

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

Assessment Report
Title Page and Summary

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

TOTAL COST: \$82,075

AUTHOR(S): Kristopher Raffle

SIGNATURE(S): _____

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): n/a

YEAR OF WORK: 2014

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5563308 / July 21, 2015

PROPERTY NAME: Popa Bear Property

CLAIM NAME(S) (on which the work was done): POPPA BEAR (1019275) and POPA BEAR 1 (1007742)

COMMODITIES SOUGHT: Au, Cu, Pb, Zn

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: _____

MINING DIVISION: LILLOOET MINING DISTRICT

NTS/BCGS: 092J09 / 092J059

LATITUDE: 50 ° 31 ' 79 " **LONGITUDE:** 122 ° 23 ' 09 " (at centre of work)

OWNER(S):

1) Don Rogers

2) _____

MAILING ADDRESS:

5854, 41 Street Crescent

Red Deer, Alberta, Canada, T4N 1B6

OPERATOR(S) [who paid for the work]:

1) Don Rogers

2) _____

MAILING ADDRESS:

5854, 41 Street Crescent

Red Deer, Alberta, Canada, T4N 1B6

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Bridge River Terrane, ultramafic rocks & marine sedimentary and volcanic rocks,

Mississippian to Middle Jurassic, Bralorne style mafic-ultramafic hosted gold bearing quartz vein mineralization

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 34749

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	Reconnaissance (over 12km2 area)	1019275 and 1007742	\$3,000
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil	203	158 from (1019275) 45 from (1007742)	\$19,622.34
Silt			
Rock	67	58 from (1019275) 9 from (1007742)	\$59,452.78
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
TOTAL COST:			\$82,075.12

NTS 092J09

**ASSESSMENT REPORT ON THE POPA BEAR PROPERTY, LILLOOET
MINING DISTRICT, BRITISH COLUMBIA**

Approximate Property Location

Latitude: 50° 31'79"N

Longitude: 122° 23'09"W

Prepared For:

Mr. Don Rogers

5854, 41 Street Crescent
Red Deer, Alberta, Canada
T4N 1B6

Prepared by:

APEX Geoscience Ltd.¹

410-800 West Pender Street
Vancouver, British Columbia, Canada
V6C 2V6

¹ Kristopher Raffle, B.Sc., P. Geo.

July 17, 2015

Vancouver, British Columbia, Canada

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1 Summary

This Report is written for the Popa Bear Property (the “Property”). This assessment report presents the results of, and expenditures related to, exploration work conducted by APEX Geoscience Limited (APEX) on behalf of Mr. Don Rogers during 2014. The Popa Bear Property is located in the Lillooet Mining District in southwest British Columbia, approximately 38 kilometres (km) northeast of the town of Pemberton, and 5 km east of the community of D’Arcy at Anderson Lake. The Property consists of two mineral claims which cover 2198.09 hectare (ha) which are held 100% by Mr. Don Rogers and were amalgamated on February 1, 2014 (BC mineral tenure 1025632).

The Popa Bear Property lies within the southeastern Coast Belt, an approximately 100 km wide NW trending belt of distinct supracrustal rocks formed in oceanic basin, volcanic arc and clastic basin environments. The supracrustal rocks are intruded by partly coeval mid-Cretaceous through Early Tertiary stocks and dykes of mainly felsic to intermediate composition, which are collectively juxtaposed across a complex system of contractional, strike-slip and extensional faults of mainly Cretaceous to Tertiary age. In the area of the property and extending NW to Bralorne, the Bridge River Terrane is represented by the Bridge River Complex (BRC); an assemblage of variably metamorphosed and structurally imbricated chert and mafic volcanic (greenstone), and lesser argillite, tuff, limestone, sandstone, conglomerate, gabbro and serpentinite rocks that lack a coherent stratigraphy.

The 2014 exploration program consisted of reconnaissance geologic mapping, rock grab and soil geochemical sampling during the period July 6 to 12 and August 30 to September 17. A total of 203 soil samples and 67 rock grab samples were collected from the Property, in addition to 89 geologic mapping station observations. The total cost to complete 2014 exploration program at the Popa Bear Property was CDN\$82,075.12.

The results of 2014 soil sampling correlate with the historic 1970 Steep Creek survey. The 2014 soil sampling defines a doubled lobed polymetallic Cu anomaly centred approximately 700 m north of the intersection of Steep Creek and Haylmore Creek main logging road. The largest 250 x 150 m lobe is centred along a dry gully 500 m northwest of Steep Creek and returned values of up to 0.12% Cu (14CGS029), 0.23% Zn (14CGS018), 0.22% Pb and 37.6 ppb Au (14CGS019). A smaller 100 x 100 m anomaly located 300 m to the southeast nearer Steep Creek returned values of up to 0.13% Cu (14CGS009), 699 ppm Pb and 926 ppm Zn (14CGS022).

Contour soil sampling in alpine areas returned spot and multi sample gold and arsenic anomalies in the southeast portion of the Property. Sample 14WTS006 returned the highest gold in soil result within the Property to date at 137 ppb Au. Samples 14WTS008 and 14EBS009 located within 300 m of 14WTS006 returned anomalous values of 11 and 12 ppb Au, respectively. A distance of 900 m to the southeast, a three contour line downslope dispersion arsenic anomaly occurs. Here, 4 samples each returned between 184 and 308 ppm As over an approximately 150 x 400 m area (14MPS001, 14EBS001, 14CGS043 and 14CGS044). The arsenic anomaly is

coincident with two soil samples returning anomalous gold values of 17 and 11 ppb Au (14WTS001 and 14CGS043, respectively). A second gold in soil anomaly occurs 1 km east of the summit of Haylmore Peak, where two adjacent contour samples returned 163 and 83 ppb Au (14WTS046 and 14WTS047).

Mineralization within Steep Creek has been thus far in the form of small malachite-stained intrusive-hosted quartz vein cobbles containing up to 2% chalcopyrite, and pyritic metasediment and intrusive rocks returning anomalous lead, zinc and silver values. Significant copper mineralization has yet to be discovered in outcrop.

Quartz vein float located in Steep Creek returned 0.64% Cu. A distance of 150 m north up Steep Creek pale grey silicified granite float containing 2-3% clotty and/or fracture controlled pyrite mineralization returned 0.41% Zn and anomalous copper, lead and silver values (14KRP103). Pyritic cherty shale rocks cut by porphyritic dacite intrusive dykes exposed in logging road cuts 450 m west of Steep Creek returned 0.64% Zn and anomalous copper, lead and silver values (14DRP003). A similar pyritic metasediment float boulder located 160 m downslope returned 0.11% Zn (14KRP101). A distance of 800 m west of Steep Creek, logging road cut float samples 14DRP020 and 14DRP021 returned 0.1% Zn, 5.2 g/t Ag; and 0.47% Pb, 19.1 g/t Ag, respectively.

No significant mineralization was located in alpine areas during 2014.

Based on the presence of gold-silver and multi-element base metal and pathfinder element soil and rock geochemical anomalies and favourable geology the Popa Bear Property is considered a high priority for follow-up exploration. The 2014 exploration program should include but not to be limited to: (A) Additional prospecting, rock grab sampling and geologic mapping the Steep Creek Showing area. (B) Prospecting and rock grab sampling designed to locate the source of the two greater than 100 ppb Au in soil anomalies east of Haylmore Peak.

2 Introduction and Terms of Reference

This Report is written for the Popa Bear Property (the “Property”). This assessment report presents the results of, and expenditures related to, exploration work conducted by APEX Geoscience Limited (APEX) on behalf of Mr. Don Rogers during 2014.

APEX was retained by Mr. Don Rogers during 2014 as consultants to complete exploration program at the Popa Bear Property and write this report (the “Report”). Mr. Kristopher Raffle, P.Geo., Principal and Consultant of APEX and a qualified Person, supervised the exploration program.

Any reference in the Report to the ‘current author’ refers to Mr. Raffle. In writing the Report, the author has used those publications listed in the reference section as sources of information. Unless otherwise indicated, all coordinates are presented in the North American Datum (NAD) 1983, Universal Transverse Mercator (UTM) Zone 10N coordinate system. All dollar amounts referred to in the Report are in Canadian currency.

3 Property Description and Location

The Popa Bear Property is located in the Lillooet Mining District in southwestern British Columbia, approximately 38 kilometres (km) northeast of the town of Pemberton, and 5 km east of the community of D’Arcy at Anderson Lake (Figure 1). The Property consists of two mineral claims which cover 2198.09 hectare (ha) (Figure 2 and Table 1) which are held 100% by Mr. Don Rogers. The Popa Bear 1 claim (513.39 ha) was acquired on June 29, 2012. A second claim (1684.70 ha) was acquired south of the initial claim block on May 5, 2013. As of February 1, 2014 both claims were amalgamated to form the 2,198.09 Ha Papa Bear claim (BC mineral tenure 1025632). The approximate centre of the Property is located at 51°31’79” north latitude and 122°23’09” west longitude, and UTM NAD 1983, Zone 10 coordinates 543,600 metres (m) east / 5,597,725 north.

Table 1. Mineral Claims

Tenure Number	Claim Name	Issue Date	Good To Date	Owner	Area (ha)
1019275	POPPA BEAR	05/05/2013	31/12/2016	Don Rogers	1684.70
1007742	POPA BEAR 1	29/06/2012	29/06/2016	Don Rogers	513.39
Total					2,198.09

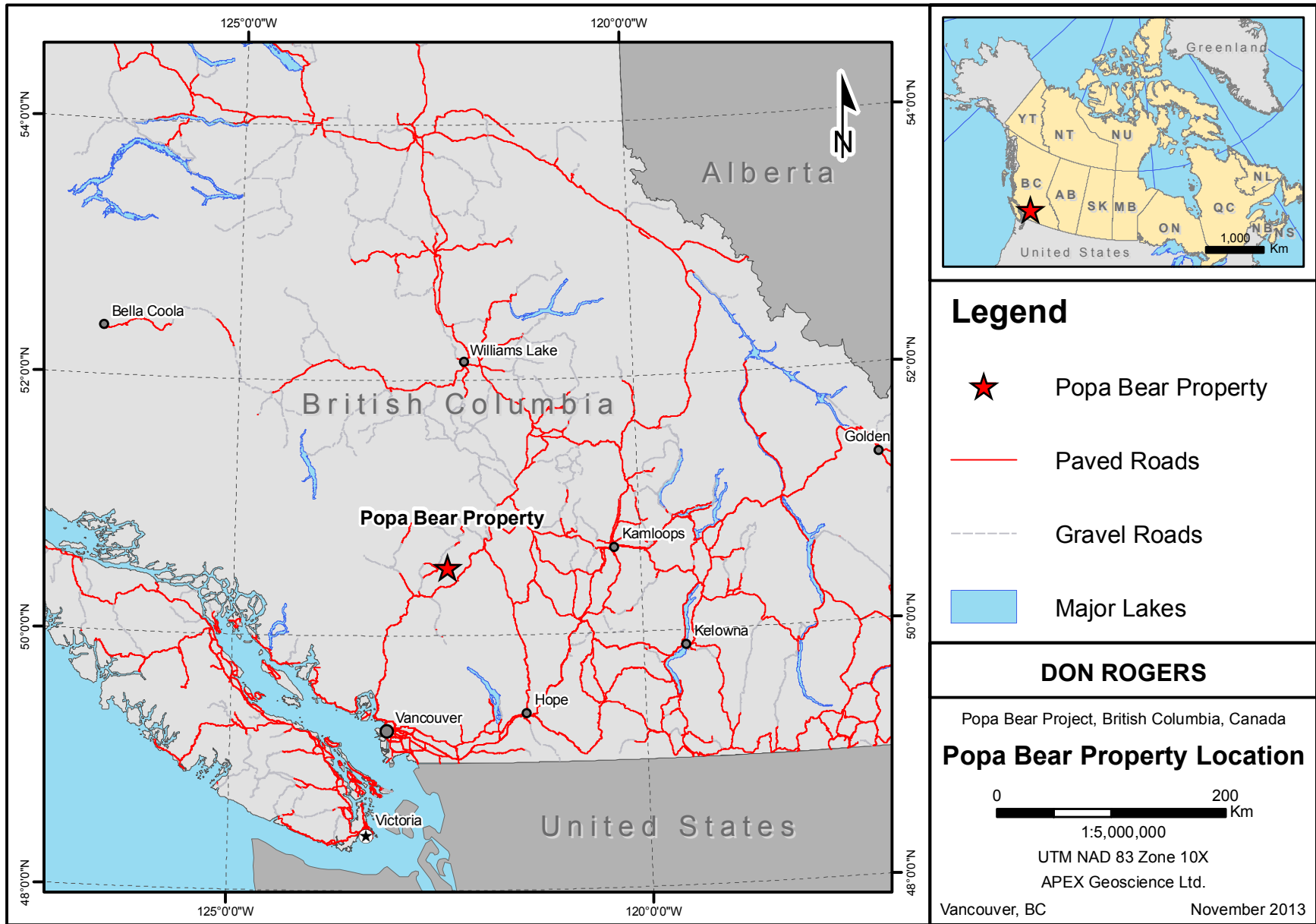


Figure 1

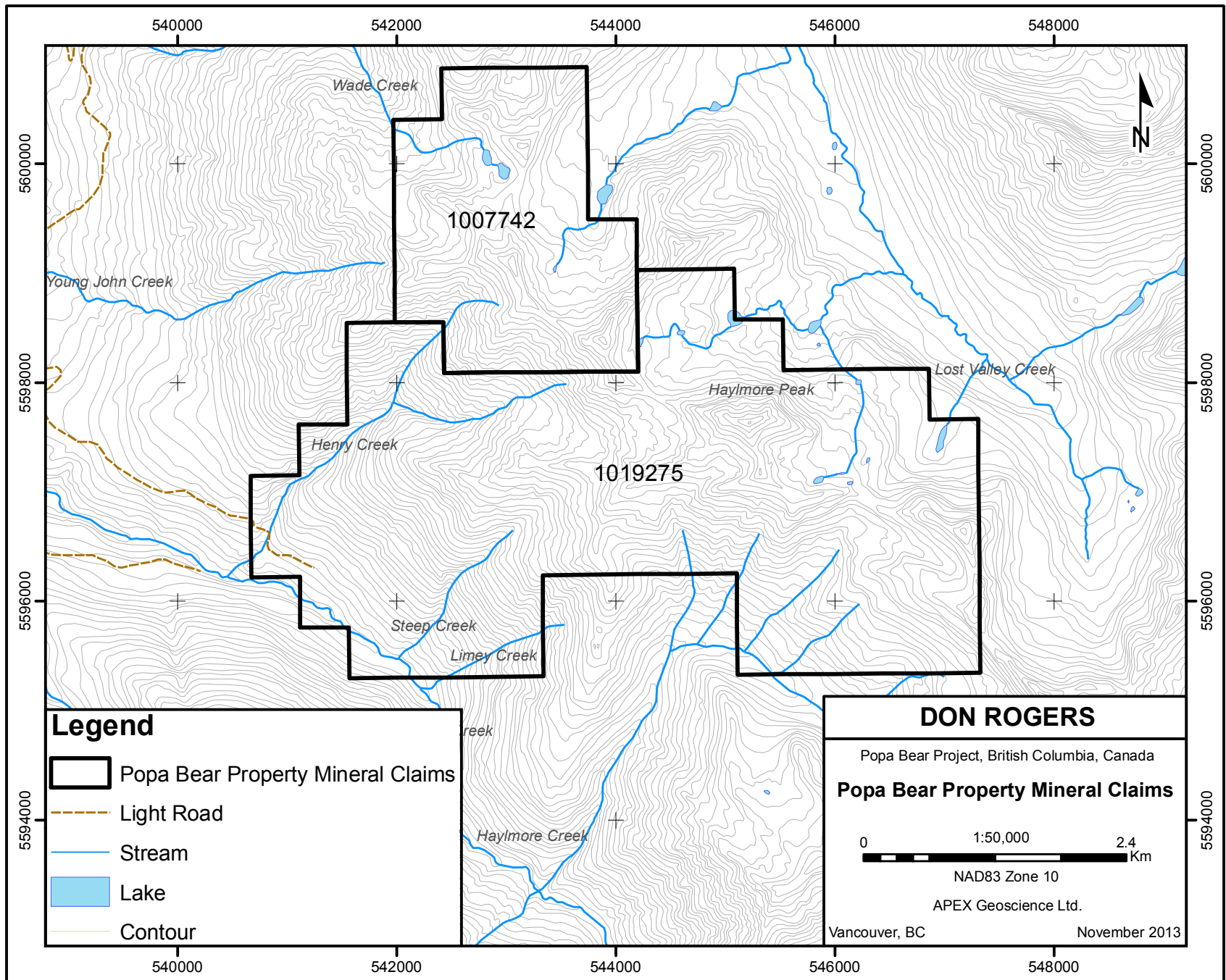


Figure 2.

4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

Access to the Property is via helicopter or by hiking a distance of 2.5 km southeast from existing logging roads along Wade Creek (a 700 m elevation gain) to the northern claim block. Depending on road conditions, it may be possible to access the western edge of the southern claim block by existing logging roads along Haylmore Creek.

Terrain within Property is rugged alpine or subalpine. Haylmore Peak at 2,507 m lies at the approximate centre of the Property, and a 2,345 m sub-peak of Haylmore Peak lies within the SE corner of the north claim. A ridgeline extends NNW across the claims at approximately the 2,000 m level. On the northwest side of the ridge two small tarns occupy the cirque at the headwaters of Wade Creek draining west to Anderson Lake. On the east side of the ridge several unnamed alpine valleys drain NE into Lost Valley. Much of the southwest portion of the Property is below the tree line with several forested creek valleys (locally known as Henry, Steep and Limey creeks) draining SW into Haylmore Creek towards Anderson Lake.

5 History

Limited historic exploration activities have been carried out on or near the Popa Bear Property and are summarized below.

Copper mineralization discovered in the vicinity of Steep Creek in 1969 led to the staking of the historic Ed claims in 1970 (Dodson 1971), approximately located within the western half of the current Popa Bear claim (Figure 4). Follow up stream sediment and soil samples were collected over the claim area along the valley of Haylmore Creek. Detailed sampling was completed on a line grid (60 x 120 m) established between Limey and Henry Creeks in addition to contour traverses (120 m spacing along contours 150 to 300 m apart). A total of 995 soil and silt samples were collected. Background value for copper (Cu) on the historic Ed claims was established at 40 – 60 parts-per-million (ppm); values in excess of 80 ppm were deemed anomalous. The largest Cu anomaly is coincident with the location of the copper showing and occurs along and across the contact between Late Cretaceous suite of granodioritic intrusive rocks and Cretaceous Cayoosh assemblage sedimentary rocks (Figure 2).

Positive results while prospecting in 1976 led to the re-staking of the area covered by the lapsed Ed claims (Warshawski 1978). The mineralized outcrop first identified in 1969 was re-located, soil samples were collected and several pits were dug. Soil sample results returned Cu values of 32 to 1,770 ppm. Chalcopyrite mineralized granitic and pyritic volcanic-sedimentary rock float was encountered. Follow up prospecting along Steep Creek resulted in the discovery of quartz vein mineralization returning 1.6 percent (%) Cu, and 23 ppm silver (Ag) (Figure 2).

Positive results while prospecting in 1979 led to the staking of the Wargold claim (Warshawski 1980), coincident with part of the lapsed ED claims. The Wargold claim was located along the valley of Haylmore Creek. Follow up stream sediment samples

were collected at ~30 m along Limey Creek. Follow up soil samples were subsequently collected along the creek bank. One sample (#10285) returned 185 parts-per-billion (ppb) gold (Au) however additional upslope sampling results were negative.

In 1983, the Cay-Mel claim group was acquired to cover the silver occurrences in the Twin Lake area (southeast of the Popa Bear Property) and a potential extension of the anomalous gold/silver found southeast of the Twin Lake occurrences (Gruenwald 1984; Figure 3). These lapsed claims are located approximately 2 km southeast of the Popa Bear Property. Quartz veining is prominent throughout and is associated with granodioritic intrusions and metasediments. Quartz veining is locally stockworked, striking ~ 040 – 080° (NE to ENE), variable dip angles, widths from <10 cm to over 4 m, with vuggy textures and exhibiting local wallrock silicification / oxidation / bleaching / sericitization. Mineralization within veining typically consists of several % pyrite, local sphalerite-pyrrhotite-molybdenite-arsenopyrite and less commonly galena and malachite. Thirty rock samples, 151 soil samples and 6 silt samples were collected and analyzed for silver and gold. Gold results ranged from background (5 ppb) to 2400 ppb, and Ag results ranged from background (0.1 ppm) to 93 ppm (rock sample CR-03).

In 1984, the Mac Attack claim group was acquired and is located just west of the Blue Bell (lead, zinc, silver occurrence) showing (Figure 3). Five rock samples and 13 soil/silt samples were collected along logging roads, returning weakly anomalous values of up to 145 ppm Cu, and 230 ppm zinc (Zn).

In 2012, Mr. Don Rogers acquired the Popa Bear 1 claim (513.39 ha) and an additional claim block (1684.70 ha) in 2013. Apex Geoscience Ltd. completed a reconnaissance prospecting and geological mapping exploration program in September 2013 on behalf of Mr. Don Rogers, resulting in 40 rock grab samples and 155 soil samples collected from the current Popa Bear Property. Soil and rock geochemistry resulted in several gold-silver and multi-element base metal and pathfinder element anomalies and included 6 rock samples returning greater than 200 ppm Cu up to 0.14% Cu, 5 rock samples returning greater than 10 ppb Au up to 283.8 ppb Au and 8 soil samples returning greater than 7.7 ppb Au up to 69.7 ppb Au (>95th percentile). Soil and rock geochemistry anomalies are associated with discrete north-northwest trending steeply dipping quartz-carbonate-fuchsite (+/- pyrite-arsenopyrite) altered shear zones.

6 Geological Setting and Mineralization

6.1 Regional and Property Geology

The Popa Bear Property lies within the southeastern Coast Belt, an approximately 100 km wide NW trending belt of distinct supracrustal rocks formed in oceanic basin, volcanic arc and clastic basin environments. The supracrustal rocks are intruded by partly coeval mid-Cretaceous through Early Tertiary stocks and dykes of mainly felsic to intermediate composition, which are collectively juxtaposed across a complex system of contractional, strike-slip and extensional faults of mainly Cretaceous to Tertiary age (Schiarizza et al., 1997).

The Popa Bear Property occurs along the western edge of the Bridge River Terrane within an approximately 70 km NW trending, 5 to 10 km wide zone of deformation known as the Bralorne Fault Zone (BRFZ; Rusmore 1986). In the area of the Property and extending NW to Bralorne, the Bridge River Terrane is represented by the Bridge River Complex (BRC); an assemblage of variably metamorphosed and structurally imbricated chert and mafic volcanic (greenstone), and lesser argillite, tuff, limestone, sandstone, conglomerate, gabbro and serpentinite rocks that lack a coherent stratigraphy (Figure 3). Based on greenstone chemical analyses suggesting an ocean island to mid-ocean ridge origin, a wide Mississippian to late Middle Jurassic age range of Bridge River chert, and the presence of local late Middle Jurassic blueschist rocks; the BRC is interpreted as an accretion-subduction complex. The BRC is conformably overlain by a thick coherent succession of Jura-Cretaceous(?) clastic sedimentary rocks known as the Cayoosh assemblage that does not display the characteristic tectonic disruption of the BRC (Schiarizza et al., 1997).

Rocks of the Cadwallader Terrane, comprising the Cadwallader Group and Bralorne East Liza Complex (BELC), occur as fault-bounded panels within the Bridge River Terrane along the BRFZ. The Cadwallader Group consists of a lower mafic volcanic unit that is conformably overlain by transitional volcanic-sedimentary and upper sedimentary turbidite units of the Hurley Formation. Pillowed and fragmental mafic volcanic rocks of the Cadwallader Group are lithologically similar to mafic volcanic units of both the BELC and BRC. The BELC includes serpentinite, gabbro, diorite, tonalite and greenstone that occur as fault-bounded panels interleaved with the Cadwallader Group. Mafic volcanic rock chemistry of the BELC is characteristic of ocean floor tholeiites, and based on its invariable spatial association with the Cadwallader Group it has been interpreted as an ophiolite succession (oceanic basement) upon which the Cadwallader Group may have been deposited (Schiarizza et al., 1997).

Rocks of the Bridge River and Cadwallader Terranes were intruded by numerous plutons and stocks of intermediate to felsic composition, as well as felsic to mafic dykes, during mid-Cretaceous through to Neogene time. Periods of intrusion coincided with major deformational events in the region and spanned the change from middle to late-Cretaceous contraction to latest Cretaceous and Tertiary dextral strike-slip and normal faulting (Schiarizza et al., 1997).

Early subduction-accretion related deformation within the Bridge River Complex, which produced a disrupted internal stratigraphy, occurred from at least late Middle Triassic (230 Ma Ar-Ar date of Bridge River blueschist) and at least into late Middle Jurassic (age of youngest deformed chert rocks). Contractual deformation continued into the Late Cretaceous and resulted in the formation of southwest-vergent oblique-sinistral reverse faults, including the Eldorado fault NW of Bralorne, and northeast-vergent thrust faults and folds. Later deformation was dominated by dextral strike-slip during latest Cretaceous through Eocene time (Schiarizza et al., 1997).

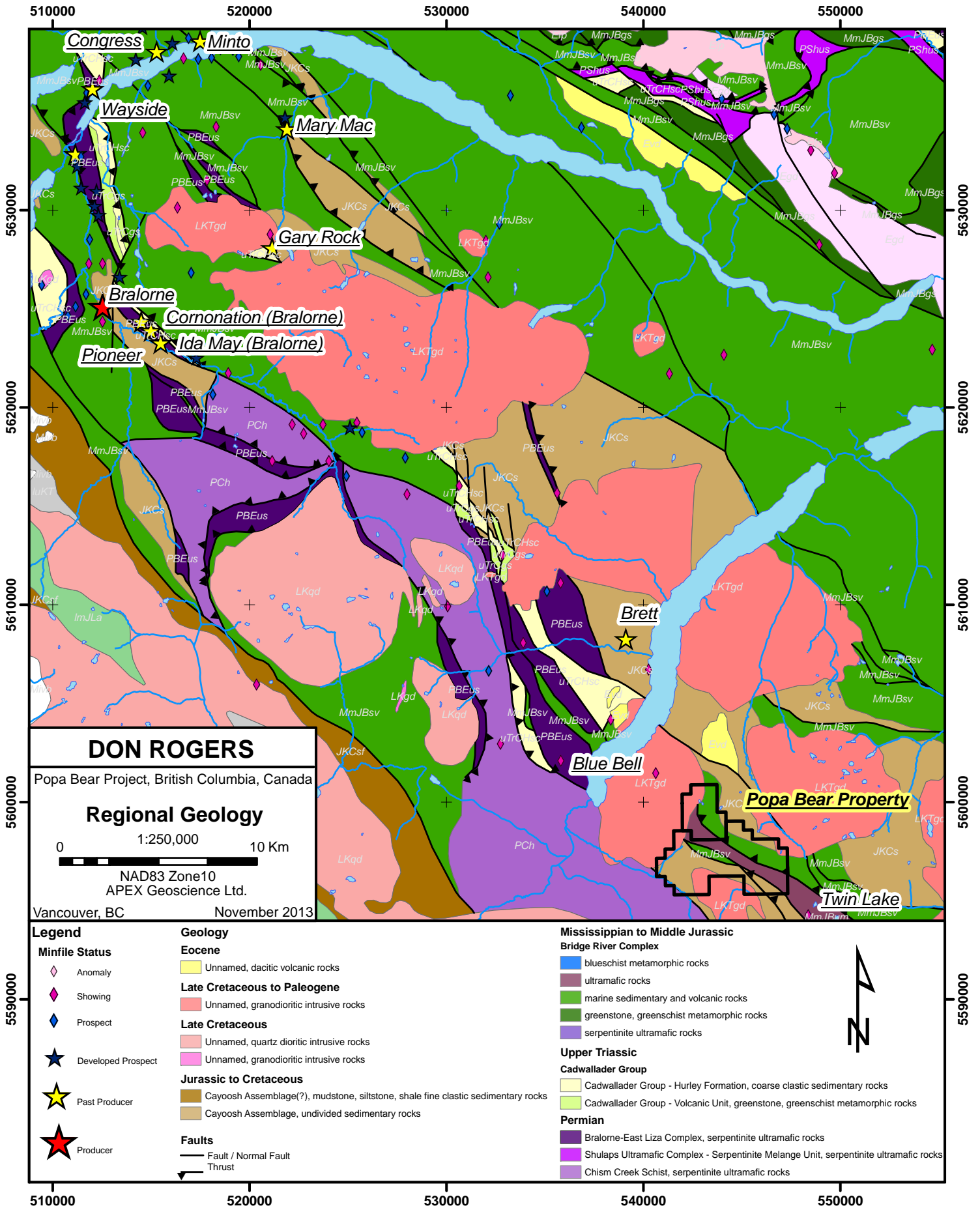


Figure 3.

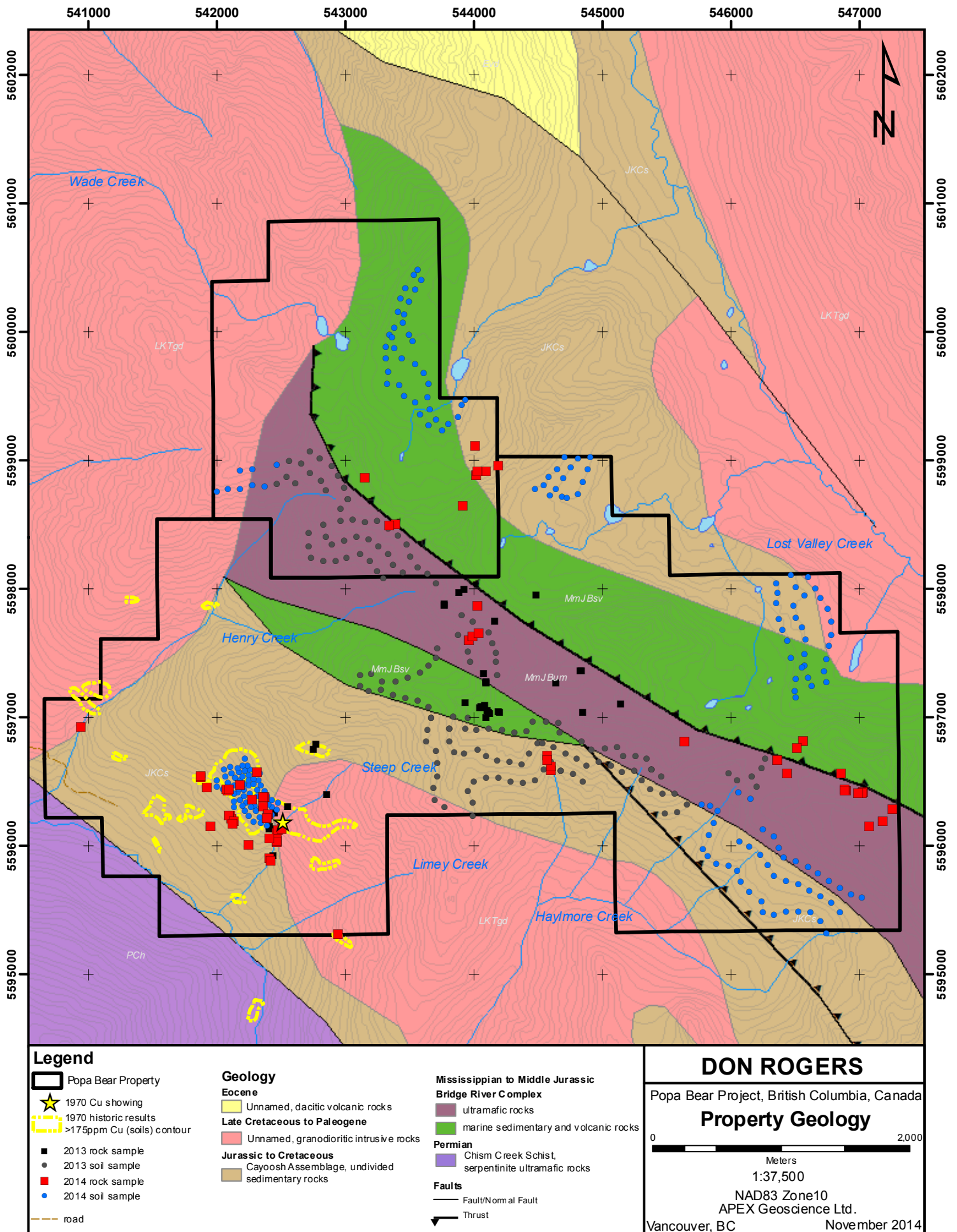


Figure 4.

6.2 Regional Mineralization

The first placer gold discoveries near Bralorne were made at Gun Creek in 1859, and shortly thereafter at Hurley River and Cadwallader Creek. The first mineral claims were staked in 1896, and between 1897 and 1900 the Lorne, Ben d'Or, Pioneer and Wayside claims groups had been staked over a series of diorite-greenstone hosted (Bralorne East Liza Complex) gold bearing quartz veins along Cadwallader Creek (McCann, 1922). The principal producing veins are north-northeast dipping shear veins that record oblique-sinistral reverse movement (Schiarizza et al., 1997). Significant lode gold production began in the late 1920's and early 1930's at the Bralorne and Pioneer Mines (40 km northwest of the Popa Bear 1 claim). The two mines produced 7 million tonnes of ore grading 18 g/t Au and 4 g/t silver (3.7 million ounces Au and 0.82 million ounces Ag).

Further to the east, gold-silver-bearing polymetallic shear-hosted veins occur within Bridge River Complex greenstone, argillite, chert and serpentinite hosted at the past producing Minto Mine. The veins are associated with Cretaceous-Paleocene dykes and stocks (69 to 63 Ma Ar-Ar Eldorado pluton north of Carpenter Lake and Bendor plutonic suite between Carpenter and Anderson lakes) apparently localized along the Castle Pass fault (Schiarizza et al., 1997) and to a lesser extent the Steep Creek fault, which may extend south through the Popa Bear 1 claim. Between 1934 and 1940 the Minto mine produced 80,650 tonnes of ore grading 6.8 g/t Au and 19.9 g/t Ag (about 16,000 ounces Au and 47,000 ounces Ag; Minfile 092JNE075). Gold is closely associated with arsenopyrite at Minto. Further to the south within the Bridge River Complex, high-level stibnite, pyrite, arsenopyrite plus sphalerite, tetrahedrite, and cinnabar (i.e. antimony, arsenic, zinc, copper, mercury) gold-silver bearing quartz veins occur along the Castle Pass and Steep Creek faults at the past producing Mary Mac (Minfile 092JNE067) and Gray Rock (Minfile 092JNE066) deposits.

Ten kilometres to the north of the Popa Bear Property at the past producing Brett Mine, a steeply west-dipping 4 to 7 m wide quartz-ankerite vein (plus arsenopyrite, chalcopyrite, sphalerite and sparse galena) is hosted within slate-phyllite rocks assigned to the Cayoosh assemblage. Mining during the period 1900 through 1904, 1910 and 1962 produced 9,177 tonnes of ore grading 2.3 g/t Au (about 624 ounces Au; Minfile 092JNE079).

During 1925, two adits were reportedly driven on polymetallic mineralization near the mouth of Wade Creek, 2 km west of the Popa Bear Property. Subsequent prospecting and limited rock sampling (including soil geochemistry and ground magnetic surveys) by Amcorp Industries Inc. and Verdstone Gold Corp. failed to locate the historic adits. However, two anomalous quartz vein chip samples returned values of 14.4 g/t Ag, 0.32% Lead (Pb) and 0.12% Zn over 0.2 m; and 23.2 g/t Ag, 0.52% Pb over 0.1 m (Kikauka, 1995).

Five kilometres to the southeast of the Property at the Twin Lakes (Old Century) showing (Figure 3), mineralized quartz stringers occur within the footwall of a steeply northeast-dipping body of serpentinite are exposed in open cuts over a distance of 43

m. The veins are hosted in argillite and chert of the Bridge River Complex and strike WSW, dipping steeply north. Select high-grade argentiferous tetrahedrite and stibnite mineralized samples returned values of up to 307.2 ounces-per-ton Ag (BC Minister of Mines Annual Report, 1935). Barkley Valley Mines Ltd. initiated work at Twin Lakes during 1967 that included outcrop stripping and an 8 m (25 foot) diamond drill hole. Three additional diamond drill holes totaling 32 m (105 feet) were completed the following year (BC Minister of Mines Annual Report, 1967 and 1968).

7 2014 Exploration Work and Methodologies

The 2014 exploration program consisted of reconnaissance geologic mapping, rock grab and soil geochemical sampling during the period July 6 to 12 and August 30 to September 17. A total of 203 soil samples and 67 rock grab samples were collected from the Property, in addition to 89 geologic mapping station observations. The total cost to complete 2014 exploration program at the Popa Bear Property was CDN\$82,075.12 (Appendix 5).

7.1 Soil Sampling

During the 2014 program, a total of 203 soil samples were collected on the Property (Figures 6a, 6b and 6c). Soil samples were collected at a spacing of 50 metres along topographic contour intervals of 40 m in the Steep Creek Showing area, and 100 metre spacing along topographic contour intervals of 90 metres in alpine areas.

7.1.1 Soil Sampling Methodology

Soil samples were collected from the B soil horizon, generally at a depth of 20 cm using a shovel. Samples were placed in a Kraft paper sample bag with a unique sample tag inside, and the sample number written on both sides in permanent marker. The site position was recorded using a handheld GPS receiver in UTM NAD83 Zone 10 format and a soil sample card was filled out indicating matrix color, topographic position, sample depth, vegetation, GPS location and general remarks.

7.1.2 Soil Sample Shipping and Handling

The 2014 samples were submitted to ACME Labs ("ACME"), Vancouver, BC for analysis. ACME is an International Standards Organization (ISO) 9001 geochemical and assaying laboratory. ACME did not report anything unusual with respect to the shipments, once received. The author and APEX maintained control over the samples at all times during transport.

7.1.3 Soil Sample Preparation and Analysis

At ACME, soil samples were dried at 60°C and a 100 g sample was sieved to -80 mesh (0.18 mm) up to 0.5 kilogram samples, and subject to ACME's "AQ201" or "1DX1" method, whereby a 15 g sample split is dissolved in hot (95°C) aqua-regia and inductively coupled plasma mass spectrometry (ICP-MS) analysis. Detection limits of 0.1 ppm to 10,000 ppm Cu, 0.1 ppm to 100 ppm Ag, and 0.5 ppb to 100 ppm Au were achieved using the AQ201/1DX1 method.

7.2 Rock Grab Sampling

In 2014, a total of 67 rock grab samples were collected on the Property from apparently mineralized lithologies in outcrop and talus (Figures 6a, 6b and 6c).

7.2.1 Rock Grab Sampling Methodology

The 2014 rock samples were collected using a hammer from outcrops or from talus. Samples were placed in a poly ore bag with the sample number written on both sides in permanent marker. A sample tag marked with unique sample number was placed inside each sample bag and sealed with cable tie. The site position was recorded using a handheld GPS receiver in UTM NAD83 Zone 10 format and a rock sample card was filled out indicating lithology, grain size, alteration type and intensity, veining type, sample type, relief, GPS location and general remarks.

7.2.2 Rock Grab Sample Shipping and Handling

The 2014 rock samples were submitted to ACME Labs, Vancouver, BC for analysis. ACME is an International Standards Organization (ISO) 9001 geochemical and assaying laboratory. ACME did not report anything unusual with respect to the shipments, once received. The author and APEX maintained control over the samples at all times during transport.

7.2.3 Rock Grab Sample Preparation and Analysis

Rock samples were submitted to ACME for aqua-regia inductively coupled plasma emission/mass spectrometry (ICP-ES/ICP-MS) for a 33-element suite (ACME's "AQ300" or "1D01" method) and gold analysis (ACME's "AQ115" method) analysis. Samples were crushed to 10 mesh (1.7 mm) with 80% passing using a jaw crusher. The samples were then split using riffle splitter to 250 grams, and sample splits were further pulverized to pass 200 mesh using a ring mill pulverizer to 85% passing (ACME R200-250 procedure). Samples were then subject to ACME's "1D01" method, whereby a 0.5 g sample split is dissolved in hot (95°C) aqua-regia and subject to ICP-ES analysis. Detection limit of 1ppm to 10,000 ppm Cu and 0.3 ppm to 100 ppm Ag was achieved using the AQ300/1D01 method. For the AQ115 analysis the samples are subject to Au analysis by aqua-regia digestion whereby a 15 g sample split is dissolved in hot (95°C) aqua-regia and subject to ICP-MS analysis. Detection limit of AQ115 analysis is 0.5 ppb to 10 ppm Au.

8 Results

Summary results of geologic mapping, soil geochemical and rock grab sampling are presented below. Detailed soil sample and rock grab and descriptions and locations are presented in Appendices 1 and 2. The geological mapping observations are presented in Appendix 3. Copies of original rock grab sample and soil sample analytical certificates are presented in Appendix 4.

8.1 Geologic Mapping

Reconnaissance geologic mapping traverses were completed during 2014 designed to evaluate the potential of the northwest trending belt of Bridge River Complex rocks

passing through the Property to host “Bralorne” style mafic-ultramafic hosted gold bearing quartz veins. The current mapping was designed to augment work completed in 2013 and progressed via alpine traverses to the northwest and southeast of Haylmore Peak, in addition to work in the Steep Creek Showing area. (Figure 5). Traverses optimally transect northwest trending BRC rocks and permit validation of British Columbia Geological Survey (BCGS) regional mapping (Figure 3 and 4).

The results of reconnaissance mapping largely confirm gross lithologic domains defined by BCGS mapping. Individual domains appear to have intact internal, stratigraphy with most rocks being weakly to moderately foliated. Shearing, consequent development of intense foliation and abrupt lithologic change mark the upper and lower boundaries between domains.

Progressing from southwest to northeast, moderately northeast dipping (averaging 294/55) well bedded phyllite-shale units are punctuated by thin (<1-4m true thickness) coarse feldspar porphyritic crystal-rich and rare massive fine grained brown or green locally vesicular intermediate volcanic rocks interpreted as Cayoosh Assemblage. The inferred upper bound of the interval is marked by series layered 1-3 m true thickness fine grained grey-brown vesicular andesite(?) flows. The andesite flows are overlain by a composite interval of strongly deformed shale, poly-deformed ribbon and massive chert rocks having a true thickness of approximately 70 m. Thin semi-continuous sub-metre lenses of serpentinized ultramafic schist in apparent faulted contact with the upper andesite flows are interpreted to mark the structural base of BRC rocks. The uppermost part of the chert shale interval is cut at an acute angle by an approximately <1-2 m true-width quartz-ankerite-carbonate-fuchsite shear zone (310/60) that can be traced intermittently over a 250 m strike length, and may correlate with a similar shear zone on the ridge immediately to the west. Progressing northeast, and marked by a prominent topographic slope change, is a thick monotonous sequence of fine-grained, volcanic derived chlorite schist and interbedded rusty chert-shale and rare <1- 2 m massive grey limestone having a true-width of perhaps 400 m.

At the base of Haylmore Peak, there occurs an approximately 40 m true-width recessive sequence of deformed chert-shale including sub-metre pervasively quartz-ankerite altered ultramafic lenses and spatially associated massive fine-grained grey-brown volcanic flows. Mapping to the northeast is limited by steeply rising topography to the summit of Haylmore Peak, however its slopes appear dominated by alternating shale, fine grained volcanic units, and visually distinct light coloured coarse grained feldspar crystal-rich volcanic units consistent with BCGS mapping as BRC

Mapping on the ridge directly to the east defines a similar lithologic sequence dominated by fine grained chlorite schist meta-volcanic, rusty weathering shale and local thin limestone interbeds. Recessive chert-shale containing serpentinized ultramafic, and thin (<50 cm) layered grey-brown to dark green fine grained massive andesite-basalt flows and quartz-ankerite schist clearly occupy an equivalent structural-stratigraphic position as those on the ridge to the west.

The inferred BRC succession is also exposed on the three ridges northwest of Haylmore Peak where there is apparent thinning of chlorite schist derived meta-volcanic

units. Here massive and banded chert and shale beds are thicker and begin to dominate the stratigraphic succession. The recessive chert-shale interval was also observed; however ultramafic rocks were not recognized. Resistant feldspar-hornblende porphyritic granite intrusive rocks occur on the northernmost ridge, in good agreement with regional BCGS mapping.

On the ridge directly west of Haylmore Peak, a thick approximately 25 m true width pervasively serpentine-ankerite altered coarse grained ultramafic breccia body occurs at the same structural-stratigraphic level as the recessive chert-shale intervals on adjacent ridges. Sub-metre scale relict deformed breccia clasts having sigmoidal shapes consistent with apparent dextral shear sense are common. Isolated outcrops of quartz-ankerite-fuchsite altered ultramafic rocks were also observed 350 m along strike to the southeast where thicknesses appear to be less than 10 m.

Within a northwest-southeast elongate basin southeast of Haylmore Peak, chlorite schist and interbedded limestone rocks develop an intense mylonitic shear fabric. Strain localization occurs within limestone domains, where rotated relict grain asymmetry indicates dextral shear and moderately north (000/58) plunging elongation lineation. The shear zone can be traced in intermittent outcrops along the axis of the basin over a distance of 800 metres to the headwall. A 10 x 3 metre and serpentinized ultramafic lens occurs along the trace of the shear zone exposed along the headwall ridge. On the northern valley face, a monotonous sequence of alternating shale, chert and chlorite schist rocks, crosscut by narrow <1 to 2 metre wide bedding parallel brown to green fine grained locally vesicular andesite flows or dykes, occurs. Within the shale sequence, an approximately 3 to 4 metre wide zone of conspicuous quartz-fuchsite hornfels stockwork was observed over a bedding parallel distance of 30 metres. Localized concentrations of glacially transported chlorite schist-limestone magnetite skarn cobbles and boulders were also noted in the basin. Similar outcrops of fine-grained massive purplish magnetite skarn apparently replacing limestone lenses within chlorite schist rocks were located 300 m away on the south headwall of the basin.

Granodiorite intrusive rocks were observed in the sub-alpine headwaters of Haylmore Creek and below treeline in the Steep Creek area. In Haylmore Creek large block outcrops of coarse grained granodiorite occur between the elevations of, 2160 and 2,080 m. The geometry off surrounding sedimentary and volcanic rocks suggests a narrow northwest elongate intrusive body here. At Steep Creek, bleached white medium grained granodiorite containing disseminated pyrite, and spatially associated narrow biotite granite dykes intruded siliceous chert-phyllite sediments, and chloritic volcanic rocks. Mineralization within Steep Creek has been thus far in the form of small malachite-stained intrusive-hosted quartz vein cobbles containing up to 2% chalcopyrite, and pyritic mestasediment and intrusive rocks returning anomalous lead, zinc and silver values. Significant mineralization has yet to be discovered in outcrop.

8.2 Soil Sampling

Soil sampling in 2014 had two focus zones, a sampling grid over the historic 1970 Steep Creek copper showing and contour sampling along several alpine areas. A total of 66 samples were taken over the historic 1970 Steep Creek copper showing and 137 samples were collected along contours over several alpine areas in the north, northeast and edges of the Property. Soil lines were designed to confirm an historic copper in soil geochemical anomaly at Steep Creek, in addition to testing for precious, base metal and pathfinder element anomalies within the northwest trending belt of prospective Bridge River Complex rocks within the alpine areas of the Property. The results of the two focus areas were compiled and interpreted separately given the base metal response at Steep Creek is approximately 1 order of magnitude greater than that of alpine areas..

Geochemical results for the two sampling focus areas are calculated into breakdowns of the 70th, 90th, 95th and 97.5th percentiles (Tables 2 and 3) and shown as thematic maps for the elements Au, Cu and As (Figures 6a, 6b and 6c).

The 66 soil samples collected over the historic 1970 Steep Creek copper showing were collected roughly along 40 m contour lines at 50 m spacing over an approximately 300 x 500 m area. The 2014 soil sampling at the 1970 Steep Creek copper showing area returned a total of 4 anomalous samples with greater than 28.3 ppb Au (>95th percentile) up to 190.1 ppb Au, 4 anomalous samples with greater than 3.0 ppm silver (Ag; >95th percentile) up to 6.8 ppm Ag, and 4 anomalous samples with greater than 679.4 ppm copper (Cu; >95th percentile) up to 1324 ppm Cu (Table 2).

The 137 soil samples over the alpine areas in the north, northeast and southeast edges of the Property were collected along 90 m contour lines at 100 m spacing. Results from 2014 soil sampling throughout the alpine areas returned a total of 7 anomalous samples with greater than 16.0 parts-per-billion (ppb) gold (Au; >95th percentile), and up to 163.1 ppb Au, and 7 anomalous samples with greater than 111.7 parts-per-million (ppm) arsenic (As; >95th percentile) up to 308.0 ppm As (Table 3).

Table 2. Element Percentile Calculation for 2014 Copper Showing Soil Samples

COPPER SHOWING	Au (ppb)	Cu (ppm)	Ag (ppm)	As (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Sb (ppm)	Ba (ppm)	Hg (ppm)
Detection Limit	0.5	0.1	0.1	0.5	0.1	0.1	0.1	0.1	1	0.01
Mean	8.1	282.7	1.0	61.8	3.7	132.1	472.8	0.9	523	0.07
Median	2.3	225.8	0.7	38.6	2.5	62.0	370.0	0.8	419	0.06
Min	0.3	23.5	0.1	6.0	0.6	10.5	105.0	0.1	147	0.02
Max	190.1	1324.0	6.8	325.0	32.0	2162.2	2285.0	2.8	3699	0.61
70 th Percentile	5.2	319.7	1.0	62.1	4.1	95.9	436.0	1.1	554	0.07
90 th Percentile	14.2	509.0	1.7	125.7	5.9	218.1	952.5	1.8	735	0.13
95 th Percentile	28.3	679.4	3.0	197.7	7.9	354.8	1054.0	2.6	1191	0.16
97.5 th Percentile	37.4	1069.8	3.9	284.9	13.1	753.3	1437.3	2.7	1403	0.21

Table 3. Element Percentile Calculation for 2014 Alpine Areas Soil Samples

ALPINE AREAS	Au (ppb)	Cu (ppm)	Ag (ppm)	As (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	Sb (ppm)	Ba (ppm)	Hg (ppm)
Detection Limit	0.5	0.1	0.1	0.5	0.1	0.1	0.1	0.1	1	0.01
Mean	5.7	43.8	0.1	32.8	2.2	7.6	97.4	0.5	146	0.04
Median	1.7	38.4	0.1	14.9	2.0	6.8	97.0	0.3	109	0.04
Min	0.3	7.7	0.1	3.2	0.3	2.1	30.0	0.1	36	0.01
Max	163.1	127.8	0.6	308.0	6.6	36.9	164.0	5.3	574	0.22
70 th Percentile	2.5	50.4	0.2	25.5	2.6	8.3	109.2	0.5	141	0.05
90 th Percentile	8.1	70.7	0.3	73.9	3.6	11.0	126.4	0.8	339	0.07
95 th Percentile	16.0	83.4	0.3	111.7	4.0	13.5	134.2	1.1	366	0.10
97.5 th Percentile	26.0	88.7	0.4	194.5	5.3	14.6	155.4	1.8	424	0.12

The results of 2014 soil sampling correlate extremely well with the historic 1970 Steep Creek survey (Figure 4). The 2014 soil sampling defines a doubled lobed Cu plus Pb/Zn/Au/Ag anomaly centred approximately 700 m north of the intersection of Steep Creek and Haylmore Creek main logging road (Figure 6a). The largest 250 x 150 m lobe is centred along a dry gully 500 m northwest of Steep Creek and returned values of up to 0.12% Cu (14CGS029), 0.23% Zn (14CGS018), 0.22% Pb and 37.6 ppb Au (14CGS019). A smaller 100 x 100 m anomaly located 300 m to the southeast nearer Steep Creek returned values of up to 0.13% Cu (14CGS009), 699 ppm Pb and 926 ppm Zn (14CGS022).

Contour soil sampling in the alpine areas returned several spot and multi sample gold and arsenic anomalies in the southeast portion of the Property (Figure 6b). Sample 14WTS006 returned the highest gold in soil result returned from the Property to date at 137 ppb Au. Samples 14WTS008 and 14EBS009 located within 300 m of 14WTS006 returned anomalous values of 11 and 12 ppb Au, respectively. A distance of 900 m to the southeast, a three contour line downslope dispersion arsenic anomaly occurs. Here, 4 samples each returned between 184 and 308 ppm As over an approximately 150 x 400 m area (14MPS001, 14EBS001, 14CGS043 and 14CGS044). The arsenic anomaly is coincident with two soil samples returning anomalous gold values of 17 and 11 ppb Au (14WTS001 and 14CGS043, respectively).

A second gold in soil anomaly occurs 1 km east of the summit of Haylmore Peak, where two adjacent contour samples returned 163 and 83 ppb Au (14WTS046 and 14WTS047). An adjacent downslope sample, 14WTS038, returned 13 ppb Au (Figure 6b).

Soil sampling within the northern claims produced isolated spot gold anomalies (for example 14EBS014 returned 30.4 ppb Au), coincident with a prominent broad, perhaps lithologically controlled, barium, and weakly anomalous base metal and pathfinder element, anomaly north of Haylmore Peak (Figure 6c and Appendix 1).

8.3 Rock Grab Sampling

Prospecting in 2014 was completed concurrently with soil contour sampling in the Steep Creek Showing and alpine areas. A total of 30 samples were collected in the area

of the Steep Creek copper showing and 37 samples were taken over the alpine areas within the Property. The results of the two focus areas were compiled and interpreted separately given the base metal response at Steep Creek is approximately 1 order of magnitude greater than that of alpine areas.

Geochemical results for the two sampling focus areas are calculated into breakdowns of the 70th, 90th, 95th and 97.5th percentiles (Tables 4 and 5) and shown as thematic maps for the elements Au, Cu and As (Figures 6a, 6b and 6c).

Table 4. Element Percentile Calculation for 2014 Copper Showing Rock Samples

COPPER SHOWING	Au (ppb)	Cu (ppm)	Ag (ppm)	As (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
Detection Limit	0.5	1	0.3	2	3	1	1
Mean	2.5	370	2.12	15	204	572	198
Median	1.5	89	0.55	5	20	94	80
Min	0.3	4	0.15	1	2	34	17
Max	14.0	6416	19.10	92	4690	6364	1855
70 th Percentile	2.2	177	1.26	12	54	332	135
90 th Percentile	6.4	504	4.66	32	152	1030	241
95 th Percentile	7.7	574	11.14	75	272	2723	951
97.5 th Percentile	10.0	2187	16.85	85	1514	4696	1545

Table 5. Element Percentile Calculation for 2014 Alpine Areas Rock Samples

ALPINE AREAS	Au (ppb)	Cu (ppm)	Ag (ppm)	As (ppm)	Pb (ppm)	Zn (ppm)	Ba (ppm)
Detection Limit	0.5	1	0.3	2	3	1	1
Mean	1.7	63	0.18	52	8	46	55
Median	0.3	34	0.15	4	6	31	33
Min	0.3	3	0.15	1	2	1	2
Max	28.9	288	1.10	680	31	157	272
70 th Percentile	0.3	72	0.15	11	8	66	65
90 th Percentile	2.3	155	0.15	65	20	92	124
95 th Percentile	6.1	227	0.30	437	26	116	171
97.5 th Percentile	14.3	234	0.38	505	28	127	208

Mineralization within Steep Creek has been thus far in the form of small malachite-stained intrusive-hosted quartz vein cobbles containing up to 2% chalcopyrite, and pyritic mestasediment and intrusive rocks returning anomalous lead, zinc and silver values. Significant copper mineralization has yet to be discovered in outcrop.

A small 20 cm piece of quartz vein float located in Steep Creek at the intersection of a spur logging road returned 0.64% Cu. A distance of 150 m north up Steep Creek pale grey silicified granite float containing 2-3% clotty and/or fracture controlled pyrite mineralization returned 0.41% Zn and anomalous copper, lead and silver values (14KRP103). Pyritic cherty shale rocks cut by porphyritic dacite intrusive dykes exposed in logging road cuts 450 m west of Steep Creek returned 0.64% Zn and anomalous

copper, lead and silver values (14DRP003). A similar pyritic metasediment float boulder located 160 m downslope returned 0.11% Zn (14KRP101). A distance of 800 m west of Steep Creek, logging road cut float samples 14DRP020 and 14DRP021 returned 0.1% Zn, 5.2 g/t Ag; and 0.47% Pb, 19.1 g/t Ag, respectively.

No significant mineralization was located in alpine areas during 2014.

9 Interpretation and Conclusions

The purpose of the 2014 Popa Bear Property exploration program was to assess the potential for Bridge River Complex sedimentary, volcanic, and ultramafic rocks within the claims to host “Bralorne” style mafic-ultramafic hosted gold bearing quartz vein mineralization. In addition, soil sampling and prospecting in the Steep Creek area was designed to conform and replicate the presence an historic 1970 copper in soil geochemical anomaly.

No significant mineralization was located in alpine areas during 2014.

In the area of the 1970 Steep Creek Copper Showing, pyritic granodiorite intrudes siliceous chert-phyllite sediments and produce highly anomalous gold-silver plus copper-lead-zinc rock values. The results of 2014 soil sampling correlates extremely well with the historic 1970 Steep Creek survey and defines a distinct double lobe Cu plus Pb/Zn/Au/Ag anomaly centred 700 m west of Steep Creek at approximately the 1240 m contour elevation. Steep, heavily treed slopes with limited outcrops hampered efforts to locate a potential source of the historic and current 2014 soil anomaly. However, examination of outcrops within the Steep Creek canyon and along road cuts reveal locally white-light grey or orange weathering pyritic granodiorite, narrow dykes of locally silicified feldspar (\pm biotite) phyrlic dacite intrusive cutting cherty shale and fine grained volcanic rocks host intrusion related polymetallic copper mineralization.

10 Recommendations

Based on the presence of gold-silver and multi-element base metal and pathfinder element soil and rock geochemical anomalies and favourable geology the Popa Bear Property is considered a high priority for follow-up exploration. The 2015 exploration program should include but not to be limited to:

- (A) Additional prospecting, rock grab sampling and geologic mapping the Steep Creek Showing area.
- (B) Prospecting and rock grab sampling designed to locate the source of the two greater than 100 ppb Au in soil anomalies east of Haylmore Peak.

11 Date and Signature Page

This Report was prepared by the following Qualified Persons. The effective date of this report is July 17, 2015.

“Signed”

Kristopher J. Raffle, B.Sc., P.Geo.

Vancouver, British Columbia, Canada
July 17, 2015

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13 Certificate of Author

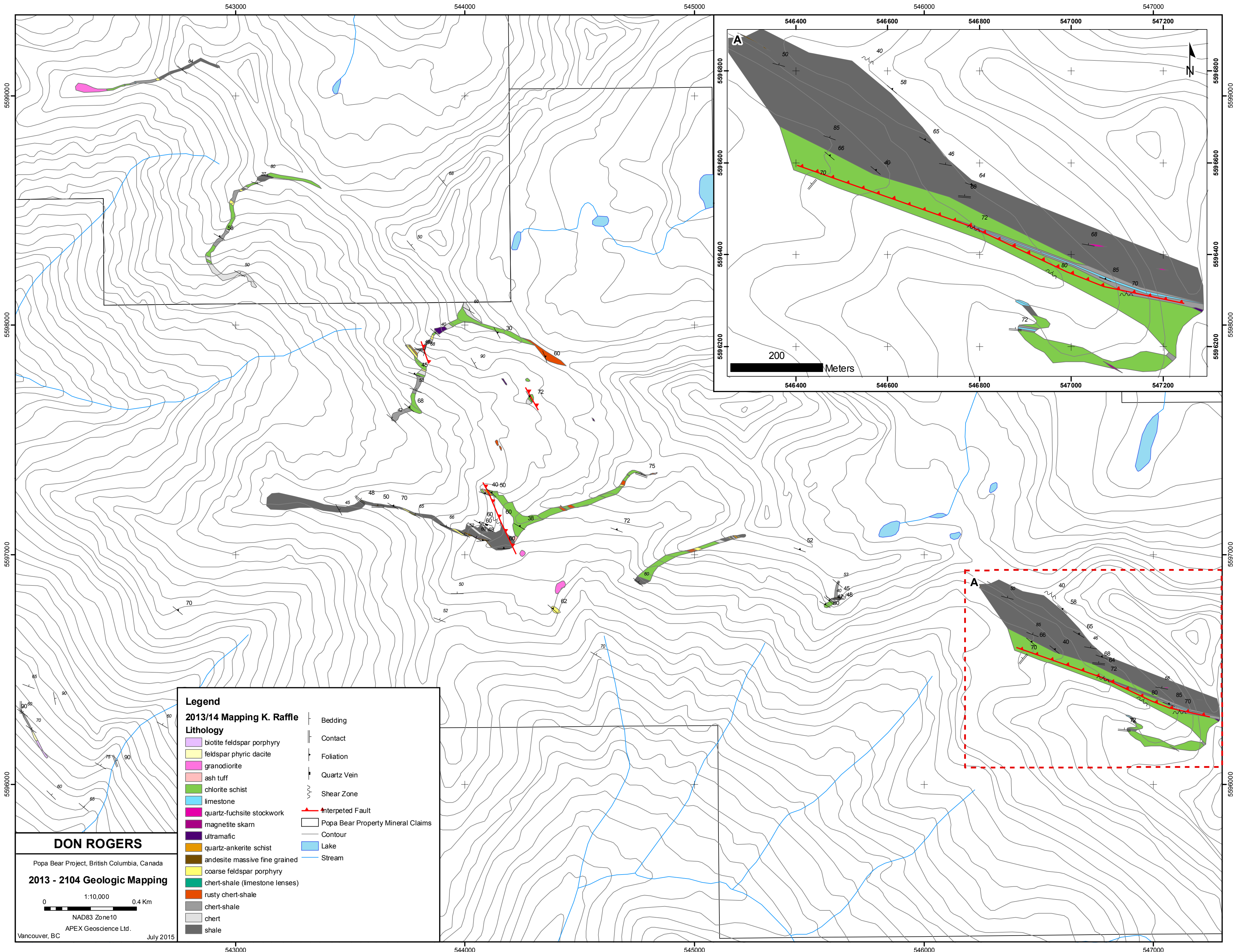
1. I, Kristopher J. Raffle, residing at 1155 Seymour Street, Vancouver British Columbia, Canada do hereby certify that: I am a senior geologist at APEX Geoscience Ltd. (“APEX”), 200, 9797 – 45 Avenue, Edmonton, Alberta, Canada.
2. I am the author of this Technical Report entitled: “*ASSESSMENT REPORT ON THE POPA BEAR PROPERTY*”, and dated July 17, 2015 (the “Assessment Report”).
3. I am a graduate of The University of British Columbia, Vancouver, British Columbia with a B.Sc. in Geology (2000) and have practiced my profession continuously since 2000. I have supervised exploration programs specific to gold and base metals. I have completed National Instrument 43-101 reports for projects in British Columbia and Ontario. I am a Professional Geologist registered with APEGA (Association of Professional Engineers and Geoscientists of Alberta), and APEGBC (Association of Professional Engineers and Geoscientists of British Columbia).
5. I am responsible for all sections of the Assessment Report titled “*ASSESSMENT REPORT ON THE POPA BEAR PROPERTY*”, and dated July 17, 2015. I have not received, nor do I expect to receive, any interest, directly or indirectly, in Property. I am not aware of any other information or circumstance that could interfere with my judgment regarding the preparation of the Technical Report.
8. To the best of my knowledge, information and belief, the Assessment Report contains all scientific and technical information that is required to be disclosed to make the Assessment Report not misleading.
9. I consent to the filing of the Assessment Report with the regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

Dated this July 17, 2015

Edmonton, Alberta, Canada



Kristopher J. Raffle, B.Sc., P.Geo.



Legend

2013/14 Mapping K. Raffle

Lithology

- biotite feldspar porphyry
- feldspar phyrlic dacite
- granodiorite
- ash tuff
- chlorite schist
- limestone
- quartz-fuchsite stockwork
- magnetite skarn
- ultramafic
- quartz-ankerite schist
- andesite massive fine grained
- coarse feldspar porphyry
- chert-shale (limestone lenses)
- rusty chert-shale
- chert-shale
- chert
- shale

- Bedding
- Contact
- Foliation
- Quartz Vein
- Shear Zone
- Interpreted Fault
- Popa Bear Property Mineral Claims
- Contour
- Lake
- Stream

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Popa Bear Project, British Columbia, Canada

2013 - 2104 Geologic Mapping

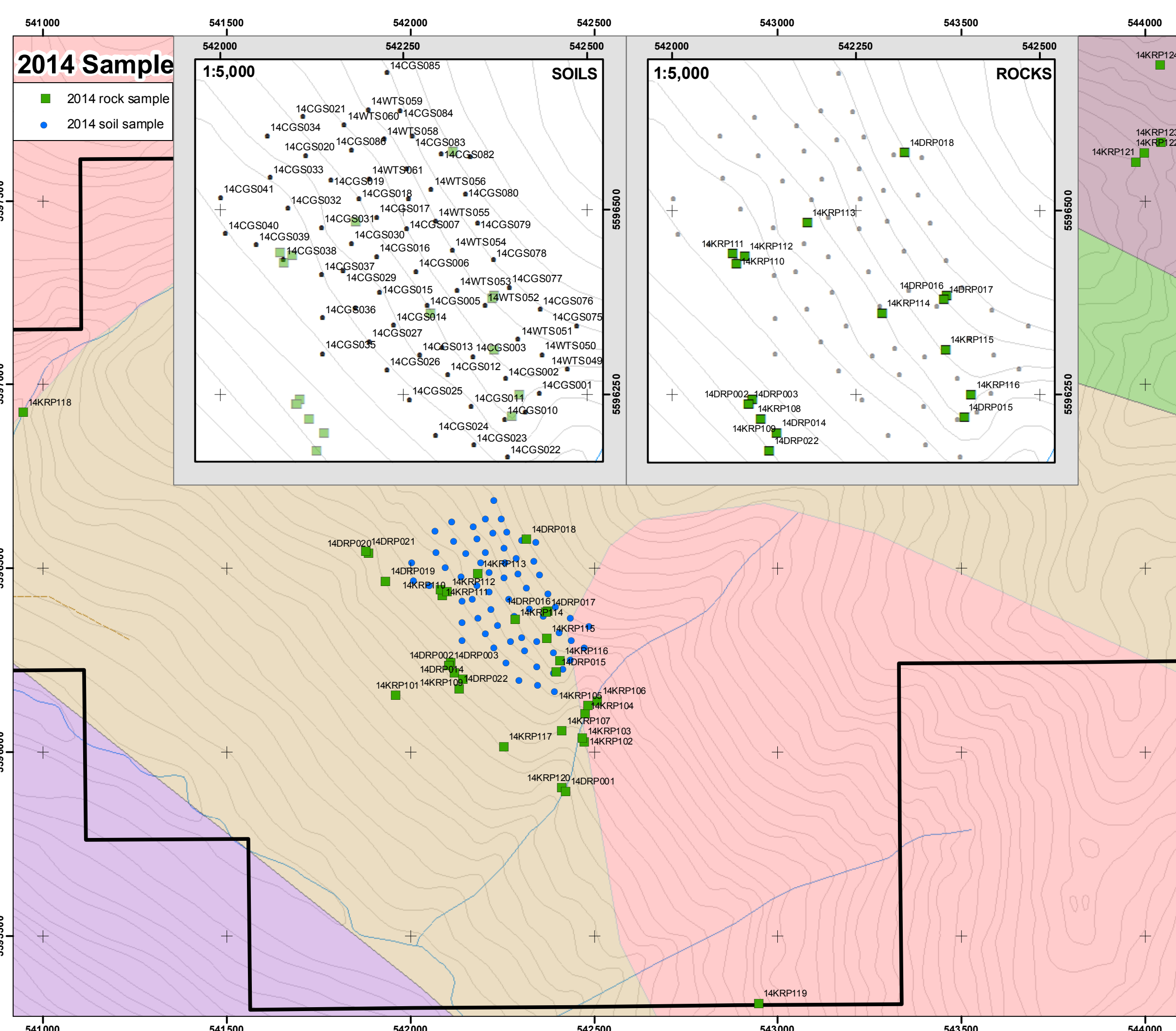
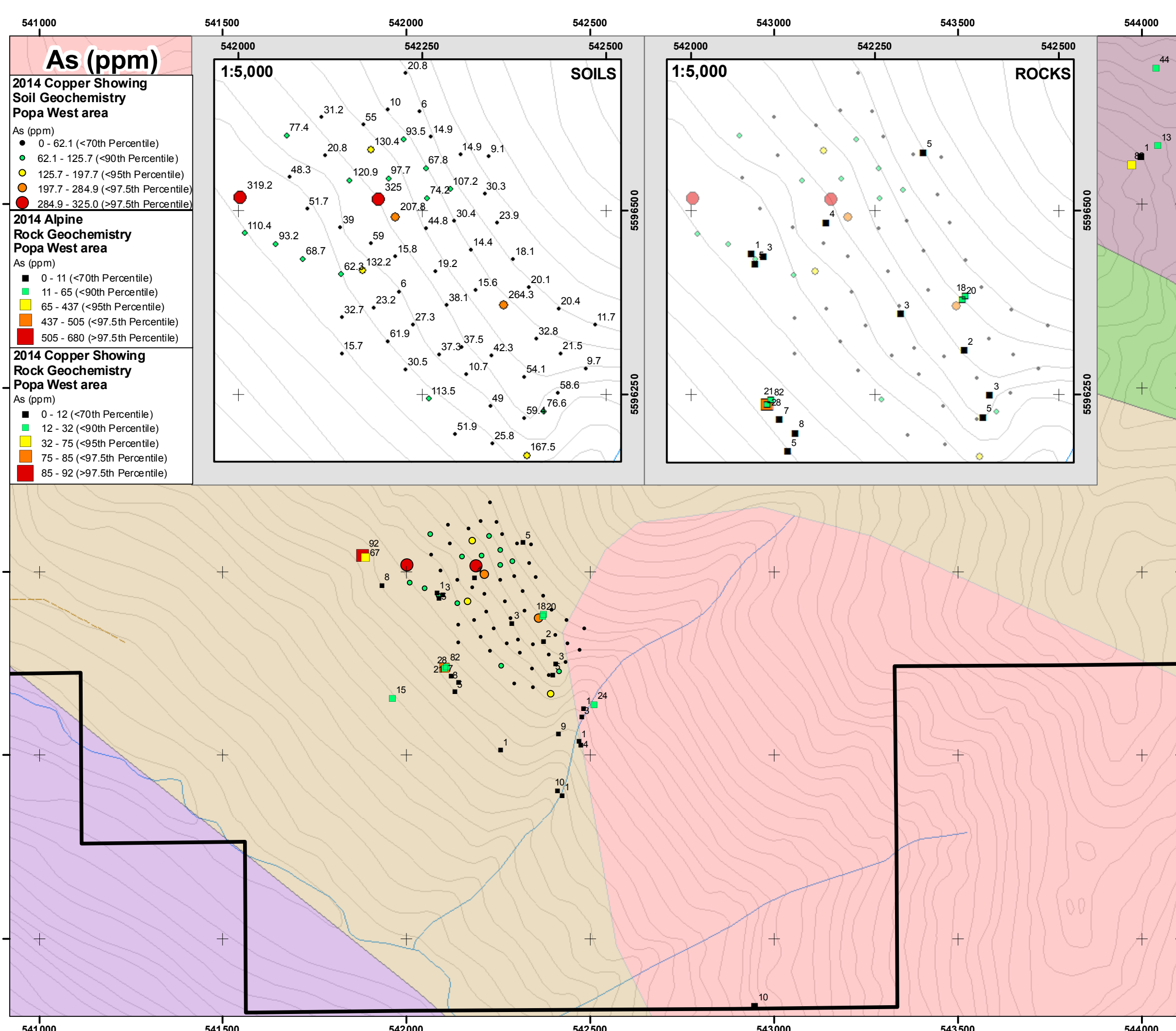
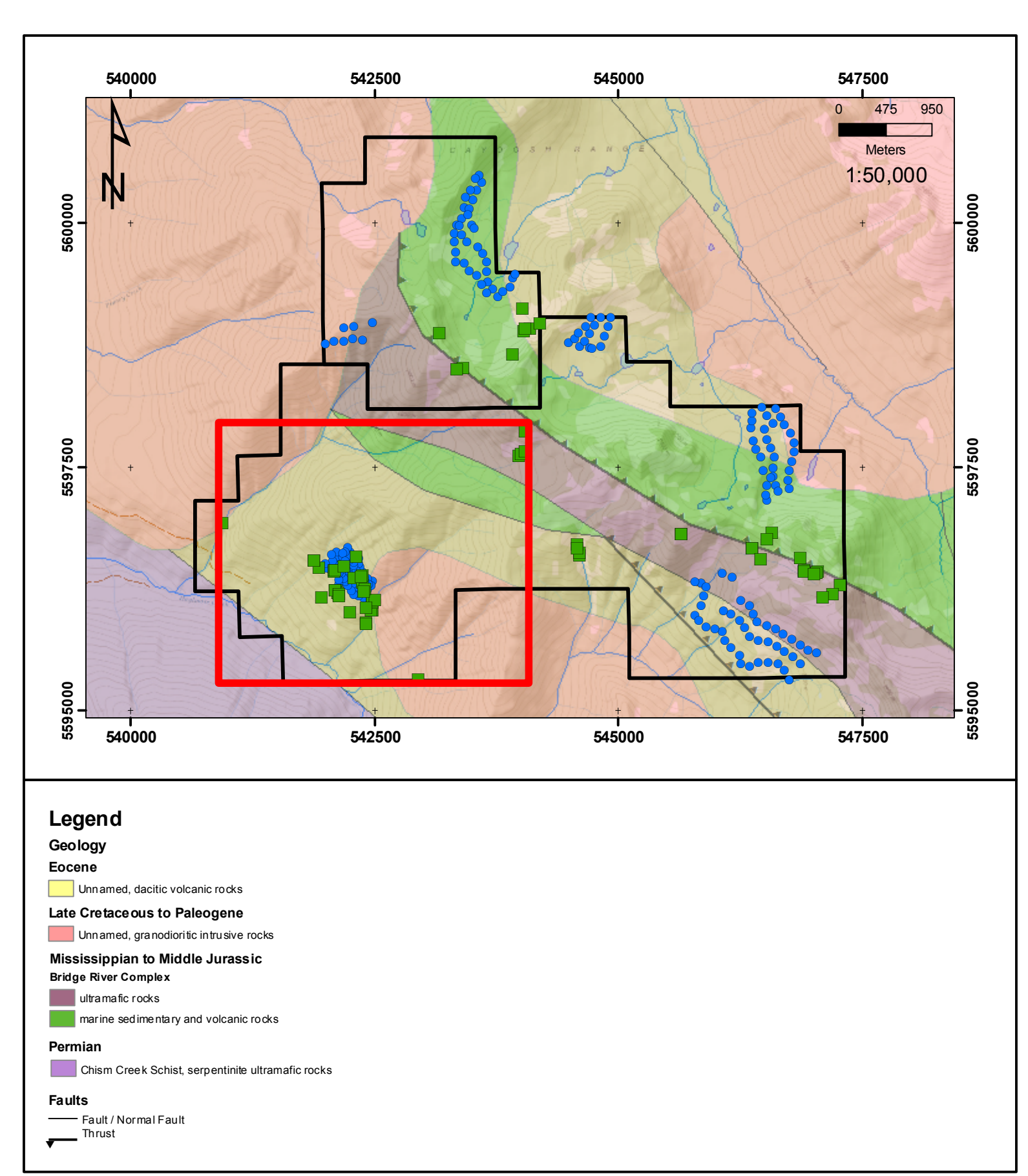
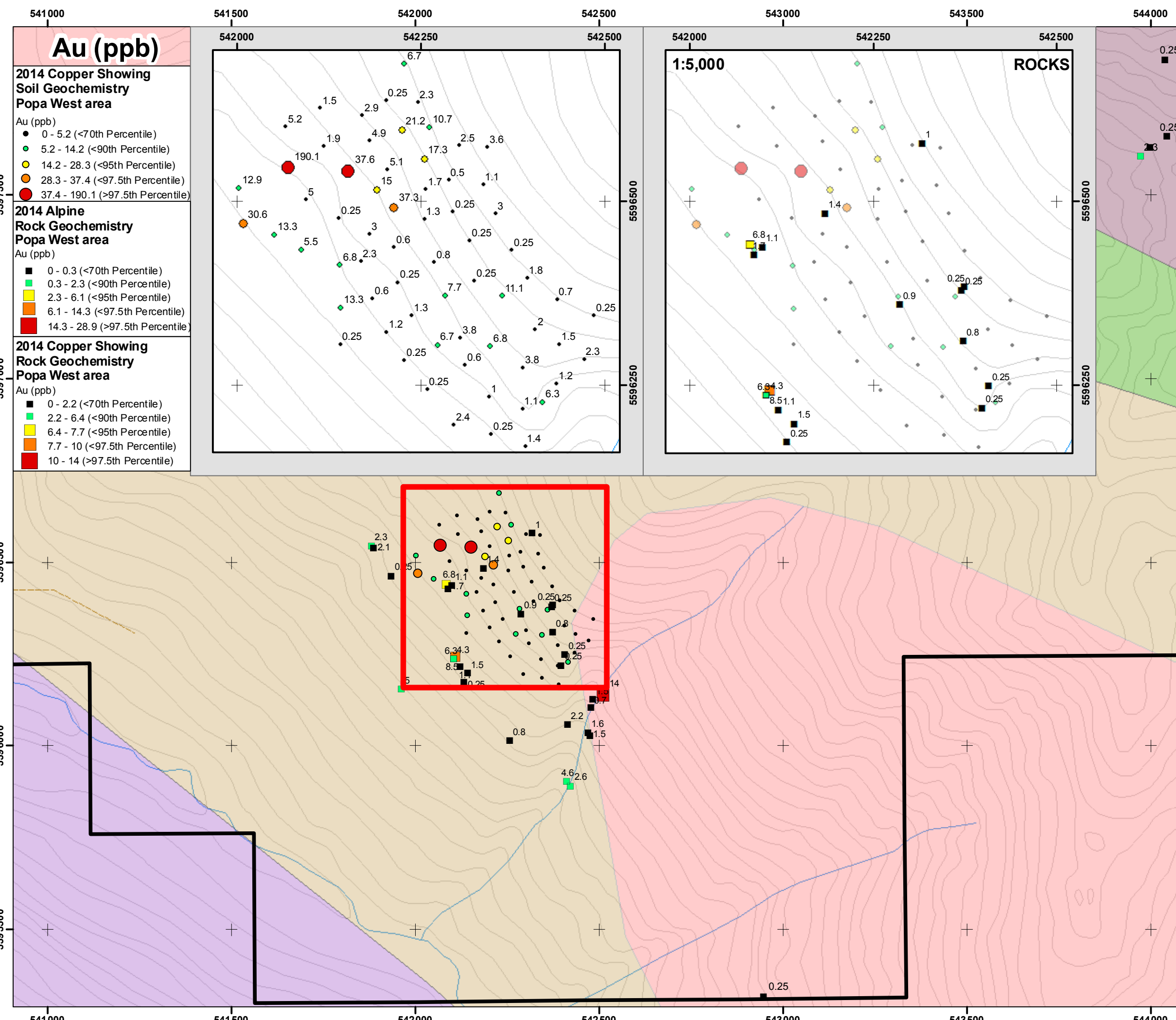
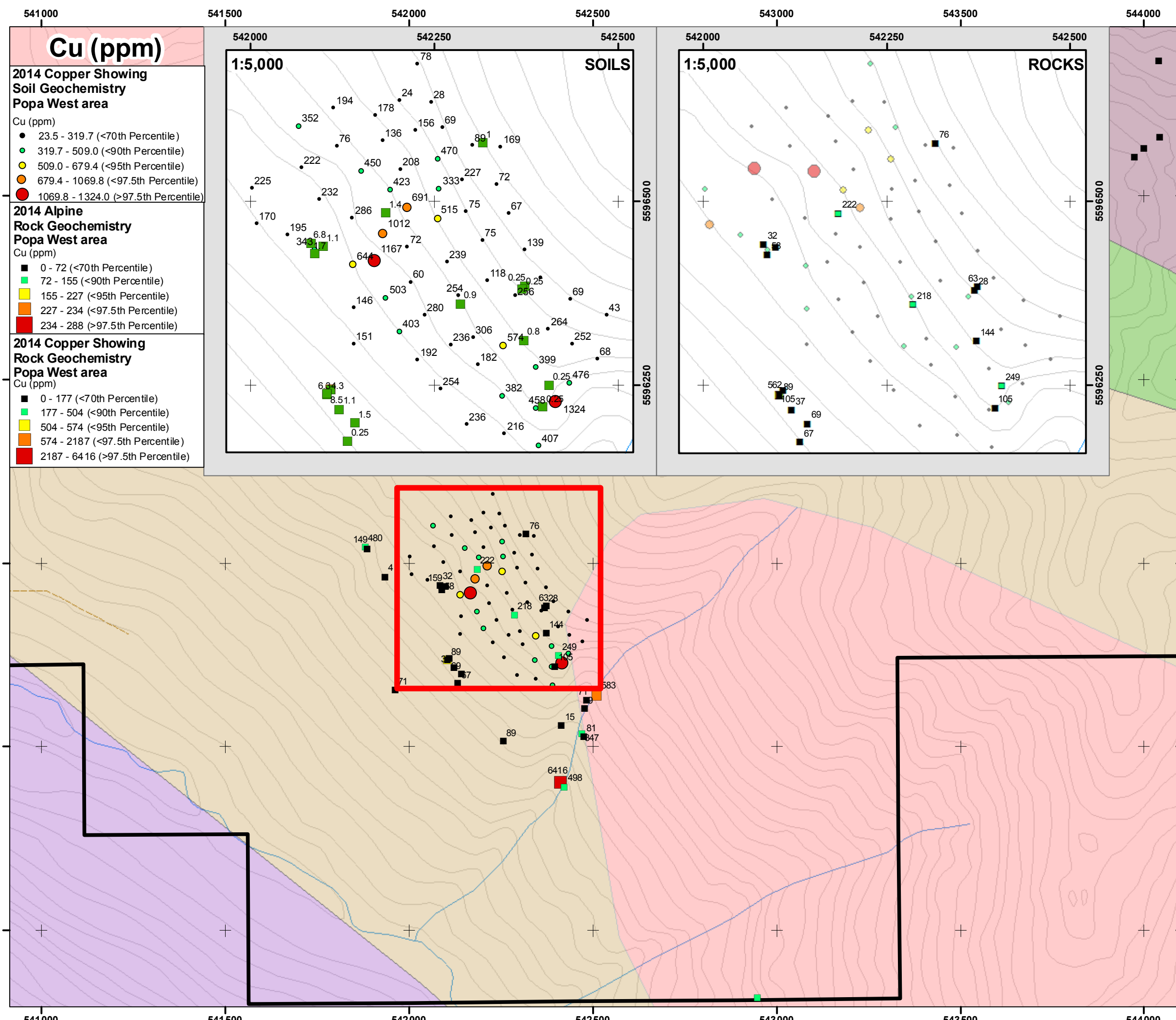
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Vancouver, BC July 2015

Figure 5.



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Popa Bear Project, British Columbia, Canada
West Popa Bear

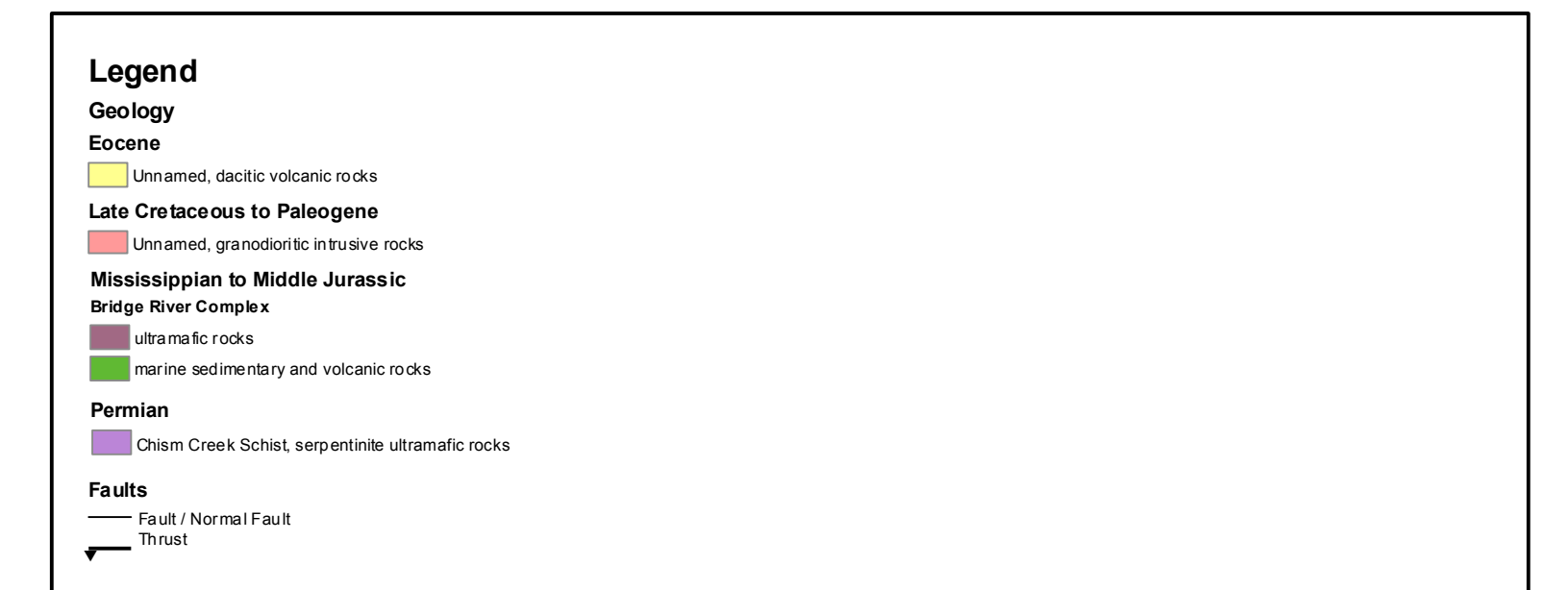
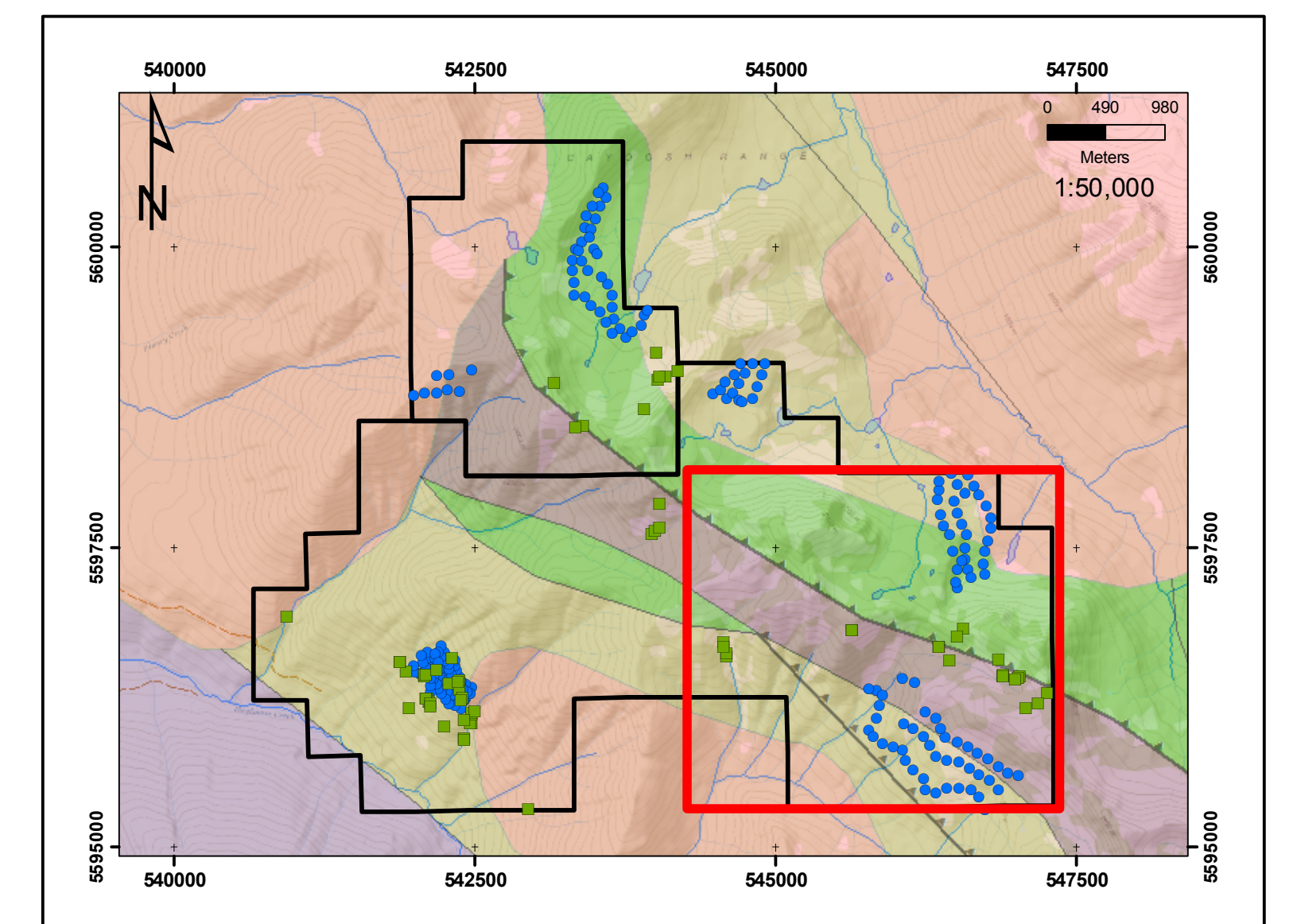
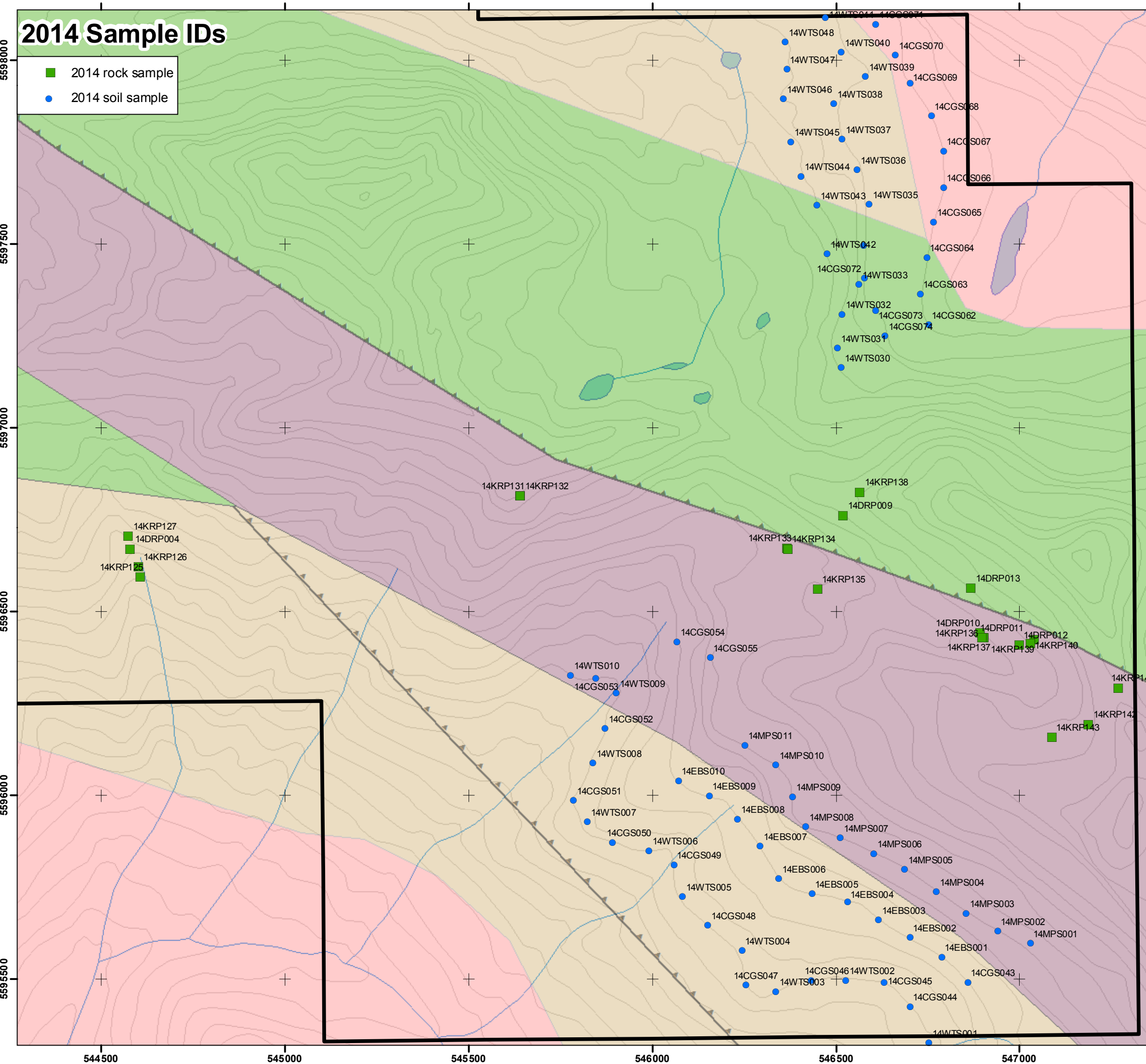
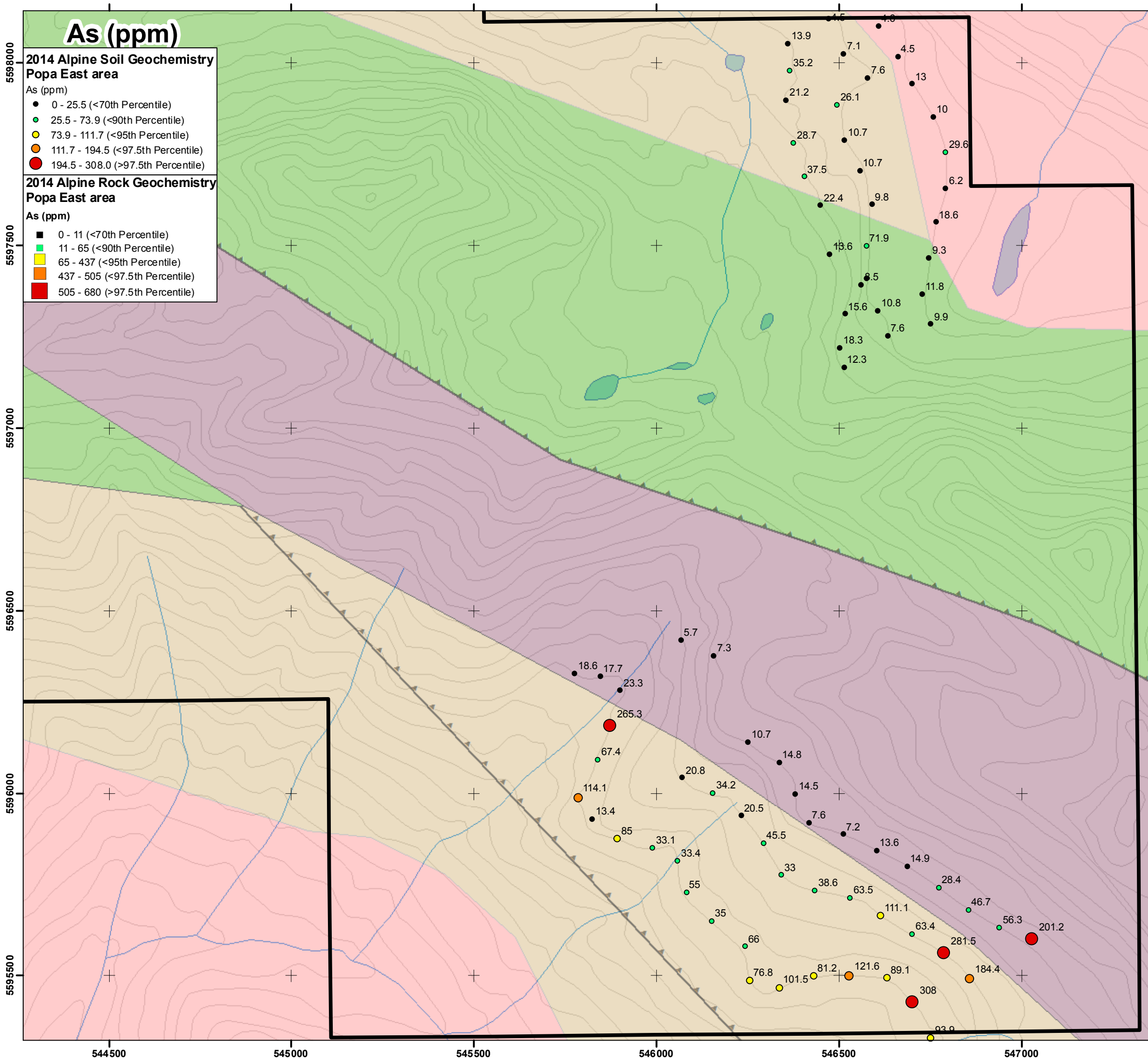
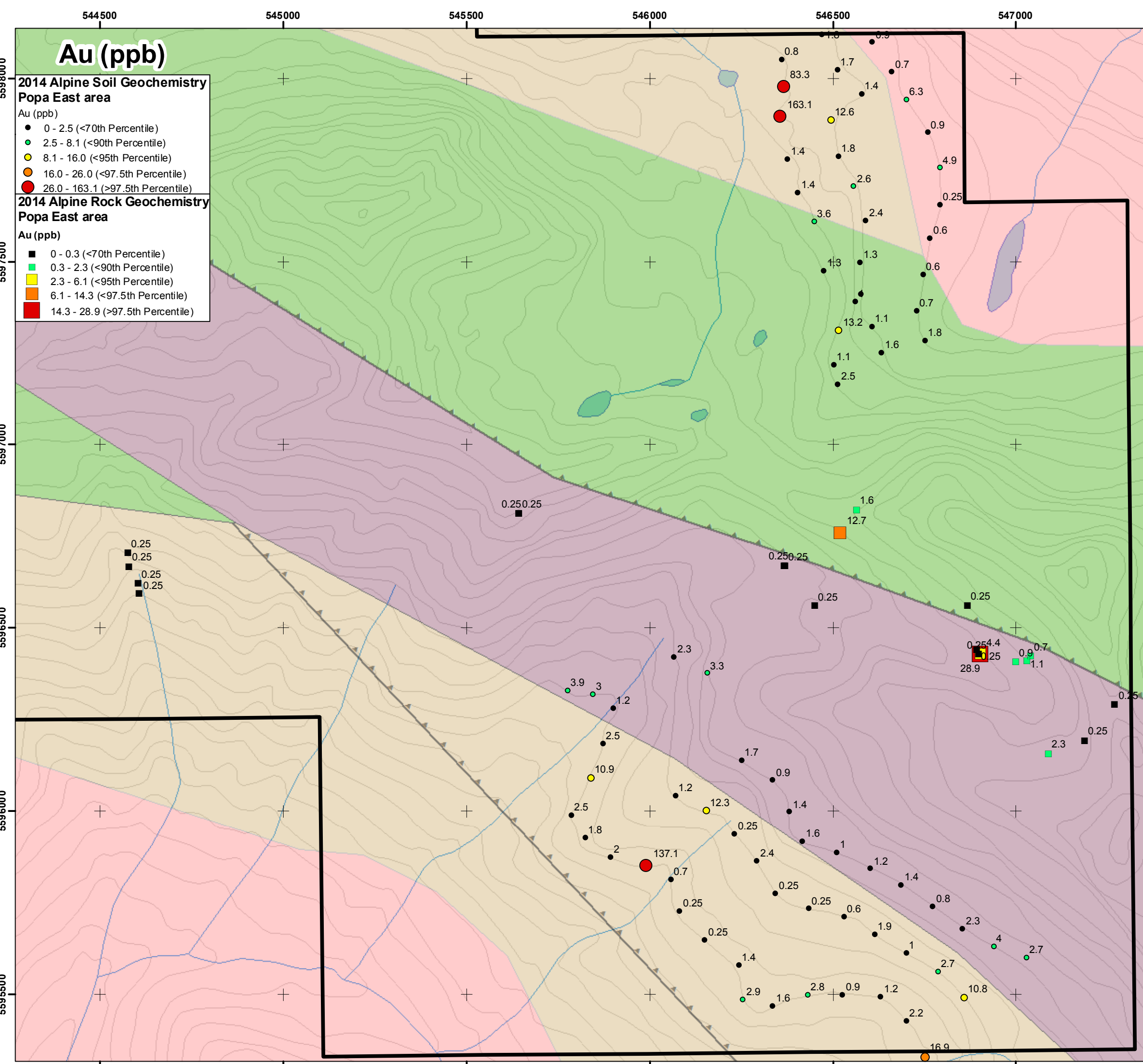
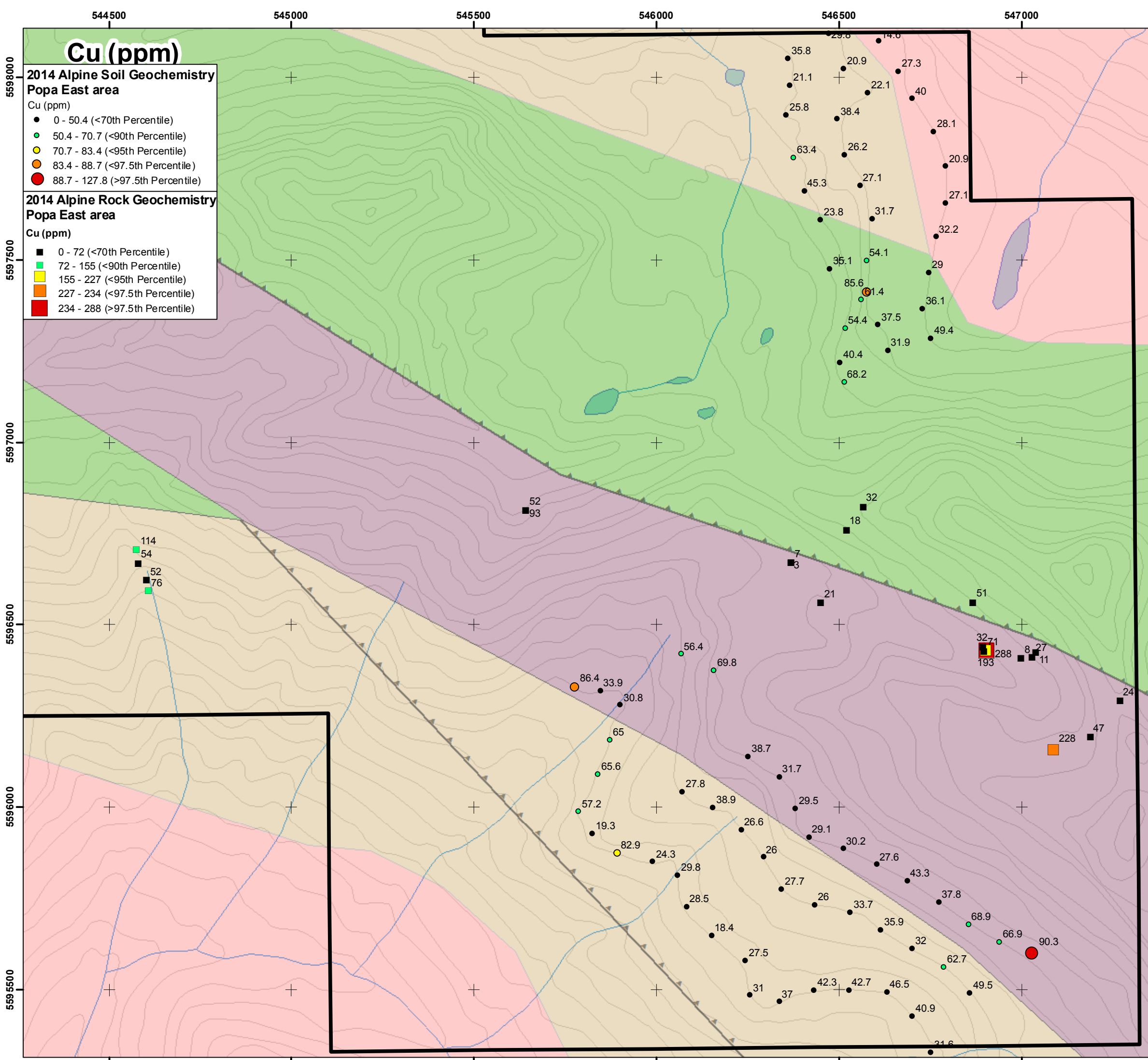
**2014 Sample Locations
Soil and Rock Geochemistry**

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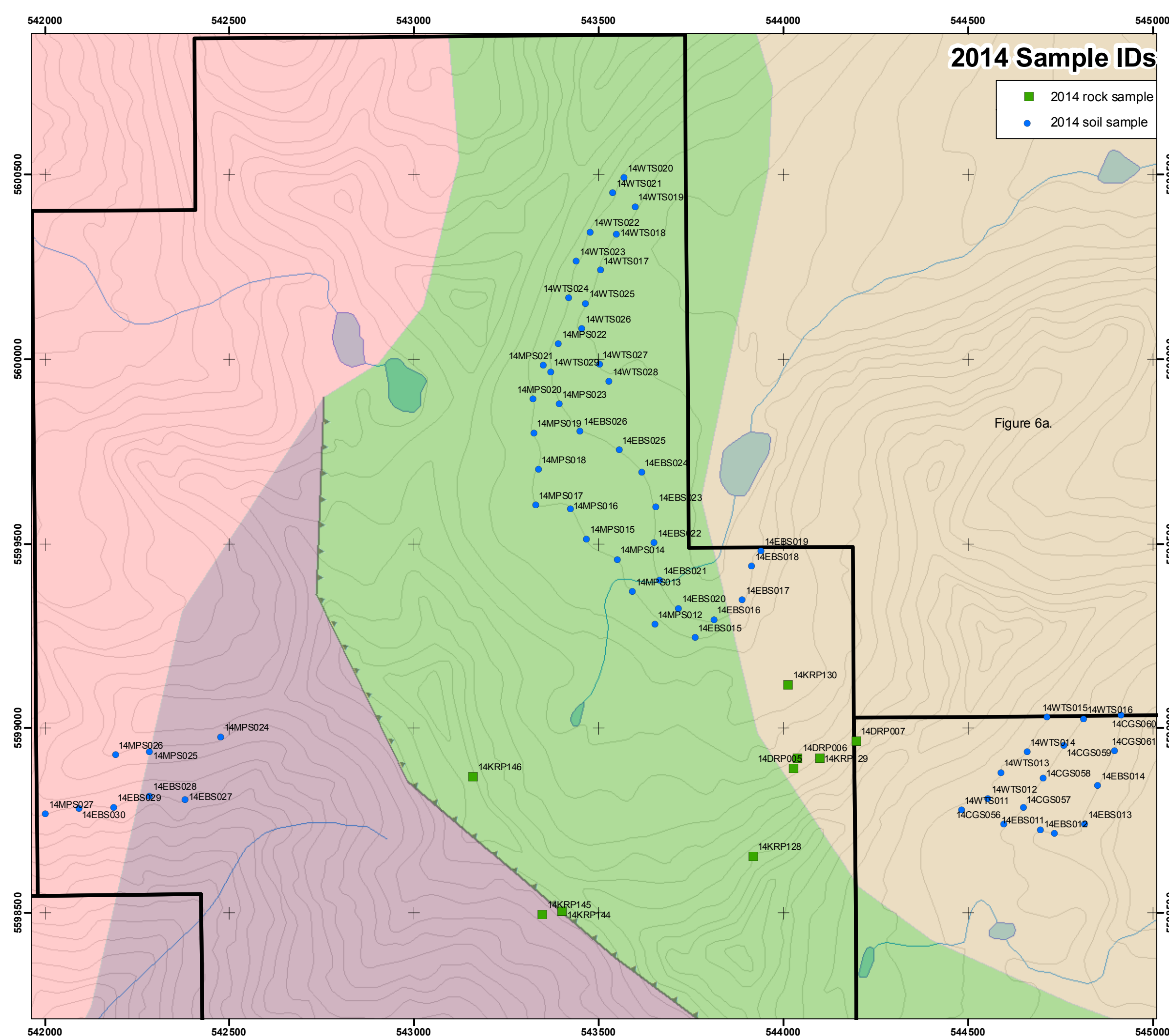
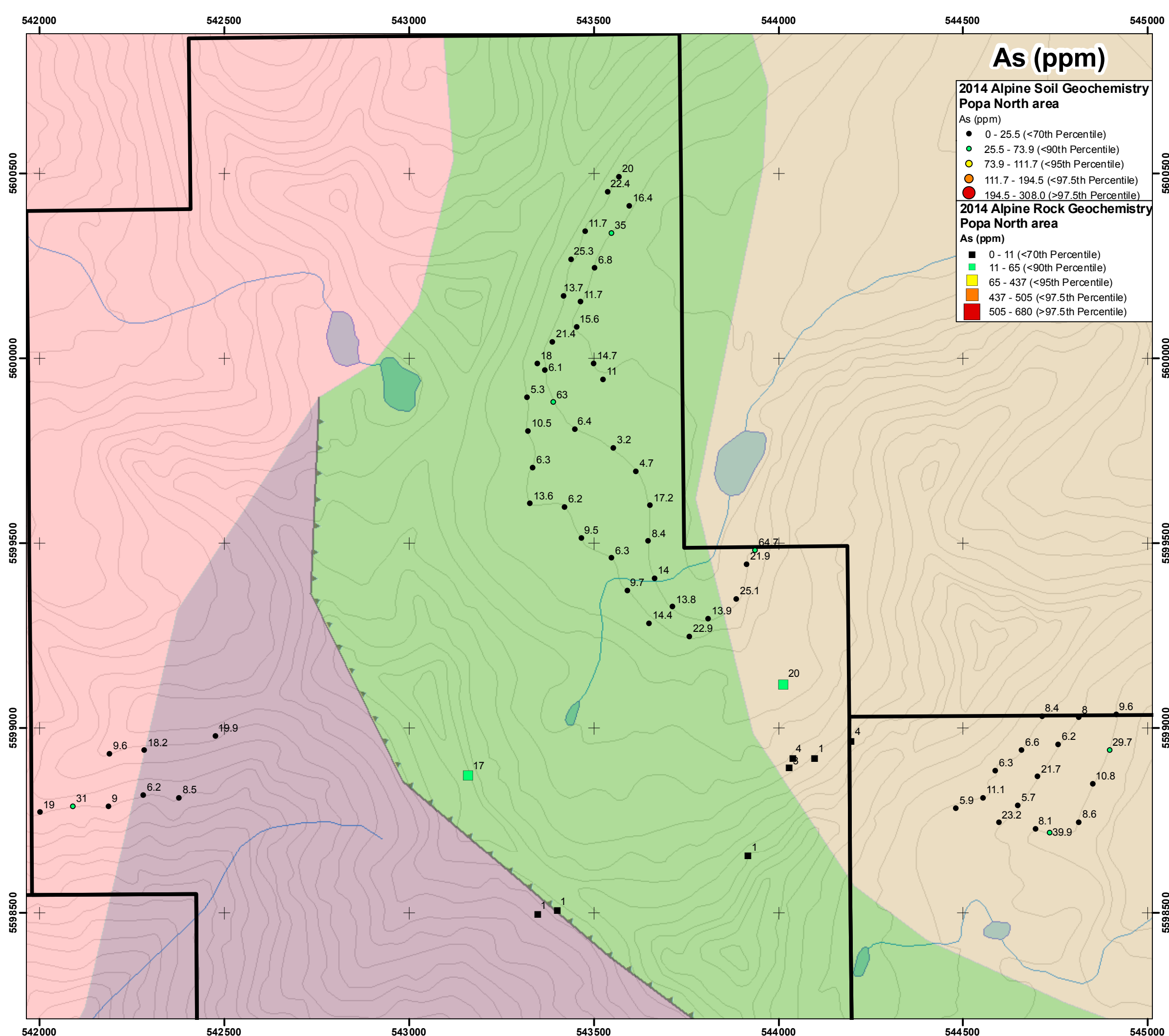
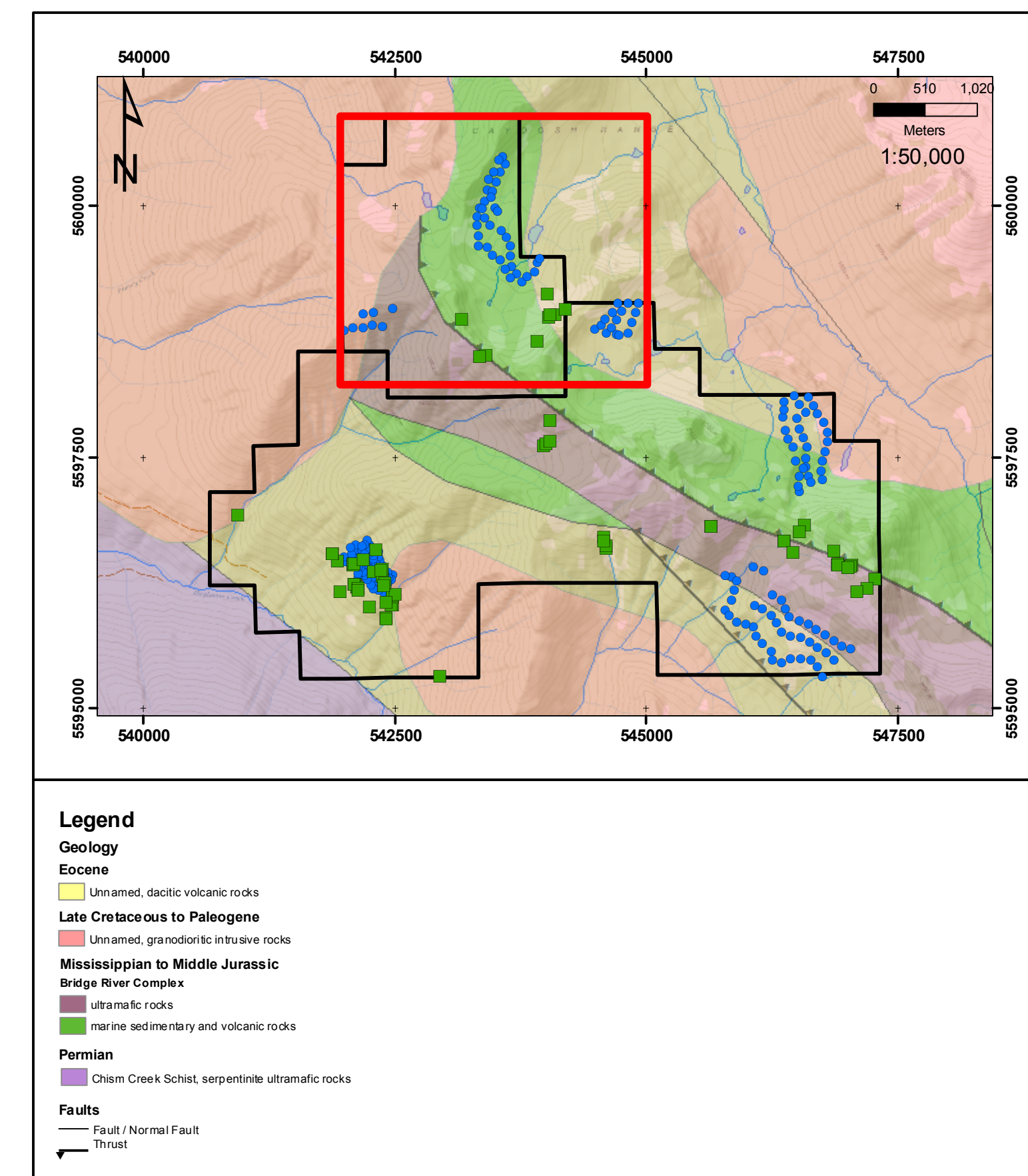
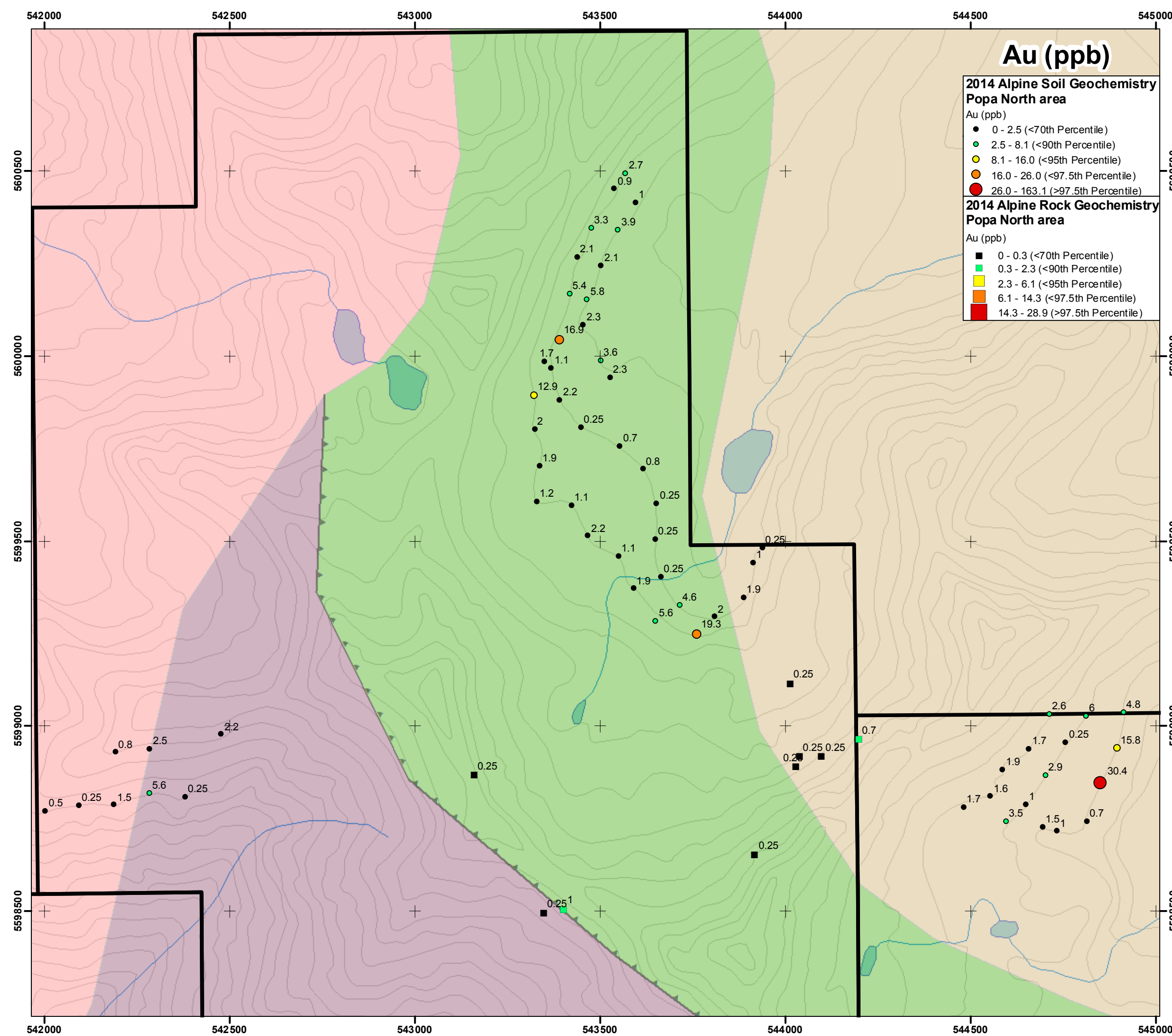
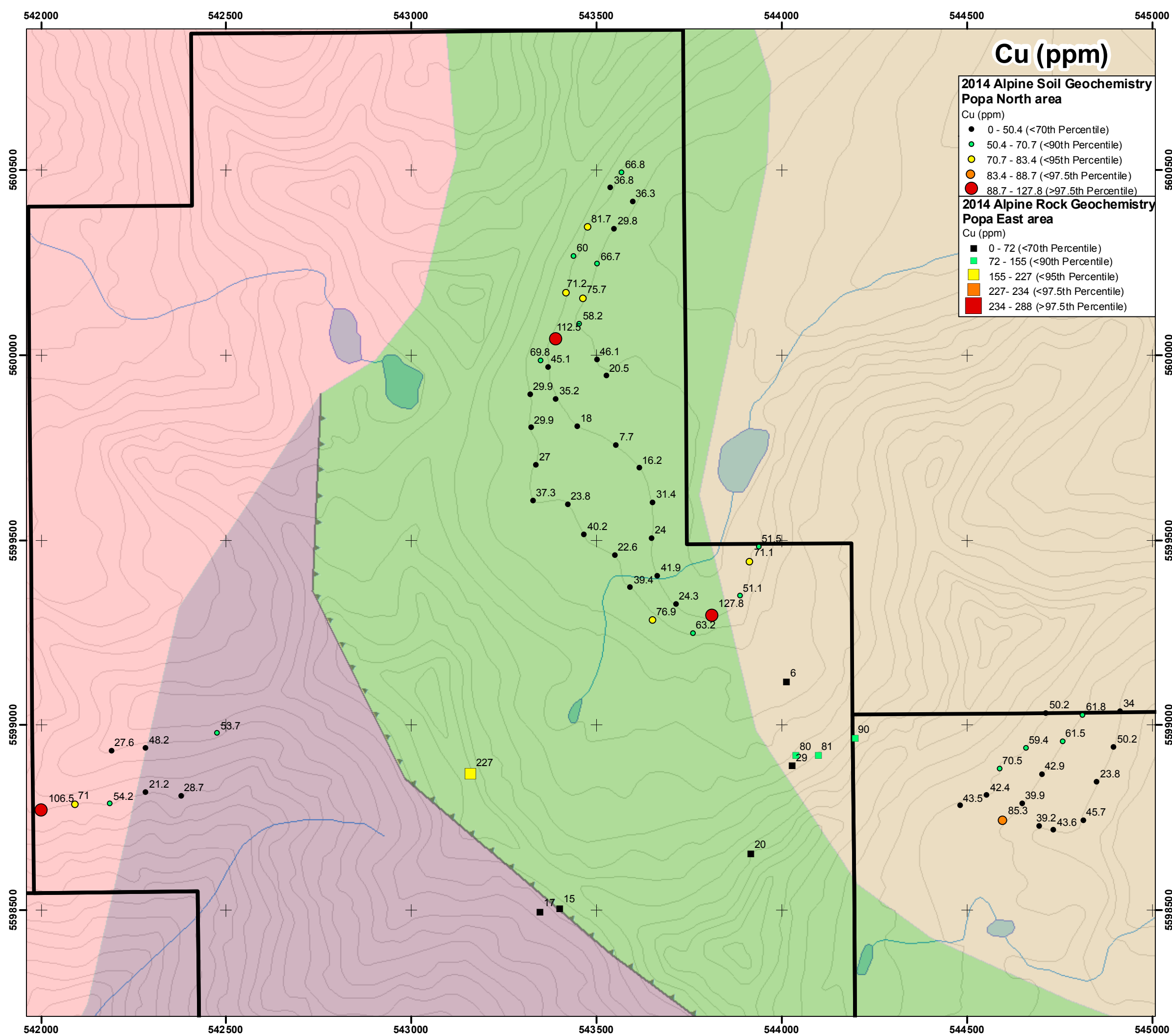
1:10,000
NAD83 UTM Zone 10
APEX Geoscience Ltd.

Vancouver, BC November 2014

Figure 6a.



DON ROGERS
 Popa Bear Project, British Columbia, Canada
East Popa Bear
2014 Sample Locations
Soil and Rock Geochemistry
 0 1 2 3 4 5 km
 1:10,000
 NAD83 UTM Zone 10
 APEX Geoscience Ltd.
 Vancouver, BC
 November 2014



DON ROGERS

Popa Bear Project, British Columbia, Canada
North Popa Bear

**2014 Sample Locations
Soil and Rock Geochemistry**

0 1 2 3 4 5 km

1:10,000
NAD83 UTM Zone 10
APEX Geoscience Ltd.

Vancouver, BC November 2014
Figure 6c.

APPENDIX 1

2014 Popa Bear Soil Sample Locations and Descriptions

Sample ID	GPS_East	GPS_North	Sample Class	Vegetation	Veg Int	Depth (cm)	Sample Rating	Moisture	Relief	Topo Position	Remarks	Horizon	Weather
14CGS001	542434.55	5596251.97	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Med brown rocky soil	B	CLR
14CGS002	542388.94	5596272.73	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	Med to dark brown rocky, very little soil	B	CLR
14CGS003	542344.32	5596301.95	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Med brown rocky soil	B	CLR
14CGS004	542303.18	5596313.85	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	Med brown rocky soil	B	CLR
14CGS005	542283.08	5596370.85	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Med Dark brown soil	B	CLR
14CGS006	542267.75	5596416.98	Soil	DEC	WF	15	2	DRY	HIGH	MID SLOPE	Light brown very rocky soil	B	CLR
14CGS007	542254.80	5596475.37	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS008	542257.10	5596515.98	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown soil	B	CLR
14CGS009	542415.68	5596226.91	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Med brown rocky soil, point moved from pre plot for terrain	B	CLR
14CGS010	542388.18	5596217.12	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Med to light brown rocky soil	B	CLR
14CGS011	542342.32	5596233.99	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Med to light brown rocky soil	B	CLR
14CGS012	542309.85	5596277.21	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med brown soil	B	CLR
14CGS013	542272.91	5596303.60	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS014	542237.42	5596344.35	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	light brown soil	B	CLR
14CGS015	542218.41	5596389.45	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Light brown soil, little greyish	B	CLR
14CGS016	542213.63	5596437.34	Soil	CON	WF	15	4	MST	HIGH	MID SLOPE	med brown moist soil	B	CLR
14CGS017	542213.42	5596490.83	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	med brown rocky soil	B	CLR
14CGS018	542190.32	5596515.11	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS019	542151.34	5596540.48	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Light brown soil	B	CLR
14CGS020	542117.74	5596574.57	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown soil	B	CLR
14CGS021	542113.36	5596626.80	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS022	542391.93	5596166.00	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown-reddish soil	B	CLR
14CGS023	542345.71	5596182.87	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Med to dark soil very rocky	B	CLR
14CGS024	542294.49	5596195.24	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Light sandy greyish soil	B	CLR
14CGS025	542258.51	5596243.44	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Med to light brown soil	B	CLR
14CGS026	542227.49	5596283.44	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	med brown, rocky, very little soil	B	CLR
14CGS027	542203.50	5596321.95	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	med brown rocky soil	B	CLR
14CGS028	542184.70	5596367.05	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS029	542168.27	5596417.85	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	reddish brown rocky soil	B	CLR
14CGS030	542179.88	5596455.42	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	med to light brown reddish soil	B	CLR
14CGS031	542138.87	5596476.89	Soil	CON	WF	15	2	MST	HIGH	MID SLOPE	Dark moist organic soil + large rocks	B	CLR
14CGS032	542093.37	5596502.43	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS033	542069.21	5596544.50	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS034	542065.71	5596601.18	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	CLR
14CGS035	542140.39	5596305.43	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown duffy rocky soil	B	CLR
14CGS036	542140.92	5596354.36	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown duffy rocky soil	B	CLR
14CGS037	542139.74	5596412.62	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light brown duffy rocky soil	B	CLR
14CGS038	542087.47	5596433.44	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Light to med brown duffy soil	B	CLR
14CGS039	542050.72	5596453.94	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med brown rocky duffy soil	B	CLR
14CGS040	542008.35	5596468.39	Soil	CON	WF	15	5	DRY	HIGH	MID SLOPE	Dark brown rocky soil	B	CLR

Sample ID	GPS_East	GPS_North	Sample Class	Vegetation	Veg Int	Depth (cm)	Sample Rating	Moisture	Relief	Topo Position	Remarks	Horizon	Weather
14CGS041	542002.43	5596517.05	Soil	CON	WF	15	4	DRY	HIGH	MID SLOPE	Med brown rocky duffy soil	B	CLR
14CGS043	546859.29	5595490.30	Soil	CON	SPARCE	15	4	MST	HIGH	MID SLOPE	Loamy med breown soil	B	
14CGS044	546702.44	5595425.52	Soil	CON	SPARCE	15	4	DRY	HIGH	MID SLOPE	next to flowing creek, med brown soil	B	
14CGS045	546631.66	5595491.61	Soil	CON	SPARCE	15	4	DRY	HIGH	MID SLOPE	med brown soil	B	
14CGS046	546432.34	5595497.64	Soil	CON	SPARCE	15	3	DRY	HIGH	MID SLOPE	light brown sandy	B	
14CGS047	546256.60	5595483.86	Soil	CON	SPARCE	15	3	DRY	HIGH	MID SLOPE	light brown sandy soil	B	
14CGS048	546151.64	5595647.51	Soil	CON	MOD	15	3	DRY	HIGH	MID SLOPE	light brown slightly grey sandy soil	B	
14CGS049	546059.43	5595812.40	Soil	CON	SPARCE	15	4	DRY	HIGH	MID SLOPE	light brown gravelly soil	B	
14CGS050	545893.69	5595873.22	Soil	CON	SPARCE	15	3	DRY	HIGH	MID SLOPE	light grey/brown rocky soil	B	
14CGS051	545787.05	5595986.83	Soil	CON	WF	15	4	MST	HIGH	MID SLOPE	med brown rocky soil	B	
14CGS052	545873.26	5596183.30	Soil	CON	SPARCE	15	3	DRY	HIGH	MID SLOPE	light brown sandy soil	B	
14CGS053	545847.26	5596318.73	Soil	CON	SPARCE	15	5	MST	LOW	MID SLOPE	med brown slightly grey rocky soil	B	
14CGS054	546067.60	5596418.52	Soil	CON	MOD	15	3	DRY	HIGH	MID SLOPE	med brown slightly sandy soil	B	
14CGS055	546158.73	5596374.83	Soil	CON	SPARCE	15	3	MST	HIGH	MID SLOPE	med to dark brown very rocky soil	B	
14CGS056	544597.31	5598742.19	Soil	CON	SPARCE	15	3	MST	HIGH	MID SLOPE	dark brown gravelly soil	B	
14CGS057	544650.07	5598788.23	Soil	CON	SPARCE	15	5	DRY	HIGH	MID SLOPE	dark brown fine soil	B	
14CGS058	544703.26	5598866.53	Soil	CON	SPARCE	15	5	MST	LOW	MID SLOPE	dark brown earthy soil	B	
14CGS059	544758.49	5598954.85	Soil	ALPINE	SPARCE	15	5	MST	LOW	MID SLOPE	dark brown earthy soil	B	
14CGS060	544914.41	5599036.24	Soil	ALPINE	SPARCE	15	4	MST	MED	MID SLOPE	dark brown earthy soil	B	
14CGS061	544896.81	5598939.35	Soil	ALPINE	SPARCE	15	4	MST	MED	MID SLOPE	med brown earthy soil	B	
14CGS062	546752.60	5597283.04	Soil	CON	SPARCE	15	4	MST	HIGH	MID SLOPE	med brown soil/talus	B	
14CGS063	546729.89	5597365.12	Soil	CON	SPARCE	15	3	WET	MED	MID SLOPE	med brown wet sandy soil	B	
14CGS064	546747.44	5597464.25	Soil	CON	SPARCE	15	4	DRY	LOW	MID SLOPE	med to light brown fine soil	B	
14CGS065	546767.13	5597562.28	Soil	CON	SPARCE	15	4	MST	MED	MID SLOPE	med brown soil, next to run off	B	
14CGS066	546793.24	5597654.81	Soil	CON	SPARCE	15	4	MST	LOW	MID SLOPE	med brown soil, next to run off	B	
14CGS067	546793.06	5597754.89	Soil	CON	SPARCE	15	3	WET	MED	MID SLOPE	dark brown wet soil next to pine	B	
14CGS068	546760.31	5597851.35	Soil	CON	SPARCE	15	3	MST	LOW	MID SLOPE	med brown fine soil	B	
14CGS069	546702.10	5597940.90	Soil	CON	SPARCE	15	3	MST	HIGH	MID SLOPE	med brown sandy soil, rocky	B	
14CGS070	546663.16	5598016.18	Soil	CON	MOD	15	4	MST	HIGH	MID SLOPE	med brown soil	B	
14CGS071	546609.26	5598099.10	Soil	CON	MOD	15	3	MST	LOW	RIDGE CREST	medium brown, slightly red soil	B	
14CGS072	546577.10	5597409.36	Soil	CON	SPARCE	15	3	DRY	HIGH	MID SLOPE	dark brown greyish rocky soil	B	
14CGS073	546607.65	5597320.67	Soil	CON	SPARCE	15	4	MST	HIGH	MID SLOPE	med brown greyish soil	B	
14CGS074	546634.50	5597250.85	Soil	CON	SPARCE	15	4	MST	MED	MID SLOPE	med brown rocky soil	B	
14CGS075	542485.00	5596343.89	Soil	CON	WF	15	2	DRY	MED	MID SLOPE	light brown greyish rocky soil	B	
14CGS076	542435.20	5596365.73	Soil	CON	WF	15	3	DRY	MED	MID SLOPE	light brown greyish soil	B	
14CGS077	542394.55	5596395.43	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med brown rocky soil	B	
14CGS078	542372.97	5596433.06	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med brown rocky soil	B	
14CGS079	542351.30	5596482.93	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med brown rocky soil	B	
14CGS080	542334.68	5596521.72	Soil	CON	WF	15	2	DRY	MED	MID SLOPE	light greyish gravelly soil	B	
14CGS081	542340.65	5596572.92	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med grey gravelly soil	B	
14CGS082	542301.64	5596575.94	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	light grey soil	B	

Sample ID	GPS_East	GPS_North	Sample Class	Vegetation	Veg Int	Depth (cm)	Sample Rating	Moisture	Relief	Topo Position	Remarks	Horizon	Weather
14CGS083	542261.74	5596600.08	Soil	CON	WF	15	2	DRY	HIGH	MID SLOPE	light brown greyish soil	B	
14CGS084	542245.87	5596634.43	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	med brown grey soil	B	
14CGS085	542227.73	5596686.55	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	light brown greyish soil	B	
14CGS086	542180.36	5596581.64	Soil	CON	WF	15	3	DRY	HIGH	MID SLOPE	Light brown rocky soil	B	
14EBS001	546788.46	5595560.84	Soil	CON	SPARCE	15	3	DRY	HIGH	MID SLOPE		B	
14EBS002	546701.50	5595612.33	Soil	CON	SPARCE	15	4	DRY	MED	MID SLOPE		B	
14EBS003	546615.96	5595662.73	Soil	CON	SPARCE	15	3	MST	MED	MID SLOPE		B	
14EBS004	546531.86	5595710.91	Soil	CON	SPARCE	15	3	MST	MED	MID SLOPE		B	
14EBS005	546435.24	5595732.30	Soil	CON	SPARCE	15	2	MST	MED	MID SLOPE		B	
14EBS006	546344.11	5595773.75	Soil	CON	SPARCE	15	2	MST	MED	MID SLOPE		B	
14EBS007	546293.69	5595862.27	Soil	CON	SPARCE	15	3	MST	MED	MID SLOPE		B	
14EBS008	546233.48	5595936.24	Soil	CON	SPARCE	15	4	MST	MED	MID SLOPE		B	
14EBS009	546155.65	5595998.95	Soil	CON	SPARCE	15	4	MST	MED	MID SLOPE		B	
14EBS010	546071.62	5596040.47	Soil	CON	SPARCE	15	4	MST	MED	MID SLOPE		B	
14EBS011	544696.66	5598726.36	Soil	CON	SPARCE	15	2	MST	LOW	LOWER SLOPE		B	
14EBS012	544734.31	5598715.56	Soil	GRASS	SPARCE	15	2	MST	LOW	LEVEL		B	
14EBS013	544814.86	5598742.93	Soil	CON	SPARCE	15	2	MST	LOW	LOWER SLOPE		B	
14EBS014	544851.54	5598846.66	Soil	GRASS	MED	15	2	MST	LOW	MID SLOPE		B	
14EBS015	543760.42	5599246.69	Soil	CON	SPARCE	15	3	MST	MED	MID SLOPE	6 feet from heavily flowing creek	B	
14EBS016	543811.04	5599294.93	Soil	CON	SPARCE	15	2	MST	MED	MID SLOPE		B	
14EBS017	543887.84	5599347.83	Soil	CON	SPARCE	15	1	WET	MED	MID SLOPE		B	
14EBS018	543914.69	5599441.47	Soil	CON	MED	15	2	MST	MED	MID SLOPE	on lowest edge of heavily forested area	B	
14EBS019	543938.45	5599480.59	Soil	CON	SPARCE	15	1	MST	MED	MID SLOPE		B	
14EBS020	543715.12	5599326.38	Soil	CON	MED	15	3	MST	MED	MID SLOPE		B	
14EBS021	543664.88	5599402.69	Soil	CON	LOTS	15	3	MST	MED	MID SLOPE		B	
14EBS022	543649.17	5599503.75	Soil	CON	LOTS	15	3	MST	MED	MID SLOPE		B	
14EBS023	543653.32	5599600.53	Soil	CON	LOTS	15	2	MST	MED	MID SLOPE		B	
14EBS024	543615.70	5599693.63	Soil	CON	MED	15	2	MST	LOW	MID SLOPE		B	
14EBS025	543554.25	5599756.50	Soil	CON	LOTS	15	3	MST	MED	MID SLOPE		B	
14EBS026	543448.97	5599806.79	Soil	CON	MED	15	3	MST	MED	MID SLOPE		B	
14EBS027	542379.36	5598808.36	Soil	CON	LOTS	15	1	MST	HIGH	MID SLOPE		B	
14EBS028	542282.90	5598817.60	Soil	CON	LOTS	15	1	MST	HIGH	MID SLOPE		B	
14EBS029	542187.48	5598786.81	Soil	CON	LOTS	15	1	MST	HIGH	MID SLOPE		B	
14EBS030	542091.82	5598786.04	Soil	CON	LOTS	15	1	MST	HIGH	MID SLOPE		B	
14MPS001	547029.93	5595598.57	Soil	CON	SPARCE	15	4	MST		MID SLOPE	sample area surrounded by rock outcroppings	B	
14MPS002	546940.31	5595630.02	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	sample just under rock outcropping	B	
14MPS003	546855.49	5595678.20	Soil	GRASS	SPARCE	15	2	DRY		MID SLOPE	sporadic rock outcrops above	B	
14MPS004	546774.83	5595738.64	Soil	GRASS	SPARCE	15	2	DRY		MID SLOPE	open slope above	B	
14MPS005	546688.50	5595797.92	Soil	GRASS	SPARCE	15	2	DRY		MID SLOPE	open slope above	B	
14MPS006	546603.74	5595841.65	Soil	GRASS	SPARCE	15	4	DRY		MID SLOPE	lrg outcrop to nw. open slope above	B	
14MPS007	546512.59	5595885.33	Soil	GRASS	SPARCE	15	2	DRY		MID SLOPE	open slope above	B	

Sample ID	GPS_East	GPS_North	Sample Class	Vegetation	Veg Int	Depth (cm)	Sample Rating	Moisture	Relief	Topo Position	Remarks	Horizon	Weather
14MPS008	546418.72	5595916.75	Soil	GRASS	SPARCE	15	4	DRY		MID SLOPE	open slope above	B	
14MPS009	546382.56	5595996.49	Soil	GRASS	SPARCE	15	4	MST		MID SLOPE	hillside into nw draw. Open slope above	B	
14MPS010	546337.13	5596082.83	Soil	GRASS	SPARCE	15	4	MST		MID SLOPE	open slope above	B	
14MPS011	546252.28	5596137.68	Soil	GRASS	SPARCE	15	4	MST		MID SLOPE	open slope above	B	
14MPS012	543651.00	5599282.48	Soil	CON	SPARCE	15	5	DRY		MID SLOPE	slide area	B	
14MPS013	543591.46	5599370.94	Soil	CON	SPARCE	15	4	MST		MID SLOPE	slope below bowl	B	
14MPS014	543549.63	5599458.45	Soil	CON	SPARCE	15	4	MST		FLAT OF BOWL	rocky area	B	
14MPS015	543467.69	5599513.37	Soil	CON	SPARCE	15	6	WET		MID SLOPE	sample near small pond	B	
14MPS016	543423.08	5599596.40	Soil	CON	SPARCE	15	6			MID SLOPE	sample in bowl	B	
14MPS017	543328.76	5599605.63	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	sample in rock field above creek	B	
14MPS018	543336.47	5599702.44	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	near dry creek	B	
14MPS019	543323.60	5599802.42	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	open slope above	B	
14MPS020	543321.43	5599893.58	Soil	CON	SPARCE	15	6	DRY		MID SLOPE	down slope from large rock slide	B	
14MPS021	543349.02	5599985.00	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	below rock outcrop	B	
14MPS022	543390.34	5600043.16	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	down slope from rock bluff	B	
14MPS023	543391.69	5599879.71	Soil	CON	SPARCE	15	4	DRY		MID SLOPE	sample in rock field	B	
14MPS024	542476.50	5598977.06	Soil	CON	DENSE	15	2	DRY		MID SLOPE	sampled below small rock outcrop	B	
14MPS025	542284.07	5598937.70	Soil	CON	DENSE	15	2	DRY		MID SLOPE	sample in old slide area	B	
14MPS026	542191.30	5598929.17	Soil	CON	DENSE	15	2	DRY		RIDGE CREST	sample at center of ridge	B	
14MPS027	542001.95	5598769.75	Soil	CON	DENSE	15	2	DRY		MID SLOPE		B	
14WTS001	546752.96	5595327.00	Soil		MOD	15	3	MST			close to flat spot	B	
14WTS002	546528.07	5595497.37	Soil		SPARCE	15	4	MST			on sidehill	B	
14WTS003	546336.89	5595465.66	Soil		MOD	15	3	MST			near tall trees	B	
14WTS004	546244.43	5595578.27	Soil		MOD	15	3	MST			flat trees	B	
14WTS005	546082.88	5595725.86	Soil		MOD	15	3	MST			hillside with trees	B	
14WTS006	545991.03	5595849.61	Soil		MOD	15	4	MST			steep sidehill	B	
14WTS007	545825.15	5595927.11	Soil		MOD	15	2	MST			sidehill	B	
14WTS008	545840.04	5596089.60	Soil		HIGH	15	3	MST			rock area	B	
14WTS009	545902.20	5596279.18	Soil		SPARCE	15	1	MST			rocky area	B	
14WTS010	545777.71	5596327.03	Soil		SPARCE	15	1	MST			flat spot	B	
14WTS011	544482.17	5598781.25	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS012	544554.93	5598809.67	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS013	544588.33	5598882.23	Soil		NONE	15	0	MST			sidehill	B	
14WTS014	544659.42	5598938.44	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS015	544713.91	5599031.20	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS016	544813.87	5599026.49	Soil		NONE	15	3	MST			sidehill	B	
14WTS017	543503.45	5600244.26	Soil		NONE	15	1	MST			sidehill	B	
14WTS018	543548.71	5600339.15	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS019	543597.69	5600412.95	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS020	543568.70	5600491.67	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS021	543538.58	5600450.27	Soil		SPARCE	15	2	MST			sidehill	B	

Sample ID	GPS_East	GPS_North	Sample Class	Vegetation	Veg Int	Depth (cm)	Sample Rating	Moisture	Relief	Topo Position	Remarks	Horizon	Weather
14WTS022	543477.12	5600344.12	Soil		SPARCE	15	1	DRY			sidehill	B	
14WTS023	543438.79	5600267.08	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS024	543418.36	5600167.94	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS025	543464.54	5600151.64	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS026	543454.48	5600083.72	Soil		SPARCE	15	1	MST			sidehill	B	
14WTS027	543501.33	5599986.25	Soil		SPARCE	15	3	WET			wet flat near trees	B	
14WTS028	543527.21	5599941.99	Soil		SPARCE	15	3	WET			next to creek flat	B	
14WTS029	543369.01	5599966.26	Soil		SPARCE	15	3	MST			rocky sidehill	B	
14WTS030	546515.47	5597164.17	Soil		NONE	15	1	DRY			dry sandy	B	
14WTS031	546504.36	5597217.45	Soil		SPARCE	15	4	MST			mid slope	B	
14WTS032	546517.71	5597310.98	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS033	546562.38	5597390.33	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS034	546576.32	5597497.21	Soil		SPARCE	15	2	MST				B	
14WTS035	546591.62	5597610.77	Soil		SPARCE	15	2	MST			sidehill	B	
14WTS036	546558.89	5597703.89	Soil		SPARCE	15	3	MST			mid slope	B	
14WTS037	546517.05	5597786.92	Soil		SPARCE	15					flat spot	B	
14WTS038	546495.63	5597884.59	Soil		SPARCE	15	3	MST			mid slope	B	
14WTS039	546580.04	5597957.61	Soil		SPARCE	15	3	MST			mid slope	B	
14WTS040	546514.25	5598023.75	Soil		SPARCE	15	4	MST			mid slope	B	
14WTS041	546471.59	5598119.01	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS042	546476.58	5597474.08	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS043	546449.87	5597608.40	Soil		SPARCE	15	3	DRY			mid slope	B	
14WTS044	546405.94	5597686.97	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS045	546377.48	5597779.01	Soil		SPARCE	15	4	MST			sidehill	B	
14WTS046	546356.60	5597896.70	Soil		SPARCE	15	3	MST			sidehill	B	
14WTS047	546366.52	5597977.97	Soil		SPARCE	15	4	MST			flat spot	B	
14WTS048	546361.62	5598051.32	Soil		SPARCE	15	3	MST			low slope	B	
14WTS049	542472.01	5596284.85	Soil	CON		15	1	DRY			sidehill rocky	B	
14WTS050	542437.82	5596304.59	Soil	CON		15	1	DRY			rocky	B	
14WTS051	542405.74	5596325.46	Soil			15		DRY			rocky	B	
14WTS052	542360.71	5596370.69	Soil	CON		15	2	DRY			rocky	B	
14WTS053	542322.97	5596391.52	Soil	CON		15		DRY			rocky sidehill	B	
14WTS054	542316.15	5596445.95	Soil	CON		15	2	DRY			rocky sidehill	B	
14WTS055	542293.85	5596485.80	Soil	CON		15	1	DRY			woody sidehill	B	
14WTS056	542287.84	5596528.01	Soil	CON		15	2	MST			rocky sidehill	B	
14WTS057	542255.00	5596556.66	Soil	CON		15	2	MST			rocky trees	B	
14WTS058	542224.20	5596596.44	Soil	CON		15	2	MST			sidehills	B	
14WTS059	542202.61	5596636.30	Soil	CON		15	3	MST			rocky hills	B	
14WTS060	542170.16	5596616.03	Soil	CON		15	2	DRY			rocky	B	
14WTS061	542204.07	5596542.91	Soil	CON		15	3	MST			close to outcrop of rock	B	

APPENDIX 2

2014 Popa Bear Rock Sample Locations and Descriptions

Sample	GPS_East	GPS_North	Showing	Lithology	Grain_Size	sulph	Alt_Int	Alt_type	Veining	Magnetism	Material	Relief	Strike	Dip	Description
14KRP101	541960.59	5596155.32	Steep Cr.	Qtz Vein, Schist, Metased	crs	1% py	str	si	high		blldr	mod			40 cm float boulder on road. Py, grey dusty sulphide ? Galena? Rotten and oxidized, epidote
14KRP102	542473.81	5596028.86	Steep Cr.	Fsp-biotite porphyry	med	0.5% py	mod	si	low		talus	high			Steep cr. Float. Grey-5m maroonish fsp+biotite porphyry dissem and stringer py.
14KRP103	542468.68	5596037.95	Steep Cr.	Granite	med	3% py	str	si	low		talus	high			pale grey, silicified granite. Med grained , 2-3% clotty +/- fx controlled py
14KRP104	542476.56	5596104.86	Steep Cr.	BFP	med	1% py	mod	prop, si	low		o/c	high			0.5-1.0% dissem, loc. Fx controlled Py, relatively fresh fsp-bi proph light grey
14KRP105	542482.51	5596128.01	Steep Cr.	Fsp proph granite		2% py	mod	prop, si, K	low		o/c	high			1-2% dissem cm-mm scale scale py silicified chl/alt biotite is replaced by chl (?)
14KRP106	542509.39	5596139.12	Steep Cr.	Felsite	med	0.5 cpy	str	si	high	none	talus	high			malachite/dissem cpy trace felsite, ankerite veins 1-3 mm.
14KRP107	542413.31	5596058.93	Steep Cr.	Quartz Vein	crs	tr py		si					290	85	40cm white bull q.v trace py/iliminite voids metased hosted, bedding parralel schist shale hosted rock, bedding , narrow cm-scale quartz vein lenses clotty py chlorite
14KRP108	542109.23	5596243.17	Steep Cr.	Quartz Vein	crs	3% py	mod	prop, si	mod	none	o/c	mod			
14KRP109	542120.98	5596216.67	Steep Cr.	dacite/granodiorite	fine, med	0.5 % py	str	si	low						0.5-1.0% dissem and loc. Fix cont py lighter grey f.g., fsp proph dacite comp silicified.
14KRP110	542087.62	5596427.89	Steep Cr. Soil	Maroon lapilli tuff (?)	fine	1% py	mod	prop, si	mod		fels	mod			f.g. maroon, silicified lapp tuff volc schist fine fine ~ 1% dissem and vein controlled py
14KRP111	542082.66	5596441.86	Steep Cr. Soil	Quartz Vein	med	tr py	str	si	low	none	talus				sugary quartz vein float
14KRP112	542098.58	5596437.93	Steep Cr. Soil	Quartz Vein float				si	mod	none	talus	mod			rusty q.v. float 30cm, trace py, chl
14KRP113	542184.26	5596484.07	Steep Cr. Soil	Granite	med	0.5% py	mod	si, k	mod	none	o/c		340	85	pink-light grey orange weath Med-grained biotite granioite cut by 1-5 mm wide qt stringers, k-alt linonite marginaler to q.v. Dissm and qz stringer controlled py
14KRP114	542285.93	5596360.29	Steep Cr. Soil	Metased	fine	1% py	mod	prop, si	low		o/c	high			maroonish, f.g. chl alt + hem meta volc schist clotty and fx controlled py
14KRP115	542372.28	5596310.6	Steep Cr. Soil	maroon metased	fine		mod	prop	low	none	o/c	high			maroon-greenish chl/hem alt siliceous msed schist dissem/clotty pyrite
14KRP116	542406.86	5596249.55	Steep Cr. Soil	chl-hem metased			mod	prop, si	low		talus				silicified chl-hem msed bein digsted by f.g. biotite granite with dissem py clotty mm-scale py in msed
14KRP117	542255.37	5596015.24	Steep Cr. Soil	quartz vein				si	high	none	blldr	low			quartz vein chlr-py, 40cm boulder
14KRP118	540945.46	5596924.62	Henry Cr	granite	med	tr py	str	si, k	mod	none	talus	mod			bleached white clay-k spart alt granotoid qz flooding boudinaged veinlets, trace dissm py
14KRP119	542948	5595318	Limey cr	quartz vein	crs	tr py	str	si	mod	none	talus	high			5-10cm quartz vein float talus narrow lenses in msed schist host
14KRP120	542411.28	5595904.61	steep cr	quartz vein	crs	2% cpy	str	si	high	none	talus	mod			20cm q.v. cobble, stringer vein cpy malachite stain granite host k-spar-alt si flooded
14KRP121	543973.68	5597606.13	13KCS002 soil	Qz-carb, ankerite alt, umafic schist	crs		str	cbn, si	high		talus	mod			perv orange qz-carb/ankorite altered umafic schist. No vis sulph.
14KRP122	543998.27	5597630.26	13KCS002 soil	chert	crs	tr py	str	si	mod		talus				rusty chert boulder (~50 cm). Trace pyrite-filled fractures. Good brittle host.
14KRP123	544043.19	5597659.4	13KCS002 soil	chert/shale	fine		str	si	stock		talus	high			silicified shale-chert. 1-4 cm qz vein stockwork. Limonite fe-oxides. 40 cm boulder.
14KRP124	544039.1	5597869.32	13KCS002 soil	perv carb/ank alt umafic schist	med		str	cbn	stock	none	fels	high			intense shear fabric
14KRP125	544607.13	5596594.96		chlorite schist	fine	py	mod	prop	mod	none	talus	mod			weakly silicified volc chl schist. Trace 0.5mm fx controlled py.
14KRP126	544603.19	5596621.9		chl schist		tr py	mod	prop, si	mod	none	talus	mod			chl schist, trace-1% clotty py.
14KRP127	544575.17	5596705.84		chl schist	fine	2% py	mod	prop, si	high		talus				chl schist cut by intersecting 1-3 mm qz-py stringers
14KRP128	543917.55	5598653.74		qz lens	crs	tr py	mod	si	mod	none	o/c	high			sygmoial rusty qz lenses in sheared black shale
14KRP129	544098.1	5598918.88		chl schist	fine	2% py	mod	prop	low	none	talus	high			cp to 2% fg py, semi massive or net txt (5-10 cm cobble only, no flag)
14KRP130	544013.51	5599116.65		chert	fine	3% py	mod	si	mod		blldr	low			smokey grey chert with 3mm py stringers (5-10 cm cobble no flag)
14KRP131	545641.87	5596813.81		fw chert	crs	tr py	str	si	mod		o/c	high			weak rusty weath chert. Sheared boundaries
14KRP132	545641.87	5596813.81		altered ultramafic	med		str	cbn	mod		o/c	high			intense carbonate altered mylonite after ultramafic (lens-like)
14KRP133	546368.28	5596671.9		chert			mod	cbn	stock	none	talus	low			ankerite-carb alt chert
14KRP134	546369.83	5596670.32		ultramafic (??)	med		str	cbn	mod	none	talus	low			strongly ank-carb alt schist after ultramafic (?)
14KRP135	546450.71	5596561.09		chert	crs		str	si	mod		fels				limonite stained sinter "clinky" textured sheared chert, possible py weath pits
14KRP136	546902.9	5596429.1		chl schist	crs	tr cpy	str	cbn, si	stock	none	talus	low			intense si-carb alt chl schist. Trace malachite stain. Veining assoc w/ black radiating accicular mineral.
14KRP137	546904.54	5596429.49		limestone skarn		3% py	str		low	str	talus	low			perv hem/magnetite replacement of limestone, coarse cubic pyrite
14KRP138	546565.78	5596823.69		sericite schist	med	tr py	str	arg	low	none	o/c	high			low angle shear 1-2 m wide. Granular hem (?)/py pits weath'ing out.
14KRP139	547039.67	5596423.67		shale hornfels	med		str	si	stock		o/c	high			perv black shale fuchs site-qz hornfels
14KRP140	547029.42	5596412.4		shale hornfels		2% py	str	si	stock	none	talus	mod			shale hornfels, qz-vein stockwork. Talus from o/c 80 m above.
14KRP141	547269.86	5596291.38		umafic					none		o/c	high			orange weath clay alt and soft HW contact altered zone of mafic lens.
14KRP142	547188.27	5596193.3		chert/shale		2% py	str	si	high	none	o/c	mod			rusty/gossanous pyritic/veined chert. Zone over ~10m x 3m
14KRP143	547087.93	5596157.79		chl schist mag skarn	med	2% py	str	cbn	high	str	o/c	mod			
14KRP144	543401.57	5598506.23		chert	crs	tr py	str	si	low		o/c	high			rusty chert, open vein-like vugs. Trace py
14KRP145	543347.79	5598496.08		chert	crs	tr py	str	si	low		o/c	high			rusty, gossanous chert layers.
14KRP146	543159.59	5598868.84		chert/shale	fine	tr py	mod	si	mod	none	o/c	high			gossanous chert-shale, vuggy, trace dissem py

APPENDIX 3

2014 Popa Bear Mapping Observations

Station ID	Date	Easting_N83Z10	Northing_N83Z10	Structure Type	Strike	Dip	Lithology	Description
1	8-Jul-14	541728	5596395	Bedding	280	55	shale	280/55 Shale beds, well bedded, flaggy
2	8-Jul-14	542200	5595957	Bedding	315	60	shale	Fg grey-gn sparse fsp porph, dacite comp intrusive dyke cutting mseds (gry fsp porph volc fg). Seds bedding = 315/60 Dyke orient = 200/85.
2	8-Jul-14	542200	5595957	Dyke	200	85	biotite feldspar porphyry	Fg grey-gn sparse fsp porph, dacite comp intrusive dyke cutting mseds (gry fsp porph volc fg). Seds bedding = 315/60 Dyke orient = 200/85.
3	8-Jul-14	542344	5595902	Bedding	310	65	shale	Thin bedded shale, minor light grn fg volc tuff interbeds. 310/65 bedding
4	8-Jul-14	542432	5595874	Dyke	190	85	granite	White med grained granite. Weak chl +/- ep +/- kspar alt + dissem py <<1mm. Assoc fg gry-brn dykes qz phyrac dacite (?). Pref orient of dykes or possibly jointing (less likely). 190/85. Intrusive contain 1m-scale rafts/xenoliths of msed schist shale.
5	8-Jul-14	542486	5596088	Contact	340	90	granite	Light grey-green fsp granite. Weak chl/ kspar alt subvert contact b/w black silicified shale to East trending 340
6	8-Jul-14	542483	5596094		0	0	shale	black rusty cherty shale, msed.
7	8-Jul-14	542481	5596103		0	0	biotite feldspar porphyry	Bi-fsp porph. Clotty py. Contact w shale to west. Alternated metamorphosed seds and BFP
8	8-Jul-14	542415	5596083	Bedding	300	75	shale	300/75 Rusty well bedded shale. Slate, +/- tuff interbed, often pyritic
9	8-Jul-14	542175	5596122		0	0	biotite feldspar porphyry	Pink-grey (light) med grained fsp-biotite phyrac dacite. Massive, conspicuous orange weathering, road cut o/c
10	8-Jul-14	542129	5596195		0	0	feldspar phyrac dacite	Med grey silicified fsp phyrac dacite, lacking biotite
11	8-Jul-14	542130	5596204		0	0	feldspar phyrac dacite	First road cut app of light grey dissem pyritic, fsp porph dacitic comp intrusive
12	8-Jul-14	542111	5596244	Bedding	305	70	shale	Rusty cherty shale. Well bedded, silicified. 305/70. 14KRP108 also
13	8-Jul-14	542122	5596231		0	0	shale	Rough contact b/w seds (north) and intrusive (south). 1-5 m rafts/xenoliths of seds spaced by int dykes over ~20-30 m
14	8-Jul-14	542076	5596296	Dyke	0	90	granite	Back into light grey-white fine grained dissem py granite. Preferred orient (poss dyke) at 000/90
15	8-Jul-14	542073	5596314	Bedding	305	60	shale	Well bedded siliceous shale and ash tuff, weak folds. 305/60
16	8-Jul-14	542069	5596320	Contact	0	90	biotite feldspar porphyry	Contact b/w int dyke fg grey pink, orange weath, mica-granite @ 000/90 (seds to E)
17	8-Jul-14	542098	5596432	Bedding	290	65	shale	Bedded rusty blk shale. 290/65.
18	8-Jul-14	542215	5596376	Bedding	350	90	chlorite schist	Grey-green siliceous weath volc-sed schist. 350/90 crude beds.
19	8-Jul-14	540824	5596648	Bedding	280	70	shale	280/78 bedding. Grey-green silts phyllitic shale, schist metased - volc
20	8-Jul-14	540859	5596724		0	0	granite	Talus slopes, lt gr-gn fsp porph granite.
21	8-Jul-14	540914	5596687		0	0	granite	White fsp porph granite, massive, med grained.
22	3-Sep-14	543998	5597630		0	0	ultramafic	Area of ank alt umafic boulder talus
23	3-Sep-14	544085	5597779		0	0	ultramafic	Broad area of serp/ank alt umafic subcrop.
24	3-Sep-14	544041	5597835	Bedding	330	90	chert	Mainly chert, ank alt, some interlayered fg dk grn basalt. Typical layering 330/90 form prominent crags trending across slope.
25	3-Sep-14	544036	5597876		0	0	chlorite schist	Chl ser schst. Shear zone. Continuation of umafic trend mapped to South ~10 down slope. Here and ~10 m upslope large accum of sep umafic o/c.
26	3-Sep-14	544043	5597888		0	0	ultramafic	Centre of large umafic lens.
27	3-Sep-14	543278	5597220		0	0	shale	Shale all along this ridge out to prominent topo knob (1:20k). No expl for poly met soil anom. No obvious alt or veining.
28	4-Sep-14	544019	5596934		0	0	coarse feldspar porphyry	Mainly cg orange weath fsp dyke here, shale-schist above on ridge.
29	4-Sep-14	543967	5596834	Bedding	270	50	chlorite schist	Pale green interlayered schist. Fg siliceous light grn ash tuff and med grn fsp porph, well bedded. 270/50
30	4-Sep-14	543890	5596720	Bedding	290	52	shale	290/52 shale.
31	4-Sep-14	543852	5596330	Bedding	270	30	shale	270/30 shale.
32	4-Sep-14	544572	5596566	Bedding	300	70	shale	shale (still!!). Local orange weath fsp.
33	5-Sep-14	544151	5597955	Foliation	330	30	shale	Black shale, schist. Strongly fol, siliceous (sporad) partings, resistant o/c. 330/30 wavy fol. (beds?)
34	5-Sep-14	543768	5598352	Bedding	320	50	chlorite schist	Quartzite/qz ser schist, 320/50.
35	5-Sep-14	543794	5598365		0	0	chlorite schist	Msv-fol chl schist. Fg basalt +/- chert-qzite schist. Trace fg py (resistant o/c)
36	5-Sep-14	543906	5598630	Bedding	320	68	shale	320/68 mainly shale +/- dk green chl schst bas. Lots of late cg fp dykes. Folded? Black shales deforming ductilely
37	6-Sep-14	543935	5598694		0	0	conglomerate	Interesting 10-30cm polymict conglom interlayered here, lens like
38	6-Sep-14	544116	5598944		0	0	shale	Black shale talus and recessive notch in ridge above
39	7-Sep-14	544676	5597106	Foliation	290	72	limestone	Lst-qtzite/chl schst. Contact, strong fol. 290/72
40	7-Sep-14	545475	5597019	Foliation	290	52	shale	Gry-grn shale, a bit of beds. Siliceous. 290/52 foliation
41	7-Sep-14	545628	5596879	Bedding	310	53	shale	Shale. 310/53
42	7-Sep-14	545622	5596855		0	0	shale	Shale and <1m. Chert-qzite interbeds. (+/- <1m fsp dykes).
43	7-Sep-14	545642	5596812	Contact	270	45	andesite massive fine grained	Contact b/w above (+/- fsp dykes). Chert/shale HW package and FW. Tan/greenish "bleached" looking, v vesicular basalt flow (?). Contact @ 270/45. Complex structural interleaving of narrow (~10-15 cm) mylonite zone may be sheared and qz-carb/ank alt umafi
43	7-Sep-14	545642	5596812	Shear Zone	70	48	andesite massive fine grained	Contact b/w above (+/- fsp dykes). Chert/shale HW package and FW. Tan/greenish "bleached" looking, v vesicular basalt flow (?). Contact @ 270/45. Complex structural interleaving of narrow (~10-15 cm) mylonite zone may be sheared and qz-carb/ank alt umafi
44	7-Sep-14	545596	5596808	Bedding	310	40	chert	FW contact chert unit (massive to lam.) below a series of 1-2m tan-light green or brownish vesicular (mainly fg and massive fsp flows). Chert lam 310/40.

Station ID	Date	Easting_N83Z10	Northing_N83Z10	Structure Type	Strike	Dip	Lithology	Description
45	7-Sep-14	545585	5596780	Foliation	300	80	chlorite schist	Chl schst sheared zone w/ sigmoidal poly deformed qz boudin (see pic looking south-ish). Foliation @ 300/80
46	7-Sep-14	545600	5596793	Foliation	310	42	chert	FW contact of chert horizon w/ underlying med-grn chl schist volc fol 310/42
47	7-Sep-14	545675	5596940		0	0	andesite massive fine grained	Green-brown sparse cg fsp phyrlic, vesicular. Looks like another umafic horizon (??)
48	7-Sep-14	546243	5596863		0	0	andesite massive fine grained	1.5 m vesicular basalt. Flow. Green-brown.
49	7-Sep-14	546480	5596613	Foliation	310	66	chlorite schist	Chl schst. 310/66. Same fault offset from last um zone??
50	7-Sep-14	546474	5596657	Bedding	290	85	shale	Shale, becoming a bit chloritic. 290/85.
51	7-Sep-14	0	0		0	0	schist	Boulder train from up slope. Qz-augen ser schist. Don found malachite in this above. 14DRP009
52	7-Sep-14	546440	5596561	Contact	220	70	chert	Sheared contact b/w chert and chl schist on W side of fault struct. Contact 220/70
53	7-Sep-14	546493	5596544		0	0	chlorite schist	Chl schist.
54	7-Sep-14	546791	5596552	Foliation	290	64	chert-shale	Chl schist alternating w/ chert/shale in FW. Zone of chloritic mylonite/schist. Intense fol 290/64
55	7-Sep-14	546794	5596458	Shear Zone	290	72	limestone	Intense mylonitic shear (>1m wide) 290/72. Alternating chl and carbonate (after limestone?) domains on cm scale, rotated grain asymmetric/symoids display dextral shear sense. Elongation lineation @ 000/58.
55	7-Sep-14	546794	5596458	Lineation	0	58	limestone	Intense mylonitic shear (>1m wide) 290/72. Alternating chl and carbonate (after limestone?) domains on cm scale, rotated grain asymmetric/symoids display dextral shear sense. Elongation lineation @ 000/58.
56	7-Sep-14	546813	5596438		0	0	chlorite schist	Chl schst.
57	7-Sep-14	546925	5596390		0	0	chlorite schist	Chl schst.
58	7-Sep-14	546329	5596855		0	0	andesite massive fine grained	Grn fsp porph vesicular and bas flow 1-2m thick.
59	7-Sep-14	546364	5596816	Bedding	285	50	shale	Shale beds 285/50. (l interbeds of chl-schst).
60	7-Sep-14	546564	5596822	Shear Zone	300	40	quartz-ankerite schist	Shear zone low angle. Pink-orange weath. Sericite schist, fissile and intensely alt. Irregular black metallic mineral and weath py pits, oxidized and limonitic shear fabric 300/40. Appear to die at after about 10-15 m?
61	8-Sep-14	546581	5596581	Foliation	310	40	chert-shale	Interbedded shale-chl schist +/- thin chert lenses. 310/40 beds (?) or fol
62	8-Sep-14	546591	5596813		0	0	andesite massive fine grained	Grn fsp p vesic bas-and 50 cm flow.
63	8-Sep-14	546616	5596757	Foliation	310	58	chlorite schist	Chl schst 310/58 fol.
64	8-Sep-14	546639	5596744		0	0	andesite massive fine grained	Grn-brn vesic bas 2-3m thick.
65	8-Sep-14	546689	5596649	Foliation	300	65	chert-shale	Chl schst + chert/shale interbed seds fol 300/65.
66	8-Sep-14	546727	5596599	Bedding	280	46	chert-shale	Chert/shale beds 280/46.
67	8-Sep-14	546775	5596528	Contact	275	68	andesite massive fine grained	Upper contact of shale (chloritic + chert) and 1m brn-grn vesic basalt-and flow. 275/68. 5m away obs. crosscutting shales and kink fold in dyke, therefore this is a dyke.
68	8-Sep-14	546965	5596356	Shear Zone	310	80	chlorite schist	Intense qz/chl/ep alt (bull qtz), chl schst shear zone. Polished o/c, therefore no orient. ~310/80
69	8-Sep-14	547007	5596378		0	0	chlorite schist	Lst/chl schst.
70	8-Sep-14	547038	5596424	Bedding	280	68	quartz-fuchsite stockork	Zone of intense qz-fuchsite hornfels (?) shale host pervasively alt. ~20-30 m along strike. 280/68 beds. Diagram: 3-4m wide. Fuchsite hornfels lam/lam and stockwork qz veining.
71	8-Sep-14	547083	5596346	Foliation	290	85	chlorite schist	Chl schst/lst. Trending 290/85.
72	8-Sep-14	547127	5596316	Shear Zone	270	70	chert-shale	Shale/chert + chl schst shear zone v high strain dextral 270/70.
73	8-Sep-14	547163	5596318		0	0	limestone	20m x 1-4m grey lst lens. Shale. Chert hosted.
74	8-Sep-14	547198	5596369		0	0	quartz-fuchsite stockork	Shale hornfels. Qz (fuchsite) stockwork, same as 49 (a.k.a. 70) along strike.
75	8-Sep-14	547262	5596364		0	0	andesite massive fine grained	Orange-brn weath grnish on fresh fg and-bas dyke.
76	8-Sep-14	547276	5596295		0	0	limestone	10 cm lst band.
77	8-Sep-14	547273	5596283		0	0	ultramafic	Intense weath grn-brn septonitized umafic bed ~10 x 3 m.
78	8-Sep-14	547213	5596186		0	0	chlorite schist	Gully to ridge marks (crossed out: contact b/w chl schst to E and 10 cm chert-shale to W zone). B/w chl schst east and west.
79	8-Sep-14	547087	5596154		310	0	chlorite schist	Chl schst, magnetic (+/- py) skarn, lens like zones trending 310
80	8-Sep-14	546886	5596238	Contact	275	72	chert-shale	Contact b/w chl schst/shale/chert (+/- lst). Contact and bedding in shales 275/72. Also 30m x 4 m fissile shaley lst lens here.
81	8-Sep-14	546914	5596269		0	0	chlorite schist	From prev lst to here chl schst.
82	8-Sep-14	546882	5596300		0	0	limestone	2-3 m wide lst 3x10 m.
83	9-Sep-14	543993	5597928		0	0	ultramafic	Umafic 4 m.
84	9-Sep-14	542773	5599116	Bedding	310	64	shale	Shale 310/64. All shale downslope so far. Mainly massive loc. rusty chert below slope break
85	9-Sep-14	542651	5599067		0	0	coarse feldspar porphyry	10 m wide lt grn fsp dyke above me. Level slopes alternating black shale/rusty chert and brn-tan color fp dykes
86	9-Sep-14	542560	5599059		0	0	limestone	2 m wide lst.
87	9-Sep-14	542532	5599046		0	0	chlorite schist	As slope rises again chl schst w/ narrow lst lenses (5-10 cm). Very conspicuous amt of carbonate here, some remobilized (?) into cross-cutting veins.
88	9-Sep-14	542515	5599049		0	0	limestone	2m lst.
89	9-Sep-14	542428	5599024		0	0	granite	Resistant knob high level fsp-hornblende porphyritic granite (no qtz phenos). Kspar/plag/dominant (?). Alignment of Hb needles/laths b/w here and 67 (a.k.a. 88) rock entirely comprise a series of lt grn-brn fsp porph dykes.

APPENDIX 4

2014 Popa Bear Assay Certificates

CERTIFICATE OF ANALYSIS

VAN14002269.1

CLIENT JOB INFORMATION

Project: 99160
Shipment ID:
P.O. Number
Number of Samples: 23

SAMPLE DISPOSAL

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

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

Invoice To: APEX Geoscience Ltd.
200 - 9797 45 Ave
Edmonton AB T6E 5V8
CANADA

CC: Don Rogers

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	23	Crush, split and pulverize 250 g rock to 200 mesh			VAN
AQ115-IGN	23	Ignite samples, acid digest, Au by ICP-MS	15	Completed	VAN
AQ300	23	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
DRPLP	23	Warehouse handling / disposition of pulps			VAN
DRRJT	23	Warehouse handling / Disposition of reject			VAN

ADDITIONAL COMMENTS





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Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA

PHONE (604) 253-3158

Client: **APEX Geoscience Ltd.**
 200 - 9797 45 Ave
 Edmonton AB T6E 5V8 CANADA

Project: 99160
 Report Date: July 29, 2014

Page: 2 of 2

Part: 1 of 2

CERTIFICATE OF ANALYSIS

VAN14002269.1

Method	WGHT	AQ115	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	0.5	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	
14KRP101	Rock	1.07	5.0	<1	71	54	1086	1.6	<1	2	158	1.92	15	<2	25	8.8	<3	3	10	0.25	0.004
14KRP102	Rock	0.73	1.5	2	81	7	327	<0.3	9	11	378	3.46	4	<2	39	1.9	<3	3	83	0.46	0.058
14KRP103	Rock	1.02	1.6	2	347	144	4063	1.2	19	22	1443	8.13	<2	<2	34	21.9	<3	5	47	0.52	0.069
14KRP104	Rock	0.80	0.7	3	9	<3	40	<0.3	8	5	236	1.83	3	<2	30	<0.5	<3	<3	39	0.27	0.043
14KRP105	Rock	1.05	1.5	1	71	18	96	<0.3	15	6	516	2.79	<2	<2	29	<0.5	<3	<3	47	0.34	0.054
14KRP106	Rock	0.71	14.0	2	583	227	399	3.2	14	7	1230	2.52	24	<2	80	2.5	<3	5	5	4.00	0.042
14KRP107	Rock	1.34	2.2	<1	15	4	48	<0.3	15	3	347	1.19	9	<2	8	<0.5	<3	3	12	0.23	0.005
14KRP108	Rock	1.41	8.5	1	105	87	509	1.0	5	4	268	2.50	21	<2	10	4.2	<3	<3	24	0.11	0.019
14KRP109	Rock	1.16	1.1	2	37	14	43	<0.3	21	7	622	2.17	7	<2	59	<0.5	<3	3	28	1.46	0.064
14KRP110	Rock	0.85	1.7	<1	58	15	63	0.4	18	5	362	2.04	5	<2	45	<0.5	<3	4	43	0.55	0.047
14KRP111	Rock	1.02	6.8	<1	32	<3	91	<0.3	<1	<1	108	0.31	<2	<2	2	<0.5	<3	<3	<1	0.03	0.014
14KRP112	Rock	0.96	1.1	<1	159	8	232	2.3	2	<1	45	2.42	3	<2	3	<0.5	<3	<3	3	0.01	0.004
14KRP113	Rock	0.92	1.4	<1	222	7	613	0.7	9	3	410	0.98	4	<2	62	3.2	<3	5	11	0.28	0.051
14KRP114	Rock	0.98	0.9	3	218	<3	56	0.5	13	11	433	3.12	3	<2	71	<0.5	<3	3	94	0.82	0.063
14KRP115	Rock	0.96	0.8	2	144	3	34	0.4	9	6	238	3.04	2	<2	72	<0.5	<3	3	60	0.55	0.043
14KRP116	Rock	0.86	<0.5	1	249	<3	91	<0.3	23	9	331	2.91	3	<2	117	<0.5	<3	3	86	1.35	0.055
14KRP117	Rock	1.41	0.8	<1	89	8	73	<0.3	5	4	346	2.33	<2	<2	21	0.6	<3	<3	15	0.32	0.037
14KRP118	Rock	0.85	<0.5	<1	5	25	42	<0.3	<1	<1	501	0.50	4	<2	57	<0.5	<3	<3	<1	0.99	0.012
14KRP119	Rock	1.10	<0.5	<1	130	4	106	0.3	4	9	643	3.29	10	<2	40	<0.5	<3	<3	35	0.97	0.184
14KRP120	Rock	1.14	4.6	2	6416	16	248	16.0	3	8	525	2.59	10	<2	27	1.6	<3	<3	20	0.55	0.025
14DRP001	Rock	0.82	2.6	3	498	43	120	1.4	9	3	446	1.81	<2	<2	48	0.6	<3	3	36	0.37	0.042
14DRP002	Rock	1.69	6.3	1	89	54	80	1.8	<1	<1	41	2.69	28	<2	7	<0.5	<3	4	11	0.03	0.006
14DRP003	Rock	1.06	4.3	<1	562	309	6364	4.6	3	14	281	6.51	82	<2	2	48.9	4	8	10	0.03	0.015

CERTIFICATE OF ANALYSIS

VAN14002269.1

Method	Analyte	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	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	
14KRP101	Rock	<1	1	0.06	18	0.002	<20	0.41	<0.01	0.10	<2	0.88	<1	<5	<5	
14KRP102	Rock	4	15	1.13	173	0.198	<20	1.87	0.11	0.69	<2	0.95	<1	<5	6	8
14KRP103	Rock	4	19	1.32	25	0.071	<20	2.34	0.08	0.15	<2	3.29	<1	<5	6	<5
14KRP104	Rock	4	9	0.73	110	0.129	<20	0.86	0.08	0.22	<2	0.52	<1	<5	<5	<5
14KRP105	Rock	2	23	0.88	42	0.099	<20	1.30	0.09	0.05	<2	0.41	<1	<5	6	<5
14KRP106	Rock	4	1	0.29	170	<0.001	<20	0.22	0.02	0.16	<2	0.77	<1	<5	<5	<5
14KRP107	Rock	<1	11	0.20	17	0.007	<20	0.35	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
14KRP108	Rock	1	8	0.34	36	0.035	<20	0.93	0.03	0.10	<2	0.62	<1	<5	<5	<5
14KRP109	Rock	11	24	0.77	116	0.003	<20	1.13	0.05	0.13	<2	0.30	<1	<5	7	<5
14KRP110	Rock	4	22	0.56	87	0.108	<20	1.41	0.16	0.29	<2	0.16	<1	<5	<5	<5
14KRP111	Rock	<1	1	<0.01	46	<0.001	<20	0.13	0.02	0.10	<2	<0.05	<1	<5	<5	<5
14KRP112	Rock	<1	1	<0.01	29	<0.001	<20	0.07	<0.01	0.05	<2	0.07	<1	<5	<5	<5
14KRP113	Rock	8	3	0.06	1855	0.002	<20	0.36	0.04	0.17	<2	0.10	<1	<5	<5	<5
14KRP114	Rock	3	25	1.02	188	0.227	<20	2.64	0.20	0.74	<2	0.63	<1	<5	5	9
14KRP115	Rock	3	16	0.60	139	0.115	<20	1.91	0.16	0.47	<2	0.43	<1	<5	6	6
14KRP116	Rock	5	26	0.76	133	0.182	<20	2.95	0.42	0.34	<2	0.38	<1	<5	8	6
14KRP117	Rock	2	5	0.35	26	0.036	<20	0.56	0.06	0.05	<2	0.86	<1	<5	<5	<5
14KRP118	Rock	11	1	<0.01	201	<0.001	<20	0.22	0.04	0.19	<2	0.06	<1	<5	<5	<5
14KRP119	Rock	4	1	1.36	88	0.011	<20	2.02	0.02	0.53	<2	0.14	<1	<5	8	<5
14KRP120	Rock	3	2	0.36	227	0.002	<20	0.64	0.03	0.07	<2	0.69	<1	<5	<5	<5
14DRP001	Rock	2	10	0.59	41	0.071	<20	1.14	0.10	0.06	<2	0.08	<1	<5	6	<5
14DRP002	Rock	<1	2	<0.01	25	0.004	<20	0.16	0.01	0.10	<2	0.11	<1	<5	<5	<5
14DRP003	Rock	<1	2	0.20	19	<0.001	<20	0.56	<0.01	0.04	<2	5.11	<1	<5	<5	<5

QUALITY CONTROL REPORT

VAN14002269.1

Method	WGHT	AQ115	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	0.5	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																					
14KRP107	Rock	1.34	2.2	<1	15	4	48	<0.3	15	3	347	1.19	9	<2	8	<0.5	<3	3	12	0.23	0.005
REP 14KRP107	QC			<1	15	<3	49	<0.3	15	3	349	1.19	9	<2	8	<0.5	<3	4	12	0.23	0.005
14KRP116	Rock	0.86	<0.5	1	249	<3	91	<0.3	23	9	331	2.91	3	<2	117	<0.5	<3	3	86	1.35	0.055
REP 14KRP116	QC		<0.5																		
Core Reject Duplicates																					
14KRP117	Rock	1.41	0.8	<1	89	8	73	<0.3	5	4	346	2.33	<2	<2	21	0.6	<3	<3	15	0.32	0.037
DUP 14KRP117	QC		<0.5	<1	83	4	70	<0.3	5	3	339	2.20	<2	<2	21	<0.5	<3	4	15	0.32	0.036
Reference Materials																					
STD DS10	Standard			14	150	152	360	1.7	73	12	885	2.75	45	7	66	2.4	8	13	42	1.05	0.075
STD OREAS45EA	Standard			2	671	13	30	<0.3	369	51	402	21.45	12	8	3	0.6	<3	<3	281	0.03	0.030
STD OREAS901	Standard		371.6																		
STD DS10 Expected				14.69	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	43.7	7.5	67.1	2.49	8.23	11.65	43	1.0625	0.073
STD OREAS45EA Expected				1.39	709	14.3	28.9	0.26	381	52	400	23.51	9	10.7	3.5				303	0.036	0.029
STD OREAS901 Expected			363																		
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		<0.5																		
Prep Wash																					
G1	Prep Blank		0.6	<1	3	4	43	<0.3	2	3	544	1.82	<2	5	55	<0.5	<3	<3	34	0.48	0.069
G1	Prep Blank		<0.5	<1	5	<3	43	<0.3	2	4	544	1.85	<2	5	53	<0.5	<3	3	35	0.48	0.072

QUALITY CONTROL REPORT

VAN14002269.1

Method	Analyte	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	Tl	Ga	Sc
Unit		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	
Pulp Duplicates																
14KRP107	Rock	<1	11	0.20	17	0.007	<20	0.35	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
REP 14KRP107	QC	<1	11	0.20	17	0.007	<20	0.36	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
14KRP116	Rock	5	26	0.76	133	0.182	<20	2.95	0.42	0.34	<2	0.38	<1	<5	8	6
REP 14KRP116	QC															
Core Reject Duplicates																
14KRP117	Rock	2	5	0.35	26	0.036	<20	0.56	0.06	0.05	<2	0.86	<1	<5	<5	<5
DUP 14KRP117	QC	2	5	0.35	24	0.036	<20	0.56	0.06	0.05	<2	0.79	<1	<5	<5	<5
Reference Materials																
STD DS10	Standard	16	53	0.77	423	0.074	<20	1.03	0.07	0.33	4	0.28	<1	5	<5	<5
STD OREAS45EA	Standard	7	844	0.08	140	0.092	<20	3.17	0.02	0.05	<2	<0.05	<1	<5	5	84
STD OREAS901	Standard															
STD DS10 Expected		17.5	54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8
STD OREAS45EA Expected		6.57	849	0.095	148	0.0875		3.13	0.02	0.053		0.036			11.7	78
STD OREAS901 Expected																
BLK	Blank	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank															
Prep Wash																
G1	Prep Blank	12	5	0.48	155	0.119	<20	0.91	0.09	0.49	<2	<0.05	<1	<5	<5	<5
G1	Prep Blank	11	5	0.48	158	0.118	<20	0.90	0.09	0.48	<2	<0.05	<1	<5	<5	<5



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

Client: **APEX Geoscience Ltd.**
200 - 9797 45 Ave
Edmonton AB T6E 5V8 CANADA

Submitted By: Kris Raffle
Receiving Lab: Canada-Vancouver
Received: July 15, 2014
Report Date: July 29, 2014
Page: 1 of 3

CERTIFICATE OF ANALYSIS

VAN14002270.1

CLIENT JOB INFORMATION

Project: 99160
Shipment ID:
P.O. Number
Number of Samples: 42

SAMPLE DISPOSAL

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

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

Invoice To: APEX Geoscience Ltd.
200 - 9797 45 Ave
Edmonton AB T6E 5V8
CANADA

CC: Don Rogers

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
Dry at 60C	41	Dry at 60C			VAN
SS80	41	Dry at 60C sieve 100g to -80 mesh			VAN
AQ201	41	1:1:1 Aqua Regia digestion ICP-MS analysis	15	Completed	VAN
DISP2	41	Heat treatment of Soils and Sediments			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. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. *** asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



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CERTIFICATE OF ANALYSIS

VAN14002270.1

Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
MDL		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	2	0.01	0.001	1	
14CGS001	Soil	6.1	475.5	76.7	336	0.6	104.7	39.7	1583	5.12	58.6	1.2	1.4	46	1.4	0.9	86	0.45	0.080	11	
14CGS002	Soil	3.6	399.3	88.5	446	0.9	48.2	41.7	4055	4.86	54.1	3.8	1.1	170	6.7	0.9	1.5	81	1.39	0.151	11
14CGS003	Soil	5.2	574.1	62.0	378	0.8	60.9	39.6	2385	5.22	42.3	6.8	1.4	103	3.1	0.5	0.4	98	0.94	0.088	9
14CGS004	Soil	1.9	306.5	92.2	293	1.0	54.6	44.6	2657	4.73	37.5	3.8	1.3	142	3.5	0.5	0.5	100	1.09	0.122	9
14CGS005	Soil	2.6	254.2	69.8	697	0.9	115.1	30.6	2065	4.64	38.1	7.7	1.6	88	4.8	0.3	0.4	96	0.87	0.125	14
14CGS006	Soil	1.1	239.4	22.3	242	0.4	86.7	20.1	1520	2.87	19.2	0.8	1.1	51	1.2	0.2	0.3	61	0.63	0.157	6
14CGS007	Soil	5.6	515.4	48.5	258	0.7	127.5	21.5	720	5.30	44.8	1.3	1.7	24	0.9	0.9	0.5	84	0.30	0.046	8
14CGS008	Soil	4.2	332.8	61.9	246	0.5	138.2	28.0	1271	4.49	74.2	1.7	1.6	38	1.0	1.1	0.5	73	0.40	0.070	12
14CGS009	Soil	32.0	1324.0	74.3	323	1.9	106.7	47.3	926	7.78	76.6	6.3	1.7	47	0.9	1.1	2.2	102	0.26	0.096	15
14CGS010	Soil	6.5	457.8	98.6	432	0.7	99.0	43.8	1691	6.51	59.4	1.1	1.9	81	3.1	0.8	1.4	86	0.49	0.165	16
14CGS011	Soil	5.4	381.8	123.0	379	1.1	60.4	37.7	2691	5.26	49.0	1.0	2.1	99	4.4	0.7	1.1	75	0.75	0.085	22
14CGS012	Soil	1.2	181.6	29.7	302	0.7	50.5	28.7	1102	3.28	10.7	0.6	1.5	76	1.5	0.2	0.3	64	0.87	0.235	8
14CGS013	Soil	1.4	235.6	120.0	476	1.0	68.8	44.1	1996	4.89	37.3	6.7	1.7	110	2.2	0.5	0.6	82	1.04	0.250	8
14CGS014	Soil	4.2	279.8	53.0	327	0.6	66.5	27.5	2582	4.56	27.3	1.3	1.4	54	1.8	0.6	0.6	94	0.64	0.117	9
14CGS015	Soil	0.6	60.2	22.2	1041	0.3	95.0	20.4	1737	2.48	6.0	<0.5	1.2	60	7.7	0.1	0.2	58	0.64	0.143	5
14CGS016	Soil	1.4	72.4	22.2	497	0.5	229.0	17.3	663	3.11	15.8	0.6	1.0	31	1.1	0.2	0.2	67	0.27	0.031	5
14CGS017	Soil	12.5	691.3	177.5	1051	3.1	57.5	25.0	2592	7.18	207.8	37.3	1.0	47	6.3	2.7	0.9	63	0.54	0.086	14
14CGS018	Soil	5.5	422.6	843.4	2285	3.1	139.0	39.2	1318	6.06	325.0	15.0	1.3	57	7.1	2.1	9.0	105	0.55	0.096	7
14CGS019	Soil	14.2	449.5	2162.2	1264	5.2	181.1	38.3	2187	5.36	120.9	37.6	1.6	51	7.8	1.5	5.2	97	0.54	0.100	15
14CGS020	Soil	2.4	76.4	66.9	315	0.3	270.2	24.6	1130	3.12	20.8	1.9	1.3	17	1.5	0.4	0.3	62	0.24	0.045	8
14CGS021	Soil	2.7	194.2	161.4	606	1.0	570.6	54.2	1589	4.84	31.2	1.5	1.4	51	4.9	0.4	0.4	88	0.64	0.127	8
14CGS022	Soil	5.5	406.6	699.3	926	1.4	73.1	36.2	3857	7.71	167.5	1.4	2.3	73	6.1	1.5	2.9	73	0.66	0.167	21
14CGS023	Soil	2.0	216.2	36.3	286	0.6	41.2	27.2	2215	3.66	25.8	<0.5	1.4	126	2.6	0.3	0.5	66	1.20	0.192	11
14CGS024	Soil	2.4	236.0	53.8	249	0.9	69.6	23.4	935	4.18	51.9	2.4	1.3	62	1.5	0.8	0.6	82	0.62	0.093	9
14CGS025	Soil	3.3	254.2	57.7	399	0.6	148.3	37.7	2306	5.24	113.5	<0.5	1.0	55	2.4	1.2	0.4	76	0.50	0.136	10
14CGS026	Soil	5.7	192.1	55.7	343	0.4	44.0	34.5	3441	3.27	30.5	<0.5	0.9	134	6.9	0.3	0.4	70	0.98	0.152	9
14CGS027	Soil	4.1	403.1	66.0	332	1.1	99.5	34.2	1634	3.90	61.9	1.2	1.0	50	2.0	0.4	0.4	78	0.42	0.140	9
14CGS028	Soil	2.2	502.6	41.8	327	0.4	100.8	23.9	1201	3.42	23.2	0.6	1.5	36	1.1	0.3	0.4	73	0.29	0.047	9
14CGS029	Soil	2.5	1166.7	94.5	736	1.4	93.0	24.7	775	4.67	132.2	2.3	1.8	31	2.6	1.5	1.4	79	0.31	0.043	10
14CGS030	Soil	8.3	1011.7	99.7	403	0.7	110.4	23.0	704	5.08	59.0	3.0	1.6	23	1.4	0.6	1.1	78	0.28	0.044	8

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Method Analyte Unit MDL		AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te
		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.1	0.05	1	0.5
14CGS001	Soil	80	1.09	484	0.127	5	3.21	0.028	0.23	0.4	0.04	7.5	0.2	<0.05	9	<0.5	0.2
14CGS002	Soil	42	0.80	817	0.093	5	2.74	0.046	0.26	0.8	0.10	8.0	0.2	0.09	8	0.7	0.3
14CGS003	Soil	43	1.01	535	0.155	4	4.07	0.037	0.37	0.5	0.04	9.6	0.2	<0.05	11	0.9	<0.2
14CGS004	Soil	45	1.11	593	0.127	4	3.56	0.091	0.37	0.4	0.06	9.4	0.2	<0.05	11	0.9	<0.2
14CGS005	Soil	62	1.19	580	0.155	6	3.66	0.024	0.32	0.4	0.06	8.9	0.3	<0.05	10	0.8	<0.2
14CGS006	Soil	41	0.72	497	0.126	4	2.98	0.029	0.12	0.2	0.04	3.9	0.1	<0.05	8	<0.5	<0.2
14CGS007	Soil	115	1.32	163	0.093	3	2.42	0.010	0.14	0.3	0.07	7.1	<0.1	<0.05	7	<0.5	<0.2
14CGS008	Soil	104	1.14	358	0.073	4	2.73	0.020	0.15	0.2	0.02	6.8	0.2	<0.05	8	<0.5	<0.2
14CGS009	Soil	75	1.23	203	0.120	2	4.40	0.016	0.16	0.4	0.06	9.1	0.2	<0.05	12	1.1	0.4
14CGS010	Soil	64	0.98	351	0.083	3	3.78	0.020	0.16	0.4	0.02	7.6	0.2	<0.05	10	0.5	0.2
14CGS011	Soil	41	0.74	636	0.094	4	3.12	0.016	0.22	0.3	0.06	7.6	0.1	<0.05	9	0.5	0.2
14CGS012	Soil	30	0.63	536	0.118	3	2.25	0.038	0.17	0.3	0.07	5.7	0.1	<0.05	6	<0.5	<0.2
14CGS013	Soil	45	0.95	733	0.132	3	3.30	0.056	0.26	0.4	0.06	8.3	0.2	<0.05	9	<0.5	<0.2
14CGS014	Soil	57	1.03	554	0.147	4	3.18	0.025	0.20	0.2	0.06	7.9	0.2	<0.05	9	0.6	<0.2
14CGS015	Soil	48	0.65	736	0.141	4	1.68	0.028	0.15	<0.1	0.04	4.6	0.1	<0.05	5	<0.5	<0.2
14CGS016	Soil	73	0.88	374	0.160	4	2.90	0.026	0.13	0.1	0.02	3.7	<0.1	<0.05	9	<0.5	<0.2
14CGS017	Soil	46	0.61	321	0.049	5	1.85	0.014	0.22	0.2	0.61	8.2	0.2	<0.05	5	0.7	<0.2
14CGS018	Soil	120	1.53	213	0.157	4	3.41	0.018	0.26	0.6	0.16	9.9	0.2	<0.05	9	<0.5	1.4
14CGS019	Soil	133	1.31	375	0.096	5	3.12	0.017	0.21	1.7	0.21	10.5	0.2	<0.05	9	0.7	0.5
14CGS020	Soil	132	1.18	379	0.109	2	2.16	0.013	0.13	0.2	0.02	4.2	<0.1	<0.05	7	<0.5	<0.2
14CGS021	Soil	272	3.49	455	0.148	6	2.94	0.027	0.18	0.3	0.08	8.2	0.1	<0.05	8	<0.5	<0.2
14CGS022	Soil	46	0.70	1317	0.050	5	2.92	0.015	0.21	0.5	0.08	7.9	0.2	<0.05	8	0.7	0.2
14CGS023	Soil	33	0.57	546	0.112	5	2.40	0.034	0.18	0.3	0.10	5.6	0.1	<0.05	7	<0.5	<0.2
14CGS024	Soil	59	1.00	572	0.089	4	3.01	0.016	0.24	0.3	0.06	6.7	0.1	<0.05	8	<0.5	<0.2
14CGS025	Soil	116	1.13	473	0.087	4	2.96	0.014	0.23	0.2	0.07	8.1	0.2	<0.05	8	<0.5	<0.2
14CGS026	Soil	36	0.66	574	0.094	3	2.36	0.048	0.16	0.2	0.13	6.0	0.1	<0.05	7	<0.5	<0.2
14CGS027	Soil	101	1.08	175	0.106	3	3.67	0.011	0.14	0.4	0.04	6.1	0.2	<0.05	10	0.5	<0.2
14CGS028	Soil	87	0.98	351	0.107	3	2.73	0.013	0.09	0.2	0.04	5.6	0.2	<0.05	8	<0.5	<0.2
14CGS029	Soil	81	0.88	640	0.071	3	2.61	0.010	0.09	0.3	0.04	6.1	0.2	<0.05	8	<0.5	0.3
14CGS030	Soil	92	1.13	563	0.053	3	2.57	0.013	0.10	0.2	0.05	6.6	0.1	<0.05	7	0.7	<0.2



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	Method Analyte Unit MDL	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm
		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
14CGS031	Soil	1.8	285.9	110.7	1055	1.6	52.7	26.7	6649	2.87	39.0	<0.5	0.5	95	21.4	0.5	1.1	37	1.69	0.205	14
14CGS032	Soil	3.4	232.5	51.5	199	1.2	230.2	34.1	1538	5.02	51.7	5.0	1.4	38	1.1	1.0	0.8	70	0.42	0.052	11
14CGS033	Soil	3.9	222.5	53.6	218	1.2	235.0	37.9	1808	4.66	48.3	190.1	1.6	38	1.2	0.9	0.8	68	0.49	0.066	14
14CGS034	Soil	5.5	352.0	116.0	191	1.4	128.5	33.4	1593	5.17	77.4	5.2	1.6	43	1.2	1.5	1.1	58	0.74	0.107	17
14CGS035	Soil	1.1	150.9	28.8	418	0.3	95.0	20.7	2864	3.33	15.7	<0.5	1.9	69	1.8	0.2	0.4	59	0.93	0.316	16
14CGS036	Soil	1.8	146.1	40.2	136	0.7	121.2	22.4	746	4.41	32.7	13.3	1.3	34	0.3	0.9	0.4	62	0.39	0.046	17
14CGS037	Soil	2.4	643.5	201.2	440	0.7	81.4	22.1	842	4.75	62.3	6.8	1.4	32	1.5	1.0	1.0	68	0.44	0.050	13
14CGS038	Soil	4.0	343.3	241.6	979	1.7	219.4	51.1	3602	4.98	68.7	5.5	1.0	90	12.3	1.1	2.0	74	1.20	0.243	12
14CGS039	Soil	3.5	194.9	80.0	496	2.7	124.4	74.3	4234	5.23	93.2	13.3	0.8	139	3.4	1.7	2.1	51	1.52	0.372	18
14CGS040	Soil	2.8	170.1	83.6	296	6.8	139.5	44.9	5789	5.16	110.4	30.6	0.5	116	3.5	1.8	3.6	54	1.25	0.366	13
14CGS041	Soil	3.2	224.7	49.3	381	1.7	206.2	67.6	2587	4.95	319.2	12.9	1.1	77	3.2	2.8	1.0	66	0.78	0.210	11
14CGS042	Soil	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.

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Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te
		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		MDL	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
14CGS031	Soil	37	0.47	3699	0.036	7	1.37	0.016	0.16	0.1	0.21	3.6	<0.1	0.09	4	0.8	<0.2
14CGS032	Soil	160	1.52	403	0.095	3	2.95	0.011	0.12	0.5	0.05	5.9	0.1	<0.05	8	<0.5	0.2
14CGS033	Soil	157	1.43	616	0.105	4	3.48	0.017	0.10	0.6	0.05	6.7	0.1	<0.05	9	0.6	0.3
14CGS034	Soil	119	0.91	726	0.029	3	2.01	0.012	0.13	0.4	0.06	6.5	0.1	<0.05	6	<0.5	<0.2
14CGS035	Soil	66	0.69	1545	0.088	5	2.20	0.016	0.16	0.2	0.07	5.9	0.1	<0.05	7	<0.5	<0.2
14CGS036	Soil	91	0.77	1265	0.044	5	1.86	0.010	0.12	0.2	0.15	5.8	<0.1	<0.05	6	0.7	<0.2
14CGS037	Soil	72	0.60	707	0.055	6	2.12	0.010	0.15	0.3	0.07	5.9	0.2	<0.05	7	<0.5	<0.2
14CGS038	Soil	130	1.17	968	0.068	6	2.62	0.027	0.15	0.3	0.15	7.0	0.1	0.08	8	0.9	0.4
14CGS039	Soil	46	0.76	554	0.041	7	3.72	0.009	0.17	0.3	0.12	4.2	0.1	0.09	8	0.9	0.7
14CGS040	Soil	76	0.73	474	0.037	6	2.35	0.009	0.23	0.2	0.08	4.5	0.1	0.07	7	0.8	3.6
14CGS041	Soil	128	1.12	343	0.056	4	3.15	0.010	0.18	0.2	0.07	6.1	0.1	<0.05	7	0.7	0.5
14CGS042	Soil	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.

QUALITY CONTROL REPORT

VAN14002270.1

Method	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	
Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
MDL	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1	
Pulp Duplicates																					
14CGS007	Soil	5.6	515.4	48.5	258	0.7	127.5	21.5	720	5.30	44.8	1.3	1.7	24	0.9	0.9	0.5	84	0.30	0.046	8
REP 14CGS007	QC	5.6	488.6	47.6	257	0.7	122.7	21.0	695	5.23	43.0	1.2	1.5	23	0.7	0.9	0.5	84	0.31	0.043	9
14CGS041	Soil	3.2	224.7	49.3	381	1.7	206.2	67.6	2587	4.95	319.2	12.9	1.1	77	3.2	2.8	1.0	66	0.78	0.210	11
REP 14CGS041	QC	3.4	213.8	48.1	365	1.6	197.9	65.3	2534	4.82	307.2	17.2	1.0	74	2.8	2.6	1.1	64	0.75	0.208	11
Reference Materials																					
STD DS10	Standard	14.0	160.0	157.5	363	1.9	79.2	13.3	915	2.84	45.7	72.9	7.8	65	2.6	7.7	10.3	46	1.08	0.082	18
STD DS10	Standard	16.2	167.6	158.6	380	2.1	81.1	14.0	946	2.91	48.2	93.7	7.9	63	2.9	7.9	11.1	52	1.12	0.087	19
STD OXC109	Standard	1.4	38.9	11.6	41	<0.1	74.3	19.9	412	2.94	1.0	207.0	1.5	143	<0.1	<0.1	<0.1	52	0.70	0.107	13
STD OXC109	Standard	1.8	37.3	11.3	42	<0.1	76.8	19.9	412	2.91	0.7	218.6	1.5	142	<0.1	<0.1	<0.1	54	0.75	0.114	13
STD DS10 Expected		14.69	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	43.7	91.9	7.5	67.1	2.49	8.23	11.65	43	1.0625	0.073	17.5
STD OXC109 Expected																					
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	0.3	<0.1	<1	<0.1	0.2	<0.1	3	0.02	1.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1

QUALITY CONTROL REPORT

VAN14002270.1

Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te
Unit		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
MDL		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2
Pulp Duplicates																	
14CGS007	Soil	115	1.32	163	0.093	3	2.42	0.010	0.14	0.3	0.07	7.1	<0.1	<0.05	7	<0.5	<0.2
REP 14CGS007	QC	114	1.28	165	0.092	3	2.43	0.010	0.14	0.3	0.08	6.9	0.1	<0.05	7	<0.5	<0.2
14CGS041	Soil	128	1.12	343	0.056	4	3.15	0.010	0.18	0.2	0.07	6.1	0.1	<0.05	7	0.7	0.5
REP 14CGS041	QC	126	1.10	326	0.053	4	3.00	0.010	0.17	0.2	0.08	5.8	0.1	<0.05	7	0.9	0.5
Reference Materials																	
STD DS10	Standard	57	0.77	357	0.086	9	1.09	0.067	0.35	3.3	0.34	3.1	5.1	0.29	4	2.9	5.2
STD DS10	Standard	63	0.86	365	0.090	8	1.15	0.073	0.34	3.6	0.29	3.1	5.2	0.35	5	2.6	5.5
STD OXC109	Standard	61	1.50	60	0.403	<1	1.55	0.731	0.38	0.2	<0.01	0.9	<0.1	<0.05	5	<0.5	<0.2
STD OXC109	Standard	64	1.50	58	0.407	1	1.60	0.706	0.41	0.2	<0.01	0.9	<0.1	<0.05	6	<0.5	<0.2
STD DS10 Expected		54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	0.3	2.8	5.1	0.29	4.3	2.3	5.01
STD OXC109 Expected																	
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2



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

Client: **APEX Geoscience Ltd.**
200 - 9797 45 Ave
Edmonton AB T6E 5V8 CANADA

Submitted By: Kris Raffle
Receiving Lab: Canada-Vancouver
Received: October 08, 2014
Report Date: October 28, 2014
Page: 1 of 7

CERTIFICATE OF ANALYSIS

VAN14003312.1

CLIENT JOB INFORMATION

Project: 99160
Shipment ID:
P.O. Number
Number of Samples: 162

SAMPLE DISPOSAL

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

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

Invoice To: APEX Geoscience Ltd.
200 - 9797 45 Ave
Edmonton AB T6E 5V8
CANADA

CC:

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
Dry at 60C	162	Dry at 60C			VAN
SS80	162	Dry at 60C sieve 100g to -80 mesh			VAN
AQ201	162	1:1:1 Aqua Regia digestion ICP-MS analysis	15	Completed	VAN
DISP2	162	Heat treatment of Soils and Sediments			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. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. *** asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.

CERTIFICATE OF ANALYSIS

VAN14003312.1

Method Analyte	Unit	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
MDL		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
14CGS043	Soil	2.8	49.5	12.3	100	0.2	88.2	34.4	2619	4.86	184.4	10.8	0.1	18	0.1	0.9	0.3	70	0.27	0.181	6
14CGS044	Soil	2.5	40.9	10.3	106	0.2	145.5	38.2	1681	4.93	308.0	2.2	0.2	26	0.3	1.1	0.2	76	0.34	0.121	6
14CGS045	Soil	2.0	46.5	8.3	97	0.2	153.2	33.2	1504	4.52	89.1	1.2	0.1	18	0.3	0.8	0.2	73	0.28	0.109	6
14CGS046	Soil	1.2	42.3	7.1	87	0.3	172.1	30.1	1284	4.38	81.2	2.8	<0.1	11	0.3	0.7	0.2	67	0.14	0.110	11
14CGS047	Soil	1.3	31.0	5.8	63	0.2	129.0	16.8	366	4.69	76.8	2.9	0.2	15	0.1	0.7	0.1	75	0.20	0.064	6
14CGS048	Soil	0.9	18.4	6.4	72	0.2	83.2	17.7	708	4.16	35.0	<0.5	0.2	14	0.2	0.3	0.2	64	0.18	0.086	8
14CGS049	Soil	1.2	29.8	5.8	82	0.2	101.1	24.1	1369	4.40	33.4	0.7	0.1	17	0.2	0.5	0.1	79	0.25	0.108	6
14CGS050	Soil	1.8	82.9	8.9	101	0.4	161.1	29.2	521	4.92	85.0	2.0	1.0	9	0.2	5.3	0.2	64	0.09	0.056	6
14CGS051	Soil	1.6	57.2	8.5	75	0.1	213.8	23.2	449	4.89	114.1	2.5	0.3	11	0.1	0.8	0.2	74	0.12	0.064	7
14CGS052	Soil	1.7	65.0	7.4	98	0.1	558.4	66.1	1534	6.39	265.3	2.5	0.7	10	0.4	1.6	<0.1	176	0.23	0.045	5
14CGS053	Soil	2.5	33.9	8.3	101	0.1	112.8	22.5	1032	4.85	17.7	3.0	0.4	10	0.3	0.6	0.2	93	0.09	0.075	9
14CGS054	Soil	0.4	56.4	2.1	106	<0.1	34.5	33.4	1555	7.08	5.7	2.3	0.8	24	0.3	0.2	<0.1	133	0.75	0.150	8
14CGS055	Soil	0.3	69.8	2.5	110	<0.1	42.7	37.8	1817	7.93	7.3	3.3	0.8	31	0.2	0.3	<0.1	149	0.76	0.142	10
14CGS056	Soil	2.1	85.3	8.2	153	0.2	139.6	22.8	893	4.61	23.2	3.5	1.1	10	0.2	0.3	0.2	108	0.22	0.085	11
14CGS057	Soil	2.5	39.9	6.7	97	0.2	69.2	27.0	1262	3.77	5.7	1.0	0.3	8	0.1	0.2	0.2	91	0.09	0.073	4
14CGS058	Soil	3.6	42.9	7.0	103	<0.1	105.6	18.9	668	4.32	21.7	2.9	0.8	9	0.1	0.3	0.2	114	0.18	0.053	8
14CGS059	Soil	1.8	61.5	5.5	116	0.1	103.6	17.1	625	4.45	6.2	<0.5	0.5	9	0.2	0.3	0.1	111	0.15	0.076	3
14CGS060	Soil	1.2	34.0	6.0	89	0.1	43.6	11.4	447	3.88	9.6	4.8	0.6	6	<0.1	0.2	0.2	116	0.05	0.058	6
14CGS061	Soil	1.5	50.2	5.0	99	<0.1	100.1	17.5	622	3.97	29.7	15.8	1.3	13	<0.1	0.2	0.1	113	0.22	0.082	6
14CGS062	Soil	2.8	49.4	7.8	113	<0.1	73.0	24.4	980	4.75	9.9	1.8	1.7	9	0.1	0.3	0.2	79	0.15	0.052	9
14CGS063	Soil	3.4	36.1	6.0	111	<0.1	87.1	31.4	1338	5.15	11.8	0.7	0.7	16	0.3	0.4	0.1	92	0.38	0.052	9
14CGS064	Soil	2.6	29.0	6.0	94	<0.1	63.9	19.7	880	4.56	9.3	0.6	0.4	10	0.1	0.3	0.1	86	0.20	0.072	5
14CGS065	Soil	2.1	32.2	5.4	94	0.1	72.7	25.2	1148	4.40	18.6	0.6	0.4	12	<0.1	0.3	0.1	82	0.26	0.067	5
14CGS066	Soil	1.2	27.1	5.9	63	0.2	46.2	11.8	386	3.57	6.2	<0.5	0.4	11	0.2	0.2	0.1	72	0.20	0.055	7
14CGS067	Soil	2.8	20.9	6.4	83	0.3	62.8	11.8	399	4.12	29.6	4.9	0.5	17	0.2	0.2	0.2	106	0.29	0.040	7
14CGS068	Soil	2.2	28.1	6.8	82	0.2	44.7	13.4	580	3.95	10.0	0.9	0.3	7	0.1	0.5	0.2	97	0.08	0.074	7
14CGS069	Soil	4.8	40.0	6.0	100	0.1	66.2	18.9	758	3.92	13.0	6.3	0.4	10	0.2	0.3	0.2	101	0.12	0.069	7
14CGS070	Soil	2.3	27.3	4.3	78	<0.1	36.9	10.8	418	3.70	4.5	0.7	0.6	4	0.1	<0.1	0.1	114	0.04	0.037	5
14CGS071	Soil	2.6	14.6	8.3	40	<0.1	23.5	4.9	211	3.07	4.6	0.9	0.7	6	0.2	0.2	0.2	80	0.05	0.037	6
14CGS072	Soil	3.4	85.6	8.7	159	0.3	288.9	49.2	1510	5.15	19.2	1.3	0.4	12	0.5	0.3	0.2	89	0.54	0.147	4

CERTIFICATE OF ANALYSIS

VAN14003312.1

Method Analyte Unit MDL	AQ201		AQ201		AQ201		AQ201		AQ201		AQ201		AQ201		AQ201		AQ201	
	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te		
	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm		
	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2		
14CGS043	Soil	108	0.90	127	0.014	2	1.81	0.004	0.06	0.2	0.05	1.6	<0.1	0.05	8	<0.5	<0.2	
14CGS044	Soil	211	1.52	105	0.026	3	2.06	0.004	0.08	0.2	0.12	4.3	<0.1	<0.05	6	<0.5	<0.2	
14CGS045	Soil	159	1.43	131	0.049	2	2.04	0.004	0.07	0.1	0.05	2.6	<0.1	<0.05	7	<0.5	<0.2	
14CGS046	Soil	176	1.34	74	0.035	2	2.28	0.004	0.07	<0.1	0.07	2.7	<0.1	<0.05	7	<0.5	<0.2	
14CGS047	Soil	148	1.14	62	0.090	1	2.01	0.004	0.08	0.1	0.06	3.3	<0.1	<0.05	8	<0.5	<0.2	
14CGS048	Soil	126	1.12	115	0.051	2	1.89	0.005	0.09	0.1	0.04	2.3	<0.1	<0.05	8	<0.5	<0.2	
14CGS049	Soil	132	1.25	143	0.047	2	1.98	0.004	0.13	<0.1	0.03	2.8	<0.1	<0.05	8	<0.5	<0.2	
14CGS050	Soil	164	1.41	49	0.032	1	2.62	0.003	0.04	0.1	0.05	6.0	<0.1	<0.05	6	<0.5	<0.2	
14CGS051	Soil	276	1.70	36	0.032	2	2.34	0.004	0.03	0.1	0.06	3.8	<0.1	<0.05	7	<0.5	<0.2	
14CGS052	Soil	620	3.96	156	0.125	1	3.52	0.002	0.36	<0.1	0.06	21.4	0.3	<0.05	11	<0.5	<0.2	
14CGS053	Soil	179	1.84	83	0.110	2	2.84	0.005	0.11	0.1	0.04	4.1	0.1	<0.05	11	<0.5	<0.2	
14CGS054	Soil	43	2.29	88	0.216	2	3.19	0.003	0.88	0.1	0.02	8.6	0.1	<0.05	12	<0.5	<0.2	
14CGS055	Soil	49	2.22	122	0.251	1	3.49	0.004	0.91	0.2	0.02	9.8	0.2	<0.05	13	<0.5	<0.2	
14CGS056	Soil	136	1.90	178	0.137	1	3.44	0.008	0.33	0.1	0.02	7.1	0.2	<0.05	11	<0.5	<0.2	
14CGS057	Soil	106	1.41	112	0.116	2	3.48	0.007	0.17	<0.1	0.05	4.0	0.2	0.07	10	<0.5	<0.2	
14CGS058	Soil	139	1.81	121	0.143	1	3.47	0.009	0.21	0.1	0.03	7.2	0.2	<0.05	12	0.6	<0.2	
14CGS059	Soil	135	1.92	242	0.130	1	3.41	0.009	0.58	<0.1	0.02	5.1	0.3	<0.05	10	<0.5	<0.2	
14CGS060	Soil	83	1.19	129	0.105	1	3.65	0.010	0.22	0.1	0.04	8.3	0.2	<0.05	11	<0.5	<0.2	
14CGS061	Soil	100	1.53	196	0.142	1	3.34	0.015	0.40	0.3	0.02	10.1	0.2	<0.05	10	<0.5	<0.2	
14CGS062	Soil	107	1.46	107	0.211	1	2.64	0.005	0.25	0.1	0.03	3.8	0.3	<0.05	9	<0.5	<0.2	
14CGS063	Soil	110	1.67	117	0.212	2	2.80	0.007	0.20	<0.1	0.01	4.1	0.1	<0.05	10	<0.5	<0.2	
14CGS064	Soil	103	1.51	65	0.168	1	2.62	0.006	0.12	<0.1	0.03	2.9	0.1	<0.05	9	<0.5	<0.2	
14CGS065	Soil	105	1.56	66	0.161	2	2.74	0.007	0.11	<0.1	0.03	3.3	0.1	<0.05	8	<0.5	<0.2	
14CGS066	Soil	81	1.17	63	0.160	1	2.71	0.010	0.07	<0.1	0.04	3.4	0.1	<0.05	9	<0.5	<0.2	
14CGS067	Soil	103	1.29	123	0.110	2	2.82	0.010	0.15	0.2	0.04	5.5	0.1	<0.05	11	0.7	<0.2	
14CGS068	Soil	81	1.08	94	0.057	2	2.89	0.009	0.13	0.1	0.04	4.8	0.2	<0.05	10	<0.5	<0.2	
14CGS069	Soil	89	1.29	87	0.076	2	2.92	0.009	0.20	<0.1	0.03	5.9	0.2	<0.05	10	<0.5	<0.2	
14CGS070	Soil	79	1.08	112	0.130	2	2.92	0.011	0.23	<0.1	0.05	7.3	0.1	<0.05	11	<0.5	<0.2	
14CGS071	Soil	60	0.66	36	0.140	<1	2.35	0.007	0.05	<0.1	0.06	3.0	<0.1	<0.05	13	<0.5	<0.2	
14CGS072	Soil	334	2.90	151	0.084	2	3.16	0.003	0.51	<0.1	0.03	2.9	0.4	<0.05	8	0.8	<0.2	

CERTIFICATE OF ANALYSIS

VAN14003312.1

Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
MDL		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	2	0.01	0.001	1	
14CGS073	Soil	2.1	37.5	6.3	89	0.1	96.7	22.9	831	4.81	10.8	1.1	1.6	7	0.1	0.3	0.1	80	0.18	0.063	8
14CGS074	Soil	2.2	31.9	5.4	98	<0.1	64.9	20.1	802	5.02	7.6	1.6	0.7	9	0.2	0.3	0.1	87	0.19	0.062	6
14CGS075	Soil	1.3	43.0	24.5	242	0.4	260.1	17.7	395	2.47	11.7	<0.5	0.9	18	0.4	0.4	0.2	44	0.19	0.069	5
14CGS076	Soil	1.7	68.9	35.8	264	0.3	321.5	28.5	931	3.35	20.4	0.7	0.9	30	0.8	0.5	0.3	62	0.25	0.081	6
14CGS077	Soil	1.4	51.5	27.7	267	0.1	359.0	33.5	1022	3.44	20.1	1.8	0.8	26	1.2	0.4	0.3	60	0.26	0.073	4
14CGS078	Soil	1.5	138.9	29.3	180	0.3	168.6	21.6	841	3.10	18.1	<0.5	1.1	35	0.6	0.6	0.2	64	0.27	0.036	6
14CGS079	Soil	1.2	67.0	27.8	210	0.4	155.6	20.7	661	3.01	23.9	3.0	0.8	34	0.4	0.4	0.3	66	0.32	0.063	5
14CGS080	Soil	1.4	72.3	15.7	291	0.5	192.9	19.7	691	3.04	30.3	1.1	1.0	26	1.4	0.8	0.2	55	0.21	0.036	7
14CGS081	Soil	2.5	169.1	10.5	105	0.4	265.4	28.1	417	5.11	9.1	3.6	0.9	68	<0.1	0.6	0.3	123	0.26	0.061	7
14CGS082	Soil	1.9	88.6	29.5	167	0.3	437.0	37.7	592	3.58	14.9	2.5	1.2	42	0.5	0.5	0.3	58	0.28	0.067	6
14CGS083	Soil	2.1	69.4	25.0	178	0.3	360.2	26.0	556	3.17	14.9	10.7	1.1	25	0.7	0.5	0.3	53	0.21	0.041	5
14CGS084	Soil	0.6	27.5	18.5	405	0.2	236.2	18.8	635	2.03	6.0	2.3	0.9	22	1.4	0.3	0.2	41	0.18	0.068	5
14CGS085	Soil	1.2	77.8	70.0	264	0.2	192.3	23.3	471	3.03	20.8	6.7	1.1	22	0.7	0.8	0.3	50	0.15	0.034	6
14CGS086	Soil	2.3	136.0	138.5	393	0.7	317.7	30.2	812	4.44	130.4	4.9	1.3	22	0.9	1.2	0.4	72	0.21	0.030	7
14MPS001	Soil	3.8	90.3	13.4	139	0.5	452.4	60.2	1715	5.74	201.2	2.7	0.2	16	0.4	1.9	0.2	74	0.20	0.105	7
14MPS002	Soil	1.6	66.9	4.2	52	0.1	1499.1	107.5	1692	5.74	56.3	4.0	0.6	12	0.3	3.1	<0.1	80	0.17	0.058	5
14MPS003	Soil	2.1	68.9	8.0	144	0.1	88.0	33.1	1916	5.66	46.7	2.3	0.5	11	0.4	1.1	0.2	96	0.20	0.095	7
14MPS004	Soil	3.1	37.8	7.0	112	<0.1	61.5	28.3	1777	5.32	28.4	0.8	0.3	17	0.4	0.6	0.1	83	0.33	0.113	7
14MPS005	Soil	1.4	43.3	5.4	99	<0.1	77.5	26.8	1360	4.96	14.9	1.4	0.3	16	0.4	0.4	<0.1	89	0.37	0.102	7
14MPS006	Soil	1.1	27.6	5.5	101	<0.1	72.2	25.7	1580	5.17	13.6	1.2	0.3	14	0.4	0.3	0.1	92	0.29	0.115	6
14MPS007	Soil	1.4	30.2	4.4	101	<0.1	37.2	27.7	1647	5.76	7.2	1.0	0.3	18	0.3	0.2	0.1	124	0.35	0.117	5
14MPS008	Soil	0.9	29.1	3.7	117	<0.1	42.3	29.8	1557	5.81	7.6	1.6	0.1	16	0.4	0.2	<0.1	119	0.40	0.116	5
14MPS009	Soil	1.5	29.5	4.5	106	<0.1	52.1	29.5	1524	6.27	14.5	1.4	0.6	11	0.2	0.2	0.2	139	0.24	0.094	5
14MPS010	Soil	1.2	31.7	6.6	117	0.1	40.0	25.1	1612	5.29	14.8	0.9	0.2	24	0.6	0.4	0.2	98	0.53	0.125	6
14MPS011	Soil	1.4	38.7	4.8	112	<0.1	45.3	26.6	1298	5.45	10.7	1.7	0.5	15	0.4	0.4	0.1	111	0.32	0.101	6
14MPS012	Soil	1.7	76.9	6.7	114	0.1	131.2	25.1	850	5.00	14.4	5.6	1.0	10	0.1	0.3	0.1	97	0.21	0.113	5
14MPS013	Soil	3.3	39.4	9.0	89	0.4	114.6	14.8	522	4.22	9.7	1.9	0.5	10	0.2	0.2	0.2	94	0.19	0.049	5
14MPS014	Soil	1.5	22.6	6.5	60	0.3	60.5	12.0	557	3.46	6.3	1.1	0.5	6	0.1	0.2	0.2	90	0.10	0.044	4
14MPS015	Soil	2.3	40.2	8.3	69	0.2	51.2	11.4	367	4.01	9.5	2.2	0.8	8	<0.1	0.3	0.2	97	0.15	0.045	6
14MPS016	Soil	2.9	23.8	7.2	61	0.2	44.5	8.8	335	3.70	6.2	1.1	0.6	7	0.1	0.2	0.2	87	0.09	0.048	6

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Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te	
Unit		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
MDL		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.05	1	0.5	0.2		
14CGS073	Soil	152	1.87	62	0.221	1	2.96	0.004	0.11	0.1	0.03	4.4	0.2	<0.05	9	<0.5	<0.2	
14CGS074	Soil	113	1.48	88	0.228	1	2.98	0.007	0.20	0.1	0.04	3.8	0.2	<0.05	11	<0.5	<0.2	
14CGS075	Soil	106	1.08	235	0.073	3	1.79	0.008	0.09	0.2	0.02	3.1	<0.1	<0.05	7	<0.5	<0.2	
14CGS076	Soil	197	1.79	261	0.079	4	2.47	0.009	0.11	0.2	0.02	4.8	<0.1	<0.05	8	<0.5	<0.2	
14CGS077	Soil	223	2.02	161	0.072	5	2.32	0.009	0.08	0.2	0.04	4.5	<0.1	<0.05	7	<0.5	<0.2	
14CGS078	Soil	93	1.13	251	0.113	3	2.57	0.017	0.14	0.2	0.03	4.7	0.1	<0.05	7	<0.5	<0.2	
14CGS079	Soil	100	1.01	206	0.083	3	2.40	0.015	0.12	0.2	0.03	3.8	<0.1	<0.05	8	<0.5	<0.2	
14CGS080	Soil	140	1.37	155	0.076	2	2.05	0.007	0.08	0.2	0.02	3.9	<0.1	<0.05	7	<0.5	<0.2	
14CGS081	Soil	301	2.46	236	0.146	1	4.80	0.009	0.16	0.1	0.03	11.3	0.2	<0.05	14	<0.5	0.2	
14CGS082	Soil	247	2.12	169	0.072	4	2.30	0.007	0.10	0.2	0.02	4.7	<0.1	<0.05	7	<0.5	<0.2	
14CGS083	Soil	179	1.56	147	0.081	2	2.19	0.007	0.09	0.3	0.02	3.4	<0.1	<0.05	7	<0.5	<0.2	
14CGS084	Soil	84	0.82	307	0.084	2	1.57	0.012	0.10	0.2	0.02	2.8	<0.1	<0.05	6	<0.5	<0.2	
14CGS085	Soil	148	1.28	184	0.036	<1	2.02	0.007	0.06	0.2	0.02	3.3	<0.1	<0.05	6	<0.5	<0.2	
14CGS086	Soil	180	1.51	292	0.128	2	2.91	0.011	0.21	0.2	0.03	7.5	0.3	<0.05	8	<0.5	<0.2	
14MPS001	Soil	317	1.80	98	0.024	2	2.43	0.003	0.07	0.4	0.05	3.8	<0.1	<0.05	7	<0.5	<0.2	
14MPS002	Soil	1069	5.15	57	0.041	7	1.92	0.002	0.05	0.2	0.03	11.4	<0.1	<0.05	5	<0.5	<0.2	
14MPS003	Soil	98	1.44	99	0.108	2	2.38	0.004	0.13	<0.1	0.05	4.9	0.1	<0.05	8	<0.5	<0.2	
14MPS004	Soil	64	1.49	91	0.113	3	2.20	0.004	0.17	<0.1	0.02	3.0	<0.1	<0.05	8	<0.5	<0.2	
14MPS005	Soil	85	1.59	102	0.140	2	2.29	0.004	0.16	0.1	0.03	3.4	<0.1	<0.05	8	<0.5	<0.2	
14MPS006	Soil	93	1.55	101	0.129	3	2.39	0.004	0.22	<0.1	0.03	3.4	<0.1	<0.05	9	<0.5	<0.2	
14MPS007	Soil	49	1.66	96	0.187	2	2.71	0.004	0.32	<0.1	0.02	3.8	<0.1	<0.05	11	<0.5	<0.2	
14MPS008	Soil	48	1.61	116	0.144	2	2.41	0.004	0.29	<0.1	0.01	2.6	<0.1	<0.05	10	<0.5	<0.2	
14MPS009	Soil	79	1.85	65	0.288	1	3.22	0.005	0.41	0.1	0.03	5.5	0.1	<0.05	11	<0.5	<0.2	
14MPS010	Soil	45	1.38	180	0.112	2	2.26	0.004	0.33	<0.1	0.03	3.0	<0.1	<0.05	8	<0.5	<0.2	
14MPS011	Soil	58	1.57	98	0.215	2	2.83	0.005	0.23	<0.1	0.01	4.4	<0.1	<0.05	10	<0.5	<0.2	
14MPS012	Soil	152	2.14	99	0.166	1	3.42	0.007	0.21	0.2	<0.01	5.1	0.2	<0.05	9	<0.5	<0.2	
14MPS013	Soil	170	1.83	82	0.160	2	3.19	0.007	0.09	<0.1	0.06	4.0	0.1	<0.05	12	<0.5	<0.2	
14MPS014	Soil	130	1.40	47	0.187	1	2.73	0.009	0.07	0.1	0.04	4.4	0.1	<0.05	11	<0.5	<0.2	
14MPS015	Soil	81	1.23	58	0.211	1	3.44	0.008	0.07	0.2	0.05	6.0	<0.1	<0.05	10	0.5	<0.2	
14MPS016	Soil	94	1.14	54	0.188	2	3.01	0.008	0.07	0.2	0.04	4.4	0.2	<0.05	11	0.5	<0.2	

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Method Analyte	Unit	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
MDL		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001	1
14MPS017	Soil	6.6	37.3	6.8	101	0.3	54.8	13.9	1070	3.20	13.6	1.2	0.2	33	0.5	0.5	0.1	69	0.85	0.199	8
14MPS018	Soil	2.9	27.0	8.0	103	0.1	50.4	20.1	1300	4.04	6.3	1.9	0.3	15	0.2	0.3	0.2	98	0.21	0.094	5
14MPS019	Soil	4.0	29.9	7.3	95	0.1	46.3	15.2	1049	3.78	10.5	2.0	0.3	13	0.4	0.3	0.2	89	0.16	0.085	5
14MPS020	Soil	2.3	29.9	6.1	93	0.1	41.6	11.4	650	3.79	5.3	12.9	0.2	10	0.2	0.3	0.1	95	0.11	0.078	4
14MPS021	Soil	2.9	69.8	9.0	120	0.1	156.1	32.3	1346	4.50	18.0	1.7	0.4	49	0.6	0.6	0.2	103	0.70	0.128	7
14MPS022	Soil	2.8	112.5	7.4	120	0.3	245.4	40.0	1245	4.95	21.4	16.9	1.1	30	0.8	0.8	0.2	109	1.15	0.140	13
14MPS023	Soil	1.7	35.2	5.3	91	0.2	82.5	16.7	678	3.71	63.0	2.2	0.4	27	0.3	0.5	0.1	88	0.75	0.102	6
14MPS024	Soil	1.5	53.7	12.0	126	<0.1	148.6	39.0	2149	5.12	19.9	2.2	0.5	23	0.7	0.8	0.2	86	0.34	0.110	12
14MPS025	Soil	1.8	48.2	13.4	119	0.2	120.5	20.2	1492	4.07	18.2	2.5	0.2	48	1.0	0.8	0.2	62	0.60	0.215	9
14MPS026	Soil	1.6	27.6	9.0	75	<0.1	39.0	9.1	451	2.48	9.6	0.8	0.1	19	0.1	0.4	0.2	50	0.10	0.083	7
14MPS027	Soil	1.0	106.5	4.9	164	<0.1	62.3	35.1	2397	7.64	19.0	0.5	0.7	23	0.3	0.6	<0.1	135	0.40	0.079	11
14EBS001	Soil	2.2	62.7	11.9	118	0.2	108.4	32.1	1814	5.11	281.5	2.7	0.2	15	0.3	2.2	0.3	57	0.15	0.152	6
14EBS002	Soil	1.7	32.0	6.6	82	0.1	120.9	23.7	1227	4.22	63.4	1.0	0.1	14	0.3	0.6	0.2	75	0.20	0.104	6
14EBS003	Soil	1.6	35.9	7.2	95	0.1	142.7	28.3	1343	4.63	111.1	1.9	<0.1	18	0.2	0.8	0.2	76	0.21	0.128	5
14EBS004	Soil	1.2	33.7	6.5	98	<0.1	126.8	29.3	1426	4.91	63.5	0.6	0.3	12	0.2	0.6	0.1	81	0.20	0.095	7
14EBS005	Soil	1.1	26.0	6.1	95	<0.1	110.5	28.1	1367	4.69	38.6	<0.5	0.1	17	0.3	0.4	0.1	76	0.28	0.117	6
14EBS006	Soil	1.3	27.7	5.7	90	0.1	87.8	24.6	1243	4.51	33.0	<0.5	0.1	21	0.2	0.4	0.1	79	0.36	0.110	7
14EBS007	Soil	1.3	26.0	5.6	76	0.1	113.3	22.0	799	4.44	45.5	2.4	0.2	11	0.2	0.4	0.2	89	0.17	0.075	6
14EBS008	Soil	0.8	26.6	4.6	103	<0.1	66.4	30.7	1444	5.80	20.5	<0.5	0.2	19	0.3	0.3	0.1	126	0.44	0.111	4
14EBS009	Soil	1.4	38.9	5.2	92	<0.1	111.7	31.3	1168	5.38	34.2	12.3	0.3	15	0.2	0.5	0.1	113	0.31	0.079	6
14EBS010	Soil	1.1	27.8	5.7	88	<0.1	108.1	24.5	1294	4.39	20.8	1.2	0.2	14	0.3	0.4	0.1	88	0.23	0.088	6
14EBS011	Soil	1.9	39.2	5.7	91	<0.1	45.9	10.4	363	3.78	8.1	1.5	0.9	6	<0.1	0.2	0.2	125	0.09	0.073	6
14EBS012	Soil	3.7	43.6	9.1	160	<0.1	91.1	26.8	1408	4.70	39.9	1.0	0.6	13	0.4	0.3	0.2	116	0.22	0.096	13
14EBS013	Soil	2.3	45.7	8.6	118	0.1	113.1	19.9	1220	4.48	8.6	0.7	0.2	12	0.1	0.3	0.2	113	0.11	0.087	4
14EBS014	Soil	3.0	23.8	5.8	93	0.1	43.3	9.7	394	3.47	10.8	30.4	0.4	7	0.1	0.2	0.1	110	0.07	0.055	5
14EBS015	Soil	1.3	63.2	5.8	92	<0.1	157.5	21.8	686	4.16	22.9	19.3	0.9	20	0.1	0.3	0.1	105	0.31	0.067	6
14EBS016	Soil	2.9	127.8	7.8	106	0.2	507.8	46.8	946	4.94	13.9	2.0	1.3	10	0.5	0.5	0.2	109	0.31	0.080	6
14EBS017	Soil	1.1	51.1	6.9	82	0.2	91.9	15.5	441	3.36	25.1	1.9	0.7	28	0.3	0.2	0.1	88	0.53	0.063	8
14EBS018	Soil	3.2	71.1	6.5	121	0.1	236.2	35.7	1160	5.63	21.9	1.0	0.8	14	0.3	0.3	0.2	139	0.33	0.101	3
14EBS019	Soil	1.7	51.5	7.7	103	0.2	138.8	22.3	776	3.90	64.7	<0.5	0.5	34	0.3	0.4	0.1	106	0.77	0.083	6

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Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te
Unit		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
MDL		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.05	1	0.5	0.2	
14MPS017	Soil	62	1.00	117	0.062	2	2.14	0.009	0.12	<0.1	0.04	2.7	0.2	0.10	9	1.4	<0.2
14MPS018	Soil	81	1.15	115	0.117	2	2.33	0.007	0.18	0.1	0.03	3.5	0.1	0.06	11	<0.5	<0.2
14MPS019	Soil	81	1.25	133	0.111	2	2.33	0.007	0.23	0.2	0.03	3.5	0.2	0.05	10	<0.5	<0.2
14MPS020	Soil	72	1.19	100	0.081	1	2.62	0.008	0.17	0.1	0.04	3.3	0.1	0.05	10	<0.5	<0.2
14MPS021	Soil	203	2.28	356	0.078	2	3.24	0.005	0.52	0.1	0.04	5.6	0.2	0.08	11	<0.5	<0.2
14MPS022	Soil	279	2.98	441	0.080	3	3.53	0.006	0.70	0.1	0.05	9.7	0.3	0.13	11	0.9	<0.2
14MPS023	Soil	86	1.45	131	0.091	2	2.71	0.011	0.22	<0.1	0.02	5.2	0.1	0.07	9	0.9	<0.2
14MPS024	Soil	208	2.22	152	0.053	2	3.42	0.005	0.13	0.1	0.02	5.0	0.1	<0.05	10	<0.5	<0.2
14MPS025	Soil	171	1.84	285	0.010	3	2.67	0.012	0.19	<0.1	0.05	1.6	<0.1	0.10	9	<0.5	<0.2
14MPS026	Soil	59	0.83	71	0.048	2	3.31	0.011	0.05	0.1	0.07	2.2	<0.1	<0.05	9	0.5	<0.2
14MPS027	Soil	50	1.22	162	0.154	2	3.56	0.006	0.54	0.1	0.04	8.4	0.3	<0.05	13	<0.5	<0.2
14EBS001	Soil	122	1.03	117	0.009	2	1.86	0.004	0.07	0.3	0.10	2.1	<0.1	<0.05	5	<0.5	<0.2
14EBS002	Soil	162	1.42	97	0.051	2	2.03	0.004	0.07	0.1	0.06	2.3	<0.1	<0.05	7	<0.5	<0.2
14EBS003	Soil	182	1.50	106	0.037	4	2.10	0.004	0.11	0.2	0.10	2.1	<0.1	<0.05	7	<0.5	<0.2
14EBS004	Soil	153	1.61	104	0.100	3	2.45	0.004	0.12	<0.1	0.04	3.3	<0.1	<0.05	8	<0.5	<0.2
14EBS005	Soil	130	1.48	112	0.068	2	2.09	0.004	0.17	<0.1	0.03	2.0	<0.1	<0.05	8	<0.5	<0.2
14EBS006	Soil	110	1.32	111	0.079	3	2.13	0.004	0.16	<0.1	0.22	2.3	<0.1	<0.05	8	<0.5	<0.2
14EBS007	Soil	148	1.32	77	0.126	2	2.19	0.004	0.08	<0.1	0.02	2.7	<0.1	<0.05	8	<0.5	<0.2
14EBS008	Soil	87	1.66	140	0.144	3	2.40	0.004	0.43	<0.1	0.03	3.1	<0.1	<0.05	9	<0.5	<0.2
14EBS009	Soil	167	1.75	109	0.127	2	2.38	0.004	0.19	<0.1	0.03	6.2	<0.1	<0.05	9	<0.5	<0.2
14EBS010	Soil	132	1.36	124	0.128	2	2.15	0.004	0.14	<0.1	0.03	3.5	<0.1	<0.05	9	<0.5	<0.2
14EBS011	Soil	91	1.39	164	0.135	2	3.33	0.011	0.27	0.1	0.03	9.5	0.2	<0.05	12	<0.5	<0.2
14EBS012	Soil	119	1.75	156	0.106	2	3.71	0.009	0.26	<0.1	0.03	6.7	0.3	<0.05	13	0.6	<0.2
14EBS013	Soil	139	1.85	189	0.069	1	3.70	0.008	0.32	<0.1	0.05	3.9	0.2	0.06	12	<0.5	<0.2
14EBS014	Soil	84	1.26	106	0.109	2	2.77	0.012	0.22	0.2	0.03	6.4	0.2	<0.05	11	<0.5	<0.2
14EBS015	Soil	141	2.04	149	0.151	2	3.14	0.011	0.13	0.1	0.02	7.5	0.2	<0.05	10	<0.5	<0.2
14EBS016	Soil	394	4.47	130	0.173	2	4.12	0.003	0.16	0.2	0.02	8.1	0.1	<0.05	11	<0.5	<0.2
14EBS017	Soil	116	1.57	150	0.127	4	2.71	0.012	0.18	0.1	0.03	7.5	0.1	<0.05	10	0.9	<0.2
14EBS018	Soil	336	3.46	337	0.179	1	4.01	0.006	0.52	0.1	0.02	5.8	0.2	<0.05	13	<0.5	<0.2
14EBS019	Soil	180	2.09	225	0.125	3	2.94	0.009	0.30	<0.1	0.03	6.7	0.2	<0.05	10	0.8	<0.2



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Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA

PHONE (604) 253-3158

Client: **APEX Geoscience Ltd.**
 200 - 9797 45 Ave
 Edmonton AB T6E 5V8 CANADA

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Method Analyte	Unit	MDL	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	
			Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
			ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
			0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	2	0.01	0.001	1	
14EBS020	Soil		1.7	24.3	7.5	56	0.3	50.6	9.3	381	3.61	13.8	4.6	0.5	8	0.3	0.2	0.1	86	0.09	0.049	4
14EBS021	Soil		3.6	41.9	8.6	97	0.3	94.2	23.6	846	4.23	14.0	<0.5	0.4	14	0.2	0.3	0.2	87	0.25	0.062	8
14EBS022	Soil		2.1	24.0	7.9	56	0.2	53.3	9.0	342	3.65	8.4	<0.5	0.5	7	0.3	0.2	0.2	80	0.09	0.043	4
14EBS023	Soil		2.5	31.4	5.4	90	0.4	86.9	14.9	680	3.84	17.2	<0.5	0.3	10	0.2	0.2	0.1	72	0.21	0.082	3
14EBS024	Soil		2.2	16.2	5.5	62	0.2	37.6	11.9	528	2.92	4.7	0.8	0.2	12	0.1	0.2	0.1	80	0.19	0.069	4
14EBS025	Soil		1.2	7.7	8.5	30	<0.1	23.9	4.6	175	1.72	3.2	0.7	0.2	6	0.1	0.1	0.2	52	0.07	0.036	3
14EBS026	Soil		2.4	18.0	9.3	60	0.3	40.5	9.8	606	3.73	6.4	<0.5	0.4	15	0.3	0.2	0.2	85	0.18	0.062	5
14EBS027	Soil		1.1	28.7	11.4	83	<0.1	69.0	12.8	1092	3.21	8.5	<0.5	0.3	29	0.2	0.5	0.2	61	0.17	0.069	7
14EBS028	Soil		1.3	21.2	15.2	81	<0.1	37.3	11.0	1707	2.50	6.2	5.6	0.2	55	0.2	0.5	0.2	50	0.22	0.074	6
14EBS029	Soil		1.5	54.2	36.9	97	0.1	53.4	14.5	1792	3.12	9.0	1.5	0.2	98	0.2	0.4	0.8	67	0.49	0.150	13
14EBS030	Soil		1.3	71.0	14.7	109	0.1	53.5	29.9	2161	5.26	31.0	<0.5	0.8	24	0.5	0.8	0.2	98	0.46	0.112	11
14WTS001	Soil		2.0	31.6	8.4	112	0.1	130.7	36.9	1635	5.07	93.9	16.9	<0.1	15	0.4	0.8	0.2	100	0.33	0.178	3
14WTS002	Soil		1.4	42.7	7.0	90	0.2	187.4	31.7	1335	4.74	121.6	0.9	0.1	16	0.3	1.0	0.2	73	0.20	0.118	7
14WTS003	Soil		1.8	37.0	6.0	83	0.1	161.2	27.1	1121	4.48	101.5	1.6	0.2	15	0.2	1.0	0.2	74	0.24	0.086	5
14WTS004	Soil		1.1	27.5	6.3	75	0.2	132.9	22.7	980	3.95	66.0	1.4	<0.1	13	0.3	0.5	0.1	67	0.14	0.103	8
14WTS005	Soil		0.9	28.5	6.1	63	0.1	118.3	19.5	611	4.17	55.0	<0.5	0.2	12	0.1	0.5	0.2	68	0.17	0.073	7
14WTS006	Soil		1.0	24.3	4.4	69	0.2	126.7	18.7	511	4.17	33.1	137.1	0.3	11	0.1	0.4	0.1	83	0.17	0.083	6
14WTS007	Soil		0.7	19.3	4.9	60	0.1	47.4	14.9	634	3.99	13.4	1.8	0.2	18	0.3	0.3	0.1	87	0.32	0.089	5
14WTS008	Soil		1.5	65.6	8.3	91	0.4	134.8	20.0	570	4.89	67.4	10.9	0.2	13	0.2	0.8	0.2	64	0.15	0.106	6
14WTS009	Soil		1.7	30.8	6.9	95	0.1	40.6	18.7	1157	4.49	23.3	1.2	0.1	13	0.3	0.4	0.2	105	0.30	0.109	7
14WTS010	Soil		4.6	86.4	9.2	132	0.2	158.3	32.4	1270	5.38	18.6	3.9	1.3	24	0.8	1.1	0.2	60	0.47	0.144	21
14WTS011	Soil		2.0	43.5	6.9	83	0.3	74.1	11.1	424	3.88	5.9	1.7	0.5	7	<0.1	0.2	0.2	101	0.11	0.083	4
14WTS012	Soil		3.5	42.4	8.4	129	0.1	107.5	23.9	1187	4.51	11.1	1.6	0.4	9	0.2	0.3	0.2	113	0.11	0.074	5
14WTS013	Soil		2.6	70.5	9.6	130	<0.1	124.6	24.2	996	5.06	6.3	1.9	1.3	17	0.4	0.3	0.2	100	0.26	0.140	4
14WTS014	Soil		2.1	59.4	6.1	122	0.1	119.0	23.6	1333	4.05	6.6	1.7	0.2	28	0.7	0.3	0.2	101	0.43	0.108	3
14WTS015	Soil		1.8	50.2	5.1	105	<0.1	121.0	17.9	725	3.80	8.4	2.6	0.2	29	0.4	0.2	0.1	95	0.35	0.101	4
14WTS016	Soil		2.2	61.8	5.9	113	0.1	140.5	23.2	764	4.66	8.0	6.0	0.9	8	0.2	0.3	0.2	116	0.11	0.076	5
14WTS017	Soil		1.5	66.7	10.8	132	0.1	77.7	28.0	1289	3.60	6.8	2.1	0.3	67	1.1	0.4	0.1	83	1.01	0.166	5
14WTS018	Soil		1.7	29.8	13.7	108	<0.1	79.7	18.6	1253	3.20	35.0	3.9	<0.1	62	0.8	0.3	0.2	59	0.60	0.168	9
14WTS019	Soil		3.7	36.3	8.7	111	0.1	212.8	31.3	1255	4.52	16.4	1.0	0.2	29	0.5	0.7	0.1	106	0.45	0.123	9

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		AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Ti	S	Ga	Se	Te	
		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	
		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.01	0.1	0.1	0.05	1	0.5	0.2
14EBS020	Soil	112	1.18	52	0.138	2	2.73	0.009	0.07	0.1	0.09	4.4	<0.1	<0.05	11	<0.5	<0.2	
14EBS021	Soil	130	1.68	95	0.138	2	2.98	0.008	0.12	0.1	0.06	4.0	0.1	<0.05	10	<0.5	<0.2	
14EBS022	Soil	107	1.18	56	0.171	2	2.35	0.007	0.06	0.1	0.09	3.2	<0.1	<0.05	10	<0.5	<0.2	
14EBS023	Soil	125	1.61	63	0.094	1	2.65	0.006	0.07	0.1	0.06	2.9	<0.1	<0.05	8	<0.5	<0.2	
14EBS024	Soil	72	1.22	102	0.100	2	2.45	0.010	0.10	<0.1	0.04	3.4	0.1	<0.05	9	<0.5	<0.2	
14EBS025	Soil	58	0.64	54	0.152	2	1.24	0.008	0.05	<0.1	0.06	1.7	<0.1	<0.05	9	<0.5	<0.2	
14EBS026	Soil	77	0.99	93	0.152	2	1.98	0.009	0.09	0.2	0.04	2.8	<0.1	<0.05	12	<0.5	<0.2	
14EBS027	Soil	103	1.31	164	0.040	1	2.79	0.008	0.08	0.1	0.04	3.0	<0.1	<0.05	10	<0.5	<0.2	
14EBS028	Soil	53	0.74	302	0.038	2	1.84	0.010	0.07	0.1	0.04	2.1	<0.1	<0.05	10	<0.5	<0.2	
14EBS029	Soil	80	1.18	364	0.037	4	2.67	0.010	0.15	0.1	0.03	2.8	<0.1	<0.05	12	<0.5	<0.2	
14EBS030	Soil	63	1.69	292	0.058	3	3.45	0.006	0.27	0.1	0.05	6.3	0.1	<0.05	11	<0.5	<0.2	
14WTS001	Soil	208	1.47	175	0.072	4	1.89	0.005	0.19	0.6	0.08	3.1	<0.1	0.05	8	<0.5	<0.2	
14WTS002	Soil	196	1.55	106	0.028	2	2.15	0.004	0.10	0.1	0.07	2.6	<0.1	<0.05	7	<0.5	<0.2	
14WTS003	Soil	183	1.15	165	0.069	2	1.78	0.003	0.09	0.4	0.15	3.5	<0.1	<0.05	7	<0.5	<0.2	
14WTS004	Soil	177	1.28	88	0.034	2	2.12	0.005	0.07	<0.1	0.06	1.9	<0.1	<0.05	8	<0.5	<0.2	
14WTS005	Soil	140	1.18	77	0.074	2	1.86	0.005	0.08	0.1	0.03	2.8	<0.1	<0.05	7	<0.5	<0.2	
14WTS006	Soil	190	1.45	76	0.081	1	2.12	0.004	0.06	0.1	0.03	4.4	<0.1	<0.05	8	<0.5	<0.2	
14WTS007	Soil	63	1.00	109	0.143	1	1.65	0.005	0.09	0.1	0.04	3.3	<0.1	<0.05	8	<0.5	<0.2	
14WTS008	Soil	176	1.09	79	0.008	2	1.97	0.005	0.04	0.2	0.10	2.3	<0.1	<0.05	6	<0.5	<0.2	
14WTS009	Soil	54	1.09	91	0.079	4	2.05	0.007	0.11	<0.1	0.04	4.1	<0.1	0.05	8	<0.5	<0.2	
14WTS010	Soil	159	2.36	52	0.068	3	2.75	0.004	0.13	<0.1	0.02	5.1	<0.1	<0.05	8	0.8	<0.2	
14WTS011	Soil	118	1.66	108	0.144	2	3.23	0.010	0.17	0.1	0.02	5.2	0.2	<0.05	11	0.6	<0.2	
14WTS012	Soil	174	2.07	180	0.133	2	3.40	0.007	0.39	0.1	0.03	5.1	0.2	<0.05	12	<0.5	<0.2	
14WTS013	Soil	144	2.04	349	0.145	2	3.55	0.012	0.74	<0.1	0.02	5.3	0.4	<0.05	9	0.5	<0.2	
14WTS014	Soil	149	1.96	473	0.082	3	2.78	0.007	0.66	<0.1	0.03	3.8	0.3	0.09	9	<0.5	<0.2	
14WTS015	Soil	150	1.88	385	0.101	3	2.78	0.007	0.50	<0.1	0.04	4.0	0.2	0.07	10	<0.5	<0.2	
14WTS016	Soil	177	2.08	269	0.175	1	3.91	0.009	0.48	0.1	0.03	7.0	0.3	<0.05	12	<0.5	<0.2	
14WTS017	Soil	93	1.36	522	0.057	3	2.31	0.009	0.44	0.1	0.09	4.3	0.2	0.12	7	0.6	<0.2	
14WTS018	Soil	104	1.34	343	0.017	4	2.64	0.006	0.29	<0.1	0.05	1.4	0.1	0.12	9	<0.5	<0.2	
14WTS019	Soil	321	3.00	206	0.052	3	3.63	0.006	0.24	<0.1	0.04	4.6	0.1	0.06	11	0.7	<0.2	



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Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA

PHONE (604) 253-3158

Client: **APEX Geoscience Ltd.**
 200 - 9797 45 Ave
 Edmonton AB T6E 5V8 CANADA

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Method Analyte	Unit	MDL	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
			Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
			ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	%	ppm	
			0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	2	0.01	0.001	1	
14WTS020	Soil		2.7	66.8	15.8	157	0.1	125.0	33.9	2440	5.36	20.0	2.7	0.4	23	1.4	0.6	0.2	99	0.23	0.163	15
14WTS021	Soil		2.1	36.8	9.7	123	<0.1	312.6	44.9	1813	4.98	22.4	0.9	0.4	20	0.4	1.0	0.2	121	0.26	0.113	8
14WTS022	Soil		1.5	81.7	8.5	117	0.2	75.3	37.1	1581	5.46	11.7	3.3	0.4	56	0.4	0.7	0.2	118	0.52	0.136	7
14WTS023	Soil		1.7	60.0	14.5	105	0.1	119.9	30.3	1647	3.92	25.3	2.1	0.2	78	0.9	0.5	0.3	79	1.11	0.188	8
14WTS024	Soil		2.7	71.2	8.9	116	0.3	79.7	33.6	1532	3.63	13.7	5.4	0.2	51	1.0	0.8	0.2	71	1.28	0.194	9
14WTS025	Soil		2.6	75.7	10.1	126	0.2	71.5	31.9	1372	3.20	11.7	5.8	0.2	55	1.0	0.8	0.2	62	1.66	0.186	9
14WTS026	Soil		1.9	58.2	12.6	108	0.2	140.7	50.1	1720	3.04	15.6	2.3	0.1	39	2.5	0.6	0.1	67	1.17	0.179	6
14WTS027	Soil		6.0	46.1	7.8	88	0.6	82.0	14.5	380	3.65	14.7	3.6	0.3	18	0.2	0.7	0.2	96	0.40	0.121	14
14WTS028	Soil		2.6	20.5	6.8	62	0.1	57.6	9.7	371	3.32	11.0	2.3	0.4	19	0.1	0.2	0.1	86	0.39	0.039	5
14WTS029	Soil		3.0	45.1	13.7	133	0.2	88.4	25.8	1646	3.01	6.1	1.1	0.2	37	2.1	0.4	0.1	68	0.63	0.136	5
14WTS030	Soil		1.6	68.2	4.7	111	<0.1	67.6	29.8	836	6.35	12.3	2.5	0.9	13	0.1	0.4	<0.1	130	0.36	0.125	6
14WTS031	Soil		1.7	40.4	6.7	116	<0.1	78.0	21.1	646	4.87	18.3	1.1	0.5	16	0.1	0.3	0.1	91	0.37	0.100	7
14WTS032	Soil		2.9	54.4	9.7	132	0.1	117.6	29.4	1416	4.80	15.6	13.2	0.7	11	0.5	0.4	0.2	97	0.23	0.095	8
14WTS033	Soil		3.2	61.4	7.8	118	0.1	227.6	36.2	1063	4.79	8.5	1.0	0.8	7	0.1	0.3	0.2	96	0.16	0.063	4
14WTS034	Soil		2.3	54.1	8.3	127	0.2	121.4	32.2	792	4.43	71.9	1.3	0.2	17	0.3	0.3	0.2	95	0.38	0.092	4
14WTS035	Soil		1.5	31.7	5.6	75	0.2	72.9	15.3	811	3.41	9.8	2.4	0.1	11	0.2	0.3	0.1	69	0.16	0.097	4
14WTS036	Soil		2.1	27.1	5.2	66	0.2	44.8	9.7	515	3.59	10.7	2.6	0.3	7	0.1	0.3	0.1	88	0.09	0.074	5
14WTS037	Soil		1.9	26.2	5.8	73	0.2	36.4	10.4	537	3.91	10.7	1.8	0.2	12	0.1	0.3	0.1	102	0.17	0.086	6
14WTS038	Soil		2.3	38.4	5.9	94	0.1	82.2	17.9	886	3.63	26.1	12.6	0.2	10	0.2	0.3	0.1	103	0.12	0.069	6
14WTS039	Soil		5.7	22.1	6.1	81	0.2	40.0	10.2	488	3.48	7.6	1.4	0.3	14	0.2	0.2	0.2	97	0.20	0.065	6
14WTS040	Soil		3.2	20.9	6.1	88	0.2	35.9	9.2	465	3.60	7.1	1.7	0.3	6	0.1	0.1	0.2	112	0.06	0.068	5
14WTS041	Soil		6.2	29.8	5.3	45	0.6	25.4	6.5	194	2.37	4.5	1.8	0.1	5	0.1	0.2	0.2	67	0.04	0.089	6
14WTS042	Soil		3.2	35.1	6.8	81	0.1	55.8	14.4	1085	4.25	13.6	1.3	0.3	6	0.1	1.1	0.2	61	0.05	0.084	6
14WTS043	Soil		3.7	23.8	6.6	69	<0.1	68.7	14.2	625	3.81	22.4	3.6	0.2	12	0.2	0.3	0.2	74	0.15	0.070	4
14WTS044	Soil		2.3	45.3	7.0	100	0.1	73.1	12.3	587	3.89	37.5	1.4	0.3	7	<0.1	0.4	0.2	88	0.08	0.068	5
14WTS045	Soil		3.8	63.4	7.4	106	<0.1	115.1	33.2	1086	4.40	28.7	1.4	0.6	11	<0.1	0.4	0.2	106	0.19	0.058	11
14WTS046	Soil		2.0	25.8	6.1	71	0.1	43.1	8.8	344	3.67	21.2	163.1	0.2	9	0.2	0.3	0.2	99	0.09	0.074	6
14WTS047	Soil		4.0	21.1	6.4	97	0.2	37.1	12.2	690	3.84	35.2	83.3	0.4	8	<0.1	0.2	0.2	118	0.07	0.066	6
14WTS048	Soil		2.3	35.8	4.6	79	<0.1	51.0	15.0	520	3.89	13.9	0.8	1.0	6	<0.1	0.2	0.1	128	0.08	0.062	6
14WTS049	Soil		1.4	68.1	34.1	380	0.2	189.0	21.4	1066	2.65	9.7	2.3	1.1	36	1.1	0.3	0.3	55	0.34	0.072	8

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.

CERTIFICATE OF ANALYSIS

VAN14003312.1

Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Ti	S	Ga	Se	Te
Unit		ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
MDL		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.05	1	0.5	0.2	
14WTS020	Soil	170	1.98	574	0.052	3	3.35	0.006	0.55	<0.1	0.02	5.4	0.2	<0.05	12	<0.5	<0.2
14WTS021	Soil	496	3.98	257	0.097	2	4.14	0.004	0.22	<0.1	0.02	7.0	0.1	<0.05	13	<0.5	<0.2
14WTS022	Soil	92	1.49	370	0.064	3	3.27	0.016	0.52	0.1	0.05	7.4	0.2	0.06	11	0.6	<0.2
14WTS023	Soil	143	1.75	349	0.037	5	2.89	0.009	0.36	0.1	0.04	3.1	0.1	0.12	9	<0.5	<0.2
14WTS024	Soil	85	1.18	365	0.040	4	1.89	0.008	0.51	0.3	0.11	3.7	0.2	0.18	6	<0.5	<0.2
14WTS025	Soil	72	1.03	345	0.040	5	1.70	0.008	0.45	0.6	0.12	3.6	0.2	0.21	5	0.6	<0.2
14WTS026	Soil	168	1.81	398	0.039	5	2.05	0.005	0.37	0.1	0.09	3.5	0.2	0.18	6	<0.5	<0.2
14WTS027	Soil	128	1.63	118	0.083	2	4.19	0.010	0.07	0.1	0.07	5.9	0.2	0.11	13	1.5	<0.2
14WTS028	Soil	98	1.28	101	0.161	1	2.65	0.008	0.05	0.1	0.03	3.9	<0.1	<0.05	10	0.6	<0.2
14WTS029	Soil	114	1.66	324	0.060	3	2.12	0.008	0.32	<0.1	0.05	3.8	0.2	0.13	8	<0.5	<0.2
14WTS030	Soil	92	1.93	90	0.290	2	3.74	0.013	0.27	0.1	0.01	5.3	0.1	<0.05	13	<0.5	<0.2
14WTS031	Soil	125	1.82	80	0.171	2	3.55	0.008	0.17	<0.1	0.02	4.0	0.1	<0.05	11	<0.5	<0.2
14WTS032	Soil	164	2.11	128	0.135	2	2.92	0.004	0.34	<0.1	0.02	4.6	0.2	<0.05	10	<0.5	<0.2
14WTS033	Soil	301	2.70	114	0.183	2	3.07	0.003	0.21	<0.1	0.02	5.2	0.2	<0.05	10	<0.5	<0.2
14WTS034	Soil	140	1.77	87	0.070	2	2.90	0.006	0.16	0.1	0.03	3.1	0.1	<0.05	8	<0.5	<0.2
14WTS035	Soil	115	1.35	77	0.054	1	2.28	0.007	0.08	<0.1	0.05	2.2	0.1	0.06	8	<0.5	<0.2
14WTS036	Soil	82	1.06	64	0.087	2	2.41	0.008	0.10	0.1	0.06	4.4	0.1	<0.05	9	<0.5	<0.2
14WTS037	Soil	77	1.06	120	0.051	2	2.46	0.008	0.18	0.2	0.05	4.1	0.1	<0.05	10	<0.5	<0.2
14WTS038	Soil	123	1.32	95	0.078	2	2.50	0.008	0.14	0.2	0.04	4.6	0.1	<0.05	11	<0.5	<0.2
14WTS039	Soil	78	1.07	98	0.080	2	2.53	0.011	0.17	0.2	0.03	4.9	0.1	<0.05	11	<0.5	<0.2
14WTS040	Soil	83	1.11	124	0.093	1	2.81	0.010	0.22	0.2	0.04	6.0	0.1	<0.05	12	<0.5	<0.2
14WTS041	Soil	54	0.68	53	0.060	1	2.82	0.009	0.10	0.1	0.10	3.3	0.1	0.07	8	<0.5	<0.2
14WTS042	Soil	81	0.78	53	0.076	2	1.63	0.004	0.06	<0.1	0.05	2.2	0.1	<0.05	7	<0.5	<0.2
14WTS043	Soil	114	1.30	55	0.080	1	2.19	0.006	0.06	0.1	0.04	2.0	<0.1	<0.05	9	<0.5	<0.2
14WTS044	Soil	110	1.33	58	0.085	3	2.74	0.007	0.12	<0.1	0.05	2.8	0.2	0.08	8	<0.5	<0.2
14WTS045	Soil	123	1.77	71	0.108	3	3.68	0.011	0.10	<0.1	0.03	6.1	0.2	<0.05	12	0.9	<0.2
14WTS046	Soil	86	1.10	85	0.064	2	2.69	0.011	0.09	0.1	0.06	4.2	0.1	0.07	12	<0.5	<0.2
14WTS047	Soil	88	1.23	125	0.113	2	2.70	0.013	0.27	0.1	0.03	5.7	0.2	0.06	12	<0.5	<0.2
14WTS048	Soil	101	1.43	97	0.128	2	3.94	0.017	0.15	0.1	0.05	9.0	0.2	<0.05	12	<0.5	<0.2
14WTS049	Soil	90	0.89	663	0.125	4	1.90	0.014	0.14	0.2	0.03	4.0	0.1	<0.05	6	<0.5	<0.2



www.acmelab.com

Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA

PHONE (604) 253-3158

Client: **APEX Geoscience Ltd.**

200 - 9797 45 Ave
Edmonton AB T6E 5V8 CANADA

Project: 99160

Report Date: October 28, 2014

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CERTIFICATE OF ANALYSIS

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	Method Analyte Unit MDL	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm
		0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	0.1	2	0.01	0.001
14WTS050	Soil	1.6	252.4	66.1	327	0.3	85.5	26.0	1580	4.00	21.5	1.5	1.6	43	1.7	0.8	0.6	66	0.46	0.088	12
14WTS051	Soil	1.9	264.4	97.3	476	0.8	150.7	31.6	1510	4.77	32.8	2.0	1.6	40	4.2	1.8	1.2	76	0.33	0.068	10
14WTS052	Soil	4.1	255.5	137.8	399	0.4	127.8	34.7	2275	6.23	264.3	11.1	1.4	54	2.6	2.8	0.8	92	0.43	0.074	10
14WTS053	Soil	1.4	117.5	33.1	256	0.2	211.9	30.6	2025	3.16	15.6	<0.5	1.0	79	1.9	0.4	0.3	71	0.71	0.110	6
14WTS054	Soil	1.4	74.6	28.2	386	0.3	141.4	27.1	2245	3.93	14.4	<0.5	1.1	58	1.9	0.5	0.2	79	0.53	0.064	8
14WTS055	Soil	1.5	74.7	28.0	218	0.4	183.6	25.5	1798	3.26	30.4	<0.5	0.9	56	1.0	0.6	0.3	64	0.45	0.084	8
14WTS056	Soil	3.2	226.8	40.6	362	0.4	168.3	40.9	1057	5.25	107.2	0.5	1.0	68	1.4	1.5	0.5	117	0.50	0.052	7
14WTS057	Soil	6.1	470.5	126.3	801	0.9	511.1	51.1	2020	5.73	67.8	17.3	1.6	61	3.1	2.7	0.5	109	0.55	0.054	18
14WTS058	Soil	4.3	156.0	309.9	1726	1.3	239.6	34.6	2159	6.71	93.5	21.2	1.2	37	8.2	1.8	0.5	67	0.44	0.047	10
14WTS059	Soil	0.6	23.5	21.7	406	0.3	203.2	19.9	922	2.29	10.0	<0.5	1.0	39	1.8	0.2	0.2	41	0.40	0.107	6
14WTS060	Soil	4.1	178.5	369.8	717	0.8	228.3	45.1	2984	4.38	55.0	2.9	1.6	27	2.7	1.0	0.4	88	0.29	0.070	10
14WTS061	Soil	3.1	207.5	234.9	779	1.1	223.5	34.8	2606	4.94	97.7	5.1	1.4	59	4.1	1.9	1.5	79	0.66	0.139	8

CERTIFICATE OF ANALYSIS

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Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te
Unit		ppm	%	ppm	%	ppm	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
MDL		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.05	1	0.5	0.2	
14WTS050	Soil	72	0.93	381	0.084	5	2.48	0.012	0.20	0.5	0.05	6.3	0.2	<0.05	8	<0.5	<0.2
14WTS051	Soil	106	1.14	434	0.094	4	3.07	0.019	0.20	0.8	0.05	7.1	0.2	<0.05	8	<0.5	0.3
14WTS052	Soil	105	1.24	382	0.089	4	3.32	0.031	0.30	0.4	0.10	10.2	0.3	<0.05	10	<0.5	<0.2
14WTS053	Soil	121	1.33	393	0.121	4	2.65	0.025	0.23	0.2	0.05	6.2	0.2	<0.05	8	<0.5	<0.2
14WTS054	Soil	91	1.20	468	0.125	3	3.07	0.026	0.23	0.2	0.03	6.4	0.2	<0.05	9	<0.5	<0.2
14WTS055	Soil	130	1.18	284	0.090	5	2.41	0.011	0.18	0.2	0.03	4.2	0.1	<0.05	8	<0.5	<0.2
14WTS056	Soil	176	2.15	384	0.160	3	4.92	0.042	0.41	0.2	0.05	9.8	0.4	<0.05	13	<0.5	0.3
14WTS057	Soil	390	2.84	505	0.093	4	3.84	0.024	0.35	0.2	0.07	14.8	0.3	<0.05	11	<0.5	0.3
14WTS058	Soil	186	1.17	480	0.079	4	2.49	0.010	0.27	0.1	0.10	9.9	0.2	<0.05	8	0.7	0.3
14WTS059	Soil	94	0.76	396	0.091	5	1.58	0.011	0.12	<0.1	0.07	2.9	<0.1	<0.05	6	<0.5	<0.2
14WTS060	Soil	164	1.36	368	0.134	2	3.23	0.016	0.10	0.2	0.06	7.6	0.2	<0.05	10	<0.5	<0.2
14WTS061	Soil	140	1.33	361	0.090	4	2.93	0.012	0.17	0.2	0.09	6.8	0.2	<0.05	9	<0.5	0.4

QUALITY CONTROL REPORT

VAN14003312.1

Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppb	ppm	ppm	ppm	ppm	ppm	%	%	ppm	
MDL		0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.5	0.1	1	0.1	0.1	2	0.01	0.001	1	
Pulp Duplicates																					
14CGS061	Soil	1.5	50.2	5.0	99	<0.1	100.1	17.5	622	3.97	29.7	15.8	1.3	13	<0.1	0.2	0.1	113	0.22	0.082	6
REP 14CGS061	QC	1.5	49.2	5.1	98	<0.1	96.6	17.2	604	3.87	29.8	16.7	1.4	13	0.2	0.2	0.1	112	0.21	0.079	6
14MPS011	Soil	1.4	38.7	4.8	112	<0.1	45.3	26.6	1298	5.45	10.7	1.7	0.5	15	0.4	0.4	0.1	111	0.32	0.101	6
REP 14MPS011	QC	1.2	37.7	4.8	111	<0.1	44.6	26.6	1285	5.59	10.8	0.9	0.5	15	0.4	0.3	0.1	110	0.33	0.102	6
14EBS020	Soil	1.7	24.3	7.5	56	0.3	50.6	9.3	381	3.61	13.8	4.6	0.5	8	0.3	0.2	0.1	86	0.09	0.049	4
REP 14EBS020	QC	1.7	23.7	7.6	55	0.4	49.1	9.1	380	3.51	12.8	7.1	0.5	7	0.3	0.2	0.1	83	0.09	0.046	4
14WTS026	Soil	1.9	58.2	12.6	108	0.2	140.7	50.1	1720	3.04	15.6	2.3	0.1	39	2.5	0.6	0.1	67	1.17	0.179	6
REP 14WTS026	QC	1.9	64.3	13.5	123	0.2	155.2	54.4	1796	3.14	16.5	2.4	0.1	43	2.9	0.7	0.2	70	1.22	0.194	6
14WTS061	Soil	3.1	207.5	234.9	779	1.1	223.5	34.8	2606	4.94	97.7	5.1	1.4	59	4.1	1.9	1.5	79	0.66	0.139	8
REP 14WTS061	QC	3.0	208.6	226.8	746	1.1	236.4	33.7	2553	4.56	95.4	5.0	1.3	63	4.0	2.0	1.4	75	0.62	0.148	8
Reference Materials																					
STD DS10	Standard	15.1	153.5	143.8	354	2.0	75.9	12.5	905	2.82	46.3	188.3	7.2	65	2.8	9.5	11.3	46	1.06	0.077	17
STD DS10	Standard	15.0	154.9	151.9	366	2.0	77.2	12.5	869	2.80	46.7	78.7	7.1	66	2.7	9.5	11.6	45	1.05	0.080	18
STD DS10	Standard	15.0	149.8	144.6	352	1.9	75.3	12.2	880	2.77	45.4	69.6	7.0	66	2.8	9.7	11.4	42	1.00	0.074	17
STD DS10	Standard	14.3	150.4	151.6	357	1.9	74.8	12.3	874	2.75	47.7	95.8	6.8	66	2.7	9.5	11.4	45	1.04	0.078	17
STD DS10	Standard	16.7	171.5	154.0	386	2.0	78.9	13.1	962	2.92	46.8	80.5	8.1	71	2.7	10.8	12.0	49	1.11	0.076	20
STD OXC109	Standard	1.5	34.5	10.8	39	<0.1	72.4	17.7	413	2.89	0.6	205.1	1.4	140	<0.1	<0.1	<0.1	49	0.68	0.105	12
STD OXC109	Standard	1.6	34.9	10.9	40	<0.1	71.9	17.4	396	2.80	0.7	203.0	1.3	137	<0.1	<0.1	<0.1	47	0.68	0.108	12
STD OXC109	Standard	1.3	34.4	10.7	40	<0.1	71.6	18.8	385	2.80	1.0	196.8	1.3	137	<0.1	<0.1	<0.1	44	0.64	0.102	12
STD OXC109	Standard	1.4	32.7	10.7	38	<0.1	67.9	17.3	385	2.70	<0.5	203.0	1.3	128	<0.1	<0.1	<0.1	45	0.59	0.100	11
STD OXC109	Standard	1.3	35.9	10.9	42	<0.1	74.8	19.3	447	2.97	0.9	213.5	1.4	138	<0.1	<0.1	<0.1	52	0.69	0.107	12
STD DS10 Expected		14.69	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	43.7	91.9	7.5	67.1	2.49	8.23	11.65	43	1.0625	0.073	17.5
STD OXC109 Expected																					201
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	0.02	0.5	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	<0.001	<1

QUALITY CONTROL REPORT

VAN14003312.1

Method	Analyte	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201	AQ201
		Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te
Unit		ppm	%	ppm	%	ppm	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	
MDL		1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.05	1	0.5	0.2	
Pulp Duplicates																	
14CGS061	Soil	100	1.53	196	0.142	1	3.34	0.015	0.40	0.3	0.02	10.1	0.2	<0.05	10	<0.5	<0.2
REP 14CGS061	QC	99	1.50	187	0.137	1	3.26	0.015	0.39	0.3	0.01	9.9	0.2	<0.05	10	<0.5	<0.2
14MPS011	Soil	58	1.57	98	0.215	2	2.83	0.005	0.23	<0.1	0.01	4.4	<0.1	<0.05	10	<0.5	<0.2
REP 14MPS011	QC	58	1.53	98	0.212	2	2.80	0.005	0.23	<0.1	0.02	4.4	<0.1	<0.05	10	<0.5	<0.2
14EBS020	Soil	112	1.18	52	0.138	2	2.73	0.009	0.07	0.1	0.09	4.4	<0.1	<0.05	11	<0.5	<0.2
REP 14EBS020	QC	107	1.13	52	0.134	2	2.64	0.009	0.07	0.1	0.07	4.4	<0.1	<0.05	10	<0.5	<0.2
14WTS026	Soil	168	1.81	398	0.039	5	2.05	0.005	0.37	0.1	0.09	3.5	0.2	0.18	6	<0.5	<0.2
REP 14WTS026	QC	178	1.95	433	0.046	7	2.16	0.006	0.36	0.1	0.08	3.9	0.2	0.20	7	<0.5	<0.2
14WTS061	Soil	140	1.33	361	0.090	4	2.93	0.012	0.17	0.2	0.09	6.8	0.2	<0.05	9	<0.5	0.4
REP 14WTS061	QC	142	1.33	374	0.088	4	2.95	0.012	0.15	0.2	0.10	6.7	0.2	<0.05	8	<0.5	0.5
Reference Materials																	
STD DS10	Standard	56	0.77	356	0.078	7	1.04	0.064	0.34	3.5	0.29	3.0	5.2	0.26	5	1.8	5.1
STD DS10	Standard	55	0.82	376	0.080	8	1.11	0.072	0.34	3.5	0.31	3.0	5.2	0.29	5	2.1	5.1
STD DS10	Standard	53	0.78	359	0.076	6	1.06	0.069	0.33	3.3	0.30	2.8	4.9	0.25	4	2.0	4.9
STD DS10	Standard	54	0.77	349	0.075	8	0.97	0.068	0.34	3.4	0.31	2.7	5.1	0.27	4	2.4	5.1
STD DS10	Standard	63	0.80	380	0.084	7	1.06	0.067	0.34	3.3	0.28	3.2	5.5	0.30	5	2.4	4.7
STD OXC109	Standard	58	1.45	58	0.361	<1	1.47	0.654	0.43	0.2	<0.01	0.8	<0.1	<0.05	5	<0.5	<0.2
STD OXC109	Standard	56	1.45	57	0.370	2	1.50	0.682	0.41	0.2	<0.01	0.8	<0.1	<0.05	5	<0.5	<0.2
STD OXC109	Standard	54	1.40	55	0.341	1	1.43	0.638	0.39	0.2	<0.01	0.8	<0.1	<0.05	5	<0.5	<0.2
STD OXC109	Standard	54	1.36	54	0.331	1	1.34	0.659	0.38	0.2	<0.01	0.7	<0.1	<0.05	5	<0.5	<0.2
STD OXC109	Standard	59	1.46	58	0.377	1	1.48	0.688	0.41	0.2	<0.01	1.0	<0.1	<0.05	6	<0.5	<0.2
STD DS10 Expected		54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	0.3	2.8	5.1	0.29	4.3	2.3	5.01
STD OXC109 Expected																	
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2

CERTIFICATE OF ANALYSIS

VAN14003313.1

CLIENT JOB INFORMATION

Project: 99160
Shipment ID:
P.O. Number
Number of Samples: 44

SAMPLE DISPOSAL

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

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

Invoice To: APEX Geoscience Ltd.
200 - 9797 45 Ave
Edmonton AB T6E 5V8
CANADA

CC:

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	44	Crush, split and pulverize 250 g rock to 200 mesh			VAN
AQ115-IGN	44	Ignite samples, acid digest, Au by ICP-MS	15	Completed	VAN
AQ300	44	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
DRPLP	44	Warehouse handling / disposition of pulps			VAN
DRRJT	44	Warehouse handling / Disposition of reject			VAN

ADDITIONAL COMMENTS



CERTIFICATE OF ANALYSIS

VAN14003313.1

Method Analyte Unit MDL	WGHT	AQ115	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	P	
	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	
	0.01	0.5	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	
14DRP004	Rock	0.89	<0.5	<1	54	19	114	1.1	34	21	550	3.43	<2	<2	54	0.8	<3	<3	96	1.75	0.090
14DRP005	Rock	1.17	<0.5	<1	29	28	157	<0.3	1	4	240	1.86	3	<2	39	0.9	<3	<3	8	1.44	0.077
14DRP006	Rock	1.35	<0.5	<1	80	16	82	<0.3	127	40	470	3.92	4	<2	37	0.6	<3	<3	50	3.09	0.024
14DRP007	Rock	0.84	0.7	<1	90	6	28	<0.3	60	8	214	0.66	4	3	27	<0.5	<3	<3	11	3.61	<0.001
14DRP009	Rock	0.57	12.7	<1	18	4	9	<0.3	4627	256	328	2.94	11	<2	15	<0.5	<3	<3	12	0.16	0.002
14DRP010	Rock	1.17	<0.5	<1	32	10	43	<0.3	103	6	890	9.37	<2	<2	179	0.5	5	<3	145	10.82	0.045
14DRP011	Rock	1.25	<0.5	<1	71	9	65	<0.3	83	25	726	2.89	<2	<2	54	<0.5	<3	<3	56	4.39	0.056
14DRP012	Rock	0.77	0.9	<1	8	8	25	<0.3	1533	73	396	3.32	680	<2	57	<0.5	<3	<3	10	0.73	<0.001
14DRP013	Rock	0.99	<0.5	<1	51	31	20	<0.3	19	3	220	0.54	8	4	198	<0.5	<3	4	4	3.36	0.002
14DRP014	Rock	1.13	1.5	<1	69	21	344	0.4	16	11	351	2.51	8	<2	139	2.5	<3	<3	52	2.68	0.055
14DRP015	Rock	0.97	<0.5	2	105	29	63	0.6	19	6	175	2.64	5	<2	34	<0.5	4	<3	54	0.25	0.060
14DRP016	Rock	0.92	<0.5	<1	63	56	177	0.6	2	2	538	1.79	18	<2	8	1.0	<3	<3	2	0.08	0.021
14DRP017	Rock	0.59	<0.5	<1	28	49	60	<0.3	2	<1	231	1.20	20	<2	9	<0.5	<3	<3	2	0.06	0.020
14DRP018	Rock	0.79	1.0	<1	76	14	68	0.4	27	14	659	4.16	5	<2	24	<0.5	<3	<3	90	0.23	0.035
14DRP019	Rock	1.08	<0.5	<1	4	41	51	<0.3	6	4	453	1.69	8	<2	49	<0.5	<3	<3	5	0.89	0.056
14DRP020	Rock	0.82	2.1	1	149	127	1024	5.2	3	2	544	5.83	67	<2	36	7.2	7	16	52	0.29	0.025
14DRP021	Rock	1.39	2.3	9	480	4690	616	19.1	9	6	514	18.60	92	4	38	2.4	15	21	132	0.20	0.072
14DRP022	Rock	1.25	<0.5	<1	67	61	85	0.6	11	7	670	2.30	5	<2	103	0.5	<3	<3	34	2.03	0.066
14KRP121	Rock	0.88	2.3	<1	20	<3	10	<0.3	1019	69	662	3.90	82	<2	1	<0.5	<3	<3	20	0.09	0.001
14KRP122	Rock	1.22	<0.5	<1	57	7	25	<0.3	14	3	604	1.30	<2	<2	8	<0.5	<3	<3	17	0.12	0.007
14KRP123	Rock	1.31	<0.5	<1	34	10	43	<0.3	36	8	151	1.28	13	<2	4	<0.5	<3	<3	25	0.03	0.010
14KRP124	Rock	1.12	<0.5	<1	30	4	11	<0.3	1349	74	786	3.69	44	<2	12	<0.5	<3	<3	16	0.23	<0.001
14KRP125	Rock	0.71	<0.5	<1	76	6	82	<0.3	34	22	1068	4.24	<2	<2	27	<0.5	<3	<3	135	2.16	0.070
14KRP126	Rock	1.04	<0.5	<1	52	6	60	<0.3	46	28	889	4.57	11	<2	40	<0.5	<3	<3	180	1.84	0.075
14KRP127	Rock	0.78	<0.5	<1	114	21	76	<0.3	24	17	469	3.23	<2	<2	21	<0.5	<3	<3	84	1.95	0.088
14KRP128	Rock	0.98	<0.5	2	20	6	58	<0.3	143	12	557	1.97	<2	<2	28	<0.5	<3	<3	31	1.27	0.027
14KRP129	Rock	0.68	<0.5	3	81	9	124	<0.3	115	32	800	5.58	<2	<2	25	<0.5	<3	<3	101	0.75	0.262
14KRP130	Rock	0.50	<0.5	16	6	4	8	<0.3	3	<1	45	2.51	20	<2	<1	<0.5	<3	<3	<1	0.01	0.004
14KRP131	Rock	1.00	<0.5	<1	93	7	19	<0.3	83	6	814	1.37	18	<2	154	0.7	<3	<3	16	4.68	0.057
14KRP132	Rock	1.13	<0.5	<1	52	6	38	<0.3	1185	81	2119	4.47	425	<2	393	<0.5	<3	<3	47	10.05	0.012

CERTIFICATE OF ANALYSIS

VAN14003313.1

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	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	
14DRP004	Rock	<1	90	1.12	35	0.426	<20	1.54	0.05	0.03	<2	0.27	<1	<5	25	6
14DRP005	Rock	4	2	0.44	71	0.020	<20	0.80	0.05	0.11	<2	0.26	<1	<5	<5	<5
14DRP006	Rock	1	105	1.97	164	0.223	<20	1.77	0.04	0.34	<2	1.48	<1	<5	21	<5
14DRP007	Rock	<1	181	1.06	49	0.031	<20	0.98	0.03	0.12	<2	<0.05	<1	<5	8	<5
14DRP009	Rock	<1	462	0.99	5	0.001	<20	0.45	<0.01	<0.01	<2	<0.05	<1	<5	<5	7
14DRP010	Rock	1	5	0.15	24	0.004	<20	0.17	<0.01	0.10	<2	0.16	<1	7	<5	<5
14DRP011	Rock	<1	99	1.26	37	0.295	<20	1.65	0.02	0.10	<2	<0.05	<1	<5	22	<5
14DRP012	Rock	2	462	13.63	4	0.001	<20	0.16	<0.01	0.03	<2	<0.05	<1	<5	<5	<5
14DRP013	Rock	<1	2	0.09	80	0.002	<20	0.27	<0.01	0.26	<2	0.05	<1	<5	<5	<5
14DRP014	Rock	3	18	0.54	72	0.116	20	2.84	0.26	0.20	<2	0.45	<1	<5	14	<5
14DRP015	Rock	4	32	0.97	48	0.064	<20	1.58	0.10	0.09	<2	0.47	<1	<5	9	<5
14DRP016	Rock	6	2	0.02	94	<0.001	<20	0.32	0.03	0.20	<2	<0.05	<1	<5	<5	<5
14DRP017	Rock	6	4	0.03	108	<0.001	<20	0.50	0.02	0.29	<2	<0.05	<1	<5	<5	<5
14DRP018	Rock	3	26	1.27	370	0.110	<20	1.98	0.10	0.58	<2	0.81	<1	<5	15	16
14DRP019	Rock	16	3	0.03	1427	<0.001	<20	0.36	0.06	0.22	<2	0.31	<1	<5	<5	<5
14DRP020	Rock	1	<1	0.52	23	0.128	<20	1.41	0.01	0.06	<2	0.50	<1	<5	15	<5
14DRP021	Rock	3	17	1.19	67	0.196	<20	2.82	0.01	0.20	<2	0.26	<1	<5	22	5
14DRP022	Rock	10	9	0.73	207	0.003	<20	1.18	0.04	0.20	<2	0.25	<1	<5	6	<5
14KRP121	Rock	2	887	11.51	6	<0.001	<20	0.32	<0.01	0.01	<2	<0.05	<1	<5	<5	7
14KRP122	Rock	4	10	0.26	65	0.017	<20	0.28	<0.01	0.07	<2	0.10	<1	<5	<5	<5
14KRP123	Rock	7	16	0.43	21	0.005	<20	0.54	0.04	0.06	<2	<0.05	<1	<5	<5	<5
14KRP124	Rock	1	761	11.22	5	<0.001	<20	0.27	<0.01	0.01	<2	<0.05	<1	<5	7	6
14KRP125	Rock	3	37	1.41	33	0.272	<20	1.95	0.06	0.08	<2	0.19	<1	<5	18	9
14KRP126	Rock	2	88	1.86	33	0.356	25	2.44	0.05	0.01	<2	0.06	<1	<5	7	<5
14KRP127	Rock	<1	28	0.96	27	0.399	22	1.12	0.05	0.07	<2	0.52	<1	<5	<5	<5
14KRP128	Rock	3	63	1.41	46	0.061	51	1.51	0.01	0.15	<2	<0.05	<1	<5	<5	<5
14KRP129	Rock	16	37	4.37	272	0.283	31	4.15	0.03	1.86	<2	1.11	<1	<5	6	<5
14KRP130	Rock	<1	4	0.01	22	0.003	22	0.04	<0.01	0.02	<2	0.90	<1	<5	<5	<5
14KRP131	Rock	6	45	1.89	18	0.004	<20	0.51	<0.01	0.03	<2	<0.05	<1	<5	18	<5
14KRP132	Rock	3	1683	5.84	30	0.003	<20	1.58	<0.01	0.03	<2	<0.05	<1	<5	<5	9

CERTIFICATE OF ANALYSIS

VAN14003313.1

Method	WGHT	AQ115	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	0.5	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001	
14KRP133	Rock	0.62	<0.5	<1	3	9	<0.3	23	5	904	1.57	2	<2	321	<0.5	<3	<3	17	9.23	0.012	
14KRP134	Rock	0.88	<0.5	<1	7	<3	14	<0.3	16	3	806	1.27	<2	<2	203	<0.5	<3	<3	11	6.12	0.012
14KRP135	Rock	1.04	<0.5	6	21	5	23	<0.3	9	3	264	0.88	<2	<2	2	<0.5	<3	<3	3	0.03	0.013
14KRP136	Rock	1.05	28.9	<1	193	<3	68	0.3	9	7	1864	2.49	<2	<2	281	<0.5	<3	<3	29	10.35	0.015
14KRP137	Rock	0.93	4.4	7	288	<3	80	<0.3	310	44	1754	26.33	53	<2	85	1.3	<3	<3	304	6.49	0.926
14KRP138	Rock	0.97	1.6	1	32	<3	<1	<0.3	120	20	35	1.72	<2	<2	2	<0.5	<3	<3	10	0.07	0.009
14KRP139	Rock	0.65	0.7	<1	11	4	29	<0.3	843	43	394	3.07	485	<2	96	<0.5	<3	<3	8	1.23	0.004
14KRP140	Rock	1.00	1.1	1	27	<3	19	<0.3	40	5	205	1.58	10	<2	53	<0.5	<3	<3	5	0.68	0.006
14KRP141	Rock	0.69	<0.5	3	24	<3	6	<0.3	243	19	103	2.98	<2	<2	1	<0.5	<3	<3	29	0.02	0.003
14KRP142	Rock	0.90	<0.5	4	47	<3	83	<0.3	62	18	582	5.29	<2	<2	8	<0.5	<3	<3	56	0.40	0.032
14KRP143	Rock	0.71	2.3	<1	228	<3	71	<0.3	286	24	1291	18.32	18	<2	177	1.6	<3	<3	224	15.52	0.182
14KRP144	Rock	0.75	1.0	<1	15	8	15	<0.3	2	<1	138	1.18	<2	3	10	<0.5	<3	<3	6	0.07	0.022
14KRP145	Rock	1.00	<0.5	<1	17	<3	15	<0.3	2	<1	91	1.10	<2	<2	2	<0.5	<3	<3	6	0.06	0.011
14KRP146	Rock	0.73	<0.5	<1	227	5	31	<0.3	15	9	229	3.46	17	<2	41	<0.5	<3	<3	172	0.40	0.084

CERTIFICATE OF ANALYSIS

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Method	Analyte	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	Tl	Ga
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
14KRP133	Rock	4	16	4.46	30	0.003	<20	0.87	0.01	0.04	<2	<0.05	<1	<5	<5
14KRP134	Rock	5	8	1.47	66	0.002	<20	0.47	<0.01	0.06	<2	<0.05	<1	<5	13
14KRP135	Rock	4	4	0.14	13	<0.001	<20	0.19	<0.01	0.07	<2	<0.05	<1	<5	<5
14KRP136	Rock	2	27	0.48	30	0.012	24	1.12	0.01	0.06	<2	<0.05	<1	<5	<5
14KRP137	Rock	5	65	1.69	126	0.113	<20	2.03	<0.01	1.46	<2	4.16	<1	<5	10
14KRP138	Rock	<1	580	0.71	2	0.005	<20	0.24	<0.01	<0.01	<2	0.10	<1	<5	<5
14KRP139	Rock	<1	273	10.88	3	<0.001	<20	0.13	<0.01	0.03	<2	<0.05	<1	<5	<5
14KRP140	Rock	4	149	0.56	29	0.002	<20	0.13	0.01	0.05	<2	<0.05	<1	<5	<5
14KRP141	Rock	<1	1633	4.26	9	0.002	<20	0.65	<0.01	<0.01	<2	0.10	<1	<5	<5
14KRP142	Rock	4	324	2.15	73	0.183	<20	1.60	0.01	0.11	<2	0.90	<1	<5	7
14KRP143	Rock	<1	26	0.79	96	0.013	<20	0.93	0.03	0.36	<2	3.52	<1	<5	<5
14KRP144	Rock	6	8	0.21	52	0.047	<20	0.37	<0.01	0.16	<2	<0.05	<1	<5	<5
14KRP145	Rock	1	8	0.20	46	0.049	<20	0.34	<0.01	0.16	<2	<0.05	<1	<5	<5
14KRP146	Rock	3	38	1.14	122	0.502	<20	1.35	0.05	0.20	<2	0.15	<1	<5	12

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Method	WGHT	AQ115	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	0.5	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																					
14DRP016	Rock	0.92	<0.5	<1	63	56	177	0.6	2	2	538	1.79	18	<2	8	1.0	<3	<3	2	0.08	0.021
REP 14DRP016	QC			<1	64	57	180	0.4	2	2	541	1.79	18	<2	8	1.0	<3	<3	1	0.08	0.022
14DRP022	Rock	1.25	<0.5	<1	67	61	85	0.6	11	7	670	2.30	5	<2	103	0.5	<3	<3	34	2.03	0.066
REP 14DRP022	QC		<0.5																		
14KRP130	Rock	0.50	<0.5	16	6	4	8	<0.3	3	<1	45	2.51	20	<2	<1	<0.5	<3	<3	<1	0.01	0.004
REP 14KRP130	QC			16	6	4	8	<0.3	3	<1	46	2.52	21	<2	<1	<0.5	<3	<3	<1	0.01	0.005
14KRP146	Rock	0.73	<0.5	<1	227	5	31	<0.3	15	9	229	3.46	17	<2	41	<0.5	<3	<3	172	0.40	0.084
REP 14KRP146	QC		<0.5	<1	227	4	31	<0.3	15	9	230	3.46	16	<2	41	<0.5	<3	<3	172	0.39	0.084
Core Reject Duplicates																					
14KRP128	Rock	0.98	<0.5	2	20	6	58	<0.3	143	12	557	1.97	<2	<2	28	<0.5	<3	<3	31	1.27	0.027
DUP 14KRP128	QC		<0.5	3	24	14	96	<0.3	174	14	630	2.22	<2	<2	27	<0.5	<3	<3	37	1.22	0.032
Reference Materials																					
STD DS10	Standard			15	168	161	410	2.1	82	14	970	3.00	50	9	71	2.8	11	13	48	1.18	0.082
STD DS10	Standard			13	152	150	387	1.9	75	13	907	2.83	46	8	68	2.6	7	10	44	1.11	0.078
STD DS10	Standard			11	155	151	383	1.9	72	12	898	2.79	47	7	65	2.3	9	12	42	1.08	0.074
STD OREAS45EA	Standard			2	818	19	37	<0.3	451	62	465	26.35	5	15	4	<0.5	8	<3	343	0.04	0.033
STD OREAS45EA	Standard			3	689	8	27	<0.3	390	54	400	24.11	8	10	4	<0.5	<3	<3	296	0.03	0.030
STD OREAS45EA	Standard			3	683	12	28	<0.3	377	45	394	24.33	12	11	4	<0.5	<3	<3	301	0.03	0.029
STD OREAS901	Standard		346.8																		
STD OREAS901	Standard		358.3																		
STD DS10 Expected				14.69	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	43.7	7.5	67.1	2.49	8.23	11.65	43	1.0625	0.073
STD OREAS45EA Expected				1.39	709	14.3	28.9	0.26	381	52	400	23.51	9	10.7	3.5				303	0.036	0.029
STD OREAS901 Expected			363																		
BLK	Blank			<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	3	<2	<1	<0.5	<3	<3	<1	<0.01	<0.001
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			<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		<0.5																		
BLK	Blank		<0.5																		

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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	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																
14DRP016	Rock	6	2	0.02	94	<0.001	<20	0.32	0.03	0.20	<2	<0.05	<1	<5	<5	<5
REP 14DRP016	QC	6	2	0.02	95	<0.001	<20	0.32	0.03	0.20	<2	<0.05	<1	<5	<5	<5
14DRP022	Rock	10	9	0.73	207	0.003	<20	1.18	0.04	0.20	<2	0.25	<1	<5	6	<5
REP 14DRP022	QC															
14KRP130	Rock	<1	4	0.01	22	0.003	22	0.04	<0.01	0.02	<2	0.90	<1	<5	<5	<5
REP 14KRP130	QC	<1	2	0.02	23	0.003	<20	0.04	<0.01	0.02	<2	0.89	<1	<5	<5	<5
14KRP146	Rock	3	38	1.14	122	0.502	<20	1.35	0.05	0.20	<2	0.15	<1	<5	12	10
REP 14KRP146	QC	3	38	1.14	122	0.484	<20	1.34	0.05	0.20	<2	0.15	<1	<5	10	10
Core Reject Duplicates																
14KRP128	Rock	3	63	1.41	46	0.061	51	1.51	0.01	0.15	<2	<0.05	<1	<5	<5	<5
DUP 14KRP128	QC	3	85	1.60	51	0.077	33	1.74	0.01	0.15	<2	<0.05	<1	<5	<5	<5
Reference Materials																
STD DS10	Standard	18	62	0.84	444	0.084	<20	1.14	0.08	0.37	<2	0.31	<1	7	7	<5
STD DS10	Standard	16	55	0.80	451	0.078	<20	1.07	0.07	0.35	3	0.30	<1	<5	<5	<5
STD DS10	Standard	15	54	0.78	430	0.076	20	1.02	0.07	0.33	3	0.30	<1	<5	<5	<5
STD OREAS45EA	Standard	9	946	0.11	158	0.110	<20	3.69	0.03	0.07	<2	<0.05	<1	<5	18	96
STD OREAS45EA	Standard	7	871	0.10	145	0.094	<20	3.22	0.02	0.06	<2	<0.05	<1	<5	8	83
STD OREAS45EA	Standard	8	884	0.09	152	0.097	34	3.13	0.02	0.05	<2	<0.05	<1	<5	7	82
STD OREAS901	Standard															
STD OREAS901	Standard															
STD DS10 Expected		17.5	54.6	0.775	359	0.0817		1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8
STD OREAS45EA Expected		6.57	849	0.095	148	0.0875		3.13	0.02	0.053		0.036			11.7	78
STD OREAS901 Expected																
BLK	Blank	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank	<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															



www.acmelab.com

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

Client: **APEX Geoscience Ltd.**
 200 - 9797 45 Ave
 Edmonton AB T6E 5V8 CANADA

Project: 99160
 Report Date: November 20, 2014

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		WGHT	AQ115	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca	P
		kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		0.01	0.5	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01	0.001
Prep Wash																					
ROCK-VAN	Prep Blank		<0.5	<1	3	3	41	<0.3	1	4	492	1.99	<2	<2	28	<0.5	<3	<3	27	0.83	0.043
ROCK-VAN	Prep Blank		<0.5	<1	2	3	41	<0.3	2	4	471	1.93	2	<2	25	<0.5	<3	<3	25	0.93	0.042



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QUALITY CONTROL REPORT

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		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	Tl	Ga	Sc
		ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
Prep Wash		1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
ROCK-VAN	Prep Blank	6	<1	0.47	83	0.075	<20	1.01	0.09	0.09	<2	<0.05	<1	<5	8	<5
ROCK-VAN	Prep Blank	6	2	0.47	63	0.069	<20	0.95	0.07	0.07	<2	<0.05	<1	<5	7	<5

APPENDIX 5

2014 Popa Bear Exploration Expenditures

Popa Bear Projct 2014 Exploration Expenditures

	Date	Invoice	Description	Amount
Geological field work				
	07/31/2014	2014-187	Geological Services Performed Field - Kris Raffle (June 22-July 21/14)	2,712.50
	07/31/2014	2014-100	Geological Services Performed Field - Don Rogers (June 22-July 21/14)	2,450.00
	07/31/2014	2014-100	Geological Services Performed Field - Cam Gregory (June 22-July 21/14)	2,450.00
	09/30/2014	2014-247	Geological Services Performed Field - Kris Raffle (Aug 22-Sept 21/14)	6,200.00
	09/30/2014	2014-200	Geological Services Performed Field - Don Rogers (Aug 22-Sept 21/14)	6,650.00
	09/30/2014	2014-200	Geological Services Performed Field - Cam Gregory (Aug 22-Sept 21/14)	6,650.00
	09/30/2014	2014-200	Geological Services Performed Field - Wyatt Thompson (Aug 22-Sept 21/14)	4,750.00
	09/30/2014	2014-200	Geological Services Performed Field - David Rogers (Aug 22-Sept 21/14)	3,000.00
	09/30/2014	2014-200	Geological Services Performed Field - Michael Purvis (Aug 22-Sept 21/14)	3,000.00
	09/30/2014	2014-200	Geological Services Performed Field - Eric Berger (Aug 22-Sept 21/14)	3,000.00
Total Geological field work				40,862.50
Geological office work				
	07/31/2014	2014-187	Geological Services Performed Office - Kris Raffle (March 22-April 21/14)	209.25
	07/31/2014	2014-187	Geological Services Performed Office - Kris Raffle (June 22-July 21/14)	364.25
	07/31/2014	2014-187	Geological Services Performed Office - Bahram Bahrami (June 22-July 21/14)	612.00
	09/30/2014	2014-247	Geological Services Performed Office - Bahram Bahrami (July 22-Aug 21/14)	52.00
	09/30/2014	2014-247	Geological Services Performed Office - Kris Raffle (July 22-Aug 21/14)	108.50
	09/30/2014	2014-247	Geological Services Performed Office - Kris Raffle (Aug 22-Sept 21/14)	155.00
	10/31/2014	2014-276	Geological Services Performed Office - Bahram Bahrami (Sept 22-Oct 21/14)	80.00
	10/31/2014	2014-276	Geological Services Performed Office - Chris Livingstone (Sept 22-Oct 21/14)	87.75
	10/31/2014	2014-276	Geological Services Performed Office - Yuliana Bui (Sept 22-Oct 21/14)	400.00
	11/30/2014	2014-313	Geological Services Performed Office - Yuliana Bui (Oct 22-Nov 21/14)	1,760.00
	01/31/2015	2015-016	Geological Services Performed Office - Jerry Holmes (Jan 1-21/15)	640.00
Total Geological office work				4,468.75
Overhead & management fee				
	07/31/2014	2014-187	Operator's overhead and management fee (10%)	274.74
	09/30/2014	2014-247	Operator's overhead and management fee (10%)	73.12
	09/30/2014	2014-247	Operator's overhead and management fee (5%)	425.72
	10/31/2014	2014-276	Operator's overhead and management fee (10%)	0.98
	11/30/2014	2014-313	Operator's overhead and management fee (10%)	447.89
Total Overhead & management fee				1,222.45
Rentals				
	09/30/2014	2014-247	APEX rental - GPS, trimble junio, sat phone & tent	150.00
Total Rentals				150.00
Assays & related costs				
	07/31/2014	2014-187	Acme Labs: assay analysis, July 29/14, inv VANI204681	600.09
	07/31/2014	2014-187	Acme Labs: assay analysis, July 29/14, inv VANI204682	843.37
	11/30/2014	2014-313	Acme Labs: assay analysis, Oct 28/14, inv VANI212678	3,332.35
	11/30/2014	2014-313	Acme Labs: assay analysis, Nov 20/14, inv VANI214453	1,146.54
Total Assays & related costs				5,922.35
Field supplies				
	09/30/2014	2014-247	Kris Raffle: supplies, Aug 30/14	493.00
	09/30/2014	2014-200	Don Rogers: GPS, sleeping bags, cots, tents, radios, bearspray, safety supplies	4,800.00
Total Field supplies				5,293.00
Travel - accomodations				
	07/31/2014	2014-187	Kris Raffle: hotel, Pemberton, July 7-11/14	1,088.09
	07/31/2014	2014-100	Don Rogers: hotel, Pemberton, July 6-11/14	2,429.43
	09/30/2014	2014-200	Don Rogers: hotel, Cache Creek, August 30/14	535.62
	09/30/2014	2014-200	Don Rogers: hotel, Vancouver, September 4/14	243.97
	09/30/2014	2014-200	Don Rogers: hotel, Pemberton, September 12/14	387.59
Total Travel - accomodations				4,684.70
Travel - airfare				
	09/30/2014	2014-247	Kris Raffle: airfare (Blackcomb Aviation), Sept/14	8,514.35
Total Travel - airfare				8,514.35
Travel - food				
	07/31/2014	2014-187	Kris Raffle: food, July 6/14	62.32
	07/31/2014	2014-100	Don Rogers: food, July 6-12/14	560.00
	09/30/2014	2014-247	Kris Raffle: food, Aug 30-Sept 1/14	238.22
	09/30/2014	2014-200	Don Rogers: food, Aug 30-Sept 17/14	3,720.00
Total Travel - food				4,580.54
Travel - truck rental & fuel				
	07/31/2014	2014-187	Kris Raffle: mileage, July 7-11/14	153.52
	07/31/2014	2014-100	Don Rogers: mileage, July 6-12/14	608.00
	07/31/2014	2014-100	Don Rogers: fuel	912.00
	09/30/2014	2014-200	Don Rogers: truck rental, Aug 30-Sept 10/14	600.00
	09/30/2014	2014-200	Cam Gregory: truck rental, Aug 30-Sept 17/14	950.00
	09/30/2014	2014-200	Don Rogers: mileage, Aug 30-Sept 10/14	775.75
	09/30/2014	2014-200	Cam Gregory: mileage, Aug 30-Sept 17/14	587.00
	09/30/2014	2014-200	Don Rogers: fuel	723.27
	09/30/2014	2014-200	Cam Gregory: fuel	1,057.13
Total Travel - fuel				6,366.67
Taxi, parking & other				
	10/31/2014	2014-276	Chris Livingstone: parking, Oct 8/14	9.81
Total Taxi, parking & other				9.81
Total 2014 Popa Bear Project Exploration (not incl. GST)				\$ 82,075.12