

**YMEP 2017 Final Technical Report**  
**Mapping, Prospecting, Geochemical Sampling and Airborne Surveying of the Tak Property**

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NTS: 115J/15

Dawson Mining District, Yukon Territory, Canada

Property Centre:

62°56'13.82"N, 138°53'33.81"W

UTM (NAD 83) 7V 606954E, 6980341N

Work Applied to CLAIMS:

TAK 1-16	YC95227 - YC95242	TAK 33-38	YC98361 - YC98356
TAK 17	YC98377	TAK 39-50	YC98334- YC98345
TAK 18	YC98376	TAK 52	YC98346
TAK 19	YC98375	TAK 51	YC98347
TAK 20	YC98374	TAK 53	YC98348
TAK 21	YC98373	TAK 54-60	YC98349 - YC98355
TAK 22	YC98372	TAK 61-81	YC95281 - YC95301
TAK 23-31	YC98371 - YC98363	TAK 82	YC98333
TAK 32	YC98362		

**WORK PERFORMED:**

August 30 – September 8, 2017

Prepared for:

**Eureka Resources Inc.**

Prepared by:



**AURORA GEOSCIENCES**

**YMEP FINAL TECHNICAL REPORT**  
**Mapping, Prospecting and Geochemical Sampling, and Geophysical Surveying of the Tak Property**

Effective Date:  
December 18, 2017

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## 1 SUMMARY

Eureka Resources Ltd. contracted Aurora Geosciences Ltd. to conduct an exploration program on their wholly-owned Tak property. This program included geologic mapping, prospecting, geochemical sampling (conducted by Aurora Geosciences Ltd.) and an airborne Versatile Time Domain Electromagnetics (VTEM) survey and airborne magnetic survey, both conducted by Geotech Ltd. of Aurora, Ontario, Canada.

In December of 2016, Eureka Resources Inc. purchased a 100% interest in the Tak property from a local staking syndicate which originally staked the claims in 2009. The Tak property consists of 82 contiguous Yukon quartz mining claims covering 1,722 hectares centred approximately 125 km south of Dawson City, Yukon. Access to the property is currently by helicopter, although a placer mining road and several airstrips of varying condition have been constructed nearby.

The Tak property is located within the Yukon-Tanana Terrane, a major accreted terrane comprised of variably metamorphosed, highly deformed intrusive, volcanic and sedimentary rocks (Gordey and Makepeace, 2001). The majority of this terrane ranges from Neoproterozoic to late Paleozoic in age, but also includes significant Mesozoic- aged assemblages. The Yukon-Tanana Terrane abuts against Selwyn Basin shelf and off-shelf sedimentary and volcanic rocks to the north, formed along the margins of the Ancient North American Continent. These two terranes are separated by the 65 Ma Tintina Fault Zone, a major transpressional fault with a dextral displacement of roughly 450 km. The property itself is predominantly underlain by the metaclastic Snowcap Assemblage, with minor units of Finlayson Assemblage meta-volcanic rocks and smaller units of meta-granitic intrusions. The property is located in the eastern portion of “Beringia”, an area covering west-central Yukon and most of central Alaska which was not affected by Pleistocene glaciation.

The exploration target for this project was an orogenic gold system. These systems are characterized by sizable auriferous quartz veins, potentially up to 1.0 km in length and multiple meters in width. In an orogenic setting there is no evidence of intrusive activity, such as hornfels aureoles or contact metamorphic minerals; hence, intrusion-related mineralization is absent. Rather, the structural conduits are district-scale “crustal” faults that allow for hydrothermal fluid movement from a typically deep-seated source. Hard-rock gold mineralization in the Klondike area is considered to be of orogenic origin.

In May of 2017, Eureka Resources Inc. conducted an “Airborne Inductively Induced Polarization” (AIIP) survey combined with an airborne magnetic survey across the Tak property. The survey was conducted by Geotech Ltd., supervised by Aurora Geosciences Ltd., and was designed to evaluate for shallow conductive features within the claim block but also to determine the aeromagnetic signature of the property.

The results of the airborne survey and geochemical results from previous operators of the property were then used to design a reconnaissance geochemistry and geology program to follow up on geophysical anomalies and test their potential to host mineralization. This survey consisted of a ridge-and-spur and contour soil survey, a stream silt sampling program, reconnaissance bedrock mapping, and prospecting. While the Early-Time Gate and Mid-Time Gate plots of electromagnetic response did not produce conclusive results, Total Magnetic Intensity (TMI) plots indicated a strong NW-SE trending magnetic “low” and several other NW-SE trending magnetic “high” and “low” structures. Geological mapping indicated that the magnetic low corresponds strongly to the area of the Finlayson Assemblage meta-volcanic rocks. The NW-SE trending structures are reflective of tight folding on a SE plunging fold axis observed across

the property. One strong “high” likely correspond to a biotite granitic stock identified in 2017 and mapped previously by the Yukon Geological Survey as an Upper Triassic to Lower Jurassic Minto Suite intrusion.

Soil geochemical surveys found isolated gold anomalies only, but identified a significant copper anomaly approximately 250 m in lateral extent along a ridgeline and at least the same distance down-slope. This is spatially associated with a meta-granitic intrusion. Stream silt sampling results indicate elevated copper values throughout the drainage, and several anomalous gold values in the central part of the main drainage on the property. There are no significant gold-in-soil geochemical anomalies, and only rare, isolated elevated gold values were returned. Prospecting activities on the property were significantly hampered by poor outcrop exposure and a deep weathering profile, and no rock samples returned significant gold, copper or other economic metal values.

While the program was unsuccessful in defining an orogenic gold target, the copper-in-soil anomaly and associated Minto Suite stock merit follow-up exploration. A multi-phased program consisting of grid soil geochemical surveying and ground magnetometer surveying, prospecting and mapping, followed by Induced Polarization surveying, is recommended to define the geological nature, tenor and extent of the anomaly. Projected costs for Phases 1 and 2 stand at about CDN\$156,000 and \$55,000 respectively. Phase 3 would consist of diamond drilling potentially combined with reverse-circulation drilling. The extent of this program would be dependent on Phase 1 and 2 results.

## 2 INTRODUCTION

Eureka Resources Inc. (Eureka) retained Aurora Geosciences Ltd. (Aurora) of Whitehorse, Yukon, as the primary contractor to conduct the 2017 exploration program on its Tak property approximately 125 km south of Dawson City, Yukon. The program consisted of two phases. The first phase was an airborne geophysical survey and the second phase was a ground geochemical and geological reconnaissance survey. Aurora retained Geotech Ltd. of the Town of Aurora, Ontario, to conduct the airborne survey.

From May 6 to 17, 2017, Geotech Ltd. conducted an “Airborne Inductively Induced Polarization” (AIIP) survey combined with an airborne magnetic survey across the Tak property, one of five surveys conducted on a suite of five properties held by Eureka.

From August 30 to September 8, 2017, Aurora personnel conducted a field program on the Tak property composed of three main components: a reconnaissance soil survey, a stream silt sampling program, and a mapping and prospecting program. A total of 398 soil samples, 45 stream silt samples and 25 rock samples were collected. A lack of outcrop on the property constrained prospecting and mapping efforts.

### 2.1 Terms of Reference

The author has been requested to write this report using the following terms of reference:

- a) To review and compile all available data obtained by Eureka during its 2017 field program.
- b) To provide a Final Technical Report to be filed for compliance with the conditions of the Yukon Mineral Exploration Program (YMEP) grant that Eureka obtained from the Ministry of Energy, Mines and Resources, Government of Yukon.

### 2.2 Terms, Definitions and Units

All costs contained in this report are in Canadian dollars (CDN\$). Distances are reported in centimetres (cm), metres (m) and km (kilometres). The term “GPS” refers to “Global Positioning System” with co-ordinates reported in UTM NAD 83 projection, Zone 7. “Minfile Occurrence” refers to documented mineral occurrences on file with the Yukon Minfile, Department of Energy, Mines and Resources, Government of Yukon.

“Mag” and “EM” refer to “Magnetic” and “Electromagnetic” methods respectively of geophysical surveying. “IP” is an abbreviation for Induced Polarization surveying. “AIIP” stands for “Airborne Inductively Induced Polarization” study.

“Ma” refers to million years. “QAQC” refers to “Quality Assurance/ Quality Control”.

The term “g/t” stands for grams per metric tonne. The term “ppm” stands for “parts per million, and “ppb” for “parts per billion”. ICP-AES stands for “Inductively coupled plasma mass spectroscopy”, and AA stands for “atomic absorption”.

“CEO” stands for Chief Executive Officer. “NI 43-101” stands for National Instrument 43-101. Elemental abbreviations used in this report are:

Ag: Silver	Mg: Magnesium
Al: Aluminum	Mn: Manganese
As: Arsenic	Mo: Molybdenum

Au: Gold	Na: Sodium
B: Boron	Ni: Nickel
Ba: Barium	P: Phosphorous
Bi: Bismuth	Pb: Lead
Ca: Calcium	S: Sulphur
Cd: Cadmium	Sb: Antimony
Co: Cobalt	Sc: Scandium
Cr: Chrome	Sr: Strontium
Cu: Copper	Th: Thorium
Fe: Iron	Ti: Titanium
Ga: Gallium	Tl: Thallium
Hg: Mercury	V: Vanadium
K: Potassium	W: Tungsten
La: Lanthium	Zn: Zinc

### 2.3 Sources of Information

Information on claim tenure, including adjacent properties, and regional geology was provided by the “Yukon Mapmaker Online” website of the Yukon Geology Survey at <http://mapservices.gov.yk.ca/YGS/Load.htm>. Information on regional geology was provided by the “Yukon Bedrock Geology” website and by the “YGS Mapmaker Online” website, both available at [http://www.geology.gov.yk.ca/Web\\_map\\_gallery.html](http://www.geology.gov.yk.ca/Web_map_gallery.html).

### 3 PROPERTY DESCRIPTION AND LOCATION

#### 3.1 Property Description

The Tak property is located approximately 125 km south of Dawson City, on NTS map sheet 115 J/15 (Fig. 1). It is centred at 62°56'13.82"N, 138°53'33.81"W (UTM (NAD 83) 7V 606954E, 6980341N). The property extends northeast from Ballarat Creek about 4.7 km north of the Yukon River.

The Tak Property consists of 82 Yukon quartz mining claims (Fig. 2) covering 1,722 hectares (4,253 acres). Placer leases cover the lower reaches of Ballarat Creek as well as a “right” tributary; its confluence with Ballarat Creek is roughly at the northwest property corner. Placer claims in good standing extend along Ballarat Creek upstream from the confluence.

**Table 1: List of claims making up the Tak property.**

Grant Nos.	Claim Name	Expiry Date
YC95227 - YC95242	TAK 1-16	1-Mar-18
YC98377	TAK 17	1-Mar-18
YC98376	TAK 18	1-Mar-19
YC98375	TAK 19	1-Mar-18
YC98374	TAK 20	1-Mar-19
YC98373	TAK 21	1-Mar-18
YC98372	TAK 22	1-Mar-19
YC98371 - YC98363	TAK 23-31	1-Mar-18
YC98362	TAK 32	1-Mar-19
YC98361 - YC98356	TAK 33-38	1-Mar-18
YC98334- YC98345	TAK 39-50	1-Mar-19
YC98346	TAK 52	1-Mar-19
YC98347	TAK 51	1-Mar-19
YC98348	TAK 53	1-Mar-19
YC98349 - YC98355	TAK 54-60	1-Mar-18
YC95281 - YC95301	TAK 61-81	1-Mar-18
YC98333	TAK 82	1-Mar-18

There are no current exploration permits for hard rock exploration on the property. Activities allowed under a “Class 1” exploration permit comprise rock, soil and silt geochemical sampling, geological mapping, trenching (to a limit of 400m<sup>3</sup> per claim), temporary trail construction (to a maximum of 3.0 km) and a maximum of 250 person-days in camp for a total of all activities.

A gradation of permits, for Class 2 through Class 4 activities, is required for more significant programs, which may include diamond drilling and reverse-circulation programs having a footprint exceeding Class 1 limits. Larger exploration programs require a “Class 3 Permit”, valid for five years and acquired through the local Mining Recorder, Department of Energy, Mines and Resources (EMR), Government of Yukon.

Class 3 permit activities allow for sizable diamond drilling programs (depending on the number of clearings per claim), up to 5,000 m<sup>3</sup> of trenching per claim per year, the establishment of up to 15 km of new roads and 40 km of new trails, and up to 200,000 tonnes of underground excavation work during the length of the exploration program. A “Yukon Water License” is required if water usage exceeds 300m<sup>3</sup>/day. Additional licenses may be required for “Disposal of Special Waste,” and a “Consolidated Environmental Act Permit” is required for proper disposal of camp waste and ash resulting from incineration, etc. A “Fuel Spill Contingency Plan” will also be required.

All applications for Class 2 through Class 4 require review by the Yukon Environmental and Socioeconomic Board (YESAB). YESAB will provide recommendations on whether the project may proceed, may proceed with modifications, or is not allowed to proceed. Following submission by YESAB, a Decision Body will determine whether to accept the recommendations, and whether a permit will be awarded and, if so, the conditions of the permit.

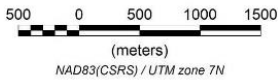
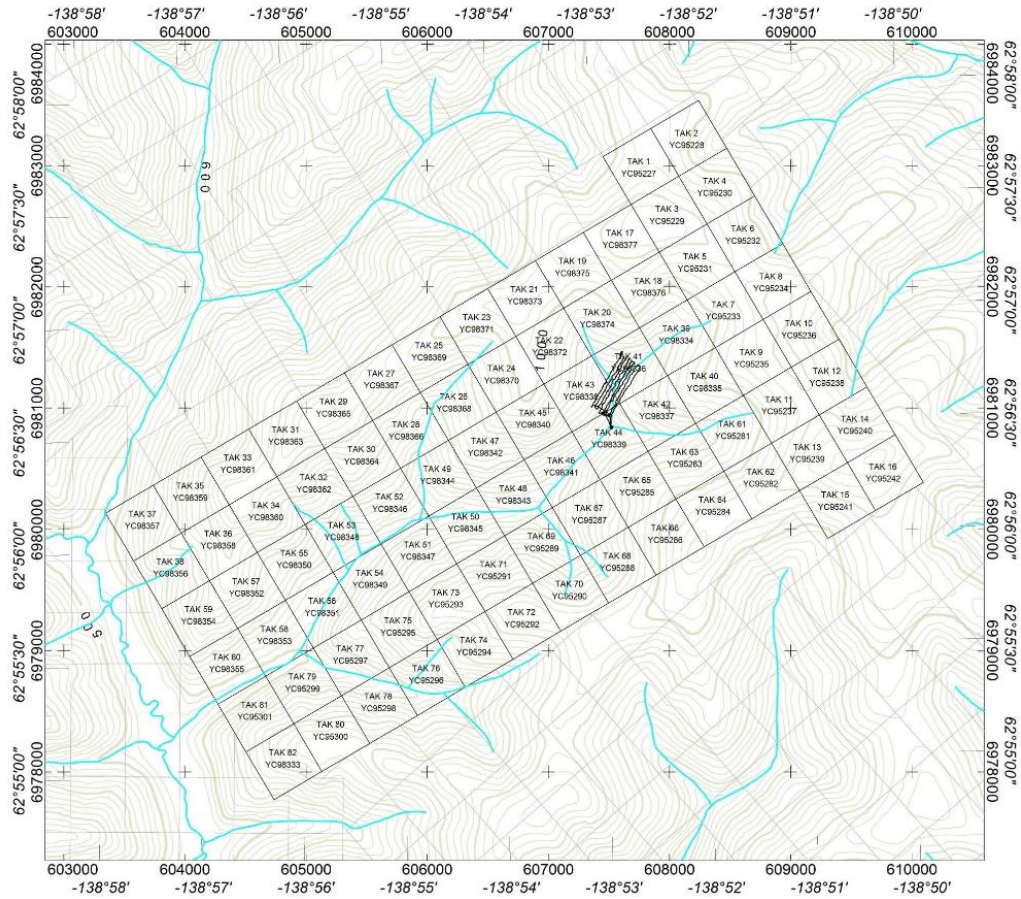
The property is located within Crown Land in an overlap area of the traditional territories of the Tr’ondek Hwech’in First Nation (THFN) and the Selkirk First Nation.

### 3.2 Land Tenure and Underlying Agreements

In late 2016 Eureka entered into an agreement to purchase the Tak property from a syndicate of local explorationists who originally staked the claims in 2009. Eureka agreed to purchase a 100% interest in the Tak property through issuing 500,000 common shares. This consists of issuance of 125,000 shares issued upon closing of the agreement, and additional installments of 125,000 shares at the 6, 12, and 18-month anniversaries of closing. The syndicate retains a 2% NSR for gold produced from the property, half of which may be purchased by Eureka for \$1,000,000.







**Tak Claim Map**  
with February 21, 2017 Mag-VLF Survey  
Eureka Resources Ltd.



Figure 2: Claim map for the Tak Property.



## 4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Tak property is centered 125 km southeast of Dawson City, Yukon. There is no infrastructure located on the property. However, active placer mining occurs on Ballarat Creek upstream of the confluence of Tak Creek (local name) and Ballarat Creek. This placer operation is accessible by a road extending from Kirkman Creek to the west. An access road in unknown condition extends along lower Ballarat Creek to an airstrip (condition unknown) directly north of the Yukon River. The property is also centered about 9 km ENE of the Coffee Creek airstrip. Presently, access to the property is by helicopter from Dawson or Whitehorse, though staging of equipment and fuel may be done on one of the nearby placer roads or airstrips.

The terrain on the property consists of large hills with steep sided v-shaped valleys. In most areas outcrop is fairly scarce, confined mainly to stream valleys, ridgelines and breaks in slope. Elevations range from about 640 metres along lower Tak Creek (local name) to 1,190 metres along a ridgeline in the eastern area. The climate is continental subarctic, with short warm summers with daily highs commonly exceeding 20°C, and long, cold winters with low temperatures averaging -25° to -30°C, although temperatures below -40°C are not uncommon. North facing slopes are typically underlain by permafrost. Precipitation is light to moderate, although showers and thundershowers are common in summer. Maximum snowpack averages from 0.4 to 0.6m, depending on elevation. The field season extends from late May to mid-September, depending on elevation and snow conditions, although drilling may extend into late autumn, provided that water lines can remain unfrozen.

Dawson City is a full-service community with a population of 1,319. The neighbouring communities in the Klondike area increase the population to roughly 2,000. Dawson City has bulk fuel, grocery and hardware services, abundant accommodation, and government services including the Mining Recorder's office for the Dawson Mining District. Dawson City is located roughly 425 air-kilometres (550 road-kilometres) NNW of Whitehorse along the North Klondike Highway. Whitehorse, Yukon, is a full-service community of about 29,000, with excellent accommodations, groceries, hardware, camp supplies, bulk fuel and expediting services. Both Dawson City and Whitehorse have a substantial skilled labour force, including professional geoscientists and tradespeople; however, a sizable operation may require staff from outside Yukon.

## 5 EXPLORATION HISTORY

The prior history of exploration on the Tak property is limited, with little work taking place in the area prior to 2009. The present Tak property was staked in 2009 by a syndicate of local explorationists during early phases of a staking rush following release of strongly favourable gold values from a diamond drilling program on the White Gold property roughly 30 km to the west. This rush resulted in the discovery of the Coffee Creek Property held by Kaminak Resources Ltd. (and presently owned by Goldcorp Inc.). The first documented work occurred in 2009 and 2010, when Silver Quest Resources Ltd. conducted a reconnaissance geochemical survey of the property, collecting stream sediment and soil samples to evaluate the property for potential gold mineralization. The program was largely unsuccessful but a couple of weakly anomalous gold-in-soil and gold and silver-in-silt anomalies were recommended for follow-up work. Additionally, reconnaissance soil sampling was recommended along the NE ridge on the property (Baker, 2011).

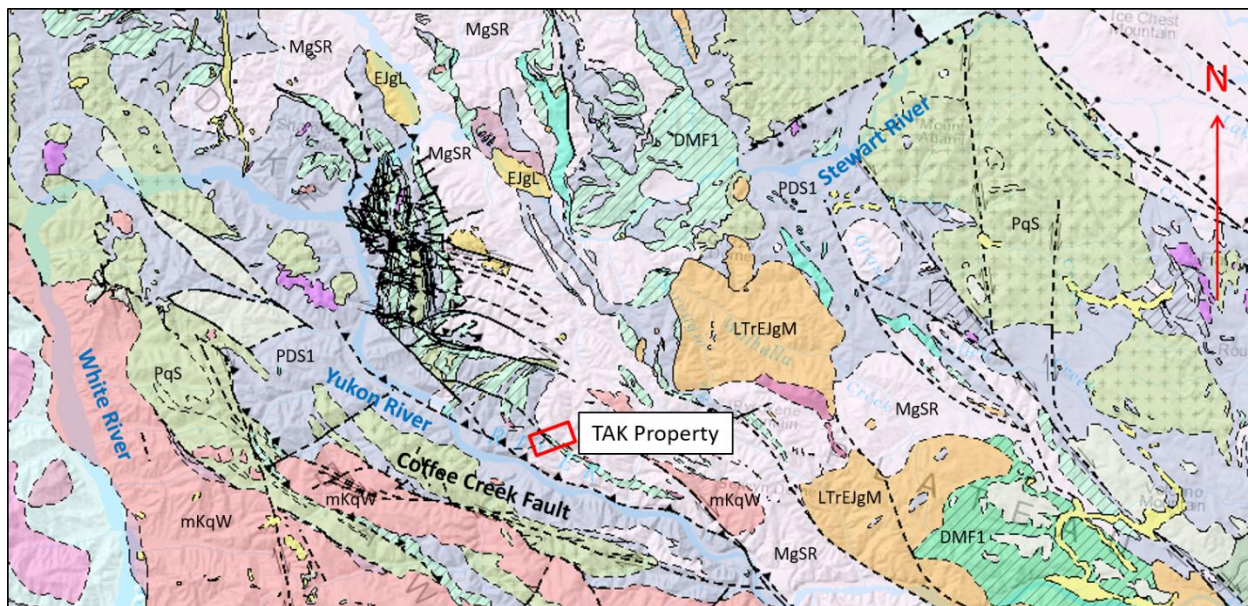
In 2011, Stakeholder Gold Corp. conducted a 533-sample ridge and spur soil sampling program following up on Silver Quest Resources Ltd.'s previous work. The Stakeholder Gold Corp. program was unsuccessful in identifying significant anomalies (only two samples returned greater than 10 ppb Au) and no further work was recommended for the property, except for a one-day prospecting program to follow up on As-in-soil anomalies (Fekete and MacPhail, 2012). It does not appear that any prior operator was exploring for any other commodities other than gold on this property.

The syndicate sold the property to Eureka Resources Inc. in late 2016. A one-day program of surface magnetometer and VLF-EM surveying in the headwater area of Tak Creek was done in late February, 2017 by Aurora Geosciences Ltd. for Eureka.

## 6 REGIONAL GEOLOGY

### 6.1 Regional Geology

The Tak property is located within the Yukon-Tanana Terrane (YTT), a major accreted terrane comprised of variably metamorphosed, highly deformed intrusive, volcanic and sedimentary rocks (Gordey and Makepeace, 2001). The majority of this terrane ranges from Neoproterozoic to late Paleozoic in age, but also includes significant Mesozoic- aged assemblages. The YTT abuts against Selwyn Basin shelf and off-shelf sedimentary and volcanic rocks to the north, formed along the margins of the Ancient North American Continent. These two terranes are separated by the 65 Ma Tintina Fault Zone, a major transpressional fault with a dextral displacement of roughly 450 km.



mKqW: Whitehorse Group: Biotite granite to quartz monzonite  
 LTrEjgM: Granodiorite, monzogranite  
 EJgL: Biotite-hornblende granodiorite  
 PqS: Sulphur Creek Assemblage: K-spar augen gneiss, metaporphry  
 MgSR: Simpson Assemblage: Metagranite, metagranodiorite  
 DMF1: Finlayson Assemblage: Mafic volcanics, volcanoclastics  
 PDS1: Snowcap Assemblage: Metapelites, psammites

Regional Geology Map  
**Tak Property, Eureka Resources Inc.**  
 NTS Sheet 115J15  
 Geology based on YGS "Mapmaker"

**Figure 3: Regional geology map for the area surrounding the Tak claims.**

### 6.2 Property Geology

The property is underlain mainly by an aerially extensive sequence of Simpson Range intermediate meta-intrusive rocks consisting of hornblende metagranodiorite, metadiorite and metatonalite (Yukon Geology Survey, "Mapmaker" website). A narrow unit of Upper Devonian Finlayson Group intermediate to mafic metavolcanics and volcanoclastic rocks extends NW-SE across southwestern property areas. A small unit

of Minto Suite granodiorite to quartz monzonite occurs to the northeast of this; another small unit of Upper Triassic Stikinia Assemblage gabbroic orthogneiss occurs south of the Minto Group stock (Fig. 4).

During the 2017 program additional bedrock mapping was carried out in conjunction with the geochemical survey, this mapping refined the understanding of the rock units on the property. The results of the 2017 mapping program can be found in Section 9.

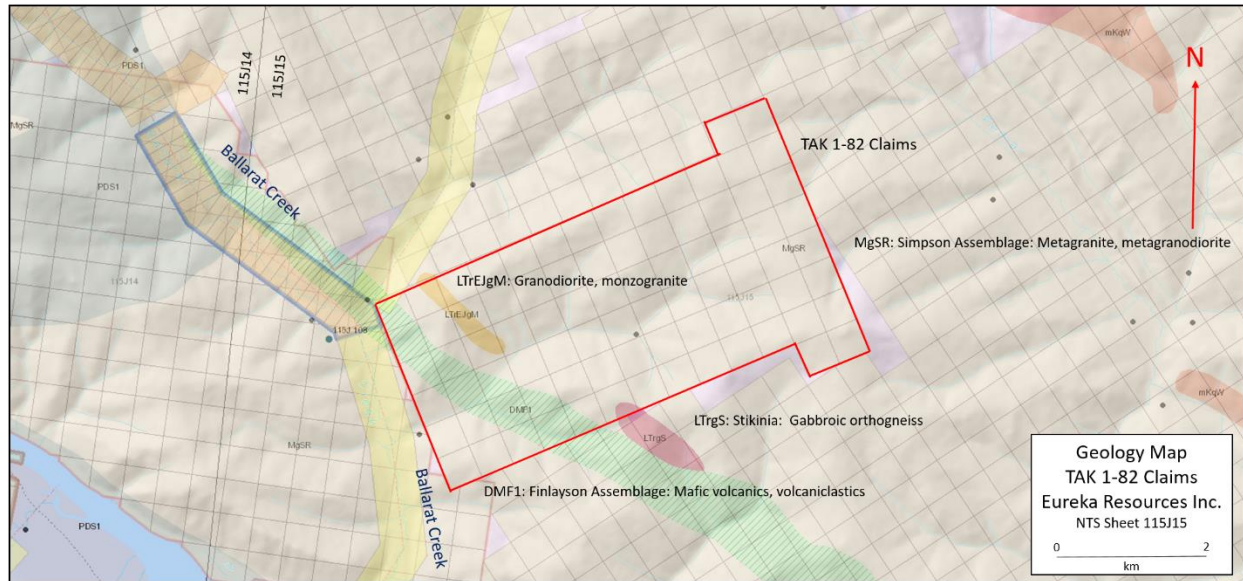


Figure 4: Property geology map based on available Yukon Geological Survey data.

### 6.3 Surficial Geology

The Tak property is located within “Beringia”, an area which was unaffected by all Pleistocene glaciation, extending from west-central Yukon through the majority of central and western Alaska. Surficial deposits consist mainly of colluvium, as well as locales of “loess”, consisting of wind-blown fine sand to silt. Bedrock exposure is sparse, due to mechanical and chemical weathering of outcrop, except for areas of very rugged terrain.

Surficial deposits, particularly at lower elevations, have been developed over much longer time periods than post-glacial overburden elsewhere in Yukon. This is particularly applicable to fluvial deposits; local placer gold deposits have developed over much greater time periods than those in glaciated areas.

## 7 DEPOSIT MODELS

The Tak property is located towards the southern end of a large area of placer mining extending southeast from the Klondike placer mining camp. To date, hard rock gold +/- silver occurrences within this have been ascertained to have an orogenic origin, with fluid movement and emplacement related to deep-seated crustal faults rather than local, shallowly emplaced intrusive bodies. Mineralized zones in the Klondike to date do not have the characteristics of Tintina Gold Belt intrusion-related systems. Mineralization typically consists of mesothermal quartz veins, consisting of Au and/ or Ag, marked by the typical pathfinder elements of As, Sb, and, for Ag, Pb and Zn. The dominant stratigraphic orientation within the Klondike gold camp and southern extension is NNW – SSE (Fig. 3), likely paralleling that of mineralized structures within this.

The Tak property area is also close to the Coffee Creek fault, extending ESE largely within the Coffee Creek property held by Goldcorp and located directly south of the Yukon River. The Coffee Creek Fault, forming the locus of gold deposits within the Coffee Creek property, is also considered to be a large crustal feature, forming the locus of local orogenic gold deposits. Although located several kilometres to the north, the Tak property is close enough to be potentially affected by this crustal fault system.

The primary exploration target at the Tak property is orogenic vein-hosted gold +/- silver, emplaced along pre-existing structural features such as local faults. Although the main lineation in this area is likely to be NNE – SSW, veins may also be oriented along conjugate faults or “Riedel” shears, possibly favouring a NE – SW orientation. “Economic” mineralization may include visible gold, arsenopyrite, stibnite, and, in areas of silver enrichment, galena and sphalerite.



## 8 CURRENT EXPLORATION PROGRAM

The 2017 field program on the Tak property consisted of five components: (1) a ridge-and-spur and contour soil survey, (2) a stream silt sampling program, (3) reconnaissance bedrock mapping, (4) prospecting, and (5) an “Airborne Inductively Induced Polarization” (AIP) and an airborne magnetic survey conducted by Geotech Ltd. in the spring of 2017. A report on the results of that survey can be found in Appendix VI.

### 8.1 Soil Geochemical Sampling

#### 8.1.1 Crew and Equipment

The following personnel conducted the survey:

Nigel Bocking	Crew Chief	Aug 30 – Sept 8, 2017
Heiko Mueller	Geologist	Aug 30 – Sept 8, 2017
Tyler Legg	Geologist	Aug 30 – Sept 8, 2017
Ryan Lenberg	Geologist	Aug 30 – Sept 8, 2017

The crew was equipped with the following instruments and equipment:

Data Processing	1	Computer: geologist’s software package
Survey Equipment	4	Sampling tools including mattocks and soil augers.
	4	Non-differential GPS
		Sampling consumables including soil (Kraft) bags, tags, assay books, and flagging.
	4	Juniper CT-5 Handhelds with integrated GPS/GLONASS receivers, using Avenza Maps application
Communication	4	VHF radios (mobile / base)
	1	SAT phone - Iridium
Safety	1	First Aid kit
	6	Bear Safety (Bangers, Spray)
	1	Field Survival kit
Support	1	Office box and equipment repair tools

Soil samples were collected using mattocks and/or soil augers depending on ground conditions, and placed in kraft paper bags.

#### 8.1.2 Line Specifications

On the Tak property both ridge-and-spur and contour lines were executed in order to maximize the coverage of the property. These lines were concentrated in areas of geochemical anomalies identified from previous work and to cover conductivity (mid dB/DT) and magnetic anomalies identified in the

airborne VTEM survey conducted in the spring of 2017. Sampling was conducted at 50m intervals along all lines on the Tak property.

### 8.1.3 Survey Specifications

The objective of the soil survey was to collect C horizon soil samples. As the Tak property remained unglaciated during the Pleistocene epoch the parent material for the soil is mostly weathered bedrock. Therefore, the geochemistry of the C horizon closely reflects that of the underlying bedrock, although this may have been transported in areas of steep terrain.

### 8.1.4 Sampling Methodology

Samples were collected using hand augers to drill through the soil profile and extract material at depth. In rocky and mossy areas, mattocks were used to dig through the moss and rocks to find an area suitable for sampling with the augers. In rare cases, of exceptionally rocky ground, the samples were collected using just the mattock. In certain areas, the crew encountered boulders and/or permafrost that could not be penetrated before they were able to reach the C horizon. In these circumstances available material was sampled. This material was typically of B/C horizon, and rarely of B horizon alone; if neither could be obtained then no sample was collected. The horizon sampled was recorded and must be considered when interpreting geochemical results. Samples were bagged in paper “kraft” bags and closed with a cable tie (“Zap Strap”). These were then placed in rice bags for transport to the lab. Field duplicates were taken at a rate of one per every 20 samples and collected by obtaining double the amount of material from the same sample location. The sample material was then homogenized and split between two sample bags, resulting in a primary sample and a duplicate with a different tag number.

## 8.2 Silt Geochemical Sampling

### 8.2.1 Crew and Equipment

The following personnel conducted stream silt sampling:

Nigel Bocking	Crew Chief	Aug 30 – Sept 8, 2017
Heiko Mueller	Geologist	Aug 30 – Sept 8, 2017
Tyler Legg	Geologist	Aug 30 – Sept 8, 2017
Ryan Lenberg	Geologist	Aug 30 – Sept 8, 2017

The crew was equipped with the following instruments and equipment:

Data Processing	1	Computer: geologist’s software package
Survey Equipment	4	Sampling tools including mattocks and trowels.
	4	Non-differential GPS
		Sampling consumables including soil (Kraft) bags, tags, assay books, and flagging.
	4	Juniper CT-5 Handhelds with integrated GPS/GLONASS receivers, using Avenza Maps application

Communication	4	VHF radios (mobile / base)
	1	SAT phone - Iridium
Safety	1	First Aid kit
	6	Bear Safety (Bangers, Spray)
	1	Field Survival kit
Support	1	Office box and equipment repair tools

### 8.2.2 Survey Specifications

Silt sediment sampling was carried out on the Tak property. The objective of this survey was to identify geochemical anomalies in drainages to compliment the soil lines and collect samples downstream of geophysical anomalies identified from the 2017 airborne VTEM survey. Sampling was conducted at 250m intervals along creeks and tributaries. At stream confluences, additional samples were collected from the main and tributary streams directly upstream of the confluence. Prior to the start of the field program, potential sample sites were identified using topographic maps and LANDSAT data.

### 8.2.3 Sampling Methodology

Composite samples were collected at specific locations, with the objective of achieving a representative sample, composed primarily of fine material. Samples were collected using trowels and occasionally mattocks depending on the ease of access to the stream. Material was placed in paper “kraft” bags and closed with a cable tie (“zap-strap”), which were subsequently dried in camp prior to packaging in rice bags for shipment to the lab. Field duplicates were collected at a rate of one per 20 samples and collected by obtaining double the amount of material from the same sample location. The sample material was then homogenized and split between two sample bags, resulting in the primary sample and a duplicate with a different tag number.



### 8.3 Geological Mapping and Prospecting

#### 8.3.1 Crew and Equipment

The following personnel conducted geological mapping and prospecting on the Tak and Tak claims:

Nigel Bocking	Crew Chief	Aug 30 – Sept 8, 2017
Heiko Mueller	Geologist	Aug 30 – Sept 8, 2017
Tyler Legg	Geologist	Aug 30 – Sept 8, 2017
Ryan Lenberg	Geologist	Aug 30 – Sept 8, 2017

The crew was equipped with the following instruments and equipment:

Data Processing	1	Computer: geologist's software package
Survey Equipment	4	Mattocks
	4	Non-differential GPS, compasses, transits
		Sampling consumables including poly bags, tags, assay books, and flagging.
	4	Juniper CT-5 Handhelds with integrated GPS/GLONASS receivers, using Avenza Maps application
Communication	4	VHF radios (mobile / base)
	1	SAT phone - Iridium
Safety	1	First Aid kit
	6	Bear Safety (Bangers, Spray)
	1	Field Survival kit
Support	1	Office box and equipment repair tools

#### 8.3.2 Methodology

Geological mapping and prospecting work was carried out by the field crew in concurrence with the other parts of the survey. Due to limited outcrop coverage the crew also recorded observations of the lithology of boulders and rock "float" observed on the properties. As this property was unglaciated, the lithology of boulders can provide useful information about the underlying lithology in the absence of outcrop and subcrop.

### 8.4 Airborne Geophysical Survey

The 2017 work program consisted of an "Airborne Inductively Induced Polarization (AIIP)" survey combined with an airborne magnetic survey, both conducted by Geotech Ltd. from May 6 to 17, 2017, across the Tak property. The main geophysical sensors included a "Versatile Time Domain Electromagnetic" (VTEM™ ET) system and a caesium magnetometer (Kwan and Prikhodko, 2017). The

flight lines were oriented at an azimuth of N 30° E, at a nominal line spacing of 100 metres. Approximately 214 line-kilometres of AIP and magnetic surveying were flown.

The program was designed to identify resistive units at relatively shallow depths. To achieve this, the AIP survey consisted of a series of up to 20 readings, or “gates”, spaced a few milliseconds apart, which have been divided into “Early Time Gate” and “Mid Time Gate” plots. The early time gate plot favours identification of shallow, poorly conductive horizons, whereas the mid-time blocks are more adept at identifying deeper, more strongly conductive zones. Plots are provided for each time gate and for “Total Magnetic Intensity” (TMI).

The airborne surveys were supported by two personnel employed by Aurora Geosciences Ltd., which placed helicopter fuel caches at two locations along the Black Hills Creek Road. The crew also established landing zones for the helicopter and airborne surveying equipment. Following the completion of the field program, all remaining fuel barrels, including empty barrels, and any other materials were removed from the fuel cache sites. The amount of fuel stored per site was less than the threshold for a fuel storage permit.

## 9 INTERPRETATION AND DISCUSSION

### 9.1 Soil Sampling

A total of 398 soil samples (380 samples, 18 field duplicates) was collected on the Tak property. The soil on the property has a well-developed C horizon that can easily be sampled with a soil auger (typically 30 to 50cm below ground surface). The vast majority of the samples were dry when collected with the exception of some mid-slope contour samples on north facing slopes. On some north facing slopes, sampling along contour lines was not possible due to shallow permafrost; therefore some lines do not have a continuous 50-m spacing. Additional soil samples were collected in excess of the originally planned number of 370 to compensate for the lower amount of stream silt samples and rock samples collected on the property.

The results of the soil program for Au and commonly associated pathfinders Ag, As, Cu, Pb and Zn have been plotted on maps (Figs. 5, 6, 7, 8, 9, and 10). Sb was not found in significant concentrations in the soils of the Tak property to warrant plotting it.

Soil sampling identified several isolated anomalous Au values in soil samples on the Tak property (Fig. 5). The best result was 24 ppb. With the exception of a small cluster of elevated Au-in-soil values on the northwestern end of the drainage, most of these were isolated single-sample anomalous values. No indication of mineralized gold trends was found in soils and anomalous values were not continuous along strike (see Section 9.3).

Despite the low gold results, a Cu-in-soil anomaly was identified on the northwestern side of the property where sampling along two soil lines revealed anomalous Cu values exceeding 100 ppm up to 464 ppm across approximately 250 m per line. The upper line extended directly along a ridgeline; the lower line is about 250 metres downslope to the southeast of this (Fig. 8). An additional standalone sample returning 220 ppm Cu was collected farther downslope by a geologist who identified a possible vegetative “kill-zone” at the sample site. This anomaly appears to be associated with a meta-granitic unit classified as a member of the Late Triassic to early Jurassic Minto Suite. This unit is oriented in roughly the same orientation as the prevailing strike measured on the property.

Arsenic and lead results show variable concentrations (Fig. 7 and 9) in soils but no significant anomalies. Zinc (Fig. 10) results show a few areas of elevated concentrations and occasional isolated anomalies. Silver (Fig. 6) results revealed only two anomalous values, although one is coincident with the lower Cu anomaly.

### 9.2 Silt Sampling

A total of 45 silt samples (43 samples, 2 duplicates) were collected on the Tak property which was less than the originally planned 60 samples, as some of the drainages identified from topographic data lacked material appropriate for sampling. The 45 samples covered every drainage on the property that had not been sampled previously. The creeks on the property have abundant silt within the stream course or in close proximity along its banks.

The results of the silt program for Au and commonly associated pathfinders Ag, As, Cu, Pb and Zn have been plotted on maps (Figs. 5, 6, 7, 8, 9, and 10). Antimony (Sb) was not found in significant concentrations in the silt samples taken on the Tak property to warrant plotting it.

An anomalous Au-in-silt value of 55 ppb was found midway along the Tak Creek drainage (Fig. 5). However, the anomaly did not extend upstream and no significant Au values were identified on either bank during soil sampling or prospecting. There are other sites returning weakly anomalous Au values in the drainage as well, though they are typically separated by samples returning background values. There are no significant Au anomalies in the soil on the slopes above the drainage.

Cu and Zn values from soil sampling were elevated throughout the drainage, including areas where low to background values were returned from nearby soil sampling. This suggests elevated levels of these elements may occur in the surrounding environment and that they are being readily hydraulically concentrated. Arsenic and lead results show weakly elevated values in some locales but do not indicate significant anomalies, and Ag concentrations above detection limit were not returned.

### 9.3 Mapping

There is limited outcrop and subcrop exposure (<5%) on the Tak property, and it is mostly confined to ridge lines, spurs and in the bottoms of the V-shaped valleys. The majority of the property (Fig. 11) appears to be underlain by mica-rich (dominantly biotite, some muscovite and chlorite) schists and gneisses commonly interbedded with minor quartzite layers ranging from 1-5 cm to over 20 cm in thickness. These rocks probably belong to the Snowcap Assemblage metasedimentary rocks. This unit has abundant small-scale quartz veins, occasionally boudined, though limited alteration and mineralization is associated with these veins. Towards the western end of the property there is a roughly northwest - southeast trending zone of chlorite-rich, quartz-poor schists, likely representing a unit of metamorphosed Finlayson Assemblage volcanic rocks. No volcanic textures are observed in this area, however primary volcanic textures may have been destroyed during metamorphism.

Throughout the property there are also small occurrences of metamorphosed granites in outcrop (Fig. 11) and float. These likely represent small stocks, dykes and sills that intruded the metasedimentary package prior to or coeval with metamorphism and deformation. Some of these metamorphosed granites are pegmatitic in texture and locally contain coarse crystals of mica. One of these intrusive units, consisting of biotite granite, is associated with a significant copper-in-soil anomaly (Section 9.1). Information from the Bedrock Geology website hosted by the Yukon Geological Survey indicates that this intrusion is a member of the Upper Triassic to Lower Jurassic Minto Intrusive Suite. This suite includes a separate large intrusion which hosts the Minto Cu-Ag-Au mine approximately 92 km to the southeast of the Tak property.

Detailed structural observations are constrained by the limited and discontinuous nature of the outcrop; however, the structural data that was obtained indicates that the dominant structural trend is northwest-southeast. Tight small-scale folds (including chevron folds) occur in some outcrops and measurements of foliations throughout the property indicate the rocks on the property are tightly folded along a SE plunging fold axis.

### 9.4 Prospecting

Prospecting was constrained by the lack of exposure; however, 25 rock samples were collected on the Tak property during the course of field work. No extensive zones of alteration or mineralization were observed but there are rare small exposures, or boulders, of quartz veining (occasionally vuggy) containing some carbonate alteration and iron oxide minerals. Trace sulphides (or evidence of their weathering) occur sporadically on the property, associated both with quartz veins and within the schist units.

Metal values from rock geochemical sampling during the prospecting program were generally low (Figs. 12, 13, 14, 15, 16, and 17). Assay results for Au failed to return any values above the 2 ppb detection limit (Fig. 12). One sample (1909104) returned 247 ppm Pb and 1.1 ppm Ag, but these values are far below anything that would be considered economic. Elevated values of Cu appear to be associated with proximity to granitoid intrusive rocks (Fig. 15) as several samples taken in the vicinity of mapped metagranite units display elevated Cu values, but all are significantly below ore grade and no visible Cu minerals were identified.

## 9.5 Airborne Geophysical Survey

Near-surface sources for AIP conductors include clays, most metallic sulphides, some oxides, including magnetite, and graphite (Kwan and Prikhodko, 2017; Appendix VI). Early time gate plots also typically detect surficial deposits, particularly along larger valley bottoms and stream drainages.

The early-time gate plot (Fig.18) shows that the apparent conductivity follows the drainage. However, the mid-time gate plot (Fig. 19) shows apparent conductivity roughly parallels the orientation of the chlorite biotite schist unit (Fig. 11), though this interpretation is very poorly constrained due to the lack of good outcrop controls and the coinciding thickness of overburden in the same area. No significant other features could be discerned in the conductivity data.

A plot of Total Magnetic Intensity (TMI) indicates a NW to SE trending magnetic low on the western side of the property (Fig. 20), roughly correlative with the mapped location of the chlorite biotite schist unit, which likely represents metamorphosed Finlayson Assemblage volcanic rocks. Additionally, the orientation of other magnetic highs and lows shows a NW-SE structural trend on the property which is strongly correlative with the structural orientation determined during bedrock mapping. A TMI “high” roughly corresponds with the location of the Minto Suite intrusive stock and associated copper anomaly revealed from soil geochemical sampling.

Geotech Ltd. also calculated apparent chargeability and apparent resistivity using the data collected during this survey and identified an area of high apparent chargeability on the north-central part of the property, and identified this area as a potential target for orogenic gold mineralization (Kwan and Prikhodko, 2017; Appendix VI). However, this hypothesis was not confirmed by geochemical sampling.



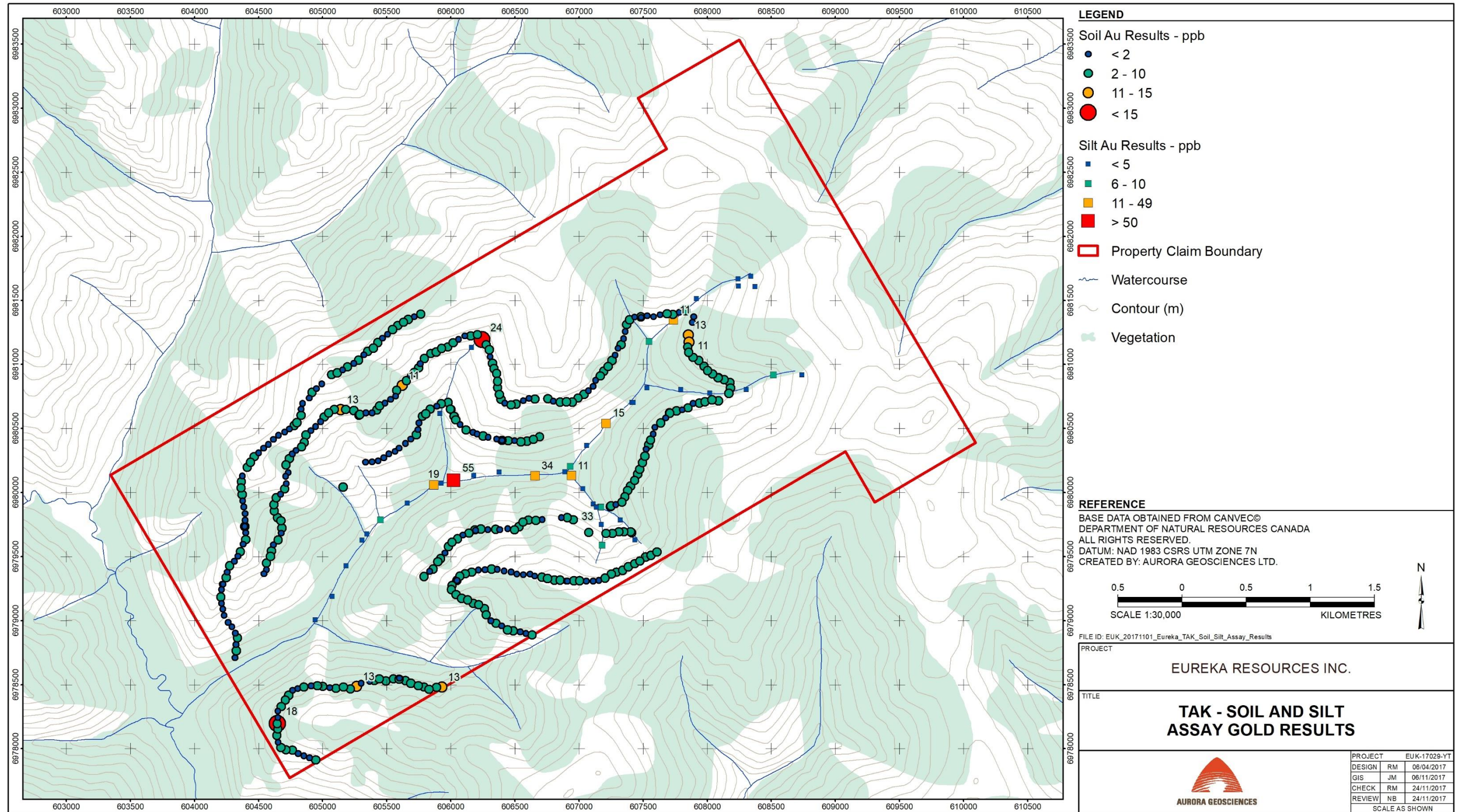


Figure 5: Au values in soil and stream silt samples on the Tak property.



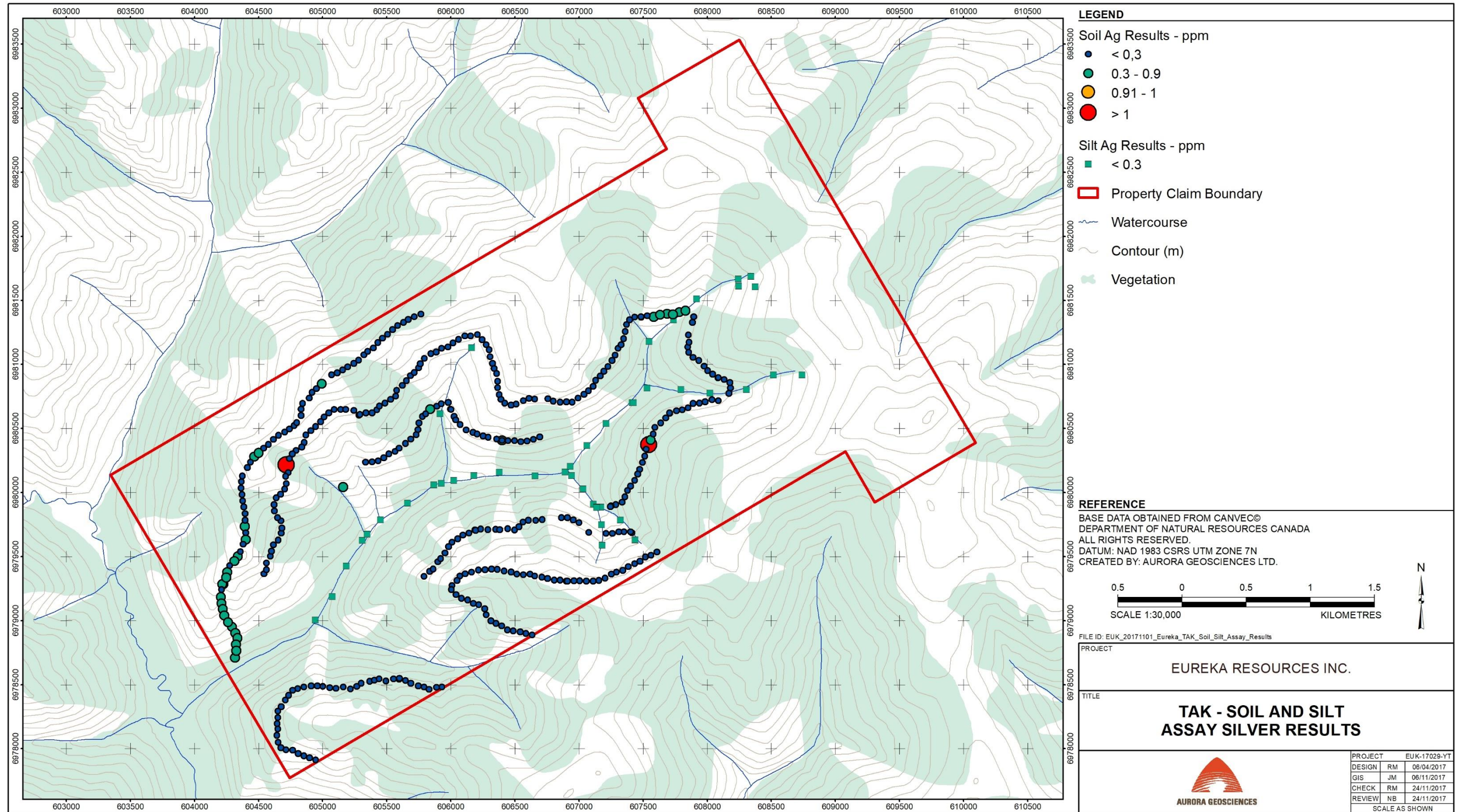


Figure 6: Ag values in soil and stream silt samples on the Tak property.



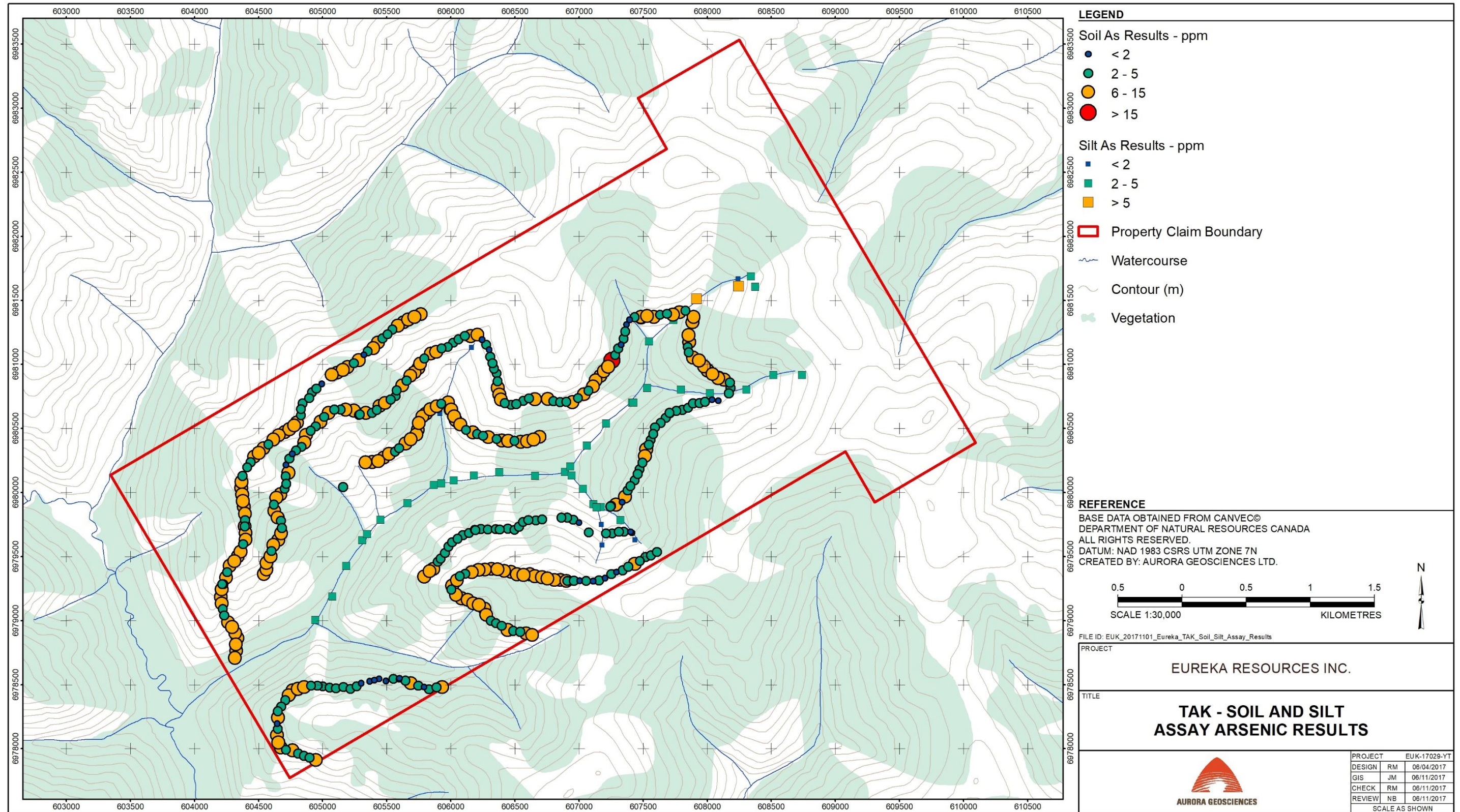


Figure 7: As values in soil and stream silt samples on the Tak property.



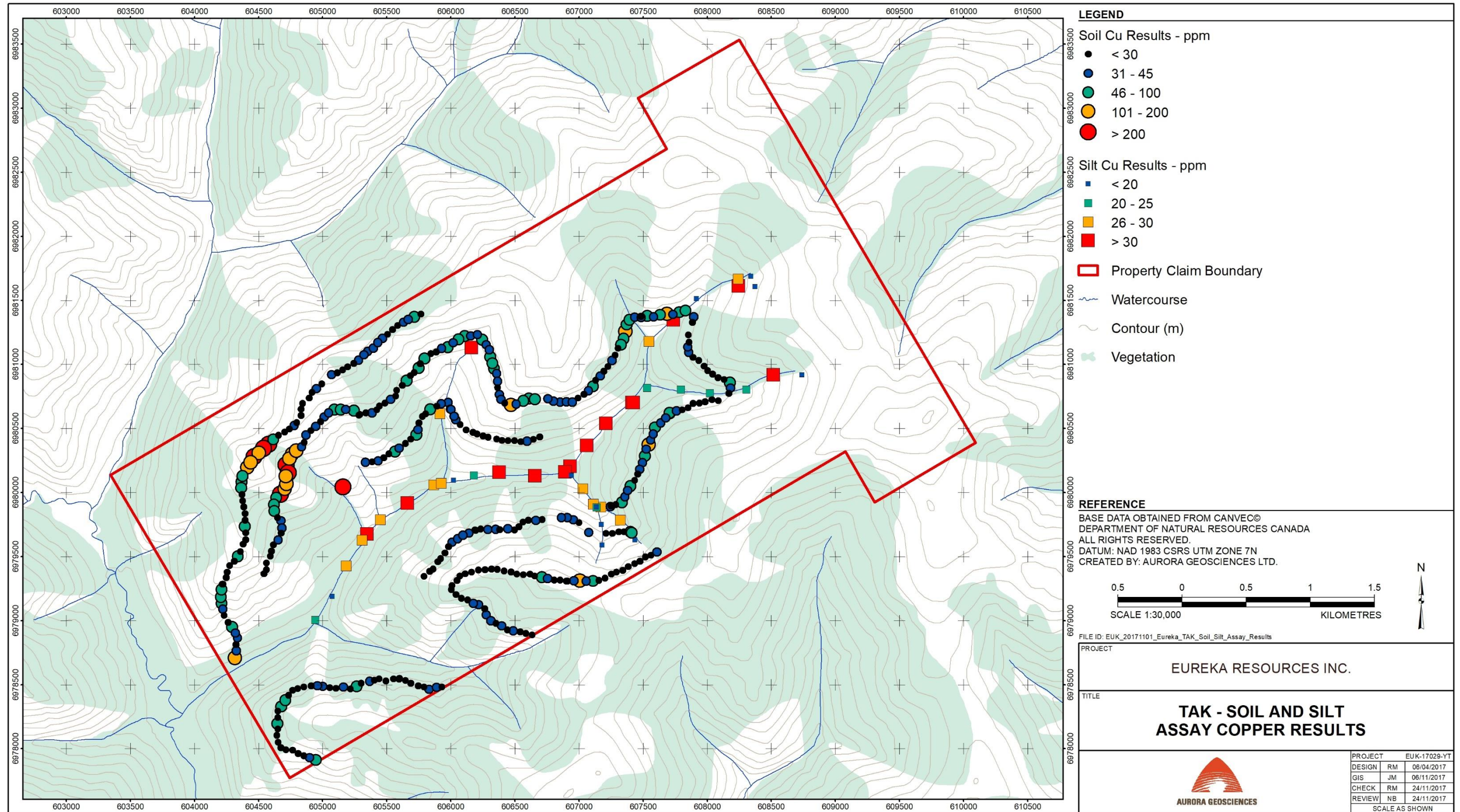


Figure 8: Cu values in soil and stream silt samples on the Tak property.



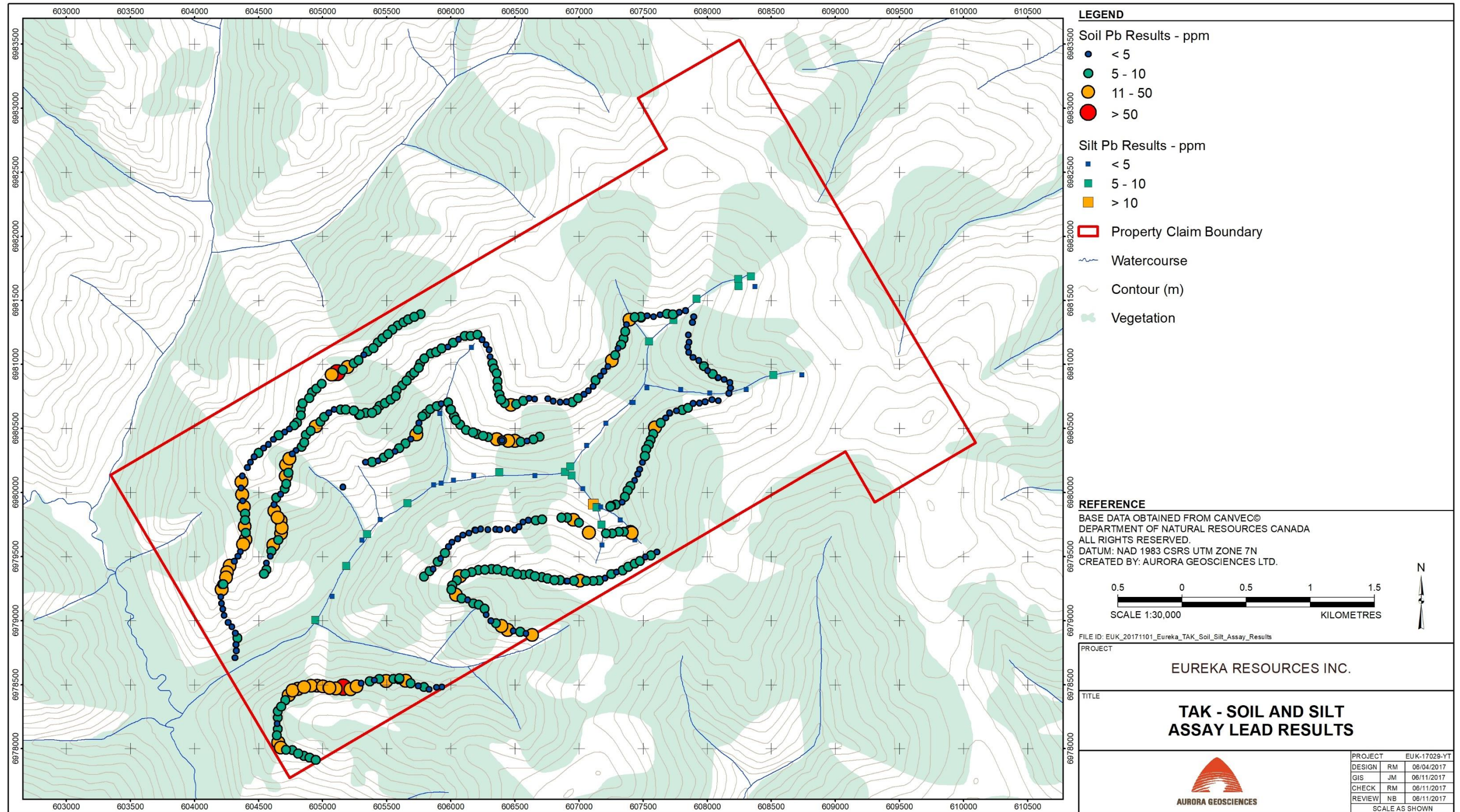


Figure 9: Pb values in soil and stream silt samples on the Tak property.



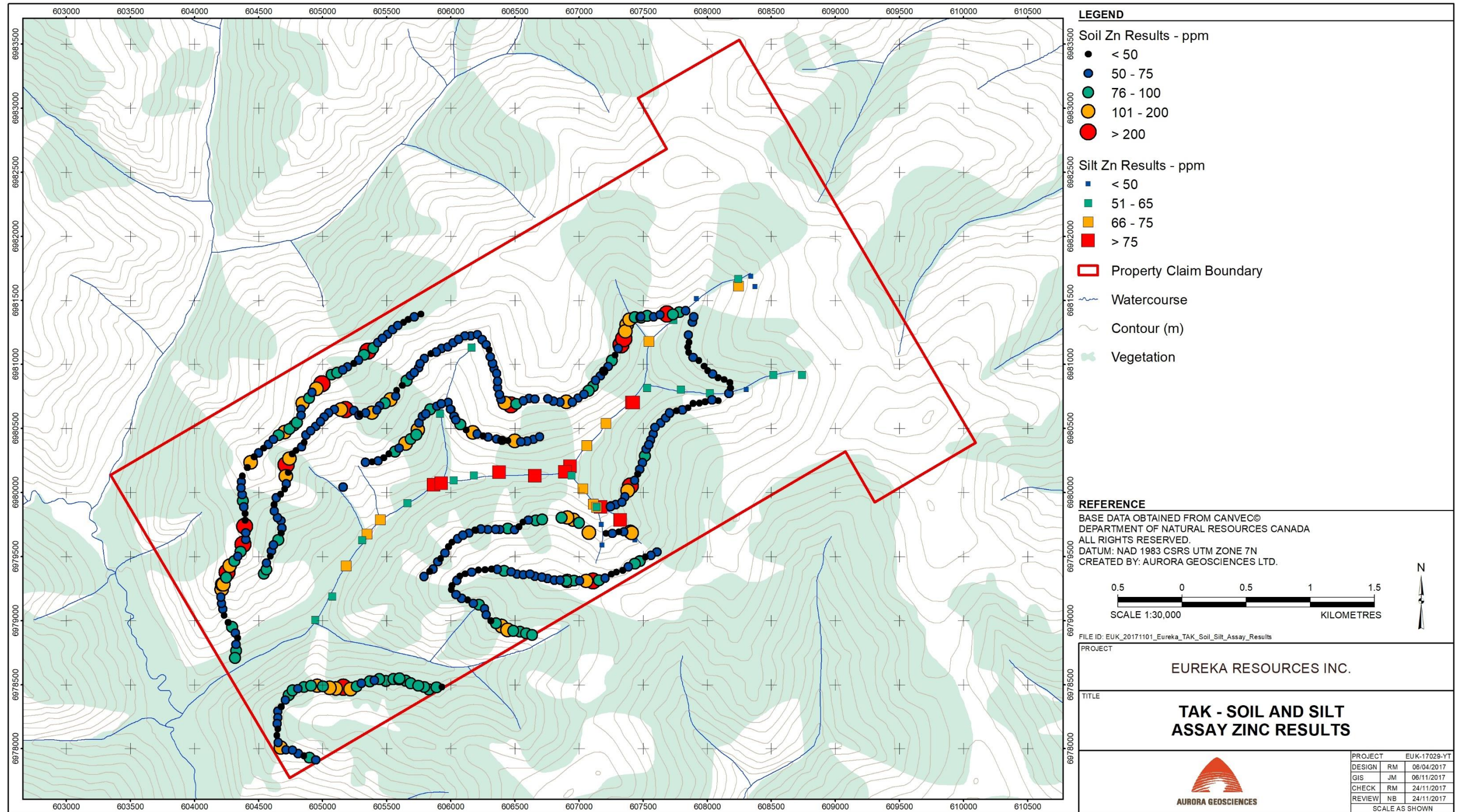


Figure 10: Zn values in soil and stream silt samples on the Tak property.



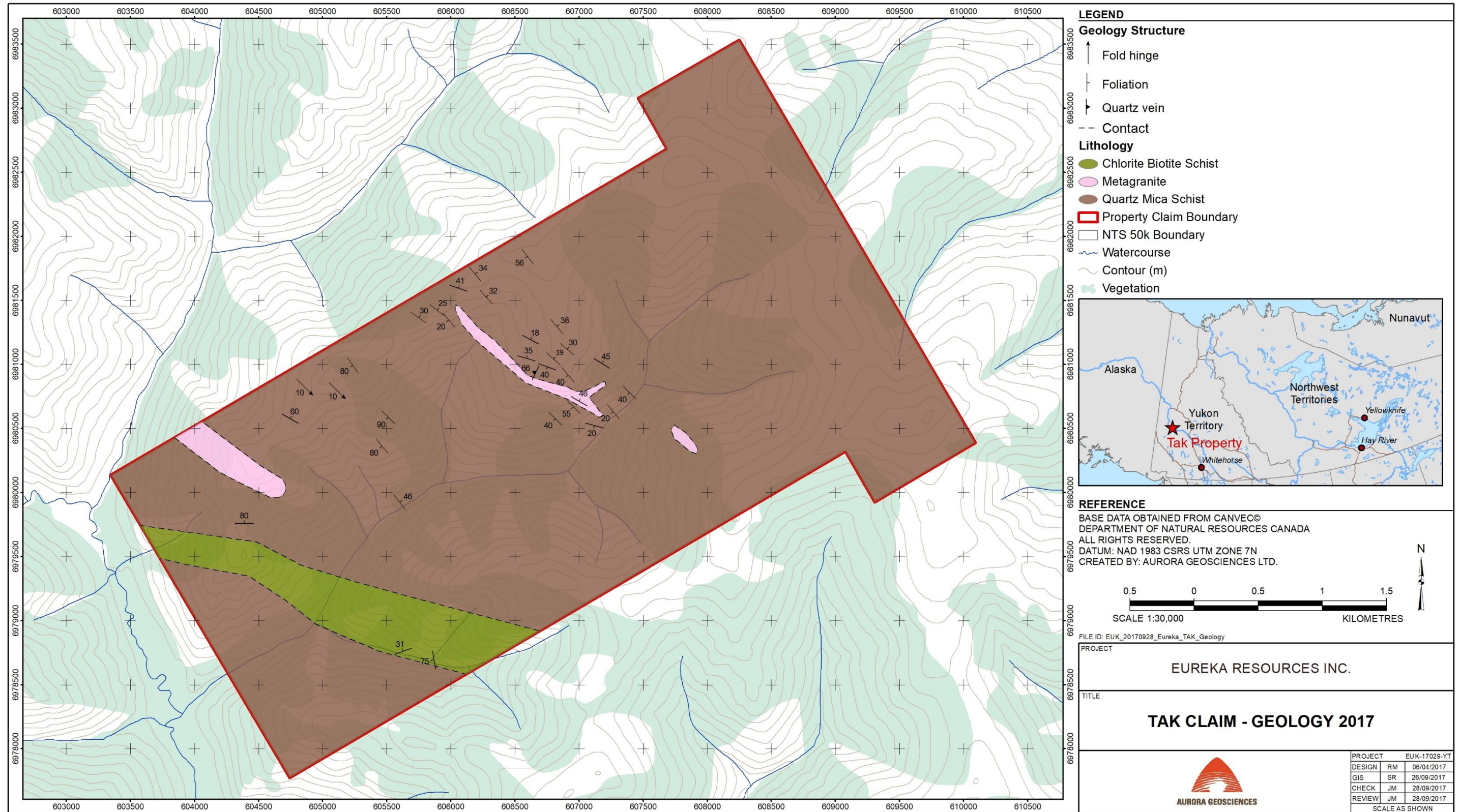


Figure 11: Geological map of the Tak property from field observations made during the 2017 field program.



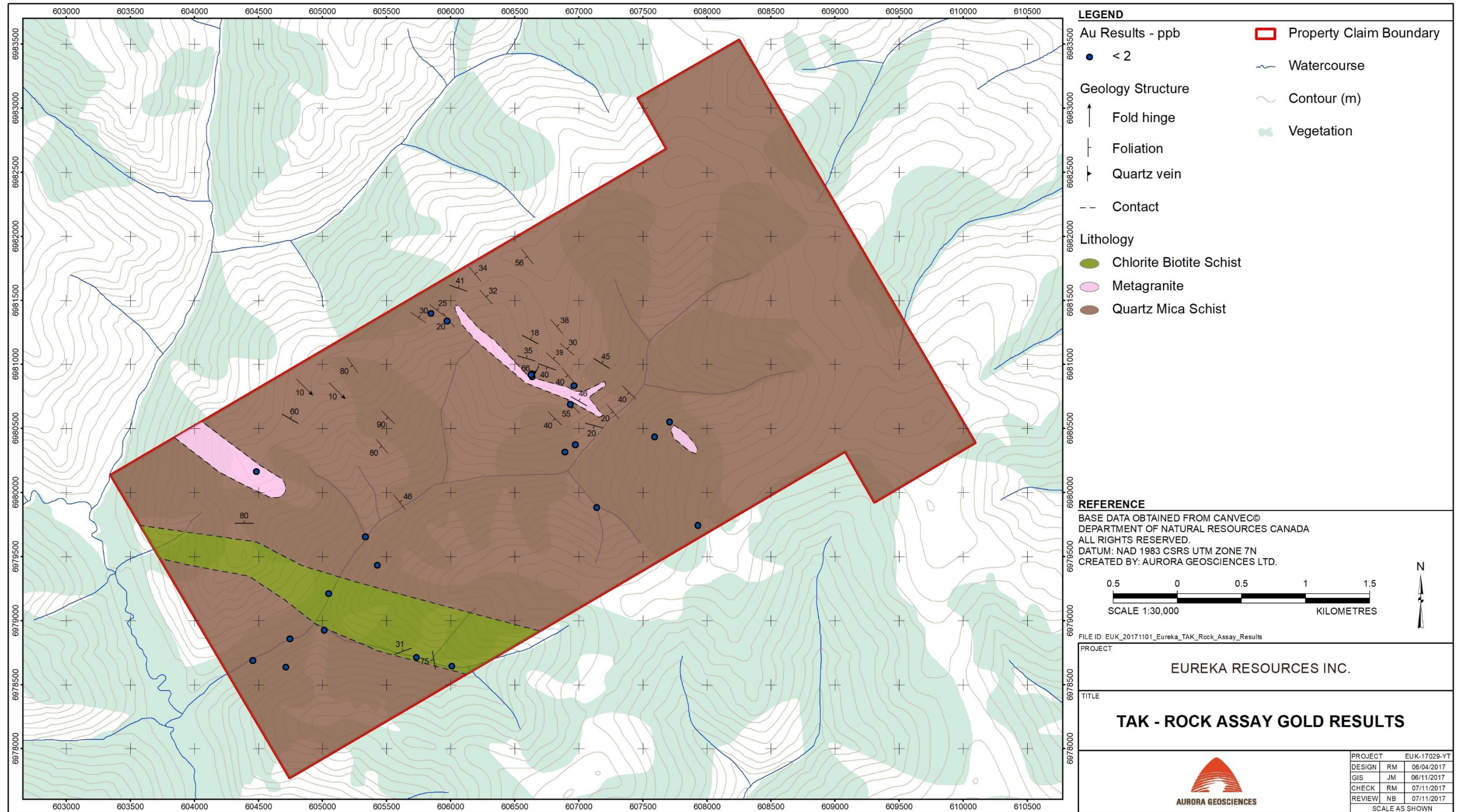


Figure 12: Au values in rock samples collected on the Tak property in 2017.



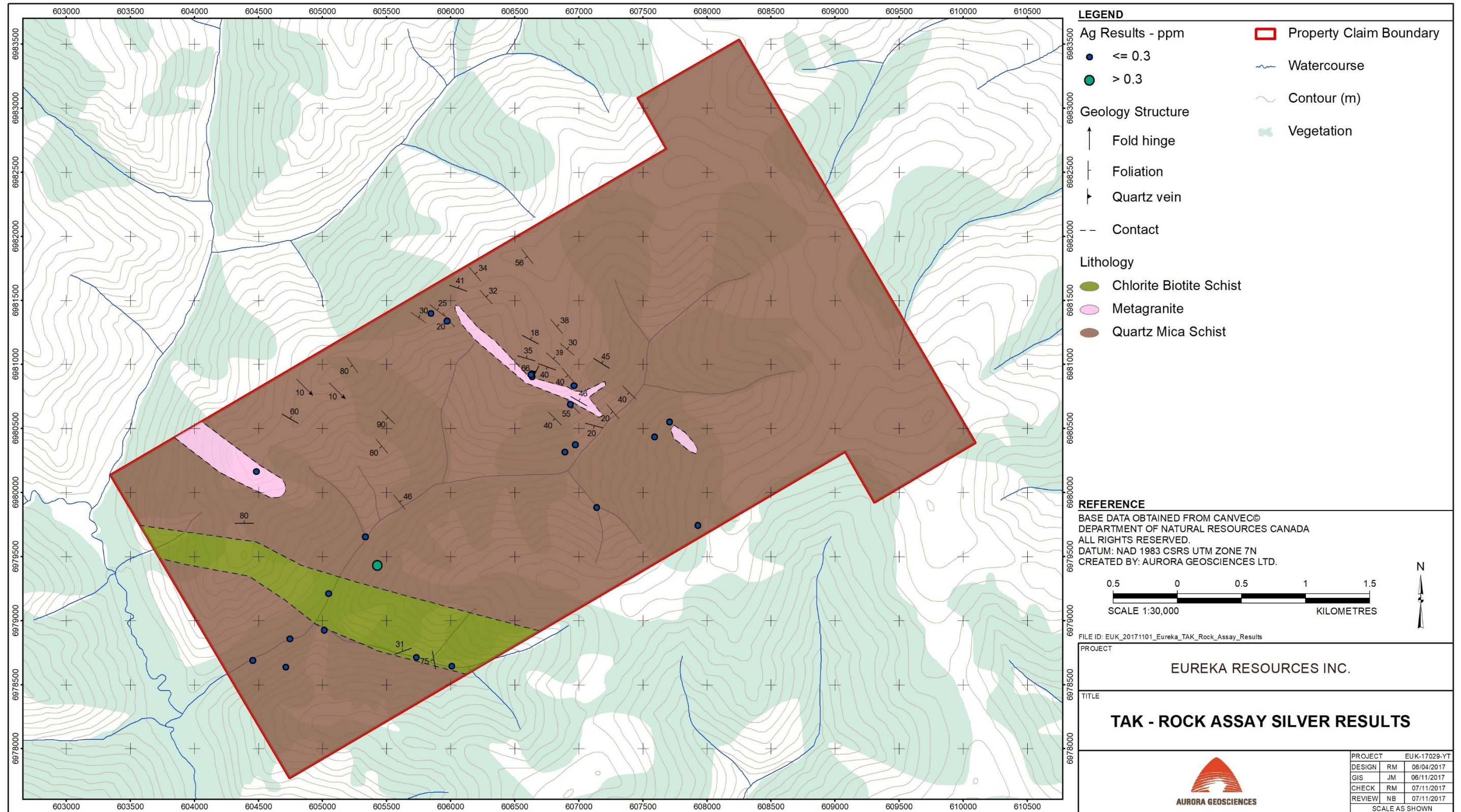


Figure 13: Ag values in rock samples collected on the Tak property in 2017.



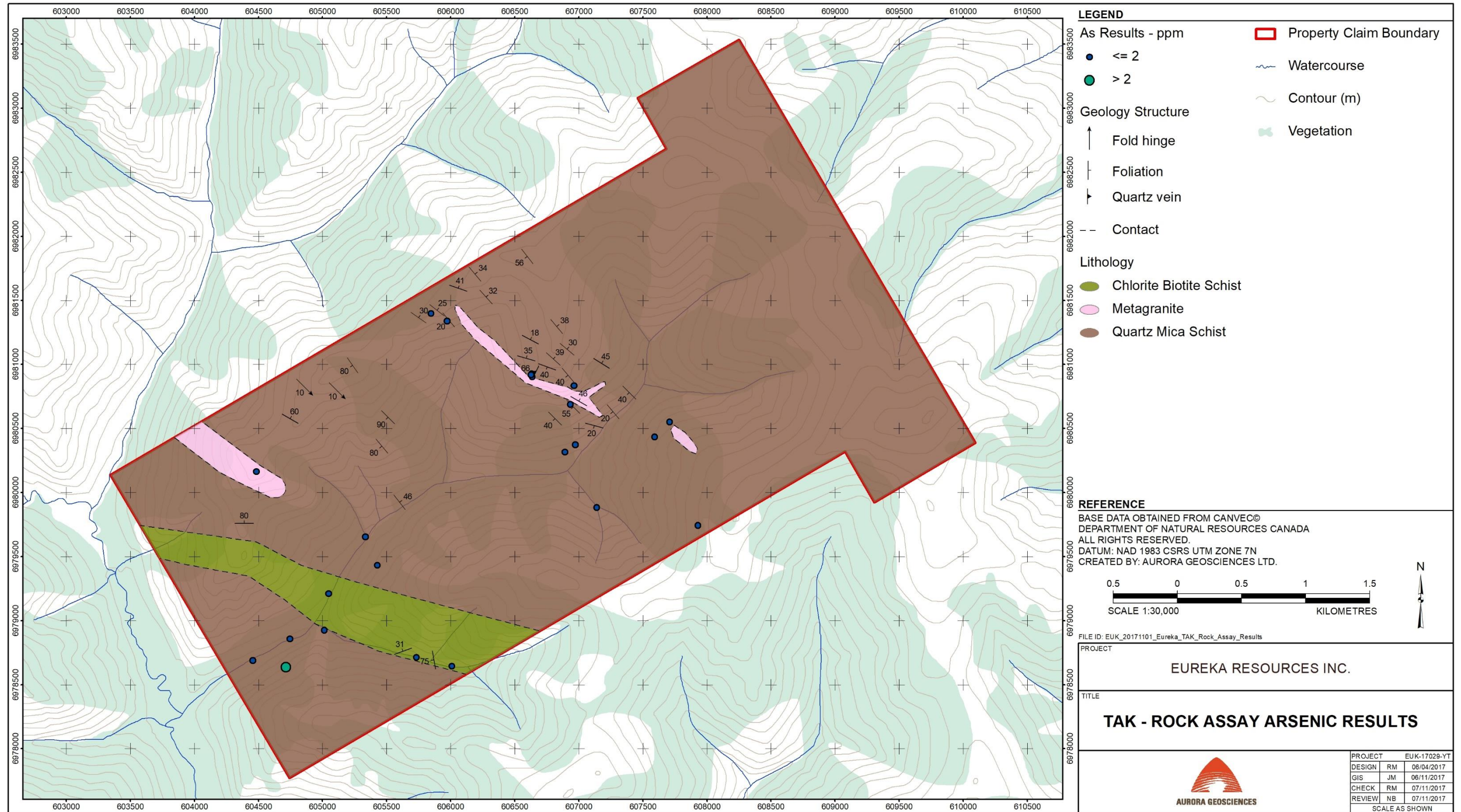


Figure 14: As values in rock samples collected on the Tak property in 2017.



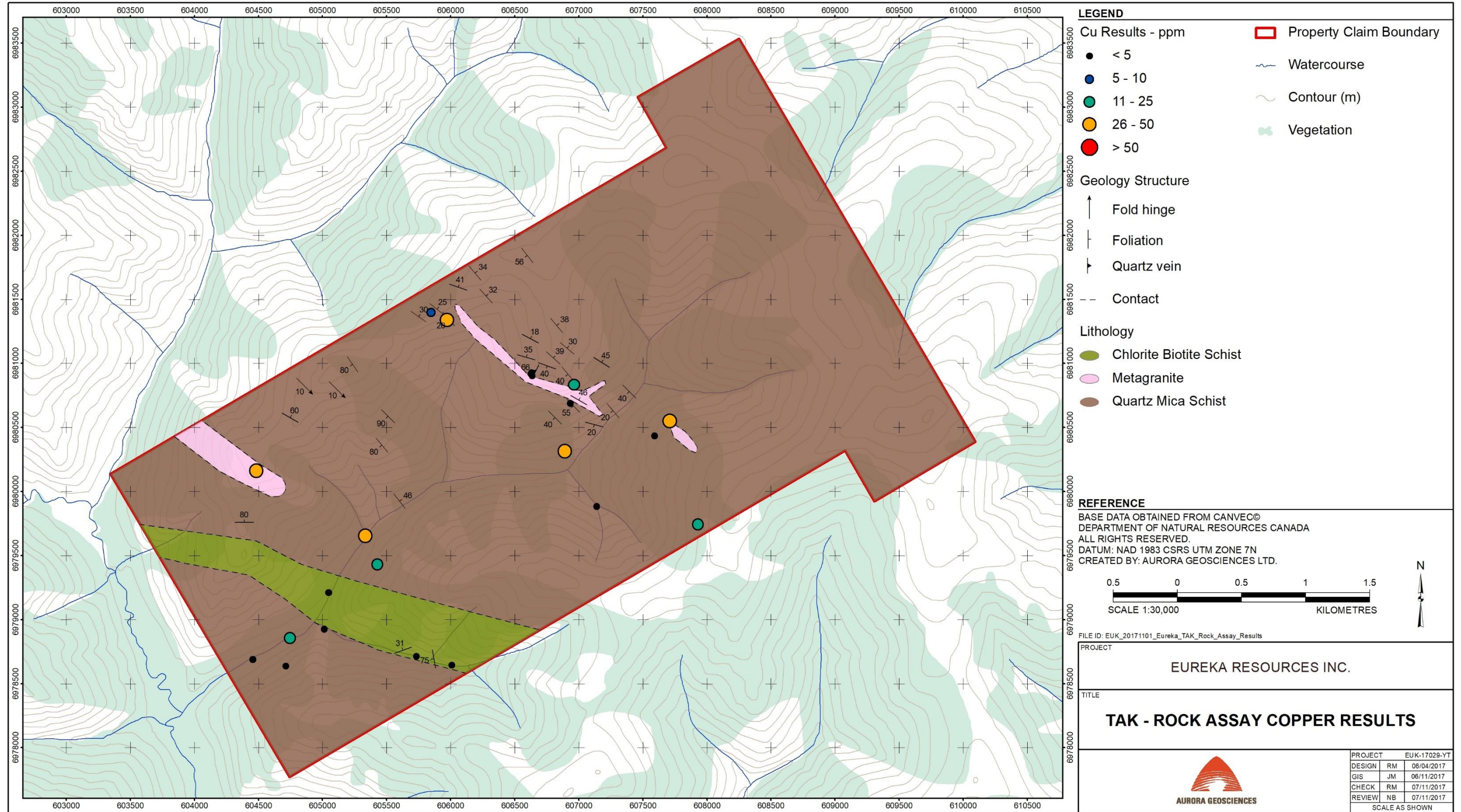


Figure 15: Cu values in rock samples collected on the Tak property in 2017.



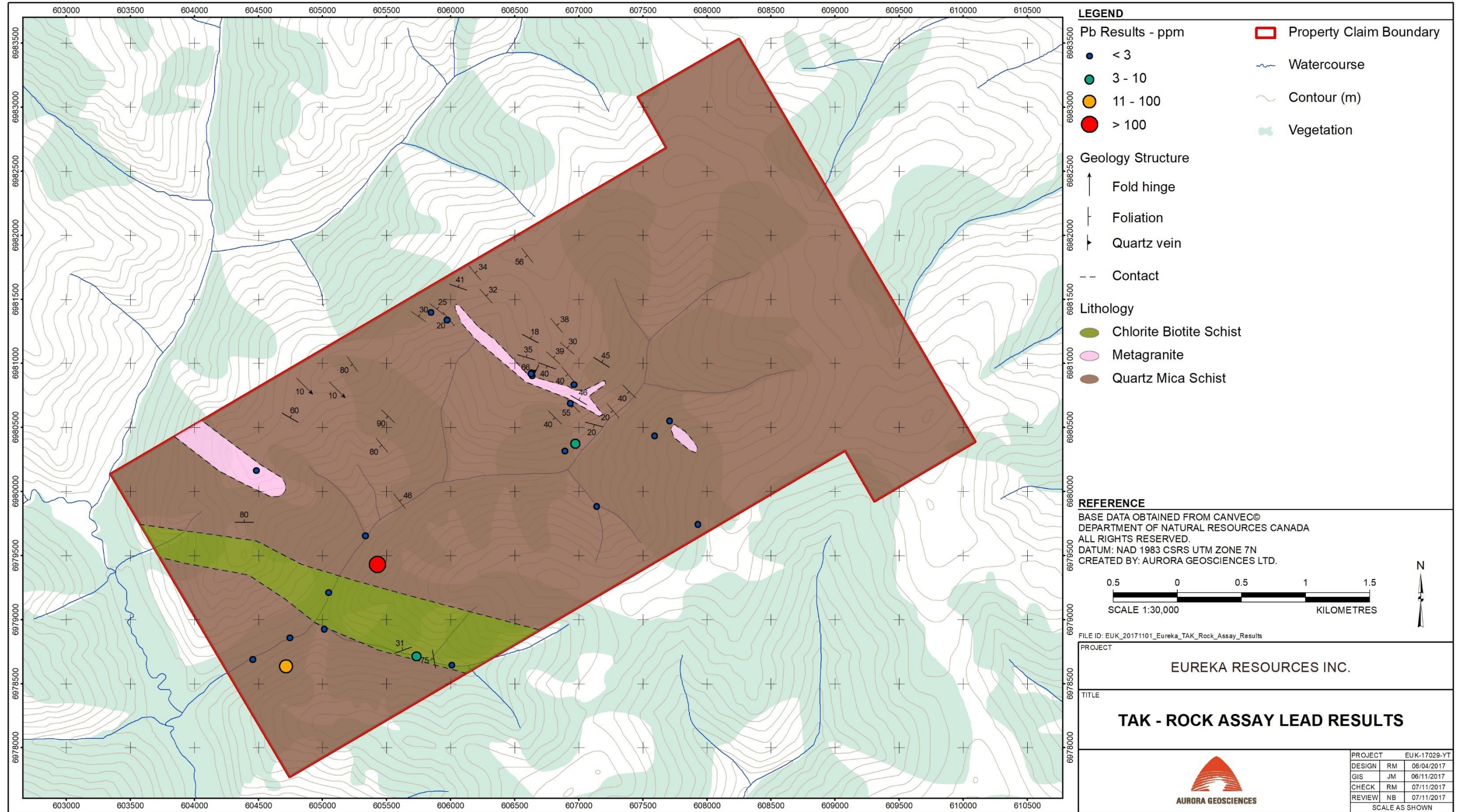


Figure 16: Pb values in rock samples collected on the Tak property in 2017.



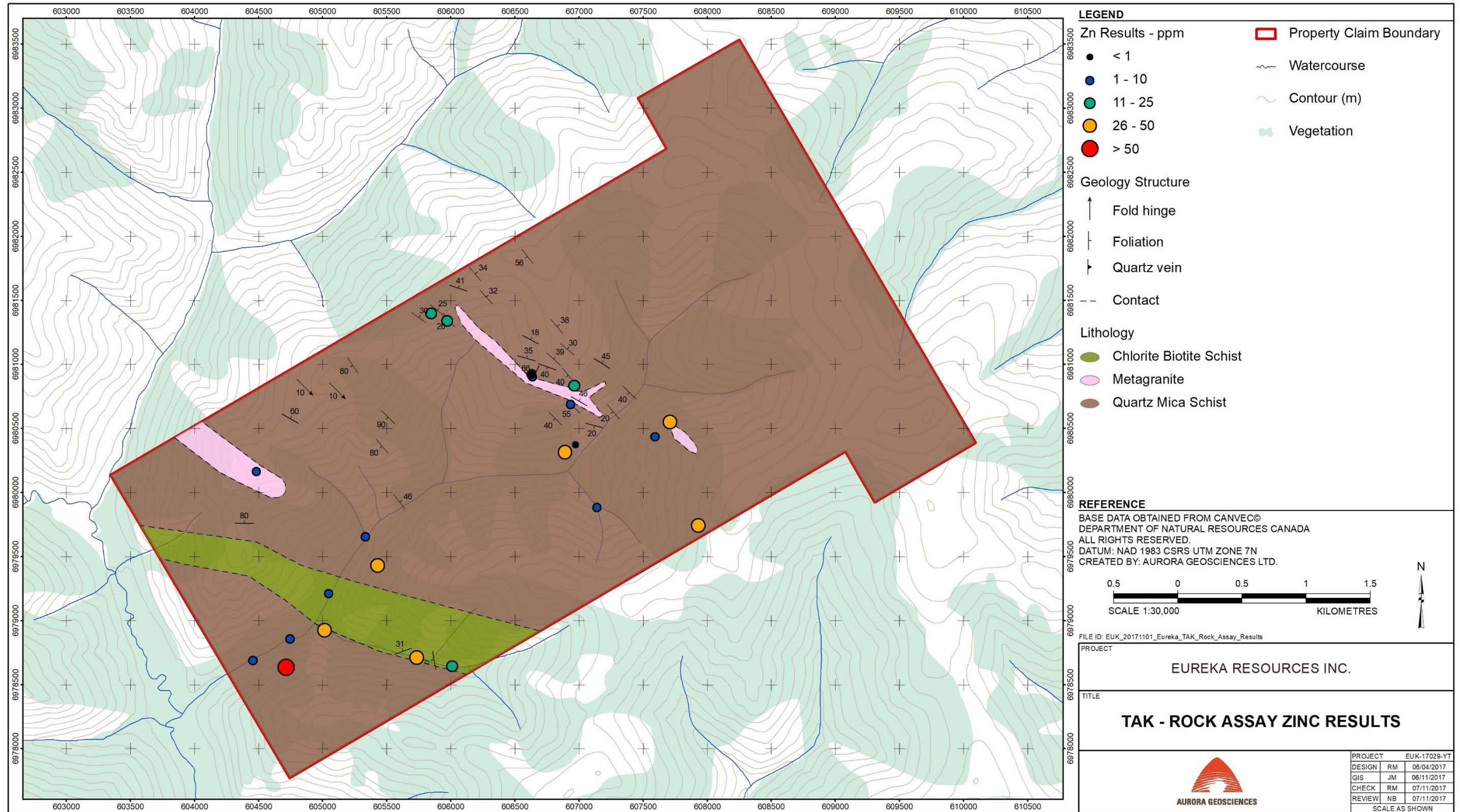


Figure 17: Zn values in rock samples collected on the Tak property in 2017.



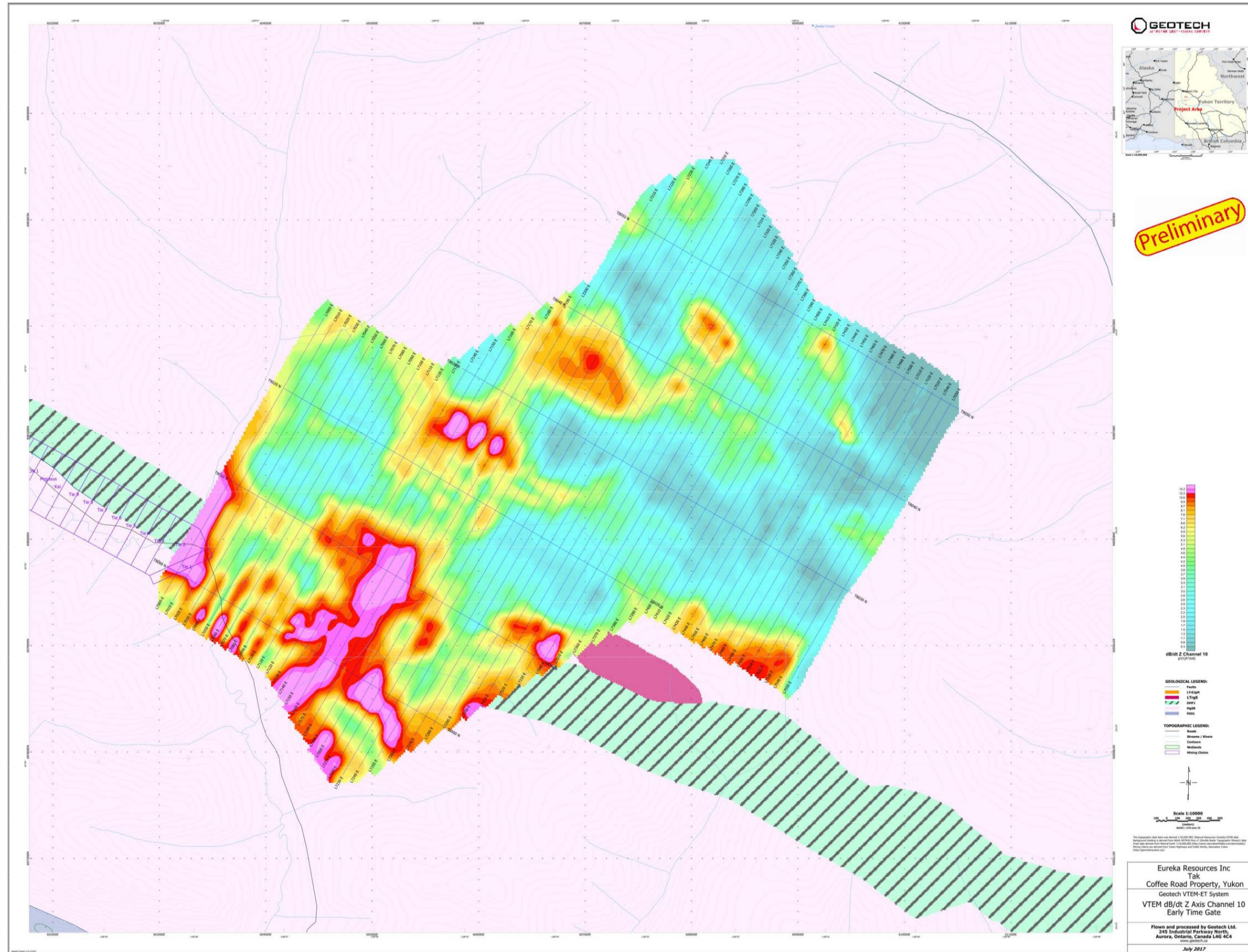


Figure 18: Early-time Gate EM plot, Tak Property.



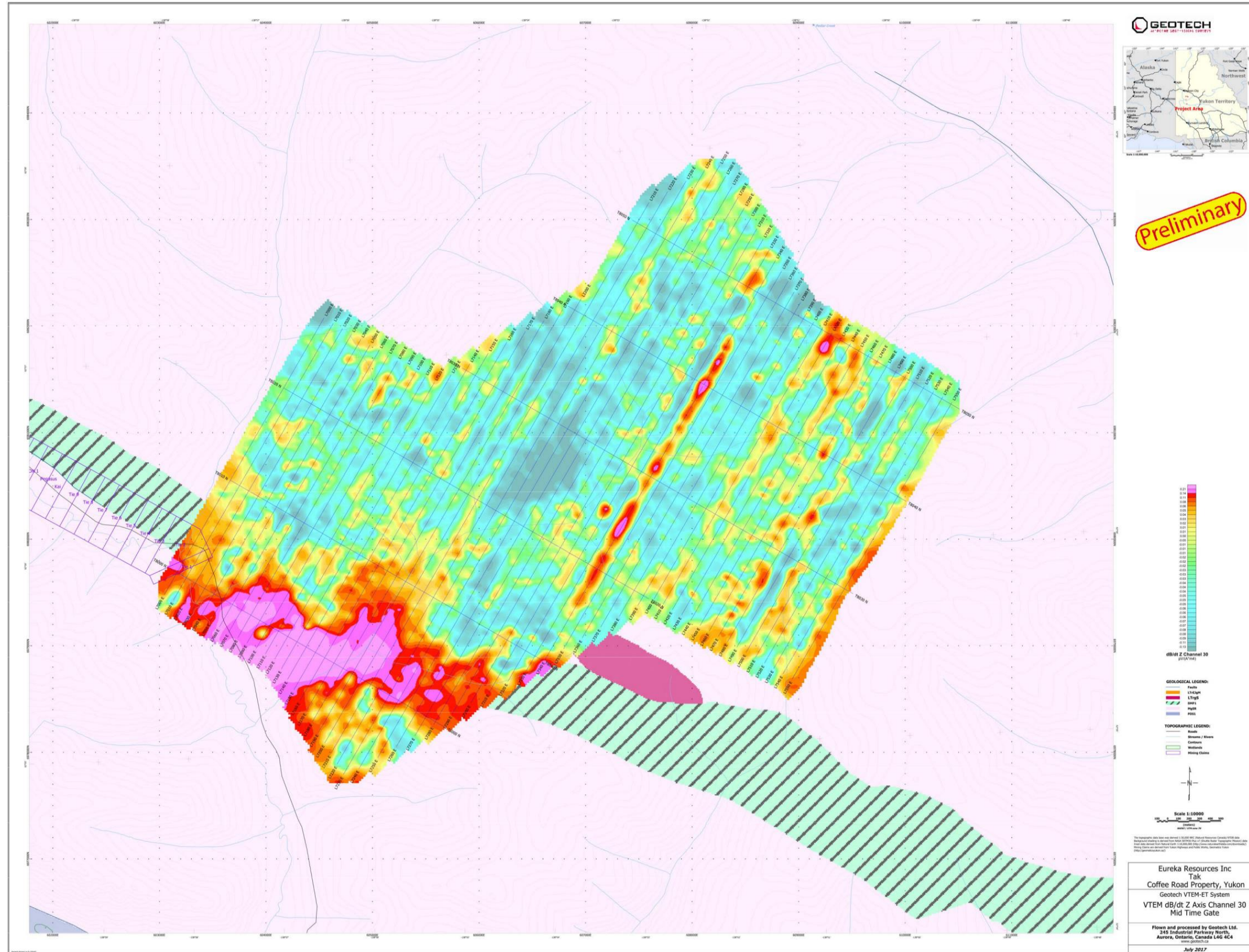


Figure 19: Mid-time gate EM plot, Tak property.



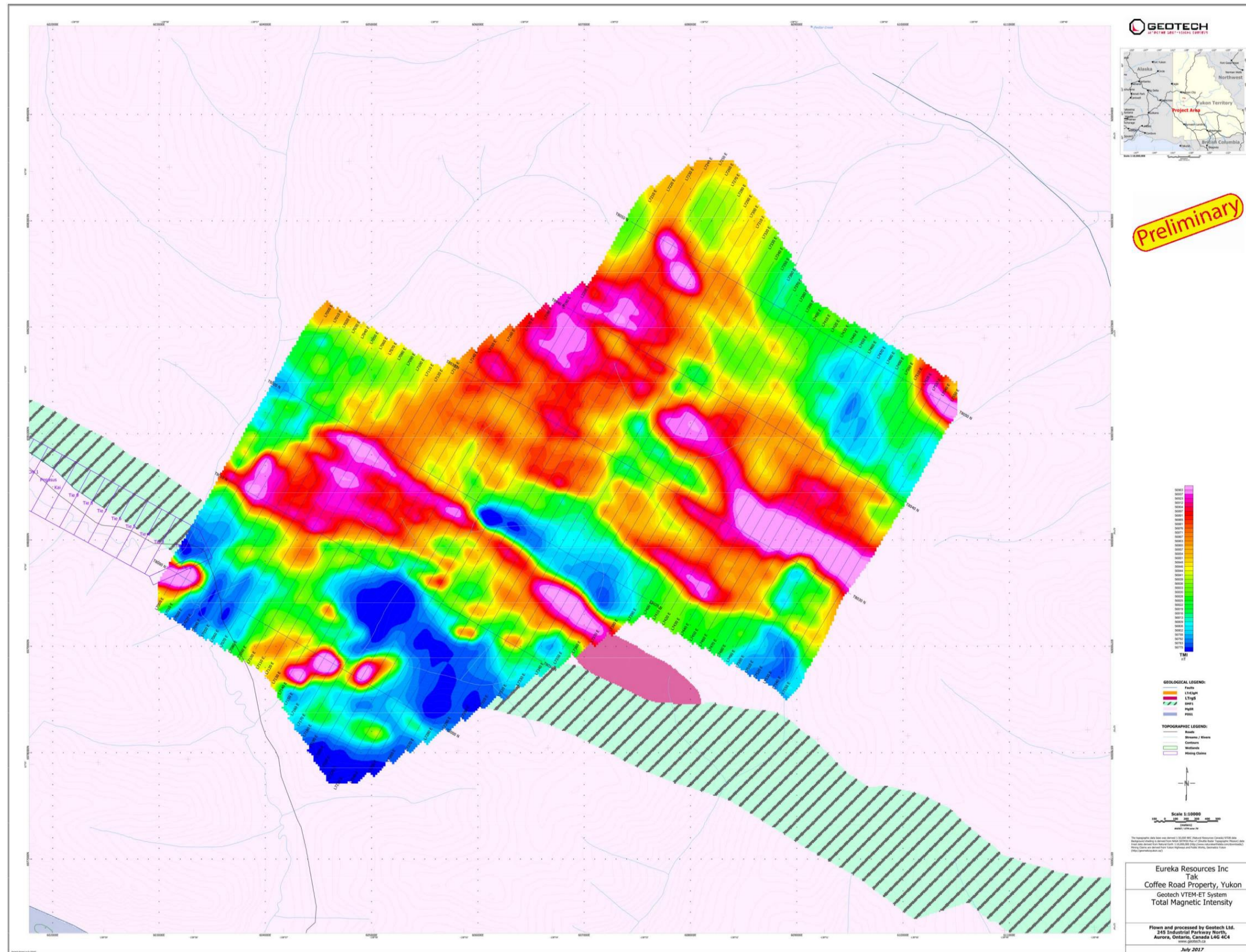


Figure 20: Total Magnetic Intensity (TMI) plot, Tak property.

## 10 CONCLUSIONS

Work completed by Aurora Geosciences Ltd. in 2017 indicates that potential for the discovery of an economic gold deposit is limited on this property. The weakly anomalous values identified through soil and stream sediment geochemistry are isolated and lack continuity. Rock samples collected during prospecting work did not return anomalous metal values, though extensive cover limited the amount of rock samples that could be collected.

However, soil sampling identified a strong Cu anomaly in the northwestern corner of the property that warrants follow-up exploration. Based on the geological mapping conducted on the property, this Cu anomaly appears to be spatially associated with a small Upper Triassic to Lower Jurassic biotite granite unit. The orientation of the geochemical anomaly appears to be aligned with the dominant NW-SE structural trend measured on the property. However, the orientation of the anomaly is likely also influenced by down-slope dispersive effects. This Cu anomaly also appears to be roughly coincident with a local magnetic “high” which may be a useful exploration vector.

Mapping by the Yukon Geological Survey, available on the “Bedrock Geology” website has determined that the small Upper Triassic to Lower Jurassic stock belongs to the Minto Intrusive Suite, which includes a separate larger intrusion to the southeast that hosts the Minto Cu-Ag-Au mine. The strongly elevated Cu soil geochemical values, combined with weakly elevated Ag values, indicate potential for “Minto”-style mineralization hosted by the stock.

## 11 RECOMMENDATIONS

### 11.1 Recommended follow-up program

Based on the results of the 2017 field program a follow-up program in the vicinity of the Cu in soil anomaly on the northwestern side of the property is recommended. This program could consist of up to three phases with each subsequent phase conditional on the success of the previous phase.

The first recommended phase is a 1,500 m by 700 m soil grid at 25 m line and station spacing covering the copper anomaly and extending to the property boundary on the north side of the anomaly, the bottom of the Tak Creek drainage on the south side and approximately 200 m to the east and west of the edges of the current anomaly. This approximately 1,750 sample soil grid would provide a good definition of the size of the anomaly. The soil program should be combined with a detailed mapping and prospecting program to provide more detailed characterization of the size and nature of the stock. A ground magnetometer survey covering the anomaly is also recommended during this phase to provide improved resolution of the magnetic signature of the area.

Depending on results of Phase 1, the second phase of recommended work consists of a 5 line-km Induced Polarization (IP) geophysical survey with a 25-metre station spacing and a minimum of 10 n-spacings. IP Chargeability surveying is effective at identifying potential disseminated to semi-massive sulphide mineralization, which is present at the Minto mine site. While the orientation of the anomaly appears to be NW-SE it would be useful to run geophysical lines in both directions across the anomaly in order to understand the orientation of any chargeability anomalies and conductive features.

If these first two phases are successful in defining a sizeable anomaly a potential third phase of diamond drilling, potentially combined with reverse circulation drilling, could be conducted targeting any geophysical and geochemical anomalies identified from the earlier phases.

## 11.2 Sample budget for recommended follow-up program

### Phase One

Personnel, crew boss: 21 person-days @ \$600/day:	\$ 12,600
Personnel, 3 field technicians: 63 person-days @ \$450/day:	\$ 28,350
Soil samples: 1,750 samples @ \$33/sample:	\$ 57,750
Rock sampling: 25 samples @ \$39/sample:	\$ 975
Camp rental (all-in): 21 days @ \$130/day:	\$ 2,730
Expeditior support (all-in): 4 days @ \$1,100/day:	\$ 4,400
Helicopter support (Bell 407 or equivalent): 15 hours @ \$1,800/hr, incl. fuel:	\$ 27,000
Hotel lodging: 4 double rooms @ \$135/night:	\$ 540
Daily field expenses (including travel): 84 person-days @ \$100/day:	\$ 8,400
Job prep, camp and equipment:	\$ 975
Job prep, Digital data, maps, etc.: 18 hours @ \$85/hr:	\$ 1,530
Assessment report: 35 hours @ 100/hr:	\$ 3,500
	<hr/>
<b>Sub-total:</b>	<b>\$148,750</b>
5% contingency:	\$ 7,438
<b>Proposed Total:</b>	<b>\$156,188</b>

### Phase Two

Four-man crew 2D pole-dipole IP survey: 5 line-km @ \$2,200/line-km	\$ 11,000
Camp rental (all-in): 7 days @ \$130/day:	\$ 910
Expeditior support (all-in): 4 days @ \$1,100/day:	\$ 4,400
Helicopter support (Bell 407 or equivalent): 15 hours @ \$1,200/hr, incl. fuel:	\$ 27,000
Daily field expenses (including travel): 28 person-days @ \$100/day:	\$ 2,800
Job prep, camp and equipment:	\$ 975
Job prep, Digital data, maps, etc.: 18 hours @ \$85/hr:	\$ 1,530
Assessment report: 35 hours @ 100/hr:	\$ 3,500
	<hr/>
<b>Sub-total:</b>	<b>\$ 52,115</b>
5% contingency:	\$ 2,606
<b>Proposed Total:</b>	<b>\$ 54,721</b>

No budget estimate for Phase Three is provided as more information is needed to accurately estimate costs.



Respectfully submitted,  
AURORA GEOSCIENCES LTD.

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Nigel Bocking, G.I.T.  
Project Geologist

Reviewed by:  
Carl Schulze, P.Geo.  
Project Manager

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- Yukon Geology Survey, Energy Mines and Resources, 2017: Website at <http://www.geology.gov.yk.ca/>
- Yukon Mining Recorder, Energy, Mines and Resources, 2017: Website at <http://www.yukonminingrecorder.ca/>

**Appendix I: Statement of Qualifications**

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Statement of Qualifications

**STATEMENT OF QUALIFICATIONS**

I, Nigel Bocking, of Yellowknife, Northwest Territories do hereby certify that:

1. I am a graduate of Queen's University at Kingston, Ontario with a B.Sc. (Honours) in Geological Sciences obtained in 2016 and a Bachelor of Commerce (Honours) obtained in 2015.
2. I am a member-in-training of the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (#T366).
3. I led the 2017 field program on the Tak property.
4. I have no interest, directly or indirectly, nor do I hope to receive any interest, directly or indirectly, in Eureka Resources Inc., its securities, or any of its properties.

Dated this December 18, 2017 in Yellowknife, NT.

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Nigel Bocking, B.Sc., B.Comm., G.I.T.

**Appendix II: 2017 Soil Geochemical Data**

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2017 Soil Geochemical Data

SampleID	DateCreated	Latitude	Longitude	Northing_NAD83	Eastng_NAD83	Description	SampleDepth	HorizonSampled	Depth/Horizon	SampleColour	Organic_pct	Gravel_pct	Sand_pct	Silt_pct	Clay_pct	Angulo_rock_pct	ParentMaterial	MoistureContent	VegetationCover	TopsoilPosition	SampleName	SampleType	JobCode	PropertyName	UTMZone	QA/QC	Date/Time	Au_PPM	Pb_PPM	Pd_PPM	Co_PPM	Cu_PPM	Zn_PPM	Ag_PPM	NI_PPM	Co_PPM	Mn_PPM	As_PPM	Th_PPM	Pb_PPM	Cd_PPM	Sr_PPM	Bi_PPM	VPM_PPM	Ca_PPM	P_PPM	Cl_PPM	PMMA_PPM	Ba_PPM	Ti_PPM	K_PPM	Na_PPM	W_PPM	S_PPM	Hg_PPM	Tl_PPM	Ga_PPM	Sc_PPM						
1891522	09/02/17	62.58670100	-138.9246692	6980235.733	-138.9246692	030385.1506	20-30	C	5-10	Light Brown	0	5	5	70	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:22	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	23	10	334	3	10	5	23	-0.5	-3	-3	65.03	0.02	14	40	0.56	183.1006	2.24	0.02	0.16	-0.2	-0.05	-1	-5	-5	-5	7				
1891523	09/02/17	62.5867293	-138.9236615	6980238.816	-138.9236615	030385.1506	20-30	C	5-10	Light Brown	0	5	5	70	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:23	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	23	10	334	3	10	5	23	-0.5	-3	-3	65.03	0.02	14	40	0.56	183.1006	2.24	0.02	0.16	-0.2	-0.05	-1	-5	-5	-5	7				
1891524	09/02/17	62.5867365	-138.9236615	6980239.411	-138.9236615	030385.1506	20-30	C	5-10	Light Brown	0	5	5	70	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:24	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	23	10	334	3	10	5	23	-0.5	-3	-3	65.03	0.02	14	40	0.56	183.1006	2.24	0.02	0.16	-0.2	-0.05	-1	-5	-5	-5	7				
1891525	09/02/17	62.5867613	-138.9238728	6980270.948	-138.9238728	030457.764	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:25	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	22	11	469	31	9	5	27	-0.5	-3	-3	66.049	0.031	12	40	0.59	306.0081	1.84	0.01	0.22	-0.2	-0.05	-1	-5	-5	-5	7				
1891526	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:26	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891527	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:27	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891528	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:28	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891529	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:29	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891530	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:30	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891531	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:31	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891532	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:32	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891533	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:33	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891534	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:34	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891535	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:35	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891536	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:36	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891537	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:37	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891538	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:38	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891539	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:39	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1	-5	-5	-5	-5
1891540	09/02/17	62.5937895	-138.9210493	6980301.569	-138.9210493	030516.605	20-30	C	5-10	Light Brown	0	5	5	80	10	10	Weathered Bedrock	Dry	Deciduous Forest	Mid Slope	Heiko Mueller	Soil	EUK-17029-YT TAK	7N		09/02/17 09:55:40	2+3	3+1	3+1	3+1	4+1	2+4	6+3	2+3	18	6	49	-0.3	25	13	37	2.08	7	3	23	-0.5	-3	-3	75.031	0.023	6	45	1.03	25.1233	1.97	0.01	0.26	-0.2	-0.05	-1				



1891872	09/03/17	62.92878599	-138.9039408	6979388.221	606415.3566	30-40	B/C	10-15	Light Brown	5	0	45	35	5	10	Weatheread Bedrock	Dry	Deciduous Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891872	-2	-3	-3	4	<1	23	9	77	-0.3	20	11	727	3.47	7	2	21	-0.5	-3	-3	76	0.27	0.041	8	41	0.69	306	0.074	<20	2.36	-0.01	0.08	<2	-0.05	-1	<5	8	<5	
1891873	09/03/17	62.9289142	-138.9048829	6979407.877	606362.04	20-30	B/C	10-15	Light Brown	5	0	45	35	5	10	Weatheread Bedrock	Dry	Deciduous Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891873	-2	-3	-3	3	1	17	9	62	-0.3	17	8	304	3.02	7	>2	12	-0.5	-3	-3	69	0.14	0.026	7	36	0.43	289	0.05	<20	2.16	-0.01	0.07	<2	-0.05	-1	<5	7	>5	
1891874	09/03/17	62.92895399	-138.9048724	6979403.838	600316.7507	40-50	C	25-30	Light Brown	0	0	45	40	5	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891874	3	-3	-3	3	>1	17	10	45	-0.3	19	9	251	3.05	9	2	17	-0.5	-3	-3	69	0.18	0.018	8	36	0.57	234	0.078	<20	2.23	-0.01	0.04	<2	-0.05	-1	<5	6	>5	
1891875	09/03/17	62.92891631	-138.9039861	6979379.915	606255.5268	50-60	C	20-25	Light Brown	0	0	40	40	10	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891875	-2	-3	-3	6	<1	14	9	45	-0.3	17	9	307	3.05	8	7	21	-0.5	-3	-3	78	0.2	0.027	10	34	0.55	289	0.025	<20	2.05	-0.01	0.02	<2	-0.05	-1	<5	7	>5	
1891876	09/03/17	62.92891631	-138.9037866	6979396.355	600215.1599	60-70	C	30-49	Light Brown	5	0	40	40	5	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891876	2	-3	-3	>1	>1	19	10	49	-0.3	17	9	343	3.08	8	2	17	-0.5	-3	-3	71	0.19	0.03	7	28	0.57	228	0.085	<20	2.06	-0.01	0.05	<2	-0.05	-1	<5	6	>5	
1891877	09/03/17	62.928775	-138.9008078	6979378.001	606163.3318	20-30	B/C	20-25	Light Brown	5	0	40	40	5	10	Weatheread Bedrock	Dry	Deciduous Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891877	3	-3	-3	5	>1	13	10	60	-0.3	17	10	711	2.97	6	2	13	-0.5	-3	-3	69	0.16	0.022	8	28	0.44	276	0.057	<20	1.9	-0.01	0.04	<2	-0.05	-1	<5	6	>5	
1891878	09/03/17	62.92867434	-138.9009263	6979366	606112	20-30	B	20-25	Light Grey	10	0	30	40	15	5	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891878	3	3	5	1	9	10	44	-0.3	9	5	369	2.94	5	>2	11	-0.5	-3	-3	55	0.08	0.034	9	19	0.27	244	0.052	<20	1.22	-0.01	0.04	<2	-0.05	-1	<5	6	>5		
1891879	09/03/17	62.9286131	-138.9107252	6979346.718	606092.4111	30-40	B/C	10-15	Light Brown	0	0	35	45	10	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891879	3	-3	-3	3	1	10	11	63	-0.3	10	5	297	2.96	5	>2	9	-0.5	-3	-3	61	0.22	0.016	11	30	0.32	246	0.08	<20	1.77	-0.01	0.06	<2	-0.05	-1	<5	6	>5	
1891880	09/03/17	62.92822403	-138.9112198	6979313.714	600407.9781	50-60	C	25-30	Light Brown	0	0	40	40	10	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891880	2	-3	-3	2	>1	18	10	53	-0.3	22	10	446	3.49	8	3	15	-0.5	-3	-3	70	0.2	0.024	9	36	0.72	242	0.084	<20	2.26	-0.01	0.15	<2	-0.05	-1	<5	6	>5	
1891881	09/03/17	62.92822403	-138.9112198	6979313.714	600407.9781	1891880	50-60	C	25-30	Light Brown	0	0	40	40	10	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891881	4	-3	-2	>1	>1	19	10	52	-0.3	23	10	452	3.5	9	3	16	-0.5	-3	-3	70	0.21	0.025	9	37	0.72	244	0.084	<20	2.26	-0.01	0.15	<2	-0.05	-1	<5	6	>5
1891882	09/03/17	62.92788121	-138.9107252	6979324.227	600600.3145	40-50	C	25-30	Light Brown	0	0	35	45	10	10	Weatheread Bedrock	Dry	Evergreen Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891882	3	-3	-2	>1	>1	19	9	48	-0.3	21	7	273	2.75	6	4	25	-0.5	-3	-3	61	0.22	0.016	11	30	0.32	246	0.08	<20	1.77	-0.01	0.06	<2	-0.05	-1	<5	6	>5	
1891883	09/03/17	62.92761004	-138.9121121	6979243.848	600004.4522	30-40	C	25-30	Light Brown	0	0	40	40	10	10	Weatheread Bedrock	Dry	Deciduous Forest	Ridge Top	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891883	3	-3	-3	>1	>1	13	9	45	-0.3	24	12	306	3.32	3	>2	17	-0.5	-3	-3	86	0.35	0.016	6	55	0.99	171	0.107	<20	2.11	0.01	0.04	<2	-0.05	-1	<5	8	6	
1891884	09/03/17	62.92721939	-138.9114254	6979201.486	600414.1728	30-40	C	20-25	Light Brown	0	5	45	30	5	15	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891884	3	-3	-2	>1	>1	20	15	54	-0.3	22	11	495	3.15	6	3	28	-0.5	-3	-3	73	0.49	0.022	17	47	0.74	221	0.094	<20	2.09	0.01	0.11	<2	-0.05	-1	<5	5	8	
1891885	09/03/17	62.92697044	-138.9106249	6979175.748	600282.8839	30-40	C	15-20	Light Brown	5	5	40	35	5	10	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891885	3	-3	-2	>1	>1	16	7	61	-0.3	21	12	423	3.99	7	4	26	-0.5	-3	-3	78	0.42	0.023	13	55	0.74	299	0.084	<20	2.1	0.01	0.08	<2	-0.05	-1	<5	7	7	
1891886	09/03/17	62.92688329	-138.9009645	6979162.47	600136.9035	20-30	C	15-20	Light Brown	0	0	35	40	15	10	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891886	3	-3	-3	3	1	15	4	50	-0.3	19	9	446	2.77	7	3	27	-0.5	-3	-3	84	0.4	0.022	14	55	0.4	299	0.084	<20	1.77	0.01	0.07	<2	-0.05	-1	<5	6	>5	
1891887	09/03/17	62.92658405	-138.9008876	6979135.012	600175.3363	30-40	C	20-25	Light Brown	0	5	35	40	10	10	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891887	5	-3	-2	>1	>1	2	34	10	-0.3	20	13	394	3.74	7	4	25	-0.5	-3	-3	83	0.4	0.024	14	37	0.79	241	0.082	<20	2.3	0.001	0.07	<2	-0.05	-1	<5	7	7	
1891888	09/03/17	62.92646687	-138.9009096	6979123.211	600217.2837	>80	B/C	30-40	Dark Brown	10	5	40	30	10	10	Weatheread Bedrock	Moist	Evergreen Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891888	5	-3	3	2	36	10	85	-0.3	23	13	504	3.27	6	4	37	-0.5	-3	-3	68	0.94	0.035	16	40	0.95	311	0.084	<20	1.92	0.001	0.08	<2	-0.05	-1	<5	7	6		
1891889	09/03/17	62.92624808	-138.9012962	6979093.27	600262.9962	>80	B	30-40	Dark Brown	0	0	20	45	10	10	Weatheread Bedrock	Dry	Evergreen Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891889	4	-3	-2	>1	>1	29	7	51	-0.3	18	10	449	2.4	7	>2	48	-0.5	-3	-3	54	1.21	0.06	12	38	0.6	297	0.144	<20	1.44	0.02	0.06	<2	-0.05	-1	<5	6	>5	
1891890	09/03/17	62.92574537	-138.9008855	6979044.611	600276.9639	40-50	C	20-25	Light Brown	0	5	40	30	15	10	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891890	4	-3	-2	>1	>1	37	3	51	-0.3	19	12	291	2.95	6	2	33	-0.5	-3	-3	76	0.54	0.075	10	28	0.67	311	0.084	<20	1.92	0.001	0.09	<2	-0.05	-1	<5	6	>5	
1891891	09/03/17	62.92532723	-138.9002332	6978999.338	600213.0948	30-40	C	20-25	Light Brown	0	5	40	35	10	10	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891891	2	-3	-3	>1	>1	34	3	50	-0.3	16	20	285	4.18	5	>2	27	-0.5	-3	-3	139	0.66	0.06	4	22	1.38	170	0.204	<20	2.46	0.09	0.26	<2	-0.05	-1	<5	5	8	
1891892	09/03/17	62.92512528	-138.9004265	6978978.625	600353.1514	20-30	B/C	10-15	Light Brown	0	0	45	40	5	10	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891892	3	-3	-2	>1	>1	19	9	87	-0.3	18	20	770	3.87	5	>2	42	-0.5	-3	-3	98	0.44	0.059	5	33	1.3	302	0.126	<20	2.53	0.01	0.07	<2	-0.05	-1	<5	7	>5	
1891893	09/03/17	62.92493818	-138.9035813	6978958.719	600396.7476	10-20	B/C	5-10	Light Brown	5	0	45	25	5	20	Weatheread Bedrock	Dry	Deciduous Forest	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891893	2	-3	-2	>1	>1	44	29	126	-0.3	18	21	734	3.99	3	>2	82	-0.5	-3	-3	94	0.75	0.083	5	33	1.44	225	0.155	<20	2.77	0.02	0.15	<2	-0.05	-1	<5	6	6	
1891894	09/03/17	62.92466308	-138.9017108	6978929.523	600442.6639	20-30	C	10-15	Light Brown	5	0	50	30	10	10	Weatheread Bedrock	Dry	Alpine	Mid Slope	Nigel Backing	Soil	EUK-17029-VT TAK	7N	09/03/17	1891894	3	-3	-2	>1	>1	28	38	115	-0.3	22	16	669	3.4	6	2	47	-0.5	-3	-3	79	0.53	0.041	7	35	1.19	316	0.228	<20	2.39	0.01	0.11	<2	-0.05	-1	&lt			



**Appendix III: 2017 Stream Silt Geochemical Data**

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2017 Stream Silt Geochemical Data

SampleID	DateCreated	Latitude	Longitude	Northing_NAD83	Easting_NAD83	Description	SiteNo	Physiography	SurfaceExpression	DrainagePattern	SiteDrainage	StreamSource	StreamClass
1891501	08/31/17	62.92737932	-138.9304505	6979188.082	605074.9041		ts002	Hilly	Inclined	Dendritic	Mod	Ground	Tertiary
1891502	08/31/17	62.93125512	-138.925567	6979627.728	605308.8664		ts004	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891503	08/31/17	62.93166853	-138.9248072	6979675.015	605345.9425		ts020	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891504	08/31/17	62.93263512	-138.9226478	6979786.205	605452.0565		ts021	Hilly	Hummocky	Dendritic	Mod	Ground	Tertiary
1891505	08/31/17	62.93992525	-138.9129868	6980614	605916		ts052	Mountainous	Inclined	Dendritic	Poor	Ground	Primary
1891506	08/31/17	62.94448818	-138.90782	6981130.703	606161.6139		ts055	Mountainous	Inclined	Dendritic	Poor	Ground	Primary
1891507	08/31/17	62.94451718	-138.8805044	6981179.309	607547.1924		ts122	Hilly	Inclined	Dendritic	Mod	Ground	Secondary
1891508	09/01/17	62.9459698	-138.8766825	6981347.485	607735.7276		ts131	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891509	09/01/17	62.94738718	-138.8729969	6981511.519	607917.462		ts132	Hilly	Inclined	Dendritic	Poor	Ground	Primary
1891510	09/01/17	62.94818131	-138.8664657	6981610.937	608245.8065		ts133	Hilly	Inclined	Dendritic	Poor	Ground	Primary
1891511	09/01/17	62.9486888	-138.8665083	6981667.385	608241.7731		ts134	Hilly	Inclined	Dendritic	Poor	Ground	Primary
1891512	09/01/17	62.94882513	-138.8645103	6981685.932	608342.6079		ts134-1	Hilly	Inclined	Dendritic	Poor	Ground	Primary
1891513	09/01/17	62.9480981	-138.8639401	6981605.922	608374.2209		ts134-2	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891514	09/01/17	62.94181761	-138.8571719	6980917.882	608740.8196		ts115	Hilly	Hummocky	Dendritic	Mod	Ground	Primary
1891515	09/01/17	62.94188283	-138.8616008	6980917.666	608515.8899		ts114	Hilly	Inclined	Dendritic	Poor	Ground	Primary
1891516	09/01/17	62.94092091	-138.8658058	6980803.449	608306.1175		ts113	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891517	09/01/17	62.94075892	-138.871444	6980775.928	608020.6632		ts112	Hilly	Hummocky	Dendritic	Mod	Ground	Primary
1891518	09/01/17	62.9410728	-138.8758767	6980803.449	607794.6179		ts111	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891519	09/01/17	62.94126733	-138.8810321	6980816.486	607532.348		ts110	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891520	09/01/17	62.94026264	-138.8834181	6980700.606	607414.9782		ts103	Hilly	Level	Dendritic	Mod	Ground	Secondary
1891521	09/01/17	62.94026444	-138.8832316	6980701.117	607424.4326		1891520 ts102	Hilly	Level	Dendritic	Mod	Ground	Secondary
1891701	08/31/17	62.92577936	-138.9331614	6979005.464	604943.0315		ts001	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891702	08/31/17	62.9294773	-138.9281279	6979425.537	605185.2723		ts003	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891703	08/31/17	62.93374191	-138.9184152	6979916.416	605662.8682		ts041	Hilly	Inclined	Dendritic	Mod	Ground	Tertiary
1891704	08/31/17	62.93495986	-138.9142839	6980058.855	605868.1256		ts042	Hilly	Inclined	Dendritic	Mod	Ground	Tertiary
1891705	08/31/17	62.93506429	-138.9131427	6980072.364	605925.6548		ts043	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891706	08/31/17	62.93522984	-138.911245	6980093.928	606021.3573		ts060	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891707	08/31/17	62.93552832	-138.9081044	6980132.351	606179.6471	springs feeding creeks	ts061	Hilly	Inclined	Dendritic	Mod	Ground	Tertiary
1891708	08/31/17	62.93568799	-138.9041816	6980156.614	606378.1286	no surface water	ts062	Hilly	Inclined	Dendritic	N/A	Ground	Tertiary
1891709	08/31/17	62.93535454	-138.898716	6980128.528	606656.6875		ts063	Hilly	Inclined	Dendritic	Mod	Ground	Tertiary
1891710	08/31/17	62.9355741	-138.8940948	6980160.65	606890.3879		ts064	Hilly	Inclined	Dendritic	Well	Ground	Tertiary
1891711	09/01/17	62.93529866	-138.8931159	6980131.601	606941.0651		ts070	Hilly	Inclined	Dendritic	Well	Ground	Secondary
1891712	09/01/17	62.93433319	-138.8914164	6980026.901	607030.8277		ts071	Hilly	Inclined	Dendritic	Mod	Ground	Secondary
1891714	09/01/17	62.93324471	-138.8899023	6979908.195	607111.6405		ts072	Hilly	Inclined	Dendritic	Well	Ground	Secondary
1891715	09/01/17	62.93303396	-138.8887665	6979886.616	607170.0509		ts080	Hilly	Inclined	Dendritic	N/A	Ground	Primary
1891716	09/01/17	62.93207079	-138.8858418	6979784.221	607322.0023		ts081	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891717	09/01/17	62.93063891	-138.8836604	6979628.392	607437.9539		ts082	Hilly	Inclined	Dendritic	N/A	Ground	Primary
1891719	09/01/17	62.93036694	-138.8887265	6979589.651	607181.835	dry spring creek	ts092	Hilly	Inclined	Dendritic	N/A	Ground	Primary
1891720	09/01/17	62.93179837	-138.8887256	6979749.074	607176.6463		ts091	Hilly	Hummocky	Dendritic	Poor	Ground	Primary
1891721	09/01/17	62.93303622	-138.8894253	6979885.77	607136.6131		ts090	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891722	09/01/17	62.9330132	-138.8894102	6979883.231	607137.4596		1891721 ts090	Hilly	Inclined	Dendritic	Mod	Ground	Primary
1891724	09/01/17	62.93595048	-138.8932609	6980203.954	606931.33		ts100	Hilly	Inclined	Dendritic	Well	Ground	Secondary
1891725	09/01/17	62.93737122	-138.8905896	6980366.628	607061.6912		ts101	Hilly	Inclined	Dendritic	Well	Ground	Secondary
1891726	09/01/17	62.93886968	-138.8875118	6980538.64	607212.3773		ts102	Hilly	Inclined	Dendritic	Mod	Ground	Secondary

StreamType	StreamFlow	WaterColour	WaterClarity	Vegetation	BankTypes	Contamination	SedimentColour	Sand_pct	SiltClay_pct	Organics_pct	SiteRating	BedrockExposure	SampleType	SamplerName
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Grey	40	55	5	Mod	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	81-90	Willows	Colluvium	none	Brown Grey	35	55	10	Good	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Dark Grey	10	70	20	Good	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	81-90	Willows	Colluvium	none	Light Brown	50	30	20	Mod	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	81-90	Willows	Colluvium	none	Brown Grey	30	30	40	Mod to Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Brown Grey	30	30	40	Mod to Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	81-90	Willows	Colluvium	none	Brown Grey	60	20	20	Mod	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	Colluvium	none	Brown Grey	50	50	20	Mod	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	Colluvium	none	Dark Brown	50	50	20	Mod to Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	51-60	Willows	Colluvium	none	Dark Brown	20	80	40	Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	Colluvium	none	Brown Grey	10	90	20	Poor	None	StreamSed	Heiko Mueller
Intermittent	N/A	N/A	N/A	Willows	Colluvium	none	Dark Brown	30	70	40	N/A	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Dark Grey	10	90	40	Mod to Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Brown	30	70	20	Mod	None	StreamSed	Heiko Mueller
Permanent	Slow	Clear	61-70	Willows	Colluvium	none	Brown	30	70	30	Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	Colluvium	none	Brown Grey	30	70	30	Mod to Poor	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Brown Grey	50	50	30	N/A	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	71-80	Willows	Colluvium	none	Brown Grey	30	70	20	Mod	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	Colluvium	none	Dark Grey	20	80	20	Mod	None	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	BareRock	none	Dark Brown	50	50	10	Good to Mod	MetaSeds	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	61-70	Willows	BareRock	none	Dark Brown	50	50	10	Good to Mod	MetaSeds	StreamSed	Heiko Mueller
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	65	30	5	Mod	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Dark Brown	80	20	0	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Slow	Clear	91-100	Willows	Colluvium	none	Dark Brown	60	30	10	Mod	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	80	10	10	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	70	30	0	Good	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	80	20	0	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Organic	none	Brown Grey	50	40	10	Mod	None	StreamSed	Tyler Legg
Intermittent	N/A	N/A	N/A	Willows	Colluvium	none	Brown Grey	80	20	0	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Slow	Clear	91-100	Willows	Colluvium	none	Brown Grey	70	30	0	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	70	30	0	Good	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	70	30	0	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Slow	Clear	91-100	Willows	Organic	none	Brown Grey	80	20	0	Good	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Organic	none	Brown Grey	90	10	0	Good	None	StreamSed	Tyler Legg
Intermittent	N/A	N/A	N/A	Willows	Colluvium	none	Brown Grey	90	10	0	Good	None	StreamSed	Tyler Legg
Permanent	Slow	Slow	91-100	Willows	Colluvium	none	Brown Grey	70	30	0	Good	None	StreamSed	Tyler Legg
Intermittent	N/A	N/A	N/A	Sphagnum	Colluvium	none	Brown Grey	50	40	10	Good to Mod	None	StreamSed	Tyler Legg
Re-emergent	N/A	N/A	N/A	Grass	Organic	none	Brown Grey	50	40	10	Good to Mod	None	StreamSed	Tyler Legg
Re-emergent	Slow	Clear	91-100	Willows	Colluvium	none	Grey	70	30	0	Good to Mod	None	StreamSed	Tyler Legg
Re-emergent	Slow	Clear	91-100	Coniferous	Colluvium	none	Brown Grey	70	30	0	Good	None	StreamSed	Tyler Legg
Re-emergent	Slow	Clear	91-100	Coniferous	Colluvium	none	Brown Grey	70	30	0	Good	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	80	20	0	Good	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Organic	none	Brown Grey	50	40	0	Good to Mod	None	StreamSed	Tyler Legg
Permanent	Moderate	Clear	91-100	Willows	Colluvium	none	Brown Grey	80	20	10	Good to Mod	None	StreamSed	Tyler Legg

JobCode	PropertyName	UTMZone	QAQC	DateNoTime	Au PPB	Pt PPB	Pd PPB	Mo PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM	Th PPM	Sr PPM	Cd PPM	Sb PPM
EUK-17029-YT	Tak	7N		08/31/17 1891501	2 <3	<2	<1		19	4	53 <0.3		11	9	321	2.18	3 <2		34 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891502	4 <3	<2	<1		28	5	65 <0.3		12	12	610	2.57	3 <2		39 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891503	4 <3	<2	<1		36	6	68 <0.3		16	12	527	2.51	3 <2		82 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891504	8 <3	<2	<1		28	4	66 <0.3		13	16	2218	3	4 <2		36 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891505	3 <3	<2	<1		26	5	54 <0.3		12	10	582	2.35 <2	<2		28 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891506	4 <3		2 <1		40 <3		61 <0.3		12	12	438	2.66 <2	<2		30 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891507	10 <3		3 <1		28	7	74 <0.3		13	19	578	2.67	5 <2		26 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891508	11 <3	<2	<1		32	8	58 <0.3		13	12	475	2.39	5 <2		34 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891509 <2	<3	<2	<1		18	6	50 <0.3		12	17	544	2.5	6 <2		27 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891510	4 <3	<2	<1		31	8	71 <0.3		17	16	876	2.72	6 <2		38 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891511	3 <3	<2	<1		28	9	54 <0.3		16	12	514	2.78	2 <2		95 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891512	3 <3	<2	<1		11	10	39 <0.3		13	9	377	1.87	3 <2		33 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891513	3 <3	<2	<1		12	5	38 <0.3		14	8	254	2	5 <2		25 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891514	4 <3	<2	<1		16	3	54 <0.3		10	7	179	2	3 <2		16 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891515	6 <3		2 <1		36	8	64 <0.3		14	18	686	2.85	4 <2		25 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891516	2 <3	<2	<1		25	5	48 <0.3		9	10	375	2.2	3 <2		15 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891517	3 <3	<2	<1		24	4	51 <0.3		9	11	381	2.23	3 <2		18 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891518	3 <3	<2	<1		22	5	54 <0.3		9	10	363	2.22	3 <2		21 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891519 <2	<3		2 <1		21 <3		55 <0.3		10	8	275	2.12	4 <2		21 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891520	3 <3	<2	<1		37	5	90 <0.3		14	18	1600	3.03	5 <2		31 <0.5	<3	
EUK-17029-YT	Tak	7N	FieldDuplicate	09/01/17 1891521	3 <3		2 <1		33	5	83 <0.3		13	15	1303	2.71	4 <2		27 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891701	3 <3		2 <1		22	6	56 <0.3		14	10	333	2.36	3 <2		36 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891702	5 <3		6 <1		27	6	68 <0.3		14	11	490	2.57	3 <2		43 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891703	3 <3	<2	<1		34	7	65 <0.3		15	11	461	2.49	4 <2		47 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891704	19 <3		3 <1		30 <3		79 <0.3		15	16	2198	2.76	5 <2		69 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891705	2 <3	<2	<1		28	4	77 <0.3		14	14	1271	2.9	4 <2		51 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891706	55 <3	<2	<1		20	4	57 <0.3		10	10	810	2.27	4 <2		40 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891707 <2	<3	<2	<1		24	4	60 <0.3		16	10	644	2.31	4 <2		80 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891708	5 <3		3 <1		41	6	92 <0.3		15	18	1489	3.15	4 <2		43 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891709	34 <3	<2	<1		31	4	81 <0.3		14	13	885	2.65	5 <2		34 <0.5	<3	
EUK-17029-YT	Tak	7N		08/31/17 1891710	5 <3		3 <1		31	7	76 <0.3		14	12	939	2.53	5 <2		34 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891711	11	5	7 <1		20	8	61 <0.3		14	11	429	2.49	4 <2		32 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891712	3 <3	<2	<1		26 <3		66 <0.3		14	15	659	2.63	3 <2		34 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891714	4	4 <2		1	26	12	68 <0.3		12	19	730	2.7	3 <2		32 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891715	7 <3	<2	<1		30	3	76 <0.3		14	15	619	2.53	3 <2		32 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891716	3 <3	<2	<1		26	4	82 <0.3		13	15	566	2.48	4 <2		29 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891717	5 <3	<2	<1		9 <3		28 <0.3		7	3	83	1.28 <2	<2		19 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891719	8 <3	<2	<1		5 <3		21 <0.3		4	2	84	0.95 <2	<2		15 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891720	3 <3	<2	<1		9	8	43 <0.3		7	4	176	1.68 <2	<2		17 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891721	4 <3	<2	<1		15	6	58 <0.3		10	7	240	2.23	3 <2		20 <0.5	<3	
EUK-17029-YT	Tak	7N	FieldDuplicate	09/01/17 1891722	3 <3	<2	<1		25	6	67 <0.3		13	12	456	2.53	3 <2		26 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891724	6 <3		4 <1		43	7	84 <0.3		16	18	2588	3.24	3 <2		45 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891725	3 <3	<2	<1		37	4	70 <0.3		15	13	852	2.65	3 <2		38 <0.5	<3	
EUK-17029-YT	Tak	7N		09/01/17 1891726	15	4 <2	<1		31 <3		74 <0.3		11	18	2129	2.64	4 <2		25 <0.5	<3	



Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Mg %	Ba PPM	Ti %	B PPM	Al %	Na %	K %	W PPM	S %	Hg PPM	Tl PPM	Ga PPM	Sc PPM	
	4	48	0.61	0.088	9	18	0.59	107	0.07	<20	1.07	0.02	0.1	<2	<0.05	<1	<5	<5	<5
	3	56	0.57	0.074	7	18	0.72	161	0.075	<20	1.21	0.02	0.13	<2	0.07	<1	<5	<5	<5
<3		58	1.24	0.059	9	24	0.82	214	0.079	<20	1.45	0.02	0.13	<2	0.1	<1	<5	<5	<5
<3		61	0.58	0.094	7	18	0.7	178	0.068	<20	1.13	0.03	0.12	<2	0.07	<1	<5	<5	<5
	6	56	0.61	0.07	8	18	0.71	178	0.084	<20	1.27	0.02	0.19	<2	<0.05	<1	<5	<5	<5
	5	74	0.74	0.078	9	21	0.98	419	0.113	<20	1.74	0.02	0.31	<2	<0.05	<1	<5	5	7
<3		60	0.54	0.072	8	20	0.65	125	0.077	<20	1.25	0.02	0.11	<2	<0.05	<1	<5	<5	<5
<3		57	0.69	0.061	10	21	0.65	124	0.075	<20	1.37	0.02	0.09	<2	<0.05	<1	<5	<5	<5
<3		56	0.53	0.051	8	23	0.62	99	0.075	<20	1.3	0.02	0.09	<2	<0.05	<1	<5	<5	<5
	4	61	0.7	0.06	12	30	0.77	297	0.069	<20	1.64	0.01	0.09	<2	0.06	<1	<5	<5	<5
<3		59	0.88	0.052	15	32	0.8	268	0.085	<20	1.72	0.01	0.13	<2	0.06	<1	<5	5	<5
<3		42	0.53	0.051	9	26	0.54	167	0.064	<20	1.22	0.01	0.05	<2	<0.05	<1	<5	<5	<5
<3		44	0.46	0.045	8	25	0.55	170	0.057	<20	1.25	0.01	0.04	<2	<0.05	<1	<5	<5	<5
<3		51	0.24	0.032	6	20	0.85	174	0.11	<20	1.55	0.01	0.19	<2	<0.05	<1	<5	5	<5
<3		79	0.4	0.052	10	24	0.76	240	0.097	<20	1.7	0.02	0.12	<2	<0.05	<1	<5	5	6
<3		61	0.41	0.052	7	15	0.54	125	0.083	<20	1.22	0.02	0.09	<2	<0.05	<1	<5	<5	<5
	4	57	0.42	0.051	6	13	0.51	136	0.073	<20	1.12	0.03	0.07	<2	<0.05	<1	<5	<5	<5
<3		59	0.41	0.055	7	14	0.56	159	0.081	<20	1.19	0.02	0.09	<2	<0.05	<1	<5	<5	<5
	5	55	0.39	0.049	7	16	0.61	165	0.085	<20	1.27	0.02	0.09	<2	<0.05	<1	<5	<5	<5
<3		73	0.62	0.067	10	21	0.85	242	0.104	<20	1.64	0.02	0.17	<2	0.07	<1	<5	6	5
<3		65	0.58	0.064	9	20	0.8	214	0.096	<20	1.53	0.02	0.16	<2	0.06	<1	<5	<5	<5
<3		54	0.67	0.099	8	21	0.69	133	0.08	<20	1.14	0.02	0.12	<2	<0.05	<1	<5	<5	<5
<3		57	0.66	0.069	8	21	0.79	176	0.086	<20	1.36	0.02	0.14	<2	0.05	<1	<5	<5	<5
<3		57	0.75	0.079	10	22	0.76	189	0.085	<20	1.35	0.02	0.14	<2	0.08	<1	<5	<5	<5
<3		60	0.88	0.068	10	23	0.79	231	0.087	<20	1.5	0.02	0.15	<2	0.09	<1	<5	<5	<5
<3		63	0.72	0.064	8	21	0.84	215	0.089	<20	1.46	0.02	0.15	<2	0.09	<1	<5	<5	<5
<3		51	0.59	0.077	7	17	0.61	143	0.073	<20	1.12	0.02	0.11	<2	0.06	<1	<5	<5	<5
<3		47	1.02	0.053	8	26	0.75	249	0.08	<20	1.25	0.02	0.14	<2	0.1	<1	<5	<5	<5
<3		69	0.8	0.072	10	20	0.85	245	0.083	<20	1.62	0.03	0.17	<2	0.15	<1	<5	<5	5
<3		61	0.63	0.062	8	20	0.83	195	0.092	<20	1.55	0.02	0.16	<2	0.08	<1	<5	<5	<5
<3		58	0.67	0.059	8	19	0.8	186	0.087	<20	1.47	0.02	0.15	<2	0.08	<1	<5	<5	<5
<3		58	0.54	0.069	9	23	0.72	191	0.085	<20	1.4	0.02	0.08	<2	<0.05	<1	<5	<5	<5
<3		61	0.57	0.06	10	21	0.79	246	0.08	<20	1.55	0.02	0.09	<2	0.06	<1	<5	<5	<5
<3		63	0.45	0.058	6	19	0.83	207	0.084	<20	1.42	0.03	0.15	<2	0.11	<1	<5	<5	<5
<3		60	0.62	0.055	6	21	0.85	204	0.081	<20	1.53	0.02	0.1	<2	0.07	<1	<5	<5	<5
<3		59	0.52	0.054	6	20	0.85	180	0.08	<20	1.55	0.02	0.08	<2	0.06	<1	<5	<5	<5
<3		25	0.17	0.034	6	14	0.31	81	0.051	<20	0.9	0.01	0.05	<2	0.06	<1	<5	<5	<5
<3		16	0.18	0.03	5	10	0.24	58	0.035	<20	0.65	0.01	0.04	<2	<0.05	<1	<5	<5	<5
<3		32	0.23	0.046	6	13	0.51	83	0.062	<20	1.05	0.01	0.06	<2	<0.05	<1	<5	<5	<5
<3		50	0.29	0.046	8	18	0.63	167	0.083	<20	1.34	0.01	0.09	<2	<0.05	<1	<5	<5	<5
<3		59	0.42	0.064	10	20	0.77	198	0.092	<20	1.55	0.01	0.16	<2	<0.05	<1	<5	<5	<5
<3		76	0.68	0.082	9	23	0.84	276	0.092	<20	1.54	0.04	0.22	<2	0.22	<1	<5	<5	6
<3		65	0.73	0.062	9	21	0.87	212	0.102	<20	1.65	0.02	0.19	<2	0.1	<1	<5	<5	6
<3		67	0.51	0.078	7	14	0.68	177	0.081	<20	1.18	0.03	0.15	<2	0.07	<1	<5	<5	<5

**Appendix IV: 2017 Rock Sample Geochemical Data**

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2017 Rock Sample Geochemical Data

Tag number	Easting	Northing	Date	Sampled Material	Sample Type	Width (m)
1891723	607139.5763	6979884.077	01-Sep-17		Grab	
1892472	607591	6980435	06-Sep-17	Float	Chip	10cm
1892473	606631.7765	6980928.268	07-Sep-17	Float	Grab	
1892474	606632.0824	6980921.139	07-Sep-17	Bedrock	Grab	
1909001	605013.0414	6978925.778	06-Sep-17	StreamBoulder	Grab	
1909002	606010.0677	6978644.162	06-Sep-17	StreamBoulder	Grab	
1909003	606972.5074	6980374.448	07-Sep-17	Boulder	Grab	
1909101	605848	6981396	01-Sep-17	outcrop	grab	
1909102	604715	6978635	02-Sep-17	boulder	grab	
1909103	604745	6978857	02-Sep-17	creek boulder	grab	
1909104	605429	6979431	03-Sep-17	boulder	grab	
1909105	604454	6978689	05-Sep-17	creek boulder	grab	
1909106	605732.0171	6978712.784	06-Sep-17	StreamBoulder	Grab	
1909107	605047.382	6979209.627	06-Sep-17	StreamBoulder	Grab	
1909108	605333.9318	6979653.901	06-Sep-17	StreamBoulder	Grab	
1909109	606637.5848	6980902.098	07-Sep-17	Bedrock	CompGrab	
1909110	606629.9661	6980921.139	07-Sep-17	Bedrock	Grab	
1909111	606627.8498	6980919.869	07-Sep-17	Bedrock	Grab	
1909151	604482.0421	6980163.12	05-Sep-17	Bedrock	Grab	
1909152	606891.0803	6980315.284	06-Sep-17	Bedrock	Chip	15cm
1909154	607707.7677	6980550.189	06-Sep-17	Bedrock	Chip	10cm
1909155	607930.1248	6979744.06	06-Sep-17	Bedrock	Chip	10cm
1909156	606934.9096	6980688.426	07-Sep-17	Bedrock	Chip	10cm
1909157	606962.2444	6980832.238	07-Sep-17	Bedrock	Chip	20cm
1909158	605970.7039	6981338.644	07-Sep-17	Bedrock	Chip	20cm

Description	Au PPB	Mo PPM	Cu PPM
at ts090 site, precipitated quartz boulder probably from a vien 20cmX40cm	<2	<1	2
chl-schist, v dense with qtz vns preset, vuggy	<2	<1	4
chl-qtz-schist, vuggy, folding-fold hinge, loose rock on large outcrop. overturned folding.	<2	<1	4
chl-qtz-schist on fold axis, abundant vugging & oxidation weathering	<2	<1	2
quartz , calcite veining in a green schist chlorite musco biotite	<2	<1	5
quartz banding w biotite chlorite and vuggy pores. and calcite	<2	<1	4
pigmatite with chloritic alteration and quartz. meta granite protolith	<2	<1	<1
grab sample of quartz vein with probable epidote alteration on surfaces	<2	<1	10
grab sample from dry drainage, coarse grained quartz vein (breccia?) with pervasive limonite alteration possible manganese staining and sulphide weathering holes	<2	<1	2
grab sample from creek boulder, quartz with very minor sulphides (py?) and mica	<2	<1	12
grab sample from boulder, vuggy quartz-vn with abundant Fe-oxide weatheing, possible v. minor galena, possible bleaching of surrounding host rock	<2	<1	18
fine-grained chlorite rich rock with some biotite (chlorite alteration overprinting everything else?) 10mm wide vuggy qtz - carb veins and thinner (2mm) quartz veins, thin clay coated fractures	<2	<1	1
qtz vns with associated epidote and chlorite alteration of surrounding schists, possible minor fe-oxide staining	<2	<1	3
qtz vein crosscut by secondary quartz veins with vugs and chlorite selvages possible biotite in vugs	<2	<1	4
qtz boulder, epidote alteration biotite on fracture surfaces minor fe-oxide staining	<2	<1	31
qtz vein with mm scale vugs fe oxides in vugs coarse chlorite as well. minor mn oxide staining proximal to coarse grained metagranite	<2	<1	2
qtz vn with mica, minor epidote very minor sulphides (py?)	<2	<1	1
folded qtz vein with coarse chlorite fine grained disseminated sphalerite (?)	<2	<1	5
outcrop ,banded qzvn at contact to qtzbt schist	<2	<1	43
qtz-bt-schist, chloride VN xcut foliation, vuggy	<2	<1	38
outcrop qzvn in qtzbt schist hematite with py core	<2	<1	47
outcrop?, qtzbt schist, Feoxides dissem.	<2	<1	15
qzvn from qtzbt schist outcrop ,limonite ,chloride at fracture planes, vuggs,	<2	<1	4
outcrop, altered qzvn remnant with limonite follows foliation in qtzsers schist,fol 130_60	<2	<1	24
qzvn 20cm wide xcutting fol. of qtzsers schist, spotty limonite	<2	<1	40



Pb PPM	Zn PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM	Th PPM	Sr PPM	Cd PPM	Sb PPM	Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Mg %	Ba PPM	Ti %	B PPM	Al %	Na %	K %	W PPM	S %	Hg PPM
<3		1 <0.3		1 <1		42 0.39	<2	<2	<1	<0.5	<3	<3		1 0.02	0.001	<1		6 0.03	12 0.002	<20	0.05	<0.01	0.02		5 <0.05	<1	
<3		7 <0.3		3	1	172 0.43	<2	<2		21 <0.5	<3	<3		5 0.51	0.036	2	3 0.18	46 0.047	<20	0.23	0.03	0.02	<2		<0.05	<1	
<3		8 <0.3		6	2	295 0.54	<2	<2		36 <0.5	<3	<3		8 0.72	0.061	2	4 0.12	93 0.056	<20	0.46	<0.01	0.04		3 <0.05	<1		
<3		3 <0.3		4 <1		823 0.31	<2	<2		169 <0.5	<3	<3		2 7.28	0.04	1	2 0.1	37 0.021	<20	0.17	<0.01	<0.01	<2		<0.05	<1	
<3		31 <0.3		1	4	473 2.32	<2		6	123 <0.5	<3	<3		7 0.53	0.023	14	4 0.49	5255 0.005	<20	0.83	0.09	0.08	<2		0.13	<1	
<3		25 <0.3		6	5	335 1.87	<2		3	12 <0.5	<3	<3		27 0.2	0.019	14	17 0.6	373 0.069	<20	0.67	0.04	0.03	<2		<0.05	<1	
	5 <1	<0.3	<1	<1		42 0.28	<2	<2		5 <0.5	<3	<3	<1	0.03	0.001	<1		3 <0.01	42 <0.001	<20	0.19	0.08	0.05	<2		<0.05	<1
<3		17 <0.3		1	4	95 0.91	<2	<2		43 <0.5	<3	<3		10 0.49	0.043	1	3 0.31	44 0.043	<20	0.46	0.09	0.02	<2		<0.05	<1	
	14	59 <0.3		5	8	1804 4.45	8 <2			258 <0.5	<3	<3		68 11.75	0.028	8	6 4.03	84 <0.001	<20	0.44	<0.01	0.04	<2		<0.05	<1	
<3		1 <0.3		1	1	58 0.52	<2	<2		6 <0.5	<3	<3		3 0.05	<0.001	<1		5 0.03	17 0.004	<20	0.06	<0.01	0.02	<2		<0.05	<1
	247	43	1.1	1	2	541 1.08	<2	<2		121 <0.5	<3		4	11 2.99	0.005	5	4 0.06	2308 <0.001	<20	0.17	0.07	0.03	<2		0.06	<1	
<3		4 <0.3		14	4	105 0.54	<2	<2		16 <0.5	<3	<3		18 0.68	0.022	<1		61 0.58	31 0.064	<20	0.33	0.06	0.05	<2		<0.05	<1
	7	43 <0.3		7	11	468 2.06	<2	<2		92 <0.5	<3	<3		46 1.15	0.061	2	17 0.94	144 0.136	<20	1.52	0.03	0.06	<2		<0.05	<1	
<3		4 <0.3		1 <1		193 0.51	<2	<2		20 <0.5	<3	<3		4 1.21	0.024	1	6 0.04	30 0.035	<20	0.16	0.02	0.01	<2		<0.05	<1	
<3		1 <0.3		3	4	59 0.58	<2	<2		6 <0.5	<3	<3		3 0.05	0.001	<1		8 0.04	11 0.004	<20	0.07	<0.01	<0.01	<2		<0.05	<1
<3		9 <0.3		4	2	253 0.8	<2	<2		38 <0.5	<3	<3		9 0.56	0.043	2	8 0.17	35 0.04	<20	0.47	<0.01	0.02	<2		<0.05	<1	
<3	<1	<0.3	<1	<1		44 0.27	<2	<2		13 <0.5	<3	<3	<1	0.08	<0.001	<1		4 0.02	55 0.001	<20	0.24	0.1	0.03	<2		<0.05	<1
<3		7 <0.3		3	1	84 0.56	<2	<2		16 <0.5	<3	<3		3 0.09	0.012	<1		3 0.14	238 0.008	<20	0.32	0.09	0.09	<2		<0.05	<1
<3		3 <0.3		3	5	69 0.59	<2	<2		31 <0.5	<3	<3		9 0.18	0.016	<1		5 0.13	59 0.038	<20	0.29	0.1	0.08	<2		<0.05	<1
<3		35 <0.3		8	11	511 2.71	<2	<2		70 <0.5	<3	<3		101 1.53	0.046	2	17 1.01	37 0.144	<20	1.78	0.22	0.15	<2		<0.05	<1	
<3		38 <0.3		8	14	449 2.68	<2	<2		9 <0.5	<3	<3		77 0.7	0.032	2	16 1.29	205 0.162	<20	1.65	0.16	0.47	<2		<0.05	<1	
<3		28 <0.3		6	10	299 2.73	<2	<2		20 <0.5	<3	<3		85 1.51	0.029	<1		17 1	23 0.077	<20	1.88	0.28	0.1	<2		<0.05	<1
<3		4 <0.3	<1		1	62 0.57	<2	<2		12 <0.5	<3	<3		9 0.19	0.015	<1		6 0.12	11 0.018	<20	0.25	0.03	0.05	<2		<0.05	<1
<3		11 <0.3		6	5	209 1.07	<2	<2		28 <0.5	<3	<3		9 0.55	0.044	2	5 0.22	243 0.062	<20	0.49	0.01	0.12	<2		<0.05	<1	
<3		15 <0.3		5	5	123 1.25	<2		2	23 <0.5	<3	<3		12 0.22	0.036	8	6 0.25	182 0.046	<20	0.57	0.09	0.16	<2		<0.05	<1	





**Appendix V: Assay Certificates**

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Assay Certificates



**BUREAU VERITAS** MINERAL LABORATORIES  
Canada

[www.bureauveritas.com/um](http://www.bureauveritas.com/um)

Bureau Veritas Commodities Canada Ltd.  
9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada  
PHONE (604) 253-3158

**Client:** **Aurora Geosciences Ltd. (Whitehorse)**  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

Submitted By: Carl Schulze  
Receiving Lab: Canada-Whitehorse  
Received: September 14, 2017  
Report Date: October 14, 2017  
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# CERTIFICATE OF ANALYSIS

WHI17000847.1

## CLIENT JOB INFORMATION

Project: EUK-17029-YT  
Shipment ID:  
P.O. Number: EUK-17029-YT  
Number of Samples: 320

## SAMPLE DISPOSAL

STOR-PLP Store After 90 days Invoice for Storage  
STOR-RJT-SOIL Store Soil Reject - RJSV Charges Apply

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

Invoice To: Aurora Geosciences Ltd. (Whitehorse)  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9  
Canada

CC: Nigel Bocking

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
DY060	320	Dry at 60C			WHI
SS80	320	Dry at 60C sieve 100g to -80 mesh			VAN
SVRJT	320	Save all or part of Soil Reject			WHI
FA330	320	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	320	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	320	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	320	Per sample shipping charges for branch shipments			VAN

## 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.



Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

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Project: EUK-17029-YT

Report Date: October 14, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000847.1

Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891522	Soil	2	<3	3	<1	44	4	62	<0.3	25	14	548	3.63	9	3	32	<0.5	<3	<3	78	0.54
1891523	Soil	<2	<3	2	<1	24	6	44	<0.3	23	10	334	3.00	10	5	23	<0.5	<3	<3	65	0.32
1891524	Soil	<2	<3	3	<1	36	5	67	<0.3	25	14	454	3.39	8	4	25	<0.5	<3	<3	82	0.49
1891525	Soil	<2	<3	<2	1	24	6	49	<0.3	22	11	469	3.11	9	5	27	<0.5	<3	<3	66	0.49
1891526	Soil	<2	<3	<2	<1	18	6	49	<0.3	25	13	327	3.08	7	3	23	<0.5	<3	<3	75	0.31
1891527	Soil	<2	<3	2	<1	52	4	79	<0.3	20	18	545	3.59	5	<2	25	<0.5	<3	<3	89	0.49
1891528	Soil	<2	<3	2	<1	34	6	58	<0.3	16	15	660	3.01	5	<2	32	<0.5	<3	<3	83	0.49
1891529	Soil	<2	<3	4	<1	26	7	154	<0.3	19	13	907	3.04	8	4	24	<0.5	<3	<3	65	0.36
1891530	Soil	<2	<3	<2	<1	25	4	95	<0.3	18	15	1148	3.65	6	3	30	<0.5	<3	<3	66	0.41
1891531	Soil	5	<3	3	1	46	11	79	<0.3	23	21	424	3.90	7	4	48	<0.5	<3	<3	80	0.52
1891532	Soil	<2	<3	<2	1	34	10	101	<0.3	21	15	426	3.87	10	3	25	<0.5	<3	<3	99	0.26
1891533	Soil	<2	<3	<2	<1	18	4	75	<0.3	11	9	663	3.08	6	3	22	<0.5	<3	<3	62	0.32
1891534	Soil	8	<3	3	<1	28	7	58	<0.3	17	12	421	3.25	7	4	30	<0.5	<3	<3	73	0.54
1891535	Soil	3	<3	<2	<1	30	9	54	<0.3	23	11	458	3.07	8	6	29	<0.5	<3	<3	64	0.42
1891536	Soil	5	<3	3	<1	64	8	82	0.5	24	11	457	3.53	6	3	59	0.6	<3	<3	69	1.10
1891537	Soil	<2	<3	<2	<1	16	6	54	<0.3	16	9	747	2.51	6	3	30	<0.5	<3	<3	48	0.41
1891538	Soil	3	<3	<2	<1	37	4	52	<0.3	15	11	527	2.39	4	2	43	<0.5	<3	<3	59	1.21
1891539	Soil	4	<3	<2	<1	40	7	70	<0.3	21	13	608	3.01	6	3	47	<0.5	<3	<3	71	0.93
1891540	Soil	3	<3	<2	<1	38	7	63	<0.3	19	12	446	2.93	7	2	42	<0.5	<3	<3	73	0.79
1891541	Soil	4	<3	2	<1	38	6	68	<0.3	20	13	523	3.08	6	3	44	<0.5	<3	<3	74	0.81
1891542	Soil	4	<3	8	<1	34	9	61	<0.3	18	12	393	2.89	6	3	41	<0.5	<3	<3	67	0.65
1891543	Soil	4	<3	2	<1	38	6	55	<0.3	23	11	433	2.78	8	4	40	<0.5	<3	<3	62	0.64
1891544	Soil	<2	<3	<2	<1	18	8	76	<0.3	22	14	581	3.17	6	3	24	<0.5	<3	<3	63	0.33
1891545	Soil	3	<3	<2	<1	11	6	45	<0.3	14	8	261	2.44	5	4	20	<0.5	<3	<3	47	0.21
1891546	Soil	<2	<3	<2	<1	20	6	114	<0.3	16	8	424	3.33	8	7	22	<0.5	<3	<3	48	0.27
1891547	Soil	<2	<3	<2	<1	17	7	56	<0.3	22	13	473	3.03	5	5	21	<0.5	<3	<3	61	0.27
1891548	Soil	5	<3	<2	<1	12	7	43	<0.3	17	9	358	2.52	5	4	22	<0.5	<3	<3	54	0.33
1891549	Soil	<2	<3	<2	1	24	10	66	<0.3	29	18	684	4.22	6	6	28	<0.5	<3	<3	86	0.57
1891550	Soil	<2	<3	<2	1	11	24	65	<0.3	11	7	410	2.84	4	5	19	<0.5	<3	<3	46	0.29
1891551	Soil	2	<3	<2	1	13	8	55	<0.3	16	10	559	3.18	7	3	25	<0.5	<3	<3	76	0.29





Bureau Veritas Commodities Canada Ltd.

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Whitehorse Yukon Y1A 5Y9 Canada

Project: EUK-17029-YT

Report Date: October 14, 2017

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Method Analyte	Unit	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	MDL	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
1891522	Soil	0.073	13	45	0.89	238	0.129	<20	2.24	0.02	0.16	<2	<0.05	<1	<5	<5	8
1891523	Soil	0.020	14	40	0.56	183	0.106	<20	1.78	0.01	0.20	<2	<0.05	<1	<5	<5	7
1891524	Soil	0.065	12	47	1.08	259	0.151	<20	2.30	0.01	0.27	<2	<0.05	<1	<5	<5	8
1891525	Soil	0.031	12	39	0.59	306	0.081	<20	1.84	0.01	0.22	<2	<0.05	<1	<5	<5	7
1891526	Soil	0.023	7	45	1.03	225	0.123	<20	1.97	<0.01	0.26	<2	<0.05	<1	<5	<5	<5
1891527	Soil	0.073	6	30	1.30	326	0.218	<20	2.25	0.02	0.71	<2	<0.05	<1	<5	<5	<5
1891528	Soil	0.029	5	33	0.90	283	0.109	<20	1.77	0.02	0.19	<2	<0.05	<1	<5	<5	<5
1891529	Soil	0.036	8	30	0.65	367	0.112	<20	1.75	0.01	0.27	<2	<0.05	<1	<5	<5	6
1891530	Soil	0.078	10	23	0.75	612	0.061	<20	1.85	<0.01	0.33	<2	<0.05	<1	<5	<5	6
1891531	Soil	0.047	14	45	1.01	289	0.103	<20	2.31	0.02	0.26	<2	0.10	<1	<5	<5	8
1891532	Soil	0.029	7	33	1.07	312	0.154	<20	2.32	0.01	0.31	<2	<0.05	<1	<5	<5	7
1891533	Soil	0.027	6	19	0.88	285	0.145	<20	1.70	0.01	0.58	<2	<0.05	<1	<5	<5	<5
1891534	Soil	0.042	10	32	0.81	347	0.107	<20	1.87	0.02	0.13	<2	<0.05	<1	<5	<5	5
1891535	Soil	0.021	24	38	0.66	467	0.090	<20	1.97	0.01	0.10	<2	<0.05	<1	<5	<5	8
1891536	Soil	0.069	43	32	0.80	775	0.078	<20	2.56	0.01	0.26	<2	0.08	<1	<5	6	12
1891537	Soil	0.021	7	24	0.41	474	0.057	<20	1.46	0.01	0.12	<2	<0.05	<1	<5	<5	<5
1891538	Soil	0.062	11	24	0.83	290	0.084	<20	1.42	0.02	0.18	<2	0.09	<1	<5	<5	<5
1891539	Soil	0.054	12	32	0.86	357	0.087	<20	1.81	0.02	0.09	<2	<0.05	<1	<5	<5	6
1891540	Soil	0.045	11	31	0.83	318	0.099	<20	1.80	0.02	0.11	<2	<0.05	<1	<5	<5	6
1891541	Soil	0.049	11	30	0.85	340	0.100	<20	1.84	0.02	0.10	<2	<0.05	<1	<5	<5	7
1891542	Soil	0.036	13	28	0.79	356	0.096	<20	1.76	0.02	0.11	<2	<0.05	<1	<5	<5	6
1891543	Soil	0.056	15	30	0.76	337	0.096	<20	1.60	0.03	0.10	<2	<0.05	<1	<5	<5	6
1891544	Soil	0.035	6	42	0.89	335	0.125	<20	1.86	0.01	0.33	<2	<0.05	<1	<5	<5	<5
1891545	Soil	0.012	9	23	0.46	273	0.092	<20	1.37	<0.01	0.20	<2	<0.05	<1	<5	<5	<5
1891546	Soil	0.021	10	27	0.52	245	0.130	<20	1.94	<0.01	0.40	<2	<0.05	<1	<5	<5	7
1891547	Soil	0.011	12	41	0.82	310	0.125	<20	1.74	<0.01	0.29	<2	<0.05	<1	<5	<5	<5
1891548	Soil	0.011	8	32	0.56	316	0.086	<20	1.41	0.01	0.15	<2	<0.05	<1	<5	<5	<5
1891549	Soil	0.020	10	63	1.35	387	0.082	<20	2.80	<0.01	0.20	<2	<0.05	<1	<5	7	8
1891550	Soil	0.017	12	21	0.47	398	0.032	<20	1.64	<0.01	0.13	<2	<0.05	<1	<5	5	<5
1891551	Soil	0.037	7	29	0.57	289	0.057	<20	2.12	<0.01	0.06	<2	<0.05	<1	<5	6	<5

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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WHI17000847.1

Method	Analyte	Unit	MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300			
				Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
				ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%		
				2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891552	Soil			<2	<3	<2	1	13	7	70	<0.3	16	11	507	3.04	6	3	18	<0.5	<3	<3	73	0.20
1891553	Soil			<2	<3	<2	1	13	8	69	<0.3	16	11	610	3.48	6	<2	21	<0.5	<3	<3	85	0.24
1891554	Soil			<2	<3	<2	1	20	7	53	<0.3	19	11	326	3.27	9	3	18	<0.5	<3	<3	76	0.18
1891555	Soil			<2	<3	<2	1	22	7	57	<0.3	17	10	341	2.96	8	4	20	<0.5	<3	<3	72	0.21
1891556	Soil			3	<3	3	1	56	8	51	<0.3	22	15	361	3.48	8	3	16	<0.5	<3	<3	91	0.21
1891557	Soil			3	<3	4	2	42	6	72	<0.3	22	10	274	4.26	6	3	20	<0.5	<3	<3	113	0.16
1891558	Soil			4	<3	<2	<1	18	6	60	<0.3	19	11	300	3.31	9	3	13	<0.5	<3	<3	82	0.17
1891559	Soil			3	<3	2	1	20	8	51	<0.3	22	11	271	3.20	11	5	19	<0.5	<3	<3	70	0.17
1891560	Soil			<2	<3	2	<1	16	5	86	<0.3	8	13	290	4.44	7	3	17	<0.5	<3	<3	97	0.22
1891561	Soil			<2	<3	<2	1	27	<3	114	<0.3	8	17	299	5.78	5	3	19	<0.5	<3	<3	111	0.22
1891562	Soil			3	<3	<2	1	32	7	91	<0.3	8	10	312	4.40	5	2	19	<0.5	<3	<3	79	0.18
1891563	Soil			3	<3	<2	2	105	16	72	<0.3	9	10	430	11.33	<2	<2	55	<0.5	<3	<3	112	0.26
1891564	Soil			2	<3	<2	<1	32	6	115	<0.3	10	15	713	4.43	3	2	16	<0.5	<3	3	67	0.40
1891565	Soil			<2	<3	<2	<1	49	7	321	<0.3	10	15	829	6.16	2	2	22	0.8	<3	<3	107	0.53
1891566	Soil			2	<3	<2	<1	18	8	92	<0.3	10	8	287	3.36	5	2	20	<0.5	<3	<3	74	0.22
1891567	Soil			3	<3	4	<1	27	5	65	<0.3	8	4	164	2.37	2	<2	28	<0.5	<3	<3	29	0.33
1891568	Soil			6	<3	3	<1	11	6	42	<0.3	7	4	126	1.84	3	<2	17	<0.5	<3	<3	34	0.21
1891569	Soil			7	<3	7	<1	10	5	25	<0.3	6	3	74	1.20	<2	<2	34	<0.5	<3	<3	16	0.68
1891570	Soil			4	<3	4	<1	9	7	31	<0.3	8	4	91	1.47	3	<2	21	<0.5	<3	<3	24	0.32
1891571	Soil			4	<3	<2	<1	16	7	61	<0.3	11	6	160	2.11	3	<2	26	<0.5	<3	<3	39	0.42
1891572	Soil			3	<3	<2	<1	29	7	82	<0.3	17	12	464	3.26	6	3	33	<0.5	<3	<3	75	0.45
1891573	Soil			3	<3	<2	<1	25	7	84	<0.3	14	10	329	2.96	4	2	23	<0.5	<3	<3	82	0.28
1891574	Soil			8	<3	5	<1	14	4	37	<0.3	9	4	96	2.23	5	<2	16	<0.5	<3	<3	46	0.17
1891575	Soil			3	<3	3	<1	19	7	65	<0.3	14	8	187	2.51	5	2	23	<0.5	<3	<3	65	0.26
1891576	Soil			3	<3	2	<1	33	3	67	<0.3	18	15	259	2.84	4	<2	30	<0.5	<3	<3	77	0.49
1891577	Soil			4	3	2	<1	18	6	46	<0.3	9	6	167	1.98	3	<2	23	<0.5	<3	<3	44	0.28
1891578	Soil			<2	<3	<2	<1	21	7	62	<0.3	12	9	236	2.67	4	<2	18	<0.5	<3	<3	71	0.27
1891579	Soil			5	<3	6	<1	35	4	49	<0.3	11	9	218	2.40	3	<2	28	<0.5	<3	<3	54	0.39
1891580	Soil			3	<3	2	<1	72	5	58	<0.3	14	15	361	2.93	4	<2	45	<0.5	<3	<3	82	0.60
1891581	Soil			4	<3	2	<1	72	4	52	<0.3	13	15	403	2.65	3	<2	46	<0.5	<3	<3	75	0.67



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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891552	Soil	0.039	8	32	0.53	226	0.055	<20	1.94	<0.01	0.19	<2	<0.05	<1	<5	6	<5
1891553	Soil	0.069	7	33	0.71	218	0.088	<20	2.14	0.01	0.06	<2	<0.05	<1	<5	6	<5
1891554	Soil	0.031	9	34	0.66	217	0.098	<20	2.12	<0.01	0.07	<2	<0.05	<1	<5	<5	<5
1891555	Soil	0.020	11	36	0.63	310	0.097	<20	2.01	<0.01	0.07	<2	<0.05	<1	<5	<5	<5
1891556	Soil	0.033	8	38	0.97	262	0.129	<20	2.79	0.01	0.11	<2	<0.05	<1	<5	<5	<5
1891557	Soil	0.039	13	80	1.08	319	0.099	<20	2.71	<0.01	0.12	<2	<0.05	<1	<5	6	10
1891558	Soil	0.051	8	29	0.91	189	0.136	<20	1.97	<0.01	0.14	<2	<0.05	<1	<5	<5	<5
1891559	Soil	0.025	11	40	0.55	286	0.077	<20	2.47	<0.01	0.07	<2	<0.05	<1	<5	<5	<5
1891560	Soil	0.062	6	15	1.93	327	0.209	<20	2.77	0.02	0.22	<2	0.11	<1	<5	9	8
1891561	Soil	0.073	7	14	2.70	560	0.259	<20	3.61	0.02	0.69	<2	0.21	<1	<5	10	11
1891562	Soil	0.055	7	18	1.40	317	0.141	<20	2.82	0.01	0.23	<2	0.09	<1	<5	9	9
1891563	Soil	0.162	6	12	2.70	594	0.087	<20	5.10	0.11	0.61	<2	0.71	<1	<5	13	21
1891564	Soil	0.157	9	18	1.55	207	0.120	<20	2.86	0.01	0.22	<2	<0.05	<1	<5	9	9
1891565	Soil	0.193	8	18	2.82	492	0.171	<20	4.09	0.01	0.81	<2	<0.05	<1	<5	14	16
1891566	Soil	0.073	8	21	1.01	213	0.134	<20	2.12	<0.01	0.19	<2	<0.05	<1	<5	7	5
1891567	Soil	0.063	8	17	0.69	281	0.046	<20	1.52	<0.01	0.15	<2	0.08	<1	<5	6	<5
1891568	Soil	0.056	6	18	0.53	114	0.053	<20	1.17	<0.01	0.05	<2	0.07	<1	<5	6	<5
1891569	Soil	0.081	7	12	0.29	290	0.028	<20	0.78	0.01	0.05	<2	0.14	<1	<5	<5	<5
1891570	Soil	0.055	7	20	0.36	173	0.044	<20	1.14	<0.01	0.04	<2	0.06	<1	<5	6	<5
1891571	Soil	0.060	7	21	0.59	207	0.065	<20	1.47	0.01	0.05	<2	0.08	<1	<5	<5	<5
1891572	Soil	0.057	15	28	0.85	362	0.094	<20	2.47	<0.01	0.09	<2	<0.05	<1	<5	<5	5
1891573	Soil	0.046	7	28	1.27	399	0.168	<20	2.27	0.01	0.39	<2	<0.05	<1	<5	<5	<5
1891574	Soil	0.054	6	21	0.40	90	0.059	<20	1.17	<0.01	0.05	<2	0.07	<1	<5	<5	<5
1891575	Soil	0.047	8	25	0.79	158	0.117	<20	1.69	0.01	0.13	<2	<0.05	<1	<5	<5	<5
1891576	Soil	0.051	8	27	1.14	222	0.142	<20	2.06	0.01	0.24	<2	<0.05	<1	<5	<5	<5
1891577	Soil	0.046	7	21	0.68	299	0.102	<20	1.40	0.01	0.10	<2	<0.05	<1	<5	<5	<5
1891578	Soil	0.060	8	23	0.86	237	0.133	<20	1.73	0.01	0.19	<2	<0.05	<1	<5	<5	5
1891579	Soil	0.060	9	22	0.70	319	0.107	<20	1.56	0.01	0.14	<2	0.06	<1	<5	<5	<5
1891580	Soil	0.052	11	28	1.06	396	0.137	<20	2.12	0.02	0.14	<2	<0.05	<1	<5	<5	6
1891581	Soil	0.057	11	28	0.98	390	0.123	<20	1.96	0.02	0.14	<2	0.05	<1	<5	<5	6





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Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891582	Soil	2	<3	<2	<1	41	5	61	<0.3	15	19	524	3.55	4	<2	18	<0.5	<3	<3	128	0.27
1891583	Soil	4	<3	3	<1	43	6	71	<0.3	16	18	499	3.90	4	2	28	<0.5	<3	<3	126	0.64
1891584	Soil	2	<3	<2	2	47	35	60	<0.3	17	16	398	3.26	4	<2	19	<0.5	<3	<3	119	0.27
1891585	Soil	<2	<3	<2	<1	33	8	74	<0.3	20	12	457	3.07	4	2	42	<0.5	<3	<3	88	0.62
1891586	Soil	6	<3	<2	<1	40	8	61	0.4	21	11	299	2.72	5	<2	39	<0.5	<3	<3	65	0.72
1891587	Soil	7	5	6	<1	104	8	59	1.4	42	12	656	2.61	4	<2	56	0.6	<3	<3	67	2.03
1891588	Soil	<2	<3	<2	<1	34	8	62	<0.3	28	14	287	2.95	6	3	20	<0.5	<3	<3	71	0.47
1891589	Soil	3	<3	2	<1	48	7	90	<0.3	37	12	918	2.94	6	3	31	<0.5	<3	<3	63	0.74
1891590	Soil	4	<3	<2	<1	41	5	73	<0.3	14	17	519	3.58	3	<2	26	<0.5	<3	<3	119	0.91
1891591	Soil	7	<3	6	<1	37	5	58	<0.3	13	14	381	2.93	4	<2	26	<0.5	<3	<3	83	0.37
1891592	Soil	9	<3	10	<1	21	4	28	<0.3	8	6	113	1.74	3	<2	26	<0.5	<3	<3	31	0.35
1891593	Soil	5	4	5	<1	28	4	55	<0.3	12	7	181	3.01	5	<2	36	<0.5	<3	<3	81	0.23
1891594	Soil	7	<3	3	<1	80	7	225	<0.3	11	10	591	4.56	3	2	36	<0.5	<3	<3	88	0.26
1891595	Soil	6	<3	3	<1	32	7	117	<0.3	12	10	346	4.06	5	2	35	<0.5	<3	<3	69	0.24
1891596	Soil	5	<3	4	<1	35	6	69	<0.3	21	13	387	3.45	6	3	32	<0.5	<3	<3	81	0.49
1891597	Soil	3	<3	<2	<1	52	4	52	<0.3	22	16	453	3.01	<2	<2	20	<0.5	<3	<3	87	0.44
1891598	Soil	<2	<3	2	<1	30	10	57	<0.3	34	13	1191	2.98	7	2	28	<0.5	<3	<3	61	0.80
1891599	Soil	3	<3	3	<1	15	9	65	<0.3	19	11	549	3.23	5	<2	30	<0.5	<3	<3	70	0.39
1891600	Soil	4	<3	3	<1	35	7	54	<0.3	22	15	617	2.93	3	<2	44	<0.5	<3	<3	60	0.65
1891601	Soil	4	<3	<2	<1	37	6	55	<0.3	23	16	638	3.03	4	<2	46	<0.5	<3	<3	62	0.67
1891602	Soil	2	<3	2	<1	19	8	55	<0.3	22	11	706	3.19	7	4	24	<0.5	<3	<3	69	0.31
1891603	Soil	<2	<3	<2	2	31	13	67	<0.3	20	12	702	4.69	5	5	25	<0.5	<3	<3	79	0.39
1891604	Soil	2	<3	<2	<1	25	9	57	<0.3	22	12	594	2.83	5	2	25	<0.5	<3	<3	67	0.39
1891605	Soil	5	<3	3	<1	31	10	58	<0.3	26	13	517	3.57	8	5	25	<0.5	<3	<3	78	0.41
1891606	Soil	3	<3	<2	<1	18	7	44	<0.3	20	10	444	2.78	6	4	23	<0.5	<3	<3	59	0.35
1891607	Soil	3	<3	5	<1	34	10	63	<0.3	22	13	375	2.94	4	5	23	<0.5	<3	<3	65	0.38
1891608	Soil	<2	4	4	<1	106	5	36	<0.3	44	24	288	2.74	3	2	21	<0.5	<3	<3	68	0.45
1891609	Soil	2	3	5	<1	191	5	36	<0.3	87	47	399	3.71	<2	<2	20	<0.5	<3	<3	117	0.53
1891610	Soil	4	<3	3	1	139	11	108	0.3	39	31	726	4.43	5	5	29	<0.5	<3	<3	73	0.29
1891611	Soil	4	<3	4	2	277	48	304	1.8	20	7	388	5.93	<2	6	63	<0.5	<3	<3	63	0.20



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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891582	Soil	0.052	8	31	1.63	317	0.195	<20	2.28	0.02	0.37	<2	<0.05	<1	<5	<5	6
1891583	Soil	0.054	9	23	1.79	479	0.197	<20	2.82	0.02	0.44	<2	<0.05	<1	<5	<5	9
1891584	Soil	0.040	6	32	1.50	402	0.160	<20	2.02	0.02	0.39	<2	<0.05	<1	<5	<5	6
1891585	Soil	0.061	10	21	1.52	502	0.186	<20	2.32	0.01	0.18	<2	<0.05	<1	<5	<5	7
1891586	Soil	0.043	14	27	1.08	482	0.126	<20	2.07	0.01	0.11	<2	<0.05	<1	<5	<5	5
1891587	Soil	0.128	52	26	0.97	591	0.091	<20	2.20	0.01	0.18	<2	0.06	<1	<5	<5	17
1891588	Soil	0.058	9	29	1.13	219	0.115	<20	2.47	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891589	Soil	0.114	15	32	1.27	329	0.107	<20	2.37	<0.01	0.06	<2	<0.05	<1	<5	<5	10
1891590	Soil	0.087	6	23	1.54	271	0.205	<20	2.44	0.02	0.65	<2	<0.05	<1	<5	<5	6
1891591	Soil	0.062	8	25	1.01	201	0.115	<20	1.89	0.02	0.17	<2	0.06	<1	<5	<5	5
1891592	Soil	0.049	4	17	0.48	126	0.052	<20	1.03	0.02	0.07	<2	0.09	<1	<5	<5	<5
1891593	Soil	0.054	8	26	1.07	297	0.101	<20	1.92	0.03	0.26	<2	0.23	<1	<5	<5	7
1891594	Soil	0.077	8	16	1.55	479	0.103	<20	2.60	0.05	0.24	<2	0.32	<1	<5	7	8
1891595	Soil	0.081	8	23	1.20	289	0.108	<20	2.44	0.03	0.19	<2	0.23	<1	<5	7	8
1891596	Soil	0.054	6	29	0.99	189	0.137	<20	2.35	0.02	0.20	<2	<0.05	<1	<5	<5	<5
1891597	Soil	0.028	3	47	1.47	113	0.126	<20	2.32	0.03	0.07	<2	<0.05	<1	<5	<5	<5
1891598	Soil	0.025	12	29	0.60	241	0.085	<20	2.08	0.02	0.11	<2	<0.05	<1	<5	<5	7
1891599	Soil	0.066	7	35	0.68	269	0.096	<20	2.05	<0.01	0.16	<2	<0.05	<1	<5	<5	<5
1891600	Soil	0.045	4	28	1.18	216	0.076	<20	2.21	0.02	0.19	<2	<0.05	<1	<5	<5	<5
1891601	Soil	0.049	5	29	1.23	212	0.078	<20	2.30	0.02	0.18	<2	<0.05	<1	<5	5	<5
1891602	Soil	0.055	8	34	0.71	291	0.087	<20	2.08	0.01	0.12	<2	<0.05	<1	<5	<5	<5
1891603	Soil	0.044	11	37	0.99	285	0.144	<20	2.24	<0.01	0.49	<2	<0.05	<1	<5	5	8
1891604	Soil	0.080	6	37	0.68	348	0.089	<20	1.83	0.01	0.08	<2	<0.05	<1	<5	<5	<5
1891605	Soil	0.036	10	43	0.80	284	0.140	<20	2.24	0.01	0.32	<2	<0.05	<1	<5	<5	7
1891606	Soil	0.021	12	36	0.54	249	0.098	<20	1.60	0.01	0.21	<2	<0.05	<1	<5	<5	6
1891607	Soil	0.028	9	42	0.99	231	0.132	<20	1.77	0.01	0.34	<2	<0.05	<1	<5	<5	<5
1891608	Soil	0.067	5	51	1.06	355	0.121	<20	1.69	0.02	0.15	<2	<0.05	<1	<5	<5	5
1891609	Soil	0.043	3	122	3.09	609	0.206	<20	2.87	<0.01	0.73	<2	<0.05	<1	<5	<5	6
1891610	Soil	0.084	17	77	1.22	489	0.206	<20	2.37	<0.01	0.82	<2	0.07	<1	<5	<5	<5
1891611	Soil	0.093	30	45	1.16	608	0.231	<20	2.32	0.09	1.16	<2	0.95	<1	<5	<5	<5



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# CERTIFICATE OF ANALYSIS

## WHI17000847.1

Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
	Au ppb	Pt ppb	Pd ppb	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	
1891612	Soil	2	<3	3	<1	227	8	48	<0.3	45	24	282	3.59	7	3	23	<0.5	<3	<3	87	0.34
1891613	Soil	2	<3	<2	<1	142	11	103	<0.3	36	34	768	3.50	5	<2	29	0.6	<3	<3	88	0.43
1891614	Soil	2	<3	<2	<1	156	6	58	<0.3	19	39	472	3.99	3	2	34	<0.5	<3	<3	116	0.95
1891615	Soil	4	3	3	<1	161	7	44	<0.3	38	26	404	3.16	4	2	32	<0.5	<3	<3	91	0.62
1891616	Soil	6	<3	2	<1	59	4	73	<0.3	14	6	344	4.52	4	3	25	<0.5	<3	<3	83	0.21
1891617	Soil	13	5	30	<1	54	9	192	<0.3	22	10	648	5.04	5	3	40	<0.5	<3	<3	72	0.43
1891618	Soil	6	<3	4	<1	38	8	227	<0.3	16	10	551	4.30	6	3	26	<0.5	<3	<3	85	0.26
1891619	Soil	7	<3	4	<1	78	6	63	<0.3	33	14	451	3.79	10	4	30	<0.5	<3	<3	89	0.54
1891620	Soil	4	<3	<2	<1	19	7	51	<0.3	18	11	376	2.84	5	4	22	<0.5	<3	<3	66	0.28
1891621	Soil	4	4	5	<1	18	7	50	<0.3	18	12	454	2.77	5	3	21	<0.5	<3	<3	64	0.27
1891622	Soil	2	<3	2	<1	19	8	53	<0.3	20	11	477	3.05	8	4	26	<0.5	<3	<3	70	0.31
1891623	Soil	2	<3	3	<1	36	7	119	<0.3	21	18	438	4.96	5	3	17	<0.5	<3	<3	113	0.52
1891624	Soil	4	<3	5	1	29	8	57	<0.3	14	8	247	3.48	5	3	35	<0.5	<3	<3	74	0.23
1891625	Soil	3	<3	3	<1	24	9	65	<0.3	16	9	278	3.29	7	3	19	<0.5	<3	<3	79	0.21
1891626	Soil	<2	<3	<2	<1	29	8	94	<0.3	22	13	676	4.38	7	3	25	<0.5	<3	<3	99	0.41
1891627	Soil	<2	<3	<2	<1	42	8	103	0.3	18	17	983	4.22	4	3	28	<0.5	<3	<3	108	0.37
1891628	Soil	<2	<3	<2	<1	25	6	68	<0.3	18	12	411	3.62	5	5	15	<0.5	<3	<3	66	0.14
1891629	Soil	3	<3	<2	<1	20	7	45	<0.3	19	9	256	2.83	5	4	23	<0.5	<3	<3	63	0.23
1891630	Soil	5	<3	5	1	52	7	95	<0.3	15	10	536	4.02	4	3	30	<0.5	<3	<3	97	0.37
1891631	Soil	11	<3	<2	<1	20	8	48	<0.3	23	8	317	2.95	10	5	24	<0.5	<3	<3	62	0.28
1891632	Soil	2	<3	<2	1	26	9	70	<0.3	19	11	366	3.61	6	4	26	<0.5	<3	<3	78	0.41
1891633	Soil	3	<3	<2	<1	22	8	52	<0.3	21	11	405	3.26	8	5	25	<0.5	<3	<3	71	0.38
1891634	Soil	6	<3	<2	<1	64	7	62	<0.3	32	13	393	3.47	9	4	33	<0.5	<3	<3	82	0.53
1891635	Soil	<2	<3	<2	<1	18	8	53	<0.3	20	11	490	2.96	6	3	25	<0.5	<3	<3	68	0.34
1891636	Soil	6	<3	<2	<1	53	6	68	<0.3	19	13	536	3.52	3	2	36	<0.5	<3	<3	81	1.19
1891637	Soil	4	<3	<2	<1	28	7	50	<0.3	22	10	286	3.08	8	5	24	<0.5	<3	<3	68	0.26
1891638	Soil	3	<3	<2	<1	30	7	67	<0.3	19	11	333	3.53	6	3	18	<0.5	<3	<3	93	0.24
1891639	Soil	3	5	<2	<1	44	6	74	<0.3	22	17	705	4.17	3	<2	25	<0.5	<3	<3	107	0.45
1891640	Soil	5	4	2	<1	46	5	61	<0.3	22	15	398	3.81	4	<2	25	<0.5	<3	<3	121	0.35
1891641	Soil	5	4	3	<1	37	6	58	<0.3	20	13	363	3.57	5	3	25	<0.5	<3	<3	98	0.29





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Project: EUK-17029-YT

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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891612	Soil	0.028	6	52	1.05	259	0.165	<20	2.23	0.02	0.20	<2	0.06	<1	<5	<5	5
1891613	Soil	0.036	6	42	1.17	369	0.147	<20	2.26	0.02	0.17	<2	<0.05	<1	<5	<5	<5
1891614	Soil	0.167	4	17	1.47	516	0.199	<20	2.35	0.09	0.47	<2	<0.05	<1	<5	<5	8
1891615	Soil	0.028	6	53	1.39	376	0.168	<20	2.15	0.04	0.11	<2	<0.05	<1	<5	<5	9
1891616	Soil	0.035	8	21	1.60	349	0.115	<20	2.64	0.02	0.41	<2	0.15	<1	<5	7	11
1891617	Soil	0.068	9	39	1.60	552	0.117	<20	2.79	0.02	0.50	<2	0.13	<1	<5	8	10
1891618	Soil	0.052	8	23	1.42	336	0.110	<20	2.54	0.01	0.32	<2	0.08	<1	<5	6	8
1891619	Soil	0.042	12	42	1.22	263	0.139	<20	2.58	0.02	0.13	<2	<0.05	<1	<5	<5	9
1891620	Soil	0.024	7	30	0.64	243	0.099	<20	1.70	<0.01	0.17	<2	<0.05	<1	<5	<5	<5
1891621	Soil	0.026	7	28	0.62	268	0.092	<20	1.64	0.01	0.14	<2	<0.05	<1	<5	<5	<5
1891622	Soil	0.032	9	34	0.63	292	0.083	<20	1.99	<0.01	0.10	<2	<0.05	<1	<5	<5	5
1891623	Soil	0.188	8	28	2.30	478	0.254	<20	3.31	0.01	1.07	<2	<0.05	<1	<5	<5	9
1891624	Soil	0.023	8	27	0.86	255	0.109	<20	1.84	0.03	0.25	<2	0.25	<1	<5	<5	6
1891625	Soil	0.017	7	26	0.77	184	0.108	<20	1.89	<0.01	0.20	<2	<0.05	<1	<5	<5	<5
1891626	Soil	0.032	7	33	1.52	816	0.238	<20	2.83	<0.01	0.88	<2	<0.05	<1	<5	5	6
1891627	Soil	0.032	7	26	1.28	614	0.192	<20	2.43	<0.01	0.78	<2	<0.05	<1	<5	<5	8
1891628	Soil	0.014	6	23	1.20	137	0.134	<20	2.31	<0.01	0.42	<2	<0.05	<1	<5	<5	<5
1891629	Soil	0.013	6	28	0.77	249	0.105	<20	1.72	<0.01	0.14	<2	<0.05	<1	<5	<5	<5
1891630	Soil	0.032	10	25	1.19	562	0.148	<20	2.18	0.02	0.49	<2	0.12	<1	<5	<5	9
1891631	Soil	0.030	12	36	0.63	187	0.111	<20	1.76	0.01	0.11	<2	<0.05	<1	<5	<5	5
1891632	Soil	0.032	7	28	0.90	268	0.123	<20	2.17	0.02	0.25	<2	0.07	<1	<5	<5	5
1891633	Soil	0.024	10	35	0.79	245	0.121	<20	2.05	0.01	0.22	<2	<0.05	<1	<5	<5	7
1891634	Soil	0.030	12	38	1.16	187	0.128	<20	2.24	0.03	0.07	<2	<0.05	<1	<5	<5	8
1891635	Soil	0.025	6	28	0.73	203	0.072	<20	2.14	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891636	Soil	0.068	8	29	1.10	231	0.050	<20	2.01	0.02	0.06	<2	<0.05	<1	<5	5	9
1891637	Soil	0.022	12	35	0.71	146	0.106	<20	1.79	0.01	0.10	<2	<0.05	<1	<5	<5	8
1891638	Soil	0.020	7	32	1.06	135	0.133	<20	2.19	<0.01	0.21	<2	<0.05	<1	<5	<5	6
1891639	Soil	0.057	6	29	1.71	216	0.192	<20	2.53	0.01	0.76	<2	<0.05	<1	<5	<5	6
1891640	Soil	0.025	5	30	1.53	208	0.217	<20	2.56	0.01	0.69	<2	<0.05	<1	<5	<5	<5
1891641	Soil	0.021	5	34	1.28	186	0.188	<20	2.26	0.01	0.50	<2	<0.05	<1	<5	<5	<5

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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Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	
	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	
1891642	Soil	<2	<3	<2	<1	46	5	58	<0.3	20	14	372	3.62	4	3	38	<0.5	<3	<3	115	0.31
1891643	Soil	<2	<3	<2	<1	47	5	58	<0.3	20	14	376	3.62	4	2	42	<0.5	<3	<3	112	0.31
1891644	Soil	<2	5	2	<1	47	6	68	<0.3	24	17	437	3.92	4	<2	24	<0.5	<3	<3	120	0.29
1891645	Soil	4	3	3	<1	41	6	74	<0.3	21	16	514	3.89	6	3	25	<0.5	<3	<3	109	0.31
1891646	Soil	4	<3	<2	<1	35	6	61	<0.3	22	12	374	3.68	6	4	28	<0.5	<3	<3	94	0.42
1891647	Soil	24	3	4	<1	47	5	59	<0.3	15	12	432	2.70	2	2	29	<0.5	<3	<3	74	0.53
1891648	Soil	6	<3	<2	<1	43	5	56	<0.3	16	10	356	2.98	4	4	27	<0.5	<3	<3	74	0.47
1891649	Soil	6	<3	5	<1	36	4	37	<0.3	11	8	391	2.19	<2	<2	22	<0.5	<3	<3	62	0.44
1891650	Soil	2	<3	<2	<1	79	4	55	<0.3	16	16	406	3.30	3	<2	28	<0.5	<3	<3	106	0.50
1891651	Soil	5	4	<2	<1	46	7	61	<0.3	18	14	587	3.63	3	3	34	<0.5	<3	<3	103	0.57
1891652	Soil	5	<3	5	<1	50	6	68	<0.3	20	16	487	3.81	4	3	30	<0.5	<3	<3	105	0.63
1891653	Soil	5	5	4	<1	42	6	62	<0.3	18	12	469	3.23	5	3	29	<0.5	<3	<3	84	0.58
1891654	Soil	3	<3	<2	<1	29	7	60	<0.3	17	12	478	3.25	6	3	31	<0.5	<3	<3	79	0.48
1891655	Soil	3	<3	<2	<1	38	8	59	<0.3	17	10	255	3.51	5	3	23	<0.5	<3	<3	95	0.32
1891656	Soil	3	<3	<2	<1	34	7	58	<0.3	17	11	329	3.45	6	3	33	<0.5	<3	<3	91	0.43
1891657	Soil	4	<3	3	<1	33	7	69	<0.3	19	8	293	3.08	6	4	35	<0.5	<3	<3	71	0.39
1891658	Soil	<2	<3	<2	<1	28	9	102	<0.3	8	10	239	2.80	4	2	27	<0.5	<3	<3	65	0.50
1891659	Soil	5	5	3	1	101	12	306	<0.3	29	12	878	4.62	5	<2	33	<0.5	<3	<3	82	0.24
1891660	Soil	10	<3	3	<1	36	7	84	<0.3	22	16	448	4.12	4	3	31	<0.5	<3	<3	108	0.30
1891661	Soil	<2	<3	2	<1	50	6	54	<0.3	21	14	338	3.67	5	3	30	<0.5	<3	<3	100	0.46
1891662	Soil	<2	<3	<2	<1	64	5	69	<0.3	17	37	471	3.76	4	2	28	<0.5	<3	<3	117	0.44
1891663	Soil	9	4	6	1	81	16	128	<0.3	10	18	460	4.64	<2	2	42	<0.5	<3	<3	138	0.38
1891664	Soil	6	<3	3	1	98	17	165	<0.3	10	21	532	4.98	<2	<2	45	<0.5	<3	<3	160	0.39
1891665	Soil	6	<3	8	<1	16	9	70	<0.3	11	6	166	2.14	3	2	21	<0.5	<3	<3	49	0.30
1891666	Soil	6	<3	<2	<1	12	7	44	<0.3	9	5	153	1.81	3	<2	19	<0.5	<3	<3	36	0.24
1891667	Soil	6	<3	4	<1	16	7	51	<0.3	11	9	309	2.41	4	<2	20	<0.5	<3	<3	52	0.31
1891668	Soil	4	<3	<2	<1	8	6	40	<0.3	8	4	143	1.55	3	2	18	<0.5	<3	<3	29	0.23
1891669	Soil	4	<3	3	<1	40	12	108	<0.3	12	12	520	3.94	3	<2	41	<0.5	<3	<3	89	0.27
1891670	Soil	33	<3	3	<1	28	10	91	<0.3	10	8	281	2.91	2	<2	30	<0.5	<3	<3	71	0.24
1891671	Soil	3	<3	<2	<1	43	12	162	<0.3	10	11	607	5.03	3	<2	42	<0.5	<3	<3	148	0.23



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# CERTIFICATE OF ANALYSIS

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Method Analyte	Unit	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
MDL		%	ppm	ppm	%	ppm	%	ppm	%	%	ppm	%	ppm	ppm	ppm	ppm	ppm
1891642	Soil	0.015	5	33	1.54	208	0.201	<20	2.48	<0.01	0.47	<2	<0.05	<1	<5	5	<5
1891643	Soil	0.016	5	33	1.58	207	0.219	<20	2.47	<0.01	0.52	<2	<0.05	<1	<5	<5	<5
1891644	Soil	0.021	3	52	2.11	233	0.276	<20	2.98	<0.01	1.12	<2	<0.05	<1	<5	<5	<5
1891645	Soil	0.033	7	29	1.51	251	0.200	<20	2.61	<0.01	0.76	<2	<0.05	<1	<5	<5	6
1891646	Soil	0.026	10	32	1.32	341	0.177	<20	2.60	0.01	0.36	<2	<0.05	<1	<5	<5	7
1891647	Soil	0.074	9	24	1.10	334	0.140	<20	1.90	0.01	0.43	<2	<0.05	<1	<5	<5	5
1891648	Soil	0.047	12	27	1.09	391	0.141	<20	2.04	0.01	0.16	<2	<0.05	<1	<5	<5	6
1891649	Soil	0.037	5	16	0.71	219	0.122	<20	1.38	0.02	0.18	<2	<0.05	<1	<5	<5	<5
1891650	Soil	0.088	4	28	1.57	253	0.190	<20	2.46	0.01	0.61	<2	<0.05	<1	<5	<5	<5
1891651	Soil	0.054	8	31	1.33	475	0.188	<20	2.62	0.01	0.30	<2	<0.05	<1	<5	<5	6
1891652	Soil	0.046	9	34	1.57	407	0.202	<20	2.66	0.01	0.34	<2	<0.05	<1	<5	<5	7
1891653	Soil	0.051	10	26	1.32	350	0.159	<20	2.24	0.01	0.25	<2	<0.05	<1	<5	<5	7
1891654	Soil	0.042	7	25	0.99	212	0.138	<20	1.99	0.01	0.17	<2	<0.05	<1	<5	<5	<5
1891655	Soil	0.036	9	27	1.05	183	0.158	<20	2.37	0.01	0.19	<2	<0.05	<1	<5	<5	<5
1891656	Soil	0.025	7	28	1.12	228	0.139	<20	2.17	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1891657	Soil	0.036	12	33	0.81	281	0.115	<20	1.85	0.02	0.07	<2	<0.05	<1	<5	<5	7
1891658	Soil	0.162	8	12	1.05	201	0.110	<20	2.05	<0.01	0.10	<2	<0.05	<1	<5	8	<5
1891659	Soil	0.065	7	93	1.48	195	0.083	<20	2.45	0.04	0.13	<2	0.19	<1	<5	<5	6
1891660	Soil	0.043	5	35	1.55	321	0.240	<20	2.85	0.01	0.76	<2	<0.05	<1	<5	<5	6
1891661	Soil	0.033	7	29	1.25	141	0.128	<20	2.37	0.02	0.14	<2	<0.05	<1	<5	<5	7
1891662	Soil	0.038	5	27	1.17	203	0.160	<20	2.38	0.02	0.46	<2	<0.05	<1	<5	<5	7
1891663	Soil	0.058	6	12	1.29	410	0.154	<20	2.54	0.06	0.57	<2	0.50	<1	<5	<5	8
1891664	Soil	0.059	5	11	1.46	400	0.168	<20	2.72	0.06	0.63	<2	0.49	<1	<5	<5	9
1891665	Soil	0.037	6	18	0.65	152	0.097	<20	1.48	0.01	0.11	<2	<0.05	<1	<5	<5	<5
1891666	Soil	0.044	6	17	0.45	131	0.054	<20	1.09	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891667	Soil	0.046	7	18	0.63	130	0.084	<20	1.41	0.01	0.08	<2	<0.05	<1	<5	<5	<5
1891668	Soil	0.034	7	14	0.46	95	0.060	<20	1.06	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891669	Soil	0.064	7	19	1.26	401	0.164	<20	2.22	0.01	0.58	<2	0.12	<1	<5	<5	6
1891670	Soil	0.045	6	18	1.06	321	0.143	<20	1.91	0.02	0.41	<2	0.14	<1	<5	<5	<5
1891671	Soil	0.058	7	18	1.82	533	0.201	<20	3.01	0.05	0.97	<2	0.49	<1	<5	6	10





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# CERTIFICATE OF ANALYSIS

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Method Analyte	Unit	MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300		
			Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
			ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
			2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891672	Soil		3	<3	<2	<1	40	9	121	<0.3	13	15	584	4.44	3	<2	31	<0.5	<3	<3	98	0.30
1891673	Soil		2	<3	3	<1	38	8	86	<0.3	12	12	388	3.46	3	<2	30	<0.5	<3	<3	76	0.28
1891674	Soil		<2	<3	<2	<1	28	9	86	<0.3	14	9	306	3.29	4	<2	40	<0.5	<3	<3	74	0.21
1891675	Soil		5	<3	4	<1	36	10	99	<0.3	12	9	313	3.44	5	2	25	<0.5	<3	<3	74	0.23
1891686	Soil		8	<3	2	<1	36	30	100	<0.3	24	11	597	3.70	78	4	27	0.6	<3	<3	81	0.28
1891687	Soil		<2	<3	<2	<1	22	8	41	<0.3	15	7	225	2.59	5	2	18	<0.5	<3	<3	77	0.22
1891688	Soil		<2	<3	2	<1	18	5	52	<0.3	9	5	295	3.11	5	6	19	<0.5	<3	<3	48	0.14
1891689	Soil		3	<3	<2	<1	85	6	255	<0.3	9	10	577	4.52	2	<2	53	<0.5	<3	<3	120	0.52
1891690	Soil		<2	<3	<2	<1	91	10	244	<0.3	33	35	932	4.42	4	<2	21	<0.5	<3	<3	97	0.44
1891691	Soil		<2	<3	<2	<1	110	6	150	<0.3	21	19	667	4.16	4	<2	21	<0.5	<3	<3	88	0.42
1891692	Soil		4	<3	5	<1	63	4	162	<0.3	11	14	743	4.01	<2	<2	24	<0.5	<3	<3	67	0.47
1891693	Soil		4	<3	7	<1	52	12	117	<0.3	11	10	489	3.29	2	<2	26	<0.5	<3	<3	79	0.46
1891694	Soil		<2	<3	2	<1	44	7	79	<0.3	15	12	504	3.37	5	<2	27	<0.5	<3	<3	68	0.39
1891695	Soil		2	<3	3	<1	32	8	77	<0.3	18	9	348	3.42	9	3	25	<0.5	<3	<3	75	0.28
1891696	Soil		3	<3	9	<1	30	8	70	<0.3	18	8	332	3.42	9	3	25	<0.5	<3	<3	76	0.30
1891728	Soil		3	<3	2	1	32	20	97	<0.3	13	9	400	2.72	4	<2	25	<0.5	<3	<3	52	0.35
1891729	Soil		2	<3	2	1	20	19	112	<0.3	13	13	867	2.90	4	4	32	<0.5	<3	<3	53	0.67
1891730	Soil		3	<3	<2	<1	13	41	119	<0.3	11	4	197	1.92	4	3	18	<0.5	<3	<3	39	0.33
1891731	Soil		3	<3	<2	<1	42	71	270	<0.3	14	13	1389	3.00	4	6	21	1.0	<3	<3	49	0.42
1891732	Soil		5	<3	4	<1	21	22	143	<0.3	21	12	623	3.54	3	3	20	<0.5	<3	<3	66	0.45
1891733	Soil		13	<3	3	1	57	12	79	<0.3	19	14	527	3.62	3	2	18	<0.5	<3	<3	79	0.48
1891734	Soil		<2	<3	<2	<1	26	5	64	<0.3	8	8	704	3.19	<2	<2	27	<0.5	<3	<3	69	0.48
1891735	Soil		<2	<3	<2	<1	34	6	85	<0.3	16	11	619	4.87	<2	<2	32	<0.5	<3	<3	127	0.74
1891736	Soil		3	<3	<2	<1	23	5	71	<0.3	12	11	568	4.22	<2	<2	28	<0.5	<3	<3	95	0.64
1891737	Soil		3	<3	<2	<1	22	6	82	<0.3	14	13	623	4.42	2	2	19	<0.5	<3	<3	104	0.40
1891738	Soil		5	<3	<2	1	23	13	98	<0.3	19	14	809	4.13	2	4	31	<0.5	<3	<3	85	0.66
1891739	Soil		4	3	4	<1	21	8	90	<0.3	16	11	726	3.00	3	3	34	<0.5	<3	<3	59	1.09
1891740	Soil		3	<3	<2	<1	28	8	81	<0.3	19	14	533	3.72	<2	2	21	<0.5	<3	<3	89	0.63
1891741	Soil		2	<3	<2	<1	30	7	79	<0.3	20	15	533	3.91	<2	3	19	<0.5	<3	<3	90	0.65
1891742	Soil		5	5	<2	2	27	19	94	<0.3	16	17	1072	4.01	3	6	17	<0.5	<3	<3	73	0.26



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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891672	Soil	0.064	6	19	1.44	384	0.183	<20	2.61	0.01	0.54	<2	0.09	<1	<5	<5	6
1891673	Soil	0.047	6	19	1.15	306	0.155	<20	2.14	0.01	0.24	<2	<0.05	<1	<5	<5	<5
1891674	Soil	0.048	8	28	0.97	157	0.120	<20	1.83	0.01	0.08	<2	<0.05	<1	<5	<5	<5
1891675	Soil	0.043	7	22	0.97	192	0.107	<20	2.05	0.01	0.08	<2	0.05	<1	<5	<5	<5
1891686	Soil	0.032	11	43	1.10	277	0.118	<20	2.33	<0.01	0.08	<2	<0.05	<1	<5	<5	6
1891687	Soil	0.021	7	31	0.88	269	0.176	<20	1.75	0.01	0.16	<2	<0.05	<1	<5	<5	<5
1891688	Soil	0.044	14	20	0.70	202	0.109	<20	1.75	0.01	0.26	<2	0.14	<1	<5	<5	<5
1891689	Soil	0.131	10	10	1.49	472	0.129	<20	2.38	0.05	0.31	<2	0.33	<1	<5	5	8
1891690	Soil	0.079	11	72	1.25	226	0.167	<20	2.44	0.02	0.07	<2	<0.05	<1	<5	<5	8
1891691	Soil	0.096	9	30	1.14	221	0.102	<20	2.13	0.02	0.22	<2	<0.05	<1	<5	<5	9
1891692	Soil	0.128	14	17	1.23	546	0.149	<20	2.12	0.02	0.64	<2	0.14	<1	<5	<5	9
1891693	Soil	0.082	10	16	1.01	343	0.110	<20	1.73	0.04	0.25	<2	0.20	<1	<5	<5	8
1891694	Soil	0.068	9	24	0.89	234	0.134	<20	1.83	0.01	0.37	<2	<0.05	<1	<5	<5	6
1891695	Soil	0.032	12	31	0.83	213	0.115	<20	2.11	0.01	0.18	<2	<0.05	<1	<5	<5	6
1891696	Soil	0.030	12	32	0.79	216	0.112	<20	2.13	0.01	0.15	<2	<0.05	<1	<5	<5	5
1891728	Soil	0.050	18	26	0.67	259	0.073	<20	1.69	0.01	0.12	<2	<0.05	<1	<5	<5	<5
1891729	Soil	0.055	22	28	1.03	277	0.093	<20	1.69	0.01	0.21	<2	0.06	<1	<5	<5	5
1891730	Soil	0.053	14	22	0.53	141	0.048	<20	1.25	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891731	Soil	0.073	24	23	0.69	323	0.072	<20	1.52	0.01	0.15	<2	<0.05	<1	<5	<5	<5
1891732	Soil	0.074	17	42	1.08	276	0.157	<20	1.88	<0.01	0.38	<2	<0.05	<1	<5	<5	<5
1891733	Soil	0.062	9	32	0.95	218	0.099	<20	1.78	0.01	0.17	<2	<0.05	<1	<5	<5	5
1891734	Soil	0.120	13	14	1.19	442	0.119	<20	1.69	0.01	0.44	<2	<0.05	<1	<5	<5	8
1891735	Soil	0.122	16	29	2.24	501	0.199	<20	2.84	0.01	0.55	<2	<0.05	<1	<5	8	12
1891736	Soil	0.099	17	21	1.69	387	0.154	<20	2.36	0.01	0.36	<2	<0.05	<1	<5	<5	11
1891737	Soil	0.096	14	23	1.68	284	0.165	<20	2.44	0.01	0.32	<2	<0.05	<1	<5	9	9
1891738	Soil	0.065	19	34	1.28	319	0.134	<20	2.20	<0.01	0.21	<2	<0.05	<1	<5	<5	7
1891739	Soil	0.067	25	36	0.97	304	0.091	<20	1.72	0.01	0.21	<2	<0.05	<1	<5	<5	6
1891740	Soil	0.082	25	41	1.40	271	0.144	<20	2.14	0.01	0.23	<2	<0.05	<1	<5	5	6
1891741	Soil	0.106	20	43	1.60	254	0.153	<20	2.20	0.01	0.36	<2	<0.05	<1	<5	<5	6
1891742	Soil	0.032	32	32	0.89	238	0.072	<20	2.41	<0.01	0.10	<2	<0.05	<1	<5	6	6



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Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	
	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	
1891743	Soil	3	<3	<2	1	18	9	92	<0.3	21	13	480	3.84	6	3	17	<0.5	<3	<3	76	0.33
1891744	Soil	3	3	3	1	30	5	76	<0.3	13	10	925	2.90	4	<2	42	<0.5	<3	<3	68	1.27
1891745	Soil	6	<3	<2	1	30	7	86	0.3	13	12	476	3.91	<2	<2	25	<0.5	<3	<3	99	0.47
1891746	Soil	3	<3	<2	1	36	5	94	<0.3	13	15	567	3.83	5	3	25	<0.5	<3	<3	85	0.46
1891747	Soil	5	5	6	<1	31	5	92	<0.3	13	14	688	3.37	3	<2	43	<0.5	<3	<3	75	1.04
1891748	Soil	13	<3	<2	<1	14	4	49	<0.3	13	9	329	2.25	6	<2	28	<0.5	<3	<3	51	0.64
1891749	Soil	4	<3	3	1	12	7	56	<0.3	17	9	543	2.90	7	<2	22	<0.5	<3	<3	72	0.32
1891750	Soil	2	4	<2	1	11	6	46	<0.3	13	6	402	2.67	6	<2	12	<0.5	<3	<3	69	0.13
1891751	Soil	8	<3	<2	1	12	5	52	<0.3	15	8	360	2.72	7	<2	12	<0.5	<3	<3	65	0.14
1891752	Soil	3	<3	<2	<1	20	6	67	<0.3	22	12	406	3.27	5	<2	15	<0.5	<3	<3	72	0.22
1891753	Soil	4	<3	<2	1	14	5	50	<0.3	13	6	390	2.33	5	<2	17	<0.5	<3	<3	56	0.33
1891754	Soil	<2	<3	<2	<1	20	7	69	<0.3	16	10	439	2.62	5	3	42	<0.5	<3	<3	39	1.16
1891755	Soil	4	<3	<2	<1	23	5	40	<0.3	16	8	221	2.38	5	2	26	<0.5	<3	<3	53	0.44
1891756	Soil	3	<3	<2	1	38	4	35	<0.3	13	7	175	2.57	4	<2	13	<0.5	<3	<3	55	0.16
1891757	Soil	5	<3	8	<1	37	4	58	<0.3	20	13	338	3.04	4	2	19	<0.5	<3	<3	72	0.32
1891758	Soil	2	<3	<2	<1	33	4	51	<0.3	20	13	355	2.80	5	2	19	<0.5	<3	<3	67	0.34
1891759	Soil	3	<3	<2	1	43	4	70	<0.3	24	16	490	3.63	5	<2	28	<0.5	<3	<3	89	0.54
1891760	Soil	4	<3	<2	<1	12	5	50	<0.3	13	10	607	2.20	5	2	30	<0.5	<3	<3	54	0.76
1891761	Soil	2	<3	<2	1	11	4	47	<0.3	12	9	511	2.09	4	3	28	<0.5	<3	<3	48	0.67
1891762	Soil	4	<3	<2	1	13	4	53	<0.3	14	9	255	2.79	5	<2	20	<0.5	<3	<3	70	0.36
1891763	Soil	<2	<3	<2	<1	40	4	73	<0.3	18	15	555	3.59	4	<2	26	<0.5	<3	<3	92	0.73
1891764	Soil	3	<3	<2	<1	34	5	59	<0.3	13	9	292	2.54	3	<2	21	<0.5	<3	<3	62	0.43
1891765	Soil	2	<3	<2	<1	26	<3	61	<0.3	12	8	225	2.32	3	<2	19	<0.5	<3	<3	58	0.38
1891766	Soil	<2	<3	<2	1	43	4	76	<0.3	16	14	418	3.60	4	<2	18	<0.5	<3	<3	105	0.30
1891767	Soil	3	<3	<2	1	30	3	65	<0.3	13	10	294	2.81	3	<2	23	<0.5	<3	<3	66	0.47
1891768	Soil	5	6	<2	<1	14	<3	26	<0.3	5	2	61	1.24	3	<2	15	<0.5	<3	<3	14	0.21
1891769	Soil	4	4	<2	<1	12	4	36	<0.3	7	3	92	1.63	3	<2	13	<0.5	<3	<3	23	0.17
1891770	Soil	6	7	<2	<1	23	4	51	<0.3	11	9	168	2.16	3	<2	33	<0.5	<3	<3	33	0.28
1891771	Soil	2	<3	<2	<1	15	4	37	<0.3	8	5	124	1.91	3	<2	17	<0.5	<3	<3	37	0.21
1891772	Soil	7	<3	3	<1	15	3	41	<0.3	10	7	197	1.96	3	<2	15	<0.5	<3	<3	51	0.28





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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891743	Soil	0.047	11	48	0.98	274	0.069	<20	2.19	<0.01	0.09	<2	<0.05	<1	<5	<5	5
1891744	Soil	0.058	28	24	0.83	424	0.086	<20	1.61	0.01	0.14	<2	0.07	<1	<5	<5	<5
1891745	Soil	0.036	10	30	1.22	310	0.122	<20	2.24	0.01	0.22	<2	<0.05	<1	<5	<5	7
1891746	Soil	0.055	10	27	1.22	261	0.116	<20	2.02	0.01	0.16	<2	<0.05	<1	<5	<5	6
1891747	Soil	0.054	10	23	0.99	384	0.085	<20	1.67	0.02	0.18	<2	0.09	<1	<5	<5	7
1891748	Soil	0.050	11	21	0.52	242	0.062	<20	1.15	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891749	Soil	0.020	7	33	0.53	256	0.085	<20	1.61	0.01	0.08	<2	<0.05	<1	<5	<5	<5
1891750	Soil	0.034	7	27	0.36	141	0.069	<20	1.39	<0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891751	Soil	0.036	7	31	0.49	137	0.068	<20	1.70	<0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891752	Soil	0.033	15	45	0.83	275	0.089	<20	2.16	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891753	Soil	0.030	15	24	0.36	392	0.058	<20	1.55	<0.01	0.07	<2	<0.05	<1	<5	6	<5
1891754	Soil	0.056	16	21	0.72	520	0.031	<20	1.36	0.01	0.08	<2	0.05	<1	<5	<5	<5
1891755	Soil	0.038	13	27	0.47	205	0.065	<20	1.78	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891756	Soil	0.047	7	28	0.42	117	0.079	<20	1.51	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891757	Soil	0.049	9	36	0.81	174	0.117	<20	2.17	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891758	Soil	0.063	6	39	0.84	130	0.121	<20	1.75	0.02	0.07	<2	<0.05	<1	<5	<5	<5
1891759	Soil	0.063	14	51	1.05	204	0.132	<20	2.24	0.02	0.08	<2	<0.05	<1	<5	<5	5
1891760	Soil	0.057	13	25	0.54	210	0.063	<20	1.27	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1891761	Soil	0.054	12	23	0.51	193	0.063	<20	1.17	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1891762	Soil	0.060	9	27	0.75	126	0.086	<20	1.63	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1891763	Soil	0.071	10	33	1.06	277	0.149	<20	2.34	0.02	0.12	<2	<0.05	<1	<5	<5	6
1891764	Soil	0.056	9	25	0.70	251	0.112	<20	1.56	0.01	0.11	<2	<0.05	<1	<5	<5	<5
1891765	Soil	0.046	9	25	0.87	281	0.107	<20	1.53	0.01	0.17	<2	0.06	<1	<5	<5	<5
1891766	Soil	0.060	9	34	1.23	227	0.145	<20	1.97	0.02	0.21	<2	<0.05	<1	<5	<5	6
1891767	Soil	0.068	10	28	1.09	295	0.103	<20	1.89	0.02	0.15	<2	0.06	<1	<5	<5	6
1891768	Soil	0.058	5	15	0.20	99	0.029	<20	0.69	0.01	0.04	<2	0.10	<1	<5	<5	<5
1891769	Soil	0.044	6	16	0.38	77	0.044	<20	0.97	0.01	0.05	<2	0.07	<1	<5	<5	<5
1891770	Soil	0.059	6	22	0.69	223	0.061	<20	1.38	0.01	0.08	<2	0.07	<1	<5	<5	<5
1891771	Soil	0.048	6	20	0.56	158	0.077	<20	1.18	0.01	0.10	<2	0.06	<1	<5	<5	<5
1891772	Soil	0.078	6	18	0.79	173	0.092	<20	1.19	0.01	0.17	<2	<0.05	<1	<5	<5	<5



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Method Analyte	Unit	MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
			Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
			ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
1891773	Soil		6	4	4	<1	14	<3	30	<0.3	7	3	108	1.46	3	<2	17	<0.5	<3	<3	24	0.17
1891774	Soil		6	3	3	<1	17	4	64	<0.3	7	4	196	1.91	2	<2	19	<0.5	<3	<3	41	0.22
1891775	Soil		8	9	9	<1	9	4	21	<0.3	4	3	94	1.30	<2	<2	16	<0.5	<3	<3	17	0.22
1891776	Soil		3	<3	3	<1	19	5	51	<0.3	9	6	181	1.93	3	<2	27	<0.5	<3	<3	42	0.32
1891777	Soil		4	5	5	1	31	5	44	<0.3	12	9	273	2.72	4	2	24	<0.5	<3	<3	64	0.39
1891778	Soil		8	4	4	1	50	<3	41	<0.3	16	10	318	2.62	4	<2	34	<0.5	<3	<3	65	0.56
1891779	Soil		3	5	2	<1	22	<3	43	<0.3	15	17	761	2.86	6	<2	22	<0.5	<3	<3	74	0.26
1891780	Soil		3	<3	<2	<1	22	3	40	<0.3	13	8	226	2.49	6	<2	19	<0.5	<3	<3	63	0.21
1891781	Soil		4	3	3	<1	22	3	39	<0.3	13	8	237	2.48	7	<2	19	<0.5	<3	<3	63	0.23
1891782	Soil		3	<3	3	<1	20	8	54	<0.3	13	13	404	3.27	6	<2	20	<0.5	<3	<3	77	0.32
1891783	Soil		3	<3	<2	<1	20	<3	48	<0.3	16	12	242	2.94	8	<2	14	<0.5	<3	<3	74	0.21
1891784	Soil		5	4	2	<1	25	6	46	<0.3	18	11	383	2.77	8	2	24	<0.5	<3	<3	67	0.24
1891785	Soil		4	3	5	1	23	5	43	<0.3	13	8	222	2.69	6	2	15	<0.5	<3	<3	63	0.17
1891786	Soil		3	<3	3	<1	27	4	55	<0.3	14	10	234	2.92	7	<2	23	<0.5	<3	<3	80	0.27
1891787	Soil		3	<3	<2	<1	35	<3	45	<0.3	12	12	244	2.52	4	<2	24	<0.5	<3	<3	61	0.36
1891788	Soil		4	<3	4	<1	31	3	42	<0.3	11	9	226	2.34	5	<2	23	<0.5	<3	<3	57	0.36
1891789	Soil		11	3	2	<1	19	4	46	<0.3	13	8	241	2.52	7	<2	17	<0.5	<3	<3	61	0.24
1891790	Soil		13	4	9	<1	22	<3	55	<0.3	13	9	295	2.21	7	<2	30	<0.5	<3	<3	56	0.50
1891791	Soil		<2	<3	<2	<1	24	6	86	<0.3	27	17	693	3.57	7	2	44	<0.5	<3	<3	79	0.68
1891792	Soil		2	<3	<2	<1	25	7	83	<0.3	26	14	610	3.42	7	4	44	<0.5	<3	<3	65	0.64
1891793	Soil		7	<3	2	<1	17	5	63	<0.3	20	11	543	3.00	7	<2	29	<0.5	<3	<3	63	0.42
1891794	Soil		3	<3	4	<1	20	4	49	<0.3	18	11	517	2.78	7	<2	25	<0.5	<3	<3	64	0.40
1891795	Soil		5	<3	<2	<1	10	8	73	<0.3	19	14	432	3.83	5	3	25	<0.5	<3	<3	87	0.44
1891796	Soil		<2	<3	<2	<1	13	12	68	<0.3	16	12	477	3.14	6	2	23	<0.5	<3	<3	70	0.32
1891797	Soil		4	4	5	<1	44	8	98	<0.3	29	17	636	3.67	7	4	26	<0.5	<3	<3	87	0.57
1891798	Soil		2	<3	3	1	21	43	47	<0.3	23	13	522	3.05	7	4	25	<0.5	<3	<3	73	0.46
1891801	Soil		3	<3	<2	<1	31	3	66	<0.3	21	15	438	3.41	6	3	22	<0.5	<3	<3	92	0.37
1891802	Soil		<2	<3	<2	<1	26	4	82	<0.3	25	14	499	3.68	6	<2	19	<0.5	<3	<3	93	0.33
1891803	Soil		<2	<3	<2	<1	27	<3	110	<0.3	22	13	674	3.80	7	<2	23	<0.5	<3	<3	80	0.35
1891804	Soil		<2	<3	<2	<1	23	7	94	<0.3	18	15	444	3.35	6	5	19	<0.5	<3	<3	71	0.26



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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891773	Soil	0.045	7	17	0.40	158	0.058	<20	0.94	<0.01	0.08	<2	0.06	<1	<5	<5	
1891774	Soil	0.058	8	16	0.59	161	0.068	<20	1.17	0.01	0.06	<2	0.06	<1	<5	<5	
1891775	Soil	0.050	5	11	0.22	107	0.039	<20	0.68	0.01	0.04	<2	0.06	<1	<5	<5	
1891776	Soil	0.070	5	15	0.51	117	0.073	<20	1.05	0.02	0.04	<2	<0.05	<1	<5	<5	
1891777	Soil	0.043	9	22	0.51	179	0.075	<20	1.38	0.02	0.09	<2	<0.05	<1	<5	<5	
1891778	Soil	0.045	13	24	0.56	202	0.080	<20	1.56	0.02	0.05	<2	<0.05	<1	<5	<5	
1891779	Soil	0.047	7	26	0.53	246	0.072	<20	1.83	0.02	0.03	<2	<0.05	<1	<5	<5	
1891780	Soil	0.039	7	22	0.47	205	0.069	<20	1.40	0.01	0.06	<2	<0.05	<1	<5	<5	
1891781	Soil	0.040	7	22	0.46	209	0.069	<20	1.40	0.01	0.05	<2	<0.05	<1	<5	<5	
1891782	Soil	0.087	6	18	0.56	215	0.057	<20	1.75	0.02	0.06	<2	<0.05	<1	<5	<5	
1891783	Soil	0.054	5	21	0.60	208	0.090	<20	1.93	0.01	0.07	<2	<0.05	<1	<5	<5	
1891784	Soil	0.044	10	29	0.53	253	0.068	<20	1.69	0.01	0.04	<2	<0.05	<1	<5	<5	
1891785	Soil	0.039	8	26	0.45	157	0.066	<20	1.78	<0.01	0.04	<2	<0.05	<1	<5	<5	
1891786	Soil	0.037	9	27	0.54	196	0.096	<20	1.93	0.01	0.05	<2	<0.05	<1	<5	<5	
1891787	Soil	0.071	9	22	0.53	196	0.079	<20	1.38	0.02	0.04	<2	<0.05	<1	<5	<5	
1891788	Soil	0.066	9	20	0.49	188	0.078	<20	1.22	0.02	0.04	<2	<0.05	<1	<5	<5	
1891789	Soil	0.042	8	24	0.51	137	0.074	<20	1.50	0.01	0.03	<2	<0.05	<1	<5	<5	
1891790	Soil	0.061	9	23	0.51	232	0.064	<20	1.50	0.01	0.05	<2	<0.05	<1	<5	<5	
1891791	Soil	0.071	11	62	1.17	294	0.139	<20	2.34	0.02	0.47	<2	<0.05	<1	<5	<5	
1891792	Soil	0.041	14	47	0.93	320	0.101	<20	2.41	<0.01	0.18	<2	<0.05	<1	<5	<5	
1891793	Soil	0.052	9	34	0.66	311	0.090	<20	1.76	<0.01	0.14	<2	<0.05	<1	<5	<5	
1891794	Soil	0.025	13	31	0.56	243	0.068	<20	1.70	0.01	0.10	<2	<0.05	<1	<5	<5	
1891795	Soil	0.026	7	48	1.28	214	0.162	<20	2.44	<0.01	0.16	<2	<0.05	<1	<5	<5	
1891796	Soil	0.027	7	29	0.85	287	0.097	<20	1.91	<0.01	0.17	<2	<0.05	<1	<5	<5	
1891797	Soil	0.022	11	54	1.12	282	0.150	<20	2.36	0.02	0.29	<2	<0.05	<1	<5	<5	
1891798	Soil	0.018	10	43	0.69	274	0.101	<20	1.92	0.02	0.11	<2	<0.05	<1	<5	<5	
1891801	Soil	0.038	7	39	1.30	293	0.176	<20	2.17	0.01	0.32	<2	<0.05	<1	<5	<5	
1891802	Soil	0.040	7	53	0.92	242	0.096	<20	2.39	<0.01	0.09	<2	<0.05	<1	<5	<5	
1891803	Soil	0.039	6	36	1.04	290	0.164	<20	2.41	<0.01	0.27	<2	<0.05	<1	<5	<5	
1891804	Soil	0.039	7	31	0.95	244	0.154	<20	2.10	<0.01	0.31	<2	<0.05	<1	<5	<5	





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Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
	Au ppb	Pt ppb	Pd ppb	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	
	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	
1891805	Soil	<2	<3	3	<1	100	4	57	<0.3	26	29	587	3.53	6	<2	40	<0.5	<3	<3	91	0.95
1891806	Soil	<2	<3	5	1	464	5	65	<0.3	18	16	425	6.11	4	3	64	<0.5	<3	<3	103	0.66
1891807	Soil	<2	10	5	<1	341	<3	39	<0.3	96	26	239	3.18	6	<2	19	<0.5	<3	<3	80	0.32
1891808	Soil	<2	<3	<2	<1	130	7	67	0.4	17	16	449	3.18	6	<2	16	<0.5	<3	<3	80	0.22
1891809	Soil	7	<3	3	1	240	4	39	0.6	26	17	244	3.67	7	<2	15	<0.5	<3	<3	84	0.18
1891810	Soil	3	<3	<2	<1	124	<3	127	<0.3	19	24	646	5.26	4	4	31	0.6	<3	<3	117	1.22
1891811	Soil	4	<3	20	<1	152	3	44	<0.3	50	25	414	2.83	4	<2	19	<0.5	<3	<3	80	0.37
1891812	Soil	2	<3	<2	<1	70	3	49	<0.3	23	22	460	2.99	5	<2	26	<0.5	<3	<3	88	0.45
1891813	Soil	5	3	3	<1	78	11	74	<0.3	31	20	509	2.94	6	3	22	<0.5	<3	<3	85	0.42
1891814	Soil	3	<3	5	<1	60	4	53	<0.3	31	21	534	3.01	9	3	20	<0.5	<3	<3	78	0.38
1891815	Soil	4	<3	<2	<1	15	24	68	<0.3	13	7	500	2.24	6	5	16	<0.5	<3	<3	43	0.30
1891816	Soil	2	<3	2	<1	29	4	100	<0.3	44	19	705	3.95	6	3	25	<0.5	<3	<3	104	0.50
1891817	Soil	2	<3	3	<1	16	21	60	<0.3	19	9	488	2.94	8	4	24	<0.5	<3	<3	57	0.33
1891818	Soil	<2	<3	<2	<1	17	10	50	<0.3	23	11	611	2.98	7	2	26	<0.5	<3	<3	71	0.37
1891819	Soil	<2	<3	2	<1	18	9	46	<0.3	37	18	393	4.32	5	3	20	<0.5	<3	<3	94	0.37
1891820	Soil	<2	<3	<2	<1	50	26	211	0.5	30	13	447	3.36	5	2	21	<0.5	<3	<3	77	0.34
1891821	Soil	3	<3	3	1	51	27	216	0.5	31	13	460	3.46	6	2	22	<0.5	<3	<3	79	0.34
1891822	Soil	3	<3	2	<1	32	8	86	<0.3	23	13	613	3.74	6	<2	21	<0.5	<3	<3	87	0.35
1891823	Soil	3	<3	3	1	28	9	79	<0.3	18	8	842	3.61	8	<2	21	<0.5	<3	<3	67	0.25
1891824	Soil	3	<3	<2	<1	17	8	60	<0.3	19	10	552	3.04	5	<2	18	<0.5	<3	<3	72	0.21
1891825	Soil	<2	<3	<2	<1	27	10	74	<0.3	22	14	382	3.13	3	<2	22	<0.5	<3	<3	64	0.35
1891826	Soil	<2	<3	<2	<1	17	6	104	<0.3	15	13	958	4.59	4	<2	26	<0.5	<3	<3	86	0.48
1891827	Soil	2	<3	<2	<1	25	7	84	<0.3	22	16	404	3.71	4	<2	33	<0.5	<3	<3	97	0.51
1891828	Soil	3	<3	<2	1	15	9	53	<0.3	18	8	485	2.85	5	<2	24	<0.5	<3	<3	65	0.25
1891829	Soil	<2	<3	<2	<1	34	9	191	<0.3	16	10	567	3.79	5	<2	31	<0.5	<3	<3	73	0.37
1891830	Soil	2	<3	<2	<1	24	9	324	0.4	22	20	1077	4.58	<2	<2	30	<0.5	<3	<3	106	0.53
1891831	Soil	4	<3	<2	<1	39	12	90	<0.3	15	13	441	3.92	7	<2	20	<0.5	<3	<3	84	0.23
1891832	Soil	4	<3	<2	1	18	72	86	<0.3	15	6	242	3.56	9	<2	13	<0.5	<3	<3	73	0.12
1891833	Soil	2	<3	<2	<1	19	9	58	<0.3	21	9	452	3.12	9	3	18	<0.5	<3	<3	70	0.18
1891834	Soil	3	<3	<2	1	16	11	62	<0.3	17	8	291	3.44	10	<2	13	<0.5	<3	<3	69	0.11



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Method Analyte Unit MDL	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	S %	Hg ppm	Tl ppm	Ga ppm	Sc ppm	
1891805	Soil	0.284	4	28	0.95	262	0.097	<20	1.99	0.05	0.11	<2	<0.05	<1	<5	<5	<5
1891806	Soil	0.238	15	26	1.21	761	0.238	<20	2.08	0.05	1.00	<2	0.56	<1	<5	<5	6
1891807	Soil	0.021	5	52	0.85	336	0.106	<20	1.77	0.02	0.10	<2	0.06	<1	<5	<5	6
1891808	Soil	0.077	5	26	0.67	276	0.106	<20	1.64	0.02	0.17	<2	0.06	<1	<5	<5	<5
1891809	Soil	0.033	5	43	0.62	283	0.113	<20	1.85	0.01	0.17	<2	0.16	<1	<5	<5	<5
1891810	Soil	0.367	13	29	1.58	598	0.225	<20	2.74	0.06	1.03	<2	<0.05	<1	<5	<5	6
1891811	Soil	0.023	5	55	1.13	442	0.099	<20	1.78	0.02	0.08	<2	<0.05	<1	<5	<5	7
1891812	Soil	0.043	6	35	1.09	597	0.133	<20	1.83	0.02	0.21	<2	<0.05	<1	<5	<5	5
1891813	Soil	0.049	8	59	1.17	355	0.122	<20	1.90	0.01	0.14	<2	<0.05	<1	<5	<5	7
1891814	Soil	0.028	8	61	0.92	411	0.118	<20	1.78	0.02	0.19	<2	<0.05	<1	<5	<5	7
1891815	Soil	0.023	6	26	0.32	273	0.041	<20	1.27	<0.01	0.14	<2	<0.05	<1	<5	<5	<5
1891816	Soil	0.051	12	134	1.73	366	0.149	<20	2.67	0.01	0.47	<2	<0.05	<1	<5	<5	11
1891817	Soil	0.030	11	33	0.53	354	0.081	<20	1.87	<0.01	0.17	<2	<0.05	<1	<5	<5	5
1891818	Soil	0.019	9	36	0.57	324	0.076	<20	1.91	0.01	0.07	<2	<0.05	<1	<5	<5	<5
1891819	Soil	0.024	8	71	1.13	331	0.076	<20	2.51	<0.01	0.11	<2	<0.05	<1	<5	5	11
1891820	Soil	0.017	8	71	0.98	220	0.148	<20	2.14	0.01	0.24	<2	<0.05	<1	<5	<5	<5
1891821	Soil	0.017	8	72	1.00	226	0.150	<20	2.21	0.01	0.24	<2	<0.05	<1	<5	<5	5
1891822	Soil	0.086	5	40	0.92	325	0.149	<20	2.41	<0.01	0.09	<2	<0.05	<1	<5	<5	<5
1891823	Soil	0.075	8	32	0.72	312	0.088	<20	2.06	<0.01	0.13	<2	<0.05	<1	<5	6	<5
1891824	Soil	0.025	9	34	0.61	249	0.088	<20	2.05	<0.01	0.07	<2	<0.05	<1	<5	<5	<5
1891825	Soil	0.109	4	32	0.84	250	0.105	<20	1.94	0.01	0.08	<2	<0.05	<1	<5	<5	<5
1891826	Soil	0.132	5	18	1.18	479	0.227	<20	2.69	<0.01	0.37	<2	<0.05	<1	<5	<5	6
1891827	Soil	0.032	5	35	1.37	410	0.180	<20	2.74	0.02	0.11	<2	<0.05	<1	<5	<5	<5
1891828	Soil	0.037	8	44	0.61	311	0.080	<20	1.74	0.01	0.08	<2	0.05	<1	<5	5	<5
1891829	Soil	0.108	7	24	0.89	414	0.079	<20	2.22	0.01	0.10	<2	0.06	<1	<5	6	<5
1891830	Soil	0.114	7	38	1.68	589	0.168	<20	3.06	0.01	0.23	<2	<0.05	<1	<5	7	9
1891831	Soil	0.030	7	26	1.17	256	0.081	<20	2.49	<0.01	0.18	<2	<0.05	<1	<5	<5	5
1891832	Soil	0.024	7	29	0.55	136	0.099	<20	1.92	0.01	0.15	<2	0.10	<1	<5	<5	<5
1891833	Soil	0.016	10	36	0.60	328	0.090	<20	2.14	<0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891834	Soil	0.037	7	30	0.52	223	0.072	<20	2.13	<0.01	0.07	<2	<0.05	<1	<5	6	<5



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Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	
	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	
1891835	Soil	<2	<3	<2	<1	13	9	30	<0.3	9	5	170	1.95	5	<2	12	<0.5	<3	<3	53	0.11
1891836	Soil	4	<3	2	1	43	9	59	<0.3	20	10	273	4.65	8	<2	16	<0.5	<3	<3	91	0.14
1891837	Soil	2	<3	2	<1	43	5	96	<0.3	13	18	395	4.24	<2	<2	30	<0.5	<3	<3	117	0.34
1891838	Soil	4	<3	<2	<1	45	8	271	<0.3	22	9	536	5.16	5	<2	19	<0.5	<3	<3	150	0.21
1891839	Soil	3	<3	<2	<1	39	8	86	<0.3	24	16	417	4.12	6	<2	20	<0.5	<3	<3	101	0.36
1891840	Soil	4	<3	<2	<1	32	9	67	<0.3	36	13	770	2.68	7	<2	27	<0.5	<3	<3	61	0.79
1891841	Soil	4	<3	2	<1	33	9	68	<0.3	37	13	809	2.71	7	2	27	<0.5	<3	<3	61	0.80
1891842	Soil	2	<3	<2	<1	40	6	52	<0.3	18	19	261	4.19	5	<2	14	<0.5	<3	<3	101	0.21
1891843	Soil	<2	<3	<2	<1	6	6	73	<0.3	23	12	423	2.52	4	<2	16	<0.5	<3	<3	53	0.34
1891844	Soil	3	<3	2	<1	17	8	53	<0.3	13	10	929	2.94	5	<2	24	<0.5	<3	<3	70	0.28
1891845	Soil	4	<3	<2	1	15	9	51	<0.3	14	8	357	3.47	8	<2	16	<0.5	<3	<3	89	0.19
1891846	Soil	3	<3	<2	1	43	8	42	<0.3	19	9	205	4.11	10	<2	17	<0.5	<3	<3	86	0.21
1891847	Soil	4	<3	<2	<1	34	7	43	<0.3	17	8	225	2.68	7	2	20	<0.5	<3	<3	65	0.27
1891848	Soil	2	<3	<2	<1	55	7	75	<0.3	20	17	365	4.44	6	<2	19	<0.5	<3	<3	151	0.42
1891849	Soil	3	<3	4	<1	19	8	46	<0.3	19	9	352	2.87	7	2	19	<0.5	<3	<3	69	0.24
1891850	Soil	3	<3	2	1	32	33	143	<0.3	14	10	446	2.93	4	5	23	<0.5	<3	<3	53	0.34
1891851	Soil	<2	<3	5	1	20	23	90	<0.3	12	8	382	2.91	4	5	19	<0.5	<3	<3	57	0.35
1891852	Soil	3	<3	<2	<1	30	12	100	<0.3	16	13	828	3.48	6	3	33	<0.5	<3	<3	64	1.08
1891853	Soil	<2	<3	2	1	29	14	73	<0.3	23	11	271	3.02	7	5	20	<0.5	<3	<3	63	0.35
1891854	Soil	2	<3	3	1	28	14	76	<0.3	21	11	341	3.09	10	4	23	<0.5	<3	<3	65	0.48
1891855	Soil	8	<3	5	2	27	20	84	<0.3	20	12	499	3.43	10	<2	17	<0.5	<3	<3	71	0.26
1891856	Soil	3	<3	4	1	49	9	68	<0.3	18	14	646	3.73	5	2	20	<0.5	<3	<3	79	0.42
1891857	Soil	3	<3	3	<1	74	6	47	<0.3	20	14	384	3.61	4	<2	20	<0.5	<3	<3	91	0.50
1891858	Soil	<2	<3	<2	1	19	7	68	<0.3	15	14	628	3.86	4	<2	20	<0.5	<3	<3	78	0.39
1891859	Soil	<2	<3	<2	<1	18	8	53	<0.3	20	11	808	3.68	6	2	25	<0.5	<3	<3	68	0.47
1891860	Soil	4	<3	4	<1	48	4	52	<0.3	13	13	745	4.86	2	3	26	<0.5	<3	<3	92	0.61
1891861	Soil	18	<3	<2	1	47	5	51	<0.3	12	13	728	4.75	2	2	24	<0.5	<3	<3	90	0.56
1891862	Soil	6	<3	5	<1	22	8	49	<0.3	16	13	676	4.29	5	3	23	<0.5	<3	<3	83	0.50
1891863	Soil	7	4	5	<1	20	7	47	<0.3	19	9	401	3.13	8	4	27	<0.5	<3	<3	62	0.46
1891864	Soil	<2	<3	4	<1	17	14	69	<0.3	19	10	649	3.37	6	5	21	<0.5	<3	<3	60	0.39





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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891835	Soil	0.015	7	17	0.36	495	0.085	<20	1.32	<0.01	0.08	<2	<0.05	<1	<5	<5	
1891836	Soil	0.044	7	30	0.72	424	0.102	<20	2.75	0.03	0.20	<2	0.18	<1	<5	<5	7
1891837	Soil	0.068	6	20	1.67	482	0.197	<20	2.72	0.04	0.83	<2	0.26	<1	<5	<5	7
1891838	Soil	0.027	8	45	1.97	427	0.223	<20	3.49	<0.01	1.04	<2	<0.05	<1	<5	6	13
1891839	Soil	0.067	6	38	1.59	208	0.124	<20	2.81	<0.01	0.10	<2	<0.05	<1	<5	5	<5
1891840	Soil	0.056	11	29	0.83	246	0.104	<20	1.79	0.03	0.07	<2	<0.05	<1	<5	<5	5
1891841	Soil	0.057	11	29	0.85	249	0.104	<20	1.80	0.03	0.07	<2	<0.05	<1	<5	<5	5
1891842	Soil	0.024	4	24	0.99	154	0.058	<20	2.55	<0.01	0.09	<2	<0.05	<1	<5	5	9
1891843	Soil	0.031	4	17	1.77	174	0.089	<20	2.57	<0.01	0.04	<2	<0.05	<1	<5	6	6
1891844	Soil	0.030	6	22	0.62	272	0.086	<20	1.69	<0.01	0.08	<2	<0.05	<1	<5	5	<5
1891845	Soil	0.031	7	25	0.62	184	0.105	<20	1.93	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891846	Soil	0.037	7	34	0.90	147	0.120	<20	2.36	<0.01	0.13	<2	<0.05	<1	<5	<5	<5
1891847	Soil	0.046	9	26	0.59	186	0.086	<20	1.95	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891848	Soil	0.057	4	28	1.41	171	0.215	<20	3.27	<0.01	0.08	<2	<0.05	<1	<5	8	<5
1891849	Soil	0.020	8	32	0.65	257	0.070	<20	2.07	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
1891850	Soil	0.052	19	27	0.78	258	0.093	<20	1.67	0.01	0.16	<2	<0.05	<1	<5	<5	<5
1891851	Soil	0.040	16	24	0.70	252	0.096	<20	1.81	0.01	0.12	<2	<0.05	<1	<5	<5	<5
1891852	Soil	0.068	25	26	0.84	312	0.078	<20	1.82	<0.01	0.27	<2	<0.05	<1	<5	<5	8
1891853	Soil	0.054	25	33	0.74	178	0.098	<20	1.87	0.01	0.12	<2	<0.05	<1	<5	<5	<5
1891854	Soil	0.060	19	31	0.77	191	0.116	<20	1.84	0.01	0.19	<2	<0.05	<1	<5	<5	<5
1891855	Soil	0.055	13	31	0.61	149	0.086	<20	1.83	<0.01	0.07	<2	<0.05	<1	<5	<5	<5
1891856	Soil	0.056	9	32	0.76	241	0.081	<20	1.89	0.01	0.11	<2	<0.05	<1	<5	<5	7
1891857	Soil	0.066	5	35	1.06	181	0.102	<20	2.03	0.02	0.05	<2	<0.05	<1	<5	6	6
1891858	Soil	0.056	6	27	0.98	341	0.098	<20	2.23	0.02	0.19	<2	<0.05	<1	<5	7	5
1891859	Soil	0.031	14	28	0.65	406	0.071	<20	1.79	0.01	0.17	<2	<0.05	<1	<5	<5	10
1891860	Soil	0.135	14	23	1.27	475	0.094	<20	2.15	0.01	0.49	<2	<0.05	<1	<5	9	14
1891861	Soil	0.122	14	24	1.24	466	0.093	<20	2.10	<0.01	0.47	<2	<0.05	<1	<5	7	13
1891862	Soil	0.059	15	23	0.75	223	0.045	<20	1.68	0.01	0.12	<2	<0.05	<1	<5	<5	14
1891863	Soil	0.028	17	27	0.78	299	0.096	<20	1.79	0.02	0.10	<2	<0.05	<1	<5	<5	9
1891864	Soil	0.028	18	33	0.55	273	0.044	<20	1.70	<0.01	0.12	<2	<0.05	<1	<5	<5	7



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Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891865	Soil	3	<3	<2	1	19	12	101	<0.3	21	13	825	4.25	7	3	21	<0.5	<3	<3	78	0.50
1891866	Soil	4	<3	5	<1	24	7	64	<0.3	13	18	794	5.04	3	3	23	<0.5	<3	<3	113	0.59
1891867	Soil	6	<3	5	<1	16	9	58	<0.3	18	9	532	2.98	6	3	23	<0.5	<3	<3	60	0.38
1891868	Soil	<2	<3	3	<1	25	7	59	<0.3	18	13	491	3.49	5	<2	26	<0.5	<3	<3	81	0.51
1891869	Soil	2	<3	4	<1	14	8	49	<0.3	16	10	603	2.76	4	3	25	<0.5	<3	<3	59	0.40
1891870	Soil	2	<3	2	<1	42	8	87	<0.3	13	13	604	4.11	3	2	20	<0.5	<3	<3	97	0.35
1891871	Soil	5	<3	3	1	49	8	55	<0.3	22	10	340	3.10	9	3	30	<0.5	<3	<3	68	0.42
1891872	Soil	<2	<3	4	<1	23	9	77	<0.3	20	11	727	3.47	7	2	21	<0.5	<3	<3	76	0.27
1891873	Soil	<2	<3	3	1	17	9	62	<0.3	17	8	304	3.02	7	<2	12	<0.5	<3	<3	69	0.14
1891874	Soil	3	<3	3	<1	17	10	45	<0.3	19	9	251	3.05	9	2	17	<0.5	<3	<3	69	0.18
1891875	Soil	<2	<3	6	<1	14	9	45	<0.3	17	9	307	3.05	8	2	21	<0.5	<3	<3	66	0.20
1891876	Soil	2	<3	3	<1	19	10	49	<0.3	17	9	343	3.08	8	2	17	<0.5	<3	<3	71	0.19
1891877	Soil	3	<3	5	<1	13	10	60	<0.3	17	10	711	2.97	6	2	13	<0.5	<3	<3	69	0.16
1891878	Soil	3	3	5	1	9	10	44	<0.3	9	5	369	2.34	5	<2	11	<0.5	<3	<3	55	0.08
1891879	Soil	3	<3	3	1	10	11	43	<0.3	10	5	297	2.56	5	<2	9	<0.5	<3	<3	60	0.08
1891880	Soil	2	<3	2	<1	18	10	53	<0.3	22	10	446	3.49	8	3	15	<0.5	<3	<3	70	0.20
1891881	Soil	4	<3	<2	<1	19	10	52	<0.3	23	10	452	3.50	9	3	16	<0.5	<3	<3	70	0.21
1891882	Soil	3	<3	<2	<1	19	9	48	<0.3	21	7	273	2.75	9	4	25	<0.5	<3	<3	61	0.32
1891883	Soil	3	<3	3	<1	13	9	45	<0.3	24	12	306	3.32	3	<2	27	<0.5	<3	<3	86	0.35
1891884	Soil	3	<3	<2	<1	20	15	54	<0.3	22	11	495	3.15	6	3	28	<0.5	<3	<3	73	0.49



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Method	Analyte	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
Unit		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
MDL		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1891865	Soil	0.053	13	32	0.56	317	0.053	<20	1.95	<0.01	0.25	<2	<0.05	<1	<5	<5	12
1891866	Soil	0.074	8	22	1.45	260	0.058	<20	2.71	0.01	0.21	<2	<0.05	<1	<5	7	12
1891867	Soil	0.018	11	31	0.75	282	0.128	<20	1.83	<0.01	0.34	<2	<0.05	<1	<5	<5	6
1891868	Soil	0.058	8	26	1.21	351	0.172	<20	2.20	0.01	0.41	<2	<0.05	<1	<5	<5	5
1891869	Soil	0.028	8	27	0.64	357	0.111	<20	1.67	<0.01	0.32	<2	<0.05	<1	<5	<5	<5
1891870	Soil	0.029	7	20	1.40	323	0.137	<20	2.46	0.01	0.50	<2	<0.05	<1	<5	7	8
1891871	Soil	0.036	12	33	0.67	274	0.104	<20	1.75	0.02	0.15	<2	<0.05	<1	<5	<5	7
1891872	Soil	0.041	8	41	0.69	306	0.074	<20	2.36	<0.01	0.08	<2	<0.05	<1	<5	8	<5
1891873	Soil	0.026	7	36	0.43	189	0.050	<20	2.16	<0.01	0.07	<2	<0.05	<1	<5	7	<5
1891874	Soil	0.018	8	36	0.57	234	0.078	<20	2.23	<0.01	0.04	<2	<0.05	<1	<5	6	<5
1891875	Soil	0.022	10	34	0.55	238	0.087	<20	2.05	<0.01	0.06	<2	<0.05	<1	<5	7	<5
1891876	Soil	0.030	7	28	0.57	228	0.085	<20	2.06	<0.01	0.05	<2	<0.05	<1	<5	6	<5
1891877	Soil	0.022	8	28	0.44	276	0.057	<20	1.90	<0.01	0.04	<2	<0.05	<1	<5	6	<5
1891878	Soil	0.034	9	19	0.27	264	0.052	<20	1.22	<0.01	0.04	<2	<0.05	<1	<5	8	<5
1891879	Soil	0.088	11	20	0.32	151	0.051	<20	1.26	<0.01	0.06	<2	<0.05	<1	<5	7	<5
1891880	Soil	0.024	9	36	0.72	242	0.084	<20	2.26	<0.01	0.15	<2	<0.05	<1	<5	5	<5
1891881	Soil	0.025	9	37	0.72	244	0.092	<20	2.29	<0.01	0.15	<2	<0.05	<1	<5	6	<5
1891882	Soil	0.016	13	32	0.58	246	0.080	<20	1.77	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891883	Soil	0.016	6	55	0.99	171	0.107	<20	2.13	0.01	0.04	<2	<0.05	<1	<5	8	6
1891884	Soil	0.022	17	47	0.74	221	0.094	<20	2.09	0.01	0.11	<2	<0.05	<1	<5	5	8





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Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
Pulp Duplicates																					
1891535	Soil	3	<3	<2	<1	30	9	54	<0.3	23	11	458	3.07	8	6	29	<0.5	<3	<3	64	0.42
REP 1891535	QC	22	<3	<2	<1	30	8	56	<0.3	23	11	459	3.12	8	6	29	<0.5	<3	<3	65	0.43
1891570	Soil	4	<3	4	<1	9	7	31	<0.3	8	4	91	1.47	3	<2	21	<0.5	<3	<3	24	0.32
REP 1891570	QC	3	3	<2																	
1891571	Soil	4	<3	<2	<1	16	7	61	<0.3	11	6	160	2.11	3	<2	26	<0.5	<3	<3	39	0.42
REP 1891571	QC				<1	16	6	64	<0.3	11	6	165	2.19	3	<2	26	<0.5	<3	<3	39	0.41
1891606	Soil	3	<3	<2	<1	18	7	44	<0.3	20	10	444	2.78	6	4	23	<0.5	<3	<3	59	0.35
REP 1891606	QC	3	<3	<2																	
1891607	Soil	3	<3	5	<1	34	10	63	<0.3	22	13	375	2.94	4	5	23	<0.5	<3	<3	65	0.38
REP 1891607	QC				<1	34	9	60	<0.3	22	12	377	2.93	4	5	22	<0.5	<3	<3	63	0.38
1891640	Soil	5	4	2	<1	46	5	61	<0.3	22	15	398	3.81	4	<2	25	<0.5	<3	<3	121	0.35
REP 1891640	QC	2	<3	<2																	
1891643	Soil	<2	<3	<2	<1	47	5	58	<0.3	20	14	376	3.62	4	2	42	<0.5	<3	<3	112	0.31
REP 1891643	QC				<1	47	6	59	<0.3	20	15	380	3.64	4	2	43	<0.5	<3	<3	113	0.31
1891675	Soil	5	<3	4	<1	36	10	99	<0.3	12	9	313	3.44	5	2	25	<0.5	<3	<3	74	0.23
REP 1891675	QC	4	<3	<2																	
1891689	Soil	3	<3	<2	<1	85	6	255	<0.3	9	10	577	4.52	2	<2	53	<0.5	<3	<3	120	0.52
REP 1891689	QC				<1	81	6	241	<0.3	8	10	566	4.43	2	<2	52	<0.5	<3	<3	115	0.50
1891751	Soil	8	<3	<2	1	12	5	52	<0.3	15	8	360	2.72	7	<2	12	<0.5	<3	<3	65	0.14
REP 1891751	QC	2	<3	2																	
1891756	Soil	3	<3	<2	1	38	4	35	<0.3	13	7	175	2.57	4	<2	13	<0.5	<3	<3	55	0.16
REP 1891756	QC				1	39	5	35	<0.3	13	7	179	2.60	4	<2	14	<0.5	<3	<3	56	0.16
1891786	Soil	3	<3	3	<1	27	4	55	<0.3	14	10	234	2.92	7	<2	23	<0.5	<3	<3	80	0.27
REP 1891786	QC	3	<3	4																	
1891792	Soil	2	<3	<2	<1	25	7	83	<0.3	26	14	610	3.42	7	4	44	<0.5	<3	<3	65	0.64
REP 1891792	QC				1	25	6	82	<0.3	25	14	595	3.40	7	4	43	<0.5	<3	<3	65	0.63
1891823	Soil	3	<3	3	1	28	9	79	<0.3	18	8	842	3.61	8	<2	21	<0.5	<3	<3	67	0.25
REP 1891823	QC	<2	<3	3																	



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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
Pulp Duplicates																	
1891535	Soil	0.021	24	38	0.66	467	0.090	<20	1.97	0.01	0.10	<2	<0.05	<1	<5	<5	8
REP 1891535	QC	0.022	25	38	0.67	479	0.089	<20	1.98	0.01	0.10	<2	<0.05	<1	<5	<5	8
1891570	Soil	0.055	7	20	0.36	173	0.044	<20	1.14	<0.01	0.04	<2	0.06	<1	<5	6	<5
REP 1891570	QC																
1891571	Soil	0.060	7	21	0.59	207	0.065	<20	1.47	0.01	0.05	<2	0.08	<1	<5	<5	<5
REP 1891571	QC	0.061	7	21	0.61	209	0.066	<20	1.47	0.01	0.06	<2	0.07	<1	<5	<5	<5
1891606	Soil	0.021	12	36	0.54	249	0.098	<20	1.60	0.01	0.21	<2	<0.05	<1	<5	<5	6
REP 1891606	QC																
1891607	Soil	0.028	9	42	0.99	231	0.132	<20	1.77	0.01	0.34	<2	<0.05	<1	<5	<5	<5
REP 1891607	QC	0.027	10	41	1.00	232	0.132	<20	1.76	0.01	0.34	<2	<0.05	<1	<5	<5	<5
1891640	Soil	0.025	5	30	1.53	208	0.217	<20	2.56	0.01	0.69	<2	<0.05	<1	<5	<5	<5
REP 1891640	QC																
1891643	Soil	0.016	5	33	1.58	207	0.219	<20	2.47	<0.01	0.52	<2	<0.05	<1	<5	<5	<5
REP 1891643	QC	0.016	5	33	1.59	210	0.207	<20	2.49	<0.01	0.52	<2	<0.05	<1	<5	<5	<5
1891675	Soil	0.043	7	22	0.97	192	0.107	<20	2.05	0.01	0.08	<2	0.05	<1	<5	<5	<5
REP 1891675	QC																
1891689	Soil	0.131	10	10	1.49	472	0.129	<20	2.38	0.05	0.31	<2	0.33	<1	<5	5	8
REP 1891689	QC	0.126	10	9	1.45	463	0.125	<20	2.32	0.04	0.29	<2	0.32	<1	<5	<5	8
1891751	Soil	0.036	7	31	0.49	137	0.068	<20	1.70	<0.01	0.05	<2	<0.05	<1	<5	<5	<5
REP 1891751	QC																
1891756	Soil	0.047	7	28	0.42	117	0.079	<20	1.51	0.01	0.05	<2	<0.05	<1	<5	<5	<5
REP 1891756	QC	0.047	7	29	0.43	119	0.083	<20	1.57	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891786	Soil	0.037	9	27	0.54	196	0.096	<20	1.93	0.01	0.05	<2	<0.05	<1	<5	<5	<5
REP 1891786	QC																
1891792	Soil	0.041	14	47	0.93	320	0.101	<20	2.41	<0.01	0.18	<2	<0.05	<1	<5	<5	6
REP 1891792	QC	0.041	14	46	0.91	315	0.099	<20	2.36	<0.01	0.17	<2	<0.05	<1	<5	<5	6
1891823	Soil	0.075	8	32	0.72	312	0.088	<20	2.06	<0.01	0.13	<2	<0.05	<1	<5	6	<5
REP 1891823	QC																



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Project: EUK-17029-YT

Report Date: October 14, 2017

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		FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
1891830	Soil	2	<3	<2	<1	24	9	324	0.4	22	20	1077	4.58	<2	<2	30	<0.5	<3	<3	106	0.53
REP 1891830	QC				<1	24	9	328	<0.3	22	19	1045	4.43	<2	<2	30	<0.5	<3	<3	104	0.53
1891858	Soil	<2	<3	<2	1	19	7	68	<0.3	15	14	628	3.86	4	<2	20	<0.5	<3	<3	78	0.39
REP 1891858	QC	3	<3	<2																	
1891865	Soil	3	<3	<2	1	19	12	101	<0.3	21	13	825	4.25	7	3	21	<0.5	<3	<3	78	0.50
REP 1891865	QC				1	19	13	101	<0.3	21	13	808	4.18	7	2	21	<0.5	<3	<3	76	0.49
1891881	Soil	4	<3	<2	<1	19	10	52	<0.3	23	10	452	3.50	9	3	16	<0.5	<3	<3	70	0.21
REP 1891881	QC	4	<3	5																	
Reference Materials																					
STD CDN-PGMS-19	Standard	254	113	484																	
STD CDN-PGMS-23	Standard	513	498	2249																	
STD CDN-PGMS-19	Standard	284	113	500																	
STD CDN-PGMS-23	Standard	471	465	2163																	
STD CDN-PGMS-19	Standard	216	103	455																	
STD CDN-PGMS-23	Standard	504	426	2055																	
STD CDN-PGMS-19	Standard	260	111	453																	
STD CDN-PGMS-23	Standard	471	470	2139																	
STD CDN-PGMS-19	Standard	222	121	499																	
STD CDN-PGMS-23	Standard	504	529	2170																	
STD CDN-PGMS-19	Standard	204	99	477																	
STD CDN-PGMS-19	Standard	252	109	485																	
STD CDN-PGMS-23	Standard	521	472	2223																	
STD CDN-PGMS-19	Standard	227	108	477																	
STD CDN-PGMS-23	Standard	497	497	2159																	
STD CDN-PGMS-19	Standard	197	107	485																	
STD CDN-PGMS-23	Standard	492	436	2040																	
STD CDN-PGMS-19	Standard	211	114	493																	
STD CDN-PGMS-19	Standard	204	108	494																	
STD CDN-PGMS-23	Standard	503	502	2291																	





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		AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga
		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm
		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5
1891830	Soil	0.114	7	38	1.68	589	0.168	<20	3.06	0.01	0.23	<2	<0.05	<1	<5	7
REP 1891830	QC	0.113	7	37	1.62	574	0.166	<20	2.96	0.01	0.23	<2	<0.05	<1	<5	6
1891858	Soil	0.056	6	27	0.98	341	0.098	<20	2.23	0.02	0.19	<2	<0.05	<1	<5	7
REP 1891858	QC															
1891865	Soil	0.053	13	32	0.56	317	0.053	<20	1.95	<0.01	0.25	<2	<0.05	<1	<5	<5
REP 1891865	QC	0.049	13	31	0.56	314	0.052	<20	1.91	<0.01	0.25	<2	<0.05	<1	<5	<5
1891881	Soil	0.025	9	37	0.72	244	0.092	<20	2.29	<0.01	0.15	<2	<0.05	<1	<5	6
REP 1891881	QC															
Reference Materials																
STD CDN-PGMS-19	Standard															
STD CDN-PGMS-23	Standard															
STD CDN-PGMS-19	Standard															
STD CDN-PGMS-23	Standard															
STD CDN-PGMS-19	Standard															
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STD CDN-PGMS-19	Standard															
STD CDN-PGMS-23	Standard															
STD CDN-PGMS-19	Standard															
STD CDN-PGMS-23	Standard															



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		FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
STD DS11	Standard				13	148	135	336	1.6	77	13	1007	3.07	41	8	64	2.6	8	12	48	1.03
STD DS11	Standard				14	154	141	350	1.7	81	13	1100	3.29	44	8	71	2.2	7	10	49	1.10
STD DS11	Standard				13	147	134	337	1.4	76	12	1036	3.11	41	8	66	2.1	5	10	46	1.02
STD DS11	Standard				12	140	135	335	1.5	74	12	995	3.00	41	8	63	2.0	6	10	45	1.02
STD DS11	Standard				13	142	138	332	1.5	76	13	984	2.98	40	8	64	2.4	7	16	48	1.03
STD DS11	Standard				12	142	131	330	1.4	74	12	990	2.98	38	6	64	2.0	7	11	44	1.00
STD DS11	Standard				12	143	130	333	1.5	75	12	1004	3.01	40	6	63	2.1	6	10	46	1.00
STD DS11	Standard				13	140	129	325	1.6	75	13	968	2.89	38	6	59	2.1	8	12	46	1.00
STD DS11	Standard				12	142	130	327	1.4	73	13	973	3.00	41	7	60	2.3	9	11	46	0.99
STD DS11	Standard				13	143	129	327	1.5	74	12	982	2.93	42	5	63	2.2	6	10	46	1.00
STD OREAS45EA	Standard				2	710	12	32	0.4	379	55	426	23.59	11	11	4	1.0	<3	<3	308	0.03
STD OREAS45EA	Standard				2	719	19	32	<0.3	409	56	424	23.54	6	9	4	0.6	<3	<3	329	0.04
STD OREAS45EA	Standard				2	725	17	31	<0.3	405	55	426	23.76	6	9	4	0.6	<3	<3	321	0.04
STD OREAS45EA	Standard				2	683	21	29	<0.3	375	51	398	21.01	5	8	4	<0.5	<3	<3	297	0.04
STD OREAS45EA	Standard				2	708	12	31	0.4	386	55	429	23.25	12	11	4	<0.5	<3	<3	310	0.03
STD OREAS45EA	Standard				2	695	22	29	<0.3	382	52	405	22.05	5	6	4	<0.5	<3	<3	304	0.04
STD OREAS45EA	Standard				2	685	20	32	<0.3	385	52	403	21.84	6	8	4	<0.5	<3	<3	306	0.04
STD OREAS45EA	Standard				2	665	12	29	0.4	350	51	401	20.67	9	10	3	<0.5	<3	<3	287	0.03
STD OREAS45EA	Standard				2	680	10	31	0.4	359	52	410	21.39	9	10	3	0.9	<3	<3	291	0.03
STD OREAS45EA	Standard				1	671	21	30	<0.3	363	50	394	20.34	5	7	4	0.7	<3	<3	293	0.04
STD CDN-PGMS-19 Expected		230	108	476																	
STD CDN-PGMS-23 Expected		496	456	2032																	
STD OREAS45EA Expected					1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303	0.036
STD DS11 Expected					13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50	1.063
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	



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		AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
STD DS11	Standard	0.071	17	58	0.82	433	0.087	<20	1.12	0.07	0.40	2	0.27	<1	7	<5	<5
STD DS11	Standard	0.074	17	57	0.89	463	0.095	<20	1.21	0.07	0.41	3	0.27	<1	5	<5	<5
STD DS11	Standard	0.069	16	53	0.84	432	0.089	<20	1.12	0.07	0.40	3	0.27	<1	5	<5	<5
STD DS11	Standard	0.068	15	52	0.81	415	0.084	<20	1.06	0.07	0.39	2	0.27	<1	<5	<5	<5
STD DS11	Standard	0.070	17	55	0.82	427	0.086	<20	1.10	0.07	0.39	2	0.27	<1	7	<5	<5
STD DS11	Standard	0.066	15	53	0.80	422	0.088	<20	1.08	0.07	0.39	3	0.26	<1	5	<5	<5
STD DS11	Standard	0.069	16	53	0.82	427	0.088	<20	1.09	0.07	0.40	2	0.26	<1	5	<5	<5
STD DS11	Standard	0.067	15	56	0.79	401	0.081	<20	1.03	0.06	0.38	3	0.27	<1	6	<5	<5
STD DS11	Standard	0.067	16	56	0.79	415	0.083	<20	1.06	0.07	0.37	3	0.27	<1	6	<5	<5
STD DS11	Standard	0.068	16	55	0.81	417	0.083	34	1.07	0.07	0.39	3	0.27	<1	5	<5	<5
STD OREAS45EA	Standard	0.031	8	914	0.10	149	0.099	<20	3.43	0.02	0.06	<2	<0.05	<1	<5	9	87
STD OREAS45EA	Standard	0.031	7	940	0.10	161	0.102	20	3.45	0.02	0.06	<2	<0.05	<1	<5	14	90
STD OREAS45EA	Standard	0.030	7	916	0.10	155	0.105	<20	3.52	0.02	0.06	<2	<0.05	<1	<5	9	88
STD OREAS45EA	Standard	0.029	7	863	0.09	143	0.101	<20	3.26	0.02	0.05	<2	<0.05	<1	<5	18	83
STD OREAS45EA	Standard	0.031	8	918	0.10	150	0.100	<20	3.41	0.02	0.06	<2	<0.05	<1	<5	8	87
STD OREAS45EA	Standard	0.029	7	872	0.09	145	0.102	<20	3.28	0.02	0.05	<2	<0.05	<1	<5	11	83
STD OREAS45EA	Standard	0.030	7	874	0.10	147	0.100	<20	3.29	0.02	0.06	<2	<0.05	<1	<5	20	84
STD OREAS45EA	Standard	0.029	7	858	0.09	134	0.096	<20	3.11	0.02	0.05	<2	<0.05	<1	<5	7	81
STD OREAS45EA	Standard	0.030	7	893	0.09	140	0.097	<20	3.24	0.02	0.05	<2	<0.05	<1	<5	9	83
STD OREAS45EA	Standard	0.029	7	836	0.09	144	0.095	<20	3.07	0.01	0.05	<2	<0.05	<1	<5	20	80
STD CDN-PGMS-19 Expected																	
STD CDN-PGMS-23 Expected																	
STD OREAS45EA Expected		0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78
STD DS11 Expected		0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank																





# QUALITY CONTROL REPORT

WHI17000847.1

		FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
BLK	Blank	<2	<3	2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	2																	
BLK	Blank	<2	<3	2																	
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01





**BUREAU VERITAS** MINERAL LABORATORIES  
Canada

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Bureau Veritas Commodities Canada Ltd.  
9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada  
PHONE (604) 253-3158

**Client:** **Aurora Geosciences Ltd. (Whitehorse)**  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

Submitted By: Carl Schulze  
Receiving Lab: Canada-Whitehorse  
Received: September 14, 2017  
Report Date: October 09, 2017  
Page: 1 of 4

# CERTIFICATE OF ANALYSIS

WHI17000848.1

## CLIENT JOB INFORMATION

Project: EUK-17029-YT  
Shipment ID:  
P.O. Number: EUK-17029-YT  
Number of Samples: 77

## SAMPLE DISPOSAL

STOR-PLP Store After 90 days Invoice for Storage  
STOR-RJT-SOIL Store Soil Reject - RJSV Charges Apply

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

Invoice To: Aurora Geosciences Ltd. (Whitehorse)  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9  
Canada

CC: Nigel Bocking

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
DY060	77	Dry at 60C			WHI
SS80	77	Dry at 60C sieve 100g to -80 mesh			VAN
SVRJT	77	Save all or part of Soil Reject			WHI
FA330	77	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	77	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	77	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	77	Per sample shipping charges for branch shipments			VAN

## 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.





**BUREAU VERITAS**  
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Client: **Aurora Geosciences Ltd. (Whitehorse)**

34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

Project: EUK-17029-YT

Report Date: October 09, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000848.1

Method Analyte	Unit	MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
			Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
			ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
1891885	Soil		3	<3	<2	1	16	7	61	<0.3	21	12	423	3.39	7	4	26	<0.5	<3	<3	78	0.42
1891886	Soil		3	<3	3	1	15	4	50	<0.3	19	9	446	2.77	7	3	27	<0.5	<3	<3	62	0.42
1891887	Soil		5	<3	<2	2	34	10	70	<0.3	20	13	394	3.74	7	4	25	<0.5	<3	<3	83	0.40
1891888	Soil		5	<3	3	2	36	10	85	<0.3	23	13	504	3.27	6	4	37	<0.5	<3	<3	68	0.94
1891889	Soil		6	<3	2	<1	29	7	51	<0.3	18	10	449	2.40	7	<2	48	<0.5	<3	<3	54	1.21
1891890	Soil		4	<3	2	<1	37	<3	51	<0.3	19	12	291	2.95	6	2	33	<0.5	<3	<3	76	0.54
1891891	Soil		2	<3	3	<1	34	<3	50	<0.3	16	20	285	4.18	5	<2	27	<0.5	<3	<3	139	0.66
1891892	Soil		3	<3	<2	1	19	9	87	0.3	18	20	770	3.87	5	<2	42	<0.5	<3	<3	98	0.44
1891893	Soil		<2	<3	<2	<1	44	29	126	<0.3	18	21	734	3.99	3	<2	82	<0.5	<3	<3	94	0.75
1891894	Soil		3	<3	<2	<1	28	38	115	<0.3	22	16	669	3.40	6	2	47	<0.5	<3	<3	79	0.53
1891895	Soil		4	<3	<2	<1	41	4	79	<0.3	22	22	600	4.18	5	<2	127	<0.5	<3	<3	107	0.66
1891896	Soil		2	<3	<2	<1	23	8	96	<0.3	21	18	614	3.90	4	<2	48	<0.5	<3	<3	88	0.62
1891897	Soil		2	<3	2	<1	23	5	81	<0.3	28	13	503	3.87	9	2	26	<0.5	<3	<3	83	0.43
1891898	Soil		6	<3	<2	<1	25	19	78	<0.3	21	13	421	3.51	6	2	37	<0.5	<3	<3	77	0.55
1891899	Soil		4	<3	3	<1	24	5	51	<0.3	17	10	344	3.01	8	<2	30	<0.5	<3	<3	76	0.45
1891900	Soil		4	<3	2	1	24	<3	50	<0.3	16	10	342	2.95	9	<2	29	<0.5	<3	<3	75	0.44
1891901	Soil		3	<3	<2	1	42	5	71	0.3	14	15	554	4.47	13	<2	23	<0.5	<3	<3	141	0.41
1891902	Soil		2	<3	3	1	21	8	68	<0.3	24	13	359	4.00	11	2	15	<0.5	<3	<3	104	0.15
1891903	Soil		<2	<3	2	<1	50	<3	94	<0.3	50	15	426	3.81	6	2	25	<0.5	<3	<3	110	0.50
1891904	Soil		<2	<3	3	1	35	4	81	<0.3	30	17	832	3.41	4	<2	44	<0.5	<3	<3	85	0.60
1891905	Soil		4	<3	<2	1	24	5	55	<0.3	25	11	304	3.12	9	4	19	<0.5	<3	<3	74	0.23
1891906	Soil		3	<3	<2	1	26	7	65	<0.3	25	13	543	3.20	5	4	24	<0.5	<3	<3	77	0.47
1891907	Soil		3	<3	3	<1	32	9	59	<0.3	34	13	720	3.36	7	4	24	<0.5	<3	<3	71	0.72
1891908	Soil		3	<3	2	<1	34	<3	119	<0.3	19	21	598	4.15	3	<2	42	<0.5	<3	<3	93	0.55
1891909	Soil		4	<3	2	<1	43	4	66	<0.3	23	18	489	4.09	4	<2	20	<0.5	<3	<3	109	0.31
1891910	Soil		2	<3	<2	<1	42	4	66	<0.3	21	18	466	4.07	5	<2	24	<0.5	<3	<3	120	0.32
1891911	Soil		3	<3	4	<1	40	4	61	<0.3	23	14	768	3.47	7	2	26	<0.5	<3	<3	85	0.48
1891912	Soil		4	<3	3	<1	46	4	60	<0.3	30	15	380	3.82	10	3	23	<0.5	<3	<3	100	0.30
1891913	Soil		3	<3	3	1	18	4	57	<0.3	21	11	331	3.13	8	2	26	<0.5	<3	<3	74	0.33
1891914	Soil		3	<3	3	<1	29	6	58	<0.3	27	14	339	3.38	9	2	23	<0.5	<3	<3	84	0.26



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Whitehorse Yukon Y1A 5Y9 Canada

**Project:** EUK-17029-YT

**Report Date:** October 09, 2017

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# CERTIFICATE OF ANALYSIS

# WHI17000848.1

Method Analyte	Unit	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
MDL		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
1891885	Soil	0.023	13	55	0.74	299	0.084	<20	2.10	0.01	0.08	<2	<0.05	<1	<5	7	7
1891886	Soil	0.022	10	34	0.50	320	0.067	<20	1.77	0.01	0.07	<2	<0.05	<1	<5	5	<5
1891887	Soil	0.024	14	37	0.79	241	0.062	<20	2.30	0.02	0.07	<2	<0.05	<1	<5	7	7
1891888	Soil	0.035	16	40	0.95	311	0.084	<20	1.92	0.02	0.08	<2	<0.05	<1	<5	7	6
1891889	Soil	0.060	12	28	0.60	297	0.065	<20	1.44	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1891890	Soil	0.075	10	28	0.80	267	0.111	<20	1.72	0.03	0.09	<2	<0.05	<1	<5	<5	6
1891891	Soil	0.060	4	22	1.38	170	0.204	<20	2.46	0.09	0.26	<2	<0.05	<1	<5	5	8
1891892	Soil	0.059	5	33	1.30	302	0.136	<20	2.53	0.01	0.07	<2	<0.05	<1	<5	7	<5
1891893	Soil	0.083	5	33	1.44	225	0.150	<20	2.77	0.02	0.15	<2	<0.05	<1	<5	6	6
1891894	Soil	0.041	7	35	1.19	316	0.128	<20	2.39	0.01	0.11	<2	<0.05	<1	<5	6	5
1891895	Soil	0.090	5	36	1.75	275	0.206	<20	2.94	0.02	0.42	<2	<0.05	<1	<5	7	<5
1891896	Soil	0.095	5	33	1.25	366	0.150	<20	2.59	0.01	0.22	<2	<0.05	<1	<5	6	<5
1891897	Soil	0.036	7	65	1.00	210	0.144	<20	2.35	<0.01	0.20	<2	<0.05	<1	<5	7	<5
1891898	Soil	0.041	10	34	0.93	229	0.113	<20	2.12	0.02	0.17	<2	<0.05	<1	<5	6	5
1891899	Soil	0.033	7	31	0.87	241	0.122	<20	1.81	0.01	0.11	<2	<0.05	<1	<5	<5	<5
1891900	Soil	0.032	7	31	0.86	240	0.118	<20	1.76	0.01	0.11	<2	<0.05	<1	<5	7	<5
1891901	Soil	0.032	6	25	1.18	371	0.216	<20	2.22	0.01	0.34	<2	<0.05	<1	<5	7	5
1891902	Soil	0.020	8	37	1.10	263	0.145	<20	2.49	<0.01	0.16	<2	<0.05	<1	<5	6	6
1891903	Soil	0.059	11	19	2.79	493	0.207	<20	3.30	<0.01	0.47	<2	<0.05	<1	<5	10	13
1891904	Soil	0.038	8	24	1.58	660	0.164	<20	2.78	<0.01	0.19	<2	<0.05	<1	<5	7	8
1891905	Soil	0.025	12	36	0.87	233	0.128	<20	1.97	0.01	0.15	<2	<0.05	<1	<5	<5	7
1891906	Soil	0.074	11	30	1.04	345	0.140	<20	1.98	0.02	0.40	<2	<0.05	<1	<5	<5	7
1891907	Soil	0.021	20	37	0.88	287	0.107	<20	2.28	0.01	0.14	<2	<0.05	<1	<5	5	9
1891908	Soil	0.042	4	22	1.35	495	0.191	<20	2.75	0.01	0.42	<2	<0.05	<1	<5	7	<5
1891909	Soil	0.024	4	36	1.67	267	0.226	<20	2.58	<0.01	0.74	<2	<0.05	<1	<5	5	<5
1891910	Soil	0.024	7	33	1.47	213	0.197	<20	2.36	<0.01	0.55	<2	<0.05	<1	<5	7	7
1891911	Soil	0.049	11	31	1.01	403	0.148	<20	2.07	0.02	0.44	<2	<0.05	<1	<5	6	7
1891912	Soil	0.026	10	38	1.15	191	0.181	<20	2.35	0.01	0.44	<2	<0.05	<1	<5	6	6
1891913	Soil	0.029	9	35	0.63	270	0.078	<20	1.96	<0.01	0.11	<2	<0.05	<1	<5	5	<5
1891914	Soil	0.020	7	41	0.91	237	0.117	<20	2.21	0.01	0.14	<2	<0.05	<1	<5	6	<5



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Project: EUK-17029-YT

Report Date: October 09, 2017

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# CERTIFICATE OF ANALYSIS

# WHI17000848.1

Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891915	Soil	3	<3	3	<1	18	6	66	<0.3	21	10	407	2.94	7	<2	28	<0.5	<3	<3	66	0.34
1891916	Soil	4	<3	2	<1	41	5	66	<0.3	27	16	513	3.70	8	2	48	<0.5	<3	<3	90	0.69
1891917	Soil	4	<3	2	1	29	6	62	<0.3	23	14	579	3.61	9	3	34	<0.5	<3	<3	79	0.53
1891918	Soil	2	<3	<2	2	27	26	155	<0.3	23	14	603	4.56	4	<2	30	<0.5	<3	<3	108	0.39
1891919	Soil	7	<3	2	1	21	12	50	<0.3	19	11	450	3.06	6	3	21	<0.5	<3	<3	67	0.36
1891920	Soil	3	5	3	<1	28	8	51	<0.3	24	14	563	3.42	7	3	36	<0.5	<3	<3	78	0.59
1891921	Soil	<2	<3	<2	<1	27	3	49	0.4	22	14	551	3.29	7	3	37	<0.5	<3	<3	76	0.60
1891922	Soil	3	<3	<2	1	65	4	57	0.4	34	16	489	3.80	11	6	22	<0.5	<3	<3	90	0.43
1891923	Soil	2	<3	2	<1	78	<3	66	0.4	25	19	549	3.62	10	4	45	<0.5	<3	<3	89	0.51
1891924	Soil	<2	<3	<2	1	39	<3	70	0.4	18	19	470	3.76	5	2	71	<0.5	<3	<3	99	0.55
1891925	Soil	<2	<3	<2	1	28	<3	42	0.4	16	13	472	3.52	5	4	22	<0.5	<3	<3	74	0.44
1891926	Soil	2	<3	2	<1	28	4	49	0.4	18	13	581	3.31	7	4	27	<0.5	<3	<3	72	0.50
1891927	Soil	<2	<3	2	1	55	<3	81	0.5	32	18	490	4.48	6	3	21	<0.5	<3	<3	101	0.42
1891928	Soil	<2	<3	<2	2	33	3	63	0.4	22	16	884	3.68	9	3	32	<0.5	<3	<3	79	0.68
1891929	Soil	5	<3	3	<1	39	6	49	0.4	29	11	400	2.93	10	5	31	<0.5	<3	<3	65	0.46
1891930	Soil	<2	<3	<2	1	18	5	75	0.4	19	12	515	3.14	6	4	26	<0.5	<3	<3	66	0.35
1891931	Soil	6	<3	<2	<1	38	3	99	0.4	20	15	622	3.96	9	10	27	<0.5	<3	<3	80	0.44
1891932	Soil	<2	<3	<2	<1	152	<3	82	0.7	20	45	352	7.57	6	3	41	<0.5	<3	<3	333	0.62
1891951	Soil	2	<3	<2	<1	14	8	53	<0.3	19	9	335	2.89	6	6	22	<0.5	<3	<3	62	0.28
1891952	Soil	4	<3	<2	<1	11	12	57	0.4	16	10	476	3.17	6	5	20	<0.5	<3	<3	69	0.22
1891953	Soil	<2	<3	<2	<1	19	11	313	<0.3	22	16	1002	3.87	3	3	23	1.3	<3	<3	85	0.57
1891954	Soil	5	<3	<2	<1	19	5	80	<0.3	19	13	748	3.60	6	3	19	<0.5	<3	<3	96	0.25
1891955	Soil	<2	<3	<2	<1	73	5	68	0.4	19	14	674	4.09	8	4	38	<0.5	<3	<3	92	0.69
1891956	Soil	<2	6	<2	<1	21	3	86	0.4	63	21	494	3.36	6	4	36	<0.5	<3	<3	73	0.60
1891957	Soil	3	<3	<2	<1	17	27	149	<0.3	38	12	796	3.01	10	5	22	<0.5	<3	<3	66	0.46
1891958	Soil	<2	<3	<2	1	18	21	398	0.5	21	13	1267	3.16	3	6	28	0.8	<3	<3	58	0.39
1891959	Soil	3	<3	<2	<1	15	19	95	0.4	19	11	713	3.34	6	10	21	<0.5	<3	<3	60	0.37
1891960	Soil	<2	<3	<2	<1	19	7	107	0.5	34	16	977	3.93	5	8	25	<0.5	<3	<3	72	0.46
1891961	Soil	2	<3	<2	<1	25	8	124	0.5	37	17	909	4.40	5	11	25	<0.5	<3	<3	79	0.44
1891962	Soil	<2	<3	<2	1	51	12	126	<0.3	18	12	984	3.88	6	9	22	<0.5	<3	<3	54	0.54



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Project: EUK-17029-YT

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# CERTIFICATE OF ANALYSIS

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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
1891915	Soil	0.043	7	32	0.69	136	0.082	<20	1.92	<0.01	0.13	<2	<0.05	<1	<5	<5	
1891916	Soil	0.027	10	37	1.20	228	0.121	<20	2.61	0.03	0.08	<2	<0.05	<1	<5	6	7
1891917	Soil	0.031	11	35	0.89	286	0.086	<20	2.09	0.02	0.12	<2	<0.05	<1	<5	6	7
1891918	Soil	0.033	7	55	1.45	688	0.177	<20	2.71	0.01	0.61	<2	0.08	<1	<5	9	8
1891919	Soil	0.013	9	29	0.61	496	0.078	<20	1.77	<0.01	0.21	<2	<0.05	<1	<5	5	<5
1891920	Soil	0.017	9	35	0.88	281	0.115	<20	2.22	0.02	0.15	<2	<0.05	<1	<5	<5	7
1891921	Soil	0.018	9	35	0.85	281	0.120	<20	2.21	0.02	0.16	<2	<0.05	<1	<5	<5	7
1891922	Soil	0.035	15	54	0.95	285	0.141	<20	2.09	0.01	0.39	<2	<0.05	<1	<5	<5	8
1891923	Soil	0.084	8	37	1.15	307	0.154	<20	2.20	0.02	0.26	<2	<0.05	<1	<5	<5	6
1891924	Soil	0.063	8	35	1.27	352	0.175	<20	2.36	0.02	0.49	<2	<0.05	<1	<5	<5	6
1891925	Soil	0.036	9	29	0.90	275	0.125	<20	1.93	0.02	0.33	<2	<0.05	<1	<5	<5	7
1891926	Soil	0.048	10	31	0.85	352	0.113	<20	1.79	0.02	0.34	<2	<0.05	<1	<5	<5	6
1891927	Soil	0.041	8	60	1.50	379	0.210	<20	2.55	<0.01	0.79	<2	<0.05	<1	<5	<5	6
1891928	Soil	0.064	10	35	0.91	492	0.121	<20	1.97	0.02	0.43	<2	<0.05	<1	<5	<5	6
1891929	Soil	0.044	15	32	0.72	238	0.115	<20	1.50	0.02	0.18	<2	<0.05	<1	<5	<5	6
1891930	Soil	0.037	10	34	0.68	362	0.116	<20	1.80	0.01	0.29	<2	<0.05	<1	<5	<5	<5
1891931	Soil	0.051	22	33	1.20	372	0.209	<20	2.25	0.01	0.64	<2	<0.05	<1	<5	<5	5
1891932	Soil	0.095	7	24	1.67	384	0.218	<20	2.34	0.07	0.72	<2	0.08	<1	<5	<5	9
1891951	Soil	0.020	9	33	0.53	233	0.086	<20	1.85	<0.01	0.15	<2	<0.05	<1	<5	<5	<5
1891952	Soil	0.028	8	31	0.60	305	0.089	<20	1.88	<0.01	0.12	<2	<0.05	<1	<5	<5	<5
1891953	Soil	0.076	6	76	1.43	308	0.068	<20	2.44	0.03	0.11	<2	<0.05	<1	<5	6	7
1891954	Soil	0.031	8	32	0.60	242	0.072	<20	2.16	<0.01	0.07	<2	<0.05	<1	<5	<5	6
1891955	Soil	0.045	9	37	1.01	264	0.139	<20	2.27	0.04	0.09	<2	<0.05	<1	<5	<5	11
1891956	Soil	0.056	8	196	1.76	289	0.110	<20	2.42	0.02	0.10	<2	<0.05	<1	<5	<5	7
1891957	Soil	0.037	8	85	0.72	375	0.062	<20	1.86	0.01	0.15	<2	<0.05	<1	<5	<5	<5
1891958	Soil	0.048	8	38	0.80	399	0.124	<20	1.98	<0.01	0.28	<2	<0.05	<1	<5	<5	<5
1891959	Soil	0.038	23	31	0.54	334	0.098	<20	1.85	<0.01	0.33	<2	<0.05	<1	<5	<5	6
1891960	Soil	0.071	74	65	1.03	566	0.144	<20	2.20	<0.01	0.66	<2	<0.05	<1	<5	<5	5
1891961	Soil	0.077	94	72	1.14	525	0.163	<20	2.38	<0.01	0.83	<2	<0.05	<1	<5	<5	6
1891962	Soil	0.047	25	29	0.58	443	0.044	<20	1.55	<0.01	0.44	<2	<0.05	<1	<5	<5	6





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Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	
1891963	Soil	5	4	3	<1	220	<3	59	0.5	44	30	341	3.81	5	4	28	<0.5	<3	<3	98	0.61
1892451	Soil	2	<3	<2	<1	67	4	76	<0.3	18	17	1203	3.84	7	3	38	<0.5	<3	<3	78	0.41
1892452	Soil	2	<3	<2	<1	38	4	75	0.4	20	13	599	3.63	8	4	26	<0.5	<3	<3	62	0.33
1892453	Soil	<2	<3	<2	<1	50	5	64	0.4	17	32	483	3.03	4	<2	24	<0.5	<3	<3	70	0.41
1892454	Soil	3	<3	<2	<1	118	7	221	0.5	15	9	563	4.89	3	3	80	<0.5	<3	<3	121	0.31
1892455	Soil	4	<3	<2	1	36	6	91	0.5	24	16	628	3.96	7	5	25	<0.5	<3	<3	86	0.38
1892456	Soil	2	<3	3	1	68	4	92	0.6	94	22	576	4.74	10	4	48	<0.5	<3	<3	111	0.65
1892457	Soil	5	<3	3	<1	55	4	73	0.5	23	14	664	3.43	5	3	38	<0.5	<3	<3	74	0.68
1892458	Soil	2	<3	<2	<1	37	5	56	0.3	15	12	297	2.90	6	2	23	<0.5	<3	<3	79	0.44
1892459	Soil	<2	<3	2	<1	26	<3	58	0.3	14	10	371	2.95	7	<2	23	<0.5	<3	<3	78	0.45
1892460	Soil	4	<3	<2	<1	31	15	59	<0.3	28	15	612	3.66	4	5	26	<0.5	<3	<3	81	0.67
1892461	Soil	3	<3	<2	<1	35	19	63	<0.3	18	10	424	3.12	5	6	18	<0.5	<3	<3	62	0.19
1892462	Soil	6	<3	<2	1	19	14	61	<0.3	26	12	366	3.22	7	3	25	<0.5	<3	4	73	0.30
1892463	Soil	4	<3	<2	<1	59	18	52	<0.3	27	12	426	3.06	9	5	24	<0.5	<3	<3	67	0.47
1892464	Soil	3	<3	<2	<1	65	5	50	<0.3	24	20	439	3.32	5	<2	25	<0.5	<3	3	93	0.51
1892465	Soil	3	<3	<2	<1	70	7	52	<0.3	22	22	466	3.51	6	<2	25	<0.5	<3	5	103	0.54
1892466	Soil	<2	<3	<2	<1	280	5	43	<0.3	48	36	384	3.11	14	<2	24	<0.5	<3	5	75	0.46



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# CERTIFICATE OF ANALYSIS

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Method	Analyte	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
Unit		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
MDL		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1891963	Soil	0.108	11	59	1.34	346	0.183	<20	2.01	0.03	0.57	<2	<0.05	<1	<5	<5	8
1892451	Soil	0.077	6	23	0.58	398	0.074	<20	1.75	0.02	0.19	<2	<0.05	<1	<5	<5	<5
1892452	Soil	0.063	8	33	0.83	375	0.124	<20	2.02	<0.01	0.39	<2	<0.05	<1	<5	<5	6
1892453	Soil	0.101	4	52	0.79	253	0.092	<20	1.62	0.02	0.11	<2	<0.05	<1	<5	<5	6
1892454	Soil	0.085	10	30	1.73	536	0.239	<20	2.95	0.03	0.84	<2	0.40	<1	<5	<5	7
1892455	Soil	0.036	10	38	0.84	157	0.146	<20	2.38	0.01	0.25	<2	<0.05	<1	<5	<5	<5
1892456	Soil	0.037	8	262	1.72	189	0.165	<20	2.90	0.01	0.27	<2	<0.05	<1	<5	<5	7
1892457	Soil	0.092	10	30	1.12	311	0.134	<20	1.84	0.02	0.19	<2	<0.05	<1	<5	<5	5
1892458	Soil	0.056	9	24	0.73	201	0.088	<20	1.80	0.02	0.05	<2	<0.05	<1	<5	<5	5
1892459	Soil	0.047	7	25	0.71	149	0.091	<20	1.65	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1892460	Soil	0.055	18	51	0.77	289	0.079	<20	1.72	0.02	0.15	<2	<0.05	<1	<5	<5	10
1892461	Soil	0.020	11	33	0.48	273	0.065	<20	1.85	<0.01	0.11	<2	<0.05	<1	<5	<5	5
1892462	Soil	0.018	10	48	0.75	290	0.097	<20	2.06	<0.01	0.16	<2	<0.05	<1	<5	5	<5
1892463	Soil	0.019	17	45	0.69	294	0.085	<20	1.80	0.02	0.13	<2	<0.05	<1	<5	<5	9
1892464	Soil	0.047	6	38	1.10	304	0.111	<20	1.95	0.02	0.18	<2	<0.05	<1	<5	6	7
1892465	Soil	0.052	5	32	1.36	329	0.112	<20	2.13	0.03	0.09	<2	<0.05	<1	<5	6	7
1892466	Soil	0.023	7	48	0.91	228	0.088	<20	1.73	0.02	0.12	<2	<0.05	<1	<5	<5	10



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# QUALITY CONTROL REPORT

WHI17000848.1

Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
Pulp Duplicates																					
1891887	Soil	5	<3	<2	2	34	10	70	<0.3	20	13	394	3.74	7	4	25	<0.5	<3	<3	83	0.40
REP 1891887	QC	5	<3	<2																	
1891905	Soil	4	<3	<2	1	24	5	55	<0.3	25	11	304	3.12	9	4	19	<0.5	<3	<3	74	0.23
REP 1891905	QC				<1	24	7	54	<0.3	24	11	300	3.07	8	4	19	<0.5	<3	<3	74	0.23
1891922	Soil	3	<3	<2	1	65	4	57	0.4	34	16	489	3.80	11	6	22	<0.5	<3	<3	90	0.43
REP 1891922	QC	6	<3	3																	
1891959	Soil	3	<3	<2	<1	15	19	95	0.4	19	11	713	3.34	6	10	21	<0.5	<3	<3	60	0.37
REP 1891959	QC				<1	15	15	95	0.4	19	11	706	3.36	6	10	21	<0.5	<3	<3	60	0.36
1892462	Soil	6	<3	<2	1	19	14	61	<0.3	26	12	366	3.22	7	3	25	<0.5	<3	4	73	0.30
REP 1892462	QC	3	<3	<2																	
Reference Materials																					
STD CDN-PGMS-19	Standard	228	103	504																	
STD CDN-PGMS-19	Standard	214	115	498																	
STD CDN-PGMS-23	Standard	471	470	2092																	
STD CDN-PGMS-19	Standard	220	113	508																	
STD CDN-PGMS-23	Standard	485	451	2130																	
STD CDN-PGMS-19	Standard	254	113	484																	
STD CDN-PGMS-23	Standard	513	498	2249																	
STD DS11	Standard				13	145	137	342	1.7	82	14	1029	3.19	45	7	66	2.0	6	10	51	1.04
STD DS11	Standard				14	150	135	354	1.9	79	13	1053	3.19	44	8	66	2.5	7	11	50	1.06
STD DS11	Standard				13	148	146	349	1.7	81	14	1033	3.20	43	6	66	2.3	7	14	50	1.04
STD OREAS45EA	Standard				2	704	7	32	0.4	406	55	419	25.04	12	9	4	<0.5	<3	<3	317	0.03
STD OREAS45EA	Standard				3	684	12	30	0.5	360	52	412	21.61	11	11	3	<0.5	<3	<3	296	0.03
STD OREAS45EA	Standard				2	720	10	33	<0.3	405	55	422	25.57	14	7	4	<0.5	<3	<3	308	0.03
STD OREAS45EA Expected					1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303	0.036
STD DS11 Expected					13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50	1.063
STD CDN-PGMS-19 Expected		230	108	476																	
STD CDN-PGMS-23 Expected		496	456	2032																	



# QUALITY CONTROL REPORT

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Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
Pulp Duplicates																	
1891887	Soil	0.024	14	37	0.79	241	0.062	<20	2.30	0.02	0.07	<2	<0.05	<1	<5	7	7
REP 1891887	QC																
1891905	Soil	0.025	12	36	0.87	233	0.128	<20	1.97	0.01	0.15	<2	<0.05	<1	<5	<5	7
REP 1891905	QC	0.025	12	36	0.86	229	0.125	<20	1.94	0.01	0.15	<2	<0.05	<1	<5	5	7
1891922	Soil	0.035	15	54	0.95	285	0.141	<20	2.09	0.01	0.39	<2	<0.05	<1	<5	<5	8
REP 1891922	QC																
1891959	Soil	0.038	23	31	0.54	334	0.098	<20	1.85	<0.01	0.33	<2	<0.05	<1	<5	<5	6
REP 1891959	QC	0.037	23	31	0.54	334	0.098	<20	1.86	<0.01	0.33	<2	<0.05	<1	<5	<5	6
1892462	Soil	0.018	10	48	0.75	290	0.097	<20	2.06	<0.01	0.16	<2	<0.05	<1	<5	5	<5
REP 1892462	QC																
Reference Materials																	
STD CDN-PGMS-19	Standard																
STD CDN-PGMS-19	Standard																
STD CDN-PGMS-23	Standard																
STD CDN-PGMS-19	Standard																
STD CDN-PGMS-23	Standard																
STD DS11	Standard	0.071	17	59	0.84	436	0.088	<20	1.12	0.07	0.40	2	0.28	<1	<5	<5	<5
STD DS11	Standard	0.073	17	61	0.85	438	0.089	<20	1.14	0.07	0.41	2	0.28	<1	<5	<5	<5
STD DS11	Standard	0.072	17	58	0.84	424	0.088	<20	1.13	0.07	0.40	3	0.29	<1	7	<5	<5
STD OREAS45EA	Standard	0.030	7	899	0.10	149	0.098	<20	3.33	0.02	0.05	<2	<0.05	<1	6	<5	85
STD OREAS45EA	Standard	0.030	8	878	0.09	140	0.098	<20	3.24	0.02	0.06	<2	<0.05	<1	<5	9	83
STD OREAS45EA	Standard	0.032	8	903	0.10	147	0.102	<20	3.41	0.02	0.06	<2	<0.05	<1	14	<5	86
STD OREAS45EA Expected		0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78
STD DS11 Expected		0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1
STD CDN-PGMS-19 Expected																	
STD CDN-PGMS-23 Expected																	





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**Client:** Aurora Geosciences Ltd. (Whitehorse)  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

**Project:** EUK-17029-YT  
**Report Date:** October 09, 2017

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# QUALITY CONTROL REPORT

WHI17000848.1

		FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
BLK	Blank	2	<3	<2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
BLK	Blank	<2	<3	<2																	
BLK	Blank	2	<3	3																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	5	<1	<0.01
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	



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Project: EUK-17029-YT  
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# QUALITY CONTROL REPORT

WHI17000848.1

		AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank																
BLK	Blank																



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**Client:** **Aurora Geosciences Ltd. (Whitehorse)**  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

Submitted By: Carl Schulze  
Receiving Lab: Canada-Whitehorse  
Received: September 14, 2017  
Report Date: October 05, 2017  
Page: 1 of 3

# CERTIFICATE OF ANALYSIS

WHI17000849.1

## CLIENT JOB INFORMATION

Project: EUK-17029-YT  
Shipment ID:  
P.O. Number: EUK-17029-YT  
Number of Samples: 45

## SAMPLE DISPOSAL

STOR-PLP Store After 90 days Invoice for Storage  
STOR-RJT-SOIL Store Soil Reject - RJSV Charges Apply

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

Invoice To: Aurora Geosciences Ltd. (Whitehorse)  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9  
Canada

CC: Nigel Bocking

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
DY060	44	Dry at 60C			WHI
SS80	44	Dry at 60C sieve 100g to -80 mesh			VAN
SVRJT	44	Save all or part of Soil Reject			WHI
FA330	44	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	44	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	44	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	44	Per sample shipping charges for branch shipments			VAN

## 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.



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Project: EUK-17029-YT

Report Date: October 05, 2017

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# CERTIFICATE OF ANALYSIS

# WHI17000849.1

Method Analyte Unit MDL	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
	Au ppb 2	Pt ppb 3	Pd ppb 2	Mo ppm 1	Cu ppm 1	Pb ppm 3	Zn ppm 1	Ag ppm 0.3	Ni ppm 1	Co ppm 1	Mn ppm 2	Fe % 0.01	As ppm 2	Th ppm 2	Sr ppm 1	Cd ppm 0.5	Sb ppm 3	Bi ppm 3	V ppm 1	Ca % 0.01	
1891501	Silt	2	<3	<2	<1	19	4	53	<0.3	11	9	321	2.18	3	<2	34	<0.5	<3	4	48	0.61
1891502	Silt	4	<3	<2	<1	28	5	65	<0.3	12	12	610	2.57	3	<2	39	<0.5	<3	3	56	0.57
1891503	Silt	4	<3	<2	<1	36	6	68	<0.3	16	12	527	2.51	3	<2	82	<0.5	<3	<3	58	1.24
1891504	Silt	8	<3	<2	<1	28	4	66	<0.3	13	16	2218	3.00	4	<2	36	<0.5	<3	<3	61	0.58
1891505	Silt	3	<3	<2	<1	26	5	54	<0.3	12	10	582	2.35	<2	<2	28	<0.5	<3	6	56	0.61
1891506	Silt	4	<3	2	<1	40	<3	61	<0.3	12	12	438	2.66	<2	<2	30	<0.5	<3	5	74	0.74
1891507	Silt	10	<3	3	<1	28	7	74	<0.3	13	19	578	2.67	5	<2	26	<0.5	<3	<3	60	0.54
1891508	Silt	11	<3	<2	<1	32	8	58	<0.3	13	12	475	2.39	5	<2	34	<0.5	<3	<3	57	0.69
1891509	Silt	<2	<3	<2	<1	18	6	50	<0.3	12	17	544	2.50	6	<2	27	<0.5	<3	<3	56	0.53
1891510	Silt	4	<3	<2	<1	31	8	71	<0.3	17	16	876	2.72	6	<2	38	<0.5	<3	4	61	0.70
1891511	Silt	3	<3	<2	<1	28	9	54	<0.3	16	12	514	2.78	2	<2	95	<0.5	<3	<3	59	0.88
1891512	Silt	3	<3	<2	<1	11	10	39	<0.3	13	9	377	1.87	3	<2	33	<0.5	<3	<3	42	0.53
1891513	Silt	3	<3	<2	<1	12	5	38	<0.3	14	8	254	2.00	5	<2	25	<0.5	<3	<3	44	0.46
1891514	Silt	4	<3	<2	<1	16	3	54	<0.3	10	7	179	2.00	3	<2	16	<0.5	<3	<3	51	0.24
1891515	Silt	6	<3	2	<1	36	8	64	<0.3	14	18	686	2.85	4	<2	25	<0.5	<3	<3	79	0.40
1891516	Silt	2	<3	<2	<1	25	5	48	<0.3	9	10	375	2.20	3	<2	15	<0.5	<3	<3	61	0.41
1891517	Silt	3	<3	<2	<1	24	4	51	<0.3	9	11	381	2.23	3	<2	18	<0.5	<3	4	57	0.42
1891518	Silt	3	<3	<2	<1	22	5	54	<0.3	9	10	363	2.22	3	<2	21	<0.5	<3	<3	59	0.41
1891519	Silt	<2	<3	2	<1	21	<3	55	<0.3	10	8	275	2.12	4	<2	21	<0.5	<3	5	55	0.39
1891520	Silt	3	<3	<2	<1	37	5	90	<0.3	14	18	1600	3.03	5	<2	31	<0.5	<3	<3	73	0.62
1891521	Silt	3	<3	2	<1	33	5	83	<0.3	13	15	1303	2.71	4	<2	27	<0.5	<3	<3	65	0.58
1891701	Silt	3	<3	2	<1	22	6	56	<0.3	14	10	333	2.36	3	<2	36	<0.5	<3	<3	54	0.67
1891702	Silt	5	<3	6	<1	27	6	68	<0.3	14	11	490	2.57	3	<2	43	<0.5	<3	<3	57	0.66
1891703	Silt	3	<3	<2	<1	34	7	65	<0.3	15	11	461	2.49	4	<2	47	<0.5	<3	<3	57	0.75
1891704	Silt	19	<3	3	<1	30	<3	79	<0.3	15	16	2198	2.76	5	<2	69	<0.5	<3	<3	60	0.88
1891705	Silt	2	<3	<2	<1	28	4	77	<0.3	14	14	1271	2.90	4	<2	51	<0.5	<3	<3	63	0.72
1891706	Silt	55	<3	<2	<1	20	4	57	<0.3	10	10	810	2.27	4	<2	40	<0.5	<3	<3	51	0.59
1891707	Silt	<2	<3	<2	<1	24	4	60	<0.3	16	10	644	2.31	4	<2	80	<0.5	<3	<3	47	1.02
1891708	Silt	5	<3	3	<1	41	6	92	<0.3	15	18	1489	3.15	4	<2	43	<0.5	<3	<3	69	0.80
1891709	Silt	34	<3	<2	<1	31	4	81	<0.3	14	13	885	2.65	5	<2	34	<0.5	<3	<3	61	0.63





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Project: EUK-17029-YT

Report Date: October 05, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000849.1

Method Analyte	Unit	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
MDL		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1891501	Silt	0.088	9	18	0.59	107	0.070	<20	1.07	0.02	0.10	<2	<0.05	<1	<5	<5	<5
1891502	Silt	0.074	7	18	0.72	161	0.075	<20	1.21	0.02	0.13	<2	0.07	<1	<5	<5	<5
1891503	Silt	0.059	9	24	0.82	214	0.079	<20	1.45	0.02	0.13	<2	0.10	<1	<5	<5	<5
1891504	Silt	0.094	7	18	0.70	178	0.068	<20	1.13	0.03	0.12	<2	0.07	<1	<5	<5	<5
1891505	Silt	0.070	8	18	0.71	178	0.084	<20	1.27	0.02	0.19	<2	<0.05	<1	<5	<5	<5
1891506	Silt	0.078	9	21	0.98	419	0.113	<20	1.74	0.02	0.31	<2	<0.05	<1	<5	5	7
1891507	Silt	0.072	8	20	0.65	125	0.077	<20	1.25	0.02	0.11	<2	<0.05	<1	<5	<5	<5
1891508	Silt	0.061	10	21	0.65	124	0.075	<20	1.37	0.02	0.09	<2	<0.05	<1	<5	<5	<5
1891509	Silt	0.051	8	23	0.62	99	0.075	<20	1.30	0.02	0.09	<2	<0.05	<1	<5	<5	<5
1891510	Silt	0.060	12	30	0.77	297	0.069	<20	1.64	0.01	0.09	<2	0.06	<1	<5	<5	<5
1891511	Silt	0.052	15	32	0.80	268	0.085	<20	1.72	0.01	0.13	<2	0.06	<1	<5	5	<5
1891512	Silt	0.051	9	26	0.54	167	0.064	<20	1.22	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1891513	Silt	0.045	8	25	0.55	170	0.057	<20	1.25	0.01	0.04	<2	<0.05	<1	<5	<5	<5
1891514	Silt	0.032	6	20	0.85	174	0.110	<20	1.55	0.01	0.19	<2	<0.05	<1	<5	5	<5
1891515	Silt	0.052	10	24	0.76	240	0.097	<20	1.70	0.02	0.12	<2	<0.05	<1	<5	5	6
1891516	Silt	0.052	7	15	0.54	125	0.083	<20	1.22	0.02	0.09	<2	<0.05	<1	<5	<5	<5
1891517	Silt	0.051	6	13	0.51	136	0.073	<20	1.12	0.03	0.07	<2	<0.05	<1	<5	<5	<5
1891518	Silt	0.055	7	14	0.56	159	0.081	<20	1.19	0.02	0.09	<2	<0.05	<1	<5	<5	<5
1891519	Silt	0.049	7	16	0.61	165	0.085	<20	1.27	0.02	0.09	<2	<0.05	<1	<5	<5	<5
1891520	Silt	0.067	10	21	0.85	242	0.104	<20	1.64	0.02	0.17	<2	0.07	<1	<5	6	5
1891521	Silt	0.064	9	20	0.80	214	0.096	<20	1.53	0.02	0.16	<2	0.06	<1	<5	<5	<5
1891701	Silt	0.099	8	21	0.69	133	0.080	<20	1.14	0.02	0.12	<2	<0.05	<1	<5	<5	<5
1891702	Silt	0.069	8	21	0.79	176	0.086	<20	1.36	0.02	0.14	<2	0.05	<1	<5	<5	<5
1891703	Silt	0.079	10	22	0.76	189	0.085	<20	1.35	0.02	0.14	<2	0.08	<1	<5	<5	<5
1891704	Silt	0.068	10	23	0.79	231	0.087	<20	1.50	0.02	0.15	<2	0.09	<1	<5	<5	<5
1891705	Silt	0.064	8	21	0.84	215	0.089	<20	1.46	0.02	0.15	<2	0.09	<1	<5	<5	<5
1891706	Silt	0.077	7	17	0.61	143	0.073	<20	1.12	0.02	0.11	<2	0.06	<1	<5	<5	<5
1891707	Silt	0.053	8	26	0.75	249	0.080	<20	1.25	0.02	0.14	<2	0.10	<1	<5	<5	<5
1891708	Silt	0.072	10	20	0.85	245	0.083	<20	1.62	0.03	0.17	<2	0.15	<1	<5	<5	5
1891709	Silt	0.062	8	20	0.83	195	0.092	<20	1.55	0.02	0.16	<2	0.08	<1	<5	<5	<5



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Project: EUK-17029-YT

Report Date: October 05, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000849.1

Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1891710	Silt	5	<3	3	<1	31	7	76	<0.3	14	12	939	2.53	5	<2	34	<0.5	<3	<3	58	0.67
1891711	Silt	11	5	7	<1	20	8	61	<0.3	14	11	429	2.49	4	<2	32	<0.5	<3	<3	58	0.54
1891712	Silt	3	<3	<2	<1	26	<3	66	<0.3	14	15	659	2.63	3	<2	34	<0.5	<3	<3	61	0.57
1891714	Silt	4	4	<2	1	26	12	68	<0.3	12	19	730	2.70	3	<2	32	<0.5	<3	<3	63	0.45
1891715	Silt	7	<3	<2	<1	30	3	76	<0.3	14	15	619	2.53	3	<2	32	<0.5	<3	<3	60	0.62
1891716	Silt	3	<3	<2	<1	26	4	82	<0.3	13	15	566	2.48	4	<2	29	<0.5	<3	<3	59	0.52
1891717	Silt	5	<3	<2	<1	9	<3	28	<0.3	7	3	83	1.28	<2	<2	19	<0.5	<3	<3	25	0.17
1891719	Silt	8	<3	<2	<1	5	<3	21	<0.3	4	2	84	0.95	<2	<2	15	<0.5	<3	<3	16	0.18
1891720	Silt	3	<3	<2	<1	9	8	43	<0.3	7	4	176	1.68	<2	<2	17	<0.5	<3	<3	32	0.23
1891721	Silt	4	<3	<2	<1	15	6	58	<0.3	10	7	240	2.23	3	<2	20	<0.5	<3	<3	50	0.29
1891722	Silt	3	<3	<2	<1	25	6	67	<0.3	13	12	456	2.53	3	<2	26	<0.5	<3	<3	59	0.42
1891723	Silt	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
1891724	Silt	6	<3	4	<1	43	7	84	<0.3	16	18	2588	3.24	3	<2	45	<0.5	<3	<3	76	0.68
1891725	Silt	3	<3	<2	<1	37	4	70	<0.3	15	13	852	2.65	3	<2	38	<0.5	<3	<3	65	0.73
1891726	Silt	15	4	<2	<1	31	<3	74	<0.3	11	18	2129	2.64	4	<2	25	<0.5	<3	<3	67	0.51



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**Client:** Aurora Geosciences Ltd. (Whitehorse)

34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

Project: EUK-17029-YT

Report Date: October 05, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000849.1

Method	Analyte	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
Unit		%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
MDL		0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1891710	Silt	0.059	8	19	0.80	186	0.087	<20	1.47	0.02	0.15	<2	0.08	<1	<5	<5	<5
1891711	Silt	0.069	9	23	0.72	191	0.085	<20	1.40	0.02	0.08	<2	<0.05	<1	<5	<5	<5
1891712	Silt	0.060	10	21	0.79	246	0.080	<20	1.55	0.02	0.09	<2	0.06	<1	<5	<5	<5
1891714	Silt	0.058	6	19	0.83	207	0.084	<20	1.42	0.03	0.15	<2	0.11	<1	<5	<5	<5
1891715	Silt	0.055	6	21	0.85	204	0.081	<20	1.53	0.02	0.10	<2	0.07	<1	<5	<5	<5
1891716	Silt	0.054	6	20	0.85	180	0.080	<20	1.55	0.02	0.08	<2	0.06	<1	<5	<5	<5
1891717	Silt	0.034	6	14	0.31	81	0.051	<20	0.90	0.01	0.05	<2	0.06	<1	<5	<5	<5
1891719	Silt	0.030	5	10	0.24	58	0.035	<20	0.65	0.01	0.04	<2	<0.05	<1	<5	<5	<5
1891720	Silt	0.046	6	13	0.51	83	0.062	<20	1.05	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1891721	Silt	0.046	8	18	0.63	167	0.083	<20	1.34	0.01	0.09	<2	<0.05	<1	<5	<5	<5
1891722	Silt	0.064	10	20	0.77	198	0.092	<20	1.55	0.01	0.16	<2	<0.05	<1	<5	<5	<5
1891723	Silt	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
1891724	Silt	0.082	9	23	0.84	276	0.092	<20	1.54	0.04	0.22	<2	0.22	<1	<5	<5	6
1891725	Silt	0.062	9	21	0.87	212	0.102	<20	1.65	0.02	0.19	<2	0.10	<1	<5	<5	6
1891726	Silt	0.078	7	14	0.68	177	0.081	<20	1.18	0.03	0.15	<2	0.07	<1	<5	<5	<5



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Whitehorse Yukon Y1A 5Y9 Canada

**Project:** EUK-17029-YT  
**Report Date:** October 05, 2017

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# QUALITY CONTROL REPORT

WHI17000849.1

Method	Analyte	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	
		Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
Pulp Duplicates																					
1891516	Silt	2	<3	<2	<1	25	5	48	<0.3	9	10	375	2.20	3	<2	15	<0.5	<3	<3	61	0.41
REP 1891516	QC				<1	28	4	54	<0.3	10	11	406	2.39	5	<2	16	<0.5	<3	<3	67	0.42
1891708	Silt	5	<3	3	<1	41	6	92	<0.3	15	18	1489	3.15	4	<2	43	<0.5	<3	<3	69	0.80
REP 1891708	QC	8	<3	5																	
1891720	Silt	3	<3	<2	<1	9	8	43	<0.3	7	4	176	1.68	<2	<2	17	<0.5	<3	<3	32	0.23
REP 1891720	QC				<1	8	5	38	<0.3	6	4	169	1.66	<2	<2	16	<0.5	<3	<3	28	0.22
Reference Materials																					
STD CDN-PGMS-19	Standard	220	113	508																	
STD CDN-PGMS-23	Standard	485	451	2130																	
STD CDN-PGMS-19	Standard	223	109	468																	
STD DS11	Standard				15	151	136	340	1.8	80	14	1026	3.20	42	6	66	2.1	8	14	50	1.05
STD DS11	Standard				13	148	146	349	1.7	81	14	1033	3.20	43	6	66	2.3	7	14	50	1.04
STD OREAS45EA	Standard				2	719	15	33	0.3	415	55	424	25.24	11	7	4	<0.5	<3	<3	317	0.03
STD OREAS45EA	Standard				2	720	10	33	<0.3	405	55	422	25.57	14	7	4	<0.5	<3	<3	308	0.03
STD CDN-PGMS-23 Expected		496	456	2032																	
STD CDN-PGMS-19 Expected		230	108	476																	
STD OREAS45EA Expected					1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303	0.036
STD DS11 Expected					13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50	1.063
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	5	<1	<0.01





# QUALITY CONTROL REPORT

WHI17000849.1

Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	
Pulp Duplicates																	
1891516 Silt	0.052	7	15	0.54	125	0.083	<20	1.22	0.02	0.09	<2	<0.05	<1	<5	<5	<5	
REP 1891516 QC	0.055	7	17	0.59	138	0.088	<20	1.33	0.02	0.10	<2	<0.05	<1	<5	<5	<5	
1891708 Silt	0.072	10	20	0.85	245	0.083	<20	1.62	0.03	0.17	<2	0.15	<1	<5	<5	5	
REP 1891708 QC																	
1891720 Silt	0.046	6	13	0.51	83	0.062	<20	1.05	0.01	0.06	<2	<0.05	<1	<5	<5	<5	
REP 1891720 QC	0.040	5	11	0.50	74	0.060	<20	1.04	0.01	0.05	<2	<0.05	<1	<5	<5	<5	
Reference Materials																	
STD CDN-PGMS-19 Standard																	
STD CDN-PGMS-23 Standard																	
STD CDN-PGMS-19 Standard																	
STD DS11 Standard	0.072	17	58	0.84	438	0.091	<20	1.14	0.07	0.41	4	0.29	<1	<5	<5	<5	
STD DS11 Standard	0.072	17	58	0.84	424	0.088	<20	1.13	0.07	0.40	3	0.29	<1	7	<5	<5	
STD OREAS45EA Standard	0.032	7	912	0.10	149	0.101	<20	3.51	0.02	0.06	<2	<0.05	<1	12	5	88	
STD OREAS45EA Standard	0.032	8	903	0.10	147	0.102	<20	3.41	0.02	0.06	<2	<0.05	<1	14	<5	86	
STD CDN-PGMS-23 Expected																	
STD CDN-PGMS-19 Expected																	
STD OREAS45EA Expected	0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78	
STD DS11 Expected	0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1	
BLK Blank																	
BLK Blank																	
BLK Blank																	
BLK Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5	
BLK Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5	



**BUREAU VERITAS** MINERAL LABORATORIES  
Canada

[www.bureauveritas.com/um](http://www.bureauveritas.com/um)

Bureau Veritas Commodities Canada Ltd.  
9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada  
PHONE (604) 253-3158

**Client:** **Aurora Geosciences Ltd. (Whitehorse)**  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9 Canada

Submitted By: Carl Schulze  
Receiving Lab: Canada-Whitehorse  
Received: September 14, 2017  
Report Date: October 13, 2017  
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# CERTIFICATE OF ANALYSIS

WHI17000850.1

## CLIENT JOB INFORMATION

Project: EUK-17029-YT  
Shipment ID:  
P.O. Number: EUK-17029-YT  
Number of Samples: 25

## SAMPLE DISPOSAL

STOR-PLP Store After 90 days Invoice for Storage  
STOR-RJT Store After 60 days Invoice for Storage

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

Invoice To: Aurora Geosciences Ltd. (Whitehorse)  
34A Laberge Road  
Whitehorse Yukon Y1A 5Y9  
Canada

CC: Nigel Bocking

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP90-250	25	Crush (>90%), split and pulverize 250g rock to 200 mesh			WHI
FA350-Au	25	50g Fire assay fusion Au by ICP-ES	50	Completed	VAN
EN002	25	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	25	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	25	Per sample shipping charges for branch shipments			VAN

## 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.



Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada  
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Project: EUK-17029-YT  
Report Date: October 13, 2017

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# CERTIFICATE OF ANALYSIS

# WHI17000850.1

Method	WGHT	FA350	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL	0.01	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	
1891723	Rock	0.29	<2	<1	2	<3	1	<0.3	1	<1	42	0.39	<2	<2	<1	<0.5	<3	<3	1	0.02	0.001
1892472	Rock	0.39	<2	<1	4	<3	7	<0.3	3	1	172	0.43	<2	<2	21	<0.5	<3	<3	5	0.51	0.036
1892473	Rock	1.01	<2	<1	4	<3	8	<0.3	6	2	295	0.54	<2	<2	36	<0.5	<3	<3	8	0.72	0.061
1892474	Rock	1.08	<2	<1	2	<3	3	<0.3	4	<1	823	0.31	<2	<2	169	<0.5	<3	<3	2	7.28	0.040
1909001	Rock	0.26	<2	<1	5	<3	31	<0.3	1	4	473	2.32	<2	6	123	<0.5	<3	<3	7	0.53	0.023
1909002	Rock	0.54	<2	<1	4	<3	25	<0.3	6	5	335	1.87	<2	3	12	<0.5	<3	<3	27	0.20	0.019
1909003	Rock	0.30	<2	<1	<1	5	<1	<0.3	<1	<1	42	0.28	<2	<2	5	<0.5	<3	<3	<1	0.03	0.001
1909101	Rock	0.19	<2	<1	10	<3	17	<0.3	1	4	95	0.91	<2	<2	43	<0.5	<3	<3	10	0.49	0.043
1909102	Rock	0.31	<2	<1	2	14	59	<0.3	5	8	1804	4.45	8	<2	258	<0.5	<3	<3	68	11.75	0.028
1909103	Rock	0.44	<2	<1	12	<3	1	<0.3	1	1	58	0.52	<2	<2	6	<0.5	<3	<3	3	0.05	<0.001
1909104	Rock	0.43	<2	<1	18	247	43	1.1	1	2	541	1.08	<2	<2	121	<0.5	<3	4	11	2.99	0.005
1909105	Rock	0.62	<2	<1	1	<3	4	<0.3	14	4	105	0.54	<2	<2	16	<0.5	<3	<3	18	0.68	0.022
1909106	Rock	0.53	<2	<1	3	7	43	<0.3	7	11	468	2.06	<2	<2	92	<0.5	<3	<3	46	1.15	0.061
1909107	Rock	0.68	<2	<1	4	<3	4	<0.3	1	<1	193	0.51	<2	<2	20	<0.5	<3	<3	4	1.21	0.024
1909108	Rock	0.40	<2	<1	31	<3	1	<0.3	3	4	59	0.58	<2	<2	6	<0.5	<3	<3	3	0.05	0.001
1909109	Rock	0.51	<2	<1	2	<3	9	<0.3	4	2	253	0.80	<2	<2	38	<0.5	<3	<3	9	0.56	0.043
1909110	Rock	1.07	<2	<1	1	<3	<1	<0.3	<1	<1	44	0.27	<2	<2	13	<0.5	<3	<3	<1	0.08	<0.001
1909111	Rock	0.33	<2	<1	5	<3	7	<0.3	3	1	84	0.56	<2	<2	16	<0.5	<3	<3	3	0.09	0.012
1909151	Rock	1.07	<2	<1	43	<3	3	<0.3	3	5	69	0.59	<2	<2	31	<0.5	<3	<3	9	0.18	0.016
1909152	Rock	0.47	<2	<1	38	<3	35	<0.3	8	11	511	2.71	<2	<2	70	<0.5	<3	<3	101	1.53	0.046
1909154	Rock	0.51	<2	<1	47	<3	38	<0.3	8	14	449	2.68	<2	<2	9	<0.5	<3	<3	77	0.70	0.032
1909155	Rock	0.71	<2	<1	15	<3	28	<0.3	6	10	299	2.73	<2	<2	20	<0.5	<3	<3	85	1.51	0.029
1909156	Rock	0.56	<2	<1	4	<3	4	<0.3	<1	1	62	0.57	<2	<2	12	<0.5	<3	<3	9	0.19	0.015
1909157	Rock	0.58	<2	<1	24	<3	11	<0.3	6	5	209	1.07	<2	<2	28	<0.5	<3	<3	9	0.55	0.044
1909158	Rock	0.85	<2	<1	40	<3	15	<0.3	5	5	123	1.25	<2	2	23	<0.5	<3	<3	12	0.22	0.036



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Whitehorse Yukon Y1A 5Y9 Canada

Project: EUK-17029-YT

Report Date: October 13, 2017

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# CERTIFICATE OF ANALYSIS

WHI17000850.1

Method	Analyte	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	TI	Ga	Sc
Unit		ppm	ppm	%	ppm	%	ppm	%	%	ppm	%	ppm	ppm	ppm	ppm	ppm
MDL		1	1	0.01	1	0.001	20	0.01	0.01	2	0.05	1	5	5	5	5
1891723	Rock	<1	6	0.03	12	0.002	<20	0.05	<0.01	0.02	5	<0.05	<1	<5	<5	<5
1892472	Rock	2	3	0.18	46	0.047	<20	0.23	0.03	0.02	<2	<0.05	<1	<5	<5	<5
1892473	Rock	2	4	0.12	93	0.056	<20	0.46	<0.01	0.04	3	<0.05	<1	<5	<5	<5
1892474	Rock	1	2	0.10	37	0.021	<20	0.17	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
1909001	Rock	14	4	0.49	5255	0.005	<20	0.83	0.09	0.08	<2	0.13	<1	<5	<5	<5
1909002	Rock	14	17	0.60	373	0.069	<20	0.67	0.04	0.03	<2	<0.05	<1	<5	<5	5
1909003	Rock	<1	3	<0.01	42	<0.001	<20	0.19	0.08	0.05	<2	<0.05	<1	<5	<5	<5
1909101	Rock	1	3	0.31	44	0.043	<20	0.46	0.09	0.02	<2	<0.05	<1	<5	<5	<5
1909102	Rock	8	6	4.03	84	<0.001	<20	0.44	<0.01	0.04	<2	<0.05	<1	<5	<5	9
1909103	Rock	<1	5	0.03	17	0.004	<20	0.06	<0.01	0.02	<2	<0.05	<1	<5	<5	<5
1909104	Rock	5	4	0.06	2308	<0.001	<20	0.17	0.07	0.03	<2	0.06	<1	<5	<5	<5
1909105	Rock	<1	61	0.58	31	0.064	<20	0.33	0.06	0.05	<2	<0.05	<1	<5	<5	<5
1909106	Rock	2	17	0.94	144	0.136	<20	1.52	0.03	0.06	<2	<0.05	<1	<5	<5	<5
1909107	Rock	1	6	0.04	30	0.035	<20	0.16	0.02	0.01	<2	<0.05	<1	<5	<5	<5
1909108	Rock	<1	8	0.04	11	0.004	<20	0.07	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
1909109	Rock	2	8	0.17	35	0.040	<20	0.47	<0.01	0.02	<2	<0.05	<1	<5	<5	<5
1909110	Rock	<1	4	0.02	55	0.001	<20	0.24	0.10	0.03	<2	<0.05	<1	<5	<5	<5
1909111	Rock	<1	3	0.14	238	0.008	<20	0.32	0.09	0.09	<2	<0.05	<1	<5	<5	<5
1909151	Rock	<1	5	0.13	59	0.038	<20	0.29	0.10	0.08	<2	<0.05	<1	<5	<5	<5
1909152	Rock	2	17	1.01	37	0.144	<20	1.78	0.22	0.15	<2	<0.05	<1	<5	<5	9
1909154	Rock	2	16	1.29	205	0.162	<20	1.65	0.16	0.47	<2	<0.05	<1	<5	<5	7
1909155	Rock	<1	17	1.00	23	0.077	<20	1.88	0.28	0.10	<2	<0.05	<1	<5	<5	12
1909156	Rock	<1	6	0.12	11	0.018	<20	0.25	0.03	0.05	<2	<0.05	<1	<5	<5	<5
1909157	Rock	2	5	0.22	243	0.062	<20	0.49	0.01	0.12	<2	<0.05	<1	<5	<5	<5
1909158	Rock	8	6	0.25	182	0.046	<20	0.57	0.09	0.16	<2	<0.05	<1	<5	<5	<5





# QUALITY CONTROL REPORT

WHI17000850.1

Method	WGHT	FA350	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	P	
Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
MDL	0.01	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	
Pulp Duplicates																					
1909002	Rock	0.54	<2	<1	4	<3	25	<0.3	6	5	335	1.87	<2	3	12	<0.5	<3	<3	27	0.20	0.019
REP 1909002	QC		<2																		
1909101	Rock	0.19	<2	<1	10	<3	17	<0.3	1	4	95	0.91	<2	<2	43	<0.5	<3	<3	10	0.49	0.043
REP 1909101	QC			<1	11	<3	18	<0.3	1	4	99	0.93	<2	<2	48	<0.5	<3	<3	11	0.51	0.045
Reference Materials																					
STD DS11	Standard			13	146	129	339	1.5	75	12	995	2.98	41	6	64	2.1	6	11	46	1.01	0.068
STD OREAS45EA	Standard			2	692	19	30	<0.3	379	52	400	20.99	5	7	4	0.8	<3	<3	301	0.04	0.029
STD OXC145	Standard		224																		
STD OXH139	Standard		1292																		
STD OREAS45EA Expected				1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303	0.036	0.029
STD DS11 Expected				13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50	1.063	0.0701
STD OXC145 Expected			212																		
STD OXH139 Expected			1312																		
BLK	Blank			<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01	<0.001
BLK	Blank		<2																		
BLK	Blank		<2																		
Prep Wash																					
ROCK-WHI	Prep Blank		2	<1	4	<3	34	<0.3	4	4	591	1.88	<2	<2	26	<0.5	<3	<3	23	0.69	0.037
ROCK-WHI	Prep Blank		<2	<1	2	<3	30	<0.3	1	3	541	1.82	<2	<2	22	<0.5	<3	<3	21	0.60	0.038



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Project: EUK-17029-YT  
Report Date: October 13, 2017

Page: 1 of 1

Part: 2 of 2

# QUALITY CONTROL REPORT

WHI17000850.1

Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
MDL	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
Pulp Duplicates															
1909002	Rock	14	17	0.60	373	0.069	<20	0.67	0.04	0.03	<2	<0.05	<1	<5	<5
REP 1909002	QC														
1909101	Rock	1	3	0.31	44	0.043	<20	0.46	0.09	0.02	<2	<0.05	<1	<5	<5
REP 1909101	QC	2	3	0.32	44	0.047	<20	0.49	0.10	0.02	<2	<0.05	<1	<5	<5
Reference Materials															
STD DS11	Standard	16	53	0.82	409	0.090	<20	1.09	0.07	0.40	2	0.26	<1	5	<5
STD OREAS45EA	Standard	7	871	0.09	142	0.102	<20	3.25	0.01	0.05	<2	<0.05	<1	<5	15
STD OXC145	Standard														
STD OXH139	Standard														
STD OREAS45EA Expected		7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036		12.4	78
STD DS11 Expected		18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7
STD OXC145 Expected															
STD OXH139 Expected															
BLK	Blank	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5
BLK	Blank														
BLK	Blank														
Prep Wash															
ROCK-WHI	Prep Blank	6	3	0.51	68	0.087	<20	0.95	0.10	0.11	<2	<0.05	<1	<5	<5
ROCK-WHI	Prep Blank	6	2	0.46	56	0.078	<20	0.89	0.10	0.10	<2	<0.05	<1	<5	<5

**Appendix VI: 2017 Airborne Survey Report**

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2017 Airborne Survey Report



# VTEM™ ET

AIIP REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN  
ELECTROMAGNETIC (VTEM™ ET) AND AEROMAGNETIC  
GEOPHYSICAL SURVEY

PROJECT: OPHIR, SHEBA, HAV, TAK, AND ETTA  
LOCATION: COFFEE ROAD PROPERTY, YUKON  
FOR: EUREKA RESOURCES INC.  
SURVEY FLOWN: MAY 2017  
PROJECT: GL170103

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## EXECUTIVE SUMMARY

### AIIP report on VTEM™ ET surveys, Coffee Road Property, Yukon

During May 6<sup>th</sup> – 17<sup>th</sup> 2017 Geotech Ltd. carried out a helicopter-borne geophysical survey over the A1-Ophir, A2-Sheba, A3-Hav, A4-Tak, and A5-Etta blocks situated within the Coffee Road Property, Yukon.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM™ ET) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 1218 line-kilometers of geophysical data were acquired during the survey.

Geotech Ltd carried out airborne inductively induced polarization (AIIP) chargeability mapping of the VTEM data.

Final AIIP products are:

- AIIP databases;
- AIIP apparent chargeability and resistivity grids;
- AIIP report.

# 1. SURVEY LOCATION

The VTEM survey blocks were located south of Dawson City, Yukon, Figure 1.

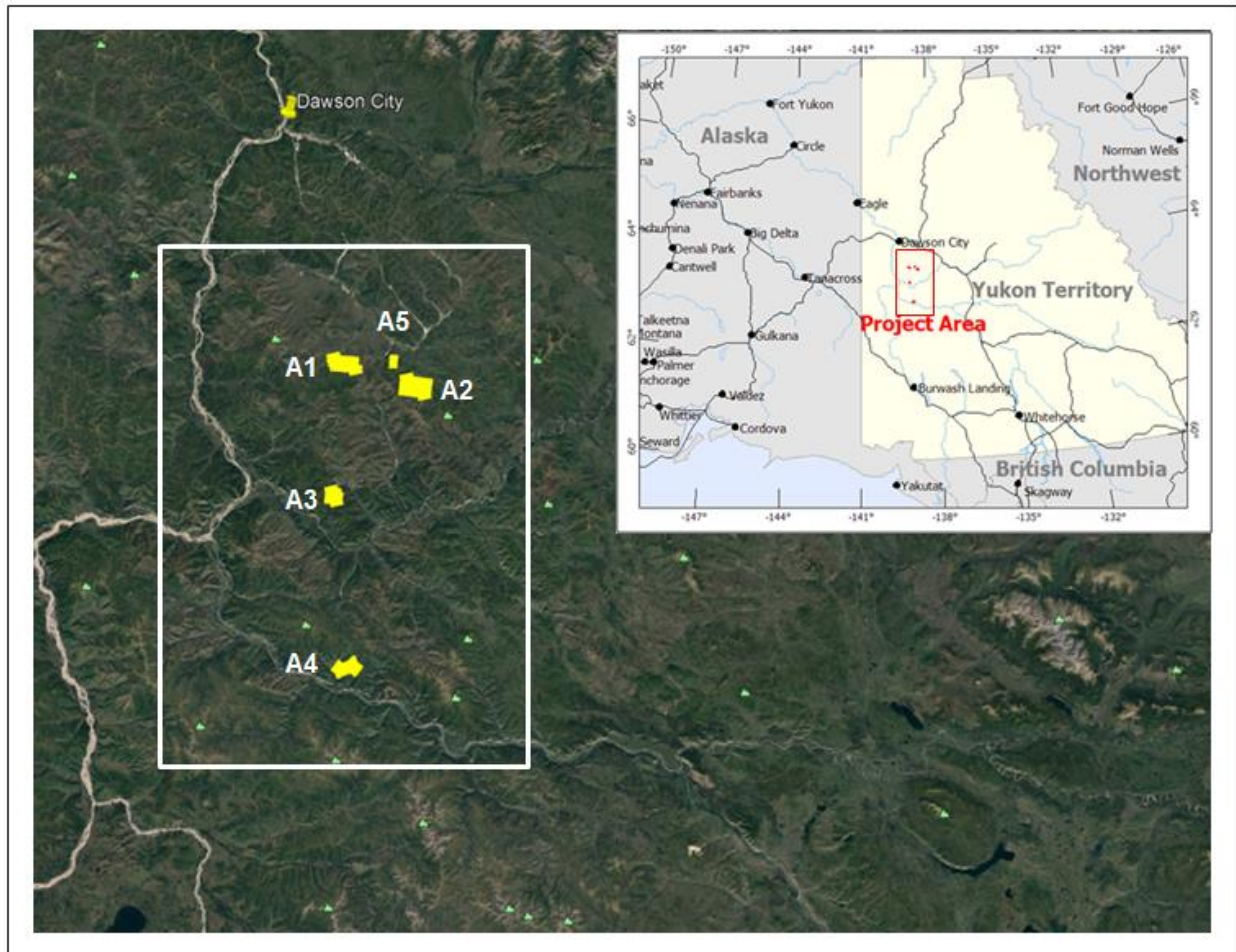


Figure 1: VTEM survey location (image from Google Earth).

The survey areas were flown in an east to west (N 70° E azimuth) direction over A1 (Ophir), A2 (Sheba), and A3 (Hav) blocks. The A4 (Tak) block was flown in a northeast to southwest (N 30° E azimuth), and the A5 (Etta) block was flown in a north to south (N 178° E azimuth). The nominal traverse line spacing is 100 metres.

Blocks A1, A5 and A2 are located approximately 60 kilometers SSE of Dawson City, Yukon. A4 is located approximately 126 kilometers south of Dawson City.



## 2. AIRBORNE INDUCTIVELY INDUCED POLARIZATION (AIIP)

The objective of AIIP mapping of VTEM data from is to derive Cole-Cole apparent chargeability and resistivity maps for a fixed frequency factor  $c$ .

### 2.1 AIIP EFFECTS IN VTEM DATA

Airborne VTEM™plus data from Coffee Road Property reflect mainly two physical phenomena in the earth:

1. Electromagnetic (EM) induction, related to sub-surface conductivity and governed by Faraday's Law of induction;
2. Induced polarization (IP) effect, related to the relaxation of polarized charges in the ground (Pelton et al., 1978, Weidelt, 1982, Kratzer and Macnae, 2012 and Kwan *et al.*, 2015a and 2015b);

For mineral exploration, near-surface sources of AIIP are clays through membrane polarization (electrical energy stored at boundary layer) and most metallic sulphides, some oxides (i.e. magnetite) and graphite through electrode polarization (electrical charges accumulated through electrochemical diffusion at ionic-electronic conduction interfaces).

The absence of negative transients does not preclude the presence of AIIP (Kratzer and Macnae, 2012). The case is clearly illustrated in Figure 2, showing forward modeled VTEM decays over a chargeable half-space of different chargeabilities, using the Cole-Cole relaxation model (Appendix A). As chargeability value increases from  $m=0$  (purely inductive), the rate of VTEM decay increases (pulling down) also in mid-times and eventually crosses into the negative when  $m \approx 0.8$  V/V. But for vast majority of  $m$  values less than 0.8 V/V, there are no negatives in the VTEM decays.

The amount of deviation from the ideal inductive response of a half space with resistivity  $\rho_0$  is a measure of the strength of AIIP.

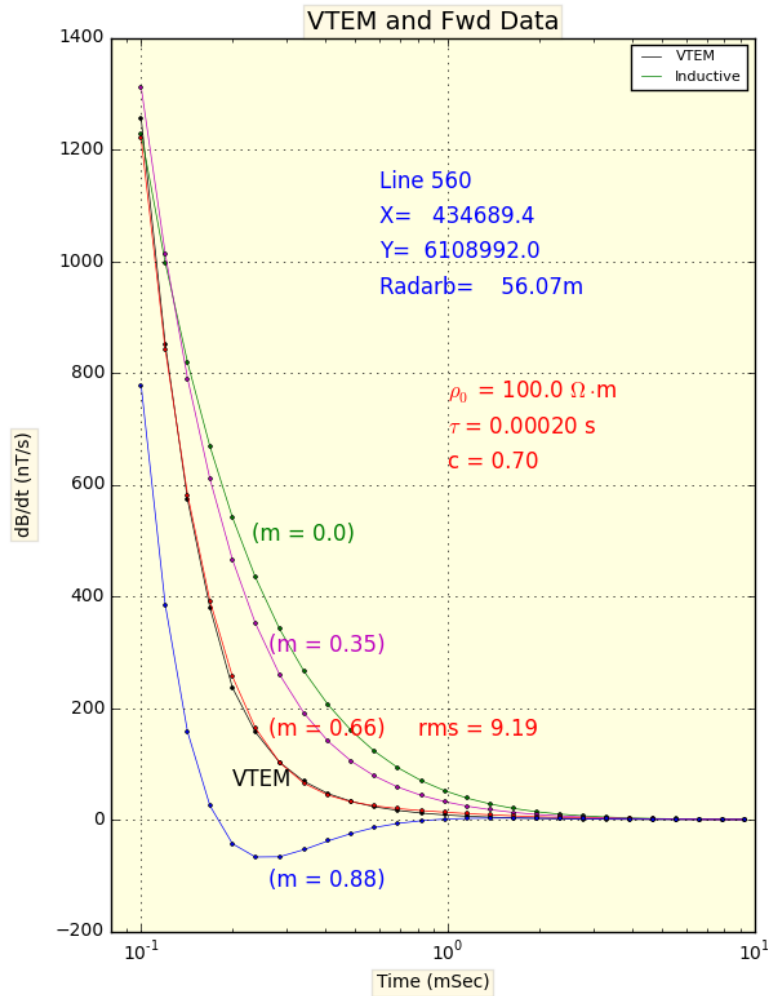


Figure 2: Forward modelled VTEM decays for different chargeability  $m$  values; the observed VTEM decay (black) was from Mount Milligan, British Columbia, fits well with the modeled decay (red) with  $m=0.66$ .

Numerous negative transients are observed in the VTEM data from A3 and A4. Some of them from L7120 of A4 (Tak) block are shown in Figure 3, providing unequivocal pieces of evidence that there are AIIP effects in the VTEM data.

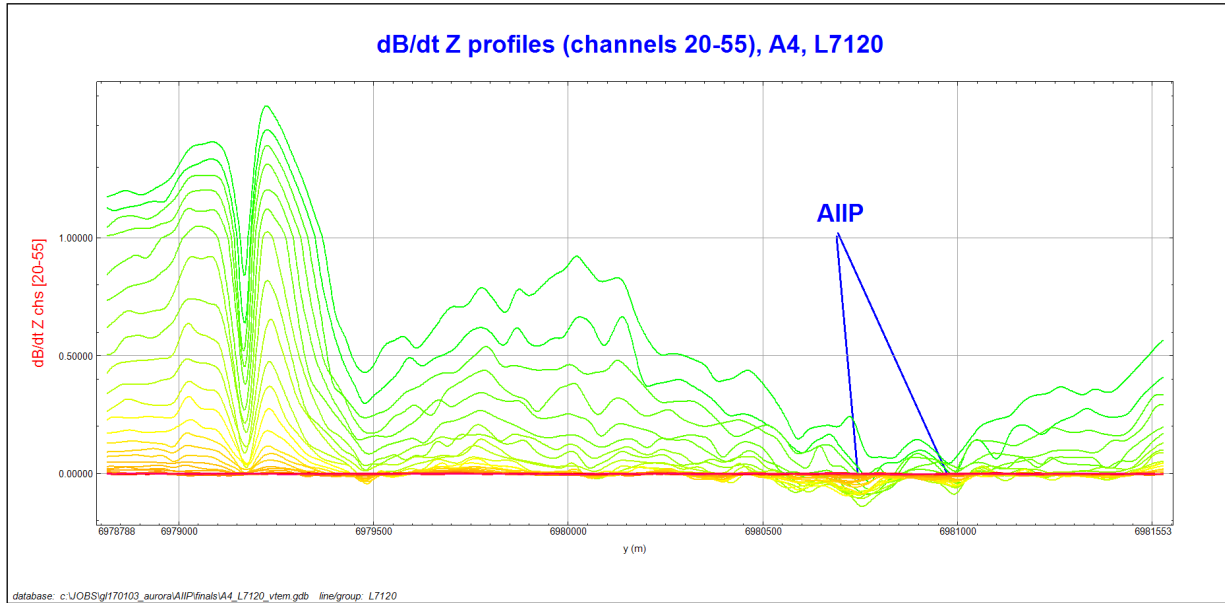


Figure 3: AIIP anomalies in L7120, A4 (Tak) block.

## 2.2 AIIP MAPPING

VTEM decays associated with AIIP can be studied using the empirical Cole-Cole complex resistivity model (Cole and Cole, 1941 and Pelton *et al.*, 1978), shown in equation (1).

$$\rho(\omega) = \rho_0 \left[ 1 - m \left( 1 - \frac{1}{1 + (i\omega\tau)^c} \right) \right] \quad (1)$$

In the equation above,  $\rho_0$  is the DC resistivity,  $m$  ( $0 \leq m \leq 1.0$ ) is the chargeability in (V/V),  $\tau$  is the Cole-Cole time constant in second,  $\omega = 2\pi f$ , and  $c$  ( $0 \leq c \leq 1.0$ ) is the frequency factor. The four parameters ( $\rho_0$ ,  $m$ ,  $\tau$  and  $c$ ) are characteristic of a polarizable ground.

In general, chargeability  $m$  and Cole-Cole time constant  $\tau$  depend on the quantity and size of polarizable elements in the ground (Pelton *et al.*, 1978). The frequency factor describes the size distribution of the polarizable elements (Luo and Zhang, 1998). When  $c=1$ , the time-domain decay modelled by Cole-Cole model represents the Debye decay, and when  $c=0.5$ , the time-domain decay is the Warburg decay (Wong, 1979).

The extraction of the four Cole-Cole parameters ( $\rho_0$ ,  $m$ ,  $\tau$  and  $c$ ) from airborne VTEM data is a difficult task. Kwan *et al.* 2015a developed an algorithm, based on Airbeo from CSIRO/AMIRA<sup>1</sup> (Chen & Raiche 1998; Raiche 1998), to extract the ( $\rho_0$ ,  $m$  and  $\tau$ ) parameters while the frequency factor is fixed. There are two deficiencies in the algorithm; one, the precision of the derived ( $m_0$ ,  $\tau_0$ ) depends on the final mesh size, and two, many of the inversions at the mesh locations far away from ( $m_0$ ,  $\tau_0$ ) are not necessary.

<sup>1</sup> Commonwealth Scientific and Industrial Research Organization and Amira International;

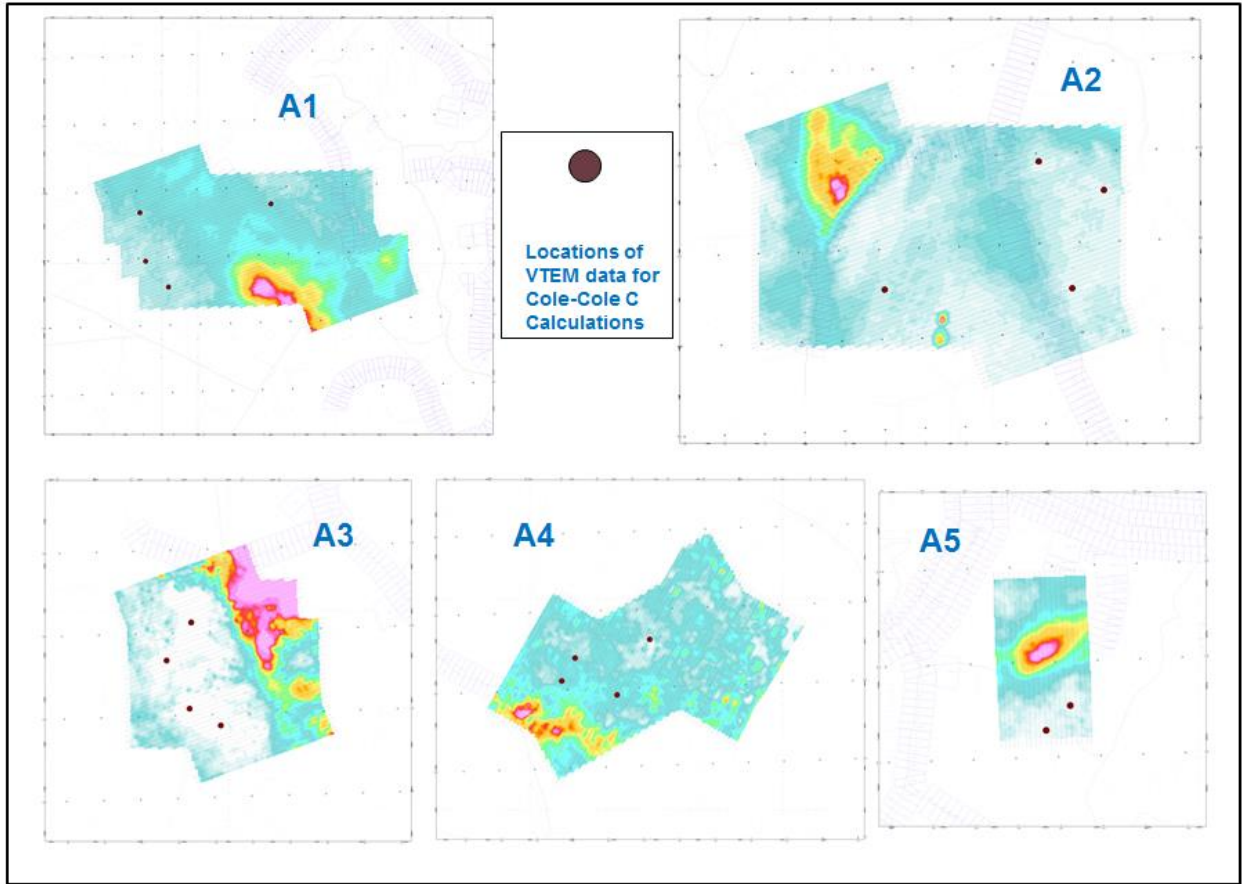
An improved version of the AIIP mapping algorithm has since been developed by Geotech (Appendix A). The new method applies the Nelder-Mead Simplex minimization (Nelder and Mead, 1965) in the two-dimensional ( $m, \tau$ ) plane. At each required test point ( $m_i, \tau_i$ ), the optimal background resistivity  $\rho_0$  is found by one-dimensional Golden-Section minimization for the user specified resistivity range. The algorithm uses only Airbeo's forward modeling kernel, which can generate synthetic VTEM data with high precision. The Nelder-Mead (NM) search algorithm is more efficient than the grid search method by Kwan *et al.* 2015a, and generates much more precise apparent chargeabilities, resistivities, and IP relaxation time constants. The improved NM AIIP mapping algorithm has been used to process the airborne time-domain electromagnetic data from numerous VTEM surveys since 2015.

AIIP processing is applied to VTEM data desampled to 10 m interval.

### 2.3 DETERMINATION OF FREQUENCY FACTOR C

The Geotech AIIP chargeability mapping algorithm described in Appendix A requires fixed frequency factor  $c$ , while the DC resistivity, chargeability  $m$  and IP relaxation time constant  $\tau$  are allowed to vary. The determination of frequency factor  $c$  for selected VTEM data is carried out by interactive forward modelling software, also based on Airbeo from CSIRO/AMIRA. The locations of selected VTEM decays for  $c$  calculations, over EM induction time-constant  $\tau$ , are shown in Figure 4. Eighteen (18) frequency factor  $c$  values are determined from the selected VTEM decays. All  $c$  values equal to 0.7.





**Figure 4:** The locations of VTEM decays used for frequency factor  $c$  determination over time-constant  $\tau$ , areas A1 to A5.

Full Cole-Cole forward modelling results for four selected VTEM decays are shown in Figure 5.

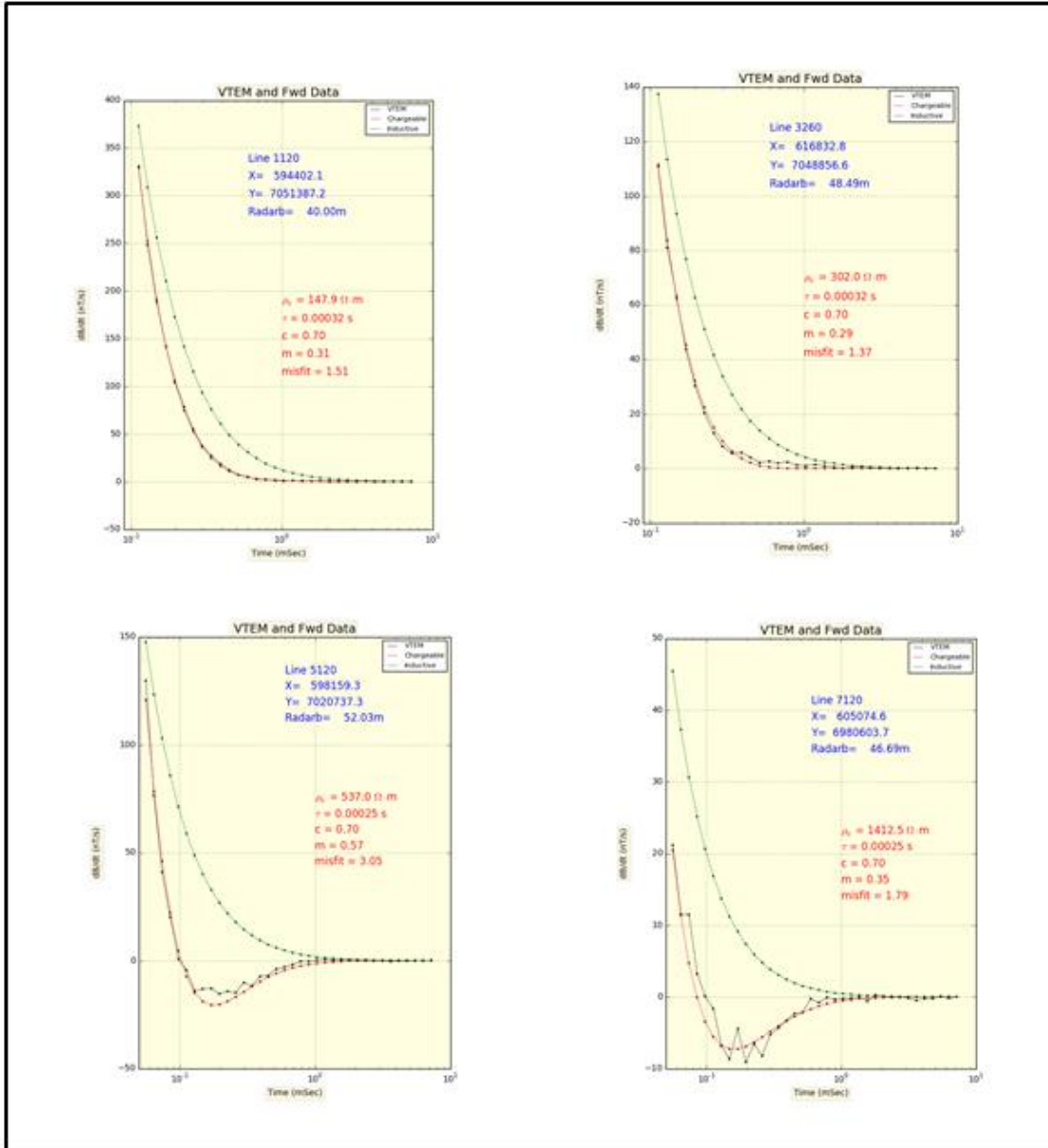


Figure 5: Cole-Cole parameters of four AIIP forward models and corresponding decays; purely inductive m=0 (green), observed data (black) and forward modeled data (red).

Typical Cole-Cole spectra for c=0.7 is shown in Figure 6. The width of the phase curve depends on c. For large c, the grain sizes of the polarizable material are distributed in a narrow range (or more uniformly distributed). The peak of the phase curve is related to the IP relaxation time-constant  $\tau$ , or the average grain size of the polarizable materials.

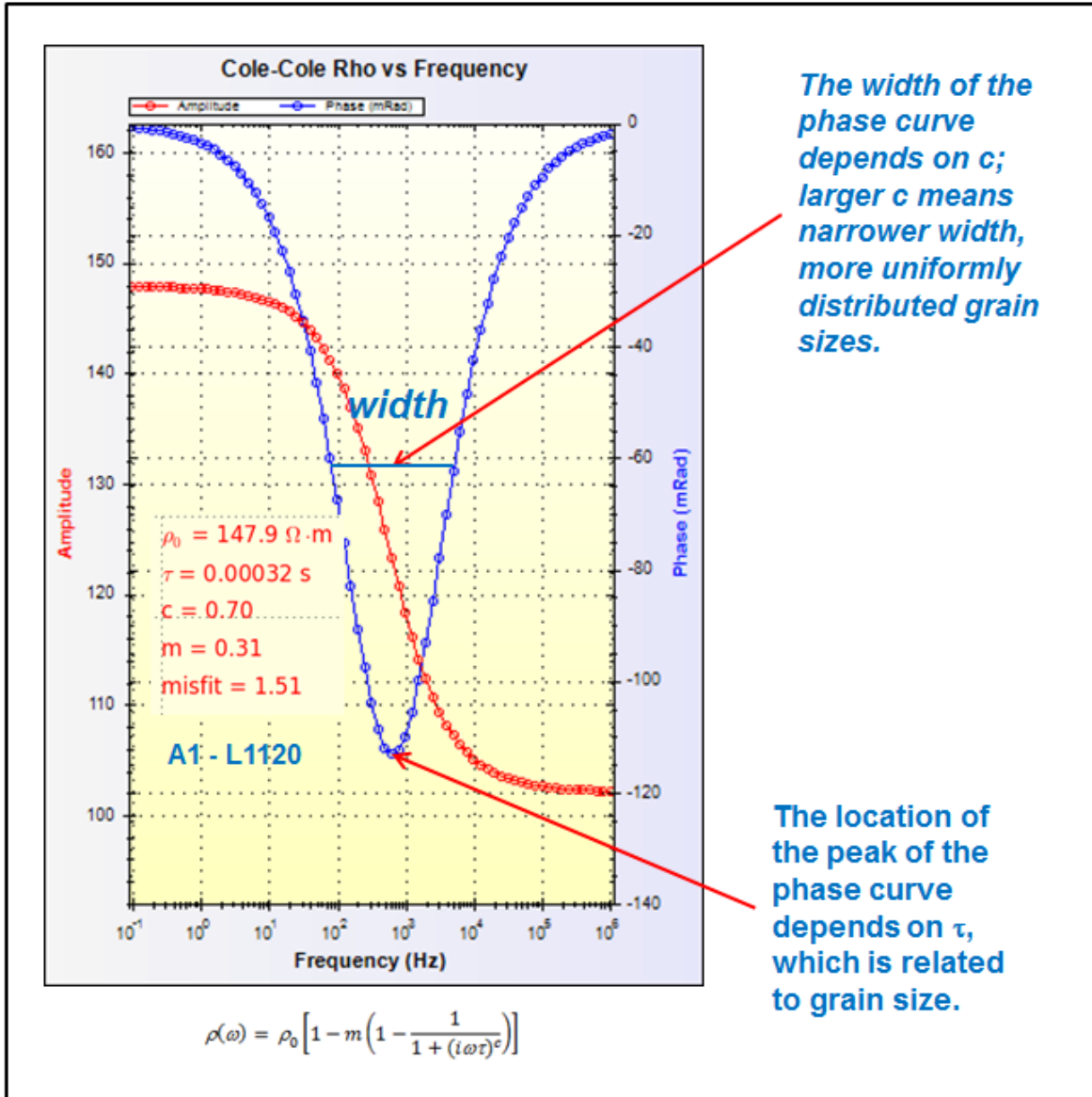
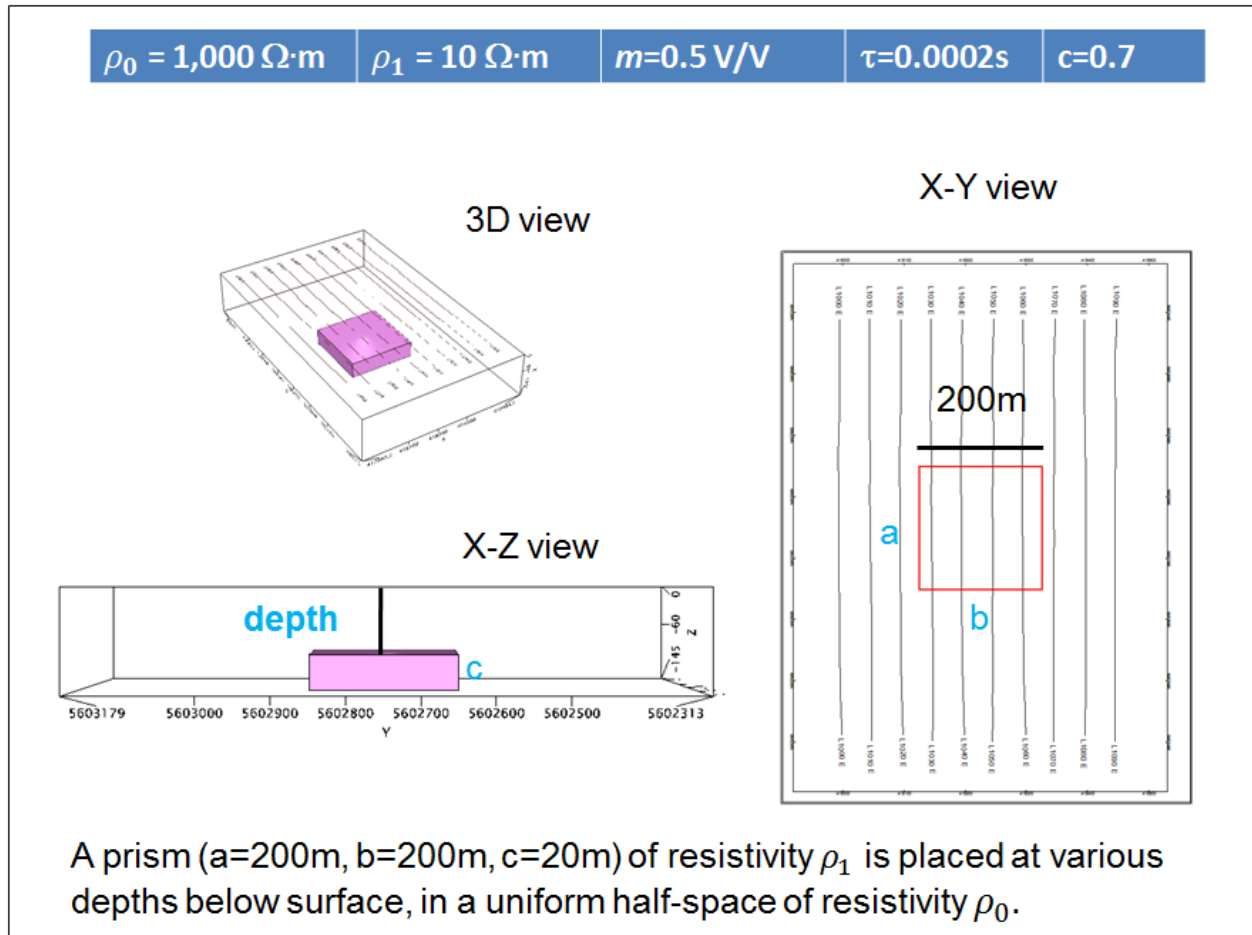


Figure 6: The relationship between the distribution of grain sizes and the frequency factor  $c$  is illustrated in the Cole-Cole spectra of  $c=0.7$ .

## 2.4 AIIP DEPTH OF INVESTIGATION

Using a buried chargeable prism in a uniform, non-polarizable ground, the depth of investigation of AIIP is studied. A 200 m by 200 m by 20 m prism of resistivity  $\rho_1 = 10 \Omega \cdot m$ ,  $m = 0.5$  v/v,  $\tau = 0.0002s$  and  $c = 0.7$  is placed at various depths below ground in a resistive half space of resistivity  $\rho_0 = 1,000 \Omega \cdot m$ , Figure 7. The size of the prism is within the footprint of the VTEM system, and the ground in the south of Coffee Road Property (A3 and A4) is quite resistive.

The software MarcoAir (CSIRO/AMIRA, Xiong and Tripp 1995) is used to generate the synthetic VTEM data in the AIIP depth of investigation. MarcoAir computes the airborne electromagnetic responses for prisms in layered earth. The Cole-Cole relaxation model is incorporated in MarcoAir.

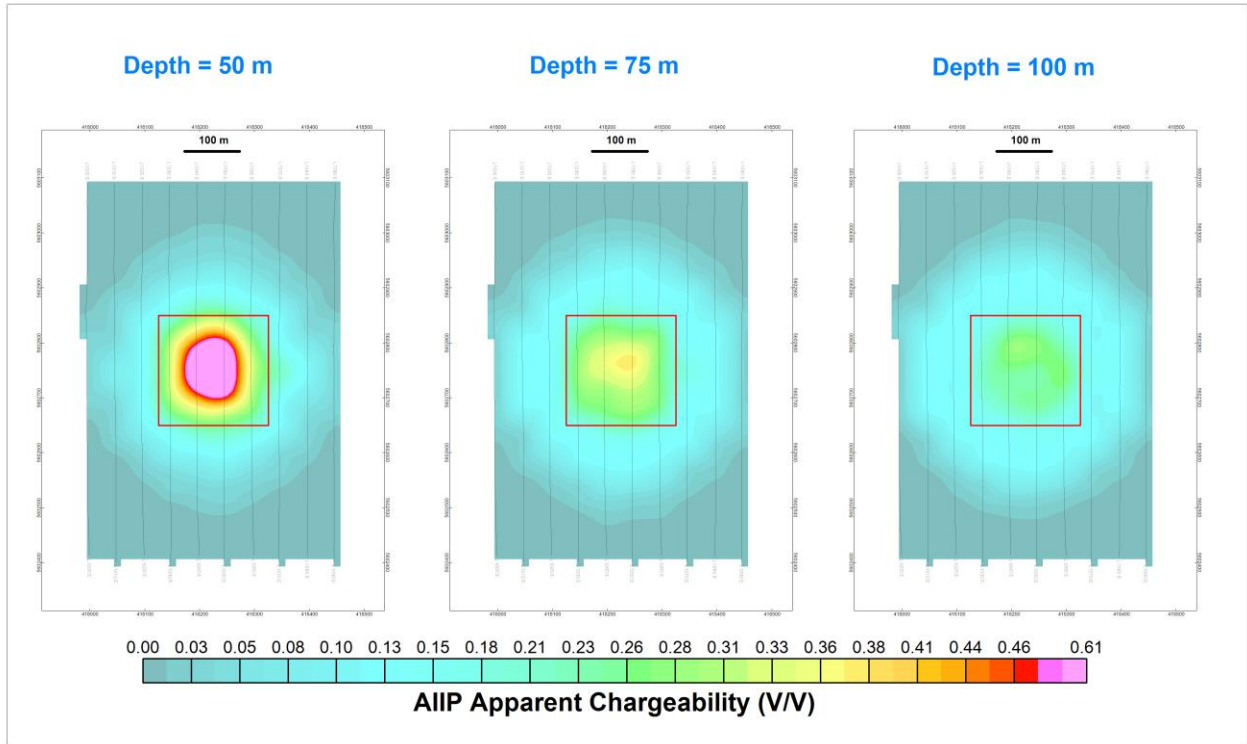


**Figure 7:** The setup of the 3D prismatic model for AIIP depth of investigation.

The AIIP apparent chargeability maps for the prisms buried at 50m, 75m and 100m depths are shown in Figure 8.

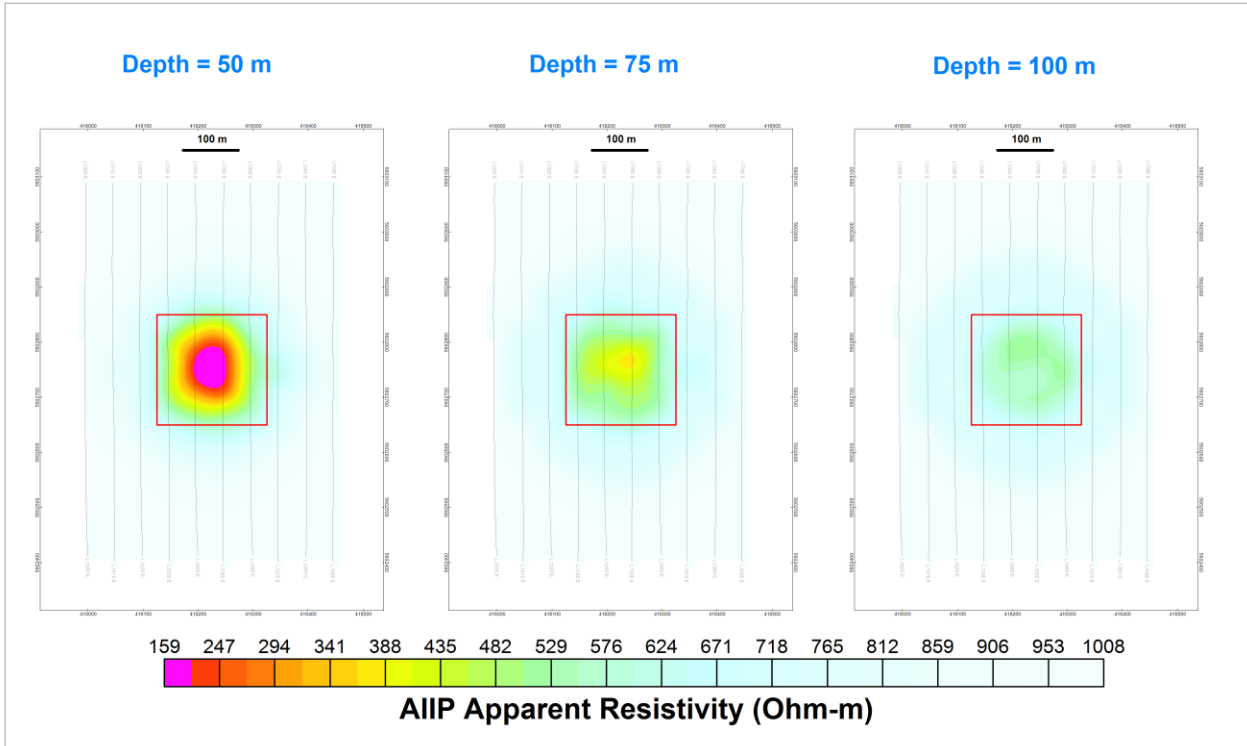
For the case of 50m deep prism, the maximum value of the recovered AIIP apparent chargeability is 0.58 V/V. The maximum recovered AIIP apparent chargeability for the 75m deep prism is 0.39 V/V. At 100m depth, maximum recovered AIIP apparent chargeability is 0.28 V/V, and the prism can still be detected and mapped by the VTEM system.





**Figure 8:** AIIP apparent chargeabilities for prisms located 50m, 75m and 100m below ground; the same color scheme is used.

The AIIP apparent resistivity maps for the prisms buried at 50m, 75m and 100m depths are shown in Figure 9.



**Figure 9:** AIIP apparent resistivities for prisms located 50m, 75m and 100m below ground; the same color scheme is used.

At 100m depth in a resistive (1000 Ohm-m) host, a moderately chargeable prism may still be detectable by VTEM system, and the apparent chargeability (albeit weak) and resistivity recovered by AIIP mapping, as illustrated in Figure 10. Again, the expression of the AIIP effect in VTEM data is the distortion of the decay curve. Negative transient is not required to prove the existence of AIIP effect in VTEM data.

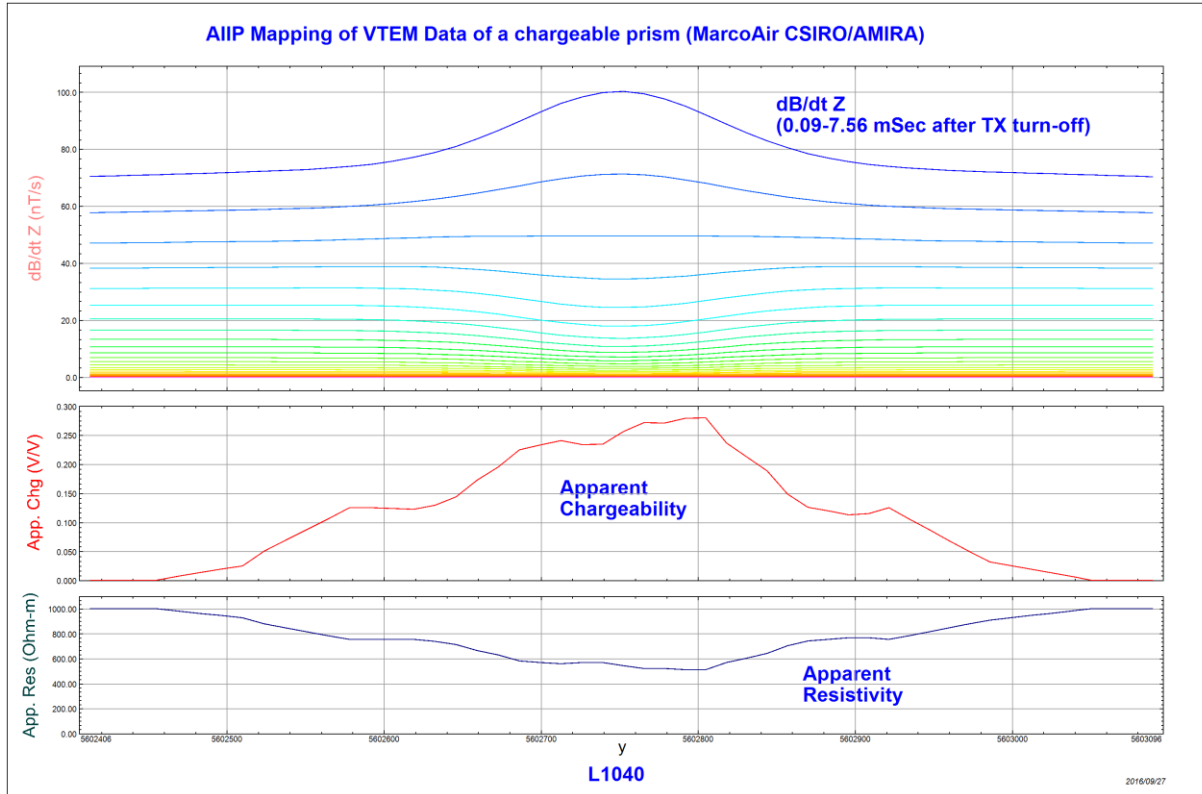


Figure 10: Forward modeled VTEM data of a chargeable prism at 100m depth, and recovered apparent chargeability and resistivity, synthetic line L1040 (just left of the prism centre).

### 3. AIIP CHARGEABILITY MAPPING RESULTS

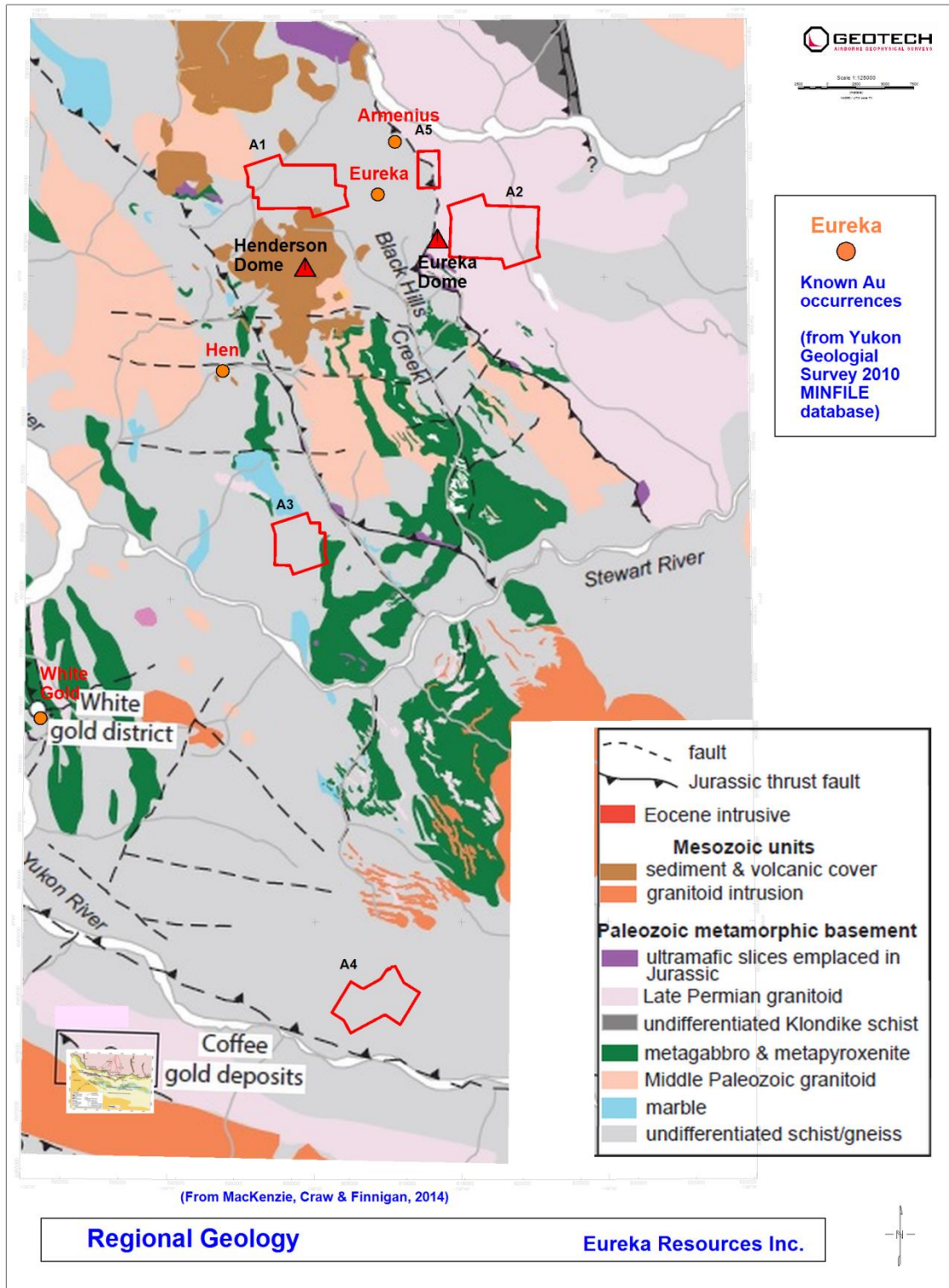
#### 3.1 GEOLOGY AND KNOWN GOLD MINERALIZATION

The discussions of the geology of the Coffee Road property are based mainly on the work by MacKenzie, Craw & Finnigan., 2014.

The basement of the Coffee Road property consists of the Paleozoic metamorphic rocks of the Yukon Tanana Terrane (YTT), Figure 11, Mackenzie, Craw & Finnigan, 2014. The basement rocks of VTEM areas A1, A3, A4 and western half of A5 are mainly undifferentiated schist and gneiss, and the basement of areas A2 and eastern half of A5 comprises mainly of Late Permian granitoid.

The basement rocks were deformed, folded and stacked during the Jurassic along regional-scale thrust faults. Greenschist facies shear zones and alteration developed during this time. Later stages of more brittle folding and fracturing subsequently developed and were locally infilled by orogenic quartz veins formed from fluids generated at depth within the thickened metamorphic pile. Hydrothermal alteration and disseminated gold mineralization in the White Gold District located just west of the Coffee Road property are structurally controlled by extensional fractures and EW striking Jurassic faults and shear zones, Mackenzie, Craw & Finnigan, 2014.





**Figure 11:** Regional geology of the Coffee Road Property, from MacKenzie, Crow & Finnigan, 2014, three known gold occurrences, i.e., Armenius, Eureka & Hen (from Yukon Geological Survey 2010 and appeared in Chapman et al., 2011) and the Coffee gold deposits (from Bultenhuis, Boyce & Finnigan, 2015) located west and southwest of A4.

Chapman, Mortensen & LeBarge, 2011 concluded that the placer gold deposits of the Indian River and Black Hills Creek (A1, A2 & A5) had formed mainly as a consequence of erosion of orogenic gold mineralization.

Bailey, 2013 proposed a Jurassic orogenic gold mineralization model for the Golden Saddle gold deposit, west and southwest of A3, in the White Gold District.

The Coffee deposits, west and southwest of A4, represent the shallower epizonal extensions of the mesozonal orogenic mineralization at the Boulevard deposit, a Cretaceous orogenic gold deposit, to the south (Buitenhuis, Boyce & Finnigan, 2015).

### 3.2 MAGNETIC DATA

Potential orogenic gold mineralization in the Coffee Road property is likely to be controlled by local scale geological structures such as fractures or faults, which can be mapped by the magnetic data.

The interpreted structures, i.e., faults, and possible thrusts and intrusions over the Calculated Vertical Gradient (CVG) data of the VTEM areas are shown in Figure 12.

The inferred faults may act as conduits or pathways for possible metamorphic or hydrothermal fluids, leading to possible hydrothermal alteration or even gold mineralization in host rocks.

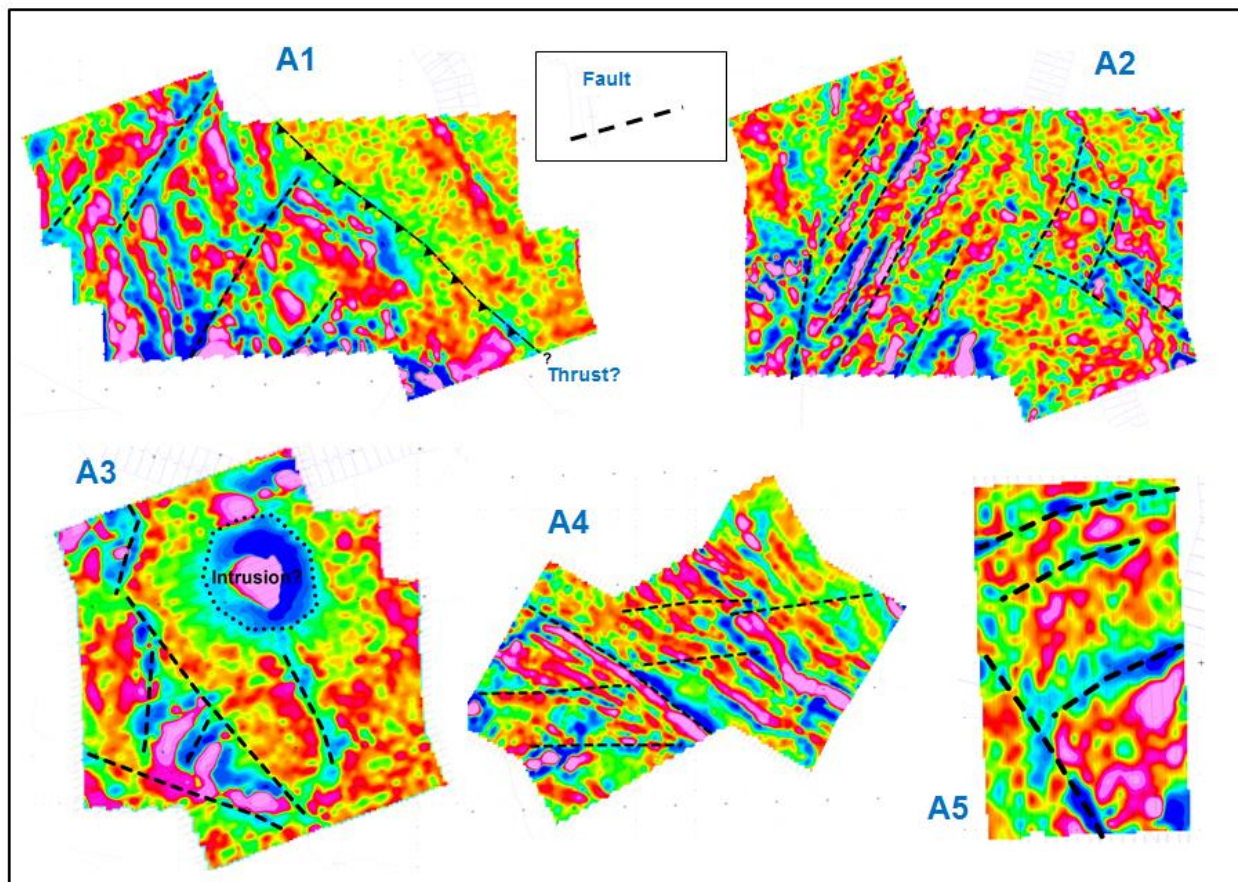




Figure 12: Inferred faults and possible thrust (A1) and intrusion (A3) over the CVG data of VTEM areas.

### 3.3 AIIP MAPS AND POTENTIAL GOLD PROSPECTS

The AIIP apparent chargeability and resistivity maps derived using frequency factor  $c$  of 0.7 of A1 block are shown in Figure 13. The strong conductive and chargeable zones don't appear to be coinciding with the drainages, implying that the conductive and chargeable materials are located within the hard rocks. The AIIP anomalies could be related to the fault zones, which acted as conduits for hydrothermal or metamorphic fluids possibly carrying sulphide minerals and even gold. The AIIP conductive and chargeable zones are selected as potential orogenic gold exploration prospects.

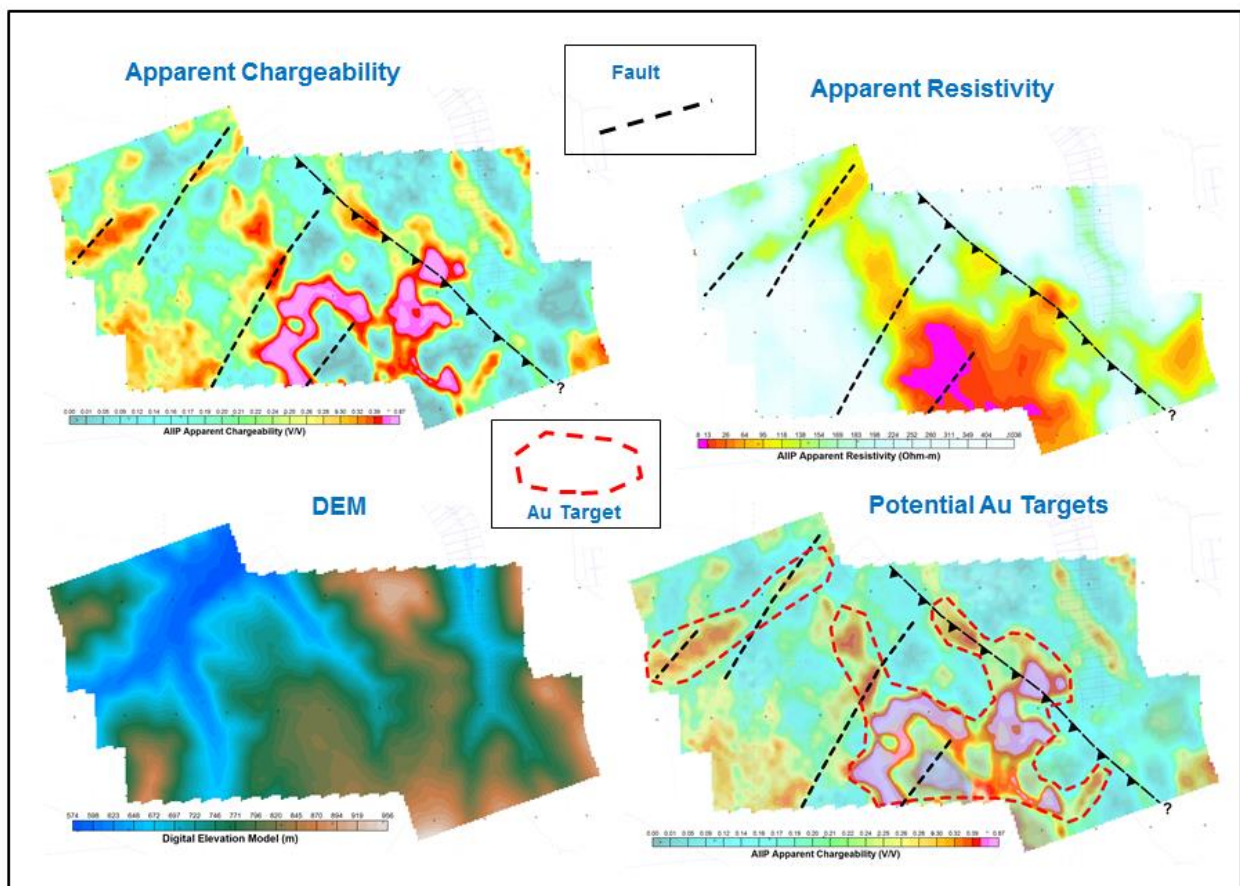


Figure 13: AIIP apparent chargeability, resistivity maps, DEM and potential gold targets, A1 block.

The AIIP apparent chargeability and resistivity maps of A2 block are shown in Figure 14. It appears that the conductive zones follow more or less the drainages. However, the chargeable anomalies in the west of the block don't appear to be related to drainages. These chargeable anomalies could be related to the NE-SW trending inferred faults in the same area. A potential orogenic gold exploration prospect for A2 is identified and shown over the AIIP apparent chargeability.

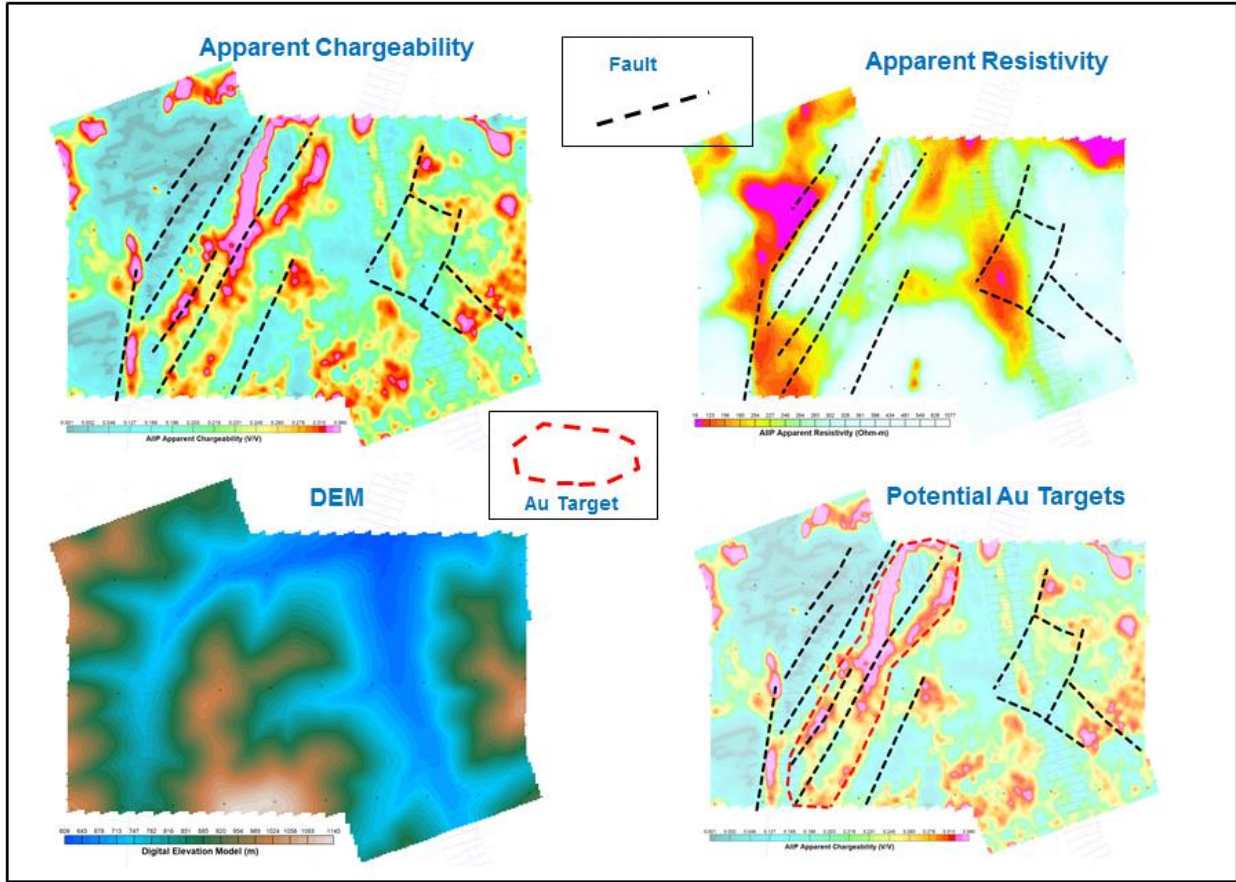


Figure 14: AIIP apparent chargeability, resistivity maps, DEM and potential gold targets, A2 block.

The AIIP apparent chargeability and resistivity maps of A3 block are shown in Figure 15. It appears that the AIIP anomalies do not follow the drainages. The chargeable anomalies are located within resistive terrains, implying that they could be possibly related to sulphide mineralization in quartz veins. A potential gold exploration prospect in the western half of A3 block is outlined and displayed over the AIIP apparent chargeability.



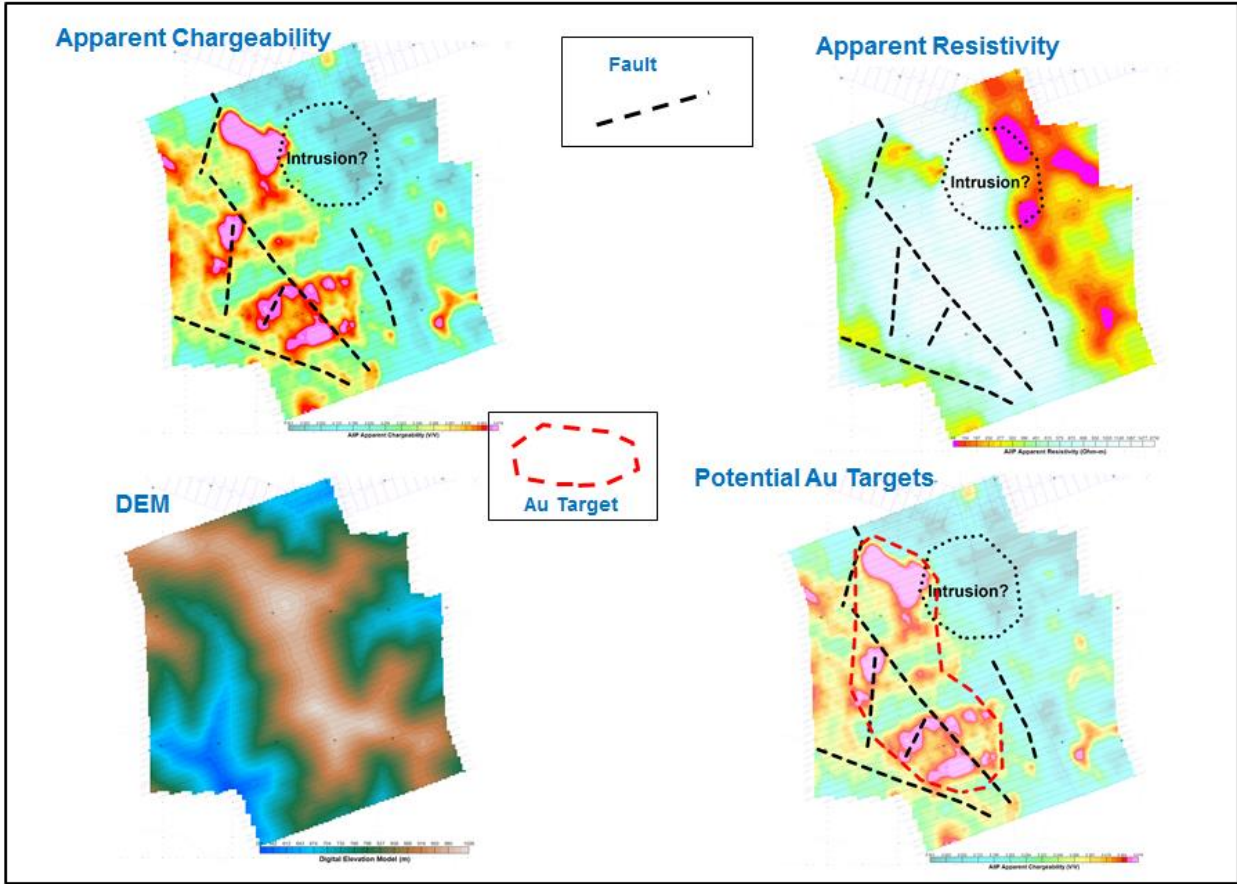


Figure 15: AIP apparent chargeability, resistivity maps, DEM and potential gold targets, A3 block.

The AIP apparent chargeability and resistivity maps of A4 block are shown in Figure 16. It appears that the AIP apparent chargeability anomalies do not follow the drainages, but the AIP apparent resistivity anomalies appear to follow the drainages closely in the SW portion of A4. The chargeable anomalies are located within resistive terrains in the NE of A4, implying that they could be possibly related to sulphide mineralization in quartz veins. The chargeable anomalies seem to trend parallel to the inferred faults. A potential gold exploration prospect in A4 block is identified and displayed over the AIP apparent chargeability.

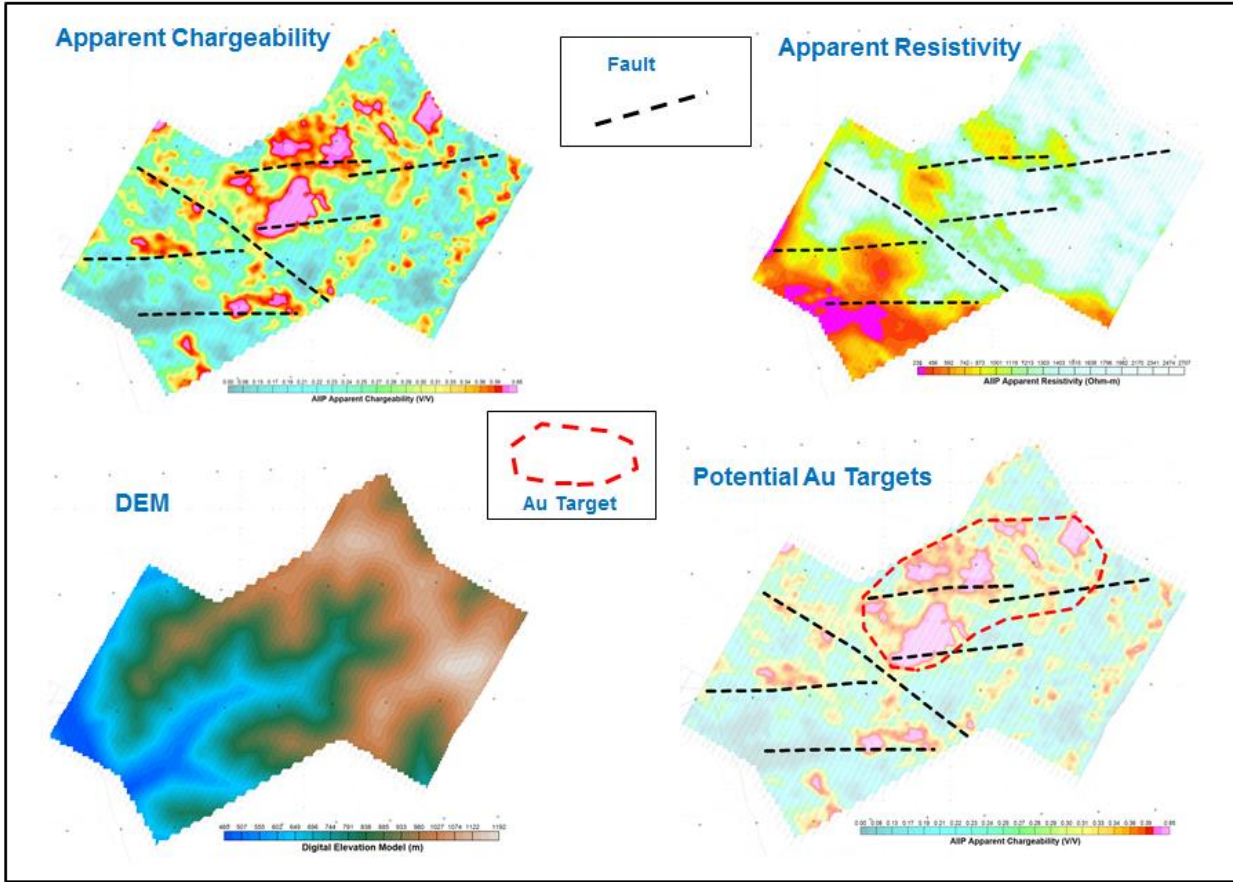


Figure 16: AIIP apparent chargeability, resistivity maps, DEM and potential gold targets, A4 block.

The AIIP apparent chargeability and resistivity maps of A5 block are shown in Figure 17. It appears that the AIIP anomalies don't follow the drainages. The chargeable anomalies in the south of the block are located in resistive terrains and they could be related to sulphides in quartz veins. The chargeable anomalies in the north are located very close to the central conductive zone, which is trending ENE direction and fairly conductive. The central conductive zone could be related to possible massive sulphide mineralization. Potential gold exploration prospects for A5 are identified and shown over the AIIP apparent chargeability.

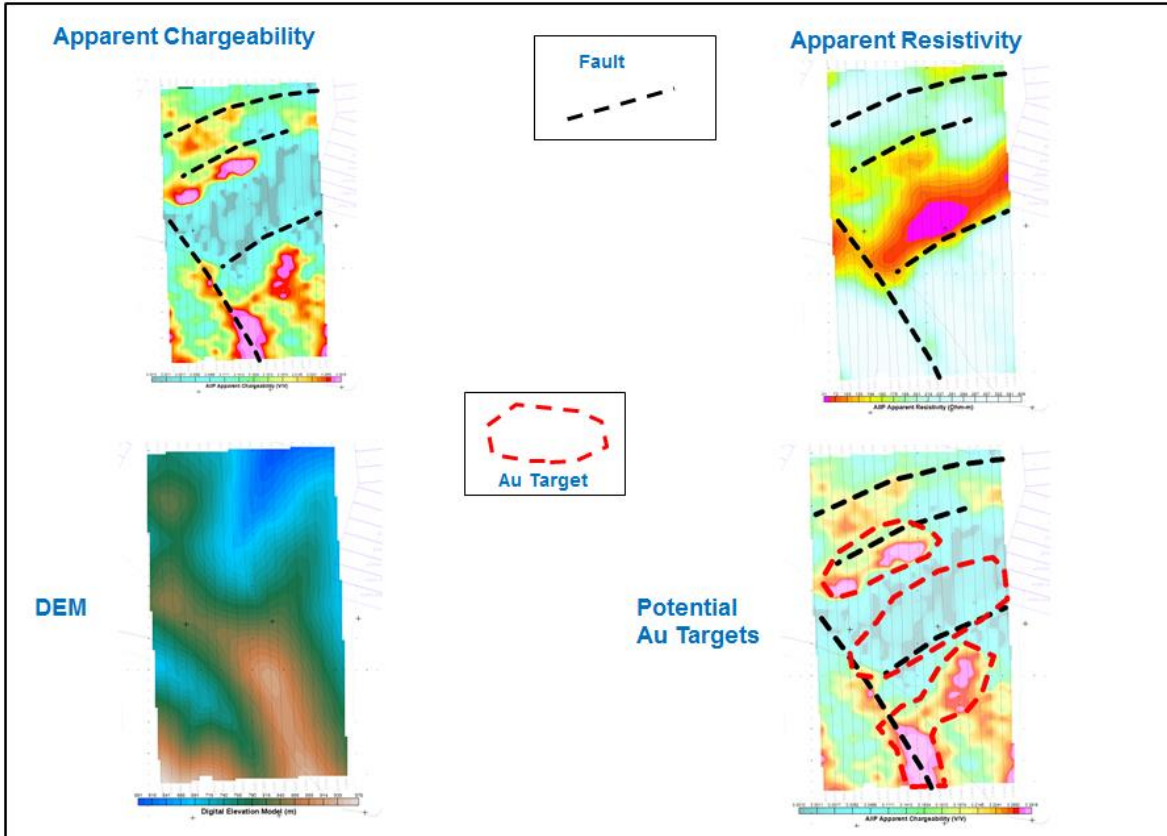


Figure 17: AIP apparent chargeability, resistivity maps, DEM and potential gold targets, A5 block.

### 3.4 DISCUSSIONS OF AIP SOURCES

The following discussions focus on the possible sources of AIP and implications for the exploration of potential orogenic gold mineralization in the VTEM blocks.

There are three main sources of orogenic gold (Augustin & Gaboury, 2017 and references therein):

1. Intrusion-related sources (e.g. Porphyries);
2. Carbonaceous, pyrite-rich sedimentary rocks (Large *et al.*, 2011);
3. Plume-related basaltic rocks (Bierlein & Pisarevsky, 2008);

The first two possible sources of gold could be present in the VTEM blocks.

The majority of orogenic gold deposits formed proximal to regional terrane-boundary structures that acted as vertically extensive hydrothermal plumbing systems, and most deposits are sited in second or third order splays or fault intersections that define domains of low mean stress and correspondingly high fluid fluxes, McCuaig and Kerrich 1998.

The origin of gold in some types of orogenic gold deposits, such as turbidite-hosted, or sediment-hosted gold deposits, is an active research topic. Some of the conventional beliefs and new ideas

from Large *et al.*, 2011 regarding the carbonaceous pyrite-rich sedimentary source of gold for these deposits are listed below, representing two different theories. In either case, structure, i.e., fault, and hydrothermal activity are two of the most critical factors in the formation of the gold deposits.

<b><i>Conventional Beliefs</i></b>	<b><i>New Ideas (Large et al., 2011)</i></b>
Gold is coming from some deep sources or from crustal granite	Gold is already present in the sedimentary basin
Graphitic sediments are good trap rocks for gold	Graphitic sediments are ideal source rocks for Au & As and other trace elements
Gold is introduced late; i.e., syn-tectonic or post-tectonic	Gold is introduced early; i.e., pre-tectonic and moved around late during tectonism

Some AIIP results have indicated that some hydrothermal alteration products, i.e., hydrothermal pyrite, can generate conductive and chargeable responses in VTEM data. The linear conductive and chargeable trends tend to coincide with or to be located in close proximity to fault zones, which acted as conduits for hydrothermal or metamorphic fluids.

The hydrothermal alteration assemblages, i.e., sericitization, carbonatization, sulphidation (pyrite) and etc., are common to many orogenic gold deposits, Bierlein *et al.*, 2000, and the recognition of extensive alteration halos around them, especially hydrothermal pyrites, by AIIP mapping represents a potentially powerful tool for gold exploration.

The hydrothermal alteration products in general are fine-grained.



## 4. CONCLUSIONS AND RECOMMENDATIONS

The AIIP chargeability mapping of VTEM data from the A1-Ophir, A2-Sheba, A3-Hav, A4-Tak, and A5-Etta blocks located within the Coffee Road Property, Yukon, has been carried out.

Potential exploration prospects for orogenic gold mineralization in the blocks are identified and they are recommended for follow-up.

Respectfully submitted,

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September 20, 2017

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<sup>2</sup> The designation of P.Ge. (Limited) by Association of Professional Geoscientists of Ontario permits the principal interpreter to practice in the field of exploration geophysics only.

## ACKNOWLEDGEMENTS

The AIIP chargeability mapping algorithm, developed by Geotech, is based on Airbeo (CSIRO/AMIRA), which is part of a suite of software of project P223F released to the public in 2010 by CSIRO/AMIRA.

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## APPENDIX A: AIIP Mapping

### INTRODUCTION

Data acquired by airborne in-loop time-domain electromagnetic (EM) systems, such as VTEM<sup>TM</sup> (Witherly et al., 2004), reflect mainly two physical phenomena in the earth: (1) EM induction, related to ground conductivity, (2) Airborne Inductively Induced Polarization (AIIP), related to the relaxation of polarized charges in the ground (e.g., Kratzer & Macnae 2012 and Kwan *et al.*, 2015).

It has been shown by Smith and West (1989) that the in-loop EM system is optimally configured to excite a unique AIIP response, including negative transients in mid to late times over resistive grounds, from bodies of modest chargeability.

Negative transients observed in airborne time domain EM data (e.g. Smith and Klein, 1996 and Boyko et al. 2001) are attributed to airborne inductive induced polarization (AIIP) effects. However, the absence of negative transients does not preclude the presence of AIIP, because of the IP effect takes finite time to build up or the IP effect may be obscured by the conductive ground (Kratzer and Macnae, 2012).

In mineral exploration, near-surface sources of AIIP are clays through membrane polarization (electrical energy stored at boundary layer) and most metallic sulphides and graphite through electrode polarization (electrical charges accumulated through electrochemical diffusion at ionic-electronic conduction interfaces). Some kimberlites in Lac de Gras kimberlite field are known to have AIIP signatures (Boyko *et al.*, 2001).

The widely used theory to explain the IP effect is the empirical Cole-Cole relaxation model (Cole and Cole, 1941) for frequency dependent resistivity  $\rho(\omega)$ ,

$$\rho(\omega) = \rho_0 \left[ 1 - m \left( 1 - \frac{1}{1 + (i\omega\tau)^c} \right) \right] \quad (1)$$

where  $\rho_0$  is the low frequency asymptotic resistivity,  $m$  is the chargeability,  $\tau$  is the IP relaxation time constant,  $\omega = 2\pi f$ , and  $c$  is the frequency factor.

The extraction of AIIP chargeability  $m$  using the Cole-Cole formulation from VTEM data had been demonstrated by Kratzer and Macnae, 2012 and Kwan *et al.*, 2015.

An improved version of AIIP chargeability mapping tool based on CSIRO/AMIRA Airbeo has been developed for VTEM system and tested on VTEM data from Mt Milligan, British Columbia, Canada, and Tullah, Tasmania.

### IMPROVED AIIP MAPPING ALGORITHM

#### Search for $m$ and $\tau$ using Airbeo forward modeling

The extraction of the four Cole-Cole parameters ( $\rho_0$ ,  $m$ ,  $\tau$  and  $c$ ) from airborne VTEM data can be a difficult task. The AIIP mapping algorithm originally developed by Kwan *et al.*, 2015 suffers lack of precision for the derived apparent chargeability  $m$  and resistivity  $\rho_0$ , and is computationally very slow. Geotech has recently developed an improved version of AIIP mapping algorithm, based on Airbeo from CSIRO/AMIRA<sup>1</sup> (Chen & Raiche 1998; Raiche 1998) to extract the ( $\rho_0$ ,  $m$  and  $\tau$ ) parameters while keeping the frequency factor  $c$  fixed. The new method applies the Nelder-Mead Simplex minimization (Nelder and Mead, 1965) in the two-dimensional ( $m, \tau$ ) plane. At each required test point ( $m_i, \tau_i$ ), the optimal background resistivity  $\rho_0$  is found by one-dimensional Golden Section minimization (Press *et al.*, 2002). The algorithm uses only Airbeo's forward modeling kernel, which can generate synthetic VTEM data with high precision. The Nelder-Mead AIIP mapping algorithm generates much more precise ( $\rho_0, m, \tau$ ) parameters.

The Nelder-Mead Simplex Minimization method can be explained in the five (5) moves, reflection, expansion, outside and inside contraction, and shrink, as illustrated in Figure 1.

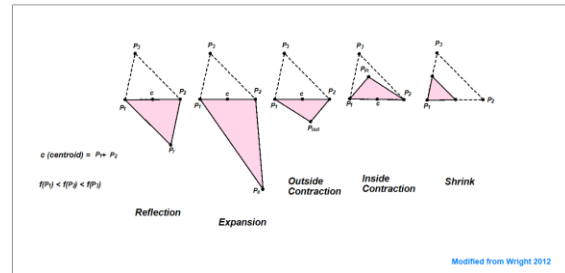


Figure 1: Nelder-Mead Simplex moves (modified from Wright 2012).

The Nelder-Mead Simplex minimization algorithm consists of following steps.

Let  $f(\rho_0, m, \tau)$  be the RMS error function defined as

<sup>1</sup> Commonwealth Scientific and Industrial Research Organization and Amira International;



$$f(\rho_0, m, \tau) = \frac{1}{N-1} (\sum_{i=0}^{N-1} (f(\rho_0, m, \tau, t_i) - v(t_i))^2)^{1/2}. \quad (2)$$

### Step 1 (Sorting)

Sort the vertices such that  $f(P_1) < f(P_2) < f(P_3)$ . Point  $P_1$  is the best point,  $P_2$  is the next-to-worst point and  $P_3$  is the worst point;

### Step 2 (Reflection)

Reflect the worst point  $P_3$ , through the centroid of ( $P_1$  and  $P_2$ ) to obtain the reflected point  $P_r$ , and evaluate  $f(P_r)$ .

If ( $f(P_1) < f(P_r) < f(P_2)$ ), then replace the worst point  $P_3$  with the reflected point  $P_r$ , and go to Step 5.

### Step 3 (Expansion)

If ( $f(P_r) < f(P_1)$ ), then extend the reflected point  $P_r$ , further pass the average of  $P_1$  and  $P_2$ , to point  $P_e$ , and evaluate  $f(P_e)$

- (a) If  $f(P_e) < f(P_r)$ , then replace  $P_3$  with  $P_e$ , and go to Step 5
- (b) Otherwise, replace the worst point  $P_3$  with the reflected point  $P_r$ , and go to Step 5

### Step 4 (Contraction or Shrink)

If the inequalities of Step 2 and 3 are not satisfied, then it is certain that the reflected point  $P_r$  is worse than the next-to-worst point  $P_2$ , ( $f(P_r) > f(P_2)$ ) and, a smaller value of  $f$  might be found between  $P_3$  and  $P_r$ . So try to contract the worst point  $P_3$ , to a point  $P_c$  between  $P_3$  and  $P_r$  and evaluate  $f(P_c)$ ;

The best distance along the line from  $P_3$  to  $P_r$  can be difficult to determine. Typical values of  $P_c$  are one-quarter and three-quarter of the way from  $P_3$  to  $P_r$ . These are call inside and outside contraction points  $P_{in}$  and  $P_{out}$ ;

- (a) If  $\min(f(P_{in}), f(P_{out})) < f(P_2)$ , then replace  $P_3$  with the contraction point  $P_{in}$  or  $P_{out}$ , and to Step 5.
- (b) Otherwise shrink the simplex into the best point,  $P_1$ , and go to Step 5.

### Step 5 (Convergence Check)

Stop if the standard deviation of  $f$  is less than user-specified tolerance  $RMSTOL$ ,

$$\sqrt{\frac{1}{n} \sum_{i=0}^{n-1} (f_i - f_{avg})^2} \leq RMSTOL$$

Perhaps the most important feature in the Nelder-Mead simplex method is Step (4b), the shrink. It allows the shape of the simplex to “adapt itself to the local landscape”, Nelder and Mead, 1965. In essence, all the moves in the Nelder-Mead (NM) Simplex method are designed to move

away from the worst point.

Han and Neumann 2006 showed that the NM simplex method deteriorates when the number of parameters to be minimized ( $n$ ) increases. For  $n=1$  or 2, NM convergence is acceptable. As  $n \geq 3$ , NM convergence slows dramatically as  $N$  increases. Due to this reason, Geotech applies the NM method only in the 2D ( $m, \tau$ ) plane, to ensure convergence as well as that all the NM moves can be checked visually.

## AIIP MAPPING RESULTS

### Mt. Milligan, British Columbia, Canada

Mt. Milligan Cu-Au deposit is located within Early Mesozoic Quesnel Terrane that hosts a number of Cu-Au porphyry deposits, Oldenburg et al, 1997. The Mt. Milligan intrusive complex consists dominantly of monzonitic rocks, including the MBX and Southern Star (SS) zones, all which host mineralization at Mt. Milligan (Figure 2). Mineralization in both zones consists of pyrite, chalcopyrite and magnetite with bornite localized along intrusive-volcanic contacts (Terrane Minerals Corp. NI 43-101, 2007). Copper-gold mineralization is primarily associated with potassic alteration with both copper grade and alteration intensity decreasing outwards from the monzonite stocks. Pyrite content increases dramatically outward from the stocks where it occurs in association with propylitic alteration, which forms a halo around the potassic-altered rocks.

Helicopter-borne VTEM surveys, including a small survey over Mt. Milligan, were carried out from July 29<sup>th</sup> to November 1<sup>st</sup>, 2007, on behalf of GeoscienceBC as part of the QUEST project in central British Columbia. The data were released to the public by GeoscienceBC and can be downloaded from <http://www.geosciencebc.com>.

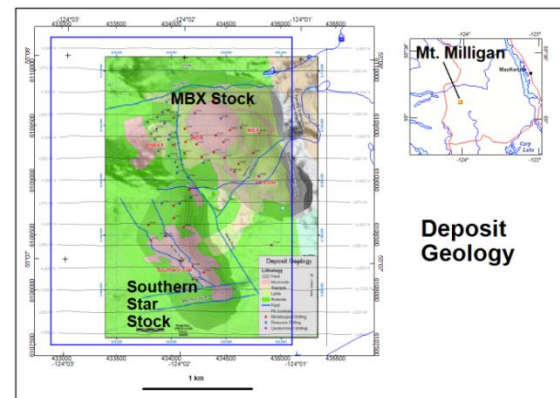


Figure 2: Mt. Milligan geology.

VTEM Z-component data, from 0.091 to 10.126 milliseconds in off-times, were processed to recover the AIP apparent chargeability. Very weak negative transients above noise level are observed in the VTEM data over two

locations from survey lines near DWBX and SS. The inverted Cole-Cole chargeabilities are shown in Figure 3. Weak chargeabilities can be seen along the east and west flanks of the MBX stock, especially over DWBX, and in a small area southwest of SS stock. For comparison, the chargeability slice at 40m depth, created by UBC 3D airborne IP inversion of the same VTEM data from Kang *et al.*, 2014, is also shown.

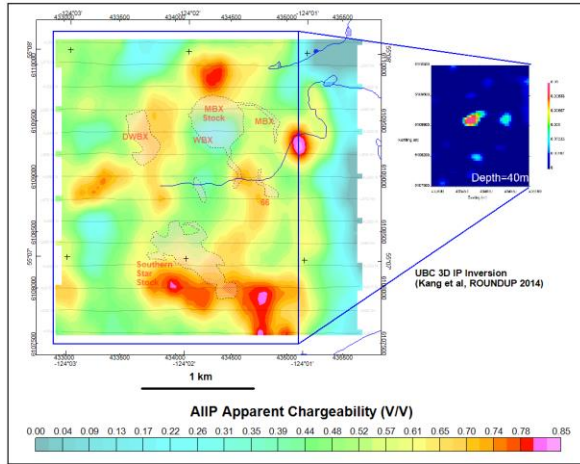


Figure 3: Mt. Milligan AIIP apparent chargeability.

The AIIP apparent resistivity of Mt. Milligan area is shown in Figure 4. A relatively low resistivity halo can be seen surrounding the SS stock.

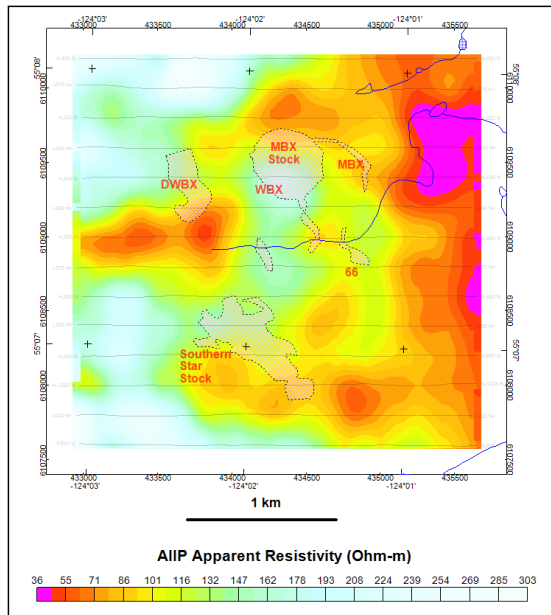


Figure 4: Mt. Milligan AIIP apparent resistivity.

**Tullah, Tasmania**

The most important metallogenic event in Tasmania occurred in Middle Cambrian as the post collisional proximal submarine volcanism and the deposition of the Mount Read Volcanics (MRV) and associated world-class deposits (Seymour *et al.*, 2007).

The study area is located near Tullah, northwest Tasmania. The western half of the study area is covered by Late Cambrian quartz sandstone, Ordovician limestone and Quaternary alluvium and marine sediments (Figure ). The eastern half is dominated by the Middle Cambrian volcanics (Corbett, 2002).

The Mount Lyell, located south of the study area, hosts 311 Mt 0.97% Cu and 0.31 g/t Au disseminated chalcopyrite-pyrite ore bodies in alteration assemblages of mainly quartz-sericite or quartz-chlorite-sericite.

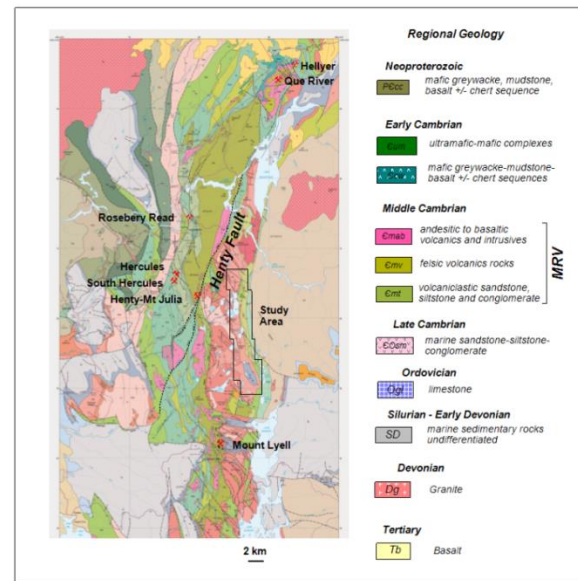


Figure 5: Regional geology of study area, Tullah, Tasmania.

From December 2012 to February 2013, Geotech carried out a helicopter-borne geophysical survey over the study area. Numerous negative transients were observed in the VTEM voltage data (Figure ). The Z-component data, from 0.216 to 7.56 milliseconds in off-times, were processed for AIIP apparent chargeability.

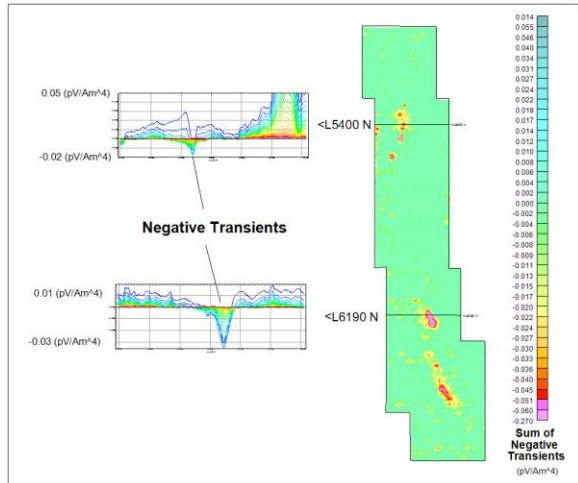


Figure 6: Sum of negative transients and two VTEM profiles, Tullah, Tasmania.

The amplitudes of VTEM data over resistive grounds are relatively low. If the number of decay data in the off-time windows is below a user specified noise threshold, then the decay will be skipped. The calculated AIIP apparent chargeability and resistivity of the study area are shown in Figure 7. The chargeability map follows the sum of negative transients closely. The sources of the AIIP could be clays or sulphides, or a combination of both.

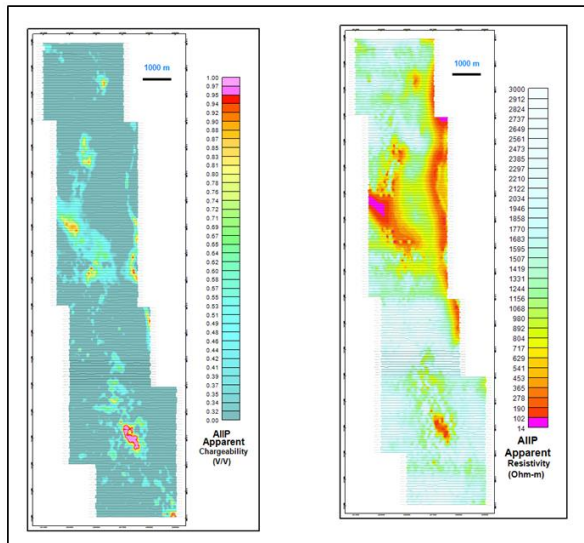


Figure 7: AIIP apparent chargeability and resistivity, Tullah, Tasmania.

## DISCUSSION

For real VTEM data contaminated with noise and geology different from uniform half-space, two constraints, a restricted range of inverted apparent resistivity and the use of proper frequency factor, are required in order to for AIIP mapping tool to generate geologically meaningful outputs.

The range of acceptable inverted AIIP apparent resistivity can be estimated by other means and one of them is the

Resistivity Depth Imaging (RDI) technique based on the transformation scheme described by Meju (1998).

Extensive discussions on frequency factor are provided in Pelton *et al.* (1978). A reasonable average of frequency factors can be obtained using AIIP forward modeling of VTEM decays of selected locations within a survey area. If the frequency factors are widely distributed, then AIIP mapping should be run using several frequency factors.

## CONCLUSION

An improved version of AIIP mapping tool based on Airbeo (CSIRO/AMIRA) has been created for the in-loop VTEM system, which is optimally configured to excite a unique AIIP response, including negative transients in mid to late times over resistive grounds from bodies of modest chargeability. Test results on field VTEM data prove that the new AIIP mapping tool can work, if the inverted resistivity range is restricted and the proper frequency factor is used. The derived AIIP apparent chargeability map provides additional information for the interpretation of VTEM data.

## ACKNOWLEDGMENTS

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## APPENDIX B: Final Deliverables

### B1: Databases

A1\_ch25t55\_aiip\_final.gdb;  
 A2\_ch25t55\_aiip\_final.gdb;  
 A3\_ch20t55\_aiip\_final.gdb;  
 A4\_ch20t55\_aiip\_final.gdb;  
 A5\_ch25t55\_aiip\_final.gdb;

Database channel descriptions;

#### *A1, A2 and A5 blocks*

Channel	Descriptions	Unit
x	UTM Easting (NAD83, UTM zone 7N)	meter
y	UTM Northing (NAD83, UTM zone 7N)	meter
radarb	EM TX-RX height above ground	meter
sfzo	Observed dB/dt Z component array (Ch 25 to 55), 31 chs	pV/Am <sup>4</sup>
sfzc	Calculated dB/dt Z component array (Ch 25 to 55), 31 chs	pV/Am <sup>4</sup>
chg_final	Final AIIP apparent chargeability	V/V
res_final	Final AIIP apparent resistivity	Ohm-m

#### *A3 and A4 blocks*

Channel	Descriptions	Unit
x	UTM Easting (NAD83, UTM zone 7N)	meter
y	UTM Northing (NAD83, UTM zone 7N)	meter
radarb	EM TX-RX height above ground	meter
sfzo	Observed dB/dt Z component array (Ch 20 to 55), 36 chs	pV/Am <sup>4</sup>
sfzc	Calculated dB/dt Z component array (Ch 20to 55), 36 chs	pV/Am <sup>4</sup>
chg_final	Final AIIP apparent chargeability	V/V
res_final	Final AIIP apparent resistivity	Ohm-m

### B2: Grids

A#\_chg\_finalw.grd: AIIP apparent chargeability grids;  
 A#\_res\_final.grd: AIIP apparent chargeability grids;

