	<0.5	<0.2
1497248	Soil		9	43	0.67	256	0.011	3	1.94	0.011	0.09	<0.1	0.09	6.5	0.1	<0.05	6	0.6	<0.2
1530978	Soil		15	29	0.50	327	0.059	1	3.00	0.015	0.04	<0.1	0.02	4.6	0.1	<0.05	8	<0.5	<0.2
1535640	Soil		18	18	0.34	198	0.012	<1	1.50	0.007	0.12	<0.1	0.02	2.9	<0.1	<0.05	4	<0.5	<0.2
1497247	Soil		8	48	0.75	178	0.012	3	2.15	0.010	0.10	<0.1	0.03	5.1	0.1	<0.05	7	<0.5	<0.2
1497246	Soil		7	41	0.66	212	0.011	2	2.10	0.008	0.07	<0.1	0.02	4.5	0.1	<0.05	7	<0.5	<0.2
1530979	Soil		16	32	0.46	261	0.062	1	2.37	0.015	0.04	0.1	0.04	5.9	0.1	<0.05	7	<0.5	<0.2
1497250	Soil		14	19	0.32	268	0.013	<1	1.46	0.011	0.07	<0.1	0.01	3.0	<0.1	<0.05	4	<0.5	<0.2
1535636	Soil		5	53	0.88	143	0.003	3	2.25	0.007	0.13	<0.1	0.10	7.1	0.1	<0.05	6	0.5	<0.2
1535637	Soil		14	44	0.68	238	0.025	2	2.26	0.008	0.06	<0.1	0.02	5.1	0.1	<0.05	7	<0.5	<0.2
1535639	Soil		23	26	0.48	277	0.013	<1	2.16	0.010	0.08	<0.1	0.04	9.8	0.2	<0.05	7	<0.5	<0.2
1535638	Soil		13	41	0.68	246	0.039	1	2.44	0.013	0.05	<0.1	0.03	4.7	0.2	<0.05	7	<0.5	<0.2
1535641	Soil		10	37	0.59	176	0.015	2	1.81	0.010	0.10	<0.1	0.09	5.8	0.1	<0.05	5	0.6	<0.2
1497245	Soil		6	51	0.81	152	0.006	2	2.11	0.006	0.08	<0.1	0.04	5.1	<0.1	< 0.05	6	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um Project: TOO VERITAS Canada Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 8 of 8 Part: Page: 1 of 2 **CERTIFICATE OF ANALYSIS** WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Ca Ρ % Unit ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % MDL 0.01 0.5 2 0.001 0.1 0.1 0.1 1 0.1 0.1 0.1 1 0.5 0.1 0.1 1 0.1 0.1 0.1 0.01 1530961 Soil 1.0 9.0 7.8 38 < 0.1 11.8 8.2 320 2.63 6.2 0.4 3.5 2.3 15 0.1 0.3 0.2 81 0.14 0.031 1530957 Soil 1.1 12.1 7.7 47 < 0.1 15.4 8.3 295 3.36 7.6 0.5 2.1 2.3 28 0.2 90 0.24 0.036 0.1 0.4 1530955 Soil 1.1 12.0 6.6 54 < 0.1 14.0 9.0 342 3.17 6.8 0.5 3.6 2.1 53 0.4 0.2 102 0.38 0.026 0 1 0.038 1530952 Soil 1.1 18.5 9.2 64 < 0.1 25.0 13.1 424 4.10 8.4 0.5 2.9 2.4 56 0.2 0.5 0.2 113 0.30 Soil 1.2 15.3 14.4 8.7 328 3.09 0.6 27 0.2 89 0.042 1530956 8.5 50 0.1 8.0 2.8 1.8 0.1 0.4 0.23 1.0 7.2 0.6 61 0.2 82 0.48 0.037 1530954 Soil 17.9 8.5 40 0.2 11.5 301 2.48 4.9 2.5 1.2 < 0.1 0.3 Soil 1.0 7.5 43 0.5 0.2 91 0.035 1530960 9.9 < 0.1 15.5 9.2 234 3.34 7.1 2.9 2.1 30 < 0.1 0.3 0.24 Soil 0.8 7.3 0.2 83 0.026 1530958 14.7 54 < 0.1 18.0 10.3 396 3.15 7.7 0.6 2.1 2.7 32 < 0.1 0.4 0.28 0.035 1530959 Soil 0.6 11.9 7.9 50 0.1 16.8 9.3 441 2.73 5.6 0.8 1.7 2.5 35 < 0.1 0.2 0.2 80 0.40 1530962 Soil 1.1 9.1 8.1 43 <0.1 16.6 9.3 419 3.00 8.3 0.5 3.7 2.8 26 <0.1 0.3 0.2 75 0.22 0.045 1530951 Soil 0.8 15.2 6.8 57 0.1 19.9 9.7 313 3.22 7.3 0.6 1.4 2.5 33 < 0.1 0.4 0.2 92 0.25 0.037 1535642 Soil 1.6 13.6 12.4 55 < 0.1 18.9 9.7 300 3.04 9.6 0.5 1.4 4.7 18 < 0.1 0.6 0.2 77 0.14 0.018

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						Client:	White Go Box 70 Dawson Yukor	<b>Id Corp.</b> YOB 1G0 Canada		
B U R E A U V E R I T A S	MINERAL LABORATORIES Canada	www.burea	uveritas.com/u	um		Project:	тоо			
Bureau Veritas	Commodities Canada Ltd.					Report Date:	August 26, 201	7		
9050 Shaughn	essy St Vancouver British Co	umbia V6P 6E5 Canada	1							
PHONE (604)	253-3158					Page:	8 of 8		Part:	2 of 2
CERTIF	ICATE OF ANA	YSIS						WHI1700	0576.1	
	Method AO	01 00201 00201 00201	A0201 A0201	A0201 A0201	A0201 A0201	A0201 A0201	A0201 A0201	A0201 A0201 A02	01	

		mounou	AQZUI	AQZUI	AQ201	AQ201	AQZUI	AQZUI	AQ201	AQ201	AQ201	AQZUI	AQ201	AQZUI	AQZUI	AQ201	AQZUI	AQ201	AQ201
		Analyte	La	Cr	Mg	Ва	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
1530961	Soil		9	26	0.50	185	0.037	2	2.02	0.009	0.04	0.1	0.03	3.9	0.1	<0.05	7	<0.5	<0.2
1530957	Soil		10	29	0.57	194	0.064	3	2.86	0.011	0.04	0.2	0.02	5.0	<0.1	<0.05	8	<0.5	<0.2
1530955	Soil		9	27	0.65	187	0.102	2	2.36	0.017	0.04	0.1	0.02	5.1	<0.1	<0.05	7	<0.5	<0.2
1530952	Soil		9	36	0.66	267	0.136	2	3.86	0.016	0.05	0.2	0.03	5.3	0.1	<0.05	10	<0.5	<0.2
1530956	Soil		12	31	0.54	190	0.065	2	2.61	0.013	0.04	0.1	0.03	5.0	0.1	<0.05	8	<0.5	<0.2
1530954	Soil		18	25	0.50	222	0.069	2	2.15	0.017	0.04	0.1	0.03	5.6	0.1	<0.05	7	<0.5	<0.2
1530960	Soil		10	29	0.52	255	0.062	2	3.48	0.012	0.03	0.1	0.04	5.0	<0.1	<0.05	8	<0.5	<0.2
1530958	Soil		12	34	0.64	227	0.072	2	2.75	0.016	0.04	0.1	0.02	5.6	<0.1	<0.05	6	<0.5	<0.2
1530959	Soil		11	32	0.65	303	0.065	1	2.78	0.019	0.03	0.1	0.03	5.4	0.1	<0.05	7	<0.5	<0.2
1530962	Soil		11	31	0.44	236	0.060	2	3.00	0.012	0.04	0.1	0.03	4.6	0.1	<0.05	7	<0.5	<0.2
1530951	Soil		12	36	0.61	247	0.097	2	3.23	0.014	0.04	0.1	0.04	5.6	0.1	<0.05	8	<0.5	<0.2
1535642	Soil		12	37	0.43	250	0.048	1	2.29	0.008	0.05	0.1	0.01	3.3	0.1	< 0.05	6	<0.5	<0.2
1535644	Soil		15	27	0.58	346	0.023	<1	2.66	0.010	0.12	0.1	0.01	4.2	<0.1	<0.05	7	<0.5	<0.2
1535645	Soil		24	20	0.40	461	0.013	2	2.19	0.009	0.15	0.1	0.03	11.6	<0.1	<0.05	5	<0.5	<0.2
1535643	Soil		14	16	0.39	428	0.007	1	2.03	0.011	0.09	<0.1	0.01	5.4	<0.1	<0.05	5	<0.5	<0.2
1497239	Soil		10	32	0.61	207	0.064	<1	2.84	0.011	0.05	<0.1	0.02	5.6	<0.1	< 0.05	9	<0.5	<0.2
1497233	Soil		11	32	0.77	234	0.186	2	3.39	0.016	0.05	0.2	0.02	5.3	<0.1	<0.05	9	<0.5	<0.2
1497240	Soil		17	29	0.74	107	0.135	2	2.42	0.022	0.03	0.1	0.03	8.4	<0.1	<0.05	7	<0.5	<0.2
1497235	Soil		11	34	0.59	146	0.124	1	3.68	0.013	0.05	0.2	0.05	5.0	0.2	<0.05	9	<0.5	<0.2
1497242	Soil		19	30	0.83	236	0.068	<1	3.00	0.018	0.05	<0.1	0.02	8.7	0.1	<0.05	8	<0.5	<0.2
1497236	Soil		15	30	0.64	213	0.073	1	2.03	0.017	0.04	0.1	0.02	4.7	0.1	<0.05	5	<0.5	<0.2
1497241	Soil		12	32	0.69	207	0.112	1	3.17	0.015	0.04	0.1	0.01	5.0	<0.1	<0.05	8	<0.5	<0.2
1497237	Soil		11	22	0.31	122	0.048	1	1.64	0.009	0.04	0.1	0.02	3.1	<0.1	<0.05	7	<0.5	<0.2
1497238	Soil		29	23	0.92	387	0.011	<1	2.19	0.013	0.06	<0.1	0.05	5.7	<0.1	<0.05	7	<0.5	<0.2
1497243	Soil		13	32	0.68	229	0.089	2	2.51	0.014	0.04	0.1	0.02	5.9	0.1	<0.05	8	<0.5	<0.2
1497234	Soil		16	42	0.79	213	0.129	<1	3.73	0.017	0.04	0.2	0.03	7.9	0.2	<0.05	8	<0.5	<0.2
1497244	Soil		23	38	0.78	263	0.032	1	2.46	0.017	0.05	<0.1	0.06	7.5	0.1	<0.05	7	<0.5	<0.2

Client: White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada MINERAL LABORATORIES BUREAU www.bureauveritas.com/um VERITAS Canada Project: TOO Report Date: August 26, 2017 Bureau Veritas Commodities Canada Ltd. 9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada PHONE (604) 253-3158 1 of 2 1 of 2 Page: Part: QUALITY CONTROL REPORT WHI17000576.1 Method AQ201 Analyte Мо Cu Pb Zn Ag Ni Co Mn Fe As U Au Th Sr Cd Sb Bi ν Са Unit % ppm ppm ppm ppm ppm ppm ppm ppm % ppm ppm ppb ppm ppm ppm ppm ppm ppm % 0.1 1 0.01 0.5 0.1 2 0.01 0.001 MDL 0.1 0.1 0.1 1 0.1 0.1 0.5 0.1 1 0.1 0.1 0.1 **Pulp Duplicates** Soil 14.3 311 3.01 <0.1 0.5 71 0.22 0.035 1515307 1.1 13.3 58 < 0.1 19.3 8.3 8.7 0.8 1.5 4.1 19 0.4 REP 1515307 QC 13.8 302 2.89 4.4 0.5 0.034 1.1 13.3 57 < 0.1 18.7 8.0 8.7 0.8 4.1 19 0.1 0.4 70 0.23 Soil 0.8 17.9 9.0 64 547 3.25 3.3 2.4 0.2 0.3 0.083 1495683 < 0.1 15.0 11.1 3.9 0.9 69 0.1 95 1.12 REP 1495683 QC 0.7 18.3 533 3.2 2.3 72 0.2 0.084 8.9 65 0.1 15.3 11.5 3.26 4.0 0.9 0.2 0.1 95 1.19 1495680 Soil 0.8 18.0 8.3 66 < 0.1 14.9 11.8 516 3.18 3.7 0.8 1.3 2.1 64 0.2 0.3 0.1 87 1.06 0.084 RFP 1495680 OC 0.8 18.6 8.5 65 < 0.1 15.5 12.5 506 3.19 4.1 0.8 1.7 2.1 65 0.1 0.3 0.1 89 1.09 0.085 1536096 Soil 1.0 12.9 8.7 51 < 0.1 17.8 8.6 339 2.61 7.1 0.5 1.0 2.4 25 0.1 0.4 0.2 74 0.23 0.035 REP 1536096 QC 1.0 13.0 8.7 51 <0.1 17.6 8.5 338 2.58 7.5 0.5 4.6 2.5 25 0.1 0.4 0.2 74 0.24 0.036 1498069 Soil 0.8 11.2 7.2 47 0.1 13.4 6.6 203 2.51 4.8 0.4 1.8 2.3 30 <0.1 0.3 0.1 80 0.25 0.016 REP 1498069 QC 0.9 10.9 7.2 49 0.1 13.2 6.7 202 2.54 5.7 0.4 1.5 2.4 31 <0.1 0.3 0.1 78 0.25 0.017 1530956 Soil 1.2 15.3 8.5 50 0.1 14.4 8.7 328 3.09 8.0 0.6 2.8 1.8 27 0.1 0.4 0.2 89 0.23 0.042 REP 1530956 OC 1.2 15.6 8.9 50 14.6 2.1 1.9 27 0.4 0.2 0.24 0.039 0.1 8.7 315 3.01 8.1 0.6 0.1 89 **Reference Materials** 134.4 2.5 STD DS11 Standard 14.5 146.0 333 1.6 80.4 14.0 1000 3.05 41.9 77.1 7.4 64 2.1 7.9 11.2 56 1.00 0.066 STD DS11 Standard 14.8 147.1 130.9 342 1.6 79.1 13.9 1016 3.12 42.7 2.5 88.2 7.6 62 2.3 8.3 11.4 56 1.03 0.066 STD DS11 Standard 14.9 150.7 137.8 337 1.7 82.2 14.2 1061 3.19 43.3 2.6 68.2 7.7 2.3 8.7 11.5 58 1.08 0.071 66 STD DS11 14.8 156.4 133.6 1.7 1062 3.21 42.7 2.5 135.9 7.5 2.1 8.3 11.2 0.069 Standard 346 81.1 14.2 67 57 1.11 STD DS11 Standard 15.0 151.3 134.1 335 1.6 80.1 13.8 1003 3.12 43.3 2.6 62.2 8.0 68 2.4 8.5 12.0 57 0.070 1.07 STD DS11 15.1 147.5 133.6 1064 2.6 72 2.4 9.0 0.073 Standard 355 1.8 81.3 14.5 3.31 45.6 64.3 7.6 12.0 59 1.08 STD OXC129 Standard 26.6 6.4 < 0.1 81.2 20.9 426 3 08 05 07 208.2 1.8 193 < 0.1 < 0.1 < 0.1 0.101 1.4 41 61 0.71 0.098 STD OXC129 Standard 1.3 26.5 6.3 42 < 0.1 82.5 21.6 429 3.08 0.9 0.7 191.3 1.8 188 < 0.1 < 0.1 < 0.1 62 0.71 202.5 STD OXC129 Standard 1.3 27.2 6.2 41 < 0.1 81.8 21.7 441 3.13 0.9 0.7 1.9 195 <0.1 < 0.1 <0.1 62 0.72 0.104 STD OXC129 Standard 1.2 26.2 6.2 41 < 0.1 80.4 20.5 418 2.98 0.5 0.7 196.8 1.8 191 < 0.1 <0.1 < 0.1 61 0.71 0.098 STD OXC129 Standard 1.2 28.8 43 22.9 454 3.28 212.3 214 <0.1 64 0.87 0.105 6.5 < 0.1 86.3 0.7 0.7 1.9 < 0.1 < 0.1 STD OXC129 Standard 1.3 27.4 44 83.1 21.4 444 3.20 190.8 211 <0.1 64 0.104 6.4 < 0.1 1.1 0.7 1.9 <0.1 < 0.1 0.81 STD OXC129 Expected 1.3 28 6.3 42.9 79.5 20.3 421 3.065 0.72 195 1.9 51 0.665 0.102 0.6 2.59 STD DS11 Expected 14.6 156 138 345 1.71 81.9 14.2 1055 3.2082 42.8 79 7.65 67.3 2.37 8.74 12.2 50 1.063 0.0701

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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

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			Client:	<b>White Gold Corp.</b> Box 70 Dawson Yukon Y0B 1G0 Ca	nada	
BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project: Report Date:	TOO August 26, 2017		
9050 Shaughn	essy St Vancouver British Columbia V	/6P 6E5 Canada				
PHONE (604)	253-3158		Page:	1 of 2	Part:	2 of 2
QUALIT	Y CONTROL REPOR	RT		WHI	17000576.1	

	Method	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
	Analyte	La	Cr	Mg	Ва	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																		
1515307	Soil	16	30	0.52	147	0.085	3	2.07	0.012	0.07	0.1	0.02	3.7	0.1	<0.05	7	<0.5	<0.2
REP 1515307	QC	16	31	0.52	147	0.085	2	2.06	0.012	0.07	0.1	0.02	3.8	0.1	<0.05	7	<0.5	<0.2
1495683	Soil	19	28	0.80	370	0.033	1	2.27	0.025	0.08	<0.1	0.05	9.0	<0.1	<0.05	6	<0.5	<0.2
REP 1495683	QC	18	29	0.84	368	0.034	1	2.23	0.026	0.09	<0.1	0.04	9.1	<0.1	<0.05	6	<0.5	<0.2
1495680	Soil	18	25	0.65	353	0.019	<1	1.84	0.016	0.07	<0.1	0.04	9.3	<0.1	<0.05	5	<0.5	<0.2
REP 1495680	QC	18	25	0.65	360	0.020	1	1.86	0.017	0.08	<0.1	0.04	9.5	<0.1	<0.05	5	<0.5	<0.2
1536096	Soil	12	32	0.52	288	0.056	2	2.06	0.012	0.04	0.2	0.02	3.9	0.1	<0.05	7	<0.5	<0.2
REP 1536096	QC	13	31	0.52	294	0.059	2	2.13	0.012	0.04	0.1	0.02	4.1	0.1	<0.05	6	<0.5	<0.2
1498069	Soil	10	33	0.66	214	0.090	1	2.38	0.013	0.04	0.1	0.02	4.6	0.1	<0.05	8	<0.5	<0.2
REP 1498069	QC	10	32	0.67	210	0.091	2	2.43	0.013	0.04	<0.1	0.02	4.7	0.1	<0.05	8	<0.5	<0.2
1530956	Soil	12	31	0.54	190	0.065	2	2.61	0.013	0.04	0.1	0.03	5.0	0.1	<0.05	8	<0.5	<0.2
REP 1530956	QC	13	30	0.53	197	0.068	3	2.62	0.013	0.04	0.2	0.03	5.2	0.1	<0.05	8	<0.5	<0.2
Reference Materials																		
STD DS11	Standard	18	60	0.80	366	0.095	6	1.09	0.071	0.36	2.8	0.27	3.5	4.9	0.24	5	2.2	4.7
STD DS11	Standard	19	62	0.80	387	0.095	8	1.11	0.071	0.38	3.1	0.25	3.3	4.8	0.25	5	2.1	4.8
STD DS11	Standard	19	64	0.88	388	0.101	8	1.19	0.072	0.40	3.3	0.25	3.5	5.2	0.28	5	2.3	5.0
STD DS11	Standard	20	64	0.86	389	0.102	8	1.16	0.076	0.41	3.0	0.24	3.6	4.7	0.23	5	2.1	4.7
STD DS11	Standard	21	62	0.85	405	0.104	6	1.25	0.079	0.41	3.1	0.25	3.8	4.8	0.25	5	2.2	4.7
STD DS11	Standard	20	62	0.87	394	0.104	8	1.25	0.076	0.42	3.4	0.24	3.7	5.2	0.27	5	2.5	4.7
STD OXC129	Standard	13	56	1.52	49	0.430	<1	1.57	0.580	0.36	<0.1	<0.01	1.3	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	12	56	1.46	50	0.423	2	1.51	0.563	0.36	<0.1	<0.01	1.2	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	12	57	1.58	50	0.431	2	1.64	0.596	0.35	0.1	<0.01	1.1	<0.1	<0.05	5	<0.5	<0.2
STD OXC129	Standard	12	55	1.53	49	0.437	1	1.56	0.553	0.33	<0.1	<0.01	1.1	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	13	60	1.59	55	0.450	2	1.79	0.623	0.37	<0.1	<0.01	1.6	<0.1	<0.05	6	<0.5	<0.2
STD OXC129	Standard	12	56	1.58	51	0.428	2	1.61	0.620	0.37	<0.1	<0.01	1.1	<0.1	<0.05	6	<0.5	<0.2
STD OXC129 Expected		13	52	1.545	50	0.4	1	1.58	0.6	0.37			1.1			5.6		
STD DS11 Expected		18.6	61.5	0.85	385	0.0976		1.1795	0.0762	0.4	2.9	0.3	3.4	4.9	0.2835	5.1	1.9	4.56
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

												Clien	:	Whi Box 70 Dawso	<b>te Gol</b> 0 on Yukon	d Cor	T <b>P.</b> 0 Canada	3			
BUREAU VERITAS	MINERAL LABORATOR Canada	IES		www	.bureaı	uveritas	.com/u	m				Project	:	тоо							
Bureau Veritas	Commodities Canada Lt	d.										Report	Date:	Augus	st 26, 201	7					
9050 Shaughn PHONE (604)	150 Shaughnessy St. Vancouver British Columbia V6P 6E5 Canada HONE (604) 253-3158 Page: 2 of 2 Part: 1 of 2															f 2					
QUALIT	TY CONTROL	REF	POR	Т												WF	117	000	576.	1	
		AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Мо	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	v	Ca	Р
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.1	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	3	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	2	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	4	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	5	<0.01	<0.001
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	3	<0.01	<0.001

			Client:	White Gold Corp. Box 70 Dawson Yukon Y0B 1G0 Canada		
BUREAU VERITAS	MINERAL LABORATORIES Canada	www.bureauveritas.com/um	Project:	тоо		
Bureau Veritas	Commodities Canada Ltd.		Report Date:	August 26, 2017		
9050 Shaughn	essy St Vancouver British Columbia V6	6E5 Canada				
PHONE (604) 2	253-3158		Page:	2 of 2	Part:	2 of 2
QUALIT	Y CONTROL REPOR	RT		WHI170	000576.1	

		AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		La	Cr	Mg	Ва	Ti	в	AI	Na	к	w	Hg	Sc	TI	S	Ga	Se	Те
		ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		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
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
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
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
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
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

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1539872	548416	7068157		788	50	С	Subtle Slope	Chocolate Brown	White Spruce
1536110	549116	7068256		855	60	В	Pronounced Slope	Dark Brown	White Spruce
1515303	550252	7069052		1075	70	С	Subtle Slope	Chocolate Brown	Black Spruce
1536111	549117	7068207		858	70	В	Pronounced Slope	Dark Brown	Alders
1515754	548717	7068109		803	60	С	Pronounced Slope	Chocolate Brown	White Spruce
1516840	548217	7068058		815	70	С	Subtle Slope	Chocolate Brown	Alders
1495221	549015	7068206		822	60	В	Pronounced Slope	Dark Grey Black	Alders
1536109	549117	7068304		850	70	В	Pronounced Slope	Dark Brown	Alders
1497386	548819	7068205		906	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1536112	549117	7068156		864	70	В	Pronounced Slope	Dark Brown	Black Spruce
1530902	548617	7068555		896	40	В	Pronounced Slope	Chocolate Brown	White Spruce
1516824	548217	7068808		830	60	С	Subtle Slope	Chocolate Brown	White Spruce
1497242	550922	7069901		910	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1495686	548520	7068406		857	60	В	Subtle Slope	Dark Brown	White Spruce
1539851	548417	7069207		877	40	В	Subtle Slope	Dark Grey Black	White Spruce
1539864	548417	7068558		858	50	В	Subtle Slope	Dark Brown	White Spruce
1536114	549117	7068057		874	70	С	Subtle Slope	Bluish Grey	Birch Forest
1534940	548912	7068306		864	40	В	Pronounced Slope	Dark Brown	White Spruce
1536059	548717	7069004		947	60	С	Pronounced Slope	Chocolate Brown	Alders
1536101	549115	7068757		931	50	В	Pronounced Slope	Dark Brown	White Spruce
1536108	549117	7068358		853	80	С	Pronounced Slope	Chocolate Brown	Birch Forest
1536115	549117	7068007		876	60	В	Subtle Slope	Chocolate Brown	Birch Forest
1521628	550763	7069034		1008	30	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1530818	548318	7068958		882	60	С	Subtle Slope	Dark Brown	White Spruce
1495224	549017	7068058		848	60	В	Pronounced Slope	Dark Grey Black	Black Spruce
1539869	548416	7068307		819	50	В	Subtle Slope	Dark Brown	Dwarf Birch
1497234	551048	7069526		977	30	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1530911	548616	7068056		793	80	В	Pronounced Slope	Chocolate Brown	White Spruce
1497385	548814	7068255		906	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1497370	548820	7069006		914	80	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1536113	549117	7068107		888	60	В	Subtle Slope	Chocolate Brown	Birch Forest

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1539872	Reindeer Moss	Damp	Good	Sand				Soil
1536110	Sphagnum Moss > 30cm	Damp	Poor	Silt	Bright Orange Rust	Organic 10%		Soil
1515303	Reindeer Moss	Damp	Good	Sand	Bright Orange Rust			Soil
1536111	Grass Cover	Damp	Poor	Clay	Organic 10%	Partially Frozen		Soil
1515754	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1516840	Thin Moss Cover	Damp	Good	Clay	Sandy			Soil
1495221	Reindeer Moss	Damp	Poor	Silt	Clay	Organic 10%	Bright orange rust	Soil
1536109	Grass Cover	Damp	Poor	Silt	Organic 10%	Partially Frozen		Soil
1497386	Needle Cover	Dry	Good	Silt	Fine			Soil
1536112	Sphagnum Moss > 30cm	Damp	Poor	Silt	Organic 10%	Partially Frozen		Soil
1530902	Thin Moss Cover	Damp	Good	Sand	Rocky Terrain			Soil
1516824	Grass Cover	Damp	Good	Clay	Sandy			Soil
1497242	Grass Cover	Dry	Good	Silt	Rocky Sample			Soil
1495686	Reindeer Moss	Damp	Good	Clay	Bright Orange Rust			Soil
1539851	Thin Moss Cover	Damp	Poor	Silt	Organic 25%	Partially Frozen		Soil
1539864	Grass Cover	Damp	Excellent	Silt				Soil
1536114	Sphagnum Moss > 30cm	Damp	Good	Silt	Clay	Bright Orange Rust		Soil
1534940	Thin Moss Cover	Damp	Good	Sand	Rusty Rock Chip	Rocky Terrain		Soil
1536059	Leaf Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1536101	Thin Moss Cover	Damp	Good	Silt	Rocky Terrain			Soil
1536108	Leaf Cover	Damp	Excellent	Silt	Bright Orange Rust	Clay		Soil
1536115	Sphagnum Moss > 30cm	Damp	Good	Silt	Fine			Soil
1521628	Thin Moss Cover	Damp	Good	Sand				Soil
1530818	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1495224	Sphagnum Moss < 30cm	Wet	Poor	Silt	Organic 10%	Partially Frozen		Soil
1539869	Thin Moss Cover	Damp	Good	Silt	Partially Frozen			Soil
1497234	Grass Cover	Dry	Good	Silt	Rocky Sample			Soil
1530911	Thin Moss Cover	Damp	Good	Silt	Dull Red Rust			Soil
1497385	Thin Moss Cover	Damp	Good	Silt	Coarse			Soil
1497370	Thin Moss Cover	Dry	Excellent	Silt	Fine	Bright Orange Rust		Soil
1536113	Sphagnum Moss > 30cm	Damp	Good	Silt	Partially Frozen			Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1495223	549017	7068107		841	60	В	Pronounced Slope	Dark Grey Black	Black Spruce
1495222	549017	7068157		824	70	В	Pronounced Slope	Dark Grey Black	Black Spruce
1530906	548617	7068357		867	80	С	Pronounced Slope	Chocolate Brown	White Spruce
1536092	549113	7069158		1017	80	С	Subtle Slope	Light Brown	Old Burn
1530903	548617	7068505		890	70	В	Pronounced Slope	Chocolate Brown	White Spruce
1539856	548416	7068956		889	50	В	Subtle Slope	Dark Brown	Birch Forest
1521642	551227	7069561		946	40	В	Pronounced Slope	Chocolate Brown	Birch Forest
1536096	549114	7068956		977	40	В	Subtle Slope	Light Brown	White Spruce
1515312	550407	7069483		958	30	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1516837	548216	7068208		766	50	В	Flat	Chocolate Brown	Willows
1498341	550190	7070648		868	40	В	Pronounced Slope	Light Brown	Mixed Coniferous
1515307	550322	7069244		1053	40	В	Pronounced Slope	Reddish Yellow	Dwarf Birch
1515290	548618	7069056		930	70	С	Pronounced Slope	Reddish Brown	Alders
1497390	548817	7068003		903	70	В	Pronounced Slope	Chocolate Brown	White Spruce
1497381	548816	7068505		909	60	С	Subtle Slope	Yellow	White Spruce
1497382	548817	7068456		908	60	В	Subtle Slope	Chocolate Brown	White Spruce
1534941	548915	7068256		850	40	В	Pronounced Slope	Chocolate Brown	Alders
1495203	549016	7069107		1007	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498700	549878	7070326		947	50	С	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1530907	548617	7068307		856	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1516843	548217	7067908		852	50	С	Pronounced Slope	Chocolate Brown	Alders
1530781	548317	7069206		925	70	С	Subtle Slope	Dark Olivine Green	Black Spruce
1530836	548317	7068105		762	50	В	Subtle Slope	Dark Grey Black	Alders
1495695	548520	7067955		757	50	В	Subtle Slope	Dark Brown	White Spruce
1495689	548517	7068253		830	70	В	Subtle Slope	Dark Brown	White Spruce
1495225	549017	7068058	1495224	848	60	В	Pronounced Slope	Dark Grey Black	Black Spruce
1497236	551030	7069625		957	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1534926	548917	7069006		979	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1495693	548525	7068056		783	60	С	Subtle Slope	Grey	White Spruce
1497388	548814	7068105		904	80	В	Pronounced Slope	Chocolate Brown	White Spruce
1495218	549010	7068354		859	70	В	Steep	Dark Grey Black	White Spruce
		sample	sample						
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sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type	
1495223	Sphagnum Moss < 30cm	Wet	Poor	Clay	Partially Frozen	Organic 10%		Soil	
1495222	Sphagnum Moss > 30cm	Wet	Poor	Silt	Clay	Organic 25%		Soil	
1530906	Thin Moss Cover	Damp	Excellent	Sand	Coarse			Soil	
1536092	Burnt Moss	Damp	Excellent	Sand	Fine		Old recky site	Soil	
1530903	Thin Moss Cover	Damp	Good	Sand	Bright Orange Rust			Soil	
1539856	Thin Moss Cover	Dry	Good	Silt				Soil	
1521642	Leaf Cover	Damp	Good	Sand				Soil	
1536096	Burnt Moss	Damp	Good	Sand	Fine	Rocky Terrain		REP	
1515312	Burnt Moss	Damp	Poor	Silt	Rocky Terrain			Soil	
1516837	Grass Cover	Damp	Good	Silt	Clay	Partially Frozen		Soil	
1498341	Leaf Cover	Dry	Good	Silt	Fine			Soil	
1515307	Reindeer Moss	Damp	Good	Sand	Rocky Terrain			REP	
1515290	Thin Moss Cover	Damp	Good	Sand	Fine			Soil	
1497390	Leaf Cover	Damp	Good	Silt	Rocky Terrain			Soil	
1497381	Needle Cover	Dry	Good	Clay	Fine			Soil	
1497382	Thin Moss Cover	Dry	Good	Silt	Fine	Rocky Terrain		Soil	
1534941	Thin Moss Cover	Damp	Good	Silt	Fine	Rocky Terrain		Soil	
1495203	Thin Moss Cover	Dry	Good	Silt	Rocky Sample	Rocky Terrain		Soil	
1498700	Sphagnum Moss < 30cm	Dry	Good	Sand	Fine			Soil	
1530907	Thin Moss Cover	Damp	Good	Sand	Fine			Soil	
1516843	Grass Cover	Damp	Good	Clay	Sandy			Soil	
1530781	Grass Cover	Damp	Excellent	Sand	Coarse			Soil	
1530836	Grass Cover	Wet	Good	Sand	Possible Creek Contamin	Partially Frozen		Soil	
1495695	Sphagnum Moss < 30cm	Damp	Poor	Silt	Rocky Terrain	Organic 10%		Soil	
1495689	Sphagnum Moss < 30cm	Damp	Good	Clay	Bright Orange Rust			Soil	
1495225	Sphagnum Moss < 30cm	Wet	Poor	Silt	Organic 10�	Partially Frozen		Soil	
1497236	Leaf Cover	Dry	Good	Silt				Soil	
1534926	Thin Moss Cover	Damp	Good	Sand	Rocky Sample	Rocky Terrain		Soil	
1495693	Sphagnum Moss < 30cm	Damp	Good	Silt	Sandy	Rocky Terrain		Soil	
1497388	Sphagnum Moss < 30cm	Dry	Good	Silt	Organic 25%	Coarse		Soil	
1495218	Grass Cover	Damp	Good	Silt	Clay	Dull Red Rust		Soil	

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1495220	549014	7068251		826	60	В	Pronounced Slope	Dark Grey Black	Willows
1530962	549417	7069352		1057	30	В	Subtle Slope	Reddish Yellow	Dwarf Birch
1521641	551184	7069535		956	60	С	Pronounced Slope	Dark Brown	Old Burn
1521645	551356	7069639		929	50	С	Pronounced Slope	Chocolate Brown	Old Burn
1515298	548617	7068656		906	60	В	Subtle Slope	Dark Brown	White Spruce
1530819	548317	7068906		879	40	С	Subtle Slope	Dark Brown	White Spruce
1539881	548416	7067755		787	50	В	Subtle Slope	Dark Brown	Dwarf Birch
1530955	549668	7069097		1079	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1515752	548718	7068205		842	50	С	Subtle Slope	Chocolate Brown	White Spruce
1536093	549113	7069106		1012	60	В	Subtle Slope	Chocolate Brown	Old Burn
1536104	549126	7068606		901	60	В	Pronounced Slope	Dark Brown	Alders
1530961	549457	7069318		1057	40	В	Flat	Chocolate Brown	Dwarf Birch
1495682	548516	7068603		882	60	В	Subtle Slope	Dark Grey Black	White Spruce
1497240	550971	7069813		922	70	В	Subtle Slope	Chocolate Brown	Old Burn
1497233	551064	7069478		981	30	С	Flat	Chocolate Brown	Dwarf Birch
1516836	548217	7068257		749	60	С	Pronounced Slope	Light Brown	White Spruce
1495683	548516	7068556		876	60	В	Subtle Slope	Dark Grey Black	White Spruce
1495673	548515	7069006		913	50	В	Subtle Slope	Dark Grey Black	Black Spruce
1539873	548416	7068105		776	40	С	Subtle Slope	Dark Grey Black	White Spruce
1530981	548856	7069930		1060	50	В	Subtle Slope	Reddish Yellow	Dwarf Birch
1536118	549117	7067855		870	70	В	Subtle Slope	Chocolate Brown	Birch Forest
1495683	548516	7068556		876	60	В	Subtle Slope	Dark Grey Black	White Spruce
1495211	549017	7068705		935	60	В	Subtle Slope	Dark Grey Black	White Spruce
1521630	550825	7069110		993	50	В	Pronounced Slope	Chocolate Brown	Alders
1516821	548217	7068958		879	60	С	Pronounced Slope	Chocolate Brown	Alders
1495692	548520	7068105		794	60	В	Subtle Slope	Dark Grey Black	White Spruce
1495670	548518	7069157		910	60	В	Subtle Slope	Dark Grey Black	Black Spruce
1539874	548416	7067855		769	50	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1495201	549017	7069209		1013	50	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1530904	548617	7068456		883	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1530964	549345	7069422		1055	40	В	Subtle Slope	Grey	Dwarf Birch

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1495220	Sphagnum Moss < 30cm	Damp	Poor	Silt	Clay	Partially Frozen		Soil
1530962	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Talus		Soil
1521641	Thin Moss Cover	Damp	Good	Sand				Soil
1521645	Bare Soil	Damp	Good	Sand				Soil
1515298	Thin Moss Cover	Damp	Good	Sand	Coarse	Partially Frozen		REP
1530819	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1539881	Leaf Cover	Damp	Good	Silt				Soil
1530955	Burnt Moss	Dry	Good	Silt	Rocky Sample	Talus		Soil
1515752	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1536093	Burnt Moss	Damp	Good	Silt	Rocky Terrain			Soil
1536104	Thin Moss Cover	Damp	Poor	Silt	Fine	Organic 10%	Moved 10 metres off	Soil
1530961	Burnt Moss	Dry	Good	Silt	Rocky Terrain			Soil
1495682	Sphagnum Moss < 30cm	Damp	Poor	Silt	Rocky Terrain			Soil
1497240	Grass Cover	Damp	Good	Silt				Soil
1497233	Thin Moss Cover	Dry	Good	Silt	Rocky Sample			Soil
1516836	Thin Moss Cover	Damp	Good	Clay	Possible Creek Contamir	nation		Soil
1495683	Sphagnum Moss < 30cm	Damp	Good	Silt	Rocky Terrain			Soil
1495673	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 10%	Rocky Terrain		Soil
1539873	Thin Moss Cover	Damp	Good	Silt				Soil
1530981	Burnt Moss	Dry	Good	Silt	Rocky Terrain			Soil
1536118	Sphagnum Moss > 30cm	Damp	Good	Silt	Partially Frozen			Soil
1495683	Sphagnum Moss < 30cm	Damp	Good	Silt	Rocky Terrain			REP
1495211	Reindeer Moss	Damp	Poor	Silt	Clay	Bright Orange Rust		Soil
1521630	Sphagnum Moss < 30cm	Damp	Good	Sand	Rusty Rock Chip			Soil
1516821	Thin Moss Cover	Damp	Good	Clay	Sandy			Soil
1495692	Sphagnum Moss < 30cm	Damp	Poor	Clay	Rocky Terrain			Soil
1495670	Sphagnum Moss < 30cm	Damp	Poor	Silt	Rocky Terrain			Soil
1539874	Grass Cover	Damp	Good	Sand				Soil
1495201	Thin Moss Cover	Dry	Good	Silt	Quartz Chips			Soil
1530904	Thin Moss Cover	Damp	Good	Silt	Partially Frozen			Soil
1530964	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Fine		Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1497243	550918	7069952		900	40	С	Subtle Slope	Chocolate Brown	Alders
1521640	551149	7069498		965	60	С	Pronounced Slope	Chocolate Brown	Old Burn
1536073	548717	7068305		868	60	С	Subtle Slope	Chocolate Brown	White Spruce
1536060	548717	7068957		945	60	С	Pronounced Slope	Chocolate Brown	White Spruce
1530816	548316	7069056		876	60	С	Subtle Slope	Light Brown	No Tree Cover
1495228	549016	7067907		850	40	С	Subtle Slope	Chocolate Brown	White Spruce
1530960	549490	7069277		1057	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1530952	549782	7068997		1078	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498070	549986	7070431		933	50	В	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1515305	550289	7069144		1073	70	В	Subtle Slope	Grey	Dwarf Birch
1497239	551004	7069774		928	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1521678	551658	7069824		899	40	С	Pronounced Slope	Chocolate Brown	Birch Forest
1530905	548616	7068407		875	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1530842	548317	7067807		830	40	С	Subtle Slope	Light Brown	White Spruce
1539882	548415	7067705		792	50	С	Subtle Slope	Chocolate Brown	White Spruce
1497387	548817	7068155		905	60	В	Pronounced Slope	Grey	White Spruce
1495227	549016	7067955		851	30	В	Subtle Slope	Chocolate Brown	Birch Forest
1495217	549016	7068405		876	60	В	Pronounced Slope	Dark Grey Black	White Spruce
1536119	549119	7067811		906	60	В	Pronounced Slope	Dark Brown	Alders
1530956	549634	7069136		1073	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1515301	550218	7068955		1094	40	В	Flat	Chocolate Brown	Dwarf Birch
1497245	550915	7070094		873	40	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1515293	548617	7068905		923	60	В	Pronounced Slope	Dark Brown	White Spruce
1530838	548317	7068007		787	40	С	Subtle Slope	Dark Olivine Green	No Tree Cover
1495685	548516	7068454		863	60	В	Subtle Slope	Dark Grey Black	White Spruce
1495226	549016	7068006		851	40	В	Pronounced Slope	Dark Grey Black	Black Spruce
1534944	548916	7068106		807	50	В	Steep	Chocolate Brown	Black Spruce
1530971	549099	7069677		1054	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1536102	549116	7068707		912	70	В	Pronounced Slope	Dark Brown	Alders
1521676	551572	7069772		927	40	С	Pronounced Slope	Dark Brown	Dwarf Birch
1535641	550902	7070045		883	70	В	Subtle Slope	Chocolate Brown	Dwarf Birch

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1497243	Leaf Cover	Dry	Good	Silt				Soil
1521640	Leaf Cover	Damp	Excellent	Sand				Soil
1536073	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1536060	Grass Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1530816	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1495228	Thin Moss Cover	Damp	Good	Silt				Soil
1530960	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Rusty Rock Chip		Soil
1530952	Burnt Moss	Dry	Good	Silt	Rocky Sample	Talus		Soil
1498070	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine			Soil
1515305	Reindeer Moss	Damp	Good	Sand	Dull Red Rust			Soil
1497239	Leaf Cover	Dry	Good	Silt				Soil
1521678	Sphagnum Moss < 30cm	Damp	Good	Sand	Rocky Sample			Soil
1530905	Thin Moss Cover	Damp	Good	Sand	Fine			Soil
1530842	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1539882	Grass Cover	Damp	Good	Silt	Fine	Sandy		Soil
1497387	Sphagnum Moss < 30cm	Damp	Good	Silt	Fine			Soil
1495227	Reindeer Moss	Wet	Good	Silt	Bright Orange Rust	Partially Frozen		Soil
1495217	Sphagnum Moss < 30cm	Damp	Good	Clay				Soil
1536119	Grass Cover	Damp	Poor	Silt	Partially Frozen			Soil
1530956	Burnt Moss	Dry	Good	Silt	Rocky Sample	Talus		Soil
1515301	Reindeer Moss	Damp	Good	Sand	Rocky Terrain			Soil
1497245	Grass Cover	Dry	Good	Sand				Soil
1515293	Thin Moss Cover	Damp	Poor	Silt	Organic 25%	Rocky Terrain		Soil
1530838	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1495685	Reindeer Moss	Damp	Good	Silt	Bright Orange Rust			Soil
1495226	Grass Cover	Wet	Poor	Silt	Clay	Partially Frozen		Soil
1534944	Thin Moss Cover	Damp	Good	Sand	Rocky Sample	Rusty Rock Chip	Rocky terrain	Soil
1530971	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Talus		Soil
1536102	Leaf Cover	Damp	Poor	Clay	Organic 10%			Soil
1521676	Thin Moss Cover	Damp	Good	Sand				Soil
1535641	Burnt Moss	Damp	Good	Silt				Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1530913	548617	7067956		758	60	В	Subtle Slope	Dark Brown	Mixed Coniferous
1530912	548617	7068006		771	50	В	Pronounced Slope	Chocolate Brown	White Spruce
1530909	548617	7068156		819	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1515298	548617	7068656		906	60	В	Subtle Slope	Dark Brown	White Spruce
1536069	548717	7068505		905	60	С	Subtle Slope	Chocolate Brown	White Spruce
1516830	548217	7068555		803	60	С	Subtle Slope	Chocolate Brown	White Spruce
1495696	548520	7067909		747	70	В	Subtle Slope	Dark Brown	Black Spruce
1497380	548817	7068556		909	40	С	Subtle Slope	Light Brown	White Spruce
1497373	548820	7068855		915	60	С	Subtle Slope	Light Brown	White Spruce
1515313	550431	7069528		951	30	В	Pronounced Slope	Chocolate Brown	Birch Forest
1521627	550731	7068994		1017	50	С	Pronounced Slope	Dark Brown	Dwarf Birch
1521631	550857	7069149		987	50	С	Pronounced Slope	Chocolate Brown	Old Burn
1497247	550896	7070194		859	40	С	Subtle Slope	Chocolate Brown	Alders
1535643	551145	7070568		816	70	С	Subtle Slope	Chocolate Brown	Old Burn
1536062	548717	7068858		942	40	В	Subtle Slope	Chocolate Brown	White Spruce
1516832	548217	7068458		806	70	С	Pronounced Slope	Chocolate Brown	White Spruce
1495230	549018	7067808		845	60	В	Subtle Slope	Chocolate Brown	Alders
1530980	548889	7069892		1061	40	В	Subtle Slope	Reddish Yellow	Dwarf Birch
1495213	549017	7068606		920	70	В	Subtle Slope	Chocolate Brown	White Spruce
1536121	549117	7067705		855	50	С	Subtle Slope	Reddish Orange	White Spruce
1530954	549705	7069062		1081	50	В	Subtle Slope	Grey	Dwarf Birch
1498339	550132	7070565		890	40	В	Pronounced Slope	Chocolate Brown	Alders
1515304	550271	7069098		1063	50	С	Subtle Slope	Dark Brown	Willows
1515318	550385	7069769		887	50	В	Pronounced Slope	Grey	Birch Forest
1515295	548617	7068806		918	40	В	Pronounced Slope	Chocolate Brown	White Spruce
1536061	548717	7068907		942	40	С	Subtle Slope	Chocolate Brown	Alders
1516831	548218	7068506		836	60	В	Subtle Slope	Chocolate Brown	White Spruce
1530820	548317	7068855		890	80	С	Subtle Slope	Grey	White Spruce
1530843	548317	7067756		831	50	С	Subtle Slope	Dark Olivine Green	Alders
1539871	548417	7068207		799	40	В	Subtle Slope	Dark Grey Black	Dwarf Birch
1539877	548416	7068007		749	30	В	Subtle Slope	Dark Grey Black	White Spruce

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1530913	Reindeer Moss	Damp	Poor	Silt	Partially Frozen	Organic 10%		Soil
1530912	Reindeer Moss	Damp	Good	Sand				Soil
1530909	Thin Moss Cover	Damp	Good	Sand	Fine			Soil
1515298	Thin Moss Cover	Damp	Good	Sand	Coarse	Partially Frozen		Soil
1536069	Thin Moss Cover	Dry	Good	Clay	Fine	Rocky Sample		Soil
1516830	Thin Moss Cover	Damp	Good	Clay				REP
1495696	Sphagnum Moss < 30cm	Damp	Poor	Clay	Bright Orange Rust	Possible Creek Contaminat	Sample site approxim	Soil
1497380	Sphagnum Moss < 30cm	Dry	Good	Silt	Coarse	Rocky Sample		REP
1497373	Thin Moss Cover	Dry	Good	Silt	Fine			Soil
1515313	Reindeer Moss	Damp	Poor	Silt	Rocky Terrain	Small Sample		Soil
1521627	Grass Cover	Damp	Good	Sand	Rusty Rock Chip			Soil
1521631	Thin Moss Cover	Damp	Excellent	Sand				Soil
1497247	Leaf Cover	Dry	Excellent	Sand				Soil
1535643	Burnt Moss	Damp	Good	Sand				Soil
1536062	Grass Cover	Dry	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1516832	Thin Moss Cover	Damp	Good	Clay	Sandy			Soil
1495230	Grass Cover	Damp	Good	Silt	Bright Orange Rust	Possible Creek Contaminat	ion	Soil
1530980	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Fine		Soil
1495213	Grass Cover	Damp	Good	Clay	Dull Red Rust			Soil
1536121	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Bright Orange Rust	Rocky Terrain		Soil
1530954	Burnt Moss	Dry	Good	Silt	Rocky Sample	Talus		Soil
1498339	Leaf Cover	Dry	Good	Silt	Bright Orange Rust			Soil
1515304	Thin Moss Cover	Damp	Good	Clay	Dull Red Rust	Sandy		Soil
1515318	Leaf Cover	Damp	Good	Sand	Rocky Terrain			Soil
1515295	Thin Moss Cover	Damp	Good	Sand	Rocky Terrain	Organic 10%		Soil
1536061	Grass Cover	Dry	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1516831	Thin Moss Cover	Damp	Good	Clay				Soil
1530820	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1530843	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Rusty Rock Chip			Soil
1539871	Thin Moss Cover	Damp	Good	Sand				Soil
1539877	Thin Moss Cover	Damp	Good	Silt	Frozen	Possible Creek Contaminat	ion	Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1534954	548920	7067806		827	70	В	Subtle Slope	Chocolate Brown	White Spruce
1536098	549114	7068855		953	60	В	Pronounced Slope	Dark Brown	White Spruce
1536116	549116	7067956		874	50	В	Subtle Slope	Bluish Grey	Birch Forest
1498695	549527	7070134		990	30	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1515308	550340	7069292		1056	40	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1530901	548617	7068606		901	60	В	Pronounced Slope	Dark Brown	White Spruce
1515291	548617	7069005		929	70	В	Pronounced Slope	Chocolate Brown	White Spruce
1515756	548716	7068007		755	70	С	Subtle Slope	Chocolate Brown	Alders
1516806	548217	7069058		856	50	В	Pronounced Slope	Light Brown	White Spruce
1530834	548317	7068205		804	50	С	Subtle Slope	Dark Brown	Alders
1539860	548415	7068754		874	50	В	Subtle Slope	Dark Brown	Dwarf Birch
1539878	548416	7067954		747	40	В	Subtle Slope	Dark Grey Black	Black Spruce
1495231	549012	7067756		839	60	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1495219	549017	7068307		842	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1530969	549168	7069601		1060	60	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498064	549696	7070239		970	40	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1498340	550155	7070611		881	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1497248	550918	7070239		849	80	В	Subtle Slope	Dark Brown	Willows
1530914	548617	7067906		755	50	С	Pronounced Slope	Chocolate Brown	White Spruce
1495690	548522	7068205		821	60	В	Subtle Slope	Dark Brown	White Spruce
1495229	549016	7067854		849	40	В	Subtle Slope	Chocolate Brown	Birch Forest
1534935	548918	7068553		925	60	С	Pronounced Slope	Reddish Brown	Black Spruce
1534938	548914	7068404		892	50	В	Pronounced Slope	Chocolate Brown	White Spruce
1534939	548915	7068355		878	80	В	Pronounced Slope	Dark Brown	White Spruce
1495210	549016	7068756		944	50	В	Subtle Slope	Dark Brown	Dwarf Birch
1495207	549019	7068907		974	50	В	Subtle Slope	Chocolate Brown	Willows
1498686	549138	7069900		1070	40	В	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1536097	549114	7068902		965	50	В	Pronounced Slope	Reddish Brown	White Spruce
1536099	549115	7068807		942	80	В	Pronounced Slope	Dark Grey Black	White Spruce
1536117	549117	7067907		866	50	В	Subtle Slope	Dark Brown	Birch Forest
1530953	549740	7069024		1084	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1534954	Thin Moss Cover	Damp	Good	Silt	Rusty Rock Chip	Rocky Terrain		Soil
1536098	Thin Moss Cover	Damp	Good	Silt	Rocky Terrain			Soil
1536116	Sphagnum Moss > 30cm	Damp	Good	Silt	Partially Frozen			Soil
1498695	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine			Soil
1515308	Reindeer Moss	Damp	Good	Sand	Dull Red Rust			Soil
1530901	Reindeer Moss	Damp	Good	Sand	Organic 10%			Soil
1515291	Thin Moss Cover	Damp	Good	Silt				Soil
1515756	Reindeer Moss	Dry	Good	Silt	Possible Creek Contamin	Rocky Sample		Soil
1516806	Thin Moss Cover	Dry	Good	Sand				Soil
1530834	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1539860	Thin Moss Cover	Damp	Good	Silt				Soil
1539878	Reindeer Moss	Damp	Good	Silt				Soil
1495231	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 10%			Soil
1495219	Reindeer Moss	Damp	Good	Silt	Clay	Rusty Rock Chip		Soil
1530969	Burnt Moss	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1498064	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1498340	Sphagnum Moss < 30cm	Damp	Good	Silt	Fine			Soil
1497248	Sphagnum Moss < 30cm	Damp	Good	Clay	Frozen			Soil
1530914	Reindeer Moss	Damp	Good	Sand	Coarse	Dull Red Rust		Soil
1495690	Sphagnum Moss < 30cm	Damp	Good	Silt	Rocky Terrain			Soil
1495229	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 10%			Soil
1534935	Sphagnum Moss < 30cm	Damp	Good	Silt	Dull Red Rust	Rocky Terrain		Soil
1534938	Thin Moss Cover	Damp	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1534939	Grass Cover	Damp	Good	Silt	Rusty Rock Chip	Rocky Terrain		Soil
1495210	Leaf Cover	Damp	Poor	Silt	Dull Red Rust			Soil
1495207	Grass Cover	Damp	Good	Silt	Quartz Chips			Soil
1498686	Thin Moss Cover	Dry	Good	Silt	Fine	Outcrop Nearby		Soil
1536097	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1536099	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 10%			Soil
1536117	Leaf Cover	Damp	Good	Silt	Bright Orange Rust	Partially Frozen		Soil
1530953	Burnt Moss	Dry	Good	Silt	Rocky Sample	Talus		Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1498071	550015	7070473		926	60	В	Pronounced Slope	Chocolate Brown	Alders
1521644	551312	7069614		932	40	С	Pronounced Slope	Dark Brown	Old Burn
1515297	548616	7068706		911	80	С	Pronounced Slope	Chocolate Brown	White Spruce
1516830	548217	7068555		803	60	С	Subtle Slope	Chocolate Brown	White Spruce
1530831	548317	7068356		823	40	С	Subtle Slope	Light Brown	Birch Forest
1539867	548414	7068407		838	40	С	Subtle Slope	Chocolate Brown	Birch Forest
1497383	548817	7068406		908	60	С	Subtle Slope	Light Brown	White Spruce
1534951	548915	7068005		826	40	А	Pronounced Slope	Chocolate Brown	Birch Forest
1536106	549127	7068457		874	60	В	Subtle Slope	Dark Brown	Alders
1498692	549396	7070060		1013	40	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1530958	549568	7069211		1064	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1530957	549603	7069174		1068	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1530956	549634	7069136		1073	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1515323	550299	7070009		816	60	В	Pronounced Slope	Grey	Black Spruce
1521629	550793	7069072		1000	30	В	Pronounced Slope	Chocolate Brown	Old Burn
1521648	551529	7069746		942	40	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1535636	550956	7070270		841	60	В	Subtle Slope	Chocolate Brown	Old Burn
1516825	548217	7068808	1516824	796	60	С	Subtle Slope	Chocolate Brown	White Spruce
1539853	548417	7069106		888	60	С	Subtle Slope	Chocolate Brown	White Spruce
1495688	548517	7068305		839	100	С	Subtle Slope	Light Brown	White Spruce
1495681	548523	7068655		887	40	В	Subtle Slope	Dark Grey Black	White Spruce
1539868	548415	7068353		828	50	С	Subtle Slope	Chocolate Brown	White Spruce
1497378	548816	7068656		910	60	С	Subtle Slope	Chocolate Brown	White Spruce
1495212	549016	7068657		928	60	В	Subtle Slope	Chocolate Brown	White Spruce
1536100	549115	7068807	1536099	942	80	В	Pronounced Slope	Dark Grey Black	White Spruce
1498698	549662	7070202		974	30	В	Subtle Slope	Chocolate Brown	White Spruce
1515758	548720	7067908		778	80	С	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1536066	548717	7068657		927	60	В	Subtle Slope	Chocolate Brown	White Spruce
1516833	548216	7068409		774	50	В	Subtle Slope	Chocolate Brown	Black Spruce
1516807	548216	7069009		845	70	С	Pronounced Slope	Chocolate Brown	White Spruce
1516805	548216	7069106		842	60	С	Pronounced Slope	Chocolate Brown	Alders

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1498071	Sphagnum Moss < 30cm	Dry	Good	Silt	Bright Orange Rust			Soil
1521644	Grass Cover	Damp	Good	Sand				Soil
1515297	Reindeer Moss	Damp	Excellent	Sand	Coarse			Soil
1516830	Thin Moss Cover	Damp	Good	Clay				Soil
1530831	Grass Cover	Damp	Excellent	Sand	Rusty Rock Chip			Soil
1539867	Grass Cover	Damp	Good	Silt				Soil
1497383	Sphagnum Moss < 30cm	Dry	Good	Clay	Fine			Soil
1534951	Grass Cover	Damp	Good	Silt	Quartz Chips	Rusty Rock Chip		Soil
1536106	Grass Cover	Damp	Poor	Clay	Rocky Terrain			Soil
1498692	Thin Moss Cover	Dry	Good	Silt	Bright Orange Rust			Soil
1530958	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Rocky Sample		Soil
1530957	Burnt Moss	Dry	Good	Silt	Talus			Soil
1530956	Burnt Moss	Dry	Good	Silt	Rocky Sample	Talus		REP
1515323	Reindeer Moss	Damp	Good	Clay	Partially Frozen			Soil
1521629	Thin Moss Cover	Damp	Good	Sand	Rocky Terrain			Soil
1521648	Leaf Cover	Damp	Good	Sand				Soil
1535636	Burnt Moss	Damp	Good	Silt				Soil
1516825	Grass Cover	Damp	Good	Clay	Sandy			Soil
1539853	Thin Moss Cover	Damp	Good	Silt				Soil
1495688	Sphagnum Moss < 30cm	Damp	Good	Silt	Sandy			Soil
1495681	Sphagnum Moss < 30cm	Damp	Poor	Silt	Bright Orange Rust	Rocky Terrain		Soil
1539868	Thin Moss Cover	Damp	Good	Silt			Some yellow sand/ si	Soil
1497378	Grass Cover	Dry	Excellent	Silt	Fine	Rocky Sample		Soil
1495212	Reindeer Moss	Damp	Good	Silt	Clay	Bright Orange Rust		Soil
1536100	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 10�			Soil
1498698	Reindeer Moss	Dry	Good	Silt	Rocky Terrain			Soil
1515758	Thin Moss Cover	Dry	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1536066	Grass Cover	Damp	Good	Silt	Partially Frozen	Organic 10%		Soil
1516833	Reindeer Moss	Damp	Good	Clay				Soil
1516807	Bare Soil	Damp	Good	Clay				Soil
1516805	Grass Cover	Damp	Good	Sand				Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1530822	548316	7068756		820	50	С	Subtle Slope	Dark Brown	Alders
1497372	548815	7068906		913	50	В	Subtle Slope	Chocolate Brown	Old Burn
1534937	548914	7068456		902	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1534952	548914	7067903		830	40	В	Subtle Slope	Chocolate Brown	Birch Forest
1495215	549019	7068507		900	50	В	Subtle Slope	Chocolate Brown	White Spruce
1530973	549027	7069748		1053	40	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1498690	549311	7070004		1026	60	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1521633	550923	7069227		978	50	С	Pronounced Slope	Chocolate Brown	Old Burn
1521636	551019	7069342		977	40	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1521677	551614	7069799		911	40	В	Pronounced Slope	Light Brown	Alders
1521680	551745	7069878		885	40	С	Pronounced Slope	Chocolate Brown	Birch Forest
1535638	550995	7070362		839	50	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1515300	548617	7068206	1515299	833	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1515299	548617	7068206		833	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1516844	548218	7067854		834	60	С	Pronounced Slope	Chocolate Brown	Alders
1495684	548519	7068503		872	60	В	Subtle Slope	Dark Grey Black	White Spruce
1495675	548517	7068956	1495674	911	70	С	Subtle Slope	Grey	White Spruce
1539876	548415	7068056		762	30	В	Pronounced Slope	Dark Grey Black	White Spruce
1539880	548416	7067808		778	50	В	Subtle Slope	Dark Grey Black	White Spruce
1534919	548918	7069107		985	40	В	Pronounced Slope	Reddish Brown	Willows
1530975	548782	7069999		1054	30	С	Subtle Slope	Reddish Yellow	Dwarf Birch
1530982	548817	7069963		1059	40	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1495204	549017	7069057		1000	50	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1536103	549115	7068655		908	60	В	Pronounced Slope	Dark Brown	Alders
1536107	549117	7068406		858	80	В	Pronounced Slope	Dark Brown	Birch Forest
1498693	549438	7070089		1004	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498069	549949	7070396		937	40	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1515315	550434	7069625		911	40	В	Pronounced Slope	Light Brown	Birch Forest
1521632	550891	7069189		980	50	С	Pronounced Slope	Chocolate Brown	Old Burn
1521647	551486	7069720		941	40	С	Subtle Slope	Chocolate Brown	Old Burn
1521650	551442	7069694	1521649	942	30	С	Subtle Slope	Light Brown	Dwarf Birch

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1530822	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1497372	Grass Cover	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1534937	Thin Moss Cover	Damp	Good	Silt	Fine	Rocky Terrain		Soil
1534952	Thin Moss Cover	Damp	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1495215	Thin Moss Cover	Damp	Good	Clay	Fine	Dull Red Rust	Outcrop near by	Soil
1530973	Burnt Moss	Dry	Good	Sand	Bright Orange Rust	Rocky Terrain		Soil
1498690	Sphagnum Moss < 30cm	Damp	Good	Silt	Fine	Bright Orange Rust		Soil
1521633	Thin Moss Cover	Damp	Good	Sand				Soil
1521636	Leaf Cover	Dry	Good	Sand				Soil
1521677	Sphagnum Moss < 30cm	Dry	Good	Sand				Soil
1521680	Thin Moss Cover	Damp	Good	Sand				Soil
1535638	Leaf Cover	Dry	Good	Sand				Soil
1515300	Thin Moss Cover	Damp	Good	Sand	Fine			Soil
1515299	Thin Moss Cover	Damp	Good	Sand	Fine			Soil
1516844	Grass Cover	Damp	Good	Clay				Soil
1495684	Sphagnum Moss < 30cm	Damp	Poor	Silt	Bright Orange Rust			Soil
1495675	Sphagnum Moss < 30cm	Damp	Good	Sand	Fine	Bright Orange Rust		Soil
1539876	Thin Moss Cover	Damp	Poor	Silt	Partially Frozen	Organic 25%	fine. Silt.	Soil
1539880	Thin Moss Cover	Damp	Good	Silt	Sandy			Soil
1534919	Thin Moss Cover	Damp	Good	Sand	Rusty Rock Chip	Rocky Terrain		Soil
1530975	Burnt Moss	Dry	Good	Sand	Rocky Terrain			Soil
1530982	Burnt Moss	Damp	Good	Sand	Rocky Terrain			Soil
1495204	Thin Moss Cover	Damp	Good	Silt	Rocky Terrain			Soil
1536103	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 10%	Clay		Soil
1536107	Grass Cover	Damp	Poor	Silt	Organic 10%	Partially Frozen		Soil
1498693	Thin Moss Cover	Dry	Good	Silt	Dull Red Rust			Soil
1498069	Sphagnum Moss < 30cm	Dry	Good	Silt	Bright Orange Rust			Soil
1515315	Leaf Cover	Dry	Poor	Silt	Rocky Terrain			Soil
1521632	Thin Moss Cover	Damp	Good	Sand				Soil
1521647	Thin Moss Cover	Damp	Good	Sand				Soil
1521650	Leaf Cover	Dry	Good	Sand				Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1515757	548718	7067954		757	60	С	Pronounced Slope	Chocolate Brown	White Spruce
1515751	548716	7068257		857	60	С	Subtle Slope	Chocolate Brown	White Spruce
1536072	548718	7068357		880	60	С	Subtle Slope	Chocolate Brown	White Spruce
1530828	548317	7068456		842	50	С	Subtle Slope	Dark Brown	Alders
1530830	548317	7068407		813	50	С	Subtle Slope	Dark Brown	No Tree Cover
1495680	548520	7068756		895	70	В	Subtle Slope	Dark Grey Black	White Spruce
1539862	548418	7068657		869	60	В	Subtle Slope	Dark Grey Black	Dwarf Birch
1497391	548815	7067956		903	50	В	Pronounced Slope	Light Brown	White Spruce
1497393	548818	7067855		902	40	В	Pronounced Slope	Light Brown	Alders
1497371	548818	7068956		915	70	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1495232	549017	7067710		836	20	В	Subtle Slope	Chocolate Brown	White Spruce
1495230	549018	7067808		845	60	В	Subtle Slope	Chocolate Brown	Alders
1495216	549018	7068457		888	50	В	Subtle Slope	Chocolate Brown	White Spruce
1534943	548916	7068156		809	80	С	Pronounced Slope	Dark Brown	White Spruce
1530979	548916	7069849		1059	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1495206	549016	7068958		984	50	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498684	549052	7069849		1059	50	В	Pronounced Slope	Light Brown	Dwarf Birch
1530959	549526	7069243		1060	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1515309	550358	7069338		1021	40	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1497244	550893	7069995		895	50	В	Subtle Slope	Chocolate Brown	White Spruce
1530908	548617	7068257		846	40	В	Pronounced Slope	Chocolate Brown	White Spruce
1515288	548617	7069157		928	50	В	Pronounced Slope	Chocolate Brown	Old Burn
1515287	548617	7069206		924	50	В	Pronounced Slope	Chocolate Brown	Old Burn
1516847	548216	7067707		850	80	С	Subtle Slope	Light Brown	White Spruce
1516829	548215	7068607		805	60	С	Pronounced Slope	Chocolate Brown	White Spruce
1530824	548316	7068657		882	50	С	Subtle Slope	Dark Brown	No Tree Cover
1495677	548516	7068806		898	70	В	Subtle Slope	Dark Grey Black	White Spruce
1495669	548517	7069204		901	60	В	Subtle Slope	Dark Brown	Black Spruce
1534930	548919	7068806		961	40	С	Subtle Slope	Reddish Orange	Dwarf Birch
1534945	548917	7068054		820	40	В	Pronounced Slope	Chocolate Brown	Black Spruce
1534956	548912	7067707		817	30	В	Pronounced Slope	Grey	Alders

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1515757	Reindeer Moss	Dry	Good	Sand	Rocky Sample	Possible Creek Contaminat	tion	Soil
1515751	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1536072	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1530828	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1530830	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1495680	Sphagnum Moss < 30cm	Damp	Good	Silt	Bright Orange Rust			REP
1539862	Grass Cover	Damp	Good	Silt				Soil
1497391	Sphagnum Moss < 30cm	Dry	Good	Clay	Fine	Organic 10%		Soil
1497393	Sphagnum Moss < 30cm	Dry	Poor	Silt	Fine	Organic 10%		Soil
1497371	Thin Moss Cover	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1495232	Rock Cover	Dry	Good	Silt				Soil
1495230	Grass Cover	Damp	Good	Silt	Bright Orange Rust	Possible Creek Contaminat	tion	REP
1495216	Bare Soil	Damp	Good	Silt	Fine			Soil
1534943	Thin Moss Cover	Damp	Good	Silt	Dull Red Rust	Rocky Sample		Soil
1530979	Burnt Moss	Dry	Good	Silt	Rocky Terrain			Soil
1495206	Grass Cover	Damp	Good	Silt	Bright Orange Rust	Rusty Rock Chip		Soil
1498684	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine			Soil
1530959	Burnt Moss	Dry	Good	Silt	Dull Red Rust	Rocky Terrain		Soil
1515309	Reindeer Moss	Damp	Good	Sand	Bright Orange Rust	Rocky Terrain		Soil
1497244	Leaf Cover	Dry	Good	Silt	Clay			Soil
1530908	Thin Moss Cover	Damp	Good	Sand	Rocky Terrain			Soil
1515288	Grass Cover	Damp	Good	Sand	Rocky Terrain			Soil
1515287	Grass Cover	Damp	Good	Sand	Rocky Terrain	Organic 10%		Soil
1516847	Thin Moss Cover	Dry	Excellent	Sand	Coarse			Soil
1516829	Thin Moss Cover	Damp	Good	Silt	Sandy			Soil
1530824	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1495677	Reindeer Moss	Damp	Poor	Silt	Bright Orange Rust			Soil
1495669	Reindeer Moss	Damp	Good	Silt	Sandy	Rocky Terrain		Soil
1534930	Leaf Cover	Damp	Good	Silt	Dull Red Rust	Rocky Terrain		Soil
1534945	Sphagnum Moss < 30cm	Damp	Good	Sand	Rocky Sample	Rusty Rock Chip	Rocky terrain	Soil
1534956	Grass Cover	Damp	Poor	Clay	Organic 50%	Rocky Terrain		Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1498688	549227	7069949		1042	40	В	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1498699	549878	7070326		949	50	С	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1515322	550313	7069958		823	30	В	Subtle Slope	Chocolate Brown	Black Spruce
1515292	548617	7068956		926	90	С	Pronounced Slope	Reddish Yellow	White Spruce
1516846	548217	7067756		879	70	С	Subtle Slope	Light Brown	White Spruce
1516838	548216	7068157		751	60	С	Pronounced Slope	Chocolate Brown	Black Spruce
1530827	548317	7068558		853	70	С	Subtle Slope	Light Brown	Alders
1495678	548516	7068905		905	70	В	Subtle Slope	Dark Grey Black	White Spruce
1539868	548415	7068353		828	50	С	Subtle Slope	Chocolate Brown	White Spruce
1497376	548819	7068755		911	90	С	Subtle Slope	Greyish Green	Dwarf Birch
1497368	548819	7069107		915	80	С	Subtle Slope	Yellow	Dwarf Birch
1534953	548913	7067855		829	40	В	Subtle Slope	Light Brown	White Spruce
1495209	549017	7068807		954	60	С	Subtle Slope	Chocolate Brown	Mixed Coniferous
1498683	549011	7069821		1045	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1536095	549114	7069007		992	40	В	Subtle Slope	Reddish Brown	Willows
1536105	549116	7068556		890	70	В	Pronounced Slope	Dark Brown	Alders
1498068	549918	7070356		942	50	В	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1498069	549949	7070396		937	40	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1515307	550322	7069244		1053	40	В	Pronounced Slope	Reddish Yellow	Dwarf Birch
1515310	550378	7069385		998	40	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1521634	550954	7069265		977	30	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1530918	548617	7067706		730	60	В	Subtle Slope	Chocolate Brown	White Spruce
1536075	548718	7067706	1536074	759	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1536064	548717	7068759		936	40	С	Pronounced Slope	Chocolate Brown	White Spruce
1536063	548717	7068809		938	60	С	Subtle Slope	Chocolate Brown	White Spruce
1516841	548216	7068007		845	60	С	Subtle Slope	Light Brown	Alders
1516828	548217	7068656		817	60	С	Subtle Slope	Chocolate Brown	Alders
1530821	548317	7068805		861	40	С	Subtle Slope	Dark Brown	Birch Forest
1530825	548316	7068657	1530824	837	50	С	Subtle Slope	Dark Brown	No Tree Cover
1530840	548316	7067907		795	50	С	Subtle Slope	Light Brown	Alders
1530844	548317	7067706		819	50	С	Subtle Slope	Dark Olivine Green	Alders

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1498688	Reindeer Moss	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1498699	Sphagnum Moss < 30cm	Dry	Good	Sand	Fine			Soil
1515322	Reindeer Moss	Damp	Poor	Silt	Organic 10%	Talus		Soil
1515292	Thin Moss Cover	Damp	Excellent	Sand	Coarse			Soil
1516846	Thin Moss Cover	Dry	Good	Sand				Soil
1516838	Reindeer Moss	Damp	Good	Clay				Soil
1530827	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1495678	Sphagnum Moss < 30cm	Damp	Poor	Silt	Bright Orange Rust	Organic 10%		Soil
1539868	Thin Moss Cover	Damp	Good	Silt			Some yellow sand/ si	REP
1497376	Thin Moss Cover	Dry	Excellent	Sand	Coarse	Rocky Sample		Soil
1497368	Thin Moss Cover	Dry	Excellent	Silt	Fine	Rocky Terrain		Soil
1534953	Thin Moss Cover	Damp	Poor	Silt	Rocky Sample	Rocky Terrain		Soil
1495209	Grass Cover	Damp	Good	Silt	Bright Orange Rust			Soil
1498683	Burnt Moss	Dry	Good	Silt	Fine			Soil
1536095	Burnt Moss	Damp	Poor	Silt	Organic 10%	Rocky Terrain		Soil
1536105	Thin Moss Cover	Damp	Poor	Clay	Organic 10%	Partially Frozen		Soil
1498068	Grass Cover	Dry	Good	Silt	Quartz Chips			Soil
1498069	Sphagnum Moss < 30cm	Dry	Good	Silt	Bright Orange Rust			REP
1515307	Reindeer Moss	Damp	Good	Sand	Rocky Terrain			Soil
1515310	Reindeer Moss	Damp	Good	Sand	Organic 10%	Rocky Terrain		Soil
1521634	Thin Moss Cover	Damp	Good	Sand				Soil
1530918	Thin Moss Cover	Damp	Good	Silt	Partially Frozen	Organic 10%		Soil
1536075	Thin Moss Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1536064	Leaf Cover	Dry	Good	Sand	Fine	Rocky Terrain		Soil
1536063	Thin Moss Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1516841	Reindeer Moss	Dry	Good	Sand				Soil
1516828	Thin Moss Cover	Dry	Good	Sand				Soil
1530821	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1530825	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1530840	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1530844	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1495697	548514	7067855		746	60	В	Subtle Slope	Dark Grey Black	Black Spruce
1495694	548524	7068000		769	90	В	Subtle Slope	Chocolate Brown	White Spruce
1495671	548517	7069106		913	60	В	Subtle Slope	Chocolate Brown	Black Spruce
1539859	548416	7068804		876	50	В	Subtle Slope	Dark Brown	White Spruce
1497392	548814	7067904		902	60	В	Pronounced Slope	Chocolate Brown	Birch Forest
1534955	548921	7067755		823	50	В	Pronounced Slope	Light Brown	White Spruce
1534918	548918	7069156		987	40	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1536120	549117	7067755		862	50	В	Subtle Slope	Reddish Brown	White Spruce
1530965	549306	7069455		1056	40	В	Subtle Slope	Reddish Yellow	Dwarf Birch
1530963	549385	7069392		1054	50	В	Subtle Slope	Reddish Yellow	Dwarf Birch
1498694	549483	7070110		996	70	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1530951	549816	7068958		1062	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498337	550056	7070500		914	30	В	Pronounced Slope	Chocolate Brown	Mixed Coniferous
1521626	550698	7068956		1027	40	В	Pronounced Slope	Dark Brown	Dwarf Birch
1497238	551012	7069725		941	60	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1535642	551109	7070531		822	30	С	Flat	Chocolate Brown	Old Burn
1536074	548718	7067706		759	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1536065	548718	7068710		933	60	С	Subtle Slope	Chocolate Brown	White Spruce
1516834	548216	7068357		778	50	В	Subtle Slope	Chocolate Brown	White Spruce
1516827	548217	7068708		823	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1516804	548217	7069157		830	50	В	Pronounced Slope	Dark Brown	Black Spruce
1530826	548317	7068607		855	90	С	Subtle Slope	Dark Olivine Green	Alders
1530832	548316	7068308		816	40	С	Subtle Slope	Dark Grey Black	Alders
1495679	548519	7068707		891	60	В	Subtle Slope	Dark Grey Black	White Spruce
1495680	548520	7068756		895	70	В	Subtle Slope	Dark Grey Black	White Spruce
1497384	548820	7068305		907	50	В	Pronounced Slope	Light Brown	White Spruce
1534933	548918	7068652		942	80	С	Subtle Slope	Reddish Brown	Black Spruce
1495208	549017	7068857		965	60	С	Subtle Slope	Chocolate Brown	Alders
1498687	549184	7069922		1056	40	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1515306	550301	7069195		1071	30	В	Subtle Slope	Chocolate Brown	Old Burn
1515296	548617	7068752		913	60	В	Pronounced Slope	Dark Brown	Mixed Coniferous

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1495697	Reindeer Moss	Damp	Poor	Clay	Bright Orange Rust	Rocky Terrain		Soil
1495694	Sphagnum Moss < 30cm	Damp	Good	Sand	Fine			Soil
1495671	Sphagnum Moss < 30cm	Damp	Good	Silt	Sandy			Soil
1539859	Reindeer Moss	Damp	Good	Silt				Soil
1497392	Grass Cover	Damp	Good	Silt	Coarse	Rocky Terrain		Soil
1534955	Thin Moss Cover	Damp	Poor	Silt	Organic 50%	Rocky Sample	Rocky terrain	Soil
1534918	Thin Moss Cover	Damp	Good	Sand	Rusty Rock Chip	Rocky Terrain		Soil
1536120	Sphagnum Moss < 30cm	Damp	Good	Sand	Fine	Rocky Terrain		Soil
1530965	Burnt Moss	Dry	Good	Silt	Rocky Terrain	Fine		Soil
1530963	Burnt Moss	Dry	Good	Silt	Bright Orange Rust	Rocky Terrain		Soil
1498694	Thin Moss Cover	Dry	Good	Silt	Coarse			Soil
1530951	Bare Soil	Dry	Good	Silt	Fine	Talus		Soil
1498337	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1521626	Grass Cover	Damp	Good	Sand				Soil
1497238	Burnt Moss	Dry	Good	Silt				Soil
1535642	Thin Moss Cover	Dry	Good	Sand				Soil
1536074	Thin Moss Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1536065	Reindeer Moss	Dry	Good	Silt	Fine	Rocky Sample		Soil
1516834	Thin Moss Cover	Damp	Good	Silt	Clay			Soil
1516827	Thin Moss Cover	Dry	Good	Silt	Clay			Soil
1516804	Reindeer Moss	Damp	Good	Silt	Partially Frozen			Soil
1530826	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1530832	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Partially Frozen			Soil
1495679	Sphagnum Moss < 30cm	Damp	Poor	Silt	Organic 25%			Soil
1495680	Sphagnum Moss < 30cm	Damp	Good	Silt	Bright Orange Rust			Soil
1497384	Needle Cover	Dry	Poor	Clay	Fine			Soil
1534933	Thin Moss Cover	Damp	Good	Silt	Dull Red Rust			Soil
1495208	Grass Cover	Damp	Good	Silt	Bright Orange Rust	Quartz Chips		Soil
1498687	Reindeer Moss	Dry	Poor	Clay	Organic 10%			Soil
1515306	Reindeer Moss	Damp	Good	Sand	Rocky Terrain			Soil
1515296	Sphagnum Moss > 30cm	Damp	Poor	Silt	Partially Frozen	Organic 10%		Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1536067	548718	7068606		922	50	С	Subtle Slope	Chocolate Brown	White Spruce
1536056	548718	7069159		948	50	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1516822	548217	7068908		853	70	С	Pronounced Slope	Chocolate Brown	Alders
1530841	548317	7067856		807	50	С	Subtle Slope	Light Brown	Alders
1495701	548514	7067755		759	50	В	Subtle Slope	Dark Brown	Black Spruce
1495702	548521	7067711		761	50	В	Subtle Slope	Dark Brown	Black Spruce
1539866	548416	7068456		849	50	В	Subtle Slope	Dark Brown	White Spruce
1539875	548416	7067855	1539874	769	50	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1539881	548416	7067755		787	50	В	Subtle Slope	Dark Brown	Dwarf Birch
1497395	548813	7067754		901	70	В	Pronounced Slope	Grey	White Spruce
1534929	548915	7068856		967	40	В	Subtle Slope	Reddish Brown	Dwarf Birch
1534936	548917	7068506		914	30	В	Pronounced Slope	Light Grey	Black Spruce
1530977	548986	7069776		1051	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1495214	549019	7068557		912	50	В	Subtle Slope	Chocolate Brown	White Spruce
1515311	550392	7069434		990	30	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1515316	550415	7069672		910	50	В	Pronounced Slope	Light Brown	White Spruce
1515314	550447	7069576		940	30	В	Pronounced Slope	Auger	Alders
1497241	550943	7069855		917	30	В	Subtle Slope	Chocolate Brown	Old Burn
1497237	551023	7069675		949	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1497235	551043	7069576		964	30	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1535637	550972	7070318		843	40	С	Flat	Chocolate Brown	Birch Forest
1535644	551164	7070616		811	50	С	Subtle Slope	Chocolate Brown	Old Burn
1530917	548618	7067756		733	90	В	Subtle Slope	Dark Brown	White Spruce
1516845	548217	7067807		840	70	С	Pronounced Slope	Chocolate Brown	Alders
1530782	548317	7069158		894	40	С	Pronounced Slope	Dark Olivine Green	No Tree Cover
1530829	548317	7068507		817	40	С	Subtle Slope	Chocolate Brown	Alders
1530839	548316	7067958		782	40	С	Subtle Slope	Dark Brown	Alders
1539855	548416	7069007		890	50	В	Subtle Slope	Dark Grey Black	Dwarf Birch
1539865	548416	7068508		849	40	В	Subtle Slope	Dark Brown	Dwarf Birch
1539870	548417	7068256		814	60	С	Subtle Slope	Dark Brown	White Spruce
1534942	548909	7068204		830	40	В	Steep	Chocolate Brown	White Spruce

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1536067	Reindeer Moss	Dry	Good	Sand	Fine	Rocky Sample		Soil
1536056	Leaf Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1516822	Grass Cover	Damp	Good	Sand				Soil
1530841	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1495701	Sphagnum Moss < 30cm	Damp	Good	Sand	Fine	Rocky Terrain		Soil
1495702	Grass Cover	Damp	Poor	Silt	Rocky Terrain			Soil
1539866	Thin Moss Cover	Damp	Good	Silt				Soil
1539875	Grass Cover	Damp	Good	Sand				Soil
1539881	Leaf Cover	Damp	Good	Silt				REP
1497395	Bare Soil	Damp	Good	Silt	Coarse			Soil
1534929	Leaf Cover	Damp	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1534936	Thin Moss Cover	Damp	Good	Silt	Fine	Rocky Terrain		Soil
1530977	Burnt Moss	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1495214	Thin Moss Cover	Damp	Good	Silt	Dull Red Rust			Soil
1515311	Reindeer Moss	Damp	Good	Silt	Dull Red Rust			Soil
1515316	Needle Cover	Dry	Good	Silt	Sandy			Soil
1515314	Reindeer Moss	Dry	Poor	Silt	Rocky Terrain			Soil
1497241	Burnt Moss	Dry	Good	Silt				Soil
1497237	Thin Moss Cover	Dry	Good	Silt	Rocky Terrain			Soil
1497235	Thin Moss Cover	Dry	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1535637	Leaf Cover	Dry	Excellent	Sand				Soil
1535644	Leaf Cover	Dry	Excellent	Sand				Soil
1530917	Thin Moss Cover	Damp	Poor	Silt	Partially Frozen	Organic 10%		Soil
1516845	Thin Moss Cover	Damp	Good	Clay	Sandy			Soil
1530782	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse	Rocky Terrain		Soil
1530829	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1530839	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1539855	Thin Moss Cover	Damp	Good	Silt	Partially Frozen	Small Sample		Soil
1539865	Thin Moss Cover	Damp	Good	Silt				Soil
1539870	Thin Moss Cover	Damp	Good	Silt				Soil
1534942	Thin Moss Cover	Damp	Good	Silt	Dull Red Rust	Rocky Terrain		Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1495205	549018	7069007		990	50	В	Subtle Slope	Chocolate Brown	Old Burn
1536091	549116	7069206		1021	50	В	Subtle Slope	Chocolate Brown	Old Burn
1498066	549785	7070287		962	30	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1521637	551052	7069380		978	40	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1515294	548618	7068856		921	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1536057	548716	7069106		949	40	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1495698	548518	7067806		751	40	В	Subtle Slope	Dark Grey Black	Black Spruce
1495676	548519	7068855		904	60	В	Subtle Slope	Dark Grey Black	White Spruce
1539863	548416	7068608		864	60	С	Subtle Slope	Dark Grey Black	White Spruce
1497377	548812	7068705		911	60	С	Subtle Slope	Chocolate Brown	White Spruce
1534927	548918	7068954		976	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1534932	548920	7068705		948	80	С	Subtle Slope	Reddish Brown	Black Spruce
1495202	549017	7069158		1012	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1536096	549114	7068956		977	40	В	Subtle Slope	Light Brown	White Spruce
1498696	549572	7070156		986	30	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1498065	549740	7070262		965	40	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1498067	549832	7070305		957	50	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1521639	551114	7069459		973	50	С	Pronounced Slope	Chocolate Brown	Alders
1515289	548617	7069107		930	70	С	Pronounced Slope	Reddish Yellow	Alders
1515755	548716	7068055		774	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1536068	548716	7068555		912	70	С	Subtle Slope	Chocolate Brown	White Spruce
1536058	548717	7069058		948	60	С	Subtle Slope	Chocolate Brown	Alders
1516842	548216	7067955		815	60	С	Subtle Slope	Chocolate Brown	Alders
1530835	548317	7068156		792	50	С	Pronounced Slope	Dark Brown	White Spruce
1530837	548316	7068056		825	40	В	Subtle Slope	Light Brown	No Tree Cover
1495674	548517	7068956		911	70	С	Subtle Slope	Grey	White Spruce
1497366	548816	7069205		916	40	В	Subtle Slope	Yellow	Dwarf Birch
1498685	549099	7069868		1066	30	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1498689	549267	7069980		1033	70	В	Subtle Slope	Chocolate Brown	Mixed Coniferous
1536094	549113	7069057		1003	40	В	Subtle Slope	Light Brown	Willows
1498338	550090	7070537		905	30	В	Pronounced Slope	Light Brown	Balsam Fir

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1495205	Burnt Moss	Dry	Good	Silt	Rocky Sample			Soil
1536091	Burnt Moss	Damp	Good	Silt	Rocky Terrain			Soil
1498066	Reindeer Moss	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1521637	Grass Cover	Damp	Good	Sand				Soil
1515294	Leaf Cover	Damp	Good	Sand	Fine			Soil
1536057	Grass Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1495698	Sphagnum Moss < 30cm	Damp	Poor	Clay	Rocky Terrain			Soil
1495676	Sphagnum Moss < 30cm	Damp	Poor	Silt	Rocky Terrain	Organic 10%		Soil
1539863	Thin Moss Cover	Damp	Good	Silt				Soil
1497377	Thin Moss Cover	Dry	Excellent	Sand	Coarse	Quartz Chips		Soil
1534927	Grass Cover	Damp	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1534932	Thin Moss Cover	Damp	Good	Sand	Dull Red Rust			Soil
1495202	Thin Moss Cover	Dry	Good	Silt	Rocky Terrain	Rocky Sample		Soil
1536096	Burnt Moss	Damp	Good	Sand	Fine	Rocky Terrain		Soil
1498696	Thin Moss Cover	Dry	Good	Silt	Fine			Soil
1498065	Reindeer Moss	Damp	Good	Silt	Bright Orange Rust	Rocky Terrain		Soil
1498067	Leaf Cover	Dry	Good	Silt	Fine			Soil
1521639	Grass Cover	Damp	Good	Sand				Soil
1515289	Grass Cover	Damp	Excellent	Sand	Coarse			Soil
1515755	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1536068	Thin Moss Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1536058	Leaf Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1516842	Thin Moss Cover	Damp	Good	Clay	Sandy			Soil
1530835	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1530837	Reindeer Moss	Damp	Good	Sand	Partially Frozen			Soil
1495674	Sphagnum Moss < 30cm	Damp	Good	Sand	Fine	Bright Orange Rust		Soil
1497366	Thin Moss Cover	Dry	Good	Silt	Rocky Terrain	Fine		Soil
1498685	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine	Outcrop Nearby		Soil
1498689	Grass Cover	Damp	Good	Silt	Fine	Bright Orange Rust		Soil
1536094	Burnt Moss	Dry	Good	Silt	Rocky Terrain			Soil
1498338	Sphagnum Moss < 30cm	Dry	Good	Silt	Fine	Rocky Terrain		Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1521643	551269	7069589		939	30	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1521649	551442	7069694		942	30	С	Subtle Slope	Light Brown	Dwarf Birch
1521679	551702	7069851		887	40	С	Pronounced Slope	Chocolate Brown	White Spruce
1530915	548617	7067855		762	60	В	Pronounced Slope	Reddish Brown	White Spruce
1516839	548216	7068106		849	60	С	Subtle Slope	Chocolate Brown	Alders
1530783	548316	7069106		891	40	С	Subtle Slope	Dark Olivine Green	Mixed Coniferous
1530833	548317	7068257		806	40	С	Subtle Slope	Dark Brown	Alders
1539852	548418	7069158		881	50	В	Subtle Slope	Dark Grey Black	Dwarf Birch
1539858	548419	7068857		879	60	В	Subtle Slope	Grey	Dwarf Birch
1539879	548418	7067905		755	60	В	Subtle Slope	Dark Grey Black	White Spruce
1497396	548817	7067707		900	60	В	Pronounced Slope	Dark Grey Black	White Spruce
1534917	548919	7069056		983	30	В	Pronounced Slope	Reddish Brown	Dwarf Birch
1515302	550235	7069004		1079	60	С	Flat	Grey	Dwarf Birch
1515320	550348	7069863		876	40	В	Pronounced Slope	Dark Grey Black	Black Spruce
1497250	551082	7070487	1497249	820	50	С	Subtle Slope	Chocolate Brown	Old Burn
1535645	551198	7070655		789	60	В	Steep	Chocolate Brown	Old Burn
1530910	548617	7068107		806	60	В	Pronounced Slope	Chocolate Brown	White Spruce
1515760	548716	7067806		772	50	В	Pronounced Slope	Chocolate Brown	White Spruce
1515761	548717	7067757		767	60	С	Pronounced Slope	Chocolate Brown	White Spruce
1516826	548217	7068757		827	60	С	Pronounced Slope	Light Brown	White Spruce
1530823	548317	7068706		836	50	С	Subtle Slope	Dark Brown	Alders
1530817	548316	7069005		875	40	С	Pronounced Slope	Dark Olivine Green	Birch Forest
1539857	548417	7068906		884	40	В	Subtle Slope	Dark Brown	Birch Forest
1539861	548415	7068706		870	60	В	Subtle Slope	Dark Brown	Birch Forest
1497394	548814	7067806		901	70	В	Pronounced Slope	Chocolate Brown	White Spruce
1497367	548819	7069157		915	40	В	Subtle Slope	Yellow	Dwarf Birch
1534920	548917	7069205		983	40	В	Pronounced Slope	Chocolate Brown	Dwarf Birch
1534928	548919	7068904		971	30	В	Subtle Slope	Reddish Brown	Dwarf Birch
1530974	548782	7069999		1054	30	С	Subtle Slope	Reddish Yellow	Dwarf Birch
1530968	549203	7069566		1061	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1498697	549617	7070179		980	50	В	Subtle Slope	Chocolate Brown	Mixed Coniferous

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1521643	Thin Moss Cover	Damp	Good	Sand				Soil
1521649	Leaf Cover	Dry	Good	Sand				Soil
1521679	Sphagnum Moss < 30cm	Damp	Good	Sand				Soil
1530915	Thin Moss Cover	Damp	Good	Sand	Fine	Bright Orange Rust		Soil
1516839	Thin Moss Cover	Dry	Good	Silt	Sandy			Soil
1530783	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse	Rusty Rock Chip		Soil
1530833	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1539852	Reindeer Moss	Damp	Good	Silt	Small Sample			Soil
1539858	Grass Cover	Damp	Good	Silt	Partially Frozen			Soil
1539879	Reindeer Moss	Damp	Poor	Silt	Small Sample	Fine		Soil
1497396	Sphagnum Moss < 30cm	Damp	Good	Silt	Fine	Organic 10%		Soil
1534917	Thin Moss Cover	Damp	Good	Sand	Dull Red Rust	Rocky Terrain		Soil
1515302	Reindeer Moss	Damp	Good	Sand	Dull Red Rust	Rusty Rock Chip		Soil
1515320	Reindeer Moss	Damp	Good	Silt	Dull Red Rust	Rusty Rock Chip	10% organic	Soil
1497250	Burnt Moss	Damp	Good	Silt	Clay			Soil
1535645	Reindeer Moss	Dry	Good	Silt	Rocky Sample			Soil
1530910	Thin Moss Cover	Damp	Good	Sand	Fine			Soil
1515760	Thin Moss Cover	Dry	Poor	Sand	Fine	Rocky Terrain		REP
1515761	Thin Moss Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1516826	Thin Moss Cover	Dry	Good	Sand				Soil
1530823	Sphagnum Moss < 30cm	Damp	Excellent	Sand	Coarse			Soil
1530817	Leaf Cover	Damp	Excellent	Sand	Coarse			Soil
1539857	Thin Moss Cover	Damp	Excellent	Silt				Soil
1539861	Leaf Cover	Dry	Good	Silt	Fine			Soil
1497394	Sphagnum Moss < 30cm	Dry	Good	Silt	Coarse			Soil
1497367	Thin Moss Cover	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1534920	Thin Moss Cover	Damp	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1534928	Grass Cover	Damp	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1530974	Burnt Moss	Dry	Good	Sand	Rocky Terrain			Soil
1530968	Grass Cover	Dry	Good	Silt	Rocky Terrain	Rocky Sample		Soil
1498697	Sphagnum Moss < 30cm	Damp	Good	Silt	Fine			Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1515317	550399	7069720		919	40	В	Subtle Slope	Light Brown	Birch Forest
1516835	548217	7068306		767	50	В	Subtle Slope	Chocolate Brown	Black Spruce
1497375	548819	7068808	1497374	915	70	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1534931	548914	7068757		954	80	С	Subtle Slope	Reddish Brown	Black Spruce
1530970	549135	7069641		1056	60	В	Subtle Slope	Reddish Yellow	Dwarf Birch
1530967	549238	7069530		1061	50	В	Subtle Slope	Light Brown	Dwarf Birch
1530966	549273	7069493		1059	50	В	Subtle Slope	Dark Brown	Dwarf Birch
1515760	548716	7067806		772	50	В	Pronounced Slope	Chocolate Brown	White Spruce
1515753	548715	7068157		823	50	С	Subtle Slope	Chocolate Brown	White Spruce
1495687	548517	7068355		848	50	В	Subtle Slope	Dark Grey Black	White Spruce
1530978	548950	7069813		1054	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1497246	550901	7070143		868	40	С	Subtle Slope	Chocolate Brown	White Spruce
1536070	548716	7068458		897	40	С	Subtle Slope	Chocolate Brown	White Spruce
1536071	548717	7068406		889	70	С	Subtle Slope	Chocolate Brown	White Spruce
1516823	548217	7068857		838	80	В	Pronounced Slope	Chocolate Brown	White Spruce
1516803	548218	7069206		780	100	С	Pronounced Slope	Grey	White Spruce
1530828	548317	7068456		842	50	С	Subtle Slope	Dark Brown	Alders
1539854	548417	7069057		890	50	С	Subtle Slope	Dark Blue Black	White Spruce
1495691	548514	7068156		804	70	С	Subtle Slope	Dark Brown	White Spruce
1495672	548515	7069057		914	80	В	Subtle Slope	Dark Brown	Black Spruce
1497379	548814	7068603		910	70	С	Subtle Slope	Chocolate Brown	White Spruce
1497380	548817	7068556		909	40	С	Subtle Slope	Light Brown	White Spruce
1497369	548815	7069056		914	50	В	Subtle Slope	Yellow	Dwarf Birch
1497374	548819	7068808		912	70	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1534934	548915	7068606		937	40	В	Pronounced Slope	Light Brown	Black Spruce
1530972	549061	7069711		1054	100	С	Subtle Slope	Chocolate Brown	Dwarf Birch
1498691	549350	7070036		1019	40	С	Subtle Slope	Chocolate Brown	Mixed Coniferous
1515321	550334	7069911		856	50	В	Subtle Slope	Dark Grey Black	Black Spruce
1515319	550365	7069815		874	30	В	Pronounced Slope	Dark Brown	Black Spruce
1521635	550985	7069306		977	80	С	Pronounced Slope	Chocolate Brown	Old Burn
1521638	551083	7069421		979	110	С	Pronounced Slope	Chocolate Brown	Old Burn

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1515317	Reindeer Moss	Dry	Poor	Silt	Rocky Terrain			Soil
1516835	Reindeer Moss	Damp	Poor	Silt	Partially Frozen			Soil
1497375	Grass Cover	Dry	Good	Gravel	Coarse	Rocky Sample		Soil
1534931	Thin Moss Cover	Damp	Excellent	Sand	Dull Red Rust			Soil
1530970	Burnt Moss	Dry	Good	Sand	Rocky Terrain			Soil
1530967	Burnt Moss	Dry	Good	Silt	Talus	Rocky Sample		Soil
1530966	Burnt Moss	Dry	Good	Silt	Rocky Terrain			Soil
1515760	Thin Moss Cover	Dry	Poor	Sand	Fine	Rocky Terrain		Soil
1515753	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1495687	Sphagnum Moss < 30cm	Damp	Poor	Clay	Frozen	Bright Orange Rust		Soil
1530978	Burnt Moss	Dry	Poor	Silt	Rocky Terrain	Fine		Soil
1497246	Grass Cover	Dry	Good	Sand				Soil
1536070	Thin Moss Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1536071	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Sample		Soil
1516823	Thin Moss Cover	Dry	Good	Clay				Soil
1516803	Thin Moss Cover	Dry	Excellent	Sand				Soil
1530828	Grass Cover	Damp	Excellent	Sand	Coarse			REP
1539854	Thin Moss Cover	Damp	Good	Silt				Soil
1495691	Sphagnum Moss < 30cm	Damp	Good	Sand	Dull Red Rust			Soil
1495672	Sphagnum Moss < 30cm	Damp	Good	Sand	Bright Orange Rust			Soil
1497379	Sphagnum Moss < 30cm	Dry	Excellent	Silt	Fine	Rocky Terrain		Soil
1497380	Sphagnum Moss < 30cm	Dry	Good	Silt	Coarse	Rocky Sample		Soil
1497369	Thin Moss Cover	Dry	Good	Silt	Fine	Rocky Terrain		Soil
1497374	Grass Cover	Dry	Good	Gravel	Coarse	Rocky Sample		Soil
1534934	Sphagnum Moss < 30cm	Damp	Good	Silt	Rocky Sample	Rocky Terrain		Soil
1530972	Burnt Moss	Dry	Good	Sand	Bright Orange Rust	Fine		Soil
1498691	Sphagnum Moss < 30cm	Dry	Good	Silt	Coarse			Soil
1515321	Reindeer Moss	Damp	Poor	Silt	Organic 10%	Talus		Soil
1515319	Reindeer Moss	Dry	Poor	Silt	Rocky Terrain	Rocky Terrain		Soil
1521635	Grass Cover	Damp	Excellent	Sand				Soil
1521638	Thin Moss Cover	Damp	Excellent	Sand				Soil

				elevation	depth				
sample id	easting	northing	duplicate of	(m)	(cm)	horizon	site slope	soil colour	site vegetation
1497249	551082	7070487		820	50	С	Subtle Slope	Chocolate Brown	Old Burn
1521646	551405	7069670		938	20	В	Pronounced Slope	Chocolate Brown	Birch Forest
1521681	551785	7069907		878	30	В	Pronounced Slope	Light Brown	Birch Forest
1535639	551029	7070401		835	40	С	Subtle Slope	Chocolate Brown	White Spruce
1535640	551053	7070444		826	40	В	Subtle Slope	Chocolate Brown	Dwarf Birch
1530916	548617	7067807		758	40	В	Steep	Reddish Brown	White Spruce
1515759	548717	7067855		777	40	В	Pronounced Slope	Chocolate Brown	White Spruce
1536055	548717	7069204		945	60	С	Pronounced Slope	Chocolate Brown	Dwarf Birch
1497389	548817	7068055		904	50	В	Pronounced Slope	Dark Grey Black	Alders

		sample	sample					
sample id	site ground cover	moisture	quality	texture	sample_note_1	sample_note_2	remarks	type
1497249	Burnt Moss	Damp	Good	Silt	Clay			Soil
1521646	Leaf Cover	Damp	Good	Sand				Soil
1521681	Leaf Cover	Dry	Good	Sand				Soil
1535639	Thin Moss Cover	Dry	Excellent	Sand				Soil
1535640	Leaf Cover	Dry	Excellent	Sand				Soil
1530916	Thin Moss Cover	Dry	Good	Silt	Organic 10%			Soil
1515759	Thin Moss Cover	Dry	Good	Sand	Fine	Rocky Terrain		Soil
1536055	Grass Cover	Dry	Good	Sand	Rocky Sample	Rocky Terrain		Soil
1497389	Sphagnum Moss < 30cm	Damp	Poor	Clay	Organic 10%	Fine		Soil







FROM	Quang Ngo, GroundTruth Technician
ТО	GroundTruth Exploration Inc
DATE	November 1, 2016
SUBJECT	2016 Fall XCam Summary

This is the summary of activities for the XCam during the month of October 2016. From October 13 to October 25 aerial surveys were conducted with the XCam. Inbetween weather days, 40 hours of flight time was accumulated in 7 days of flying. 10 properties were surveyed:

- Black Hills
- Pedlar
- Brew
- Barker
- Indian River
- Loonie
- Toonie
- Dime
- Hunker
- Bonanza

## **Timeline of Events**

On the afternoon of October 13 the XCam (Model: XCam B) of WaldoAir was picked up from AirNorth Cargo in Whitehorse. Aerial surveys are conducted with the XCam attached to an airplane, for this season a Maule (ie. an airplane) from Alpine Aviation (Figure 1). A test flight was scheduled for that evening; the test was successful, the camera took photos and georeferenced them without complications. Another test flight was completed the next morning before leaving Whitehorse for Dawson City. A survey of the Black Hills claim was conducted enroute to Dawson City but technical difficulties resulted in only a partial survey conducted at the north eastern most section of the Black Hills claim.

Over the next two days (Oct 15 and Oct 16) more of the Black Hills was surveyed working east to west, north to south. The daily schedule consisted of leaving at first light, fly for half a day, land at a nearby airstrip to refuel and break, and then fly for the rest of the day landing back at Dawson Airport. The weather stayed accommodating until October 17. See table 1 for the flight schedule.

After the weather cleared, on Oct 20 another attempt was made to survey a section of the Pedlar claim. The following morning another storm system moved in halting operations until Oct 23. When the weather cleared up, missions resumed with the Black Hills claims working south to the Pedlar claims. On Oct 24 Pedlar and Barker were completed, connected the entire area. On Oct 25, the remaining claims were surveyed.



Figure 1. The Alpine Aviation Maule at the Black Hills airstrip.

Date	Areas Imaged	Approx. Flight Length (km)
October 14	Black Hills (NE)	158
October 15	Black Hills (NE)	504
October 16	Black Hills (NE), Black Hills (E), Black Hills (NW)	883.4
October 20	Pedlar (N)	238
October 23	Black Hills (W), Black Hills (S), Pedlar (E), Pedlar	1121
	(W), Pedlar (S)	
October 24	Brew, Barker (W), Barker (E), Pedlar (W)	814
October 25	Toonie, Loonie, Dime, Indian River, Hunker,	836
	Bonanza	

Table 1. Dates and projects flown along with a rough estimate of the flight distance.

\*Note that the fly distance does not include the ferry to and from town or the nearest strip for refuel at midday. It will include any loops or line reflies due to missed images.

## **Equipment**

The XCam pod is a plastic pod containing two cameras set to capture a panoramic shot. The pod is mounted onto bar attached a strut on the plane (figure 2). The bar is parallel to the wing, which will be parallel to ground in flight, but angled slightly upwards on the ground since the plane is a tail-dragger. The pod is attached with two ring to a curved metal plate on the bar.

Inside the pod are two Canon cameras and a single usb hub. The cameras are both connected to the hub which is connected to a microcontroller to the rear ports (figure 3). These ports connect cables (usb and coaxial) to the external GPS unit mounted to the top of the wing, the external



Figure 2. The pod secured the bar attached to the strut.

batter, and the tablet: the latter two situated inside the plane. The GPS is connected to the microcontroller first to provide location data for the photo metadata.

Inside the plane is the tablet, two external camera batteries, and in inverter (figure 4). The pod does not have an internal power source and can not run off power from the plane, instead custom batteries are used. The tablet itself also runs out of power fast during a survey. It is charged with the plane through an inverter.

On the tablet will be software to create and view missions live as they are being surveyed. It has software to utilize the external GPS and provide heading corrections to ensure correct coverage and overlap of photos. It is also possible to view the camera image live via the tablet and Canon software.



Figure 3. XCam Ultra Pod. Slightly smaller in radius to XCam B but otherwise the small.



All the mission parameters (ie. target area, elevation, flight lines) are chosen with mission creation and can not be changed during a mission. The only settings that can be altered without creating a new mission are camera settings (ie. shutter speed, f-stop, and ISO).

## Notable configurations for the Yukon.

Due to the high latitude of the Yukon, there is a much lower sun angle: and exacerbated during fall and winter. Thus higher light settings than normal are recommended. The typical settings are shutter speed of 1/4000, ISO1600, and fStop 4.5. In even darker conditions the fStop can be lowered to 4.0 and the shutter increased to 1/2000. Alternatively, in high snow glare, the shutter and ISO can be lowered to 1/8000 and 800 alternatively.

Figure 4. Inside the plane. Note the external battery on the seat, the inverter, and the tablet holder.

## <u>Missions</u>

In total 18 missions of varying coverage was completed (Map 1). The large claim blocks (ie. Black Hills, Pedlar, Barker) were split into multiple missions to make them more manageable. One survey covered two claims, the Brew+Barker (West) and only because Brew was both small enough and adjacent to Barker that made it easier to fly it together. See table 2.

**Black Hills** (Map 2) was flown on four separate days. The process took longer than other claims not because it was a large property, but because all of it was flown as higher resolution. Higher resolutions are flown at lower altitudes and to cover the same area there must be more flight lines. Black Hills is also the only survey done pre-snow.

**Pedlar** (Map 3) was flown on two days, with a small western section flown on a third. Pedlar was the first survey that dealt with snow glare (figure 5). All other flights there-after also had snow. It was also split into five missions. There was scattered cloud layers during the survey, in addition to the river fog, reducing the light.

Areas Imaged	Approx. Coverage (km <sup>2</sup> )	Altitude (m)	Resolution (cm)
Black Hills (NE)	195	900	13
Black Hills (E)	133	2500	12
Black Hills (NW)	125	1800	12
Pedlar (N)	220	2900	22
Black Hills (W)	60	2800	14
Black Hills (S)	180	3200	12
Pedlar (E)	360	3200	28
Pedlar (C)	250	2700	23
Pedlar (S)	230	3000	29
Brew	50	3000	28
Barker (W)	400	3000	28
Pedlar (W)	190	3300	28
Barker (E)	350	3000	28
Indian River	40	3200	27
Toonie	70	3200	28
Dime	110	3000	28
Loonie	260	3000	29
Hunker	150	3000	28
Bonanza	40	3000	28

Table 2. Information on survey missions in chronological order.








Figure 5. XCam mission in cloudy weather over snowy terrain.

**Brew** (Map 2) is the smallest claim block. It was flown in conjunction with Barker for ease of planning. The weather consisted of scattered cloud layers.

**Barker** (Map 3) is a moderate sized claim block between Pedlar and Black Hills. Big enough to be split into two missions. These missions also covered the Stewart River to maintain continuity of imaging from the northern limit of Black Hills to the Yukon River. It took one whole day to complete.

**Indian River** (Map 4) was the first of six missions flown that day. The first four mission were flown without break, leaving from Dawson Airport in the morning. The weather was slightly above freezing with scattered cloud layers.

**Toonie** (Map 4) was the second mission, completed before Loonie which is closer to Indian River for optimal weather reasons. Only the southern block was imaged.

**Dime** (Map 4) was the third mission of the day.

**Loonie** (Map 4) was left last in this sequence due to the fog generated in the morning by the Yukon River. After the plane attempted to survey Sixty Mile river but the weather was not permitting.



**Hunker** (Map 5) was the first mission after determining that Sixty Mile could not be surveyed. It took approximately an hour to complete, including travel to and from the airport. The weather was clear.

**Bonanza** (Map 5) was the last mission of the day. It took approximately 45 minute to complete, including travel to and from the airport.

#### **Conclusion**

In conclusion, 44 hours of flying was conducted to survey 3300 square kilometers at greater than 30cm resolution. With weather permitting, and good light conditions, the XCam is a powerful tool for aerial imaging.



The raw imagery is saved to an external hard drive that is connected to the server, but all processed files are stored on the server as well as the deliverables

(\\MICA\Data\\_Projects\[ProjectCode]\Aerial Imagery\4 - Deliverables).

#### GEOPHYSICAL REPORT AIRBORNE FDEM AND MAGNETIC SURVEY

#### Toonie - TOO

#### Whitehorse Mining District YT, Canada

Work Performed On: May 24, 2016

FOR:

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#### **1.0 Introduction**

This report describes data acquisition and preliminary data processing results of 2017 airborne frequency domain electromagnetic FDEM and magnetic survey. The survey has been carried out by CGG Canada Services. GroundTruth Exploration was commissioned by White Gold Corp, Toronto, ON to plan the airborne survey and process the data.

On May 24, 2016, airborne-electromagnetic (AEM) and airborne-magnetic (AM) surveys were completed over Toonie claims located in the Yukon Territory. This survey is a part of a comprehensive airborne FDEM and magnetic survey completed in order to target future exploration on the property. Dawson City, Yukon was the base of operations. The airborne-geophysical surveys were undertaken using the DIGHEM frequency-domain system.

#### 2.0 Purpose and Scope

The primary purpose of completing AEM and AM geophysical surveys is to determine the spatial distribution of subsurface electrical and magnetic properties of rocks. This, in turn, will allow the characterization of geophysical signatures for zones of mineralization and support geological models and structural mapping.

## 3.0 Survey Description

Block 602997-3 (Toonie) of the DIGHEM 2017 survey covers some target areas on the Toonie property. Total coverage of the survey block amounted to 180.0 line-km. Data were acquired using a multi-coil, multi-frequency electromagnetic system, supplemented by a high-sensitivity cesium magnetometer. A GPS electronic navigation system ensured accurate positioning of the geophysical data with respect to the base map coordinates. The outline of survey areas and layout of flight lines are shown in Figure-1.

Block-3 was flown in an azimuthal direction of N-S (NE 0°) with line spacing 100m, and E-W (NE 90°) with tie lines spacing 1400m. Survey coverage consisted of 164.3 line-km of traverse lines and 15.7 line-km of tie lines. The coordinates of the corner points of the



survey blocks are presented in Table 1. Flight lines and total line-kilometers are summarized in Table 2 (after CGG report #602997, Oct. 6, 2017).



Figure 1: Location of airborne DEM and Mag survey 2017 on Toonie property.

Box 70, DAWSON, YT Y0B 1G0

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Block	Corners	X-UTM (E)	Y-UTM (N)
602997-9	1	548300	7069620
Toonie Block	2	553317	7069620
	3	553317	7066613
	4	548300	7066613

**Table 1:** The coordinates of the corner points of the survey blocks.

**Table 2:** Flight lines and line kilometers.

Block	Line Numbers	Line direction	Line Spacing	Line km
Block-3	30010-30510	N-S (0°)	100 metres	164.3
Toonie	39010-39030	E-W (90°)	1400 metres	15.7

During the survey GPS base stations were set up to collect data to allow postprocessing of the positional data for increased accuracy. The location of the GPS base stations are shown in Table 3 (after CGG report #602997, Oct. 6, 2017).

 Table 3: GPS Base Station Location.

Location Name	WGS84 Longitude (deg-min-sec)	WGS84 Latitude (deg-min-sec)	Orthometric Height (m)	Date
Dawson City	139° 25' 34.30630" W	64° 03′ 41.59730″ N	336.380	31-Oct-16
Dawson City Airport	139° 06' 46.0395" W	64° 02′ 51.1498″ N	381.961	22-May-17
Camp	139° 25′ 22.0172″ W	63° 04' 00.3615" N	422.181	28-Aug-17

The location of the Magnetic base stations are shown in Table 4 (after CGG report #602997, Oct. 6, 2017).

Station	Location Name	WGS84 Longitude (deg-min-sec)	WGS84 Latitude (deg-min-sec)	Date
А	Dawson City , Yukon	139° 25′ 49.22633″ W	64° 03' 0.91004" N	31-Oct-16
В	Dawson City , Yukon	139° 25′ 48.72540″ W	64° 03' 1.10627" N	23-Nov-16
С	Dawson City , YukonAirport	139° 7' 47. 4005" W	64° 02′ 25.8578″ N	22-May-17
D	Dawson City , Yukon	139° 7′ 47.4087″ W	64° 02' 25.7904" N	22-May-17
D	Camp	139° 25′ 19.572″ W	63° 04′ 3.144″ N	5-Aug-17
Е	Camp	139° 25′ 19.13448″ W	63° 04' 3.00396" N	5-Aug-17

Table 4:	Magnetic E	Base Station	Location.
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## 4.0 Survey Theory

#### 4.1 Electromagnetic surveys

Electromagnetic (EM) methods can be used to map subsurface variability in electrical properties caused by changes in lithology, structure, alteration, and contamination due to mining activity. These methods are sensitive to low resistivity targets and thus can be used to map the location and moderately conductive bodies. The depth of investigation can range from less than a few tens through hundreds of meters depending on amounts of subsurface conductivity and applied frequency. Resolution of targets and detectability tend to decrease with increasing depth of burial.

The data include in-phase and quadrature components for each frequency. The electrical conductivity of rocks can be modeled by inversion of electromagnetic data. 2D grids and derivative products provide information for mapping lithological and structural features or linear conductors.

In EM surveys, a transmitter generates a time-varying electromagnetic field in the earth, known as the primary field. This field gives rise to small time-varying voltages in the earth. Where the earth is conductive, the voltages drive small time-varying flows of current, which give rise to electromagnetic fields of their own called secondary fields. EM surveys measure the earth's willingness to conduct electricity,



or conductivity in siemens/m. The higher the conductivity, the more current will flow in the earth for a given electrical field strength.

Any time-harmonic signal can be expressed by an amplitude factor times an oscillating term of a sinusoidal function. We denote the transmitter current as  $I_{o}cos\omega t$ , which indicates a peak current  $I_{o}$  and a fixed angular frequency  $\omega$ . According to Biot-Savart's law, the primary magnetic field generated by this current is  $H_{p}cos\omega t$ , where  $H_{p}$  can be determined using the distance from the transmitter to an observation point in the whole-space, and the primary field is entirely in-phase with the transmitter current. Then the primary field induces eddy currents in the subsurface. In most cases, this induced current is no longer in-phase with the primary and usually bears a phase lag  $\psi$ . So the secondary magnetic field due to the induction has the form  $H_{s}cos(\omega t \cdot \psi)$ , where the amplitude  $H_{s}$  is determined by the distance and geometric coupling. Finally, at the location of the receiver, we can observe the primary field  $H_{p}cos\omega t$  the phase-lagged secondary field  $H_{s}cos(\omega t \cdot \psi)$ .

An FDEM system in practice only measures the secondary field  $H_s cos(\omega t - \psi)$ . The convention in FDEM is to use the primary field  $H_p cos\omega t$  as the reference to describe the secondary field data. First, the secondary field is considered as a linear combination of two orthogonal sinusoidal signals

$$H_s cos(\omega t - \psi) = H_s cos(\psi) \cdot cos(\omega t) + H_s sin(\psi) \cdot sin(\omega t)$$

where  $cos(\psi).cos(\omega t)$  represents a signal in-phase with the source and  $sin(\psi).sin(\omega t)$  represents a signal out of phase with the source. The first term is also called "real" and the second term "imaginary" or "quadrature". Next, the amplitudes of the two sinusoidal signals are normalized by the amplitude of the primary field at the receiver to obtain the data in real and imaginary components. Figure 2 shows primary and secondary fields, transmitter and receiver. The normalization provides significant convenience, as it eliminates the need for timing the measured signals and the effect of the transmitter and receiver's dipole moments. Because the data are relative quantities, they are expressed in percent or most often in parts per million (ppm).





**Figure 2:** A time-varying electrical current generates a primary magnetic field which induces secondary currents in the subsurface, and creates the secondary magnetic field. Both the primary and secondary fields reach the receiver (2017, GeoSci Developers).

#### 4.2 Magnetic surveys

Magnetic is the most commonly used geophysical method for gold, diamond, platinum group metals and base metal exploration. Measurements of the magnetic field contain information about subsurface variations in magnetic susceptibility. Data can be acquired in the air (planes, satellites), on the ground (stationary, moving platforms, marine) and underground (boreholes, tunnels). The measurements record the sum of Earth's field and fields induced in magnetic materials. More magnetic (i.e. susceptible) materials have stronger induced fields. Removing Earth's field from the observations yields anomalous fields that can be interpreted in terms of where magnetic material lies and also its susceptibility and shape. Processed data are presented as maps or profiles, and advanced processing, involving inversion, yields parametric structures or 3D models of the subsurface susceptibility distribution.

Magnetic surveying is extremely versatile and can be applied in many areas in the geosciences including geologic mapping and mineral exploration. In gold exploration, magnetics helps in direct detection of associated mineralization and for mapping large- and local-scale structure (faults, dikes, and shear zones).

To a first approximation, Earth's magnetic field resembles a large dipolar source with a negative pole in the northern hemisphere and a positive pole in the southern



hemisphere. The dipole is offset from the center of the earth and also tilted. The north magnetic pole at the surface of the earth is approximately at Melville Island. The field at any location on the Earth is generally described in terms described of magnitude |B|, declination D and inclination I as illustrated in Figure 3.

When the magnetic source field is applied to earth materials it causes the material to become magnetized. Magnetization is dipole moment per unit volume. This is a vector quantity because a dipole has a strength and a direction. For many cases of interest, the relationship between magnetization M and the source H (earth's magnetic field) is given by:

 $M = \kappa H$ 

where  $\kappa$  is the magnetic susceptibility. Thus the magnetization has the same direction as the earth's field. Because Earth's field is different at different locations on the earth, then the same object gets magnetized differently depending on where it is situated. As a consequence, magnetic data from a steel drum buried at the north pole will be very different from that from a drum buried at the equator.

The magnetic field that results from the magnetized earth is evaluated with the equation:

$$B_A = \frac{\mu_0}{4\pi} \int_V M \ . \nabla^2 \left(\frac{1}{r}\right) \ dV$$

where  $\mu_0$  is the magnetic permeability of free space, M is the magnetization per unit volume V, and r defines the distance between the object and the location of the observer. This magnetic field is referred to as the "secondary" field or sometimes the "anomalous" field  $B_A$ . For geological or engineering problems, these anomalous fields are the data to be interpreted, and this is what we seek to measure.

When the magnetization is governed by the linear relationship (1) then the above anomalous field can be written as:



$$B_A = \frac{\mu_0}{4\pi} \int_V \kappa H_0. \, \nabla^2 \left(\frac{1}{r}\right) \, dV$$

where (·) is a vector inner product. This means that  $B_x$  is the projection of the vector B onto a unit vector in the *x*-direction. Similar understandings exist for  $B_y$  and  $B_z$ .



Figure 3: Earth's magnetic field, declination (D) and inclination angles (2017, GeoSci Developers).

#### 5.0 Field Survey

Details of system information and survey parameters including aircraft, geophysical equipment, quality control and in-field data processing are presented in Appendix-A of this report.

## 6.0 Results and Interpretation

Survey flight lines of DIGHEM 2017 for each block are shown in Figure 4, apparent resistivity maps for different frequencies are presented in Figure 5 through Figure 9. Total magnetic intensity maps are presented in Figure 10. The data can be processed in advanced levels using inversion techniques, and be presented in 3D formats for detail analysis and visualization. This will ensure that 3D geological models respect a consistent structural, stratigraphic, and topological framework in addition to ensuring consistency between different geophysical models.

The combination of geophysical models and geological information allows some general correlations to be made. Commonly, the geologic setting of epithermal deposits includes faulted, fractured, and brecciated rocks. Predominantly, geophysical signatures of



epithermal deposits for electrical resistivity and magnetic susceptibility can be characterized as:

- Short-wavelength magnetic anomalies are common over volcanic terranes because of variable magnetizations and polarizations. This pattern may contrast with an area of moderate to intense alteration that will display a longerwavelength low, often linear in the case of vein systems, caused by the destruction of magnetite. Local magnetic highs may be associated with intrusions. Magnetic lows will be associated with alteration, however, discriminating such lows from the background may be difficult on a deposit scale.
- Regional resistivity is generally low for weathered and altered rocks as compared to high resistivity typical of buried intrusions. A resistivity high flanked by resistivity lows is characteristic of a simple and idealized quartz vein system with associated argillic to propylitic alteration. However, there may be geologic structures and petrologic complications that distort this ideal picture. More generally, resistivity lows will be associated with: 1) Sulfides when concentrated and connected at about 5-percent volume or more, 2) argillic alteration, and 3) increased porosity related to wet, open fractures and brecciation. Resistivity highs will be associated with zones of silicification, intrusion, or basement uplifts.

The apparent resistivity maps of airborne FDEM survey (Figure 5 to Figure 9) allow the geological structures to be remapped based on their conductivity. The EM results define a pronounced SE-NW trending lineament moderately conductive at the northwest, broken across with is a set of sub-parallel linear features striking WSW-ENE. Also, the results allow us to identify several moderately conductive zones located at the southwestern and northeastern of the Block-3. The conductive features are mappable after more processing and modeling works.

The total magnetic intensity TMI map (Figure 10) shows the magnetic field amplitude variation, which is within a range of about ±900nT near 57150nT for Block-3. The magnetic intensity is higher in the northeastern part of the block relative to the other areas. The magnetic results define a linear magnetic feature striking SE-NW and almost



coincident with similar lineament resulted from the EM. This magnetic anomaly is also broken across with a set of sub-parallel linear features striking WSW-ENE.

The lineament interpretations of EM and magnetic results can better identify lithological and structures features as well as the fracture zones. Advanced inversion modeling and interpretation of EM and magnetic data is recommended for detailed and property scale explorational targeting works.

#### 7.0 Deliverables

Report in pdf format AIRBORNE FDEM AND MAGNETIC SURVEY for Toonie Project, March 2018

#### **Database in Geosoft format**

602997\_Archive-3.gdb

#### Maps in pdf format

DGM2017\_TOO\_AppResisivity900Hz\_Blk-3.pdf DGM2017\_TOO\_AppResisivity1000Hz\_Blk-3.pdf DGM2017\_TOO\_AppResisivity5500Hz\_Blk-3.pdf DGM2017\_TOO\_AppResisivity7200Hz\_Blk-3.pdf DGM2017\_TOO\_AppResisivity56kHz\_Blk-3.pdf DGM2017\_TOO\_TMI\_Blk-3.pdf DGM2017\_TOO\_Flight\_Lines\_Blk-3.pdf DGM2017\_TOO\_LocationMap.pdf Apparent resistivity map at freq. 900 Hz Block-3 Apparent resistivity map at freq. 1000 Hz Block-3 Apparent resistivity map at freq. 5500 Hz Block-3 Apparent resistivity map at freq. 7200 Hz Block-3 Apparent resistivity map at freq. 56 kHz Block-3 Total Magnetic Intensity Block-3 DIGHEM 2017 Flight Lines Block-3 Location Map

#### 8.0 References

CGG Canada Services, SURVEY REPORT, 2017, Airborne magnetic and DIGHEM survey, PROJECT# 602997



USGS, 1999, Geologic Interpretation of DIGHEM Airborne Aeromagnetic and Electromagnetic Data over Unga Island, Alaska.

GeoSci Developers, 2017, Geophysics for Practicing Geoscientists.



Figure 4: Flight line of DIGHEM 2017 survey, Block-3.





Figure 5: Apparent resistivity map at frequency 56 kHz from airborne DIGHEM survey 2017, Toonie Block-3.





Figure 6: Apparent resistivity map at frequency 7200 Hz from airborne DIGHEM survey 2017, Toonie Block-3.





Figure 7: Apparent resistivity map at frequency 5500Hz from airborne DIGHEM survey 2017, Toonie Block-3.





Figure 8: Apparent resistivity map at frequency 1000Hz from airborne DIGHEM survey 2017, Toonie Block-3.

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Figure 9: Apparent resistivity map at frequency 900 Hz from airborne DIGHEM survey 2017, Toonie Block-3.

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Figure 10: Total Magnetic Intensity from airborne DIGHEM survey 2017, Toonie Block-10 and Block-3.



#### GEOPHYSICAL REPORT AIRBORNE FDEM AND MAGNETIC SURVEY

# Appendix-A

#### SURVEY REPORT - AIRBORNE DIGHEM 2017

GENERAL INFORMATION / DATA ARCHIVE

After CGG Canada Project 602997 (Oct. 6, 2017)



GEOPHYSICAL SURVEY REPORT AIRBORNE MAGNETIC, AND DIGHEM SURVEY DAWSON CITY AREAS PROJECT 602997 GROUNDTRUTH EXPLORATION

October 6 2017



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#### Disclaimer

1. The Survey that is described in this report was undertaken in accordance with current internationally accepted practices of the geophysical survey industry, and the terms and specifications of a Survey Agreement signed between the CLIENT and CGG. Under no circumstances does CGG make any warranties either expressed or implied relating to the accuracy or fitness for purpose or otherwise in relation to information and data provided in this report. The CLIENT is solely responsible for the use, interpretation, and application of all such data and information in this report and for any costs incurred and expenditures made in relation thereto. The CLIENT agrees that any use, reuse, modification, or extension of CGG's data or information in this report by the CLIENT is at the CLIENT's sole risk and without liability to CGG. Should the data and report be made available in whole or part to any third party, and such party relies thereon, that party does so wholly at its own and sole risk and CGG disclaims any liability to such party.

2. Furthermore, the Survey was performed by CGG after considering the limits of the scope of work and the time scale for the Survey.

3. The results that are presented and the interpretation of these results by CGG represent only the distribution of ground conditions and geology that are measurable with the airborne geophysical instrumentation and survey design that was used. CGG endeavours to ensure that the results and interpretation are as accurate as can be reasonably achieved through a geophysical survey and interpretation by a qualified geophysical interpreter. CGG did not perform any observations, investigations, studies or testing not specifically defined in the Agreement between the CLIENT and CGG. The CLIENT accepts that there are limitations to the accuracy of information that can be derived from a geophysical survey, including, but not limited to, similar geophysical responses from different geological conditions, variable responses from apparently similar geology, and limitations. The data presented relates only to the conditions as revealed by the measurements at the sampling points, and conditions between such locations and survey lines may differ considerably. CGG is not liable for the existence of any condition, the discovery of which would require the performance of services that are not otherwise defined in the Agreement.

4. The passage of time may result in changes (whether man-made or natural) in site conditions. The results provided in this report only represent the site conditions and geology for the period that the survey was flown.

5. Where the processing and interpretation have involved CGG's interpretation or other use of any information (including, but not limited to, topographic maps, geological maps, and drill information; analysis, recommendations and conclusions) provided by the CLIENT or by third parties on behalf of the CLIENT and upon which CGG was reasonably entitled or expected to rely upon, then the Survey is limited by the accuracy of such information. Unless otherwise stated, CGG was not authorized and did not attempt to independently verify the accuracy or completeness of such information that was received from the CLIENT or third parties during the performance of the Survey. CGG is not liable for any inaccuracies (including any incompleteness) in the said information.



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# **System Information**



Figure 1 DIGHEM System

The DIGHEM system comprises a 30 m cable which tows a 9 m bird containing the EM transmitter and receiver coil pairs (three coplanar and two coaxial), a magnetometer, a laser altimeter and a GPS antenna for flight path recovery. The helicopter has a tail boom mounted GPS antenna for in-flight navigation, radar and barometric altimeters, a video camera and a data acquisition system.

#### Aircraft and Geophysical On-Board Equipment

Helicopter:	AS350 B2
Operator:	Trans North Helicopters
Registration:	C-GRBT, C-FCHN
Average Survey Speed:	110 km/h (30m/s)
EM System:	DIGHEM, symmetric dipole configurations.



Dipole Moment (Atm²)	Orientation	Nominal Frequency	Actual Frequency	Coil Separation (m)
211	Coaxial	1,000 Hz 900	1,121 Hz 924	7.97 7.98
211	Coplanar Coaxial	Hz	Hz	7.92 7.98
67	Coplanar	5,500 Hz	5,453 Hz	6.32
56	Coplanar	7,200 Hz	7,452 Hz	
15		56,000 Hz	55,600 Hz	

Table 1 DIGHEM BKS51 Configuration

Dipole Moment (Atm <sup>2</sup> )	Orientation	Nominal Frequency	Actual Frequency	Coil Separation (m)
211	Coaxial	1,000 Hz 900	1,112 Hz 920	7.98 7.98
211	Coplanar Coaxial	Hz	Hz	7.92 7.98
67	Coplanar	5,500 Hz	5,665 Hz	6.33
56	Coplanar	7,200 Hz	7,160 Hz	
15		56,000 Hz	56,260 Hz	

Table 2 DIGHEM BKS54 Configuration

Digital Acquisition:

CGG HeliDAS.

Video: Panasonic WVCD/32 Camera with Axis 241S Video Server. Camera is mounted to the exterior bottom of the helicopter between the forward skid tubes

Magnetometer:	Scintrex Cesium Vapour (CS-3), mounted in the EM bird;
	Operating Range: 15,000 to 100,000 nT Operating Limit: -40°C to 50°C
Accuracy: ±0.002 nT	
Sampling rate: 10.0 Hz	Measurement Precision: 0.001 nl



Radar Altimeter:	Honeywell Sperry Altimeter System. Radar antennas are mounted to the exterior bottom of the helicopter between the forward skid tubes		
	Operating Range: 0 – 2500ft		
	Operating Limit: -55°C to 70°C		
	0 to 55,000 ft		
	Accuracy:		
	± 3% (100 – 500ft above obstacle)		
	± 4% (500 – 2500ft above obstacle)		
	Measurement Precision: 1 ft		
	Sample Rate: 10.0 Hz		
Laser Altimeter:	Optech G-150 mounted in the EM bird;		
	Operating Range: 0.2 to 250 m Operating		
	Limit: -10°C to 45°C Accuracy:		
	±5 cm (10°C to 30°C)		
	±10 cm (-10°C to 45°C)		
	Measurement Precision: 1 cm		
	Sample Rate: 10.0 Hz		
Aircraft Navigation:	NovAtel OEM4 Card with an Aero antenna mounted on the tail of the helicopter;		
	Operating Limit: -40°C to 85°C		
	Real-Time Accuracy: 1.2m CEP (L1 WAAS);		
	Real-Time Measurement Precision: 6 cm RMS Sample Rate: 2.0 Hz		
EM Bird Positional Data:	NovAtel OEM4 with Aero Antenna mounted on the EM bird.		
	Operating Limit: -40°C to 85°C		
	Real-Time Accuracy: 1.8m CEP (L1);		
	Real-Time Measurement Precision: 6 cm RMS		
	Sample Rate: 2.0 Hz		
Barometric Altimeter:	Motorola MPX4115AP analog pressure sensor mounted in the helicopter		
Operating Range: 55 kPa to 10 Accuracy:	08 kPa Operating Limit: -40°C to 125°C		
	± 1.5 kPa (0°C to 85°C)		
	± 3.0 kPa (-20°C to 0°C, 85°C to 105°C)		
	$+ 4.5 \text{ kPa} (-40^{\circ}\text{C to} -20^{\circ}\text{C} \cdot 105^{\circ}\text{C} \text{ to} 125^{\circ}\text{C})$		
Measurement Precision: 0.01	Pa Sampling Rate = 10.0 Hz		


Temperature:	Analog Devices 592 sensor mounted on the camera box
	Operating Range: -40°C to + 75°C Operating Limit: -40°C to + 75°C
	Accuracy: ± 1.5°C Measurement Precision: 0.03°C Sampling Rate = 10.0 Hz
<b>Base Station Equipment</b>	
Primary Magnetometer:	CGG CF1 using Scintrex cesium vapour sensor with Marconi GPS card and antenna for measurement synchronization to GPS. The base station also collects barometric pressure and outside temperature.
	Magnetometer Operating Range: 15,000 to 100,000 nT Barometric Operating Range: 55kPa to 108 kPa Temperature Operating Range: -40°C to 75°C Sample Rate: 1.0 Hz
GPS Receiver:	NovAtel OEM4 Card with an Aero antenna
	Real-Time Accuracy: 1.8m CEP (L1) Sample Rate: 1.0 Hz
Secondary Magnetometer:	GEM Systems GSM-19
	Operating Range: 20,000 to 120,000 nT Operating Limit: -40°C to 60°C
	Accuracy: ± 0.2 nT
	Measurement Precision: 0.01 nT
	Sample Rate: 0.33 Hz

# **Quality Control and In-Field Processing**

Digital data for each flight were uploaded to the Mississauga office daily in order to verify data quality and completeness. A database was created and updated using Geosoft Oasis Montaj and proprietary CGG Atlas software. This allowed personnel to calculate, display and verify both the positional (flight path) and geophysical data. The initial database was examined as a preliminary assessment of the data acquired for each flight.

Initial processing of CGG survey data consists of differential corrections to the airborne GPS data, verification of EM calibrations, drift correction of the raw airborne EM data, spike rejection and filtering of all geophysical and ancillary data, calculation of preliminary resistivity data, and diurnal correction of magnetic data.

All data, including base station records, were checked on a daily basis to ensure compliance with the survey contract specifications. Re-flights were required if any of the following specifications were not met.



# **Navigation**

A specialized GPS system provided in-flight navigation control. The system determined the absolute position of the helicopter by monitoring the range information of twelve channels (satellites). The Novatel OEM4 receiver was used for this application. In North America, the OEM4 receiver is WAAS-enabled (Wide Area Augmentation System) providing better real-time positioning.

A Novatel OEM4 GPS base station was used to record pseudo-range, carrier phase, ephemeris, and timing information of all available GPS satellites in view at a one second interval. These data are used to improve the conversion of aircraft raw ranges to differentially corrected aircraft position. The GPS antenna was setup in a location that allowed for clear sight of the satellites above. The set-up of the antenna also considered surfaces that could cause signal reflection around the antenna that could be a source of error to the received data measurements.

### Flight Path

Flight lines did not deviate from the intended flight path by more than 25% of the planned flight path over a distance of more than 1 kilometre. Flight specifications were based on GPS positional data recorded at the helicopter.

### **Clearance**

The survey elevation is defined as the measurement of the helicopter radar altimeter to the tallest obstacle in the helicopter path. An obstacle is any structure or object which will impede the path of the helicopter to the ground and is not limited to and includes tree canopy, towers and power lines.

Survey elevations may vary based on the pilot's judgement of safe flying conditions around man-made structures or in rugged terrain.

The average survey elevation achieved for the helicopter and instrumentation during data collection was:

Helicopter	60 metres
Magnetometer	35 metres
DIGHEM EM sensor	35 metres

Survey elevations did not deviate by more than 20% over a distance of 2 km from the contracted elevation.

The achieved survey height was achieved for almost all the survey areas but was impacted by steep terrain in a few locations.

### Airborne High Sensitivity Magnetometer

To assess the noise quality of the collected airborne magnetic data, CGG monitors the 4<sup>th</sup> difference results during flight which is verified post flight by the processor. The contracted specification for the collected airborne magnetic data was that the non-normalized 4<sup>th</sup> difference would not exceed 1.6 nT over a continuous distance of 1 kilometre excluding areas where this specification was exceeded due to natural anomalies.

### Magnetic Base Station



Ground magnetic base stations were set-up to measure the total intensity of the earth's magnetic field. The base stations were placed in a magnetically quiet area, away from power lines and moving metallic objects. The contracted specification for the collected ground magnetic data was the non-linear variations in the magnetic data were not to exceed 10 nT per minute. CGG's standard of setting up the base station within 50 km from the centre of the survey block allowed for successful removal of the active magnetic events on the collected airborne magnetic data.

### Electromagnetic Data

The contracted specification for the EM channels was a peak to peak noise envelope not to exceed the specified tolerance (Table 3) continuously over a horizontal distance of 2,000 metres under normal survey conditions.

The effects of spheric pulses were monitored on the EM channels by visual assessment of the data and monitoring of two spheric channels during flight operations. Spheric pulses may occur having strong peaks but narrow widths. During survey operation, there was minimal spheric activity and when it occurred it was manually removed. Flying was not performed when spheric pulses became sufficiently intense and frequent that digital data processing techniques could not recover useful data.

The acceptable noise limits of the EM channels are stated below:

Frequency	Coil Orientation	Peak to Peak Noise Envelope (ppm)
1,000 Hz 900 Hz 5,500 Hz 7,200 Hz 56,000 Hz	vertical coaxial horizontal coplanar vertical coaxial horizontal coplanar horizontal coplanar	5.0 10.0 10.0 20.0 40.0

Table 3 EM System Noise Specifications

### In-Flight EM System Calibration

Calibration of the system during the survey uses the CGG AutoCal automatic, internal calibration process. At the beginning and end of each flight, and at intervals during the flight, the system is flown up to high altitude to remove it from any "ground effect" (response from the earth). Any remaining signal from the receiver coils (base level) is measured as the zero level, and is removed from the data collected until the time of the next calibration. Following the zero level setting, internal calibration coils, for which the response phase and amplitude have been determined at the factory, are automatically triggered – one for each frequency. The on-time of the coils is sufficient to determine an accurate response through any ambient noise. The receiver response to each calibration coil "event" is compared to the expected response (from the factory calibration) for both phase angle and amplitude, and any phase and gain corrections are automatically applied to bring the data to the correct value.

In addition, the outputs of the transmitter coils are continuously monitored during the survey, and the gains are adjusted to correct for any change in transmitter output.



Because the internal calibration coils are calibrated at the factory (on a resistive half-space) ground calibrations using external calibration coils on-site are not necessary for system calibration. A check calibration may be carried out on-site to ensure all systems are working correctly. All system calibrations will be carried out in the air, at sufficient altitude that there will be no measurable response from the ground.

The internal calibration coils are rigidly positioned and mounted in the system relative to the transmitter and receiver coils. In addition, when the internal calibration coils are calibrated at the factory, a rigid jig is employed to ensure accurate response from the external coils.

Using real time Fast Fourier Transforms and the calibration procedures outlined above, the data are processed in real time, from measured total field at a high sampling rate, to in-phase and quadrature values at 10 samples per second.

# Data Processing

### Flight Path Recovery

To check the quality of the positional data the speed of the bird is calculated using the differentially corrected x, y and z data. Any sharp changes in the speed are used to flag possible problems with the positional data. Where speed jumps occur, the data are inspected to determine the source of the error. The erroneous data are deleted and splined if less than five seconds in length. If the error is greater than five seconds the raw data are examined and if acceptable, may be shifted and used to replace the bad data. The GPS-Z component is the most common source of error. When it shows problems that cannot be corrected by recalculating the differential correction, the barometric altimeter is used as a guide to assist in making the appropriate correction. The corrected WGS84 longitude and latitude coordinates were transformed to WGS84 using the following parameters.

Datum:	WGS84
Ellipsoid:	GRS80
Projection:	UTM Zone 7N
Central meridian:	141° West
False Easting:	500000 metres
False Northing:	0 metres
Scale factor:	0.9996
WGS84 to Local Conversion:	Molodensky
Dx,Dy,Dz:	0, 0, 0

Recorded video flight path may also be linked to the data and used for verification of the flight path. Fiducial numbers are recorded continuously and are displayed on the margin of each digital image. This procedure ensures accurate correlation of data with respect to visible features on the ground. The fiducials appearing on the video frames and the corresponding fiducials in the digital profile database originate from the data acquisition system and are based on incremental time from start-up. Along with the acquisition system time, UTC time is also recorded in parallel and displayed (Figure 3).

# Altitude Data

Radar altimeter data are despiked by applying a 1.5 second median and smoothed using a 1.5 second Hanning filter. The radar altimeter data are then subtracted from the GPS elevation to create a digital elevation model that is gridded and used in conjunction with profiles of the radar altimeter and flight path video to detect any spurious values.



Laser altimeter data are despiked and filtered using an alpha-trim filter. The laser altimeter data are then subtracted from the GPS elevation to create a digital elevation model that is examined in grid format for spurious values. The laser does a better job of piercing the tree canopy than the radar altimeter, and was used in the resistivity/depth calculation.



**UTC** Time

Speed (km/h)

# Latitude DDMM.MMMM (WGS84) Longitude: DDMM.MMMM (WGS84)

Figure 2 Flight path video

# **Magnetic Base Station Diurnal**

The raw diurnal data are sampled at 1 Hz and imported into a database. The data are filtered with a 51 second median filter and then a 51 second Hanning filter to remove spikes and smooth short wavelength variations. A non-linear variation is then calculated and a flag channel is created to indicate where the variation exceeds the survey tolerance. Acceptable diurnal data are interpolated to a 10 Hz sample rate and the local regional field value calculated from the average of the first day's diurnal data, was removed to leave the diurnal variation. This diurnal variation is then ready to be used in the processing of the airborne magnetic data.

# **Residual Magnetic Intensity**

The Total Magnetic Field (TMF) data collected in flight were profiled on screen along with a fourth difference channel calculated from the TMF. Spikes were removed manually where indicated by the fourth difference.



The despiked data were then corrected for lag by 2.1 seconds. The diurnal variation that was extracted from the filtered ground station data was then removed from the despiked and lagged TMF. The IGRF was calculated using the 2014 IGRF model for the specific survey location, date and altitude of the sensor and removed from the TMF to obtain the Residual Magnetic Intensity (RMI). The results were then levelled using tie and traverse line intercepts if necessary. Manual adjustments were applied to any lines that required levelling, as indicated by shadowed images of the gridded magnetic data. The manually levelled data were then subjected to a microlevelling filter if it was deemed necessary.

### **Calculated Vertical Magnetic Gradient**

The levelled, Residual Magnetic Intensity grid was subjected to a processing algorithm that enhances the response of magnetic bodies in the upper 500 metres and attenuates the response of deeper bodies. The resulting calculated vertical gradient grid provides better definition and resolution of near-surface magnetic units. It also identifies weak magnetic features that may not be quite as evident in the RMI data. Regional magnetic variations and changes in lithology, however, may be better defined on the Residual Magnetic Intensity.

### Electromagnetic Data

EM data are processed at the recorded sample rate of 10 Hz. Profiles of the data were examined on a flight by flight basis on screen to check in-flight calibrations and high altitude background removal. A lag of 1.1 seconds was applied and then a 0.9 second median and a 0.9 second Hanning filter were used to reduce noise to acceptable levels. Flights were then displayed and corrected for drift. Following that individual lines were displayed and further levelling corrections were applied while referencing the calculated apparent resistivity.

The EM data are examined to allow the interpreter to select the most appropriate EM anomaly picking controls for a given survey area. The EM picking parameters depend on several factors but are primarily based on the dynamic range of the resistivities within the survey area, and the types and expected geophysical responses of the targets being sought.

### Apparent Resistivity

The apparent resistivities in ohm·m are generated from the in-phase and quadrature EM components for all of the coplanar frequencies, using a pseudo-layer half-space model. The inputs to the resistivity algorithm are the in-phase and quadrature amplitudes of the secondary field. The algorithm calculates the apparent resistivity in ohm·m, and the apparent height of the bird above the conductive source. Any difference between the apparent height and the true height, as measured by the laser altimeter, is called the pseudo-layer and reflects the difference between the real geology and a homogeneous halfspace. This difference is often attributed to the presence of a highly resistive upper layer. Any errors in the altimeter reading, caused by heavy tree cover, are included in the pseudo-layer and do not affect the resistivity calculation. The apparent depth estimates, however, will reflect the altimeter errors. Apparent resistivities calculated in this manner may differ from those calculated using other models.

In areas where the effects of magnetic permeability or dielectric permittivity have suppressed the in-phase responses, the calculated resistivities will be erroneously high. Various algorithms and inversion techniques can be used to partially correct for the effects of permeability and permittivity.

Apparent resistivity maps portray all of the information for a given frequency over the entire survey area. The large dynamic range afforded by the multiple frequencies makes the apparent resistivity parameter an excellent mapping tool.



The preliminary apparent resistivity images are carefully inspected to identify any lines or line segments that might require base level adjustments. Subtle changes between in-flight calibrations of the system can result in line-to-line differences that are more recognizable in resistive (low signal amplitude) areas. If required, manual level adjustments are carried out on the EM data to eliminate or minimize resistivity differences that can be attributed, in part, to changes in operating temperatures. These levelling adjustments are usually very subtle, and do not result in the degradation of discrete anomalies.

After the manual levelling process is complete, revised resistivity grids are created. The resulting grids can be subjected to a microlevelling technique in order to smooth the data for contouring. The coplanar resistivity parameter has a broad 'footprint' that requires very little filtering.

# **Digital Elevation**

The laser altimeter values are subtracted from the differentially corrected and de-spiked GPS-Z values to produce profiles of the height above mean sea level along the survey lines. These values are gridded to produce contour maps showing approximate elevations within the survey area. Any subtle line-to-line discrepancies are manually removed. After the manual corrections are applied, the digital terrain data are filtered with a microlevelling algorithm.

The accuracy of the elevation calculation is directly dependent on the accuracy of the two input parameters, laser altimeter and GPS-Z. The GPS-Z value is primarily dependent on the number of available satellites. Although post-processing of GPS data will yield X and Y accuracies in the order of 1-2 metres, the accuracy of the Z value is usually much less, sometimes in the  $\pm$ 5 metre range. Further inaccuracies may be introduced during the interpolation and gridding process.

Because of the inherent inaccuracies of this method, no guarantee is made or implied that the information displayed is a true representation of the height above sea level. Although this product may be of some use as a general reference, <u>THIS PRODUCT MUST NOT BE USED FOR NAVIGATION PURPOSES</u>.

### Contour, Colour and Shadow Map Displays

The magnetic and resistivity data are interpolated onto a regular grid using a modified Akima spline technique. The resulting grid is suitable for image processing and generation of contour maps. The grid cell size is 20% of the line interval.

Colour maps are produced by interpolating the grid down to the pixel size. The parameter is then incremented with respect to specific amplitude ranges to provide colour "contour" maps.



# **Final Products**

This section lists the final products that have been provided under the terms of the survey agreement. Other products can be prepared from the existing dataset, if requested. These include magnetic enhancements or derivatives, percent magnetite, resistivities corrected for magnetic permeability and/or dielectric permittivity, digital terrain, resistivity-depth sections, inversions, and overburden thickness. Most parameters can be displayed as contours, profiles, or in colour. All grids were created using the following parameters:

### Projection Description:

Datum:	WGS84
Ellipsoid:	GRS80
Projection:	UTM Zone 7N
Central meridian:	141° West
False Easting:	500000 metres
False Northing:	0 metres
Scale factor:	0.9996
WGS84 to Local Conversion:	Molodensky
Dx,Dy,Dz: 0, 0, 0	-

### **Digital Archives**

Line and grid data in the form of a Geosoft database (\*.gdb) and XYZ file and Geosoft grids (\*.grd) have been written to DVD. The formats and layouts of these archives are further described in Data Archive Description.

### Report

Two paper copies of this Geophysical Survey Report plus a digital copy in PDF format.

### Flight Path Videos

All survey flights in BIN/BDX format with a viewer.

# **CONCLUSIONS AND RECOMMENDATIONS**

This report provides a very brief description of the survey results and describes the equipment, data processing procedures and logistics of the airborne survey over the Dawson City Areas, near Dawson City, Yukon.

Respectfully submitted,

CGG

R602997D

R602997



# **List of Personnel**

The following personnel were involved in the acquisition, processing, interpretation and presentation of data, relating to a DIGHEM airborne geophysical survey carried out for GroundTruth Exploration over the Dawson City Areas near Dawson City, Yukon.

Amanda Heydorn	Project Manager
Brett Robinson	Project Manager
David Grenier	Project Manager
Chris Sawyer	Flight Planner
Serguei Ermakov	Electronics Technician
Gary Ellis	Electronics Technician
Andrew Hisperger	Electronics Technician
Lucas Charbonneau	Operator
Keith Lavalley	Operator
David Patzer	Operator
Devon Watson	Operator
Rob Brideau	Pilot (Trans North Helicopters)
Thomas McMahon	Pilot (Trans North Helicopters)
Robert Fauteaux	Pilot (Trans North Helicopters)
Jeff Anhel	AME (Trans North Helicopters)
Brian Haight	AME (Trans North Helicopters)
Alex Zlojutro	Data Processor
Ron Wiseman P.Geo	Data Processor
Russell Imrie P.Geo	Data Processor
Ruth Pritchard P.Geo	Data Processor

All personnel were employees of CGG, except where indicated.



# **Data Archive Description**

Survey Details:	
Survey Area Name:	Dawson City Areas
Project number:	602997
Client:	GroundTruth Exploration
Survey Company Name:	CGG
Flown Dates:	October 6, 2016 to July 7, 2017, 2012
Archive Creation Date:	September 12, 2012

# Geodetic Information for map products:

Datum:	WGS84
Ellipsoid:	GRS80
Projection:	UTM Zone 7N
Central meridian:	141° West
False Easting:	500000 metres
False Northing:	0 metres
Scale factor:	0.9996
WGS84 to Local Conversion:	Molodensky
Dx,Dy,Dz: 0, 0, 0	

# Grid Archive:

## Geosoft Grids:

File	Description	Units
rmi-*	Residual Magnetic Intensity block *	nT
cvg-*	Calculated Vertical Magnetic Gradient block *	nT/m
dtm-*	Digital Terrain Model block *	m
res56k-*	Apparent Resistivity coplanar 56,000 Hz block *	ohm∙m
res7200-*	Apparent Resistivity coplanar 7,200 Hz block *	ohm∙m
res900-*	Apparent Resistivity coplanar 900 Hz block *	ohm∙m
res 1000-*	Apparent Resistivity coaxial 1,000 Hz block *	ohm∙m
res 5500-*	Apparent Resistivity coaxial 900 Hz block *	ohm∙m

# Linedata Archive:

# Geosoft Database Layout for files named 602997\_archive-\* where \* indicates block number:

Field	Variable	Description	Units
1	x_wgs84_z7n	Easting WGS84	m
2	y_wgs84_z7n	Northing WGS84	m
3	zhg_tx	EM bird height above geoid	m
4	lat_tx	Latitude WGS84	degrees



5	lon_tx	Longitude WGS84	degrees
6	fid	fiducial	-
7	flight	Flight number	
8	date	Flight date	ddmmyy
9	altlas_tx	Bird height above surface from laser altimeter	m
10	altrad_heli	Helicopter height above surface from radar altimeter	m
11	dtm	Digital elevation model (above geoid)	m
12	mag_ds	Total magnetic field – spike rejected	m
13	diurnal_cor	Diurnal correction – base removed	nT
14	mag_ld	Total magnetic field –corrected for lag and diurnal variation	nT
15	igrf	international geomagnetic reference field	nT
16	rmi	Leveled residual magnetic intensity	nT
17	cpi900_filt	Coplanar inphase 900 Hz – spherics rejected	nT
18	cpq900_filt	Coplanar quadrature 900 Hz – spherics rejected	nT
19	cpi7200_filt	Coplanar inphase 7200 Hz – spherics rejected	ppm
20	cpq7200_filt	Coplanar quadrature 7200 Hz – spherics rejected	ppm
21	cpi56k_filt	Coplanar inphase 56 kHz – spherics rejected	ppm
22	cpq56k_filt	Coplanar quadrature 56 kHz – spherics rejected	ppm
23	cxi1000_filt	Coaxial inphase 1000 Hz – spherics rejected	ppm
24	cxq1000_filt	Coaxial quadrature 1000 Hz – spherics rejected	ppm
25	cxi5500_filt	Coaxial inphase 5500 Hz – spherics rejected	ppm
26	cxq5500_filt	Coaxial quadrature 5500 Hz – spherics rejected	ppm
27	cpi900_lev	Coplanar inphase 900 Hz – levelled	ppm
28	cpq900_lev	Coplanar quadrature 900 Hz – levelled	ppm
29	cpi7200_lev	Coplanar inphase 7200 Hz – levelled	ppm
30	cpq7200_lev	Coplanar quadrature 7200 Hz – levelled	ppm
31	cpi56K_lev	Coplanar inphase 56 kHz – levelled	ppm
32	cpq56K_lev	Coplanar quadrature 56 kHz – levelled	ppm
33	cxi1000_lev	Coaxial inphase 1000 Hz – levelled	ppm
34	cxq1000_lev	Coaxial quadrature 1000 Hz – levelled	ppm
35	cxi5500_lev	Coaxial inphase 5500 Hz – levelled	ppm
36	cxq5500_lev	Coaxial quadrature 5500 Hz – levelled	ppm
37	res900	Apparent Resistivity 900 Hz coplanar	ohm∙m
38	res7200	Apparent Resistivity 7,200 Hz coplanar	ohm∙m
39	res56K	Apparent Resistivity 56,000 Hz coplanar	ohm∙m
40	res1000	Apparent Resistivity 1000 Hz coaxial	ohm∙m
41	res5500	Apparent Resistivity 5500 Hz coaxial	ohm∙m
42	dep900	Apparent Depth 900 Hz coplanar	m
43	dep7200	Apparent Depth 7,200 Hz coplanar	m
44	dep56K	Apparent Depth 56,000 Hz coplanar	m



45	dep1000	Apparent Depth 1000 Hz coaxial	m
46	dep5500	Apparent Depth 5500 Hz coaxial	m
47	powerline	Coplanar powerline monitor	

Note – The null values in the GDB and XYZ archives are displayed as \*.

# Report:

This geophysical survey report and the anomaly listing for Project #602997D in PDF format:

R602997D.pdf

# Video:

Digital video in BIN/BDX format for all survey flights including a viewer.

CGGSurveyReplay



# **Background Information**

# **Electromagnetics**

CGG electromagnetic responses fall into two general classes, discrete and broad. The discrete class consists of sharp, well-defined anomalies from discrete conductors such as sulphide lenses and steeply dipping sheets of graphite and sulphides. The broad class consists of wide anomalies from conductors having a large horizontal surface such as flatly dipping graphite or sulphide sheets, saline water-saturated sedimentary formations, conductive overburden and rock, kimberlite pipes and geothermal zones. A vertical conductive slab with a width of 200 m would straddle these two classes.

The conductive earth (half-space) model is suitable for broad conductors. Resistivity contour maps result from the use of this model. A later section entitled **Resistivity Mapping** describes the method further, including the effect of using it on anomalies caused by discrete conductors such as sulphide bodies.

### **Geometric Interpretation**

Figure 3 shows typical HEM anomaly shapes which are used to guide the geometric interpretation.





**Typical HEM anomaly shapes** 

Figure 3 EM Anomaly Shapes

### **Resistivity Mapping**

Resistivity mapping is useful in areas where broad or flat lying conductive units are of interest. One example of this is the clay alteration which is associated with Carlin-type deposits in the south west United States. The resistivity parameter was able to identify the clay alteration zone over the Cove deposit. The alteration zone appeared as a strong resistivity low on the 900 Hz resistivity parameter. The 7,200 Hz and 56,000 Hz resistivities showed more detail in the covering sediments, and delineated a range front fault. This is typical in many areas of the south west United States, where conductive near surface sediments, which may sometimes be alkalic, attenuate the higher frequencies.

Resistivity mapping has proven successful for locating diatremes in diamond exploration. Weathering products from relatively soft kimberlite pipes produce a resistivity contrast with the unaltered host rock. In many cases weathered kimberlite pipes were associated with thick conductive layers that contrasted with overlying or adjacent relatively thin layers of lake bottom sediments or overburden.

Areas of widespread conductivity are commonly encountered during surveys. These conductive zones may reflect alteration zones, shallow-dipping sulphide or graphite-rich units, saline ground water, or conductive overburden. In such areas, EM amplitude changes can be generated by decreases of only 5 m in survey altitude, as well as by increases in conductivity. The typical flight record in conductive areas is characterized by in-phase and quadrature channels that are continuously active. Local EM peaks reflect either increases in conductivity of the earth or decreases in survey altitude. For such conductive areas, apparent resistivity profiles and contour maps are necessary for the correct interpretation of the airborne data. The advantage of the resistivity data reflect only those anomalies caused by conductivity changes. The resistivity analysis also helps the interpreter to differentiate between conductive bedrock and conductive overburden. For example, discrete conductors will generally appear as narrow lows on the contour map and broad conductors (e.g., overburden) will appear as wide lows.

The apparent resistivity is calculated using the pseudo-layer (or buried) half-space model defined by Fraser (1978)<sup>1</sup>. This model consists of a resistive layer overlying a conductive half-space. The depth channels give the apparent depth below surface of the conductive material. The apparent depth is simply the apparent thickness of the overlying resistive layer. The apparent depth (or thickness) parameter will be positive when the upper layer is more resistive than the underlying material, in which case the apparent depth may be quite close to the true depth.

The apparent depth will be negative when the upper layer is more conductive than the underlying material, and will be zero when a homogeneous half-space exists. The apparent depth parameter

<sup>&</sup>lt;sup>1</sup>Resistivity mapping with an airborne multicoil electromagnetic system: Geophysics, v. 43, p.144-172

must be interpreted cautiously because it will contain any errors that might exist in the measured altitude of the EM bird (e.g., as caused by a dense tree cover). The inputs to the resistivity algorithm are the in-phase and quadrature components of the coplanar coil-pair. The outputs are the apparent resistivity of the conductive half-space (the source) and the sensor-source distance. The flying height is not an input variable, and the output resistivity and sensor-source distance are independent of the flying height when the conductivity of the measured material is sufficient to yield significant in-phase as well as quadrature responses. The apparent depth, discussed above, is simply the sensor-source distance minus the measured altitude or flying height. Consequently, errors in the measured altitude will affect the apparent depth parameter but not the apparent resistivity parameter.

The apparent depth parameter is a useful indicator of simple layering in areas lacking a heavy tree cover. Depth information has been used for permafrost mapping, where positive apparent depths were used as a measure of permafrost thickness. However, little quantitative use has been made of negative apparent depths because the absolute value of the negative depth is not a measure of the thickness of the conductive upper layer and, therefore, is not meaningful physically.

Qualitatively, a negative apparent depth estimate usually shows that the EM anomaly is caused by conductive overburden. Consequently, the apparent depth channel can be of significant help in distinguishing between overburden and bedrock conductors.

### Interpretation in Conductive Environments

The DEP channels, which give the apparent depth to the conductive material, also help to determine whether a conductive response arises from surficial material or from a conductive zone in the bedrock. When these channels ride above the zero level on the depth profiles (i.e., depth is negative), it implies that the EM and resistivity profiles are responding primarily to a conductive upper layer, i.e., conductive overburden. If the DEP channels are below the zero level, it indicates that a resistive upper layer exists, and this usually implies the existence of a bedrock conductor. If the low frequency DEP channel is below the zero level and the high frequency DEP is above, this suggests that a bedrock conductor occurs beneath conductive cover.

### **EM Magnetite Mapping**

The information content of HEM data consists of a combination of conductive eddy current responses and magnetic permeability responses. The secondary field resulting from conductive eddy current flow is frequency-dependent and consists of both in-phase and quadrature components, which are positive in sign. On the other hand, the secondary field resulting from magnetic permeability is independent of frequency and consists of only an in-phase component which is negative in sign. When magnetic permeability manifests itself by decreasing the measured amount of positive in-phase, its presence may be difficult to recognize. However, when it manifests itself by yielding a negative in-phase anomaly (e.g., in the absence of eddy current flow), its presence is assured. In this latter case, the negative component can be used to estimate the percent magnetite content.

A magnetite mapping technique, based on the low frequency coplanar data, can be complementary to magnetometer mapping in certain cases. Compared to magnetometry, it is far less sensitive but is more able to resolve closely spaced magnetite zones, as well as providing an estimate of the amount of magnetite in the rock. The method is sensitive to ¼% magnetite by weight when the EM

sensor is at a height of 30 m above a magnetitic half-space. It can individually resolve steep dipping narrow magnetite-rich bands which are separated by 60 m. Unlike magnetometry, the EM magnetite method is unaffected by remanent magnetism or magnetic latitude.

The EM magnetite mapping technique provides estimates of magnetite content which are usually correct within a factor of 2 when the magnetite is fairly uniformly distributed. EM magnetite maps can be generated when magnetic permeability is evident as negative in-phase responses on the data profiles.

Like magnetometry, the EM magnetite method maps only bedrock features, provided that the overburden is characterized by a general lack of magnetite. This contrasts with resistivity mapping which portrays the combined effect of bedrock and overburden.

# The Susceptibility Effect

When the host rock is conductive, the positive conductivity response will usually dominate the secondary field, and the susceptibility effect<sup>2</sup> will appear as a reduction in the in-phase, rather than as a negative value. The in-phase response will be lower than would be predicted by a model using zero susceptibility. At higher frequencies the in-phase conductivity response also gets larger, so a negative magnetite effect observed on the low frequency might not be observable on the higher frequencies, over the same body. The susceptibility effect is most obvious over discrete magnetite-rich zones, but also occurs over uniform geology such as a homogeneous half-space.

High magnetic susceptibility will affect the calculated apparent resistivity, if only conductivity is considered. Standard apparent resistivity algorithms use a homogeneous half-space model, with zero susceptibility. For these algorithms, the reduced in-phase response will, in most cases, make the apparent resistivity higher than it should be. It is important to note that there is nothing wrong with the data, nor is there anything wrong with the processing algorithms. The apparent difference results from the fact that the simple geological model used in processing does not match the complex geology.

### Measuring and Correcting the Magnetite Effect

Theoretically, it is possible to calculate (forward model) the combined effect of electrical conductivity and magnetic susceptibility on an EM response in all environments. The difficulty lies, however, in separating out the susceptibility effect from other geological effects when deriving resistivity and susceptibility from EM data.

Over a homogeneous half-space, there is a precise relationship between in-phase, quadrature, and altitude. These are often resolved as phase angle, amplitude, and altitude. Within a reasonable

<sup>&</sup>lt;sup>2</sup> Magnetic susceptibility and permeability are two measures of the same physical property. Permeability is generally given as relative permeability,  $\mu_r$ , which is the permeability of the substance divided by the permeability of free space (4  $\Box$  x 10<sup>-7</sup>). Magnetic susceptibility *k* is related to permeability by  $k=\mu^r-1$ . Susceptibility is a unitless measurement, and is usually reported in units of 10<sup>-6</sup>. The typical range of susceptibilities is –1 for quartz, 130 for pyrite, and up to 5 x 10<sup>5</sup> for magnetite, in 10<sup>-6</sup> units (Telford et al, 1986).

range, any two of these three parameters can be used to calculate the half space resistivity. If the rock has a positive magnetic susceptibility, the in-phase component will be reduced and this departure can be recognized by comparison to the other parameters.

The algorithm used to calculate apparent susceptibility and apparent resistivity from HEM data, uses a homogeneous half-space geological model. Non half-space geology, such as horizontal layers or dipping sources, can also distort the perfect half-space relationship of the three data parameters. While it may be possible to use more complex models to calculate both rock parameters, this procedure becomes very complex and time-consuming. For basic HEM data processing, it is most practical to stick to the simplest geological model.

Magnetite reversals (reversed in-phase anomalies) have been used for many years to calculate an "FeO" or magnetite response from HEM data (Fraser, 1981). However, this technique could only be applied to data where the in-phase was observed to be negative, which happens when susceptibility is high and conductivity is low.

### Applying Susceptibility Corrections

Resistivity calculations done with susceptibility correction may change the apparent resistivity. Highsusceptibility conductors, that were previously masked by the susceptibility effect in standard resistivity algorithms, may become evident. In this case the susceptibility corrected apparent resistivity is a better measure of the actual resistivity of the earth. However, other geological variations, such as a deep resistive layer, can also reduce the in-phase by the same amount. In this case, susceptibility correction would not be the best method. Different geological models can apply in different areas of the same data set. The effects of susceptibility, and other effects that can create a similar response, must be considered when selecting the resistivity algorithm.

### Susceptibility from EM vs Magnetic Field Data

The response of the EM system to magnetite may not match that from a magnetometer survey. First, HEMderived susceptibility is a rock property measurement, like resistivity. Magnetic data show the total magnetic field, a measure of the potential field, not the rock property. Secondly, the shape of an anomaly depends on the shape and direction of the source magnetic field. The electromagnetic field of HEM is much different in shape from the earth's magnetic field. Total field magnetic anomalies are different at different magnetic latitudes; HEM susceptibility anomalies have the same shape regardless of their location on the earth.

In far northern latitudes, where the magnetic field is nearly vertical, the total magnetic field measurement over a thin vertical dike is very similar in shape to the anomaly from the HEM-derived susceptibility (a sharp peak over the body). The same vertical dike at the magnetic equator would yield a negative magnetic anomaly, but the HEM susceptibility anomaly would show a positive susceptibility peak.

### Effects of Permeability and Dielectric Permittivity

Resistivity algorithms that assume free-space magnetic permeability and dielectric permittivity, do not yield reliable values in highly magnetic or highly resistive areas. Both magnetic polarization and displacement currents cause a decrease in the in-phase component, often resulting in negative values that yield erroneously high apparent resistivities. The effects of magnetite occur at all frequencies, but are most evident at the lowest frequency. Conversely, the negative effects of dielectric permittivity are most evident at the higher frequencies, in resistive areas.

Table 4 below shows the effects of varying permittivity over a resistive (10,000 ohm-m) half space, at frequencies of 56,000 Hz (DIGHEM) and 102,000 Hz (RESOLVE).

Freq (Hz)	Coil	Sep	Thres	Alt	In	Quad	Арр	App Depth	Permittivity
		(m)	(ppm)	(m)	Phase	Phase	Res	(m)	
56,000	СР	6.3	0.1	30	7.3	35.3	10118	-1.0	1 Air
56,000	СР	6.3	0.1	30	3.6	36.6	19838	-13.2	5 Quartz
56,000	СР	6.3	0.1	30	-1.1	38.3	81832	-25.7	10 Epidote
56,000	СР	6.3	0.1	30	-10.4	42.3	76620	-25.8	20 Granite
56,000	СР	6.3	0.1	30	-19.7	46.9	71550	-26.0	30 Diabase
56,000	СР	6.3	0.1	30	-28.7	52.0	66787	-26.1	40 Gabbro
102,000	СР	7.86	0.1	30	32.5	117.2	9409	-0.3	1 Air
102,000	СР	7.86	0.1	30	11.7	127.2	25956	-16.8	5 Quartz
102,000	СР	7.86	0.1	30	-14.0	141.6	97064	-26.5	10 Epidote
102,000	СР	7.86	0.1	30	-62.9	176.0	83995	-26.8	20 Granite
102,000	СР	7.86	0.1	30	-107.5	215.8	73320	-27.0	30 Diabase
102,000	СР	7.86	0.1	30	-147.1	259.2	64875	-27.2	40 Gabbro

### **Apparent Resistivity Calculations**

Table 4 Effects of Permittivity on In-phase/Quadrature/Resistivity

Methods have been developed (Huang and Fraser, 2000, 2001) to correct apparent resistivities for the effects of permittivity and permeability. The corrected resistivities yield more credible values than if the effects of permittivity and permeability are disregarded.

### Recognition of Culture

Cultural responses include all EM anomalies caused by man-made metallic objects. Such anomalies may be caused by inductive coupling or current gathering. The concern of the interpreter

is to recognize when an EM response is due to culture. Points of consideration used by the interpreter, when coaxial and coplanar coil-pairs are operated at a common frequency, are as follows:

- 1. Channels CXPL and CPPL monitor 60 Hz radiation. An anomaly on these channels shows that the conductor is radiating power. Such an indication is normally a guarantee that the conductor is cultural. However, care must be taken to ensure that the conductor is not a geologic body that strikes across a power line, carrying leakage currents.
- 2. A flight that crosses a "line" (e.g., fence, telephone line, etc.) yields a centre-peaked coaxial anomaly and an m-shaped coplanar anomaly (see Figure 3). When the flight crosses the cultural line at an acute angle of intersection, the amplitude ratio of coaxial/coplanar response is 2. Such an EM anomaly can only be caused by a line. The geologic body that yields anomalies most closely resembling a line is the vertically dipping thin dike. Such a body, however, yields an amplitude ratio of 1 rather than 2. Consequently, an m-shaped coplanar anomaly with a CXI/CPI amplitude ratio of 2 is virtually a guarantee that the source is a cultural line.
- 3. A flight that crosses a sphere or horizontal disk yields centre-peaked coaxial and coplanar anomalies with a CXI/CPI amplitude ratio (i.e., coaxial/coplanar) of <sup>1</sup>/<sub>8</sub>. In the absence of geologic bodies of this geometry, the most likely conductor is a metal roof or small fenced yard.
- 4. A flight that crosses a horizontal rectangular body or wide ribbon yields an m-shaped coaxial anomaly and a centre-peaked coplanar anomaly. In the absence of geologic bodies of this geometry, the most likely conductor is a large fenced area. Anomalies of this type are virtually certain to be cultural if they occur in an area of culture.
- 5. EM anomalies that coincide with culture, as seen on the camera film or video display, are usually caused by culture. However, care is taken with such coincidences because a geologic conductor could occur beneath a fence, for example. In this example, the fence would be expected to yield an mshaped coplanar anomaly as in case #2 above. If, instead, a centre-peaked coplanar anomaly occurred, there would be concern that a thick geologic conductor coincided with the cultural line.
- 6. The above description of anomaly shapes is valid when the culture is not conductively coupled to the environment. In this case, the anomalies arise from inductive coupling to the EM transmitter. However, when the environment is quite conductive (e.g., less than 100 ohm-m at 900 Hz), the cultural conductor may be conductively coupled to the environment. In this latter case, the anomaly shapes tend to be governed by current gathering. Current gathering can completely distort the anomaly shapes, thereby complicating the identification of cultural anomalies. In such circumstances, the interpreter can only rely on the radiation channels and on the camera film or video records.

## Magnetic Responses

The measured total magnetic field provides information on the magnetic properties of the earth materials in the survey area. The information can be used to locate magnetic bodies of direct interest for exploration, and for structural and lithological mapping.

The total magnetic field response reflects the abundance of magnetic material in the source. Magnetite is the most common magnetic mineral. Other minerals such as ilmenite, pyrrhotite, franklinite, chromite, hematite, arsenopyrite, limonite and pyrite are also magnetic, but to a lesser extent than magnetite on average.

In some geological environments, an EM anomaly with magnetic correlation has a greater likelihood of being produced by sulphides than one which is non-magnetic. However, sulphide ore bodies may be non-magnetic (e.g., the Kidd Creek deposit near Timmins, Canada) as well as magnetic (e.g., the Mattabi deposit near Sturgeon Lake, Canada).

Iron ore deposits will be anomalously magnetic in comparison to surrounding rock due to the concentration of iron minerals such as magnetite, ilmenite and hematite.

Changes in magnetic susceptibility often allow rock units to be differentiated based on the total field magnetic response. Geophysical classifications may differ from geological classifications if various magnetite levels exist within one general geological classification. Geometric considerations of the source such as shape, dip and depth, inclination of the earth's field and remanent magnetization will complicate such an analysis.

In general, mafic lithologies contain more magnetite and are therefore more magnetic than many sediments which tend to be weakly magnetic. Metamorphism and alteration can also increase or decrease the magnetization of a rock unit.

Textural differences on a total field magnetic contour, colour or shadow map due to the frequency of activity of the magnetic parameter resulting from inhomogeneities in the distribution of magnetite within the rock, may define certain lithologies. For example, near surface volcanics may display highly complex contour patterns with little line-to-line correlation.

Rock units may be differentiated based on the plan shapes of their total field magnetic responses. Mafic intrusive plugs can appear as isolated "bulls-eye" anomalies. Granitic intrusives appear as sub-circular zones, and may have contrasting rings due to contact metamorphism. Generally, granitic terrain will lack a pronounced strike direction, although granite gneiss may display strike.

Linear north-south units are theoretically not well-defined on total field magnetic maps in equatorial regions due to the low inclination of the earth's magnetic field. However, most stratigraphic units will have variations in composition along strike that will cause the units to appear as a series of alternating magnetic highs and lows.

Faults and shear zones may be characterized by alteration that causes destruction of magnetite (e.g., weathering) that produces a contrast with surrounding rock. Structural breaks may be filled by magnetite-rich, fracture filling material as is the case with diabase dikes, or by non-magnetic felsic material.

Faulting can also be identified by patterns in the magnetic total field contours or colours. Faults and dikes tend to appear as lineaments and often have strike lengths of several kilometres. Offsets in narrow, magnetic, stratigraphic trends also delineate structure. Sharp contrasts in magnetic lithologies may arise due to large displacements along strike-slip or dip-slip faults.

# GLOSSARY

# CGG GLOSSARY OF AIRBORNE GEOPHYSICAL TERMS

**accelerometer:** an instrument that measures both acceleration (due to motion) and acceleration due to *gravity*.

**altitude attenuation**: the absorption of gamma rays by the atmosphere between the earth and the detector. The number of gamma rays detected by a system decreases as the altitude increases.

### AGG: Airborne gravity gradiometer.

### AGS: Airborne gamma-ray spectrometry.

**amplitude**: The strength of the total electromagnetic field. In *frequency domain* it is most often the sum of the squares of *in-phase* and *quadrature* components. In multi-component electromagnetic surveys it is generally the sum of the squares of all three directional components.

**analytic signal**: The total amplitude of all the directions of magnetic *gradient*. Calculated as the sum of the squares.

**anisotropy**: Having different *physical parameters* in different directions. This can be caused by layering or fabric in the geology. Note that a unit can be anisotropic, but still **homogeneous**.

**anomaly**: A localized change in the geophysical data characteristic of a discrete source, such as a conductive or magnetic body: something locally different from the **background**.

**apparent-:** the **physical parameters** of the earth measured by a geophysical system are normally expressed as apparent, as in "apparent **resistivity**". This means that the measurement is limited by assumptions made about the geology in calculating the response measured by the geophysical system. Apparent resistivity calculated with **HEM**, for example, generally assumes that the earth is a **homogeneous half-space** – not layered.

**attitude:** the orientation of a geophysical system relative to the earth. Some surveys assume the instrument attitudes are constant, and other surveys measure the attitude and correct the data for the changes in response because of attitude.

**B-field**: In time-domain **electromagnetic** surveys, the magnetic field component of the (electromagnetic) **field**. This can be measured directly, although more commonly it is calculated by integrating the time rate of change of the magnetic field **dB/dt**, as measured with a receiver coil.

**background**: The "normal" response in the geophysical data – that response observed over most of the survey area. **Anomalies** are usually measured relative to the background. In airborne gamma-ray spectrometric surveys the term defines the **cosmic**, radon, and aircraft responses in the absence of a signal from the ground.

**base-level**: The measured values in a geophysical system in the absence of any outside signal. All geophysical data are measured relative to the system base level.

**base frequency**: The frequency of the pulse repetition for a *time-domain electromagnetic* system. Measured between subsequent positive pulses.

**base magnetometer:** A stationary magnetometer used to record the *diurnal* variations in the earth's magnetic field; to be used to correct the survey magnetic data.

**bird**: A common name for the pod towed beneath or behind an aircraft, carrying the geophysical sensor array.

**bucking**: The process of removing the strong *signal* from the *primary field* at the *receiver* from the data, to measure the *secondary field*. It can be done electronically or mathematically. This is done in *frequency-domain EM*, and to measure *on-time* in *time-domain EM*.

**calibration:** a procedure to ensure a geophysical instrument is measuring accurately and repeatably. Most often applied in *EM* and *gamma-ray spectrometry*.

**calibration coil**: A wire coil of known size and dipole moment, which is used to generate a field of known *amplitude* and *phase* or *decay constant* in the receiver, for system calibration. Calibration coils can be external, or internal to the system. Internal coils may be called Q-coils.

**coaxial coils**: **[CX]** Coaxial coils in an HEM system are in the vertical plane, with their axes horizontal and collinear in the flight direction. These are most sensitive to vertical conductive objects in the ground, such as thin, steeply dipping conductors perpendicular to the flight direction. Coaxial coils generally give the sharpest anomalies over localized conductors. (See also **coplanar coils**)

**coil**: A multi-turn wire loop used to transmit or detect electromagnetic fields. Time varying *electromagnetic* fields through a coil induce a voltage proportional to the strength of the field and the rate of change over time.

**compensation**: Correction of airborne geophysical data for the changing effect of the aircraft. This process is generally used to correct data in *fixed-wing time-domain electromagnetic* surveys (where the transmitter is on the aircraft and the receiver is moving), and magnetic surveys (where the sensor is on the aircraft, turning in the earth's magnetic field.

**component**: In *frequency domain electromagnetic* surveys this is one of the two **phase** measurements – *in-phase or quadrature*. In "multi-component" electromagnetic surveys it is also used to define the measurement in one geometric direction (vertical, horizontal in-line and horizontal transverse – the Z, X and Y components).

**Compton scattering**: gamma ray photons will bounce off electrons as they pass through the earth and atmosphere, reducing their energy and then being detected by *radiometric* sensors at lower energy levels. See also *stripping*.

### conductance: See conductivity thickness

**conductivity**: [D] The facility with which the earth or a geological formation conducts electricity. Conductivity is usually measured in milli-Siemens per metre (mS/m). It is the reciprocal of *resistivity*.

### conductivity-depth imaging: see conductivity-depth transform.

**conductivity-depth transform**: A process for converting electromagnetic measurements to an approximation of the conductivity distribution vertically in the earth, assuming a *layered earth*. (Macnae and Lamontagne, 1987; Wolfgram and Karlik, 1995)

**conductivity thickness**: [**I**t] The product of the *conductivity*, and thickness of a large, tabular body. (It is also called the "conductivity-thickness product") In electromagnetic geophysics, the response of a thin plate-like conductor is proportional to the conductivity multiplied by thickness. For example a 10 metre thickness of 20 Siemens/m mineralization will be equivalent to 5 metres of 40 S/m; both have 200 S conductivity thickness. Sometimes referred to as conductance. **conductor**: Used to describe anything in the ground more conductive than the surrounding geology. Conductors are most often clays or graphite, or hopefully some type of mineralization, but may also be manmade objects, such as fences or pipelines.

**continuation:** mathematical procedure applied to **potential field** geophysical data to approximate data collected at a different altitude. Data can be continued upward to a higher altitude or downward to a lower altitude.

**coplanar coils**: **[CP]** In HEM, the coplanar coils lie in the horizontal plane with their axes vertical, and parallel. These coils are most sensitive to massive conductive bodies, horizontal layers, and the *halfspace*.

**cosmic ray**: High energy sub-atomic particles from outer space that collide with the earth's atmosphere to produce a shower of gamma rays (and other particles) at high energies.

**counts (per second)**: The number of **gamma-rays** detected by a gamma-ray **spectrometer.** The rate depends on the geology, but also on the size and sensitivity of the detector.

**culture**: A term commonly used to denote any man-made object that creates a geophysical anomaly. Includes, but not limited to, power lines, pipelines, fences, and buildings.

current channelling: See current gathering.

**current gathering**: The tendency of electrical currents in the ground to channel into a conductive formation. This is particularly noticeable at higher frequencies or early time channels when the formation is long and parallel to the direction of current flow. This tends to enhance anomalies relative to inductive currents (see also *induction*). Also known as current channelling.

daughter products: The radioactive natural sources of gamma-rays decay from the original "parent" element (commonly potassium, uranium, and thorium) to one or more lower-energy

"daughter" elements. Some of these lower energy elements are also radioactive and decay further. *Gamma-ray spectrometry* surveys may measure the gamma rays given off by the original element or by the decay of the daughter products.

**dB/dt**: As the **secondary electromagnetic field** changes with time, the magnetic field [**B**] component induces a voltage in the receiving **coil**, which is proportional to the rate of change of the magnetic field over time.

**decay**: In *time-domain electromagnetic* theory, the weakening over time of the *eddy currents* in the ground, and hence the *secondary field* after the *primary field* electromagnetic pulse is turned off. In *gamma-ray spectrometry*, the radioactive breakdown of an element, generally potassium, uranium, thorium, into their *daughter* products.

decay constant: see time constant.

**decay series**: In *gamma-ray spectrometry*, a series of progressively lower energy *daughter products* produced by the radioactive breakdown of uranium or thorium.

**depth of exploration**: The maximum depth at which the geophysical system can detect the target. The depth of exploration depends very strongly on the type and size of the target, the contrast of the target with the surrounding geology, the homogeneity of the surrounding geology, and the type of geophysical system. One measure of the maximum depth of exploration for an electromagnetic system is the depth at which it can detect the strongest conductive target – generally a highly conductive horizontal layer.

**differential resistivity**: A process of transforming **apparent resistivity** to an approximation of layer resistivity at each depth. The method uses multi-frequency HEM data and approximates the effect of shallow layer **conductance** determined from higher frequencies to estimate the deeper conductivities (Huang and Fraser, 1996)

**dipole moment**: [NIA] For a transmitter, the product of the area of a *coil*, the number of turns of wire, and the current flowing in the coil. At a distance significantly larger than the size of the coil, the magnetic field from a coil will be the same if the dipole moment product is the same. For a receiver coil, this is the product of the area and the number of turns. The sensitivity to a magnetic field (assuming the source is far away) will be the same if the dipole moment is the same.

**diurnal**: The daily variation in a natural field, normally used to describe the natural fluctuations (over hours and days) of the earth's magnetic field.

**dielectric permittivity**: [ $\Box$ ] The capacity of a material to store electrical charge, this is most often measured as the relative permittivity [ $\Box_r$ ], or ratio of the material dielectric to that of free space. The effect of high permittivity may be seen in HEM data at high frequencies over highly resistive geology as a reduced or negative *in-phase*, and higher *quadrature* data.

### dose rate: see exposure rate.

**drape**: To fly a survey following the terrain contours, maintaining a constant altitude above the local ground surface. Also applied to re-processing data collected at varying altitudes above ground to simulate a survey flown at constant altitude.

drift: Long-time variations in the base-level or calibration of an instrument.

**eddy currents**: The electrical currents induced in the ground, or other conductors, by a timevarying *electromagnetic field* (usually the *primary field*). Eddy currents are also induced in the aircraft's metal frame and skin; a source of *noise* in EM surveys.

**electromagnetic**: **[EM]** Comprised of a time-varying electrical and magnetic field. Radio waves are common electromagnetic fields. In geophysics, an electromagnetic system is one which transmits a timevarying *primary field* to induce *eddy currents* in the ground, and then measures the *secondary field* emitted by those eddy currents.

**energy window**: A broad spectrum of **gamma-ray** energies measured by a spectrometric survey. The energy of each gamma-ray is measured and divided up into numerous discrete energy levels, called windows.

**equivalent** (thorium or uranium): The amount of radioelement calculated to be present, based on the gamma-rays measured from a **daughter** element. This assumes that the **decay series** is in equilibrium – progressing normally.

**exposure rate**: in radiometric surveys, a calculation of the total exposure rate due to gamma rays at the ground surface. It is used as a measurement of the concentration of all the **radioelements** at the surface. Sometimes called "dose rate".See also: **natural exposure rate**.

**fiducial, or fid**: Timing mark on a survey record. Originally these were timing marks on a profile or film; now the term is generally used to describe 1-second interval timing records in digital data, and on maps or profiles.

**Figure of Merit**: **(FOM)** A sum of the 12 distinct magnetic noise variations measured by each of four flight directions, and executing three aircraft attitude variations (yaw, pitch, and roll) for each direction. The flight directions are generally parallel and perpendicular to planned survey flight directions. The FOM is used as a measure of the **manoeuvre noise** before and after **compensation**.

fixed-wing: Aircraft with wings, as opposed to "rotary wing" helicopters.

flight: a continuous interval of survey data collection, generally between stops at base to refuel.

**flight-line:** a single line of data across the survey area. Surveys are generally comprised of many parallel flight lines to cover the survey area, with wider-spaced *tie lines* perpendicular. Flight lines are generally separated by *turn-arounds* when the aircraft is outside the survey area.

**footprint**: This is a measure of the area of sensitivity under the aircraft of an airborne geophysical system. The footprint of an *electromagnetic* system is dependent on the altitude of the system, the orientation of the transmitter and receiver and the separation between the receiver and transmitter, and the conductivity of the ground. The footprint of a *gamma-ray spectrometer* depends mostly on the altitude. For all geophysical systems, the footprint also depends on the strength of the contrasting *anomaly*.

**frequency domain**: An *electromagnetic* system which transmits a harmonic *primary field* that oscillates over time (e.g. sinusoidal), inducing a similarly varying electrical current in the ground. These systems generally measure the changes in the *amplitude* and *phase* of the *secondary field* from the ground at different frequencies by measuring the *in-phase* and *quadrature* phase components. See also *timedomain*.

**full-stream data**: Data collected and recorded continuously at the highest possible sampling rate. Normal data are stacked (see *stacking*) over some time interval before recording. **gamma-ray**: A very high-energy photon, emitted from the nucleus of an atom as it undergoes a change in energy levels.

**gamma-ray spectrometry**: Measurement of the number and energy of natural (and sometimes man-made) gamma-rays across a range of photon energies.

GGI: gravity gradiometer instrument. An airborne gravity gradiometer (AGG) consists of a GGI mounted in an inertial platform together with a temperature control system.

**gradient**: In magnetic surveys, the gradient is the change of the magnetic field over a distance, either vertically or horizontally in either of two directions. Gradient data can be measured, or calculated from the total magnetic field data because it changes more quickly over distance than the *total magnetic field*, and so may provide a more precise measure of the location of a source. See also *analytic signal*.

**gradiometer, gradiometry:** instrument and measurement of the gradient, or change in a field with location usually for *gravity* or *magnetic* surveys. Used to provide higher resolution of *targets*, better *interpretation* of *target* geometry, independence from drift and absolute field and, for *gravity*, accelerations of the aircraft.

**gravity**: Survey collecting measurements of the earth's gravitational field strength. Denser objects in the earth create stronger gravitational pull above them.

**ground effect**: The response from the earth. A common *calibration* procedure in many geophysical surveys is to fly to altitude high enough to be beyond any measurable response from the ground, and there establish *base levels* or *backgrounds*.

**half-space**: A mathematical model used to describe the earth – as infinite in width, length, and depth below the surface. The most common halfspace models are *homogeneous* and *layered earth*.

heading error: A slight change in the magnetic field measured when flying in opposite directions.

**HEM**: Helicopter ElectroMagnetic, This designation is most commonly used for helicopter-borne, *frequencydomain* electromagnetic systems. At present, the transmitter and receivers are normally mounted in a *bird* carried on a sling line beneath the helicopter.

**herringbone pattern**: A pattern created in geophysical data by an asymmetric system, where the **anomaly** may be extended to either side of the source, in the direction of flight. Appears like fish bones, or like the teeth of a comb, extending either side of centre, each tooth an alternate flight line.

**homogeneous**: This is a geological unit that has the same **physical parameters** throughout its volume. This unit will create the same response to an HEM system anywhere, and the HEM system will measure the same apparent **resistivity** anywhere. The response may change with system direction (see **anisotropy**).

**HFEM**: Helicopter Frequency-domain ElectroMagnetic, This designation is used for helicopterborne, **frequency-***domain* electromagnetic systems. Formerly most often called HEM.

**HTEM**: Helicopter Time-domain ElectroMagnetic, This designation is used for the new generation of helicopter-borne, *time-domain* electromagnetic systems.

**in-phase**: the component of the measured **secondary field** that has the same phase as the transmitter and the **primary field**. The in-phase component is stronger than the **quadrature** phase over relatively higher **conductivity**.

**induction**: Any time-varying electromagnetic field will induce (cause) electrical currents to flow in any object with non-zero *conductivity*. (see *eddy currents*)

**induction number:** also called the "response parameter", this number combines many of the most significant parameters affecting the *EM* response into one parameter against which to compare responses. For a *layered earth* the response parameter is  $\Box\Box\Boxh^2$  and for a large, flat, *conductor* it is  $\Box\Box\Boxth$ , where  $\Box$  is the *magnetic permeability*,  $\Box$  is the angular *frequency*,  $\Box$  is the *conductivity*, t is the thickness (for the flat conductor) and h is the height of the system above the conductor.

**inductive limit**: When the frequency of an EM system is very high, or the **conductivity** of the target is very high, the response measured will be entirely **in-phase** with no **quadrature** (**phase** angle =0). The in-phase response will remain constant with further increase in conductivity or frequency. The system can no longer detect changes in conductivity of the target.

**infinite**: In geophysical terms, an "infinite' dimension is one much greater than the **footprint** of the system, so that the system does not detect changes at the edges of the object.

**International Geomagnetic Reference Field**: **[IGRF]** An approximation of the smooth magnetic field of the earth, in the absence of variations due to local geology. Once the IGRF is subtracted from the measured magnetic total field data, any remaining variations are assumed to be due to local geology. The IGRF also predicts the slow changes of the field up to five years in the future.

**inversion**, or **inverse modeling**: A process of converting geophysical data to an earth model, which compares theoretical models of the response of the earth to the data measured, and refines the model until the response closely fits the measured data (Huang and Palacky, 1991) **layered earth**: A common geophysical model which assumes that the earth is horizontally layered – the **physical parameters** are constant to **infinite** distance horizontally, but change vertically.

**lead-in:** approach to a *flight line* outside of survey area to establish proper track and stabilize instrumentations. The lead-in for a helicopter survey is generally shorter than required for fixed-wing.

**line source, or line current:** a long narrow object that creates an **anomaly** on an **EM** survey. Generally man-made objects like fences, power lines, and pipelines (*culture*).

mag: common abbreviation for magnetic.

**magnetic:** ("**mag**") a survey measuring the strength of the earth's magnetic field, to identify geology and targets by their effect on the field.

**magnetic permeability**: [D] This is defined as the ratio of magnetic induction to the inducing magnetic field. The relative magnetic permeability  $[D_r]$  is often quoted, which is the ratio of the rock permeability to the permeability of free space. In geology and geophysics, the *magnetic susceptibility* is more commonly used to describe rocks.

**magnetic susceptibility**: **[k]** A measure of the degree to which a body is magnetized. In SI units this is related to relative *magnetic permeability* by  $k=\Box_r-1$ , and is a dimensionless unit. For most geological material, susceptibility is influenced primarily by the percentage of magnetite. It is most often quoted in units of  $10^{-6}$ . In HEM data this is most often apparent as a negative *in-phase* component over high susceptibility, high *resistivity* geology such as diabase dikes.

**manoeuvre noise:** variations in the magnetic field measured caused by changes in the relative positions of the magnetic sensor and magnetic objects or electrical currents in the aircraft. This type of noise is generally corrected by magnetic **compensation**.

**model**: Geophysical theory and applications generally have to assume that the geology of the earth has a form that can be easily defined mathematically, called the model. For example steeply dipping **conductors** are generally modeled as being **infinite** in horizontal and depth extent, and very thin. The earth is generally modeled as horizontally layered, each layer infinite in extent and uniform in characteristic. These models make the mathematics to describe the response of the (normally very complex) earth practical. As theory advances, and computers become more powerful, the useful models can become more complex.

**natural exposure rate**: in radiometric surveys, a calculation of the total exposure rate due to natural-source gamma rays at the ground surface. It is used as a measurement of the concentration of all the natural **radioelements** at the surface. See also: **exposure rate**.

**natural source:** any geophysical technique for which the source of the energy is from nature, not from a man-made object. Most commonly applied to natural source *electromagnetic* surveys.

**noise**: That part of a geophysical measurement that the user does not want. Typically this includes electronic interference from the system, the atmosphere (*sferics*), and man-made sources. This can be a subjective judgment, as it may include the response from geology other than the target of interest. Commonly the term is used to refer to high frequency (short period) interference. See also *drift*.

**Occam's inversion**: an *inversion* process that matches the measured *electromagnetic* data to a theoretical model of many, thin layers with constant thickness and varying resistivity (Constable et al, 1987).

off-time: In a *time-domain electromagnetic* survey, the time after the end of the *primary field pulse*, and before the start of the next pulse.

on-time: In a *time-domain electromagnetic* survey, the time during the *primary field pulse*.

**overburden**: In engineering and mineral exploration terms, this most often means the soil on top of the unweathered bedrock. It may be sand, glacial till, or weathered rock.

**Phase, phase angle**: The angular difference in time between a measured sinusoidal electromagnetic field and a reference – normally the primary field. The phase is calculated from  $\tan^{-1}(in-phase / quadrature)$ .

**physical parameters**: These are the characteristics of a geological unit. For electromagnetic surveys, the important parameters are *conductivity*, *magnetic permeability* (or *susceptibility*) and *dielectric permittivity*; for magnetic surveys the parameter is magnetic susceptibility, and for gamma ray spectrometric surveys it is the concentration of the major radioactive elements: potassium, uranium, and thorium.

### permittivity: see dielectric permittivity.

### permeability: see magnetic permeability.

**potential field:** A field that obeys Laplace's Equation. Most commonly used to describe *gravity* and *magnetic* measurements.

**primary field**: the EM field emitted by a transmitter. This field induces **eddy currents** in (energizes) the conductors in the ground, which then create their own **secondary fields**.

**pulse**: In time-domain EM surveys, the short period of intense *primary* field transmission. Most measurements (the *off-time*) are measured after the pulse. **On-time** measurements may be made during the pulse.

**quadrature**: that component of the measured **secondary field** that is phase-shifted 90<sup>[]</sup> from the **primary field**. The quadrature component tends to be stronger than the **in-phase** over relatively weaker **conductivity**.

### Q-coils: see calibration coil.

**radioelements**: This normally refers to the common, naturally-occurring radioactive elements: potassium (K), uranium (U), and thorium (Th). It can also refer to man-made radioelements, most often cobalt (Co) and cesium (Cs)

radiometric: Commonly used to refer to gamma ray spectrometry.

**radon**: A radioactive daughter product of uranium and thorium, radon is a gas which can leak into the atmosphere, adding to the non-geological background of a gamma-ray spectrometric survey.

**receiver**: the **signal** detector of a geophysical system. This term is most often used in active geophysical systems – systems that transmit some kind of signal. In airborne **electromagnetic** surveys it is most often a **coil**. (see also, **transmitter**)

**resistivity**: [D] The strength with which the earth or a geological formation resists the flow of electricity, typically the flow induced by the *primary field* of the electromagnetic transmitter. Normally expressed in ohm-metres, it is the reciprocal of *conductivity*.

resistivity-depth transforms: similar to conductivity depth transforms, but the calculated conductivity has been converted to resistivity.

**resistivity section**: an approximate vertical section of the resistivity of the layers in the earth. The resistivities can be derived from the *apparent resistivity*, the *differential resistivities*, *resistivity-depth transforms*, or *inversions*.

response parameter: another name for the induction number.

**secondary field**: The field created by conductors in the ground, as a result of electrical currents induced by the *primary field* from the *electromagnetic* transmitter. Airborne *electromagnetic* systems are designed to create and measure a secondary field.

**Sengpiel section**: a *resistivity section* derived using the *apparent resistivity* and an approximation of the depth of maximum sensitivity for each frequency.

**sferic**: Lightning, or the *electromagnetic* signal from lightning, it is an abbreviation of "atmospheric discharge". These appear to magnetic and electromagnetic sensors as sharp "spikes" in the data. Under some conditions lightning storms can be detected from hundreds of kilometres away. (see *noise*)

**signal**: That component of a measurement that the user wants to see – the response from the targets, from the earth, etc. (See also *noise*)

**skin depth**: A measure of the depth of penetration of an electromagnetic field into a material. It is defined as the depth at which the primary field decreases to 1/e of the field at the surface. It is calculated by approximately  $503 \times \Box$  (resistivity/frequency). Note that depth of penetration is greater at higher *resistivity* and/or lower *frequency*.

**spec:** common abbreviation for *gamma-ray* spectrometry.

**spectrometry**: Measurement across a range of energies, where **amplitude** and energy are defined for each measurement. In gamma-ray spectrometry, the number of gamma rays are measured for each energy **window**, to define the **spectrum**.

**spectrum**: In *gamma ray spectrometry*, the continuous range of energy over which gamma rays are measured. In *time-domain electromagnetic* surveys, the spectrum is the energy of the **pulse** distributed across an equivalent, continuous range of frequencies.

spheric: see sferic.

**stacking**: Summing repeat measurements over time to enhance the repeating *signal*, and minimize the random *noise*.

**stinger:** A boom mounted on an aircraft to carry a geophysical sensor (usually *magnetic*). The boom moves the sensor farther from the aircraft, which might otherwise be a source of *noise* in the survey data.

**stripping**: Estimation and correction for the gamma ray photons of higher and lower energy that are observed in a particular *energy window*. See also *Compton scattering*.

### susceptibility: See magnetic susceptibility.

tau: [I] Often used as a name for the *decay time constant*.

### TDEM: time domain electromagnetic.

**thin sheet**: A standard model for electromagnetic geophysical theory. It is usually defined as a thin, flatlying conductive sheet, *infinite* in both horizontal directions. (see also *vertical plate*)

**tie-line**: A survey line flown across most of the *traverse lines*, generally perpendicular to them, to assist in measuring *drift* and *diurnal* variation. In the short time required to fly a tie-line it is assumed that the drift and/or diurnal will be minimal, or at least changing at a constant rate.

**time constant**: The time required for an *electromagnetic* field to decay to a value of 1/e of the original value. In *time-domain* electromagnetic data, the time constant is proportional to the size and *conductance* of a tabular conductive body. Also called the decay constant.

Time channel: In *time-domain electromagnetic* surveys the decaying *secondary field* is measured over a period of time, and the divided up into a series of consecutive discrete measurements over that time.

**time-domain**: *Electromagnetic* system which transmits a pulsed, or stepped *electromagnetic* field. These systems induce an electrical current (*eddy current*) in the ground that persists after the *primary field* is turned off, and measure the change over time of the *secondary field* created as the currents *decay*. See also *frequency-domain*.

total energy envelope: The sum of the squares of the three *components* of the *time-domain electromagnetic secondary field*. Equivalent to the *amplitude* of the secondary field.

**transient**: Time-varying. Usually used to describe a very short period pulse of *electromagnetic* field.

*transmitter*. The source of the *signa*l to be measured in a geophysical survey. In airborne *EM* it is most often a *coil* carrying a time-varying electrical current, transmitting the *primary field*. (see also *receiver*)

**traverse line**: A normal geophysical survey line. Normally parallel traverse lines are flown across the property in spacing of 50 m to 500 m, and generally perpendicular to the target geology. Also called a **flight line**.

**turn-arounds:** The time the aircraft is turning between one *traverse* or *tie line* and the next. Turnarounds are generally outside the survey area, and the data collected during this time generally are not useable, because of aircraft *manoeuvre noise*.

**vertical plate**: A standard model for electromagnetic geophysical theory. It is usually defined as thin conductive sheet, *infinite* in horizontal dimension and depth extent. (see also *thin sheet*)

waveform: The shape of the *electromagnetic pulse* from a *time-domain* electromagnetic transmitter.

**window**: A discrete portion of a *gamma-ray spectrum* or *time-domain electromagnetic decay*. The continuous energy spectrum or *full-stream* data are grouped into windows to reduce the number of samples, and reduce *noise*.

**zero, or zero level:** The **base level** of an instrument, with no **ground effect** or **drift**. Also, the act of measuring and setting the zero level.

### **Common Symbols and Acronyms**

k	Magnetic susceptibility					
ε	Dielectric permittivity					
μ, μ,	Magnetic permeability, relative permeability					
ρ, ρ <sub>a</sub>	Resistivity, apparent resistivity					
<b>σ,σ</b> <sub>a</sub>	Conductivity, apparent conductivity					
σt	Conductivity thickness					
τ	Tau, or time constant					
Ωm	ohm-metres, units of resistivity					
AGS	Airborne gamma ray spectrometry.					
CDT	Conductivity-depth transform, conductivity-depth imaging (Macnae and Lamontagne, 1987;					
Wolfgram and k	Karlik, 1995)					
CPI, CPQ Coplanar in-phase, quadrature						
CPS	Counts per second					
СТР	Conductivity thickness product					
CXI, CXQ Coa	xial, in-phase, quadrature					
FOM	Figure of Merit					
fT	femtoteslas, common unit for measurement of B-Field in time-domain EM					
EM	Electromagnetic					
keV	kilo electron volts – a measure of gamma-ray energy					
MeV	mega electron volts – a measure of gamma-ray energy 1MeV = 1000keV					

- **NIA** dipole moment: turns x current x Area
- **nT** nanotesla, a measure of the strength of a magnetic field

nT/s	nanoteslas/second; standard unit of measurement of secondary field dB/dt in time domain EM.
nG/h	nanoGreys/hour – gamma ray dose rate at ground level
ppm	parts per million – a measure of secondary field or noise relative to the primary or radioelement concentration.
рТ	picoteslas: standard unit of measurement of B-Field in time-domain EM
pT/s	picoteslas per second: Units of decay of secondary field, dB/dt
S	siemens – a unit of conductance
<b>x</b> :	the horizontal component of an EM field parallel to the direction of flight.
<b>y</b> :	the horizontal component of an EM field perpendicular to the direction of flight.
<b>z</b> :	the vertical component of an EM field.

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