BC Geological Survey
Assessment Report
38405

Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Trenching, Geophysics, Geochemistry **TOTAL COST:** $181,403

AUTHOR(S): Alan Wainwright, PhD PGeo **SIGNATURE(S):** Alan Wainwright

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-1-925/2018 **YEAR OF WORK:** 2018

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):

PROPERTY NAME: Windfall Hills

CLAIM NAME(S) (on which the work was done): WINEAST, WINSOUTH, UDUKLINK, UNUK LAKE 2, UDUK LAKE 1
UDUK LAKE 3, UDUK9, WINDFALL151, WINDFALL152, WINDFALL153, WINDFALL154

COMMODITIES SOUGHT: Gold, silver

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 093F 057

MINING DIVISION: OMINECA **NTS/BCGS:** 093E09, 093F12

LATITUDE: 53 ° 36 ' 35 " **LONGITUDE:** -125 ° 59 ' 00 " **(at centre of work)**

OWNER(S):
1) Canarc Resource Corp. 2)

MAILING ADDRESS:
Suite 810-625 Howe Street
Vancouver, B.C., Canada, V6C 2T6

OPERATOR(S) [who paid for the work]:
1) Canarc Resource Corp. 2)

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Vancouver, B.C., Canada, V6C 2T6

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
Ootsa Lake Group, Eocene, low-sulfidation epithermal, gold, silver, clay, pyrite, rhyolite, dacite

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:
14557, 18882, 22906, 23154, 23928, 25136, 32523, 34069, 35082, 35644

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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			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne	470 line-km		$34 000
GEOCHEMICAL (number of samples analysed for...)			
Soil	224		$73 701.50
Silt			
Rock	123		
Other	Till: 15		
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)	355m		$73 701.50
Underground dev. (metres)			
Other			
		TOTAL COST:	$181,403

2018 ASSESSMENT REPORT ON THE

WINDFALL HILLS PROPERTY

OMINECA MINING DIVISION

BRITISH COLUMBIA

70 km south of Burns Lake, BC

Latitude: 53.61°
Longitude: -125.98°
NTS SHEETS: 093E09 and 093F12

Prepared for: Canarc Resource Corp.
Suite 810-625 Howe Street
Vancouver, BC, Canada,
V6C 2T6

Prepared by: Alan J. Wainwright, PhD PGeo

Submitted: June 20, 2019 (amended December 27, 2019)

SUMMARY

The Windfall Hills Au property is underlain by Eocene Ootsa Lake Group dacite to rhyolite breccia and tuff, intercalated with clastic sedimentary rocks. The layered sequences are intruded by granodiorite dikes and stocks. Gold mineralization has been detected in these rocks, accompanied by clay alteration, silicification, disseminated pyrite, minor quartz veins and breccia, and anomalous silver and arsenic. Historic work on the property includes, soil sampling, trenching, induced polarization geophysics and drilling. The mineralization style is interpreted as low-sulfidation epithermal gold.

A Fall 2018 campaign of ridge-top soil sampling, rock and till sampling, mechanized trenching, and airborne geophysics (magnetics and radiometrics) was completed in order to contextualize the known mineralization within the geology of the property, constrain the drill targeting framework near the known gold mineralization, and identify additional possible gold targets elsewhere on the property.

Gold values for 123 rock samples ranged from below detection (<2 ppb Au) to 7195 ppb Au (average 123 ppb). A total of 214 ridgetop soil samples were collected with gold values ranging from below detection (<0.2 ppb Au) to 81 ppb (average 3 ppb Au). Ten soil profile samples were also collected at 2 stations with gold ranging from 0.5 to 441 ppb Au (average 79 ppb). The 15 till samples had gold values ranging from 3 ppb to 25 ppb Au (average 11 ppb Au).

Geochemical/geophysical anomalies have been recognized based on the 2018 work, and several potentially gold-bearing target structures or zones have been identified. Updating the geology map, and interpretation of geochemical trends based on new knowledge of the till cover should be followed up with track-mounted RAB or RC drilling to further test the gold targets.

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1. Introduction and Terms of Reference

This assessment report is being filed by Canarc Resource Corp., 100% owner of the Windfall Hills claims. Fieldwork completed in the 2018 program accrues toward the overall requirements needed to maintain all claims in good standing. The statements of work for this report were filed by Canarc in March 2019. Coast Mountain Geological was contracted to guide the trenching, conduct rock, soil and till sampling, and complete reconnaissance mapping/prospecting. Fieldwork was conducted under the supervision of Alan Wainwright, PhD PGeo.

Units of measure in this report are metric. Maps and other location data are presented in Universal Transverse Mercator (UTM) projection, using the 1983 North American Datum (NAD83), Zone 10N. Monetary amounts are expressed in Canadian dollars.

The Windfall Hills property is an epithermal gold target located in Central BC. Previous work includes soil sampling, trenching, geophysics and drilling. This report is based on fieldwork conducted by the author (3 days) and Coast Mountain Geological (10 days) in September 2018, a September 2018 geophysical survey, as well as review of published assessment reports and company files. Additional insight on the property was gained by the author during a 2-day site visit and property data review conducted during September-October 2017.

This report discusses the gold property location and ownership, geology, historic work, as well as the 2018 work campaign. Recommendations for future work are also provided. A statement of expenditures is provided in Appendix A, a statement of qualifications in Appendix B, assay certificates in Appendix C, and a logistics report for the geophysical program in Appendix D. Detailed sample location and results maps (Au, Ag, As, and Sb) are given in Appendix E.

2. Property Description and Location

The Windfall Hills property is located in central British Columbia, 244 kilometers west of Prince George and 70 km south of Burns Lake (Fig. 1). Road access from Burns Lake is south by Highway 35 for 70 km to Ootsa Lake then 35 km southeast along the north shore of Ootsa Lake by well-maintained logging mainlines to a barge landing on Tahtsa Reach. This barge landing can also be accessed by driving 120 km west southwest from Vanderhoof on well-maintained logging roads.

For the 2018 program the site was accessed by helicopter on a daily basis from Takysie Lake Resort and the field crew was accommodated at the resort. Helicopter services were provided by Westland Helicopter Inc. from Burns Lake.

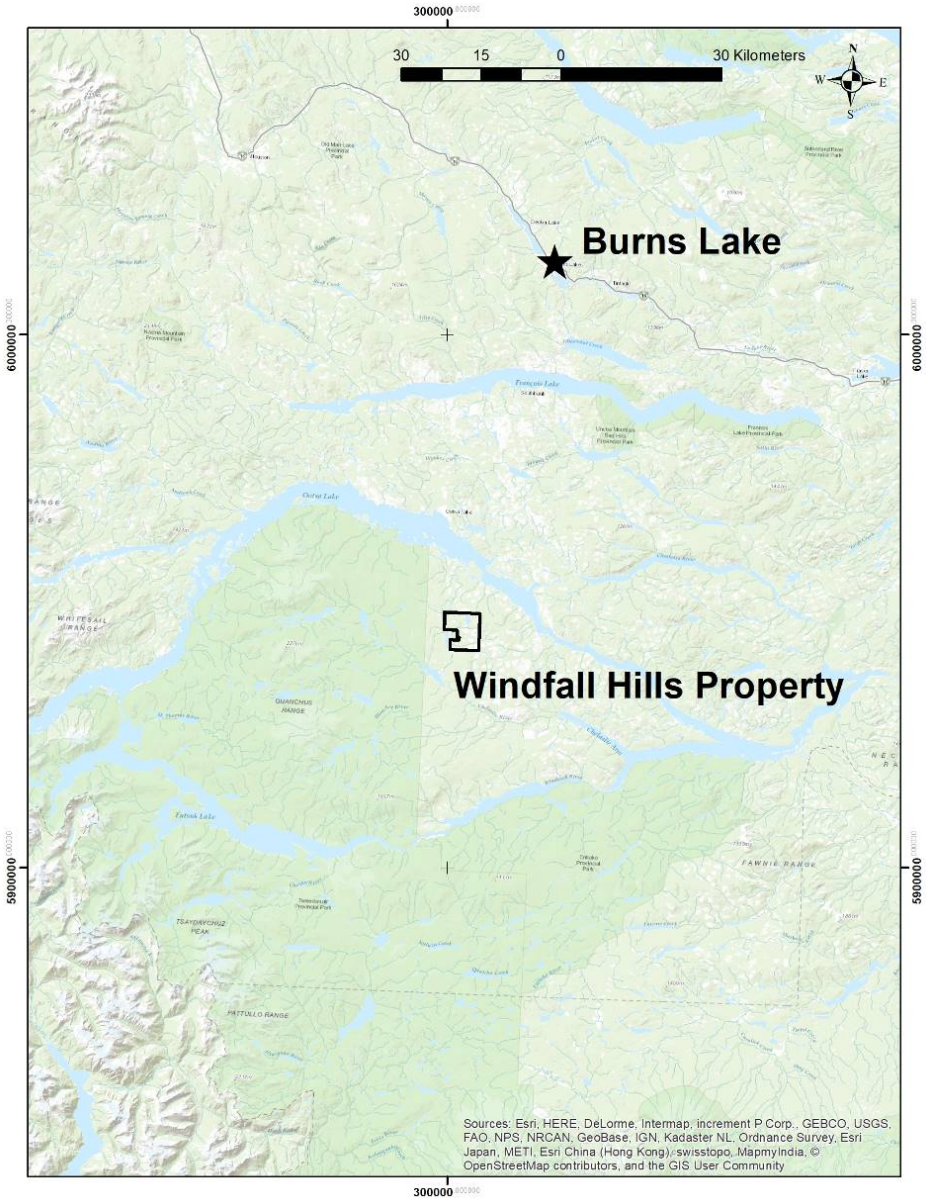


Figure 1. Location of the Windfall Hills property.

The property covers 3875.10 ha on 11 claims. Canarc Resource Corp is the registered owner of these claims. Claim details are shown in Table 1 below. Figure 2 shows the mineral tenure locations.

Table 1. Claims, Ownership and Status.

Tenure Number	Good-to-date	CLAIM_NAME	OWNER_NAME	Hectares	% Owner	Client Number
1026598	2025-03-10	WINEAST	CANARC RESOURCE CORP	172.6462	100	104202
1026599	2025-03-10	WINSOUTH	CANARC RESOURCE CORP	153.529	100	104202
1022668	2024-09-30	UDUKLINK	CANARC RESOURCE CORP	115.0688	100	104202
1026441	2025-03-03	UNUK LAKE 2	CANARC RESOURCE CORP	268.5968	100	104202
1026440	2025-03-03	UDUK LAKE 1	CANARC RESOURCE CORP	115.1129	100	104202
1026444	2025-03-03	UDUK LAKE 3	CANARC RESOURCE CORP	172.6314	100	104202
1038619	2020-09-18	UDUK9	CANARC RESOURCE CORP	19.1772	100	104202
1038772	2021-09-24	WINDFALL151	CANARC RESOURCE CORP	1918.0811	100	104202
1038775	2020-09-24	WINDFALL152	CANARC RESOURCE CORP	326.0305	100	104202
1038776	2021-09-24	WINDFALL153	CANARC RESOURCE CORP	403.1494	100	104202
1039011	2021-10-02	WINDFALL154	CANARC RESOURCE CORP	211.0692	100	104202

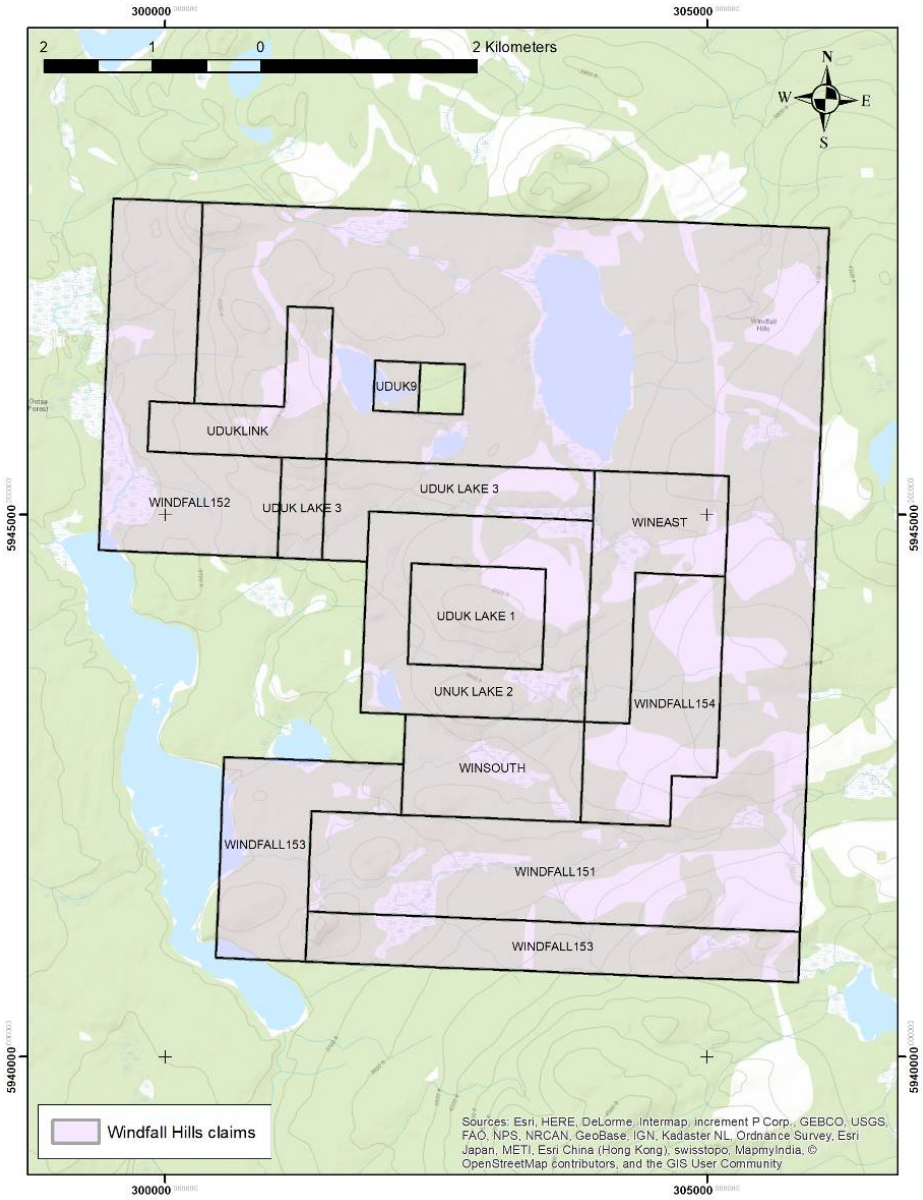


Figure 2. Mineral title map for the Windfall Hills Property.

3. Access, Climate, Local Resources, Infrastructure and Physiography

The property covers an area of the Nechako Plateau with subdued topography and elevation ranges from 1100m to 1220m. Over 99% of the property is covered by glacial till that ranges from less than one meter thick to >6m thick. Outcrop/subcrop is only present on prominent knobs on the property, and locally in ditches and pits from logging road construction.

The Biogeoclimatic Ecological Zone is Sub-Boreal Pine Spruce. The property area covers mature stands of spruce and pine. Approximately 60% of the property has been clear cut. More than 80% of the remaining mature pine is standing dead from pine beetle infestation.

The climate is northern interior with long cold winters starting in November and lasting until mid to late April. The average temperature for the year in the Ootsa Lake area is 3.2°C. The warmest month, on average, is July with an average temperature of 13.7°C. The coolest month on average is January, with an average temperature of -7.7°C. The average amount of precipitation for the year in the Ootsa Lake area is 416.6 mm. The month with the most precipitation on average is June and the month with the least precipitation on average is April. There is an average of 1524mm of snow per year (www.weatherbase.com).

4. History of Exploration

The exploration history of the Windfall Hills property is summarized in Table 2.

Prior to 2011 (from Dunn and Moors; 2011)

Part of the area of the property was originally staked in 1981 by Amax Exploration Ltd. who carried out reconnaissance mapping and sampling but allowed their claims to lapse. In 1984 the property area was re-staked by S. Travis.

Asitka Resource Corporation optioned part of the property and conducted rock and soil geochemical sampling in 1985, and 78 meters of Winkie drilling in three holes in 1986. Values ranged from 20 to 1450 ppb gold in quartz stringer stockwork zones intersected in drill holes.

Pacific Comox Resources Ltd. optioned the property from Travis in 1987 and, in 1988, sub-optioned to Chalice Mining Inc. Chalice conducted a program of line cutting, geological and geochemical surveys, an Induced Polarization geophysical survey and 358 meters of diamond drilling in five holes on the property. Chalice did not exercise their option and the property reverted to Pacific Comox.

Pioneer Metals Corp. optioned the property in 1993 and carried out a soil geochemical program that year followed by further geochemical sampling, geological mapping and six mechanized trenches in 1994 on the property. All six trenches returned values greater than 0.1 g/t gold with the entire 42 meters of TR-94-4 averaging 0.41 g/t gold including six meters of 1.4 g/t gold. Pioneer terminated its option in 1996.

In 1997 Atna Resource Ltd. purchased the property from Pacific Comox and optioned 60% of the property to Gold Mountain Resources Ltd. Atna carried out a soil geochemical survey, geological mapping and an Induced Polarization geophysical survey.

2011 to present

In 2011 Canarc Resource Corp. optioned the property from Atna and Dunn, and carried out a soil geochemical and prospecting program. A program of, largely, infill soil geochemical sampling was carried out to better define historic anomalies and to assist in spotting drill holes. 327 soil samples were taken. Twelve Mobile Metal Ion samples were also taken with paired soil samples. All logging roads were prospected for new outcrops and eight foot traverses totaling approximately 25 km were carried out over newly acquired or unexplored areas of the claims. Fifty-two rock samples, one pan concentrate sample and one silt sample were taken (Dunn and Moors, 2011). Subsequently, in 2012 and 2013, Canarc purchased 100% of the property.

In 2014 Canarc conducted an initial diamond drilling program consisting of 1149 meters of drilling in 3 drill holes (Dunn and Moors, 2014). The program was successful and gold mineralization was encountered in each of the three holes. The best drill intercept was 28 meters of 0.89 g/t Au and 39 g/t Ag starting at 11 meters down the hole in drill hole WH-14-03.

In 2016, Canarc completed 25 line-km of Volterra 3D IP geophysics (Biles, 2016). The survey identified 4 areas with coincident chargeability and resistivity highs.

Table 2. Exploration History of the Windfall Hills area.

Year	Company	Work Completed
1981	Amax Exploration Ltd.	Reconnaissance mapping and sampling
1985	Asitka Resource Corporation	Rock and soil geochemical sampling
1986	Asitka Resource Corporation	78 meters of Winkie drilling in three holes
1988	Chalice Mining	Line cutting, geological and geochemical surveys, an IP geophysical survey and 358 meters of diamond drilling in five holes on the property
1993	Pioneer Metals Corp.	Soil geochemical program
1994	Pioneer Metals Corp.	6 trenches (424m), rock sampling; geochemical sampling, geological mapping
1997	Atna Resources	Soil geochemical survey, geological mapping; 44 line-km IP survey
2011	Canarc Resources	Soil sampling, MMI samples, rock samples, silt samples, pan concentrates
2014	Canarc Resources	1149 meters of drilling in 3 drill holes
2016	Canarc Resources	3D-IP Geophysics, 25 line-km
2018	Canarc Resources	Trench and test pit program; ridge-top soil sampling, prospecting, geophysics (Mag and radiometric)

5. Geology

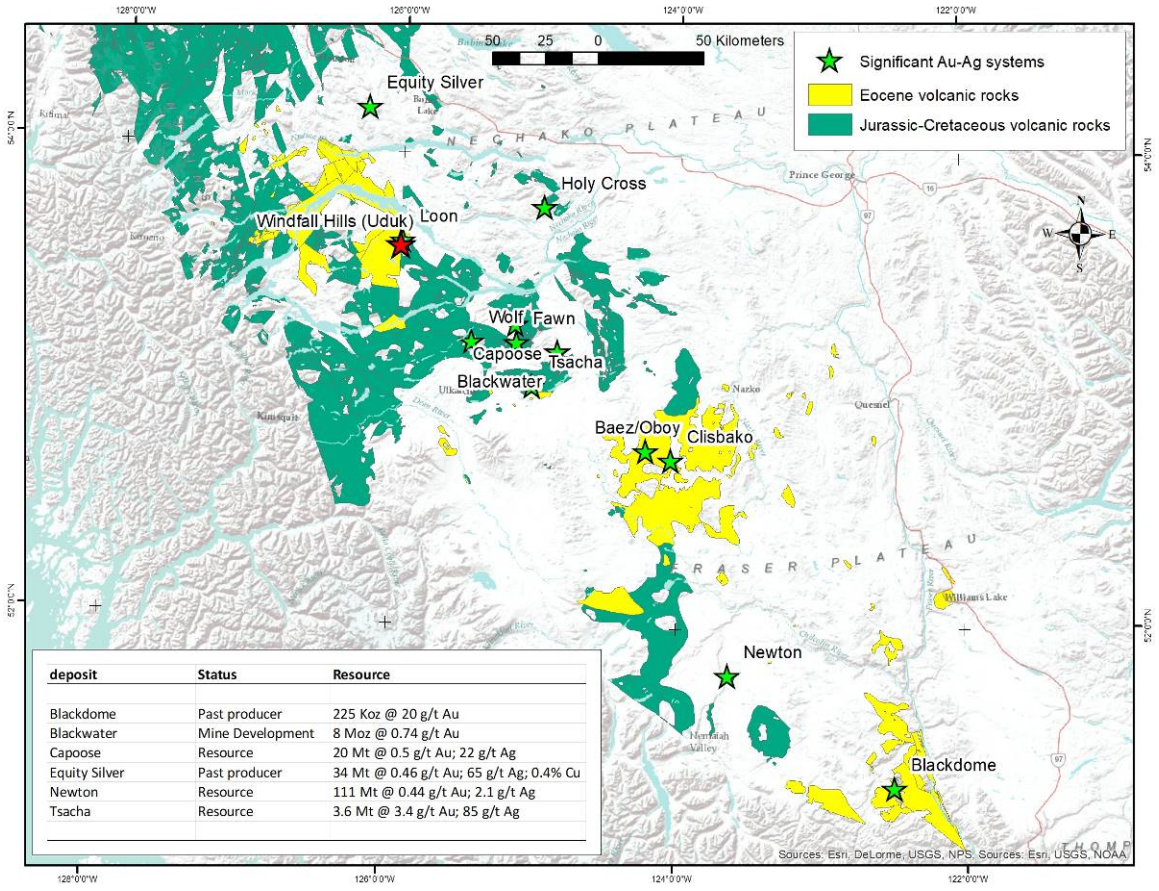
5.1 Regional Geology

The Windfall Hills gold prospect lies at the northwest end of a 400 km northwest-trending belt of low- to intermediate-sulfidation epithermal gold deposits from Houston to Clinton, Central BC (Fig. 3). The belt includes numerous prospects, past producing mines, and development projects. The recent discovery of Blackwater Davidson gold deposit (8 Moz Au; 2010 discovery date) highlights the regional potential. Past producing mines include Equity Silver and Blackdome.

Jurassic to Eocene volcanic and volcaniclastic sequences are the host rocks for mineralization in the Central Interior Plateau. The spectrum of mineralization styles in the belt includes the interpreted low-sulfidation epithermal gold style seen at Windfall Hills and Blackwater-Davidson, in addition to intermediate sulfidation, skarn/replacement and porphyry deposit types. Host rocks for known deposits are Hazelton Group (Jurassic) and Ootsa Lake Group (Eocene; Lane and Schroeter, 1997). Jurassic to Eocene intrusive rocks are interpreted to be the heat and fluid sources for gold systems in the region and many of the BC epithermal Au-Ag deposits occur in rhyolite lavas and breccias of the Eocene Ootsa Lake Group rocks (Bordet, 2014).

The oldest layered rocks in the region are Middle Jurassic Hazelton Group composed of clinopyroxene- and plagioclase-phyric basaltic and andesitic lava flows, volcanic breccia and conglomerate, undivided volcaniclastic rocks, rare hyaloclastite, and associated argillite and greywackes (Struick et al., 2007). This package has been intruded by Late Cretaceous to Tertiary granodiorite, quartz diorite and granite.

The Eocene Ootsa Lake volcanic package is composed predominantly of flow-banded, spheroidal rhyolite with quartz and biotite phyric phases (MacIntyre et al., 1994). The Ootsa Lake Group underlies the Windfall Hills property area. The rhyolites are intercalated with dacite breccia and clastic sedimentary rocks on the Windfall Hills property (see below). These rocks are intruded by granodiorite dikes and stocks.



deposit	Status	Resource
Blackdome	Past producer	225 Koz @ 20 g/t Au
Blackwater	Mine Development	8 Moz @ 0.74 g/t Au
Capoose	Resource	20 Mt @ 0.5 g/t Au; 22 g/t Ag
Equity Silver	Past producer	34 Mt @ 0.46 g/t Au; 65 g/t Ag; 0.4% Cu
Newton	Resource	111 Mt @ 0.44 g/t Au; 2.1 g/t Ag
Tsacha	Resource	3.6 Mt @ 3.4 g/t Au; 85 g/t Ag

Figure 3. Simplified regional geology map with major gold occurrences/deposits shown for the Jurassic to Eocene volcanic belt.

5.2 Property geology

The property geology is based on data compilation, and a site visit by AJW in 2017.

The Windfall Hills property is underlain by a sequence of mafic fragmental rocks, andesite-dacite breccia, rhyolite tuff, and rhyolite (coherent facies) assigned to the Ootsa Lake Group (Eocene). These units are interstratified within the layered sequence, with dominant rhyolite tuff and mafic fragmental units in the southeast, and dominant rhyolite and volcanic breccia in the northwest. A feldspar porphyry unit intrudes the layered rocks, and it may also be part of the layered sequence (flows or domes). The felsic volcanic sequence in drill core is divided into a lower dacite breccia and lapilli tuff sequence, and an upper rhyolite crystal tuff. Major northeast-trending topographic lows are interpreted as normal faults, which would be associated with the tilting of the the moderately-dipping rock panels (Fig. 4).

Felsic volcanic rocks in the sequence are host to the best known mineralization on the property. Lower sedimentary rocks (mafic fragmental) are largely barren. Key layered rock units are described below (from oldest to youngest):

Mafic fragmental sequence: Characterized by massive textures, dark matrix, and fine grain size (mudstone to fine-grained sandstone). No bedding was confidently measured in an outcrop exposure. A coarser polymictic conglomerate unit is interstratified with the more typical mudstone-sandstone facies, and has been observed in the drill core, as well as in subcrop. Lowest major stratigraphic unit identified in drilling and largely unmineralized.

Volcanic breccia sequence: Unit positioned above mafic sedimentary sequence in drilling and records a shift in depositional environment (subaqueous to subaerial). Relatively quartz-poor rock with andesite to dacite compositions and significant gold intervals encountered in drilling. This is a highly-variable rock unit with welded tuff and lapilli facies, coherent facies, and a wide variety of clast-to matrix-supported breccia styles.

Rhyolite tuff: Rhyolite tuff is significant gold host, characterized by quartz crystals (locally broken) and a clast-poor, feldspathic composition. Lesser coherent facies rhyolites with flow-banding are noted in outcrop, and flows or domes are the main rock unit mapped in north part of the property. Based on drilling, the coherent rhyolite and rhyolite tuff units appear to be interstratified.

These layered rocks are intruded by granodiorite intrusive dikes and stocks which are characterized by porphyrytic textures with holocrystalline groundmass, to more equigranular texture.

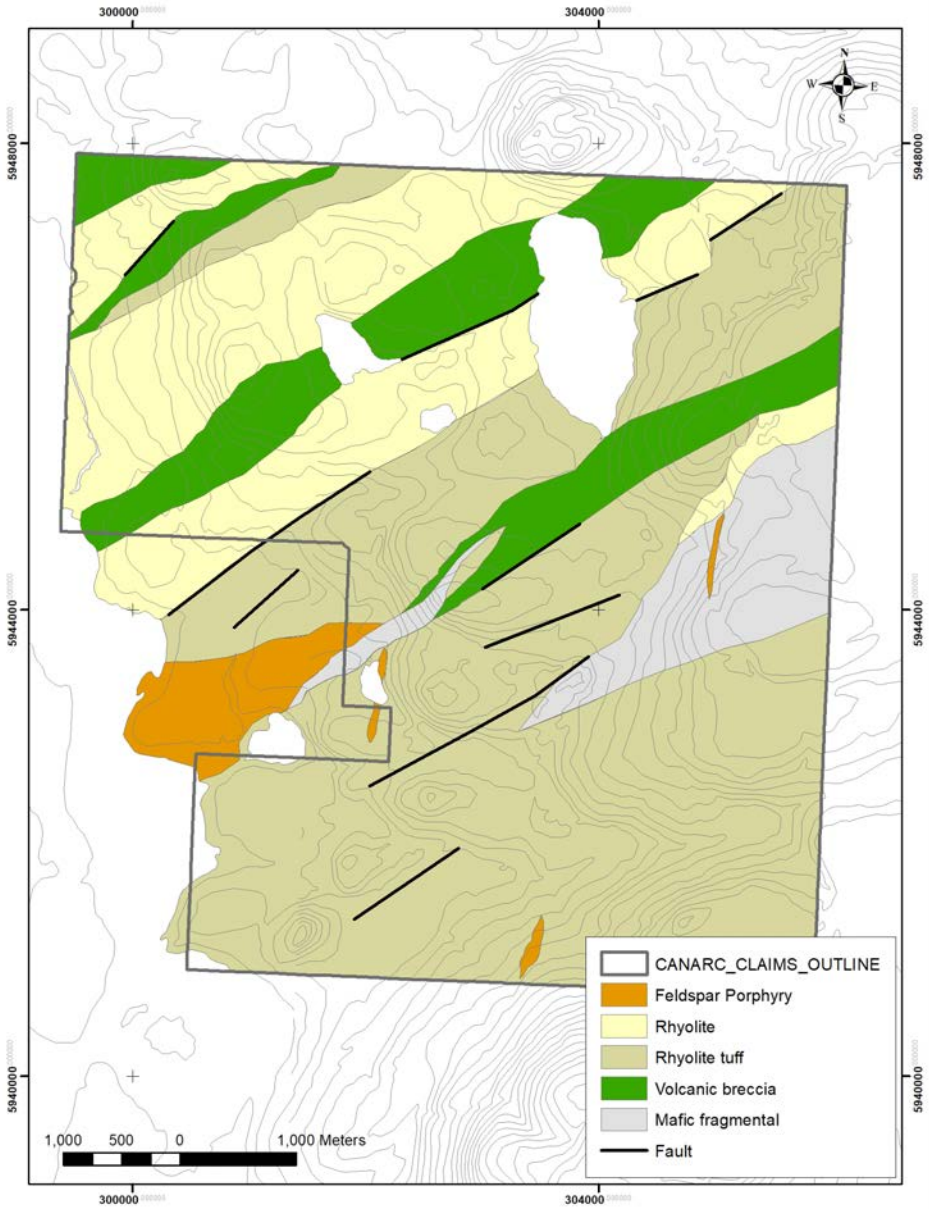


Figure 4. Simplified property geology map.

5.3 Property structural framework

Outcrop bedding data is limited. Data from drilling and historic mapping indicates that the layered rock units strike northeast, and dip both to the northwest and southeast. The contact between the two main rock units intersected in the 2014 drill holes has an apparent moderate westward dip.

Therefore, the rocks have been tilted, probably in two directions. Northeast-trending normal faults interpreted from the DEM corresponding to topographic lows are one interpretation for this geometry.

Gold zones detected in drilling appear to be subparallel to bedding; therefore there may be an element of stratigraphic control. Gold-fault relationships are not well-constrained, although there appears to be a spatial relation between damage zones and elevated gold in the historic drill core.

5.4 Post-mineralization cover

A veneer of glacial till covers the Windfall Hills property. Striations on outcrops indicate that some of the glacial activity was from south-west to northeast. The till thickness is not well constrained on the property, and can locally exceed 6m. Generally glacial till is thinner on ridges and hills. Subcrop can be found in these areas in the roots of fallen trees.

5.5 Alteration and Mineralization

Alteration

Several corridors of mapped alteration and mineralization are identified on the property. These are characterized by coincident argillic/silica alteration, quartz veining, and (oxidized) pyrite.

The known gold occurs as a spatial subset within broader areas of clay alteration. There is a spatial association between mapped alteration, quartz veins, quartz vein stockworks, (oxidized) sulfides, and the gold anomalies.

Clay and silica alteration are spatially associated with the gold mineralization and, in general, the clay alteration is more widespread than the more local silicified zones. The clay alteration is widespread through all of the rhyolite, rhyolite tuff, and volcanic breccia units, often associated with pyrite. The known gold mineralization sits within this footprint, in smaller intervals.

Mineralization

Pyrite is present in all mineralization stages, but pyrite content does not correlate directly with gold content. Maximum pyrite content is about 2% but overall it tends to be much lower, generally less than 0.5%. Oxidation is stronger in the top several meters of the drill holes; however sulfides persist even at shallow depth. Zones of silicification tend to better preserve the sulfides in the drill holes, and no correlation between oxide/sulfide facies and gold has been observed.

Veins and breccias

Weakly-developed colloform-banded chalcedony veins in addition to breccia zones (silica cement, and clay-silica altered clasts) are locally developed within major zones of clay alteration and pyrite. Veins and breccia cement are white, pale to dark grey with

grey zones possibly related to fine-grained sulfides. Historic core logs and 2017 re-logging indicate that the veins and breccia are spatially associated with gold intervals.

Damage zones and gold mineralization

Although faults are present throughout the drill core in all rock units, there is no direct correlation with gold. A significant fault associated with gold in WH-14-03 may correlate with a fault zone in WH-14-02, which would indicate a moderate- to shallow-dipping structure with an apparent northwest dip (nearly parallel to the apparent bedding in that cross-section). Fault gouge is associated with part of the best gold intercept in WH-14-03, but the entire fault zone is not mineralized, therefore a direct gold linkage is not well-established.

5.6 Target style

The main exploration targets at Windfall Hills are disseminated gold ore bodies associated with Tertiary rhyolite volcanism, similar the Round Mountain deposit in Nevada and the Blackwater Davidson deposit in BC. Structurally-controlled gold with similar alteration characteristics may also be present at Windfall Hills.

These deposits are low-sulfidation epithermal gold-silver deposits. Gold mineralization is associated with quartz breccia/stock-works and alteration zones of silica, pyrite, sericite and clay. Anomalous gold, silver, and arsenic values are typically associated with areas of more intense multiple-stage silicification and brecciation.

6. 2018 Exploration Program Overview

6.1 Purpose

The Canarc 2018 field exploration program had three key goals:

1. Determine the distribution of soil anomalies on ridge tops.
2. Use mechanized trenching to constrain the distribution and orientation of mineralization and alteration at the main showing.
3. Obtain airborne geophysical data to constrain geology and identify trends in the mineralization.

Airborne geophysics and soil/rock sampling were completed property-wide, and the trenches, test pits and till sampling were completed in the central (main) showing area (Fig. 5).

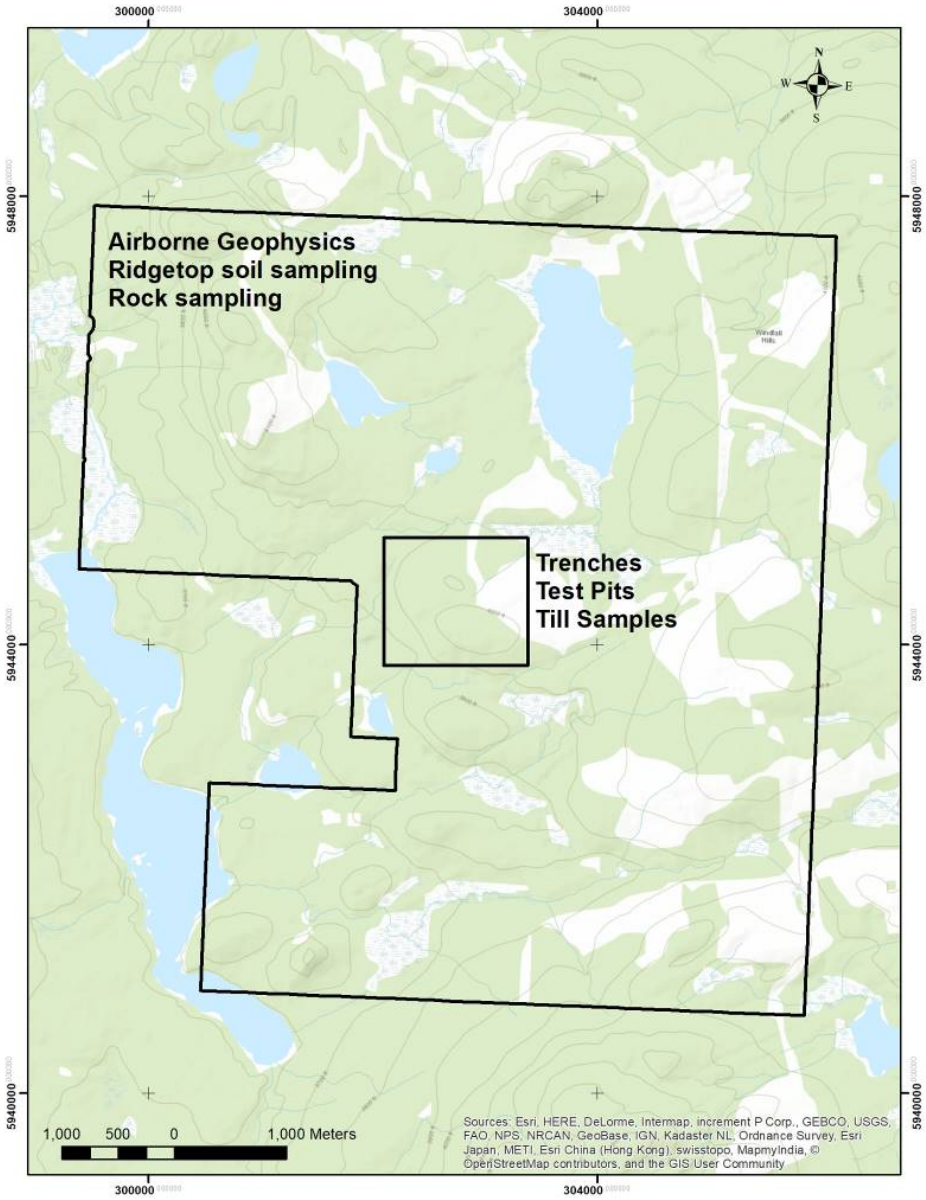


Figure 5. Outline of areas where the 2018 work program was completed at Windfall Hills.

6.2 Logistics, Personnel, Duration and Cost

Access to the property for field crews was done with a Bell 206 L4 Long Ranger helicopter provided by Westland Helicopters of Burns Lake. The base camp for the 2018 program was located in the privately owned lodge called the Takysie Resort. Furnished housing facilities were rented from the lodge and meals and other support were also provided by the lodge. Access to the lodge is by road and ferry from Burns Lake.

Contract geologists were sourced from Coast Mountain Geological of Vancouver BC. The exploration and support crew varied in number from 3 to 6 at various stages of the

project. The field components of the 2018 program commenced on September 28 and finished October 10, at which time the crew and equipment were demobilized.

The tabulated 2018 exploration cost for this project was $181,403. A statement of expenditures is provided in Appendix A.

6.3 Sample Collection, Analytical Procedures and QA/QC

The rock, soil and till sampling were completed by qualified and experienced personnel from Coast Mountain Geological Ltd. of Vancouver. Geological mapping and data compilation work was completed by Dr. Alan J. Wainwright, PhD PGeo, a consultant to Canarc.

Rock samples were typically collected as grab samples or representative composite chip samples using Estwing rock hammers. Trench sample locations were defined using a measuring tape and sample intervals marked with orange spray paint. In trenches and pits where no bedrock was encountered for sampling, till samples were collected using a rock hammer. Brown to grey clay and silt-rich till material was collected in these instances. The depth of sample in the trenches was typically 3m to 6m, and in some cases, material was collected by the excavator at the pit/trench base for retrieval and sampling by the geologist.

All samples were located using a handheld GPS unit and the location information recorded for each sample location. The samples were placed in clean plastic bags with a unique pre-numbered sample tag. The bags were further marked with the corresponding sample number using a permanent marker pen. For QA/QC, blank samples were systematically added in the field into the rock sampling string. Notes including a description of the geology and location of the sample were recorded in a field notebook.

Soil samples were taken with a Dutch Auger at a depth of between 10 and 75 cm. A "B" horizon was sampled (with typical moist, brown material). Approximately 0.5 kg samples were placed in kraft envelopes with the sample station number written in felt pen on the front of the envelope. A sample tag with the sample number was placed inside each bag. These samples were dried in the field, prior to shipment. Additionally, 10 soil horizon vertical profiles were completed at two sites near the trenching area for control. All soil samples were located using a handheld GPS unit and the location information recorded for each sample location, in addition to sample descriptions.

All samples were grouped into batches and shipped in rice bags directly to Bureau Veritas Mineral Laboratories in Vancouver, British Columbia. Sample preparation and analytical procedures at Bureau Veritas were as follows:

Rock samples:
Crush, split and pulverize 250g rock to 200 mesh (PRP70-250)
Fire assay fusion Au by ICP-ES 30g (FA330-Au)
4 Acid digestion ICP-MS analysis 0.25g (MA200)

Soil samples:
Dry at 60C (DY060)
Dry at 60C sieve 100g to -80 mesh (SS80)
1:1:1 Aqua Regia digestion Ultratrace ICP-MS analysis 15g (AQ251)

Till samples:
Dry at 60C sieve 100g to -230 mesh (SS230)
1:1:1 Aqua Regia digestion Ultratrace ICP-MS analysis 15g (AQ251)

Bureau Veritas analytical QA/QC protocols included the systematic insertion of standards, blanks and duplicates. Assay certificates are given in Appendix C.

6.4 Airborne Geophysics

For the purposes of this survey, airborne magnetic and radiometric data were collected to serve in geological mapping and exploration for mineral deposits. The geophysical survey was started on September 22, 2018, and completed on September 23, 2018. The Windfall Hills survey block covers a total area of 38.9 km^2. A detailed geophysical report is included in Appendix D.

The geophysical survey data, along with digital shape files describing geological, geochemical and drilling information was later provided to SJ Geophysics. 3D Induced Polarization data on the property, gathered by SJ Geophysics in September, 2016 was retrieved from archives. These data were used for additional interpretation of the geophysics.

7. 2018 Program Results

7.1 Trenching

A total of 7 trenches were planned for 2018 and a 200D John Deere excavator was used. Due to thick glacial till encountered, test pits were excavated instead of trenches in some instances. Trenching at Windfall Hills has provided an opportunity to review aspects of landscape geochemistry in part of the project area. Parent material for soils varies significantly over the trenching area including a combination of glacial and colluvial sources in addition to regolith. The transportation spectrum reflected in these sources indicates a mixture of vectors to source for geochemical anomalies in soil. In addition, some bedrock areas may be blind to conventional soil sampling methods. Modifications to earlier interpretation and targeting may result in new or upgraded targets from previous program data.

A total of 340m of trenching was completed, in addition to 15 test pits (Fig. 6). Most of the trenches and all of the pits yielded till at depths of 3 to 6m.

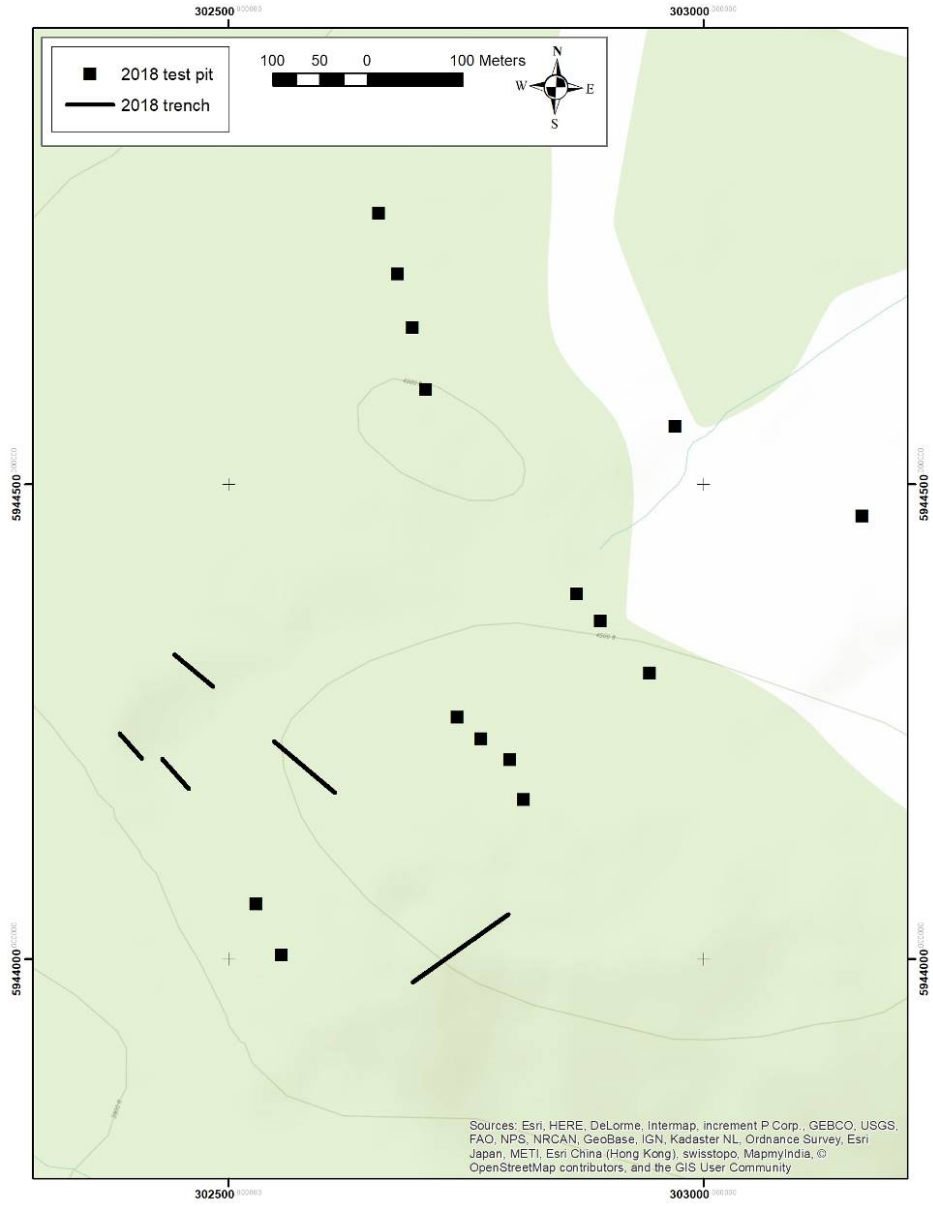


Figure 6. Map showing distribution of trenches and pits.

7.2 Rock sampling

A program of rock sampling was completed from outcrop and subcrop. The sampling sites were identified on logging road traverses and ridgetop traverses. In the limited exposures of subcrop yielded by the mechanized trenching, composite grab samples of angular float were collected.

123 rock samples were collected in total. Gold values ranged from below detection (<2 ppb) to 7195 ppb (average 123 ppb Au, using 1 ppb for "below-detection"). Rock sample distribution and gold grades are shown in Fig. 7, a table of rock sample coordinates and

descriptions is given in Table 3, and assay certificates are given in Appendix C. Detailed maps and analytical results for Au, Ag, As and Sb are shown in Appendix E.

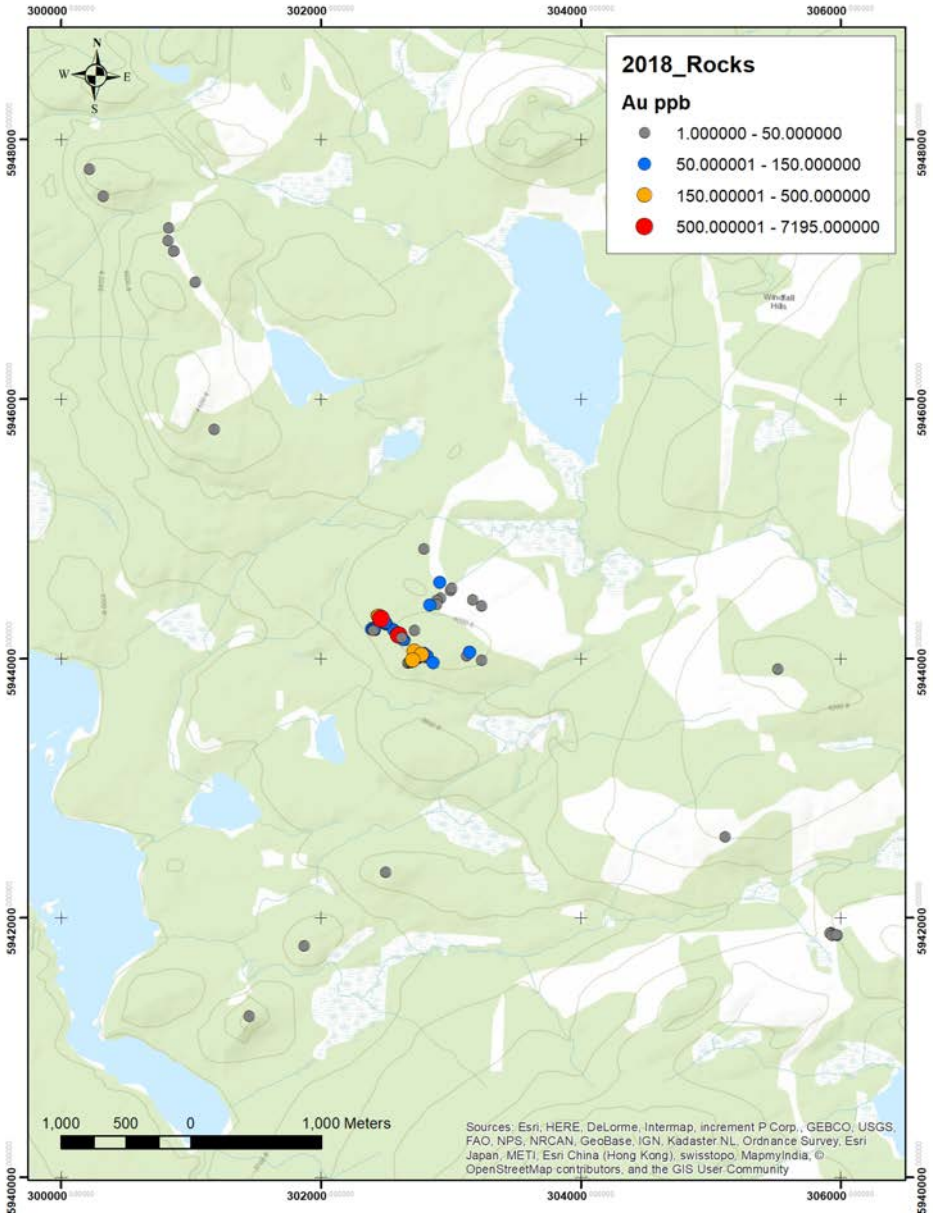


Figure 7. Map showing distribution of gold in rock sampling.

Table 3. Rock sample coordinates and descriptions.

SampleID	Sample Type	UTM Zone	Easting	Northing	Lithology	Sil (0-3)	Clay (0-3)	Ser (0-3)	QV %	Lim %	Hem %	Py %
1751651	chip	10	302794	5944044	Dacite pos Tuff	0	2	1	0	tr	0	0
1751652	chip	10	302794	5944041	Dacite pos Tuff	1	2	1?	0	tr	0	0
1751653	chip	10	302791	5944840	Dacite pos Tuff	1	2	?	0	1	0	0
1751654	chip	10	302787	5944034	Dacite pos Tuff	0	2	?	tr	1	0	tr
1751655	chip	10	302787	5944034	Dacite pos Tuff	0	2	?	tr	1	0	tr
1751656	chip	10	302782	5944038	Dacite pos Tuff	0	3	?	?	1	0	tr
1751657	chip	10	302779	5944036	Rhyolite Tuff?	0	3	?	?	tr	0	tr
1751658	chip	10	302775	5944032	Rhyolite Tuff	0	3	?	?	tr	0	0
1751659	grab	10	303167	5944447	Greywacke?	0	1	0	0	tr	0	0
1751660	grab	10	302424	5944330	Rhyolite Tuff	1	1	0	tr	0.5	0	0
1751661	grab	10	302999	5944522	Dacite pos Tuff or SS	0	0	0	0	0	0	0
1751662	grab	10	303238	5944403	Dacite pos Tuff	0	0	0	0	tr	0	0
1751663	grab	10	305926	5941888	Dacite	0	1	1?	0	0	0	0
1751664	grab	10	305918	5941884	Dacite fragmental	0	1	0	0	1	0	0
1751665	grab	10	305937	5941867	Dacite fragmental	1	0	0	0	tr	0	0
1751666	grab	10	305972	5941864	Maroon Tuff	0	0	0	0	0	4	0
1751667	grab	10	305965	5941868	Dacite?	1	1	0	tr	tr	0	0
1751668	grab	10	302915	5944585	Rhyolite Tuff	1	1	0	1	tr	0	0
1751669	chip	10	302779	5944036	Rhyolite Tuff	0	3	?	?	tr	0	tr
1751671	chip	10	302779	5944036	Rhyolite Tuff	0?	2	0	0	tr?	0	tr
1751672	chip	10	302777	5944032	Rhyolite Tuff	0?	2	0	0?	5	1	tr
1751673	composite	10	302775	5944031	Rhyolite Tuff	2	1	0	1?	3	3	tr
1751674	composite	10	302774	5944027	Rhyolite Tuff	2	2	?	1	1	0	tr
1751675	composite	10	302770	5944025	Rhyolite Tuff	3	0	0	1	1	tr	0
1751676	composite	10	302769	5944025	Rhyolite Tuff	2	1	0	tr	1	tr	tr
1751677	composite	10	302762	5944021	Rhyolite Tuff	2	1	1	1	tr	tr	0
1751678	composite	10	302760	5944020	Rhyolite Tuff	2	1	0	1	tr	tr	0
1751679	composite	10	302754	5944018	Rhyolite Tuff	2	1	0	1	tr	tr	tr
1751680	composite	10	302750	5944015	Rhyolite Tuff	2	1	0	1	tr	tr	0
1751682	composite	10	302745	5944007	Rhyolite Tuff	1	1	tr?	0	1	tr	1
1751683	composite	10	302736	5944004	Rhyolite Tuff	1	1	0	1?	tr	tr	1
1751685	composite	10	302734	5944002	Rhyolite Tuff	2	1	0	tr	tr	tr	tr
1751686	composite	10	302726	5943999	Rhyolite Tuff	2	2	tr	0	1	tr	tr
1751687	composite	10	302720	5943995	Rhyolite	2	1	tr	0	tr	tr	o
1751688	composite	10	302716	5943992	Rhyolite	3	0	0	1	1	0	0

1751689	grab	10	302709	5943986	?	3	0	0	1	2	0	tr
1751690	grab	10	302705	5943984	Rhyolite Tuff?	3	1	0	1?	2	1	tr
1751691	grab	10	302698	5943979	Rhyolite Tuff?	3	0	0	1	tr	2	0
1751692	grab	10	302719	5944057	Rhyolite Tuff	2	2	0	1	tr	tr	0
1751693	grab	10	302719	5944057	Rhyolite Tuff	1	3	0	1	1	1	0
1751695	grab	10	302709	5943986	Rhyolite Tuff	1	2	0	0	tr	tr	0
1751696	grab	10	302705	5943984	Rhyolite Tuff	2	1	0	0	tr	0	1
1751697	grab	10	302698	5943979	Rhyolite Tuff	1	1	0	0	tr	tr	0
1751698	composite	10	302745	5944011	Rhyolite Tuff	1	1	tr	1	2	tr	tr
1751699	grab	10	302719	5944057	Rhyolite Tuff	1	2	0	1?	tr	tr	0
1751601	Trench	10	302405	5944228	Dacite Breccia	2	2	1	1	3		0.25
1751602	Trench	10	302413	5944225	Rhyolite Breccia	1	2	0	2	5		0
1751603	Trench	10	302418	5944219	Rhyolite (coherent)	1	1	0	1	2		3
1751604	Trench	10	302720	5944217	Rhyolite Tuff	1	2	0	1	2		0.5
1751605	Trench	10	302604	5944186	Rhyolite Tuff	0	1	0	0	2		0
1751606	Trench	10	302599	5944184	Rhyolite Tuff	0	2	0	1	1	0.25	0.25
1751607	Trench	10	302599	5944192	Rhyolite Tuff	0	2	0	0	0.5	0.25	0
1751608	Trench	10	302597	5944192	Rhyolite Tuff	0	1	0	1	0.25		0
1751609	Trench	10	302593	5944199	Rhyolite Tuff	1	2	0	0	0.5		0
1751610	Trench	10	302588	5944201	Rhyolite Tuff	1	1	0	0	0.25		0
1751611	Trench	10	302585	5944202	Rhyolite Tuff	0	1	0	0	0.25	0.25	0
1751612	Trench	10	302581	5944205	Rhyolite Tuff	0	2	0	0	0.25		0
1751613	Trench	10	302579	5944211	Rhyolite Tuff	1	2	0	0	0.5		0
1751614	Trench	10	302573	5944211	Rhyolite Tuff	3	3	0	0	0.5		0
1751615	Trench	10	302571	5944214	Rhyolite Tuff	3	2	0	0	3		0
1751617	Trench	10	302563	5944222	Rhyolite Tuff	2	2	0	0	0.25		0
1751618	Trench	10	302559	5944223	Rhyolite Tuff	3	2	0	0	0.5	0.25	0
1751619	Trench	10	302557	5944225	Rhyolite Tuff	3	2	0	1	1		0
1751620	Trench	10	302555	5944227	Rhyolite Tuff	1	3	0	0	0.25		0
1751622	Trench	10	302500	5944271	Rhyolite Tuff	0	1	0	0	0.25		0.5
1751623	Trench	10	302496	5944275	Rhyolite Tuff	0	1	0	1	0.25		0.5
1751624	Trench	10	302495	5944278	Rhyolite Tuff	0	2	0	2	0.25		0
1751625	Trench	10	302492	5944282	Rhyolite Tuff	0	2	1	2	0.25		0
1751626	Trench	10	302488	5944285	Rhyolite Tuff	0	2	0	1	0.25		0
1751627	Trench	10	302487	5944290	Rhyolite Tuff	0	2	1	2	0.5		0.25
1751628	Trench	10	302485	5944292	Rhyolite Tuff	0	2	1	2	0.5		0
1751629	Trench	10	302480	5944293	Rhyolite Tuff	0	2	2	2	0.25		0
1751630	Trench	10	302477	5944296	Rhyolite Tuff	0	1	2	2	2		0
1751632	Trench	10	302470	5944303	Rhyolite Tuff	0	2	2	1	0.25		0
1751633	Trench	10	302462	5944310	Rhyolite Tuff	0	2	1	1	0.25		0
1751634	Trench	10	302453	5944316	Rhyolite Tuff	0	1	1	1	0.5		0
1751636	Trench	10	302611	5944175	Rhyolite Tuff	0	0	0	0	0.25		0

1751637	Trench	10	302618	5944168	Rhyolite Tuff	0	2	0	0	0.5	0.5	0.5
1751638	Trench	10	302624	5944162	Rhyolite Tuff	0	1	0	0	0.25	0.25	0.25
1751639	Trench	10	302630	5944156	Rhyolite Tuff	0	1	0	0	0.25		0.25
1751640	Trench	10	302635	5944152	Rhyolite Tuff	0	0	0	0	0.25		0.25
1751641	Trench	10	302641	5944147	Rhyolite Tuff	0	1	0	0	0.25		0.25
1751642	Trench	10	302647	5944141	Rhyolite Tuff	0	1	0	1	0.5		0.5
1751643	Trench	10	302817	5944020	Dacite?	0	3	0	0	2		
1751644	Trench	10	302817	5944020	brown/black clay	0	3	0	0	5		
1751645	Trench	10	302815	5944016	Brown/Black Clay	0	3	0	0	3		
1751646	Trench	10	302815	5944016	Brown/Black Clay	0	3	0	0	2		
1751647	Trench	10	302816	5944013	Rhyolite Tuff	1	2	0	1	1		
1751648	Trench	10	302823	5944008	Rhyolite Tuff	2	0	0				
1751649	Trench	10	302567	5944216	Rhyolite Tuff	3	2	0	0	0.25		0
1751650	Trench	10	302552	5944229	Rhyolite Tuff	2	2	0		0.025		0
1751701	Trench	10	302475	5944298	Rhyolite Tuff	2	1	2	1	1.5		0
1751702	Trench	10	302448	5944322	Rhyolite Tuff	0	1	2	0	0.5		0
1751703	Trench	10	302688	5943978	Rhyolite Tuff	2	1	0	1	0.25		0
1751704	Trench	10	302679	5943970	Rhyolite Tuff	2	1	0	1	0.25		2
1751706	Trench	10	302670	5943965	Rhyolite Tuff	0	1	0	0	0.25	0.25	0.25
1751851	Float	10	302389	5944232	Rhyolite Tuff	2	1	1	2	1		0
1751852	Float	10	302403	5944217	Rhyolite Breccia	1	2	0	1	2		0
1751853	Trench	10	302599	5944184	Rhyolite Tuff	3	0	0	3	5		2
1751854	Trench	10	302464	5944308	Rhyolite Tuff	3	0	0	3	3		0
1751855	Subcrop	10	301031	5946900	Rhyolite Tuff	0	0	0	0	0.25		0
1751856	Outcrop	10	300829	5947320	Dacite Tuff	0	0	0		0.5		0
1751857	Outcrop	10	300825	5947220	Dacite Coherent	0	0	0		0.25		0.5
1751858	Outcrop	10	300865	5947140	?	0	1	0	1	1		0.5
1751859	Outcrop	10	300865	5947140	Dacite Tuff	0	0	0	0	0.25		0
1751860	Outcrop	10	302890	5944445	Dacite Tuff	2	2	1	1	2		0
1751861	Outcrop	10	302890	5944416	Rhyolite Tuff	3	0	1	3	2		0
1751862	Outcrop	10	302839	5944409	Dacite?	3	2	1	3	3		2
1751863	Outcrop	10	303006	5944539	Greywacke	0	1	0	0	0		0
1751864	Outcrop	10	302920	5944463	Rhyolite Tuff	0	1	0	1	0		0
1751865	Outcrop	10	302863	5943972	Dacite Tuff	3	3	1	2	3		3
1751866	Outcrop	10	303146	5944053	Dacite Tuff	0	1	0	2	1		0
1751867	Outcrop	10	303237	5943988	Rhyolite Tuff	0	0	0	0	0.25		0
1751868	Float	10	305110	5942626	Dacite	3				2		7
1751869	Grab	10	302497	5942354	Dacite		2	1	2	1		
1751870	Grab	10	301871	5941785	Rhyolite Tuff		2		1	2		
1751871	Grab	10	301447	5941240	Rhyolite Tuff	1	2			3		
1751872	Grab	10	300216	5947772	Dacite	3	1			5		
1751873	Grab	10	300325	5947560	Dacite	3	1		2	5		

1751874	Comp Grab	10	303140	5944056	Dacite (coherent)	1	1				0.1
1751875	Comp Grab	10	303122	5944022	Dacite (coherent)	1	1				
1751876	Comp Grab	10	305517	5943918	Rhyolite Tuff	1	1		2		
1751877	Comp Grab	10	301179	5945766	Rhyolite Tuff		2	1	1		0.5
1751670	BLANK										
1751684	BLANK										
1751694	BLANK										
1751681	BLANK										
1751616	BLANK										
1751621	BLANK										
1751631	BLANK										
1751635	BLANK										
1751705	BLANK										

7.3 Soil sampling

A program of ridgetop soil sampling was completed, in addition to a small grid on the east side of the property. The program was designed to test the property for gold mineralization trends in the best possible sample medium (soil on ridge tops), as well as to test a rock geochemical anomaly identified in September 2017 (east grid area).

A total of 214 ridgetop soil samples were collected. Gold values range from below detection (<0.2 ppb Au) to 81 ppb (average 3 ppb Au; using 0.1 ppb for "below-detection"). Ten soil profile samples were also collected from 2 stations in the trenching area, with gold ranging from 0.5 to 441 ppb Au (average 79 ppb).

A map showing the distribution of gold in the ridgetop soil samples is given in Fig. 8. Ridgetop soil sample coordinates and descriptions are included in Table 4A, soil profile sample coordinates and descriptions are given in Table 4B, and assay certificates are given in Appendix C. Detailed maps and analytical results for Au, Ag, As and Sb are shown in Appendix E.

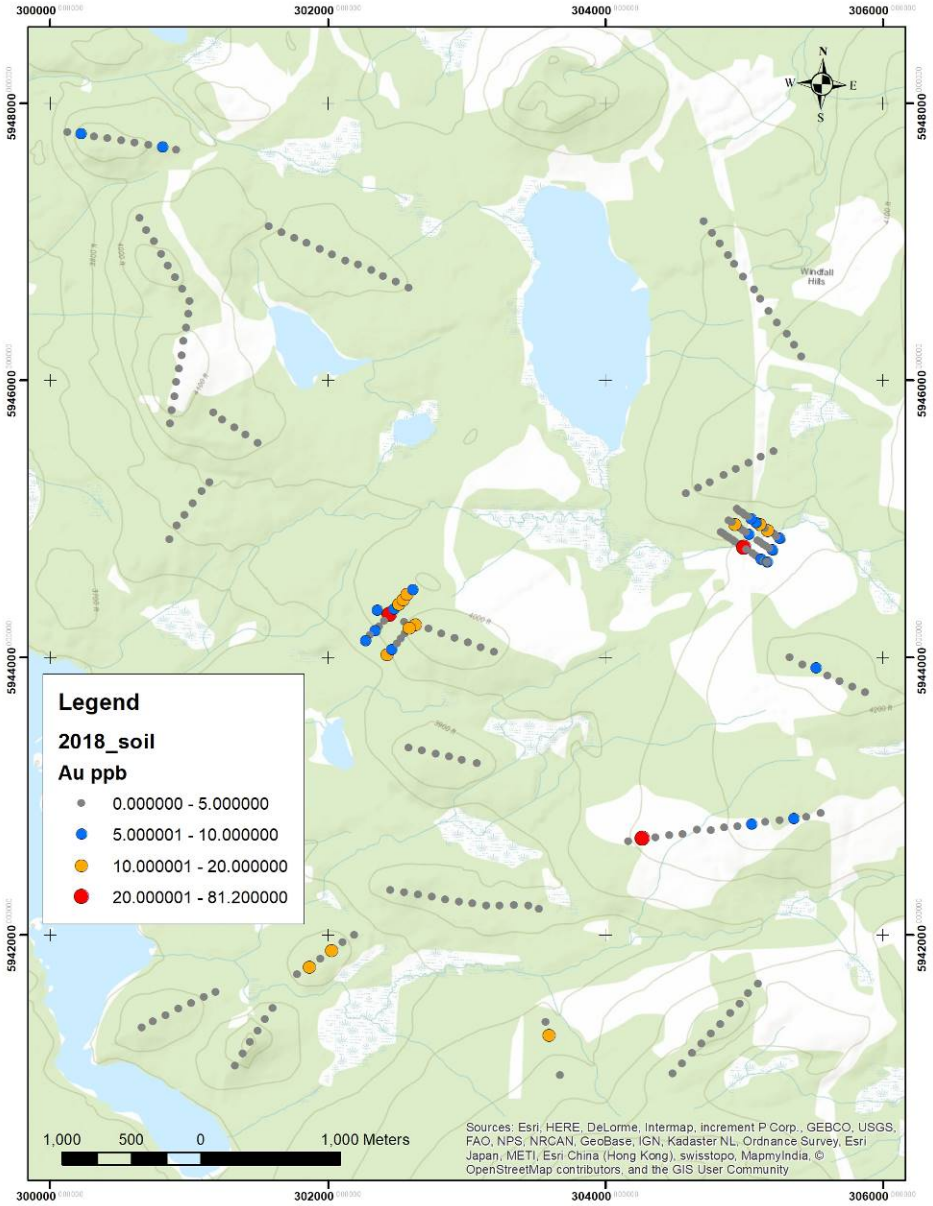


Figure 8. Map showing distribution of gold in ridgetop soil sampling.

Table 4A. Soil sample coordinates and descriptions.

Sample Number	UTM10_E	UTM10_N	Elevation	Soil Type	Horizon	Depth (cm)	Moisture	Color
JWL001	302356	5944341	1202	Podzol	B	15	Moist	Brown
JWL002	302445	5944310	1208	Podzol	B	15	Moist	Brown
JWL003	302554	5944260	1205	Podzol	B	10	Moist	Light Brown
JWL004	302635	5944240	1223	Podzol	B	10	Moist	Light Brown
JWL005	302729	5944209	1228	Podzol	B	20	Moist	Light Brown
JWL006	302823	5944172	1231	Podzol	B	40	Moist	Light Brown
JWL007	302919	5944143	1230	Podzol	B	10	Moist	Brown
JWL008	303015	5944110	1229	Podzol	B	10	Moist	Light Brown
JWL009	303105	5944074	1226	Podzol	B	10	Moist	Brown
JWL010	303200	5944042	1223	Podzol	B	10	Moist	Light Brown
JWL011	305554	5942879	1257	Podzol	B	40	Moist	Light Brown
JWL012	305452	5942851	1259	Podzol	B	25	Moist	Light Brown
JWL013	305359	5942840	1261	Podzol	B	45	Moist	Light Brown
JWL014	305258	5942827	1265	Podzol	B	50	Moist	Light Brown
JWL015	305156	5942814	1263	Podzol	B	20	Moist	Brown
JWL016	305057	5942799	1257	Podzol	B	35	Moist	Light Brown
JWL017	304957	5942780	1255	Podzol	B	15	Moist	Brown
JWL018	304859	5942773	1248	Podzol	B	15	Moist	Brown
JWL019	304763	5942755	1242	Podzol	B	20	Moist	Light Brown
JWL020	304663	5942759	1233	Podzol	B	45	Moist	Light Brown
JWL021	304562	5942728	1229	Podzol	B	20	Dry	Light Brown
JWL022	304466	5942717	1222	Podzol	B	20	Moist	Brown
JWL023	304366	5942703	1218	Podzol	B	15	Moist	Brown
JWL024	304267	5942695	1214	Podzol	B	25	Moist	Brown
JWL025	304170	5942673	1215	Podzol	B	20	Moist	Brown
JWL026	305106	5941647	1227	Podzol	B	20	Moist	Dark Brown
JWL027	305034	5941577	1238	Podzol	B	15	Moist	Light Brown
JWL028	304972	5941504	1248	Podzol	B	15	Moist	Brown
JWL029	304903	5941433	1260	Podzol	B	15	Moist	Brown
JWL030	304833	5941356	1265	Podzol	B	20	Moist	Brown
JWL031	304765	5941287	1264	Podzol	B	15	Moist	Light Brown
JWL032	304698	5941213	1256	Podzol	B	20	Moist	Brown
JWL033	304628	5941149	1251	Podzol	B	15	Moist	Brown
JWL034	304556	5941070	1252	Podzol	B	20	Moist	Light Brown
JWL035	304488	5940997	1261	Podzol	B	20	Moist	Light Brown
JWL036	303573	5941370	1116	Podzol	B	40	Moist	Light Brown
JWL037	303598	5941275	1136	Podzol	B	35	Moist	Light Brown

JWL038	303676	5940985	1168	Podzol	B	55	Moist	Dark Brown
JWL039	303524	5942185	1151	Podzol	B	35	Moist	Light Brown
JWL040	303449	5942210	1154	Podzol	B	40	Moist	Light Brown
JWL041	303346	5942214	1156	Podzol	B	30	Moist	Light Brown
JWL042	303242	5942211	1158	Podzol	B	15	Moist	Brown
JWL043	303146	5942211	1161	Podzol	B	15	Moist	Brown
JWL044	303047	5942225	1162	Podzol	B	15	Moist	Brown
JWL045	302949	5942237	1158	Podzol	B	50	Moist	Light Brown
JWL046	302849	5942255	1160	Podzol	B	40	Moist	Light Brown
JWL047	302753	5942273	1161	Podzol	B	20	Moist	Brown
JWL048	302654	5942292	1172	Podzol	B	45	Moist	Light Brown
JWL049	302553	5942305	1177	Regosol	B	20	Moist	Brown
JWL050	302452	5942323	1172	Podzol	B	20	Moist	Light Brown
JWL051	302194	5941999	1132	Podzol	B	40	Moist	Light Brown
JWL052	302111	5941945	1138	Podzol	B	20	Moist	Brown
JWL053	302029	5941888	1142	Podzol	B	20	Moist	Brown
JWL054	301950	5941829	1144	Regosol	B	25	Moist	Brown
JWL055	301869	5941769	1144	Podzol	B	20	Moist	Grey
JWL056	301782	5941714	1139	Regosol	B	15	Moist	Brown
JWL057	301607	5941469	1133	Gleysol	B	60	Moist	Grey
JWL058	301550	5941390	1150	Podzol	B	40	Moist	Light Brown
JWL059	301496	5941306	1175	Regosol	B	20	Moist	Brown
JWL060	301442	5941226	1191	Regosol	B	15	Moist	Brown
JWL061	302587	5946670	1211	Regosol	B	20	Moist	Brown
JWL062	302494	5946711	1221	Podzol	B	25	Moist	Light Brown
JWL063	302401	5946753	1226	Podzol	B	15	Moist	Brown
JWL064	302316	5946796	1228	Regosol	B	10	Moist	Dark Brown
JWL065	302222	5946837	1231	Regosol	B	15	Moist	Brown
JWL066	302129	5946865	1236	Podzol	B	15	Moist	Brown
JWL067	302035	5946910	1239	Podzol	B	40	Moist	Light Brown
JWL068	301946	5946950	1242	Podzol	B	20	Moist	Light Brown
JWL069	301852	5946992	1241	Podzol	B	40	Moist	Light Brown
JWL070	301761	5947030	1239	Podzol	B	20	Moist	Light Brown
JWL071	301670	5947069	1232	Podzol	B	20	Dry	Brown
JWL072	301578	5947112	1229	Podzol	B	20	Moist	Brown
JWL073	300909	5947665	1213	Podzol	B	15	Moist	Light Brown
JWL074	300810	5947682	1224	Podzol	B	20	Moist	Light Brown
JWL075	300712	5947700	1231	Podzol	B	25	Moist	Light Brown
JWL076	300612	5947716	1236	Podzol	B	25	Moist	Brown
JWL077	300513	5947733	1238	Regosol	B	10	Dry	Brown
JWL078	300416	5947749	1244	Podzol	B	25	Moist	Brown
JWL079	300317	5947759	1245	Podzol	B	15	Moist	Brown

JWL080	300221	5947781	1237	Regosol	B	10	Moist	Brown
JWL081	300126	5947794	1198	Regosol	B	20	Moist	Brown
JWL082	300646	5947173	1227	Podzol	B	25	Moist	Brown
JWL083	300696	5947086	1240	Podzol	B	30	Moist	Light Brown
JWL084	300750	5947003	1248	Gleysol	B	45	Dry	Grey
JWL085	300801	5946914	1257	Podzol	B	20	Moist	Brown
JWL086	300848	5946827	1257	Podzol	B	35	Dry	Brown
JWL087	300903	5946743	1256	Podzol	B	25	Moist	Light Brown
JWL088	300956	5946662	1247	Podzol	B	50	Moist	Grey
JWL089	301006	5946574	1240	Podzol	B	25	Moist	Brown
JWL090	304836	5944905	1226	Gleysol	B	40	Moist	Grey
JWL091	304857	5944893	1230	Podzol	B	25	Moist	Grey
JWL092	304878	5944878	1229	Podzol	B	35	Moist	Light Brown
JWL093	304897	5944866	1227	Podzol	B	30	Moist	Light Brown
JWL094	304920	5944850	1229	Podzol	B	70	Moist	Dark Brown
JWL095	304938	5944837	1233	Podzol	B	60	Moist	Dark Brown
JWL096	304959	5944821	1234	Podzol	B	20	Moist	Brown
JWL097	305001	5944795	1240	Podzol	B	25	Moist	Light Brown
JWL098	305021	5944782	1239	Podzol	B	25	Moist	Light Brown
JWL099	305064	5944752	1240	Podzol	B	35	Moist	Light Brown
JWL100	305084	5944739	1241	Podzol	B	20	Moist	Brown
JWL101	305106	5944724	1242	Podzol	B	25	Moist	Light Brown
JWL102	305126	5944709	1245	Podzol	B	20	Moist	Grey
JWL103	305146	5944698	1244	Podzol	A	75	Moist	Dark Brown
JWL104	305169	5944688	1245	Podzol	B	30	Moist	Brown
JWL105	305169	5944688	1245	Podzol	B	25	Moist	Brown
JWL106	305220	5944763	1246	Podzol	B	25	Moist	Brown
JWL107	305204	5944777	1243	Gleysol	B	30	Moist	Brown
JWL108	305183	5944789	1242	Podzol	B	50	Moist	Light Brown
JWL109	305161	5944804	1240	Podzol	B	45	Moist	Light Brown
JWL110	305141	5944818	1241	Podzol	B	40	Moist	Grey
JWL111	305121	5944833	1240	Podzol	B	35	Moist	Light Brown
JWL112	305102	5944846	1239	Podzol	B	30	Moist	Light Brown
JWL113	305037	5944889	1239	Podzol	B	30	Moist	Dark Brown
JWL114	305017	5944907	1240	Podzol	B	60	Moist	Light Brown
JWL115	304997	5944919	1239	Podzol	A	70	Moist	Dark Brown
JWL116	304975	5944935	1241	Podzol	B	50	Moist	Light Brown
JWL117	304956	5944948	1240	Podzol	B	45	Moist	Light Brown
JWL118	304937	5944961	1243	Podzol	B	45	Moist	Light Brown
JWL119	305605	5943871	1292	Podzol	B	20	Moist	Brown
JWL120	305693	5943830	1288	Podzol	B	20	Moist	Light Brown
JWL121	305786	5943789	1290	Podzol	B	20	Moist	Brown

JWL122	305876	5943749	1284	Podzol	B	25	Moist	Light Brown
JWL123	301391	5941142	1172	Regosol	B	15	Moist	Brown
JWL124	301332	5941056	1143	Regosol	B	20	Dry	Dark Brown
JWL125	300661	5941333	1139	Podzol	B	20	Moist	Brown
JWL126	300743	5941375	1141	Podzol	B	25	Moist	Brown
JWL127	300836	5941419	1140	Podzol	B	20	Moist	Brown
JWL128	300926	5941465	1138	Podzol	B	35	Moist	Brown
JWL129	301018	5941507	1130	Podzol	B	25	Moist	Brown
JWL130	301109	5941549	1123	Podzol	B	25	Moist	Brown
JWL131	301195	5941587	1119	Podzol	B	20	Moist	Brown
PDM001	302478	5944352	1216	Regosol	B	35	moist	Light Brown Orange
PDM002	302513	5944384	1215	Regosol	B	25	dry	Light Brown Grey
PDM003	302544	5944420	1215	Regosol	B	15	dry	Brown
PDM004	302572	5944460	1214	Podzol	B	35	moist	Grey Brown
PDM005	302612	5944491	1212	Podzol	B	30	moist	Grey Brown
PDM006	302409	5944266	1200	Podzol	B	30	dry	Brown
PDM007	302372	5944225	1191	Podzol	B	30	dry	Brown Grey
PDM008	302340	5944194	1180	Podzol	B	30	dry	Brown Grey
PDM009	302305	5944162	1173	Podzol	B	25	dry	Brown Orange
PDM010	302275	5944122	1161	Podzol	B	25	dry	Brown
PDM011	302429	5944023	1179	Podzol	B	25	dry	Brown
PDM012	302460	5944057	1186	Podzol	B	35	moist	Brown Grey
PDM013	302502	5944103	1198	Podzol	B	25	moist	Brown
PDM014	302528	5944136	1204	Podzol	B	35	moist	Brown Grey
PDM015	302557	5944172	1218	Podzol	B	20	moist	Brown
PDM016	302590	5944214	1224	Podzol	B	15	dry	Brown Orange
PDM017	302587	5943350	1199	Gleysol	B	35	moist	Brown
PDM018	302683	5943329	1200	Gleysol	B	40	moist	Brown
PDM019	302783	5943305	1196	Podzol	B	30	dry	Brown Orange
PDM020	302875	5943286	1193	Podzol	B	20	dry	Brown Orange
PDM021	302970	5943260	1192	Podzol	B	20	dry	Brown Orange
PDM022	303076	5943236	1183	Podzol	B	20	dry	Brown Orange
PDM023	304712	5947148	1227	Gleysol	B	45	wet	Grey Brown
PDM024	304771	5947064	1231	Podzol	B	25	moist	Grey Brown Light Orange
PDM025	304830	5946988	1232	Podzol	B	15	moist	Brown Orange
PDM026	304887	5946906	1230	Gleysol	B	20	moist	Grey
PDM027	304933	5946842	1231	Podzol	B	15	moist	Brown Orange
PDM028	304998	5946748	1229	Podzol	B	10	dry	Brown Orange
PDM029	305076	5946658	1230	Podzol	B	15	dry	Brown Orange
PDM030	305121	5946589	1231	Podzol	B	20	dry	Brown Orange
PDM031	305181	5946501	1239	Gleysol	C	40	moist	Grey
PDM032	305241	5946418	1251	Gleysol	C	25	moist	Grey

PDM033	305313	5946337	1261	Gleysol	C	20	moist	Grey
PDM034	305366	5946255	1268	Gleysol	C	20	moist	Grey
PDM035	305416	5946173	1274	Podzol	B	15	dry	Brown Orange
PDM036	305215	5945488	1265	Podzol	B	15	dry	Brown Orange
PDM037	305124	5945450	1267	Podzol	B	20	dry	Brown Orange
PDM038	305037	5945404	1267	Podzol	B	20	dry	Brown Orange
PDM039	304945	5945363	1266	Podzol	B	15	dry	Brown Orange
PDM040	304856	5945319	1264	Podzol	B	20	dry	Brown Grey
PDM041	304758	5945264	1260	Podzol	B	20	dry	Brown
PDM042	304674	5945225	1251	Podzol	B	20	moist	Brown
PDM043	304585	5945187	1233	???	B	35	dry	Brown
PDM044	305333	5944001	1273	Podzol	B	15	dry	Brown Orange
PDM045	305423	5943950	1286	Podzol	B	10	dry	Brown Orange
PDM046	305522	5943924	1293	Regosol	B	10	dry	Brown Orange
PDM047	300862	5944855	1150	Podzol	B	10	dry	Brown Orange
PDM048	300915	5944952	1160	Podzol	B	10	dry	Brown Orange
PDM049	300969	5945031	1173	Podzol	B	10	dry	Brown Orange
PDM050	301032	5945115	1180	Podzol	B	10	moist	Brown
PDM051	301093	5945200	1183	Podzol	B	10	dry	Brown Grey
PDM052	301152	5945266	1188	Podzol	B	10	moist	Brown Grey
PDM053	301497	5945549	1228	Podzol	B	15	moist	Brown
PDM054	301409	5945609	1234	Podzol	B	15	moist	Brown
PDM055	301329	5945661	1235	Podzol	B	15	moist	Brown
PDM056	301242	5945716	1240	Podzol	B	10	dry	Brown Orange
PDM057	301176	5945771	1238	Regosol	B	10	dry	Brown Orange
PDM058	300864	5945689	1234	Regosol	B	10	dry	Brown
PDM059	300878	5945786	1252	Regosol	B	30	dry	Brown Orange
PDM060	300898	5945884	1262	Regosol	B	10	dry	Brown Orange
PDM061	300911	5945987	1269	Podzol	B	15	dry	Brown Orange
PDM062	300931	5946086	1263	Podzol	B	15	dry	Brown Orange
PDM063	300949	5946180	1267	Podzol	B	10	dry	Brown
PDM064	300962	5946283	1259	Podzol	B	10	dry	Brown
PDM065	300980	5946380	1239	Podzol	B	15	dry	Brown
PDM066	301000	5946481	1228	Podzol	B	15	dry	Brown Grey
PDM067	305278	5944848	1249	Podzol	B	15	dry	Brown
PDM068	305258	5944861	1244	Podzol	B	15	dry	Brown Grey
PDM069	305238	5944875	1243	Podzol	B	10	moist	Brown
PDM070	305219	5944893	1239	Podzol	B	15	dry	Brown
PDM071	305174	5944918	1241	Podzol	B	10	moist	Brown Grey
PDM072	305153	5944935	1244	Podzol	B	15	moist	Brown Grey
PDM073	305132	5944945	1242	Podzol	B	15	moist	Brown Grey
PDM074	305116	5944962	1243	Podzol	B	15	dry	Brown Grey

PDM075	305088	5944973	1242	Podzol	B	15	dry	Brown black
PDM076	305051	5945003	1242	Podzol	B	25	moist	Brown Grey
PDM077	305033	5945017	1241	Podzol	B	20	moist	black Grey
PDM078	305008	5945031	1241	Podzol	B	15	moist	Brown Grey
PDM079	304991	5945044	1243	Podzol	B	20	moist	Brown Grey
PDM080	304968	5945059	1243	Podzol	B	10	moist	Brown Grey
PDM081	304951	5945072	1245	Podzol	B	15	moist	Brown Grey
PDM082	304891	5944989	1239	Podzol	B	15	moist	Brown Grey
PDM083	304916	5944975	1240	Podzol	B	25	moist	Brown Grey

Table 4B. Soil profile sample coordinates and descriptions.

Sample Number	UTM10_E	UTM10_N	Elevation	Soil Type	Horizon	Depth	Moisture	Color
SP-TR2-02	302484	5944291		Podzol	B-middle	20-40	DRY	brown orange
SP-TR2-01	302484	5944291		Podzol	B-upper	0-20	DRY	brown orange
SP-TR5-02	302970	5944557		Podzol	B Lower	20-30	dry	light brown grey orange
SP-TR2-03	302484	5944291		Podzol	B-lower	40-60	DRY	lighter brown orange
SP-TR5-04	302970	5944557		Podzol	C	50-70	moist	dark brown
SP-TR5-03	302970	5944557		Podzol	C	30-50	dry	brown
SP-TR5-01	302970	5944557		Podzol	B	0-20	dry	brown orange
SP-TR2-04	302484	5944291		Podzol	C	60-80	DRY	grey orange
SP-TR2-05	302484	5944291		Podzol	C	80-100	DRY	grey orange
SP-TR2-06	302484	5944291		Podzol	C/R	100-120	DRY	grey orange

7.4 Till sampling

Till samples were collected in the trench intervals where no bedrock or float was obtained, as well as in the test pits (Fig. 9). Gold values range from 2.7 ppb to 24.9 ppb Au (average 10.7 ppb Au). The sample coordinates and descriptions are summarized in Table 5, and assay certificates are given in Appendix C. Detailed maps and analytical results for Au, Ag, As and Sb are shown in Appendix E.

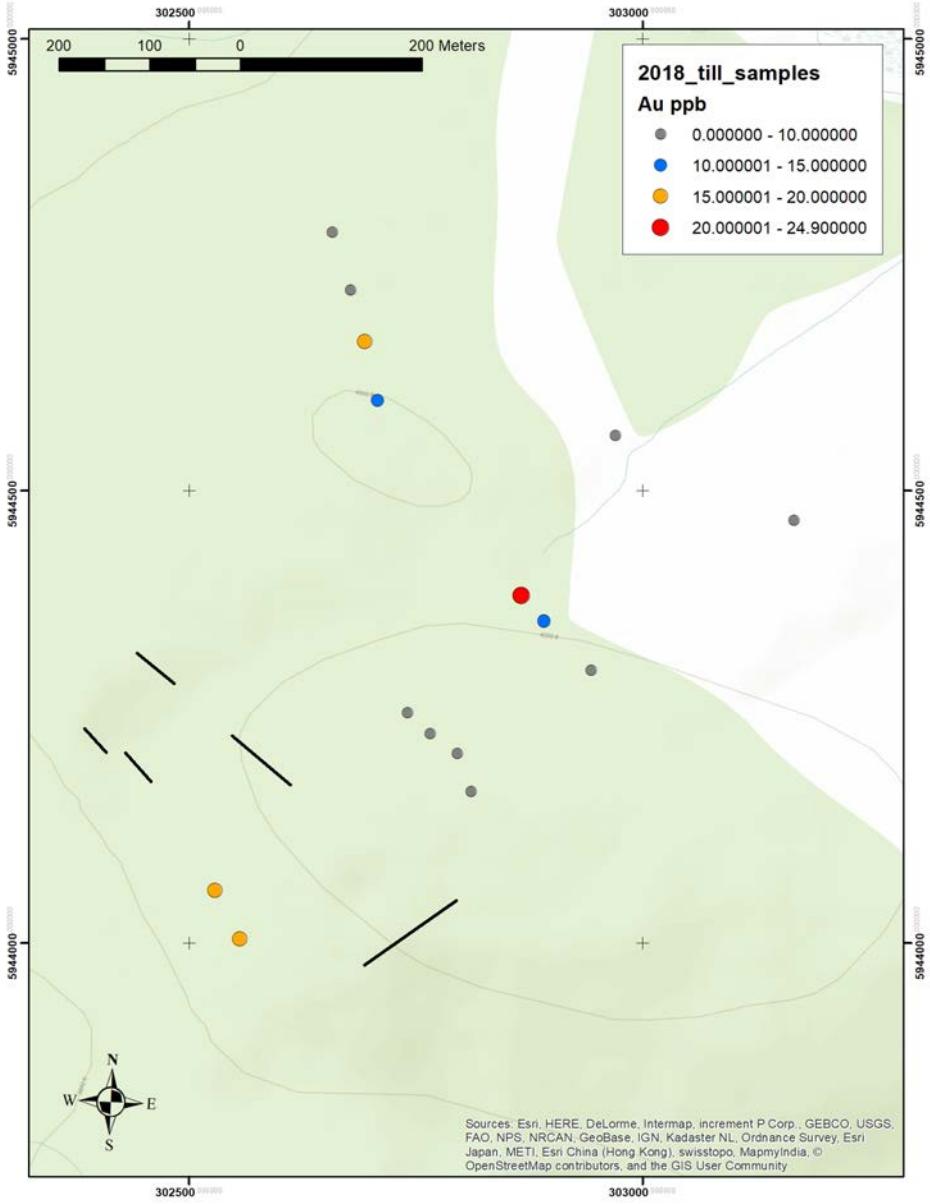


Figure 9. Map showing distribution of gold in till samples.

Table 5. Till sample coordinates and descriptions.

Date	Sampler	UTM10 E	UTM10 N	Elevation	Media	Depth (cm)	Moisture	Colour	Pct Cobble	Pct Gravel	Pct Sand	Pct Silt	Pct Clay	Cover	Comments
2018-09-28	SEB	302529	5944058	1194	Till	210	wet	Brown/Grey	5			70	25	Clearcut	clay with wub-angular to sub-rounded 1mm to 30cm wide, lithic polymictic component
2018-09-28	SEB	302556	5944004	1192	Till	190		Grey	5			75	20	Clearcut	angular to sub-rounded polymictic lithics.
2018-09-28	JCH	302796	5944210	1228	Till	610	moist	Medium Grey	7	8	20	25	40	Clearcut	massive clay similar in colour (to unit above) changing to brownish medium grey. Fewer cobbles. Gets greyer with depth and clay content increases. Cobble and gravel decreases with depth.
2018-09-28	JCH	302766	5944232	1228	Till	460	moist	Medium Grey	7	8	20	25	40	Clearcut	Similar to T3.1, also grades from light greyish brown to medium grey with greater clay compnent at depth.
2018-09-28	JCH	302741	5944255	1228	Till	520	moist	Light Grey	5	10	15	20	50	Disturnbed surface clearcut	Grey to slightly brownish clay dominant.
2018-09-28	JCH	302811	5944168	1236	Till	610	wet	Light Brown	5	5	5	35	50	Clearcut	No visible B or C development above till. Uniform light greyish brown till with evenly spaced rounded cobbles of known local units and some more travelled ones. Cobbles are well rounded. Distinct trend of increase in brown colouration across thest pits from (grey) T3.3-T3.2-T3.1-T3.4 (lt brown). Very bottom of pit is wetter and more sandy.
2018-10-02	SEB	302943	5944302	1219	Till	290	wet	Brown	10			50	40	Clearcut	2.9m deep, weak A-developed 0-5cm, B 5-10cm, Glacial till to bottom of trench, possible C development to 35cm. Sample taken from 290cm, dark brown, 10% <10cm, sub-rounded polymictic rock, minor sub-angular rhyolite, minor black organic (wood) at depth. Clay rich. 50% silt, 40% clay.
2018-10-02	SEB	302891	5944356	1219	Till	290	wet	Dark Brown	10			50	40	Clearcut	test pit dug to 2.9m, weak A 0-5cm, well-developed B 5-15cm, C is light grey from 15 to ~35cm. From 35 to 290 cm glacial till, rare 5cm to 30cm boulders, sampled material is dark brown, clay rich, 5-10% sub-rounded polymictic lithics.
2018-10-02	SEB	302866	5944385	1216	Till	330	wet	Grey	5			70	25	Clearcut	Weak A 0-10cm, possible brown B 10-20cm beneath which is a transition from 20-50cm from brown soil to dark brown clay rich glacial till. Sample material: 5-10% sub-rounded, polymictic 1mm to 1cm wide lithic in a dark grey soil with less clay than previous smaples.
2010-10-02	JCH	303167	5944467	1209	Till	310	moist	Light Brown	5	5	10	20	60	Edge of clearcut	Fairly undifferentiated till to bottom. Increasingly clay dominant with depth. Quite a few rhyolite, angular fragments. Bigger boulder at about 310cm but could not get a decent sample off rounded face.
2010-10-02	JCH	302970	5944561	1211	Till	460	moist	Medium Grey	3	12	10	20	55	Clearcut replanted	Clayey brown till with some cobble size fragments. Quite crumbly when dry - more silt that estimated(?).
2010-10-02	JCH	302658	5944786	1211	Till	460	moist	Medium Grey	10	5	15	15	55	Clearcut replanted	Medium brownish grey, but not the same as the lacustrine till seen in T1.
2010-10-02	JCH	302678	5944722	1211	Till	460	moist	Light Brown	10	5	15	15	55	Clearcut replanted	Similar to T7.1, but tougher (to dig) and stickier. Increase in rhy cobbles but mixed with rounded cobbles. Slightly more orange brown colour (subtle).
2010-10-02	JCH	302694	5944665	1213	Till	520	moist	Light Brown	10	15	10	15	50	Clearcut replanted	Increase in angular rhylite fragments, but still mixed with well rounde dark grey cobbles. Light brown, very sticky.
2010-10-02	JCH	302708	5944600	1216	Till	520	moist	Light Brown	15	5	10	15	55	Clearcut replanted	Increase in cobble and gravel with larger cobbles rounded and smaller more angular. One quite large rusty boulder of rhyolite.

7.5 Airborne Geophysics (from Poon and Walker, 2018)

A total of 470 line km of magnetic and radiometric data were collected on 70 survey lines and 13 tie lines at Windfall Hills. The survey block was flown at 100 meter spacing at a heading of 092°/272°; tie lines were flown at 500 meter spacings at a heading of 002°/182°. The geodetic system used for the geophysical survey was WGS 84 in UTM Zone 10N. Actual distances flown exceeded planned distances due to retained marginal line segments outside of the survey boundary and seven additional tie lines being flown to increase tie line density from 1000 m to 500 m.

A contoured map for Total Magnetic Intensity is shown in Fig. 10, and a Total Count Radiometric map is shown in Fig. 11. A logistical report for the geophysical survey is given in Appendix D.

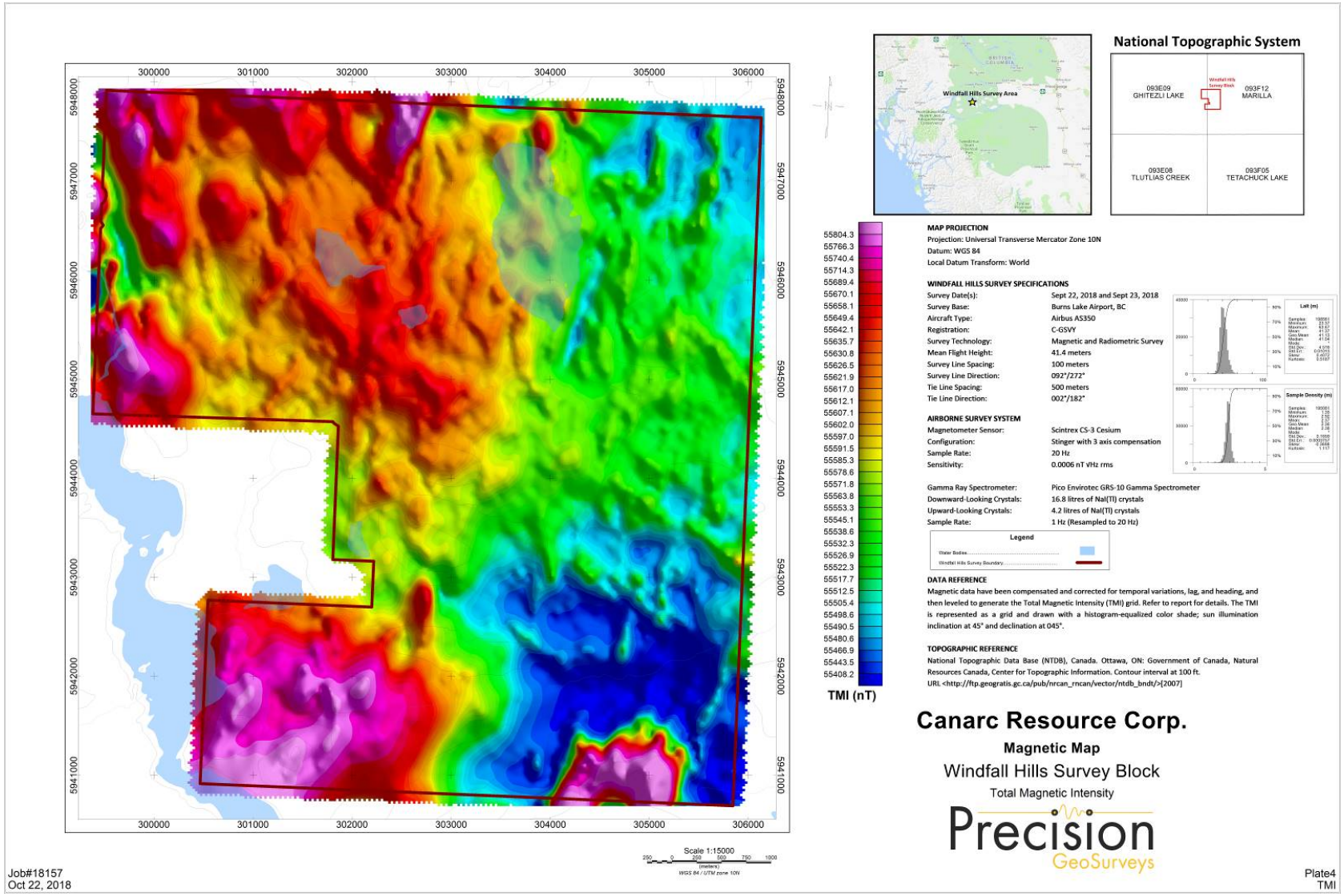


Figure 10. Total Magnetic Intensity map.

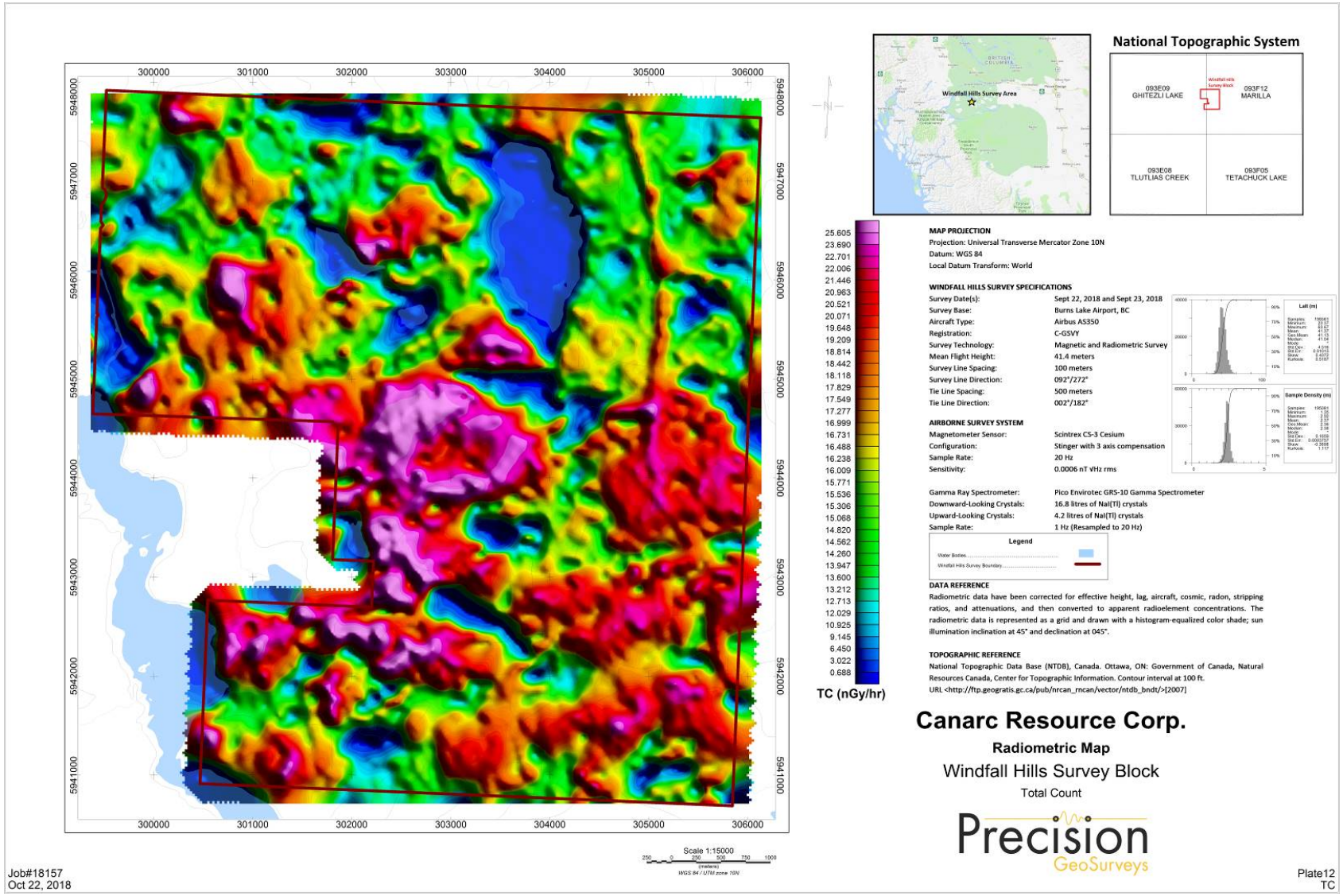


Figure 11. Total count radiometric map.

8.0 Conclusions and Recommendations

The 2018 was successful in building an understanding of the distribution of till, and extending the known distribution of geochemical anomalies in subcrop and ridgetop soil sampling. Thus the ability for future programs to further delineate gold mineralization in drilling will be improved. The following are the main conlcusions reached by the program:

1. The extent and depth of till cover was greater than expected. Historic soil sample data needs to be used with caution.
2. Ridgetop soil geochemistry highlights a number of possible orientations for structurally controlled gold.
3. The orientations of the known gold zone tested by 2014 drilling are further constrained.

The following are recommended for subsequent exploration programs at Windfall Hills:

1. Use the magnetic and radiometric data to update the geological map for the property.
2. Use the geophysical data to constrain A) orientation and extent of possible gold bearing structures associated with historic drilling, and B) new ridgetop soil and subcrop rock anomalies.
3. Use the geophysical data to constrain the shape and extent of a possible disseminated gold target associated with the location of the historic drilling.
4. Consider the use of a till survey and gold grain shape analysis to evaluate the property.
5. Use track-mounted rotary air blast (RAB) or possibly reverse-circulation (RC) drilling as a means to test targets below till cover.

9.0 References

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APPENDIX A: STATEMENT OF EXPENDITURES					
Exploration Work type	Comment	Days			Totals
Personnel (Name)* / Position	Field Days (list actual days)	Days	Rate	Subtotal*	
J Harrop		15.25	$850.00	$12,962.50	
S Bartlett		13	$450.00	$5,850.00	
J Lewis		8	$450.00	$3,600.00	
P McLaughlin		8	$450.00	$3,600.00	
Alan Wainwright		6.5	$950.00	$6,175.00	
G.Biles		2	$1,000.00	$2,000.00	
				$34,187.50	$34,187.50
Office Studies	List Personnel (note - Office only, do not include field days				
Literature search	Prepare Caribou Management Plan	1.0	$5,000.00	$5,000.00	
Database compilation	J Harrop & Alan Wainwright	4.4	$850	$3,740.00	
Computer modelling			$0.00	$0.00	
Reprocessing of data	SJV Consultants - Trent Pezzot	8.8	$ 1,236	$10,815.00	
General research			$0.00	$0.00	
Report preparation	Alan Wainwright-	10.0	$850	$8,500.00	
Other (specify)	G.Biles - Canarc Project Management	10.0	$1,000	$10,000.00	
				$38,055.00	$38,055.00
Airborne Exploration Surveys	Line Kilometres / Enter total invoiced amount				
Aeromagnetics		421.0	$71.26	$30,000.00	
Other (specify)	Mobilization	1.0	$4,000.00	$4,000.00	
				$34,000.00	$34,000.00
Geochemical Surveying	Number of Samples	No.	Rate	Subtotal	
Soil	*note: This is for assays or*	239	$23.71	$5,666.14	
Rock	*laboratory costs*	132.0	$40.16	$5,301.18	
				$10,967.32	$10,967.32
Other Operations	Clarify	No.	Rate	Subtotal	
Trenching	excavator Hours	74.5	132	$9,834.00	
Other (specify)	Mobilization / Demobilization	10.5	$130.00	$1,365.00	
				$11,199.00	$11,199.00
Transportation		No.	Rate	Subtotal	
Airfare	Coast Mountain Crew	1.00	$3,723.52	$3,723.52	
Airfare	Alan Wainwright & G Biles	1.00	$2,248.00	$2,248.00	
Taxi	Vancouver - A Wainwright & G Biles	2.00	$88.50	$177.00	
truck rental		1.00	$255.37	$255.37	
fuel	Rental Vehicle Gas	1.00	$83.83	$83.83	
Helicopter (hours)		13.6	$1,500.00	$20,400.00	
Fuel (litres/hour)			$0.00	$0.00	
Other	Meals& Fuel etc MOB & DEMOB CMG Crew	1.00	$1,684.33	$1,684.33	
				$28,572.05	$28,572.05
Accommodation & Food	Rates per day	No.	Rate	Subtotal	
Hotel	Takyse Lake Lodge -per day	11.0	$216.00	$2,376.00	
Hotel		1.0	$376.92	$376.92	
Camp			$0.00	$0.00	
Meals	actual costs		$0.00	$2,268.15	
				$5,021.07	$5,021.07
Miscellaneous					
Telephone		1.00	$382.00	$382.00	
Other (Specify)	Maps	1.00	$420.00	$420.00	
Other (Specify)	Canarc Administration		10%	$16,945.72	
				$17,747.72	$17,747.72
Equipment Rentals					
Field Gear (Specify)	$40/Manday	40.00	$15.00	$600.00	
Other (Specify)	Field Supplies	1.00	$551.18	$551.18	
				$1,151.18	$1,151.18
Freight, rock samples					
		1.0	$502.00	$502.00	
			$0.00	$0.00	
				$502.00	$502.00
TOTAL Expenditures					$181,402.84

APPENDIX B: STATEMENT OF QUALIFICATIONS

I, **Alan John Wainwright**, hereby certify that:

1. I am a consulting mineral exploration geologist at 83 E 16th Avenue, Vancouver BC, V5T 2T1.
2. I am a graduate of McGill University (B.Sc., 2000), University of Toronto (M.Sc., 2003) and The University of British Columbia (Ph.D., 2008), all in geology. I have been involved in mineral exploration since 1999.
3. I am a Professional Geoscientist of the Engineers and Geoscientists British Columbia, Registration #33841.
4. I am the author of this report on the Windfall Hills Property. The report is based on fieldwork conducted in September 2017 and September 2018, and on publicly-available assessment reports.
5. I am not aware of any material fact or material change with respect to the subject matter of this technical report, which is not reflected in the technical report.
6. I have had direct involvement with the exploration programs conducted on the area discussed in this report. I am familiar with epithermal gold deposit models and have experience writing assessment reports and conducting evaluations of mineral properties.

"Alan J. Wainwright, PhD PGeo"

APPENDIX C: ASSAY CERTIFICATES

Assay certificates from Bureau Veritas.

BUREAU VERITAS MINERAL LABORATORIES Canada

www.bureauveritas.com/um

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

Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Submitted By: Garry Biles
Receiving Lab: Canada-Vancouver
Received: October 09, 2018
Report Date: November 13, 2018
Page: 1 of 6

CERTIFICATE OF ANALYSIS VAN18002831.1

CLIENT JOB INFORMATION

Project: Windfall Hills
Shipment ID: WH-001
P.O. Number
Number of Samples: 132

SAMPLE DISPOSAL

DISP-PLP Dispose of Pulp After 90 days
DISP-RJT Dispose of Reject After 60 days

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

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	132	Crush, split and pulverize 250 g rock to 200 mesh			VAN
FA330-Au	132	Fire assay fusion Au by ICP-ES	30	Completed	VAN
EN002	132	Environmental disposal charge-Fire assay lead waste			VAN
MA200	132	4 Acid digestion ICP-MS analysis	0.25	Completed	VAN

ADDITIONAL COMMENTS

Invoice To: Canarc Resources Corp.
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6
Canada

CC: Alan Wainwright

BRITISH COLUMBIA CERTIFIED ASSAYER
MARCUS LAU
Production Manager

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

BUREAU VERITAS MINERAL LABORATORIES Canada

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Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
1751601	Rock	1.48	88	5.0	5.9	7.6	12	4.2	0.7	0.4	94	0.60	34	2.9	9.0	43	<0.1	8.2	<0.1	8	0.09
1751602	Rock	1.89	150	3.9	10.6	6.8	20	4.5	2.8	1.3	118	0.87	140	2.8	6.3	92	<0.1	9.5	0.4	45	0.13
1751603	Rock	2.58	7	0.6	5.9	9.3	25	0.6	0.7	0.9	116	0.82	7	2.8	10.3	99	0.1	0.8	<0.1	4	0.12
1751604	Rock	0.83	9	2.2	8.4	8.2	20	0.8	1.2	0.5	147	0.72	24	3.4	11.6	60	<0.1	8.4	<0.1	7	0.07
1751605	Rock	2.64	11	3.0	5.0	9.9	10	0.4	0.5	<0.2	20	0.71	24	6.5	16.3	92	<0.1	4.1	<0.1	8	0.02
1751606	Rock	3.12	39	4.1	6.8	7.9	12	4.3	0.6	<0.2	24	0.84	80	7.3	15.5	48	<0.1	9.5	<0.1	7	0.02
1751607	Rock	1.95	9	4.6	3.4	9.2	7	0.6	0.5	<0.2	22	0.73	45	7.1	56.2	161	<0.1	6.6	<0.1	10	0.03
1751608	Rock	2.37	5	1.6	2.5	12.9	4	0.5	0.3	<0.2	18	0.61	23	6.4	15.3	55	<0.1	6.0	<0.1	7	0.02
1751609	Rock	2.49	20	3.3	4.2	11.9	9	0.6	0.6	<0.2	17	0.45	29	5.3	24.3	122	<0.1	6.4	<0.1	8	0.03
1751610	Rock	2.59	35	5.7	4.7	10.9	13	2.0	0.5	<0.2	26	0.73	61	6.7	16.8	55	<0.1	9.2	<0.1	7	0.02
1751611	Rock	2.09	10	1.4	4.8	11.0	12	0.2	0.6	<0.2	17	0.52	19	8.5	22.1	58	<0.1	5.4	<0.1	7	0.02
1751612	Rock	2.82	10	1.7	2.3	9.5	4	0.6	0.6	<0.2	20	0.35	16	7.3	18.2	93	<0.1	6.2	<0.1	6	0.03
1751613	Rock	3.37	14	4.6	3.8	11.2	5	1.9	0.8	<0.2	22	0.74	46	8.3	19.1	73	<0.1	10.2	<0.1	7	0.02
1751614	Rock	3.13	45	13.2	4.1	10.6	10	2.7	0.3	<0.2	27	0.57	32	8.3	34.9	88	<0.1	7.9	0.2	5	0.06
1751615	Rock	3.86	50	5.6	6.2	15.2	6	4.7	0.6	<0.2	20	1.02	56	9.1	30.5	132	<0.1	13.2	2.6	9	0.03
1751616	Rock	1.69	2	1.2	24.1	9.1	106	<0.1	29.1	14.0	804	4.59	4	1.6	4.4	442	<0.1	0.8	<0.1	124	2.25
1751617	Rock	1.19	59	2.9	3.8	7.4	5	2.5	0.5	<0.2	21	0.88	46	7.0	17.7	77	<0.1	9.7	<0.1	7	0.04
1751618	Rock	2.34	28	3.5	4.6	14.8	8	2.0	0.7	<0.2	24	0.74	38	8.5	28.2	73	<0.1	7.4	<0.1	6	0.03
1751619	Rock	2.25	12	4.5	3.3	9.0	9	1.5	0.6	0.3	38	0.87	38	6.9	25.4	45	<0.1	7.5	<0.1	6	0.04
1751620	Rock	2.64	9	3.2	2.6	7.8	7	0.3	1.0	0.9	165	0.46	10	7.5	24.6	13	<0.1	4.7	<0.1	7	0.07
1751621	Rock	1.18	<2	1.1	26.4	9.4	83	<0.1	25.2	13.2	835	4.32	7	1.5	4.3	439	<0.1	1.1	<0.1	129	2.55
1751622	Rock	3.35	56	8.1	9.4	7.0	39	5.5	1.1	0.5	29	0.85	61	4.8	13.9	26	<0.1	6.5	<0.1	6	0.05
1751623	Rock	2.33	60	4.5	7.3	6.3	16	5.0	0.9	0.3	26	0.47	36	4.8	17.2	31	<0.1	6.0	<0.1	8	0.05
1751624	Rock	2.34	54	8.7	9.2	4.8	23	4.0	0.6	<0.2	51	0.56	45	5.4	13.9	24	<0.1	8.0	<0.1	9	0.04
1751625	Rock	2.48	79	16.1	8.8	8.3	27	6.5	0.6	<0.2	78	0.53	44	7.0	13.8	26	<0.1	11.2	<0.1	9	0.04
1751626	Rock	3.02	52	16.7	5.1	6.4	16	2.1	0.8	<0.2	81	0.41	31	6.2	11.0	21	<0.1	11.5	<0.1	8	0.05
1751627	Rock	2.60	64	23.2	6.8	6.2	7	2.1	0.2	<0.2	92	0.69	68	5.0	10.9	32	<0.1	12.0	<0.1	8	0.04
1751628	Rock	1.79	58	16.0	6.0	8.7	8	5.2	0.8	<0.2	72	0.43	47	6.5	10.1	24	0.1	14.7	<0.1	11	0.04
1751629	Rock	2.47	27	13.1	6.8	7.1	16	1.1	1.6	0.2	97	0.39	33	5.1	11.6	19	<0.1	9.1	<0.1	8	0.05
1751630	Rock	2.90	24	16.3	3.9	3.2	11	0.9	0.7	0.3	95	0.55	47	3.8	10.5	15	<0.1	7.8	0.1	9	0.05

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Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

		Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
		Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S
		Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
1751601	Rock		0.006	27.9	2	0.11	699	0.111	5.20	0.056	2.08	2.4	149.8	59	1.3	21.0	8.7	0.6	<1	5	15.8	0.1
1751602	Rock		0.030	29.4	26	0.11	531	0.442	5.26	0.074	3.09	8.6	85.1	59	1.4	14.6	9.3	0.5	1	8	14.2	0.1
1751603	Rock		0.006	30.0	3	0.02	1221	0.151	6.59	2.431	2.18	2.6	144.0	60	1.6	26.2	9.5	0.7	2	5	10.5	0.2
1751604	Rock		0.007	37.0	1	0.08	615	0.109	6.08	0.510	2.02	1.8	104.7	78	1.2	27.4	10.0	0.7	1	3	17.7	<0.1
1751605	Rock		0.021	23.1	2	<0.01	248	0.058	5.87	0.015	0.23	2.0	47.8	44	0.9	7.0	10.1	1.0	<1	1	17.6	0.4
1751606	Rock		0.013	14.1	1	<0.01	161	0.068	5.30	0.011	0.13	2.5	52.0	29	1.4	7.0	11.0	1.2	1	2	11.5	0.2
1751607	Rock		0.056	99.2	2	<0.01	116	0.055	5.35	0.025	0.47	3.2	45.4	188	0.9	8.1	9.3	0.9	<1	1	19.1	0.8
1751608	Rock		0.015	18.7	1	<0.01	19	0.066	7.06	0.088	1.23	4.4	52.4	30	1.3	5.0	11.3	1.2	<1	1	10.1	2.4
1751609	Rock		0.032	28.1	1	<0.01	21	0.061	5.33	0.041	0.83	3.8	46.5	56	2.1	5.6	9.3	1.0	<1	2	10.3	1.6
1751610	Rock		0.014	20.9	1	<0.01	43	0.062	4.92	0.031	0.68	2.5	48.5	42	1.5	6.6	10.7	1.1	<1	2	12.4	1.1
1751611	Rock		0.012	27.5	<1	<0.01	30	0.061	5.15	0.024	1.02	2.5	49.0	46	1.3	7.0	10.8	1.1	<1	2	21.9	1.8
1751612	Rock		0.017	22.0	<1	<0.01	97	0.059	4.90	0.018	0.52	3.0	47.8	38	1.2	5.5	10.3	1.1	<1	2	29.4	0.9
1751613	Rock		0.013	22.7	2	<0.01	214	0.063	5.70	0.014	0.35	4.1	50.0	40	1.2	6.4	11.0	1.2	<1	<1	30.4	0.6
1751614	Rock		0.076	31.3	1	<0.01	170	0.057	4.51	0.012	0.27	4.4	47.3	68	3.1	9.4	10.6	1.2	<1	1	27.9	0.5
1751615	Rock		0.026	28.7	2	<0.01	229	0.057	5.13	0.006	0.04	3.6	43.6	55	3.4	7.8	9.4	1.1	<1	1	30.3	<0.1
1751616	Rock		0.138	21.2	43	1.15	1059	0.491	7.35	2.670	1.77	0.7	118.3	44	1.0	16.9	8.0	0.5	2	13	17.2	<0.1
1751617	Rock		0.015	14.7	1	<0.01	272	0.060	5.87	0.012	0.04	2.5	48.6	27	1.3	7.2	10.2	1.1	<1	1	30.7	<0.1
1751618	Rock		0.015	15.3	2	<0.01	252	0.064	5.17	0.007	0.04	2.2	49.7	29	1.3	10.7	11.1	1.2	<1	1	29.1	<0.1
1751619	Rock		0.008	23.5	3	0.01	425	0.075	5.19	0.039	0.89	3.2	73.5	46	1.2	17.6	10.3	1.2	2	2	21.2	<0.1
1751620	Rock		0.006	21.0	2	0.13	59	0.081	5.42	0.042	1.18	3.1	57.8	41	1.7	16.4	13.0	1.3	2	2	18.6	<0.1
1751621	Rock		0.136	18.6	42	1.25	956	0.478	7.32	2.715	1.86	0.8	110.4	38	1.1	16.2	7.9	0.5	2	14	14.9	<0.1
1751622	Rock		0.007	27.3	1	0.03	93	0.088	4.56	0.013	0.73	2.9	84.0	51	1.5	20.1	9.8	0.7	<1	2	43.2	0.6
1751623	Rock		0.009	34.8	3	0.03	150	0.087	4.64	0.020	1.34	4.4	85.3	73	1.6	30.9	9.9	0.7	<1	2	17.4	0.2
1751624	Rock		0.009	28.9	1	0.05	169	0.084	4.53	0.023	1.44	3.0	84.2	58	1.3	30.8	9.4	0.6	1	3	6.9	0.2
1751625	Rock		0.010	33.6	2	0.13	186	0.078	4.45	0.014	1.66	2.5	77.5	77	1.2	38.8	9.1	0.6	2	3	11.1	0.2
1751626	Rock		0.006	29.5	1	0.14	168	0.088	4.58	0.013	1.68	2.2	80.9	63	1.3	25.1	9.4	0.7	1	4	16.2	<0.1
1751627	Rock		0.010	32.0	2	0.10	287	0.079	4.88	0.017	1.43	2.4	78.2	68	1.2	25.4	8.8	0.6	1	3	19.3	0.1
1751628	Rock		0.007	28.1	1	0.09	133	0.078	4.21	0.014	1.07	1.9	73.3	58	2.0	18.6	7.8	0.5	2	2	21.0	<0.1
1751629	Rock		0.005	31.7	<1	0.11	92	0.088	4.25	0.017	1.29	2.0	86.2	63	2.1	21.6	9.6	0.6	1	2	16.8	<0.1
1751630	Rock		0.005	24.3	1	0.12	113	0.087	4.77	0.016	1.39	2.0	80.5	49	1.3	20.5	8.7	0.6	2	3	15.3	<0.1

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Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Rb	Hf	In	Re	Se	Te	Tl
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.1	0.05	0.005	1	0.5	0.5
1751601	Rock	111.4	4.5	<0.05	<0.005	<1	<0.5	1.7
1751602	Rock	189.3	2.5	<0.05	<0.005	<1	<0.5	2.0
1751603	Rock	92.3	4.3	<0.05	<0.005	<1	<0.5	1.1
1751604	Rock	105.6	3.6	<0.05	<0.005	<1	<0.5	1.2
1751605	Rock	2.1	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751606	Rock	2.3	2.4	<0.05	<0.005	1	<0.5	<0.5
1751607	Rock	2.8	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751608	Rock	4.5	2.4	<0.05	<0.005	<1	<0.5	<0.5
1751609	Rock	4.4	2.1	0.07	<0.005	<1	<0.5	<0.5
1751610	Rock	3.8	2.5	<0.05	<0.005	<1	<0.5	<0.5
1751611	Rock	4.8	2.1	<0.05	<0.005	<1	<0.5	<0.5
1751612	Rock	3.7	2.1	<0.05	<0.005	<1	<0.5	<0.5
1751613	Rock	2.9	2.3	<0.05	<0.005	<1	<0.5	<0.5
1751614	Rock	3.2	2.2	<0.05	<0.005	1	<0.5	<0.5
1751615	Rock	2.5	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751616	Rock	45.1	3.3	0.11	<0.005	<1	<0.5	<0.5
1751617	Rock	2.4	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751618	Rock	2.7	2.3	<0.05	<0.005	<1	<0.5	<0.5
1751619	Rock	30.8	2.9	<0.05	<0.005	<1	<0.5	<0.5
1751620	Rock	83.8	2.8	<0.05	<0.005	<1	<0.5	0.6
1751621	Rock	40.4	3.2	0.06	<0.005	<1	<0.5	<0.5
1751622	Rock	61.0	3.1	<0.05	<0.005	<1	<0.5	0.7
1751623	Rock	92.8	3.2	<0.05	<0.005	<1	<0.5	0.8
1751624	Rock	91.2	3.3	<0.05	<0.005	<1	<0.5	0.9
1751625	Rock	105.7	3.2	<0.05	<0.005	<1	<0.5	1.2
1751626	Rock	106.5	3.5	0.06	<0.005	<1	<0.5	1.3
1751627	Rock	90.0	2.9	<0.05	<0.005	<1	<0.5	1.1
1751628	Rock	71.3	2.9	<0.05	<0.005	<1	<0.5	0.8
1751629	Rock	84.3	3.2	<0.05	<0.005	<1	<0.5	1.0
1751630	Rock	92.0	3.0	<0.05	<0.005	<1	<0.5	0.9

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Method		WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
Analyte		Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
Unit		kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
MDL		0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
1751631	Rock	0.81	<2	1.0	26.7	10.1	98	<0.1	23.3	12.2	908	3.95	5	2.1	5.9	412	0.2	1.1	<0.1	101	2.13
1751632	Rock	2.77	20	14.5	3.6	6.1	8	0.7	0.5	<0.2	78	0.40	23	5.2	9.2	15	<0.1	6.9	0.1	10	0.04
1751633	Rock	1.90	29	16.2	5.6	5.4	12	1.1	0.4	0.2	78	0.39	40	4.6	10.4	26	<0.1	7.1	0.1	12	0.04
1751634	Rock	2.47	35	7.6	7.1	9.0	7	0.6	1.4	0.4	115	0.52	28	2.9	7.9	40	<0.1	5.2	<0.1	10	0.06
1751635	Rock	1.40	<2	1.0	41.7	7.9	83	<0.1	30.7	18.4	971	5.30	5	1.5	3.5	473	0.1	1.0	<0.1	157	2.97
1751636	Rock	3.30	19	3.0	1.2	10.3	1	0.3	0.9	<0.2	32	0.86	28	6.9	22.4	61	<0.1	3.8	<0.1	10	0.03
1751637	Rock	2.13	11	1.9	2.0	11.9	3	0.3	0.4	<0.2	16	0.78	23	7.8	28.8	74	<0.1	10.8	<0.1	8	0.03
1751638	Rock	2.17	<2	2.2	2.4	12.1	4	0.2	0.7	0.2	21	0.91	22	6.8	19.6	53	<0.1	12.2	<0.1	9	0.02
1751639	Rock	1.71	4	1.3	1.8	11.4	3	<0.1	0.5	0.3	24	0.42	6	5.7	25.1	69	<0.1	5.5	<0.1	10	0.02
1751640	Rock	3.19	58	1.8	2.6	12.8	1	0.1	0.4	<0.2	20	0.57	23	6.9	24.5	122	<0.1	6.2	<0.1	11	0.02
1751641	Rock	2.56	27	2.5	2.7	11.4	3	0.2	0.4	<0.2	19	0.76	31	8.8	28.2	96	<0.1	8.8	<0.1	14	0.02
1751642	Rock	2.40	34	3.3	2.0	15.7	<1	0.3	0.4	0.2	21	0.57	17	8.5	26.1	94	<0.1	9.3	<0.1	14	0.03
1751643	Rock	1.25	75	2.3	3.3	14.0	6	0.8	1.9	0.3	73	0.67	64	2.4	3.2	69	<0.1	2.6	0.4	61	0.03
1751644	Rock	1.54	85	4.7	9.5	13.7	7	2.1	4.9	0.7	89	1.45	118	1.6	3.3	64	<0.1	5.1	0.3	130	0.03
1751645	Rock	1.64	81	4.2	10.0	13.8	8	0.6	5.3	0.8	112	1.42	101	1.4	3.2	138	<0.1	3.9	0.2	128	0.06
1751646	Rock	1.95	84	4.1	8.8	11.9	9	0.6	5.7	0.9	106	1.49	97	1.3	3.5	128	<0.1	3.4	0.2	138	0.05
1751647	Rock	3.62	37	7.8	4.6	11.3	9	1.2	1.1	0.3	74	0.92	49	3.5	10.8	41	<0.1	3.6	0.3	18	0.03
1751648	Rock	1.61	12	6.8	5.3	16.0	9	0.3	0.6	<0.2	71	1.02	46	4.1	11.9	17	<0.1	4.6	0.1	3	0.02
1751649	Rock	2.71	35	5.0	3.3	11.6	2	3.0	0.5	<0.2	44	0.78	42	8.0	30.2	94	<0.1	5.9	0.8	12	0.02
1751650	Rock	1.89	29	7.7	2.0	6.3	5	2.6	0.7	0.2	70	1.08	90	8.5	25.1	21	<0.1	15.6	<0.1	8	0.03
1751651	Rock	2.11	65	2.9	4.6	12.5	18	0.6	2.4	1.3	117	0.99	40	2.5	4.9	40	<0.1	2.3	0.3	33	0.14
1751652	Rock	2.32	91	2.0	4.7	13.1	12	0.7	0.7	0.6	80	0.85	54	2.6	4.5	30	<0.1	2.3	0.3	33	0.05
1751653	Rock	3.52	36	3.0	6.3	12.8	7	0.4	1.1	0.3	74	0.83	100	3.1	5.3	32	<0.1	1.5	0.3	35	0.05
1751654	Rock	3.07	38	6.3	5.8	12.1	6	0.5	1.9	0.4	71	0.91	187	3.0	5.2	66	<0.1	2.1	0.3	39	0.06
1751655	Rock	3.88	41	6.0	5.4	11.4	7	0.5	2.4	0.5	73	1.05	250	2.8	5.1	85	<0.1	2.4	0.2	50	0.08
1751656	Rock	3.02	80	10.9	4.3	16.0	6	2.7	12.3	0.8	58	1.32	289	2.3	4.9	244	<0.1	5.9	<0.1	139	0.08
1751657	Rock	4.28	58	3.4	6.1	8.4	3	1.7	31.9	0.7	38	1.50	352	1.6	4.3	91	<0.1	3.5	<0.1	170	0.04
1751658	Rock	3.32	93	4.7	7.4	12.8	5	1.6	7.4	0.7	47	0.86	231	1.8	3.8	72	<0.1	4.9	0.1	99	0.04
1751659	Rock	0.44	<2	0.6	43.7	6.5	196	0.5	20.9	15.4	653	3.88	3	2.4	2.6	24	<0.1	0.9	0.2	121	0.24
1751660	Rock	0.77	20	7.8	6.3	4.9	8	0.4	0.6	<0.2	93	0.49	42	6.2	10.2	13	<0.1	7.3	<0.1	6	0.03

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

		Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
		Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S
		Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
1751631	Rock		0.110	20.0	33	1.09	910	0.431	7.36	2.952	2.03	0.7	106.5	42	1.4	18.6	10.1	0.6	<1	13	16.8	<0.1
1751632	Rock		0.004	26.8	<1	0.10	81	0.082	4.37	0.021	1.07	1.9	72.4	52	1.1	14.6	8.1	0.5	2	2	29.8	<0.1
1751633	Rock		0.005	29.9	1	0.09	259	0.088	4.15	0.028	1.61	1.7	82.6	61	0.9	16.2	9.2	0.6	1	2	49.0	<0.1
1751634	Rock		0.008	28.5	<1	0.11	226	0.075	3.67	0.043	1.37	1.4	64.2	55	0.6	17.1	7.6	0.5	1	2	68.3	<0.1
1751635	Rock		0.144	17.6	50	1.59	934	0.499	7.59	2.706	1.71	0.7	114.1	36	1.0	17.3	7.7	0.5	1	16	15.3	<0.1
1751636	Rock		0.028	42.8	2	<0.01	43	0.070	7.04	0.072	2.26	3.6	52.2	66	1.0	5.9	12.2	1.3	<1	2	14.4	3.9
1751637	Rock		0.027	33.1	1	<0.01	79	0.068	5.61	0.022	0.55	3.7	52.4	62	1.0	8.7	11.8	1.3	<1	2	21.8	1.0
1751638	Rock		0.018	24.5	2	<0.01	234	0.068	5.54	0.017	0.40	3.7	51.5	45	0.9	7.7	11.2	1.2	<1	1	13.7	0.7
1751639	Rock		0.016	32.9	1	0.01	239	0.068	5.66	0.016	0.06	2.2	54.0	62	1.0	9.3	11.2	1.2	<1	2	19.0	<0.1
1751640	Rock		0.023	30.8	1	<0.01	329	0.063	5.86	0.011	0.03	3.2	54.3	56	0.9	6.4	10.4	1.2	<1	1	47.5	<0.1
1751641	Rock		0.016	29.7	<1	<0.01	177	0.088	7.00	0.014	0.03	4.9	77.7	56	1.3	9.1	12.6	1.4	<1	2	41.1	<0.1
1751642	Rock		0.019	33.7	1	<0.01	251	0.092	7.47	0.014	0.03	3.3	86.1	63	1.1	7.3	12.2	1.4	<1	2	46.9	<0.1
1751643	Rock		0.024	12.8	10	0.27	689	0.195	6.89	0.023	2.22	3.9	54.8	25	0.8	9.1	7.7	0.6	1	6	10.4	<0.1
1751644	Rock		0.020	12.6	21	0.29	804	0.342	8.62	0.052	2.64	4.9	58.1	27	0.9	9.2	5.5	0.4	2	11	4.6	0.2
1751645	Rock		0.047	16.0	22	0.27	749	0.395	7.85	0.066	2.56	8.2	53.1	35	0.9	13.3	5.4	0.4	2	11	4.2	<0.1
1751646	Rock		0.048	13.0	26	0.27	726	0.488	8.27	0.076	2.63	10.9	54.2	29	0.8	12.0	6.1	0.4	3	11	5.4	<0.1
1751647	Rock		0.015	34.0	3	0.15	430	0.104	5.22	0.059	1.78	2.1	134.7	69	2.2	33.6	12.7	0.8	<1	3	9.8	<0.1
1751648	Rock		0.006	40.7	1	0.15	458	0.084	5.78	0.034	2.14	1.3	183.6	86	3.0	37.8	16.6	1.1	2	3	8.6	<0.1
1751649	Rock		0.015	30.3	1	0.02	194	0.072	5.31	0.018	0.42	2.5	55.3	54	3.5	10.1	11.7	1.1	<1	1	29.8	<0.1
1751650	Rock		0.006	21.1	1	0.04	69	0.076	5.72	0.030	0.73	6.0	59.5	39	1.3	17.1	13.2	1.3	2	2	31.8	<0.1
1751651	Rock		0.013	19.4	4	0.29	713	0.173	6.18	0.141	2.41	2.4	65.5	36	0.6	8.0	9.8	0.7	1	3	5.3	<0.1
1751652	Rock		0.014	15.3	3	0.26	829	0.153	6.40	0.039	2.42	2.7	61.9	28	0.7	6.8	9.8	0.7	1	3	3.3	0.2
1751653	Rock		0.008	12.9	4	0.26	862	0.153	6.83	0.031	2.83	2.3	61.2	24	0.6	7.2	10.4	0.8	1	3	3.4	0.2
1751654	Rock		0.017	19.2	4	0.28	819	0.151	6.49	0.046	2.35	2.1	58.3	38	0.7	8.8	10.5	0.8	3	4	4.1	0.2
1751655	Rock		0.020	20.9	7	0.28	791	0.193	6.78	0.047	2.62	3.0	55.6	41	0.7	9.7	9.7	0.7	1	4	3.5	0.2
1751656	Rock		0.071	42.7	44	0.30	1007	0.609	8.67	0.066	2.80	11.1	93.0	91	1.0	21.3	9.9	0.6	2	11	8.1	0.4
1751657	Rock		0.018	14.7	67	0.28	868	0.768	10.23	0.028	2.40	17.1	113.6	31	1.1	11.4	10.6	0.6	1	13	11.3	0.4
1751658	Rock		0.022	15.1	24	0.25	928	0.486	7.93	0.041	2.54	11.2	72.7	31	1.0	8.5	8.6	0.6	<1	8	9.7	0.2
1751659	Rock		0.054	11.0	33	1.21	608	0.414	8.25	0.090	2.42	2.2	61.3	29	0.9	15.5	6.1	0.4	3	10	37.4	<0.1
1751660	Rock		0.003	27.6	<1	0.09	70	0.081	4.49	0.017	1.21	1.9	75.7	55	0.7	16.4	8.9	0.6	2	2	39.6	<0.1

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

Method		MA200	MA200	MA200	MA200	MA200	MA200	MA200
Analyte		Rb	Hf	In	Re	Se	Te	Tl
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm
MDL		0.1	0.1	0.05	0.005	1	0.5	0.5
1751631	Rock	59.0	2.8	0.09	<0.005	<1	<0.5	<0.5
1751632	Rock	72.1	2.9	<0.05	<0.005	<1	<0.5	0.7
1751633	Rock	96.2	3.2	<0.05	<0.005	<1	<0.5	1.1
1751634	Rock	87.6	2.4	<0.05	<0.005	2	<0.5	0.9
1751635	Rock	33.1	2.9	<0.05	0.009	<1	<0.5	<0.5
1751636	Rock	8.5	2.5	<0.05	<0.005	<1	<0.5	<0.5
1751637	Rock	3.1	2.3	<0.05	<0.005	<1	<0.5	<0.5
1751638	Rock	3.3	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751639	Rock	3.7	2.4	<0.05	<0.005	<1	<0.5	<0.5
1751640	Rock	1.6	2.3	<0.05	<0.005	<1	<0.5	<0.5
1751641	Rock	1.6	3.0	<0.05	<0.005	<1	<0.5	<0.5
1751642	Rock	1.6	3.1	<0.05	0.006	<1	<0.5	<0.5
1751643	Rock	106.0	1.7	<0.05	0.009	<1	<0.5	1.2
1751644	Rock	144.5	1.7	<0.05	0.006	<1	<0.5	1.8
1751645	Rock	128.7	1.5	<0.05	<0.005	1	<0.5	1.2
1751646	Rock	125.4	1.6	<0.05	0.012	1	<0.5	1.4
1751647	Rock	78.2	4.4	<0.05	<0.005	<1	0.6	0.7
1751648	Rock	96.1	6.2	0.06	<0.005	<1	<0.5	0.7
1751649	Rock	18.8	2.6	<0.05	<0.005	<1	<0.5	<0.5
1751650	Rock	40.9	2.7	<0.05	<0.005	<1	<0.5	<0.5
1751651	Rock	117.4	2.0	<0.05	<0.005	<1	<0.5	1.0
1751652	Rock	115.6	2.0	<0.05	<0.005	<1	<0.5	0.9
1751653	Rock	115.6	2.2	<0.05	<0.005	1	<0.5	1.0
1751654	Rock	123.8	2.0	<0.05	<0.005	<1	<0.5	1.0
1751655	Rock	116.4	1.8	<0.05	<0.005	<1	<0.5	1.0
1751656	Rock	130.3	2.6	<0.05	<0.005	<1	<0.5	1.6
1751657	Rock	126.6	2.9	0.10	<0.005	<1	<0.5	1.2
1751658	Rock	116.0	2.1	<0.05	<0.005	<1	<0.5	1.2
1751659	Rock	92.8	1.9	<0.05	0.008	<1	<0.5	1.4
1751660	Rock	82.6	2.8	<0.05	<0.005	<1	<0.5	0.7

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CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
1751661	Rock	0.90	<2	0.4	21.3	8.6	80	0.1	25.9	17.1	864	4.17	7	1.5	3.1	383	<0.1	0.4	<0.1	114	2.53
1751662	Rock	0.62	<2	0.5	18.2	7.1	70	0.2	18.8	13.8	2204	3.17	6	3.6	3.9	331	0.1	0.5	<0.1	96	7.39
1751663	Rock	0.75	<2	0.9	4.0	8.2	43	<0.1	1.4	1.5	486	0.96	2	3.0	6.0	270	<0.1	0.4	0.1	16	0.34
1751664	Rock	0.73	<2	0.9	4.7	8.9	37	0.1	1.9	1.3	160	1.08	4	2.6	5.6	268	<0.1	0.6	0.1	21	0.18
1751665	Rock	0.90	<2	1.2	7.9	9.9	41	<0.1	1.1	0.9	775	0.96	3	2.8	5.7	308	0.1	0.3	0.1	14	0.57
1751666	Rock	0.76	<2	1.4	11.6	19.1	99	0.2	15.6	8.9	408	3.41	7	1.9	3.7	131	<0.1	1.4	0.5	82	0.60
1751667	Rock	0.86	<2	0.6	6.7	3.6	40	<0.1	2.7	2.2	296	0.65	2	3.2	5.7	135	<0.1	0.5	0.2	12	0.13
1751668	Rock	1.36	75	22.2	1.9	7.2	3	1.1	0.7	<0.2	44	0.27	27	2.5	8.2	34	<0.1	15.1	<0.1	5	0.05
1751669	Rock	1.52	115	5.6	5.1	12.1	6	2.3	2.0	0.7	41	0.89	92	2.5	3.4	39	<0.1	6.2	0.1	69	0.04
1751670	Rock	0.60	3	1.1	24.4	8.4	84	<0.1	29.7	15.7	819	4.54	6	1.4	4.3	471	<0.1	1.1	<0.1	111	2.30
1751671	Rock	2.05	78	9.5	22.4	14.6	5	4.7	1.6	0.5	27	0.72	229	4.9	4.6	118	<0.1	7.6	0.2	65	0.05
1751672	Rock	1.70	192	104.9	54.2	19.0	14	9.2	3.9	1.7	66	3.02	379	5.7	3.9	230	<0.1	19.2	0.2	59	0.13
1751673	Rock	1.82	122	107.8	19.8	11.9	6	8.0	2.1	0.8	34	2.39	222	2.9	3.9	153	<0.1	17.5	0.2	50	0.05
1751674	Rock	1.52	79	6.8	5.8	12.9	2	4.6	2.5	0.5	30	0.57	42	3.1	9.5	123	<0.1	9.8	<0.1	59	0.04
1751675	Rock	0.96	43	4.4	2.6	7.4	4	1.3	2.0	0.4	33	0.40	22	2.2	12.4	61	<0.1	8.7	<0.1	23	0.05
1751676	Rock	1.35	28	5.7	2.1	8.4	2	1.7	0.8	0.2	36	0.39	24	4.9	19.0	127	<0.1	12.5	<0.1	9	0.04
1751677	Rock	1.86	99	4.8	2.5	7.9	3	2.8	0.9	0.3	43	0.73	48	4.8	14.7	144	<0.1	13.5	<0.1	12	0.04
1751678	Rock	1.70	67	4.1	2.2	6.6	4	3.0	0.7	0.3	42	0.72	48	5.4	23.3	186	<0.1	13.3	<0.1	18	0.03
1751679	Rock	1.48	48	7.1	4.5	7.2	3	6.3	0.6	0.3	36	0.90	48	4.9	14.5	139	<0.1	8.5	0.2	20	0.02
1751680	Rock	1.78	82	4.9	5.1	8.6	3	6.8	0.9	0.4	32	1.31	84	4.9	15.4	242	<0.1	13.2	0.1	29	0.04
1751681	Rock	1.15	3	1.0	22.5	9.1	81	<0.1	25.0	12.8	737	3.70	8	1.7	5.5	427	0.1	1.4	<0.1	95	2.22
1751682	Rock	1.72	51	6.1	4.7	10.1	4	5.1	1.1	0.5	43	1.18	78	5.8	16.7	235	<0.1	15.7	0.1	32	0.06
1751683	Rock	1.98	39	3.4	4.0	11.3	<1	6.3	0.8	0.4	29	1.02	76	6.3	17.5	230	<0.1	11.1	0.2	36	0.05
1751684	Rock	0.44	3	1.2	19.2	6.9	83	<0.1	24.5	13.7	806	3.72	8	1.6	4.4	393	0.1	1.5	<0.1	98	1.97
1751685	Rock	1.52	43	4.7	5.1	9.9	2	8.4	0.8	0.3	34	1.23	96	5.6	15.5	173	<0.1	14.2	0.1	33	0.04
1751686	Rock	1.52	58	9.3	8.5	10.9	4	5.6	1.4	0.7	32	1.29	98	6.1	13.1	159	<0.1	11.7	0.2	33	0.04
1751687	Rock	1.20	30	5.2	2.9	9.3	4	2.1	0.6	0.2	46	0.82	56	6.7	18.3	150	<0.1	8.6	0.2	18	0.03
1751688	Rock	1.70	77	5.0	3.0	11.1	3	1.7	0.7	0.3	21	0.75	45	5.3	17.9	168	<0.1	9.7	<0.1	20	0.03
1751689	Rock	1.65	19	2.8	2.3	16.8	5	1.1	0.9	0.2	21	0.46	17	3.0	9.5	49	<0.1	10.3	<0.1	21	0.04
1751690	Rock	1.00	32	1.9	1.7	21.9	4	1.8	1.1	0.3	22	0.45	18	6.0	21.9	392	<0.1	8.1	<0.1	26	0.04

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

		Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
		Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S
		Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
1751661	Rock		0.087	13.3	46	1.65	677	0.411	8.15	2.920	1.16	1.1	55.7	27	0.8	11.6	5.6	0.4	<1	11	37.7	<0.1
1751662	Rock		0.075	19.0	34	1.28	475	0.378	7.98	2.402	1.51	2.0	64.1	34	0.7	16.4	5.8	0.4	<1	10	31.4	<0.1
1751663	Rock		0.009	17.7	3	0.29	1040	0.112	7.27	2.366	2.15	0.7	73.7	36	0.7	12.3	8.4	0.7	2	2	4.0	<0.1
1751664	Rock		0.015	18.4	5	0.26	795	0.152	7.09	2.443	2.13	0.9	70.2	37	0.8	13.0	8.2	0.6	1	2	7.1	<0.1
1751665	Rock		0.014	20.7	2	0.15	1014	0.103	7.06	3.722	1.67	0.8	69.3	40	0.8	13.7	7.8	0.6	1	1	5.1	<0.1
1751666	Rock		0.046	13.9	20	0.62	915	0.290	7.40	0.929	2.77	1.5	60.7	31	1.2	16.1	6.4	0.5	3	10	3.5	<0.1
1751667	Rock		0.005	16.7	1	0.38	494	0.083	6.61	1.344	2.13	0.3	71.6	35	0.8	10.7	8.3	0.6	1	1	4.4	<0.1
1751668	Rock		0.005	28.1	<1	0.05	114	0.066	3.50	0.016	0.77	3.2	59.9	51	0.4	14.6	7.1	0.4	<1	2	42.9	<0.1
1751669	Rock		0.010	14.3	13	0.18	551	0.405	6.64	0.025	1.91	11.9	63.0	29	0.9	8.2	7.4	0.5	1	6	11.3	0.2
1751670	Rock		0.140	20.5	46	1.28	927	0.483	7.72	2.939	1.82	0.7	109.9	42	0.9	18.7	8.5	0.5	<1	15	18.2	<0.1
1751671	Rock		0.034	20.7	9	0.04	419	0.334	5.84	0.027	0.52	9.5	61.9	42	0.9	9.7	6.0	0.4	<1	6	18.8	0.4
1751672	Rock		0.070	21.0	22	0.08	56	0.297	6.26	0.064	0.54	12.2	51.7	43	0.7	9.8	5.6	0.3	3	6	22.5	0.6
1751673	Rock		0.043	15.9	17	0.03	328	0.264	5.57	0.025	0.21	11.0	49.1	32	0.7	8.8	5.3	0.3	<1	4	25.7	0.2
1751674	Rock		0.039	20.3	20	0.01	415	0.245	6.54	0.023	0.22	5.6	73.8	39	3.1	10.2	6.1	0.4	<1	4	16.5	0.2
1751675	Rock		0.012	23.0	2	0.02	127	0.036	6.60	0.038	0.43	2.9	17.4	42	0.5	5.3	3.5	0.3	1	2	21.4	<0.1
1751676	Rock		0.014	17.6	1	0.01	104	0.056	4.67	0.020	0.47	3.4	38.1	33	0.8	11.9	8.8	0.8	<1	1	25.9	<0.1
1751677	Rock		0.017	16.0	1	0.02	116	0.054	3.93	0.045	0.10	2.4	33.6	30	1.2	10.9	7.4	0.8	<1	2	28.8	<0.1
1751678	Rock		0.018	22.8	2	0.01	143	0.048	4.94	0.037	0.08	2.5	30.4	38	1.1	14.4	6.6	0.7	<1	2	47.1	<0.1
1751679	Rock		0.015	17.8	3	<0.01	119	0.087	3.44	0.010	0.04	4.3	62.3	35	1.0	9.1	8.2	0.8	<1	2	22.5	<0.1
1751680	Rock		0.033	21.6	6	<0.01	268	0.142	4.57	0.012	0.05	6.6	67.1	48	1.0	10.4	7.5	0.6	<1	2	30.0	0.1
1751681	Rock		0.104	19.6	39	1.01	911	0.422	7.24	2.819	1.81	0.6	96.9	40	1.0	17.0	8.2	0.5	1	12	18.0	<0.1
1751682	Rock		0.042	29.7	7	0.01	426	0.185	4.93	0.052	0.11	7.9	86.3	66	1.1	15.3	8.9	0.7	<1	4	26.2	<0.1
1751683	Rock		0.042	28.8	6	<0.01	433	0.189	5.03	0.018	0.06	7.9	80.7	62	1.2	12.5	9.3	0.8	<1	3	30.1	<0.1
1751684	Rock		0.096	17.6	36	1.12	1046	0.387	7.34	2.761	1.80	0.9	83.8	36	1.0	15.9	7.9	0.5	<1	12	16.4	<0.1
1751685	Rock		0.037	27.1	6	<0.01	404	0.194	4.81	0.022	0.07	6.5	79.2	58	1.1	11.4	8.9	0.7	1	3	18.0	<0.1
1751686	Rock		0.042	22.1	7	<0.01	523	0.191	4.72	0.013	0.06	6.6	80.2	48	1.2	11.0	9.1	0.7	<1	3	28.8	0.2
1751687	Rock		0.026	20.4	3	0.01	288	0.096	4.65	0.013	0.21	5.1	58.8	40	1.0	10.0	10.3	1.0	<1	3	28.6	<0.1
1751688	Rock		0.029	27.1	2	<0.01	305	0.156	5.97	0.012	0.29	14.2	179.5	52	1.6	12.5	9.4	0.7	<1	4	21.5	0.5
1751689	Rock		0.014	25.0	1	<0.01	124	0.195	9.77	0.018	0.06	8.7	181.0	38	2.8	13.0	15.6	1.0	<1	5	23.9	<0.1
1751690	Rock		0.054	34.8	1	<0.01	435	0.179	10.51	0.015	0.05	14.4	201.5	83	2.9	10.4	14.6	0.9	<1	5	32.7	<0.1

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Rb	Hf	In	Re	Se	Te	Tl
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.1	0.05	0.005	1	0.5	0.5
1751661	Rock	41.0	1.6	<0.05	<0.005	<1	<0.5	<0.5
1751662	Rock	74.6	1.9	<0.05	<0.005	<1	<0.5	0.6
1751663	Rock	97.4	2.5	<0.05	<0.005	<1	<0.5	0.8
1751664	Rock	90.8	2.1	<0.05	<0.005	<1	<0.5	0.7
1751665	Rock	58.6	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751666	Rock	151.0	1.7	<0.05	<0.005	<1	<0.5	1.4
1751667	Rock	75.1	2.2	<0.05	<0.005	<1	<0.5	0.7
1751668	Rock	54.7	2.3	<0.05	<0.005	<1	<0.5	<0.5
1751669	Rock	115.0	1.8	<0.05	<0.005	2	<0.5	1.2
1751670	Rock	42.8	2.9	<0.05	<0.005	2	<0.5	<0.5
1751671	Rock	21.2	1.8	<0.05	<0.005	2	<0.5	<0.5
1751672	Rock	13.7	1.4	<0.05	<0.005	3	1.9	<0.5
1751673	Rock	6.3	1.4	<0.05	<0.005	2	1.8	<0.5
1751674	Rock	7.6	1.9	<0.05	<0.005	2	<0.5	<0.5
1751675	Rock	21.7	0.7	<0.05	<0.005	<1	<0.5	<0.5
1751676	Rock	31.1	1.7	<0.05	<0.005	1	<0.5	<0.5
1751677	Rock	5.2	1.5	<0.05	<0.005	2	<0.5	<0.5
1751678	Rock	3.8	1.3	<0.05	<0.005	<1	<0.5	<0.5
1751679	Rock	2.5	2.0	<0.05	<0.005	<1	<0.5	<0.5
1751680	Rock	2.6	2.1	<0.05	<0.005	2	<0.5	<0.5
1751681	Rock	49.4	2.5	0.05	<0.005	<1	<0.5	<0.5
1751682	Rock	4.4	2.6	<0.05	<0.005	3	<0.5	<0.5
1751683	Rock	2.3	2.6	<0.05	<0.005	3	<0.5	<0.5
1751684	Rock	50.7	2.4	<0.05	<0.005	<1	<0.5	<0.5
1751685	Rock	2.7	2.5	<0.05	<0.005	<1	<0.5	<0.5
1751686	Rock	2.2	2.7	<0.05	<0.005	2	<0.5	<0.5
1751687	Rock	18.0	2.2	<0.05	<0.005	<1	<0.5	<0.5
1751688	Rock	4.1	5.1	0.07	<0.005	<1	<0.5	<0.5
1751689	Rock	2.6	5.2	0.12	<0.005	<1	<0.5	<0.5
1751690	Rock	1.1	5.6	<0.05	<0.005	<1	<0.5	<0.5

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
1751691	Rock	1.17	61	17.2	5.4	3.0	6	3.7	0.8	0.3	53	1.52	81	7.7	11.4	26	<0.1	7.9	1.3	10	0.05
1751692	Rock	0.87	97	2.7	6.6	13.3	<1	14.7	0.6	<0.2	30	1.56	161	7.6	26.2	331	<0.1	14.4	0.2	23	0.04
1751693	Rock	1.67	163	2.6	7.3	9.1	1	16.9	0.5	0.2	25	1.41	170	6.2	23.7	239	<0.1	17.5	0.2	25	0.03
1751694	Rock	1.05	5	1.3	23.6	10.7	81	<0.1	18.7	12.9	818	4.24	7	1.6	4.2	454	0.1	1.2	<0.1	109	2.36
1751695	Rock	1.06	306	4.7	11.5	11.4	3	9.4	0.6	<0.2	26	1.45	225	6.8	25.1	295	<0.1	19.4	0.2	23	0.04
1751696	Rock	0.78	62	3.7	15.2	22.4	3	14.1	4.3	2.1	34	1.83	122	7.2	17.5	84	<0.1	13.8	0.3	24	0.03
1751697	Rock	2.17	45	13.9	3.3	19.4	3	3.1	0.6	<0.2	21	1.07	68	6.4	24.0	564	<0.1	14.2	0.2	40	0.05
1751698	Rock	2.15	67	4.5	7.5	9.7	1	7.7	1.1	0.5	36	1.31	101	5.5	14.9	215	<0.1	11.5	0.1	36	0.04
1751699	Rock	0.87	47	2.5	7.1	11.1	<1	13.1	0.2	<0.2	23	1.13	96	6.9	17.9	213	<0.1	12.1	0.2	23	0.02
1751851	Rock	1.21	75	13.1	9.0	7.8	12	5.0	1.2	0.5	41	0.93	64	5.5	12.1	29	<0.1	9.9	<0.1	8	0.16
1751852	Rock	2.35	<2	1.0	1.7	3.5	9	0.2	0.4	0.2	102	0.59	6	2.0	8.1	59	<0.1	11.4	<0.1	3	0.04
1751853	Rock	0.43	2479	41.3	12.2	23.0	6	61.1	0.6	0.3	20	8.34	1076	13.8	128.5	563	<0.1	83.6	<0.1	30	0.13
1751854	Rock	1.31	7195	203.4	14.8	8.0	7	64.8	1.0	0.3	36	2.00	879	4.2	0.9	112	0.2	23.6	<0.1	179	0.06
1751855	Rock	0.97	24	2.5	1.6	14.2	2	0.2	0.2	0.3	34	0.73	21	11.8	20.3	50	<0.1	9.5	<0.1	8	<0.01
1751856	Rock	0.93	14	3.2	3.3	14.6	52	0.2	0.7	0.9	296	1.53	24	3.4	11.1	67	<0.1	4.0	<0.1	5	0.12
1751857	Rock	1.74	<2	1.0	4.5	12.0	80	<0.1	1.7	0.9	716	1.92	7	2.6	10.3	90	<0.1	1.5	<0.1	4	0.20
1751858	Rock	1.02	9	3.5	3.4	8.0	35	0.3	0.9	0.4	403	2.69	51	2.9	6.9	35	<0.1	6.1	<0.1	4	0.06
1751859	Rock	0.80	<2	0.9	3.2	7.6	42	<0.1	0.8	0.6	304	1.42	9	2.4	9.5	67	<0.1	2.4	<0.1	3	0.10
1751860	Rock	1.56	29	10.0	1.9	10.0	8	0.1	0.3	<0.2	99	1.18	36	2.9	8.7	12	<0.1	1.8	0.1	12	0.01
1751861	Rock	1.52	43	12.6	2.7	9.9	7	0.2	0.9	<0.2	54	1.01	63	3.1	8.4	19	<0.1	3.5	0.2	11	0.02
1751862	Rock	2.03	87	9.3	2.6	9.4	12	0.1	0.4	<0.2	60	1.09	84	3.3	9.6	17	<0.1	3.4	0.1	5	0.01
1751863	Rock	0.86	<2	0.8	17.0	9.5	64	0.1	16.4	15.7	687	3.43	10	1.7	3.4	341	0.1	0.5	0.1	99	2.17
1751864	Rock	1.62	3	1.1	1.4	11.1	6	<0.1	0.4	<0.2	118	0.45	12	3.2	12.8	77	<0.1	8.4	<0.1	4	0.04
1751865	Rock	2.00	122	11.3	1.5	12.3	10	0.5	0.4	<0.2	92	1.15	116	3.6	10.9	11	<0.1	4.5	0.2	3	0.01
1751866	Rock	2.29	67	25.6	1.5	29.3	19	1.6	0.5	<0.2	93	0.90	68	3.5	9.9	15	0.2	5.4	1.8	12	0.03
1751867	Rock	1.53	4	0.6	1.7	11.0	27	<0.1	0.8	0.5	148	0.90	4	3.0	33.5	62	<0.1	<0.1	<0.1	7	0.05
1751868	Rock	1.78	5	9.3	1224.6	6.8	571	1.4	11.1	22.2	902	7.06	2	1.7	1.1	274	5.5	0.4	2.8	62	6.04
1751869	Rock	1.31	<2	0.9	4.1	13.3	54	0.1	0.8	1.3	88	1.20	12	3.4	12.8	58	<0.1	11.2	<0.1	4	0.25
1751870	Rock	1.26	<2	0.9	2.6	14.6	82	<0.1	0.4	5.0	131	1.30	3	3.5	12.5	58	<0.1	0.9	<0.1	2	0.30
1751871	Rock	1.55	<2	1.2	1.7	13.0	27	<0.1	1.5	1.2	147	1.01	2	3.7	12.7	76	0.2	2.2	<0.1	3	0.36

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Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

		Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
		Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S
		Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
1751691	Rock		0.006	6.0	<1	0.02	109	0.138	8.56	0.044	0.16	8.9	122.0	12	3.0	14.3	14.4	1.0	<1	5	29.0	<0.1
1751692	Rock		0.053	36.1	6	<0.01	465	0.154	5.18	0.008	0.03	6.5	79.8	80	1.1	9.7	9.2	0.8	<1	3	42.4	<0.1
1751693	Rock		0.031	28.5	5	<0.01	353	0.164	5.67	0.007	0.03	9.0	71.6	64	1.2	7.6	8.2	0.7	<1	2	37.7	<0.1
1751694	Rock		0.139	19.2	31	1.07	997	0.449	7.41	2.900	1.74	0.8	112.4	39	1.2	18.4	7.7	0.5	2	12	15.3	<0.1
1751695	Rock		0.045	39.4	4	<0.01	429	0.146	6.28	0.008	0.03	5.6	89.9	88	1.5	11.0	9.6	0.8	<1	2	47.8	<0.1
1751696	Rock		0.014	21.4	10	<0.01	112	0.140	3.18	0.007	0.03	3.9	86.5	41	1.3	9.1	9.1	0.8	<1	2	29.4	0.7
1751697	Rock		0.078	47.0	9	<0.01	814	0.260	8.12	0.007	0.03	10.6	101.8	96	1.2	13.2	9.4	0.6	<1	4	72.1	<0.1
1751698	Rock		0.035	25.3	8	<0.01	430	0.207	5.10	0.024	0.07	6.8	90.4	55	1.1	12.4	8.9	0.7	<1	3	24.1	0.1
1751699	Rock		0.026	26.5	6	<0.01	296	0.165	5.29	0.006	0.02	5.6	76.1	54	1.2	8.0	9.4	0.8	<1	2	38.7	<0.1
1751851	Rock		0.004	25.1	1	0.04	73	0.085	4.35	0.015	1.31	3.2	76.1	48	1.4	18.9	9.2	0.6	<1	2	11.5	0.4
1751852	Rock		0.004	29.8	1	0.02	1346	0.118	5.03	0.070	1.91	1.6	75.3	65	0.7	24.0	9.4	0.6	1	5	42.0	<0.1
1751853	Rock		0.366	178.0	1	<0.01	19	0.021	10.23	0.662	1.97	19.6	17.0	450	0.6	8.8	3.0	0.3	<1	4	25.6	7.0
1751854	Rock		0.007	3.9	1	0.01	192	0.004	3.70	0.017	0.13	0.1	3.7	8	<0.1	2.3	0.2	<0.1	4	<1	41.8	<0.1
1751855	Rock		0.013	19.6	2	<0.01	39	0.062	4.41	0.027	0.90	7.7	50.3	39	1.1	12.8	11.3	1.1	2	2	10.0	1.4
1751856	Rock		0.012	35.4	2	0.05	1536	0.146	6.98	0.807	4.35	2.1	218.5	75	1.8	33.8	12.2	0.8	2	8	30.9	<0.1
1751857	Rock		0.015	32.9	2	0.05	1608	0.131	6.91	1.857	4.19	1.5	194.8	58	2.0	31.8	11.7	0.7	2	7	24.3	<0.1
1751858	Rock		0.012	28.4	2	0.05	159	0.104	4.44	0.176	2.59	1.8	106.4	57	1.3	27.6	8.4	0.5	2	7	53.5	0.5
1751859	Rock		0.014	31.4	2	0.05	1276	0.138	6.48	1.179	4.04	1.2	154.3	67	1.6	21.4	10.8	0.7	2	7	26.8	<0.1
1751860	Rock		0.006	22.1	2	0.13	353	0.075	5.41	0.042	2.52	1.1	137.4	47	2.8	25.5	14.8	0.9	2	3	14.0	0.2
1751861	Rock		0.009	21.1	3	0.16	453	0.062	4.39	0.058	2.03	0.8	147.1	46	2.6	27.0	12.1	0.8	2	2	24.9	<0.1
1751862	Rock		0.006	35.3	2	0.12	551	0.070	5.24	0.029	2.55	1.4	150.5	81	2.4	28.5	14.3	1.0	1	2	17.0	0.4
1751863	Rock		0.058	15.9	28	1.17	517	0.340	7.64	2.843	1.23	0.9	63.8	29	0.7	12.0	5.3	0.3	<1	10	30.3	<0.1
1751864	Rock		0.010	43.0	2	0.08	457	0.112	5.84	0.048	4.14	1.7	100.0	86	0.8	23.4	12.0	0.8	1	3	23.1	<0.1
1751865	Rock		0.009	42.9	2	0.08	382	0.077	5.56	0.023	2.55	2.9	152.7	88	3.1	26.4	15.7	1.0	1	3	13.3	0.2
1751866	Rock		0.006	38.4	2	0.16	539	0.097	5.25	0.033	2.45	3.0	183.8	81	2.8	34.5	14.2	0.9	2	4	22.0	<0.1
1751867	Rock		0.012	19.2	2	0.09	316	0.073	6.76	2.063	3.61	0.4	56.7	54	1.0	12.6	11.8	1.2	2	2	6.6	<0.1
1751868	Rock		0.051	6.3	6	1.31	73	0.317	9.39	2.613	1.84	>200	29.4	16	2.2	22.3	2.8	0.2	2	17	16.0	4.3
1751869	Rock		0.012	41.6	2	0.05	1414	0.170	7.35	2.080	3.12	4.6	323.0	81	2.4	39.2	13.8	0.9	3	7	24.7	<0.1
1751870	Rock		0.012	44.9	1	0.04	1385	0.151	7.08	2.650	3.33	3.8	266.4	91	1.8	33.2	12.7	0.9	2	8	12.3	<0.1
1751871	Rock		0.009	39.3	2	0.02	1472	0.151	7.18	3.054	3.47	2.5	309.6	78	2.3	39.7	12.9	0.9	2	7	8.3	<0.1

BUREAU VERITAS MINERAL LABORATORIES Canada

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Rb	Hf	In	Re	Se	Te	Tl
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.1	0.05	0.005	1	0.5	0.5
1751691	Rock	7.5	5.1	0.08	<0.005	<1	<0.5	<0.5
1751692	Rock	1.6	2.9	<0.05	<0.005	1	<0.5	<0.5
1751693	Rock	1.3	2.4	<0.05	<0.005	<1	<0.5	<0.5
1751694	Rock	41.2	3.2	<0.05	<0.005	2	<0.5	<0.5
1751695	Rock	1.3	2.9	<0.05	<0.005	<1	<0.5	<0.5
1751696	Rock	1.7	2.9	<0.05	<0.005	<1	<0.5	<0.5
1751697	Rock	1.0	3.2	0.06	<0.005	<1	<0.5	<0.5
1751698	Rock	2.9	2.8	<0.05	<0.005	1	<0.5	<0.5
1751699	Rock	1.4	2.7	<0.05	<0.005	1	<0.5	<0.5
1751851	Rock	87.0	3.0	<0.05	<0.005	1	<0.5	0.8
1751852	Rock	113.4	2.0	<0.05	<0.005	2	<0.5	1.0
1751853	Rock	16.9	0.7	0.06	<0.005	11	0.7	<0.5
1751854	Rock	13.6	<0.1	<0.05	<0.005	6	<0.5	1.0
1751855	Rock	5.4	2.1	<0.05	0.007	<1	<0.5	<0.5
1751856	Rock	182.6	6.0	0.07	<0.005	<1	<0.5	1.0
1751857	Rock	158.9	5.2	0.06	<0.005	<1	<0.5	0.9
1751858	Rock	108.0	2.7	<0.05	<0.005	<1	<0.5	0.5
1751859	Rock	149.6	4.0	<0.05	<0.005	<1	<0.5	0.6
1751860	Rock	107.7	4.9	0.10	<0.005	<1	<0.5	0.7
1751861	Rock	87.7	4.9	0.07	<0.005	<1	<0.5	0.7
1751862	Rock	99.9	5.7	0.07	<0.005	<1	<0.5	0.8
1751863	Rock	50.8	1.7	<0.05	<0.005	<1	<0.5	<0.5
1751864	Rock	189.5	3.6	<0.05	<0.005	<1	<0.5	1.4
1751865	Rock	101.9	5.4	<0.05	<0.005	<1	<0.5	0.8
1751866	Rock	120.0	5.2	0.07	<0.005	<1	<0.5	1.1
1751867	Rock	251.2	2.6	<0.05	<0.005	<1	<0.5	1.4
1751868	Rock	50.7	0.8	0.20	<0.005	<1	<0.5	0.6
1751869	Rock	176.6	8.2	0.09	<0.005	<1	<0.5	1.3
1751870	Rock	144.2	7.0	<0.05	<0.005	<1	<0.5	1.1
1751871	Rock	131.9	8.0	<0.05	<0.005	<1	<0.5	0.8

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
1751872	Rock	2.11	4	4.0	2.4	14.5	46	<0.1	0.6	0.3	182	1.76	124	4.1	11.4	22	<0.1	5.0	<0.1	3	0.05
1751873	Rock	1.96	7	14.9	1.7	8.9	12	0.7	0.1	<0.2	75	1.23	152	3.3	9.5	28	<0.1	4.3	<0.1	2	0.04
1751874	Rock	1.94	14	11.8	2.1	13.0	28	0.3	0.7	0.5	185	1.26	42	4.5	12.0	26	<0.1	6.8	0.4	9	0.04
1751875	Rock	1.72	13	7.1	2.1	11.9	38	0.1	0.5	0.3	209	1.89	44	4.1	12.6	17	<0.1	2.4	0.4	3	0.03
1751876	Rock	1.90	8	1.6	9.9	7.4	13	0.3	0.6	<0.2	91	1.38	78	2.2	7.2	96	0.2	1.2	0.2	3	0.03
1751877	Rock	0.93	18	11.0	3.3	9.8	55	0.2	0.4	0.5	354	1.81	49	2.1	8.2	49	<0.1	9.6	0.2	7	0.03
1751701	Rock	3.34	68	33.9	3.6	5.5	5	2.4	1.1	<0.2	102	0.79	96	4.9	10.0	20	<0.1	10.8	<0.1	13	0.04
1751702	Rock	2.93	186	9.2	4.9	1313.6	6	2.3	0.9	0.3	115	0.59	42	4.1	10.3	18	<0.1	7.4	0.8	11	0.04
1751703	Rock	2.67	42	3.6	2.7	7.8	3	1.1	0.8	0.2	38	0.55	31	5.4	13.5	69	<0.1	12.0	1.1	10	0.04
1751704	Rock	2.84	32	6.0	2.8	10.8	3	2.0	1.0	0.4	34	0.76	67	5.3	14.2	96	<0.1	12.6	<0.1	6	0.03
1751705	Rock	1.16	8	0.7	21.1	10.7	85	<0.1	18.9	13.4	815	4.69	23	1.8	4.4	472	<0.1	1.6	<0.1	117	2.72
1751706	Rock	0.77	15	3.6	3.1	6.7	7	0.9	0.8	0.3	54	0.82	37	3.9	10.8	81	<0.1	8.1	0.1	6	0.06

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S
	Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
1751872	Rock	0.022	36.2	2	0.03	1270	0.145	6.34	0.103	3.44	1.9	289.7	68	1.9	30.6	11.5	0.8	2	6	35.2	<0.1
1751873	Rock	0.011	27.8	2	0.02	1193	0.121	5.42	0.079	3.61	1.7	246.5	55	1.9	26.9	9.9	0.6	2	4	32.0	0.2
1751874	Rock	0.015	44.1	3	0.14	606	0.144	6.32	0.128	3.55	5.9	159.4	90	2.6	34.4	15.8	1.0	1	4	19.1	<0.1
1751875	Rock	0.013	44.3	2	0.10	484	0.112	6.49	0.051	2.83	2.7	209.6	92	3.1	34.2	17.1	1.1	2	3	10.6	<0.1
1751876	Rock	0.014	23.6	2	0.02	1861	0.120	5.31	0.302	3.92	1.8	176.5	48	1.4	22.6	9.1	0.6	1	6	20.2	<0.1
1751877	Rock	0.012	20.1	2	0.04	523	0.073	5.44	1.471	2.74	1.0	93.6	43	1.7	15.3	10.4	0.6	<1	2	16.9	<0.1
1751701	Rock	0.007	27.6	2	0.12	182	0.085	4.11	0.018	1.93	2.6	82.5	52	1.2	22.5	8.8	0.6	1	2	25.8	<0.1
1751702	Rock	0.004	26.3	2	0.13	111	0.079	4.47	0.018	1.88	1.9	79.5	53	1356.9	17.0	8.6	0.6	2	2	47.0	<0.1
1751703	Rock	0.013	20.5	2	0.01	189	0.115	5.39	0.028	0.08	8.2	120.4	36	3.4	14.1	11.4	0.8	<1	3	32.1	<0.1
1751704	Rock	0.016	26.6	2	<0.01	287	0.094	5.16	0.019	0.05	7.7	95.5	50	1.9	13.9	10.9	0.8	<1	2	29.7	0.3
1751705	Rock	0.141	19.2	31	1.20	944	0.488	8.21	3.240	2.06	0.7	101.5	42	1.1	18.5	8.0	0.5	<1	16	14.4	<0.1
1751706	Rock	0.011	24.7	2	0.01	149	0.094	4.88	0.032	0.07	5.5	90.0	47	1.3	14.1	10.1	0.7	<1	3	27.5	<0.1

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002831.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Rb	Hf	In	Re	Se	Te	Tl
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.1	0.05	0.005	1	0.5	0.5
1751872	Rock	168.4	7.7	0.05	<0.005	<1	<0.5	1.0
1751873	Rock	146.9	6.2	<0.05	<0.005	<1	<0.5	0.9
1751874	Rock	186.7	5.5	0.14	<0.005	<1	<0.5	1.6
1751875	Rock	141.9	6.3	0.08	<0.005	<1	<0.5	1.3
1751876	Rock	176.4	4.4	<0.05	<0.005	<1	<0.5	2.7
1751877	Rock	104.4	2.8	0.12	<0.005	<1	<0.5	0.9
1751701	Rock	105.5	3.2	<0.05	<0.005	<1	<0.5	1.4
1751702	Rock	112.9	2.9	0.35	<0.005	<1	<0.5	1.1
1751703	Rock	4.2	4.3	0.06	<0.005	<1	<0.5	<0.5
1751704	Rock	3.3	3.4	<0.05	<0.005	<1	<0.5	<0.5
1751705	Rock	50.7	2.5	<0.05	<0.005	<1	<0.5	<0.5
1751706	Rock	3.8	3.2	<0.05	<0.005	<1	<0.5	<0.5

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Project: Windfall Hills
Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002831.1

	Method	WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
Pulp Duplicates																					
1751606	Rock	3.12	39	4.1	6.8	7.9	12	4.3	0.6	<0.2	24	0.84	80	7.3	15.5	48	<0.1	9.5	<0.1	7	0.02
REP 1751606	QC		38																		
1751613	Rock	3.37	14	4.6	3.8	11.2	5	1.9	0.8	<0.2	22	0.74	46	8.3	19.1	73	<0.1	10.2	<0.1	7	0.02
REP 1751613	QC			4.2	3.8	11.3	5	2.1	0.5	<0.2	23	0.75	50	8.4	20.1	73	<0.1	10.6	<0.1	7	0.02
1751638	Rock	2.17	<2	2.2	2.4	12.1	4	0.2	0.7	0.2	21	0.91	22	6.8	19.6	53	<0.1	12.2	<0.1	9	0.02
REP 1751638	QC		2																		
1751647	Rock	3.62	37	7.8	4.6	11.3	9	1.2	1.1	0.3	74	0.92	49	3.5	10.8	41	<0.1	3.6	0.3	18	0.03
REP 1751647	QC			7.9	4.8	12.0	11	1.3	1.2	0.4	75	0.96	51	3.7	11.1	42	<0.1	4.2	0.3	19	0.03
1751672	Rock	1.70	192	104.9	54.2	19.0	14	9.2	3.9	1.7	66	3.02	379	5.7	3.9	230	<0.1	19.2	0.2	59	0.13
REP 1751672	QC		180																		
1751682	Rock	1.72	51	6.1	4.7	10.1	4	5.1	1.1	0.5	43	1.18	78	5.8	16.7	235	<0.1	15.7	0.1	32	0.06
REP 1751682	QC			6.7	4.2	9.5	3	4.9	0.8	0.4	38	1.12	74	5.7	16.0	224	<0.1	14.3	0.1	32	0.05
1751857	Rock	1.74	<2	1.0	4.5	12.0	80	<0.1	1.7	0.9	716	1.92	7	2.6	10.3	90	<0.1	1.5	<0.1	4	0.20
REP 1751857	QC		<2																		
1751865	Rock	2.00	122	11.3	1.5	12.3	10	0.5	0.4	<0.2	92	1.15	116	3.6	10.9	11	<0.1	4.5	0.2	3	0.01
REP 1751865	QC			11.4	2.1	12.0	10	0.5	0.3	<0.2	89	1.06	109	3.4	9.9	11	<0.1	4.8	0.1	3	0.01
Core Reject Duplicates																					
1751609	Rock	2.49	20	3.3	4.2	11.9	9	0.6	0.6	<0.2	17	0.45	29	5.3	24.3	122	<0.1	6.4	<0.1	8	0.03
DUP 1751609	QC		19	3.1	4.9	12.5	10	0.6	0.6	<0.2	17	0.46	31	6.2	24.9	128	<0.1	7.4	<0.1	7	0.04
1751643	Rock	1.25	75	2.3	3.3	14.0	6	0.8	1.9	0.3	73	0.67	64	2.4	3.2	69	<0.1	2.6	0.4	61	0.03
DUP 1751643	QC		75	2.3	4.0	14.0	5	0.8	2.0	0.3	73	0.66	65	2.4	3.2	70	<0.1	2.7	0.4	61	0.03
1751677	Rock	1.86	99	4.8	2.5	7.9	3	2.8	0.9	0.3	43	0.73	48	4.8	14.7	144	<0.1	13.5	<0.1	12	0.04
DUP 1751677	QC		104	4.6	2.9	7.9	3	2.8	0.8	0.3	43	0.72	47	4.8	14.8	137	<0.1	13.6	<0.1	12	0.04
1751862	Rock	2.03	87	9.3	2.6	9.4	12	0.1	0.4	<0.2	60	1.09	84	3.3	9.6	17	<0.1	3.4	0.1	5	0.01
DUP 1751862	QC		95	8.3	2.3	9.4	13	0.1	0.4	<0.2	61	1.08	76	3.2	9.3	16	0.1	3.4	<0.1	4	0.01
Reference Materials																					
STD OREAS25A-4A	Standard			2.4	33.0	25.7	39	<0.1	46.7	7.8	511	6.78	10	3.0	17.0	51	<0.1	0.6	0.3	156	0.28
STD OREAS25A-4A	Standard			2.0	31.0	24.1	42	<0.1	46.5	7.6	470	6.30	10	2.7	15.8	44	0.2	0.5	0.4	157	0.29

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Project: Windfall Hills
Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002831.1

		Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
		Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Ce	Sn	Y	Nb	Ta	Be	Sc	Li	S
		Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
Pulp Duplicates																						
1751606	Rock		0.013	14.1	1	<0.01	161	0.068	5.30	0.011	0.13	2.5	52.0	29	1.4	7.0	11.0	1.2	1	2	11.5	0.2
REP 1751606	QC																					
1751613	Rock		0.013	22.7	2	<0.01	214	0.063	5.70	0.014	0.35	4.1	50.0	40	1.2	6.4	11.0	1.2	<1	<1	30.4	0.6
REP 1751613	QC		0.015	22.8	1	<0.01	214	0.067	5.57	0.014	0.38	4.1	50.8	41	1.4	6.6	11.1	1.3	1	1	31.4	0.6
1751638	Rock		0.018	24.5	2	<0.01	234	0.068	5.54	0.017	0.40	3.7	51.5	45	0.9	7.7	11.2	1.2	<1	1	13.7	0.7
REP 1751638	QC																					
1751647	Rock		0.015	34.0	3	0.15	430	0.104	5.22	0.059	1.78	2.1	134.7	69	2.2	33.6	12.7	0.8	<1	3	9.8	<0.1
REP 1751647	QC		0.014	35.9	3	0.16	452	0.107	5.41	0.058	1.88	2.3	137.9	71	2.3	34.8	13.0	0.9	1	3	9.9	<0.1
1751672	Rock		0.070	21.0	22	0.08	56	0.297	6.26	0.064	0.54	12.2	51.7	43	0.7	9.8	5.6	0.3	3	6	22.5	0.6
REP 1751672	QC																					
1751682	Rock		0.042	29.7	7	0.01	426	0.185	4.93	0.052	0.11	7.9	86.3	66	1.1	15.3	8.9	0.7	<1	4	26.2	<0.1
REP 1751682	QC		0.040	28.4	6	0.01	408	0.178	4.80	0.049	0.11	7.9	84.4	63	1.1	14.4	8.4	0.6	1	3	27.2	<0.1
1751857	Rock		0.015	32.9	2	0.05	1608	0.131	6.91	1.857	4.19	1.5	194.8	58	2.0	31.8	11.7	0.7	2	7	24.3	<0.1
REP 1751857	QC																					
1751865	Rock		0.009	42.9	2	0.08	382	0.077	5.56	0.023	2.55	2.9	152.7	88	3.1	26.4	15.7	1.0	1	3	13.3	0.2
REP 1751865	QC		0.008	43.7	2	0.08	381	0.073	5.35	0.022	2.40	2.7	153.7	88	2.9	25.4	15.4	1.0	<1	3	12.0	0.2
Core Reject Duplicates																						
1751609	Rock		0.032	28.1	1	<0.01	21	0.061	5.33	0.041	0.83	3.8	46.5	56	2.1	5.6	9.3	1.0	<1	2	10.3	1.6
DUP 1751609	QC		0.030	31.0	1	<0.01	27	0.062	5.41	0.047	0.91	4.2	47.9	61	1.2	6.2	10.3	1.1	1	1	11.5	1.6
1751643	Rock		0.024	12.8	10	0.27	689	0.195	6.89	0.023	2.22	3.9	54.8	25	0.8	9.1	7.7	0.6	1	6	10.4	<0.1
DUP 1751643	QC		0.025	12.4	11	0.26	682	0.198	6.84	0.023	2.11	4.2	55.1	24	0.8	8.9	7.5	0.6	2	6	12.6	<0.1
1751677	Rock		0.017	16.0	1	0.02	116	0.054	3.93	0.045	0.10	2.4	33.6	30	1.2	10.9	7.4	0.8	<1	2	28.8	<0.1
DUP 1751677	QC		0.015	16.0	2	0.02	112	0.052	3.78	0.047	0.10	2.3	33.8	30	1.1	9.9	7.0	0.7	<1	2	28.3	<0.1
1751862	Rock		0.006	35.3	2	0.12	551	0.070	5.24	0.029	2.55	1.4	150.5	81	2.4	28.5	14.3	1.0	1	2	17.0	0.4
DUP 1751862	QC		0.005	33.5	2	0.12	498	0.067	5.14	0.029	2.52	1.3	140.4	75	2.5	25.9	13.2	0.9	2	2	17.7	0.4
Reference Materials																						
STD OREAS25A-4A	Standard		0.045	22.8	110	0.34	152	0.997	9.42	0.119	0.49	1.9	153.8	51	4.1	11.1	20.5	1.5	2	13	38.3	<0.1
STD OREAS25A-4A	Standard		0.047	21.6	110	0.32	158	0.903	9.18	0.109	0.49	1.7	142.5	48	3.8	9.3	18.4	1.4	<1	12	39.1	<0.1

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QUALITY CONTROL REPORT VAN18002831.1

	Method	MA200	MA200	MA200	MA200	MA200	MA200	MA200
	Analyte	Rb	Hf	In	Re	Se	Te	Tl
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.1	0.05	0.005	1	0.5	0.5
Pulp Duplicates								
1751606	Rock	2.3	2.4	<0.05	<0.005	1	<0.5	<0.5
REP 1751606	QC							
1751613	Rock	2.9	2.3	<0.05	<0.005	<1	<0.5	<0.5
REP 1751613	QC	3.0	2.5	0.06	<0.005	<1	<0.5	<0.5
1751638	Rock	3.3	2.2	<0.05	<0.005	<1	<0.5	<0.5
REP 1751638	QC							
1751647	Rock	78.2	4.4	<0.05	<0.005	<1	0.6	0.7
REP 1751647	QC	80.3	4.6	0.08	<0.005	<1	<0.5	0.9
1751672	Rock	13.7	1.4	<0.05	<0.005	3	1.9	<0.5
REP 1751672	QC							
1751682	Rock	4.4	2.6	<0.05	<0.005	3	<0.5	<0.5
REP 1751682	QC	4.0	2.8	<0.05	0.006	1	<0.5	<0.5
1751857	Rock	158.9	5.2	0.06	<0.005	<1	<0.5	0.9
REP 1751857	QC							
1751865	Rock	101.9	5.4	<0.05	<0.005	<1	<0.5	0.8
REP 1751865	QC	98.2	4.9	0.10	<0.005	<1	<0.5	0.8
Core Reject Duplicates								
1751609	Rock	4.4	2.1	0.07	<0.005	<1	<0.5	<0.5
DUP 1751609	QC	4.4	2.1	<0.05	<0.005	<1	<0.5	<0.5
1751643	Rock	106.0	1.7	<0.05	0.009	<1	<0.5	1.2
DUP 1751643	QC	103.7	1.9	<0.05	<0.005	<1	<0.5	1.2
1751677	Rock	5.2	1.5	<0.05	<0.005	2	<0.5	<0.5
DUP 1751677	QC	5.1	1.5	<0.05	<0.005	2	<0.5	<0.5
1751862	Rock	99.9	5.7	0.07	<0.005	<1	<0.5	0.8
DUP 1751862	QC	99.1	5.0	0.06	<0.005	<1	<0.5	0.8
Reference Materials								
STD OREAS25A-4A	Standard	60.0	4.4	0.07	<0.005	2	<0.5	<0.5
STD OREAS25A-4A	Standard	57.8	4.2	0.05	<0.005	2	<0.5	<0.5

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Project: Windfall Hills
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QUALITY CONTROL REPORT VAN18002831.1

		WGHT	FA330	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200	MA200
		Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca
		kg	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.01	2	0.1	0.1	0.1	1	0.1	0.1	0.2	1	0.01	1	0.1	0.1	1	0.1	0.1	0.1	1	0.01
STD OREAS25A-4A	Standard			2.8	34.8	24.5	41	<0.1	47.4	7.9	516	6.76	9	2.9	15.1	48	<0.1	0.6	0.4	152	0.28
STD OREAS25A-4A	Standard			2.4	33.3	24.3	47	<0.1	47.9	7.1	474	6.70	11	3.0	15.9	47	0.2	0.8	0.4	163	0.29
STD OREAS25A-4A	Standard			2.4	33.5	24.4	41	<0.1	46.7	7.7	499	6.65	10	2.7	14.1	47	<0.1	0.6	0.4	165	0.29
STD OREAS45E	Standard			2.6	760.5	18.8	46	0.3	481.8	58.8	610	26.60	18	2.6	13.4	18	<0.1	1.0	0.3	330	0.07
STD OREAS45E	Standard			2.1	776.6	19.6	42	0.3	475.3	54.2	552	23.81	15	2.7	15.0	17	<0.1	1.1	0.4	337	0.08
STD OREAS45E	Standard			2.1	758.6	18.5	44	0.3	479.4	62.6	584	26.28	16	2.7	14.0	18	<0.1	1.1	0.3	330	0.06
STD OREAS45E	Standard			2.0	792.8	18.4	46	0.3	492.5	54.7	532	23.01	18	2.5	13.6	14	<0.1	0.8	0.3	328	0.07
STD OREAS45E	Standard			2.5	803.2	18.3	46	0.3	476.2	59.1	592	24.85	17	2.4	13.2	17	<0.1	0.8	0.3	336	0.07
STD OXC145	Standard		211																		
STD OXC145	Standard		213																		
STD OXC145	Standard		218																		
STD OXC145	Standard		221																		
STD OXH139	Standard		1285																		
STD OXH139	Standard		1306																		
STD OXH139	Standard		1237																		
STD OXH139	Standard		1324																		
STD OREAS25A-4A Expected				2.55	33.9	25.2	44.4		45.8	8.2	470	6.6	9.94	2.94	15.8	48.5		0.67	0.35	157	0.309
STD OREAS45E Expected				2.4	780	18.2	46.7	0.311	454	57	570	24.12	16.3	2.41	12.9	15.9	0.06	1	0.28	322	0.065
STD OXC145 Expected			212																		
STD OXH139 Expected			1312																		
BLK	Blank			<0.1	0.1	<0.1	<1	<0.1	<0.1	<0.2	<1	<0.01	<1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01
BLK	Blank			<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.2	<1	<0.01	<1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01
BLK	Blank			<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.2	<1	<0.01	<1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01
BLK	Blank			<0.1	0.2	<0.1	<1	<0.1	<0.1	<0.2	<1	<0.01	<1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01
BLK	Blank		<2																		
BLK	Blank		3																		
BLK	Blank		<2																		
BLK	Blank		<2																		
BLK	Blank			<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.2	<1	<0.01	<1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01

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QUALITY CONTROL REPORT VAN18002831.1

		MA200 P	MA200 La	MA200 Cr	MA200 Mg	MA200 Ba	MA200 Ti	MA200 Al	MA200 Na	MA200 K	MA200 W	MA200 Zr	MA200 Ce	MA200 Sn	MA200 Y	MA200 Nb	MA200 Ta	MA200 Be	MA200 Sc	MA200 Li	MA200 S
		%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.1	1	0.1	0.1	0.1	0.1	1	1	0.1	0.1
STD OREAS25A-4A	Standard	0.047	21.2	121	0.32	145	0.945	9.14	0.117	0.48	2.2	150.4	47	3.7	10.3	19.2	1.4	<1	12	37.7	<0.1
STD OREAS25A-4A	Standard	0.051	24.0	107	0.34	155	0.989	9.46	0.117	0.51	2.0	161.2	50	4.3	10.5	20.5	1.4	<1	13	38.5	<0.1
STD OREAS25A-4A	Standard	0.046	18.2	116	0.32	148	0.937	8.88	0.118	0.48	1.7	147.7	41	3.8	9.0	19.4	1.4	<1	11	36.4	<0.1
STD OREAS45E	Standard	0.030	11.9	973	0.16	254	0.544	6.86	0.052	0.34	0.9	96.9	25	1.2	8.2	6.3	0.5	<1	93	7.6	<0.1
STD OREAS45E	Standard	0.036	11.4	996	0.16	268	0.521	7.03	0.050	0.33	1.1	90.9	25	1.3	7.7	5.7	0.6	<1	90	7.7	<0.1
STD OREAS45E	Standard	0.029	11.7	998	0.16	255	0.529	6.81	0.053	0.33	0.9	93.7	25	1.3	8.1	6.0	0.5	1	88	5.7	<0.1
STD OREAS45E	Standard	0.033	10.1	947	0.16	226	0.555	7.04	0.052	0.34	1.1	96.9	23	1.5	7.3	6.1	0.6	1	87	7.2	<0.1
STD OREAS45E	Standard	0.029	10.6	987	0.16	249	0.554	6.92	0.054	0.32	0.9	90.9	23	1.1	7.7	6.0	0.5	<1	90	6.5	<0.1
STD OXC145	Standard																				
STD OXC145	Standard																				
STD OXC145	Standard																				
STD OXC145	Standard																				
STD OXH139	Standard																				
STD OXH139	Standard																				
STD OXH139	Standard																				
STD OXH139	Standard																				
STD OREAS25A-4A Expected		0.048	21.8	115	0.327	147	0.977	8.87	0.134	0.482	2	155	48.9	4.06	10.5	20.9	1.5	0.93	13.7	36.7	0.047
STD OREAS45E Expected		0.034	11	979	0.156	252	0.559	6.78	0.059	0.324	1.07	97	23.5	1.32	8.28	6.8	0.54		93	6.58	0.046
STD OXC145 Expected																					
STD OXH139 Expected																					
BLK	Blank	<0.001	<0.1	<1	<0.01	<1	<0.001	<0.01	0.002	<0.01	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1
BLK	Blank	<0.001	<0.1	<1	<0.01	<1	<0.001	<0.01	0.001	<0.01	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1
BLK	Blank	<0.001	<0.1	<1	<0.01	<1	<0.001	<0.01	0.002	<0.01	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1
BLK	Blank	<0.001	<0.1	<1	<0.01	<1	<0.001	<0.01	0.003	<0.01	<0.1	0.1	<1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.001	<0.1	<1	<0.01	<1	<0.001	<0.01	0.002	<0.01	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1

BUREAU VERITAS MINERAL LABORATORIES Canada

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Bureau Veritas Commodities Canada Ltd.
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PHONE (604) 253-3158

Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002831.1

		MA200 Rb ppm 0.1	MA200 Hf ppm 0.1	MA200 In ppm 0.05	MA200 Re ppm 0.005	MA200 Se ppm 1	MA200 Te ppm 0.5	MA200 Tl ppm 0.5
STD OREAS25A-4A	Standard	56.6	4.3	0.06	<0.005	3	<0.5	<0.5
STD OREAS25A-4A	Standard	63.9	3.9	0.08	<0.005	<1	<0.5	<0.5
STD OREAS25A-4A	Standard	51.8	4.1	0.07	<0.005	3	<0.5	<0.5
STD OREAS45E	Standard	21.3	3.2	0.13	<0.005	2	<0.5	<0.5
STD OREAS45E	Standard	21.9	3.0	0.08	<0.005	3	<0.5	<0.5
STD OREAS45E	Standard	21.3	2.8	0.15	<0.005	3	<0.5	<0.5
STD OREAS45E	Standard	20.1	3.0	0.05	<0.005	2	<0.5	<0.5
STD OREAS45E	Standard	20.6	2.8	0.10	<0.005	2	<0.5	<0.5
STD OXC145	Standard							
STD OXC145	Standard							
STD OXC145	Standard							
STD OXC145	Standard							
STD OXH139	Standard							
STD OXH139	Standard							
STD OXH139	Standard							
STD OXH139	Standard							
STD OREAS25A-4A Expected		61	4.28	0.09		2.5		0.35
STD OREAS45E Expected		21.2	3.11	0.099		2.97	0.1	0.15
STD OXC145 Expected								
STD OXH139 Expected								
BLK	Blank	<0.1	<0.1	<0.05	<0.005	<1	<0.5	<0.5
BLK	Blank	<0.1	<0.1	<0.05	<0.005	<1	<0.5	<0.5
BLK	Blank	<0.1	<0.1	<0.05	<0.005	2	<0.5	<0.5
BLK	Blank	<0.1	<0.1	<0.05	<0.005	<1	<0.5	<0.5
BLK	Blank							
BLK	Blank							
BLK	Blank							
BLK	Blank							
BLK	Blank	<0.1	<0.1	<0.05	<0.005	<1	<0.5	<0.5

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Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002831.1

		WGHT Wgt kg 0.01	FA330 Au ppb 2	MA200 Mo ppm 0.1	MA200 Cu ppm 0.1	MA200 Pb ppm 0.1	MA200 Zn ppm 1	MA200 Ag ppm 0.1	MA200 Ni ppm 0.1	MA200 Co ppm 0.2	MA200 Mn ppm 1	MA200 Fe % 0.01	MA200 As ppm 1	MA200 U ppm 0.1	MA200 Th ppm 0.1	MA200 Sr ppm 1	MA200 Cd ppm 0.1	MA200 Sb ppm 0.1	MA200 Bi ppm 0.1	MA200 V ppm 1	MA200 Ca % 0.01
BLK	Blank		3																		
BLK	Blank		3																		
BLK	Blank		<2																		
BLK	Blank		<2																		
Prep Wash																					
ROCK-VAN	Prep Blank		<2	0.6	5.7	3.2	41	<0.1	1.1	4.3	644	2.16	1	1.2	2.9	212	<0.1	<0.1	<0.1	33	1.63
ROCK-VAN	Prep Blank		<2	0.6	5.2	2.9	38	<0.1	1.3	3.6	627	2.10	1	1.2	2.9	211	<0.1	<0.1	<0.1	33	1.54

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QUALITY CONTROL REPORT VAN18002831.1

		MA200 P % 0.001	MA200 La ppm 0.1	MA200 Cr ppm 1	MA200 Mg % 0.01	MA200 Ba ppm 1	MA200 Ti % 0.001	MA200 Al % 0.01	MA200 Na % 0.001	MA200 K % 0.01	MA200 W ppm 0.1	MA200 Zr ppm 0.1	MA200 Ce ppm 1	MA200 Sn ppm 0.1	MA200 Y ppm 0.1	MA200 Nb ppm 0.1	MA200 Ta ppm 0.1	MA200 Be ppm 1	MA200 Sc ppm 1	MA200 Li ppm 0.1	MA200 S % 0.1
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
ROCK-VAN	Prep Blank	0.040	13.4	3	0.47	815	0.211	7.16	3.382	1.73	0.3	51.4	26	1.0	15.3	5.7	0.5	1	7	3.8	<0.1
ROCK-VAN	Prep Blank	0.043	12.1	2	0.48	895	0.205	7.05	3.341	1.73	0.3	52.5	24	0.8	16.3	5.3	0.4	1	7	2.5	<0.1

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QUALITY CONTROL REPORT VAN18002831.1

		MA200 Rb ppm 0.1	MA200 Hf ppm 0.1	MA200 In ppm 0.05	MA200 Re ppm 0.005	MA200 Se ppm 1	MA200 Te ppm 0.5	MA200 Tl ppm 0.5
BLK	Blank							
BLK	Blank							
BLK	Blank							
BLK	Blank							
Prep Wash								
ROCK-VAN	Prep Blank	35.3	2.0	0.08	<0.005	1	<0.5	<0.5
ROCK-VAN	Prep Blank	36.2	1.7	<0.05	<0.005	<1	<0.5	<0.5

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Submitted By: Garry Biles
Receiving Lab: Canada-Vancouver
Received: October 09, 2018
Report Date: November 13, 2018
Page: 1 of 9

CERTIFICATE OF ANALYSIS VAN18002832.1

CLIENT JOB INFORMATION

Project: Windfall Hills
Shipment ID: WH-001
P.O. Number
Number of Samples: 224

SAMPLE DISPOSAL

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

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

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
DY060	224	Dry at 60C			VAN
SS80	224	Dry at 60C sieve 100g to -80 mesh			VAN
AQ251	224	1:1:1 Aqua Regia digestion Ultratrace ICP-MS analysis	15	Completed	VAN
DISPL	224	Disposal of pulps			VAN

ADDITIONAL COMMENTS

Invoice To: Canarc Resources Corp.
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6
Canada

CC: Alan Wainwright

KERRY JAY
Geochem Project Specialist

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

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
JWL001	Soil		2.34	5.76	8.67	68.0	642	9.3	4.7	313	1.89	12.0	0.4	8.3	2.3	12.0	0.05	0.39	0.11	38	0.11	0.093
JWL002	Soil		1.57	4.46	8.89	70.0	1339	5.3	3.4	407	1.38	15.2	0.4	20.9	2.1	8.7	0.03	0.35	0.12	28	0.09	0.056
JWL003	Soil		1.80	6.54	10.56	35.1	137	5.8	3.7	239	1.66	12.3	0.5	2.1	2.8	10.3	0.03	0.43	0.12	36	0.11	0.062
JWL004	Soil		1.76	6.47	8.92	36.1	148	6.3	3.5	162	1.59	12.3	0.5	11.3	2.2	15.5	0.03	0.46	0.13	35	0.14	0.043
JWL005	Soil		1.34	9.28	7.66	45.3	86	9.4	4.8	239	1.88	10.3	0.6	3.5	2.4	22.2	0.03	0.45	0.11	42	0.20	0.056
JWL006	Soil		1.09	8.03	8.00	36.9	58	8.6	4.9	214	1.84	8.7	0.6	2.2	2.3	21.9	0.02	0.33	0.09	41	0.21	0.057
JWL007	Soil		2.16	11.42	8.42	79.8	278	15.7	8.1	489	3.18	11.6	0.6	1.5	1.8	18.3	0.05	0.34	0.11	63	0.18	0.138
JWL008	Soil		1.58	7.10	8.84	53.0	86	7.9	4.5	256	1.93	8.1	0.5	2.7	2.1	15.5	0.02	0.33	0.11	41	0.14	0.064
JWL009	Soil		1.33	8.24	8.08	69.9	664	13.6	6.0	298	2.38	6.0	0.4	<0.2	1.6	10.6	0.05	0.23	0.11	50	0.09	0.144
JWL010	Soil		1.55	8.88	8.29	63.8	1481	10.1	5.8	194	1.97	13.9	0.7	4.2	2.9	12.4	0.04	0.51	0.11	41	0.09	0.080
JWL011	Soil		0.63	5.38	8.00	29.6	28	5.8	3.7	190	1.34	6.9	0.5	4.9	1.7	18.7	<0.01	0.25	0.10	32	0.17	0.044
JWL012	Soil		0.78	7.36	7.56	39.8	32	9.5	4.9	166	1.77	6.7	0.6	0.6	2.1	19.8	0.02	0.28	0.10	43	0.18	0.044
JWL013	Soil		0.60	9.97	8.71	48.2	63	10.1	5.8	213	1.93	6.2	0.6	5.5	2.2	25.4	0.02	0.30	0.10	41	0.22	0.047
JWL014	Soil		0.60	18.38	7.57	49.2	36	14.3	7.1	292	2.68	10.8	0.8	4.1	3.4	44.7	0.02	0.54	0.11	50	0.37	0.061
JWL015	Soil		1.30	8.15	8.91	46.4	59	8.4	5.1	198	1.62	10.8	0.5	1.0	1.8	15.8	0.02	0.45	0.11	37	0.13	0.057
JWL016	Soil		0.94	6.84	7.57	42.2	63	7.9	4.6	186	1.68	7.1	0.5	7.3	1.6	23.4	0.02	0.27	0.09	38	0.18	0.045
JWL017	Soil		1.58	7.96	8.02	36.9	64	9.1	5.8	194	2.25	21.0	0.5	0.5	2.0	12.7	0.03	0.66	0.10	46	0.10	0.078
JWL018	Soil		1.31	8.30	7.71	56.0	62	9.3	5.0	192	2.24	13.0	0.4	<0.2	1.6	19.3	0.06	0.36	0.10	52	0.13	0.061
JWL019	Soil		1.39	8.87	8.56	40.1	48	9.5	5.3	160	2.05	12.0	0.4	1.1	1.8	17.3	0.03	0.41	0.10	44	0.14	0.082
JWL020	Soil		0.94	10.57	14.61	46.0	240	7.2	4.5	226	1.74	5.3	0.6	2.0	1.5	30.3	0.04	0.23	0.13	40	0.24	0.029
JWL021	Soil		1.65	12.81	11.29	71.4	153	13.4	8.3	230	3.49	23.5	0.4	0.6	1.9	27.1	0.10	0.58	0.16	78	0.27	0.074
JWL022	Soil		1.07	5.88	8.95	34.1	51	7.9	6.7	343	1.81	9.0	0.6	0.4	2.0	31.3	0.03	0.36	0.10	43	0.26	0.028
JWL023	Soil		1.24	7.68	8.10	55.1	127	10.6	6.0	185	2.35	10.9	0.5	<0.2	2.1	14.0	0.03	0.37	0.10	48	0.13	0.084
JWL024	Soil		1.60	13.32	10.01	110.7	251	18.3	10.1	303	3.10	23.2	0.6	21.9	2.3	30.4	0.08	0.58	0.14	58	0.25	0.188
JWL025	Soil		1.66	6.54	7.48	46.0	39	9.7	5.7	207	2.14	11.8	0.4	2.5	2.1	15.4	0.02	0.35	0.10	46	0.13	0.064
JWL026	Soil		1.53	16.81	7.23	71.3	108	15.6	8.6	929	2.76	7.7	1.0	1.1	1.4	53.8	0.14	0.27	0.11	52	0.46	0.053
JWL027	Soil		0.58	7.70	6.52	31.3	32	10.7	6.4	381	1.73	5.5	0.8	1.0	2.1	30.8	0.02	0.26	0.08	39	0.25	0.047
JWL028	Soil		1.45	8.33	8.97	74.5	97	6.8	5.1	657	2.29	6.1	0.4	<0.2	1.5	17.3	0.10	0.26	0.12	48	0.14	0.116
JWL029	Soil		1.24	7.66	8.52	54.4	41	8.4	6.3	668	2.08	5.3	0.4	0.9	1.5	24.8	0.09	0.27	0.11	49	0.18	0.056
JWL030	Soil		1.02	8.91	10.28	49.7	25	10.2	6.0	234	2.02	3.3	0.5	0.9	1.7	22.6	0.02	0.20	0.11	46	0.15	0.038

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
JWL001	Soil		15.5	14.3	0.12	105.5	0.051	2	1.41	0.008	0.05	<0.1	1.7	0.12	<0.02	47	<0.1	<0.02	4.4
JWL002	Soil		27.5	11.3	0.11	63.0	0.032	2	0.93	0.006	0.06	<0.1	1.4	0.12	<0.02	27	0.1	<0.02	3.6
JWL003	Soil		20.5	13.1	0.17	47.5	0.056	2	0.89	0.007	0.06	<0.1	1.6	0.08	<0.02	21	<0.1	0.02	2.8
JWL004	Soil		20.5	13.3	0.18	58.5	0.062	1	0.91	0.010	0.05	<0.1	1.8	0.08	<0.02	15	<0.1	<0.02	3.3
JWL005	Soil		20.6	17.4	0.24	84.6	0.087	2	1.06	0.012	0.06	<0.1	2.4	0.08	<0.02	19	<0.1	<0.02	3.7
JWL006	Soil		16.5	16.2	0.25	82.9	0.085	<1	1.19	0.013	0.06	<0.1	2.4	0.08	<0.02	21	<0.1	0.02	3.5
JWL007	Soil		13.0	25.0	0.34	117.3	0.059	2	2.66	0.006	0.08	<0.1	3.2	0.11	<0.02	44	<0.1	0.03	8.4
JWL008	Soil		17.9	16.3	0.21	77.9	0.062	1	1.45	0.008	0.05	<0.1	2.1	0.10	<0.02	17	<0.1	<0.02	4.9
JWL009	Soil		10.7	22.9	0.17	68.4	0.063	1	2.19	0.008	0.05	<0.1	2.1	0.09	<0.02	50	<0.1	<0.02	7.0
JWL010	Soil		17.2	18.5	0.19	97.7	0.060	1	1.58	0.010	0.05	<0.1	2.6	0.12	<0.02	43	<0.1	0.02	4.6
JWL011	Soil		14.2	11.7	0.19	62.2	0.072	<1	0.82	0.009	0.05	<0.1	1.6	0.05	<0.02	12	<0.1	<0.02	2.9
JWL012	Soil		13.6	17.0	0.25	84.8	0.082	<1	1.15	0.010	0.05	<0.1	2.2	0.07	<0.02	16	<0.1	<0.02	4.0
JWL013	Soil		14.7	18.9	0.28	81.7	0.095	1	1.43	0.012	0.06	<0.1	3.2	0.09	<0.02	23	<0.1	<0.02	4.4
JWL014	Soil		19.0	25.8	0.36	147.6	0.083	<1	1.93	0.017	0.08	<0.1	5.6	0.13	<0.02	29	0.1	0.02	5.2
JWL015	Soil		15.1	15.7	0.17	106.6	0.062	1	1.31	0.010	0.05	<0.1	2.1	0.13	<0.02	18	<0.1	<0.02	4.7
JWL016	Soil		14.3	13.6	0.22	94.2	0.055	<1	1.19	0.008	0.04	<0.1	2.0	0.09	<0.02	17	<0.1	<0.02	4.4
JWL017	Soil		14.1	16.8	0.16	92.8	0.047	<1	1.46	0.008	0.05	<0.1	1.9	0.12	<0.02	25	<0.1	0.02	4.1
JWL018	Soil		12.5	17.0	0.21	84.9	0.056	<1	1.42	0.007	0.05	<0.1	2.0	0.11	<0.02	22	<0.1	0.02	5.0
JWL019	Soil		13.6	17.3	0.20	83.0	0.061	<1	1.54	0.007	0.06	<0.1	2.3	0.11	<0.02	41	<0.1	<0.02	5.1
JWL020	Soil		16.1	17.6	0.18	202.1	0.066	<1	1.16	0.010	0.06	<0.1	1.9	0.09	<0.02	18	<0.1	<0.02	4.2
JWL021	Soil		13.8	24.6	0.30	189.8	0.100	2	1.53	0.010	0.10	<0.1	2.7	0.11	<0.02	29	<0.1	0.03	7.7
JWL022	Soil		14.3	14.7	0.19	145.7	0.070	<1	1.05	0.013	0.04	<0.1	2.2	0.09	<0.02	17	<0.1	<0.02	3.6
JWL023	Soil		14.0	16.7	0.17	108.3	0.051	1	1.70	0.008	0.06	<0.1	2.1	0.08	<0.02	20	<0.1	<0.02	5.4
JWL024	Soil		13.5	25.4	0.27	244.6	0.057	<1	2.33	0.008	0.11	<0.1	3.1	0.11	<0.02	54	0.1	0.03	6.6
JWL025	Soil		14.2	17.9	0.18	85.8	0.057	<1	1.39	0.010	0.06	<0.1	1.9	0.07	<0.02	24	<0.1	<0.02	4.5
JWL026	Soil		16.6	24.0	0.33	151.8	0.045	1	2.13	0.011	0.08	<0.1	3.5	0.11	<0.02	29	<0.1	0.02	6.4
JWL027	Soil		15.2	16.8	0.23	90.9	0.083	<1	0.96	0.016	0.05	<0.1	2.3	0.06	<0.02	18	<0.1	0.06	3.2
JWL028	Soil		12.9	17.4	0.12	97.4	0.068	<1	1.24	0.009	0.06	<0.1	1.9	0.08	<0.02	33	0.1	<0.02	5.9
JWL029	Soil		12.4	16.8	0.16	99.5	0.076	<1	1.28	0.007	0.06	<0.1	2.0	0.06	<0.02	29	<0.1	<0.02	5.4
JWL030	Soil		17.1	20.0	0.19	99.8	0.088	<1	1.57	0.010	0.04	<0.1	2.4	0.07	<0.02	20	<0.1	<0.02	5.5

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Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
JWL031	Soil		0.95	8.08	6.53	77.6	52	14.3	7.7	395	2.17	4.0	0.4	<0.2	1.7	25.5	0.05	0.22	0.08	42	0.21	0.066
JWL032	Soil		1.16	9.81	7.60	58.5	45	14.2	8.1	203	2.70	5.8	0.4	0.6	1.5	19.0	0.05	0.26	0.10	60	0.13	0.057
JWL033	Soil		2.03	7.84	8.72	98.2	18	13.4	8.0	252	2.85	6.1	0.4	<0.2	2.2	10.1	0.04	0.26	0.13	58	0.08	0.100
JWL034	Soil		0.76	8.05	8.51	47.5	24	10.6	5.9	193	1.87	3.4	0.5	0.9	1.7	22.5	0.02	0.23	0.10	42	0.16	0.031
JWL035	Soil		1.13	13.20	9.27	103.0	21	24.1	9.5	278	3.14	6.2	0.5	0.9	2.1	27.5	0.04	0.24	0.10	65	0.23	0.081
JWL036	Soil		0.43	6.23	6.30	32.2	17	8.7	4.8	225	1.55	3.1	0.8	1.3	1.7	26.3	0.02	0.18	0.09	35	0.16	0.036
JWL037	Soil		0.49	6.95	7.03	33.5	32	9.0	4.5	188	1.46	3.1	0.6	15.8	1.5	28.5	0.02	0.18	0.09	32	0.19	0.041
JWL038	Soil		0.68	9.24	8.06	40.3	35	10.0	5.6	304	1.78	3.8	1.1	0.9	2.0	41.2	0.04	0.17	0.10	41	0.31	0.063
JWL039	Soil		0.51	7.81	6.14	40.3	21	8.6	6.1	232	1.91	5.0	0.7	1.1	1.8	22.6	0.03	0.28	0.08	42	0.20	0.050
JWL040	Soil		0.53	5.91	6.78	31.1	20	7.4	4.0	156	1.66	5.3	0.6	1.1	2.3	16.8	0.02	0.24	0.08	34	0.13	0.056
JWL041	Soil		0.91	7.94	6.82	48.0	28	10.5	5.9	200	2.04	7.6	0.6	0.6	2.3	9.6	0.02	0.30	0.08	40	0.08	0.093
JWL042	Soil		1.28	4.54	6.91	29.5	15	5.5	3.4	168	1.98	5.0	0.4	0.3	2.0	9.3	0.01	0.22	0.09	41	0.08	0.073
JWL043	Soil		0.87	6.86	6.59	32.1	15	9.7	6.1	175	1.91	6.9	0.6	1.0	2.5	11.5	<0.01	0.29	0.08	39	0.08	0.048
JWL044	Soil		0.80	9.00	6.41	42.8	13	13.3	7.4	242	2.67	4.9	0.5	0.7	2.0	18.8	0.02	0.22	0.09	57	0.16	0.071
JWL045	Soil		0.64	6.07	8.19	49.8	18	9.7	6.6	502	1.59	3.4	1.2	1.4	2.2	19.4	0.02	0.20	0.12	33	0.18	0.048
JWL046	Soil		0.69	7.54	7.21	36.6	23	9.4	4.9	210	1.66	4.7	0.6	0.7	2.4	17.4	<0.01	0.27	0.09	33	0.18	0.051
JWL047	Soil		1.14	7.40	7.93	55.1	24	11.2	5.6	202	2.13	10.1	0.5	0.7	2.1	14.3	0.01	0.42	0.10	40	0.13	0.091
JWL048	Soil		0.66	6.30	7.68	43.4	27	8.3	4.2	207	1.45	6.1	0.6	0.8	2.4	22.5	0.02	0.46	0.08	29	0.20	0.041
JWL049	Soil		0.83	6.03	7.41	127.5	82	11.7	6.2	798	1.98	6.8	0.5	0.4	2.1	11.9	0.21	0.34	0.10	40	0.13	0.075
JWL050	Soil		0.64	6.07	7.09	39.7	18	8.4	5.0	298	1.80	3.1	0.5	0.7	1.9	17.4	0.02	0.22	0.09	45	0.19	0.043
JWL051	Soil		0.62	9.74	6.86	45.7	25	12.5	7.5	244	2.24	5.9	0.6	0.8	2.9	22.4	0.02	0.29	0.09	48	0.19	0.060
JWL052	Soil		0.80	8.44	8.07	64.8	7	16.0	8.4	264	2.42	3.4	0.5	1.4	2.3	17.5	0.02	0.19	0.10	47	0.14	0.162
JWL053	Soil		0.66	7.34	6.59	59.5	19	12.1	7.1	512	2.28	3.5	0.5	15.1	2.3	17.3	0.05	0.19	0.09	47	0.16	0.104
JWL054	Soil		0.74	6.84	5.73	63.7	5	16.8	7.0	640	2.24	2.0	0.4	1.1	1.9	19.1	0.05	0.15	0.07	47	0.17	0.073
JWL055	Soil		0.70	7.23	6.69	50.7	31	11.8	7.7	349	2.38	3.8	0.6	18.2	1.7	20.6	0.05	0.21	0.10	51	0.16	0.071
JWL056	Soil		0.76	8.68	5.90	66.1	11	21.0	8.9	422	2.63	3.1	0.4	0.5	1.8	17.2	0.06	0.17	0.07	52	0.15	0.074
JWL057	Soil		0.31	6.02	7.17	39.9	18	8.0	4.1	185	1.42	1.7	0.7	0.4	1.8	18.9	0.03	0.14	0.09	36	0.22	0.051
JWL058	Soil		0.41	8.13	8.03	58.2	31	9.9	5.8	384	1.86	2.9	1.2	0.6	2.3	27.1	0.08	0.20	0.11	42	0.28	0.066
JWL059	Soil		0.63	9.01	5.87	115.2	24	15.0	7.5	577	2.52	3.3	0.5	0.5	1.9	39.5	0.12	0.23	0.08	53	0.53	0.178
JWL060	Soil		0.85	8.73	7.64	129.8	9	14.6	8.1	662	2.70	3.0	0.5	1.5	1.9	18.3	0.31	0.23	0.11	56	0.18	0.113

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		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
JWL031	Soil		11.2	19.2	0.30	83.5	0.091	<1	1.43	0.009	0.07	<0.1	2.0	0.05	<0.02	25	<0.1	<0.02	5.0
JWL032	Soil		11.3	23.5	0.22	111.5	0.102	<1	1.72	0.008	0.04	<0.1	2.3	0.06	<0.02	23	<0.1	0.02	5.5
JWL033	Soil		10.8	24.9	0.18	87.4	0.102	<1	2.31	0.006	0.04	<0.1	2.8	0.10	<0.02	28	<0.1	0.02	7.1
JWL034	Soil		12.6	17.6	0.26	80.1	0.104	<1	1.28	0.010	0.05	<0.1	2.3	0.07	<0.02	16	<0.1	<0.02	4.5
JWL035	Soil		12.8	30.6	0.45	111.4	0.126	1	2.23	0.011	0.06	<0.1	3.1	0.07	<0.02	26	<0.1	0.02	7.5
JWL036	Soil		12.9	14.4	0.19	82.1	0.060	1	0.81	0.010	0.04	<0.1	2.0	0.06	<0.02	22	<0.1	<0.02	2.6
JWL037	Soil		13.0	14.6	0.19	85.3	0.064	<1	0.88	0.011	0.04	<0.1	1.9	0.06	<0.02	28	<0.1	<0.02	2.9
JWL038	Soil		22.4	19.0	0.28	106.1	0.085	1	1.19	0.016	0.05	<0.1	2.6	0.07	<0.02	22	<0.1	<0.02	3.8
JWL039	Soil		16.0	18.5	0.21	108.7	0.074	<1	1.03	0.014	0.04	<0.1	2.4	0.08	<0.02	26	<0.1	<0.02	3.0
JWL040	Soil		15.1	15.0	0.18	105.8	0.056	<1	1.13	0.010	0.03	<0.1	2.3	0.08	<0.02	25	<0.1	<0.02	3.3
JWL041	Soil		11.4	16.6	0.18	109.6	0.058	<1	1.56	0.009	0.04	<0.1	2.0	0.07	<0.02	37	<0.1	<0.02	3.6
JWL042	Soil		10.5	14.5	0.11	55.6	0.042	<1	1.02	0.006	0.05	<0.1	1.4	0.10	<0.02	27	<0.1	<0.02	3.6
JWL043	Soil		12.4	17.7	0.18	107.2	0.061	<1	1.34	0.009	0.04	<0.1	1.8	0.10	<0.02	34	<0.1	<0.02	3.4
JWL044	Soil		11.7	22.9	0.24	100.8	0.083	<1	1.62	0.009	0.05	<0.1	2.6	0.09	<0.02	26	<0.1	<0.02	4.9
JWL045	Soil		14.9	17.4	0.26	99.6	0.058	<1	1.44	0.012	0.05	<0.1	2.4	0.09	<0.02	26	<0.1	<0.02	4.4
JWL046	Soil		14.6	16.2	0.24	95.0	0.064	<1	1.24	0.011	0.05	<0.1	2.0	0.08	<0.02	23	<0.1	<0.02	3.6
JWL047	Soil		13.2	17.6	0.19	125.3	0.049	<1	1.89	0.009	0.06	<0.1	2.2	0.08	<0.02	25	<0.1	<0.02	5.3
JWL048	Soil		18.0	14.3	0.17	82.7	0.063	<1	0.98	0.013	0.06	0.1	1.9	0.07	<0.02	20	<0.1	<0.02	3.3
JWL049	Soil		12.6	17.3	0.16	122.7	0.088	<1	1.71	0.010	0.05	<0.1	2.0	0.11	<0.02	38	<0.1	<0.02	4.7
JWL050	Soil		13.5	17.3	0.21	72.6	0.111	<1	0.91	0.014	0.04	<0.1	1.8	0.05	<0.02	23	<0.1	<0.02	3.5
JWL051	Soil		15.8	21.0	0.26	104.8	0.076	<1	1.20	0.013	0.05	<0.1	2.7	0.10	<0.02	28	<0.1	<0.02	3.7
JWL052	Soil		14.1	24.2	0.23	133.0	0.104	<1	1.95	0.009	0.05	<0.1	2.7	0.07	<0.02	39	<0.1	<0.02	5.7
JWL053	Soil		13.9	22.8	0.19	124.1	0.087	<1	1.44	0.009	0.06	<0.1	2.3	0.08	<0.02	26	<0.1	<0.02	4.2
JWL054	Soil		12.1	22.4	0.23	106.7	0.115	<1	1.39	0.013	0.05	<0.1	2.2	0.06	<0.02	16	<0.1	<0.02	4.3
JWL055	Soil		15.9	21.7	0.22	132.4	0.089	<1	1.40	0.013	0.05	<0.1	2.3	0.06	<0.02	38	<0.1	<0.02	4.4
JWL056	Soil		10.3	25.0	0.29	101.1	0.113	<1	1.95	0.009	0.06	<0.1	2.2	0.06	<0.02	22	<0.1	<0.02	5.2
JWL057	Soil		11.6	16.1	0.26	57.4	0.112	<1	0.82	0.014	0.05	<0.1	1.9	0.04	<0.02	16	<0.1	<0.02	2.7
JWL058	Soil		17.7	19.5	0.29	85.4	0.107	<1	1.08	0.017	0.07	<0.1	2.7	0.07	<0.02	15	<0.1	<0.02	3.7
JWL059	Soil		12.2	22.9	0.27	119.1	0.108	1	1.52	0.012	0.07	<0.1	2.8	0.04	<0.02	50	<0.1	<0.02	4.7
JWL060	Soil		12.0	24.3	0.25	147.2	0.115	1	2.14	0.009	0.06	<0.1	2.6	0.08	<0.02	37	0.1	<0.02	6.4

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		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
JWL061	Soil		1.27	9.89	8.79	54.3	41	13.3	6.2	203	2.16	13.0	0.5	1.4	2.3	15.9	0.02	0.43	0.10	42	0.19	0.075
JWL062	Soil		1.54	6.94	10.02	37.3	64	8.4	4.3	172	1.60	14.4	0.5	1.0	1.5	17.0	<0.01	0.49	0.09	34	0.17	0.052
JWL063	Soil		2.55	11.32	9.67	89.6	116	18.8	9.6	203	2.92	17.3	0.5	0.8	2.3	17.0	0.04	0.49	0.11	52	0.14	0.108
JWL064	Soil		0.33	57.85	1.75	90.0	43	176.9	53.1	1206	6.95	67.8	0.2	0.3	0.4	102.3	0.09	0.15	<0.02	35	1.97	0.141
JWL065	Soil		0.64	9.07	7.90	79.0	8	15.2	7.6	217	2.65	3.7	0.4	1.0	1.6	22.5	0.04	0.21	0.12	63	0.18	0.058
JWL066	Soil		0.72	10.71	6.85	75.4	20	17.4	10.1	324	3.13	3.8	0.5	3.3	2.1	18.6	0.06	0.24	0.11	67	0.18	0.106
JWL067	Soil		1.20	8.75	8.22	49.1	45	13.1	7.9	257	2.47	11.5	0.5	0.4	2.2	16.3	0.04	0.47	0.09	56	0.15	0.083
JWL068	Soil		1.15	11.54	7.17	65.3	25	18.7	9.9	267	3.21	3.4	0.6	0.3	2.0	17.2	0.04	0.24	0.12	71	0.15	0.085
JWL069	Soil		0.47	10.25	8.27	44.3	24	10.9	6.8	258	2.31	2.9	0.7	1.4	2.2	23.4	0.02	0.20	0.13	50	0.25	0.060
JWL070	Soil		0.80	9.20	7.85	48.3	34	15.4	7.2	266	2.20	5.2	0.5	0.5	1.7	27.0	0.04	0.27	0.08	48	0.22	0.050
JWL071	Soil		0.77	8.99	7.42	52.3	26	11.3	7.7	218	2.77	3.2	0.5	4.0	1.7	16.6	0.06	0.28	0.16	65	0.15	0.102
JWL072	Soil		0.63	10.16	8.25	74.4	65	13.0	8.0	233	2.52	5.5	0.5	1.4	2.0	11.7	0.07	0.30	0.09	57	0.11	0.136
JWL073	Soil		0.74	6.37	8.08	56.5	17	9.6	5.6	197	2.31	3.2	0.4	0.8	1.5	16.0	0.04	0.22	0.12	53	0.16	0.077
JWL074	Soil		0.83	9.02	6.46	48.3	24	15.3	7.9	194	2.36	4.6	0.5	5.9	1.8	18.2	0.04	0.25	0.08	50	0.15	0.084
JWL075	Soil		0.70	8.29	7.86	47.4	52	10.8	5.7	298	1.95	3.7	0.5	0.8	1.7	26.9	0.04	0.25	0.10	44	0.23	0.041
JWL076	Soil		1.01	6.85	7.72	75.1	79	9.7	5.8	278	2.38	2.0	0.4	0.2	1.4	20.7	0.12	0.21	0.12	55	0.22	0.076
JWL077	Soil		1.45	6.11	8.67	143.7	185	7.2	4.7	453	2.60	7.1	0.4	<0.2	1.0	14.4	0.38	0.35	0.14	47	0.13	0.118
JWL078	Soil		0.89	8.23	6.69	61.4	74	11.6	6.0	514	2.01	5.0	0.5	<0.2	2.0	21.3	0.07	0.30	0.09	46	0.23	0.075
JWL079	Soil		1.98	8.30	13.18	108.8	136	12.5	7.1	737	3.02	24.4	0.5	<0.2	1.7	15.0	0.08	0.51	0.13	58	0.13	0.108
JWL080	Soil		2.02	7.80	15.18	237.0	506	13.4	7.5	736	3.37	36.1	0.5	9.4	1.7	12.4	0.43	1.20	0.14	65	0.11	0.152
JWL081	Soil		0.77	8.72	7.43	124.9	69	18.7	9.0	486	2.71	5.0	0.5	<0.2	2.1	25.0	0.13	0.26	0.09	52	0.22	0.143
JWL082	Soil		0.62	11.39	6.05	79.9	46	16.2	9.8	305	3.35	3.9	0.5	<0.2	1.4	19.8	0.06	0.28	0.12	72	0.17	0.084
JWL083	Soil		0.53	10.75	7.16	65.2	28	14.5	9.6	332	2.51	2.6	0.5	<0.2	1.4	24.6	0.04	0.23	0.10	54	0.21	0.052
JWL084	Soil		0.55	11.20	7.62	67.8	32	15.5	10.6	369	2.55	2.7	0.6	0.5	1.7	25.9	0.04	0.25	0.12	56	0.21	0.053
JWL085	Soil		0.46	7.97	8.41	48.9	18	8.8	6.0	224	2.13	1.9	0.5	<0.2	1.6	18.2	0.03	0.22	0.13	51	0.16	0.042
JWL086	Soil		0.49	9.89	7.11	74.0	21	15.2	7.3	235	2.52	2.2	0.5	1.7	1.4	21.5	0.03	0.22	0.11	55	0.19	0.066
JWL087	Soil		0.74	12.83	7.76	55.3	40	22.1	12.4	317	3.22	3.0	1.0	<0.2	2.4	27.8	0.02	0.24	0.12	76	0.20	0.060
JWL088	Soil		0.50	8.07	8.24	41.6	37	10.1	6.7	319	1.85	2.0	0.6	<0.2	1.7	25.8	0.03	0.18	0.12	43	0.20	0.037
JWL089	Soil		1.37	19.16	8.18	93.6	130	43.8	18.5	486	4.35	3.9	0.7	<0.2	1.7	44.3	0.11	0.20	0.13	76	0.29	0.140
JWL090	Soil		0.78	7.37	8.64	41.8	60	9.7	4.7	230	1.56	5.1	0.7	3.7	1.8	25.0	0.02	0.20	0.10	35	0.26	0.046

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
JWL061	Soil		17.6	20.2	0.31	101.3	0.046	<1	2.04	0.012	0.07	<0.1	2.7	0.09	<0.02	23	<0.1	<0.02	5.2
JWL062	Soil		17.4	16.9	0.22	87.5	0.066	<1	1.26	0.011	0.06	<0.1	1.9	0.09	<0.02	17	<0.1	<0.02	4.0
JWL063	Soil		16.7	25.0	0.28	116.0	0.052	<1	2.76	0.008	0.06	<0.1	2.9	0.10	<0.02	38	0.1	<0.02	7.0
JWL064	Soil		7.7	36.0	3.43	56.1	0.032	<1	5.59	0.359	0.04	<0.1	4.6	<0.02	<0.02	17	<0.1	<0.02	8.6
JWL065	Soil		9.4	24.1	0.29	109.1	0.124	<1	1.57	0.010	0.04	<0.1	2.4	0.06	<0.02	20	<0.1	<0.02	6.0
JWL066	Soil		10.3	26.0	0.36	131.7	0.121	<1	2.30	0.010	0.05	<0.1	3.1	0.06	<0.02	20	<0.1	<0.02	5.6
JWL067	Soil		14.9	22.0	0.27	108.4	0.096	<1	1.52	0.010	0.06	<0.1	2.5	0.06	<0.02	12	<0.1	<0.02	4.4
JWL068	Soil		10.2	26.0	0.39	127.1	0.126	<1	2.39	0.009	0.06	<0.1	3.1	0.06	<0.02	22	<0.1	<0.02	6.6
JWL069	Soil		12.3	18.9	0.38	90.9	0.114	<1	1.67	0.013	0.05	<0.1	3.4	0.07	<0.02	23	<0.1	<0.02	4.7
JWL070	Soil		14.3	22.0	0.36	95.3	0.103	<1	1.51	0.015	0.05	<0.1	2.7	0.05	<0.02	20	<0.1	<0.02	4.5
JWL071	Soil		11.0	21.4	0.27	97.5	0.107	1	1.87	0.008	0.04	<0.1	2.8	0.07	<0.02	40	<0.1	<0.02	6.2
JWL072	Soil		11.0	22.6	0.25	96.2	0.114	<1	1.92	0.008	0.03	<0.1	2.8	0.06	<0.02	47	<0.1	<0.02	5.2
JWL073	Soil		10.9	19.6	0.24	85.4	0.115	1	1.32	0.009	0.04	<0.1	2.6	0.05	<0.02	13	<0.1	<0.02	5.4
JWL074	Soil		11.4	19.8	0.26	116.4	0.095	<1	1.95	0.012	0.05	<0.1	2.7	0.04	<0.02	33	<0.1	<0.02	5.4
JWL075	Soil		13.0	18.0	0.34	95.0	0.125	<1	1.42	0.013	0.05	<0.1	2.8	0.06	<0.02	14	<0.1	<0.02	4.7
JWL076	Soil		9.8	18.5	0.22	76.6	0.114	<1	1.52	0.008	0.05	<0.1	2.6	0.05	<0.02	19	<0.1	<0.02	6.5
JWL077	Soil		13.1	16.9	0.15	78.3	0.048	<1	1.82	0.008	0.05	<0.1	2.2	0.06	<0.02	49	<0.1	<0.02	8.3
JWL078	Soil		15.7	19.6	0.27	99.5	0.106	<1	1.39	0.013	0.05	<0.1	2.8	0.05	<0.02	21	<0.1	<0.02	4.7
JWL079	Soil		11.5	20.9	0.30	88.0	0.080	<1	2.32	0.007	0.05	<0.1	2.8	0.11	<0.02	35	<0.1	<0.02	7.4
JWL080	Soil		12.2	23.0	0.22	108.7	0.097	1	2.18	0.007	0.06	<0.1	2.8	0.12	<0.02	47	<0.1	0.02	8.6
JWL081	Soil		13.7	24.1	0.28	87.7	0.113	2	1.88	0.011	0.07	<0.1	2.9	0.05	<0.02	24	0.2	<0.02	6.8
JWL082	Soil		11.2	20.1	0.33	110.7	0.089	<1	2.25	0.008	0.05	<0.1	3.1	0.06	<0.02	26	<0.1	<0.02	6.6
JWL083	Soil		13.1	19.8	0.40	108.8	0.113	<1	1.72	0.012	0.04	<0.1	2.8	0.07	<0.02	18	<0.1	<0.02	5.3
JWL084	Soil		13.6	21.1	0.41	112.7	0.115	<1	1.76	0.012	0.05	<0.1	3.0	0.07	<0.02	17	<0.1	<0.02	5.7
JWL085	Soil		10.4	16.7	0.28	80.0	0.111	<1	1.45	0.010	0.03	<0.1	2.5	0.07	<0.02	11	<0.1	<0.02	5.1
JWL086	Soil		10.7	21.4	0.34	88.0	0.114	<1	1.76	0.009	0.05	<0.1	2.8	0.07	<0.02	27	<0.1	<0.02	6.6
JWL087	Soil		12.9	29.7	0.40	131.5	0.121	<1	2.28	0.009	0.04	<0.1	3.4	0.10	<0.02	23	<0.1	<0.02	7.0
JWL088	Soil		16.4	19.8	0.29	88.7	0.124	<1	1.52	0.011	0.03	<0.1	2.7	0.07	<0.02	23	<0.1	<0.02	4.8
JWL089	Soil		27.1	45.1	0.65	181.8	0.165	1	4.08	0.010	0.07	<0.1	3.7	0.10	<0.02	51	0.1	<0.02	12.4
JWL090	Soil		15.9	17.5	0.29	86.7	0.082	<1	1.36	0.014	0.05	<0.1	2.5	0.09	<0.02	21	<0.1	<0.02	4.3

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Project: Windfall Hills
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		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
JWL091	Soil		0.56	5.50	8.32	34.6	39	7.7	3.9	197	1.30	4.1	0.7	0.9	1.7	22.1	0.03	0.19	0.09	30	0.23	0.032
JWL092	Soil		1.00	7.85	8.00	40.5	50	9.8	5.0	289	1.89	12.5	0.6	2.3	1.8	25.1	0.04	0.44	0.09	44	0.28	0.062
JWL093	Soil		1.21	11.69	7.14	71.5	72	14.3	7.4	447	2.38	9.4	0.9	3.2	1.5	27.2	0.05	0.32	0.09	49	0.28	0.043
JWL094	Soil		1.87	39.20	10.93	80.2	243	23.9	10.6	616	3.38	16.3	3.5	2.4	2.7	48.5	0.09	0.38	0.15	60	0.50	0.051
JWL095	Soil		1.88	23.97	9.81	112.2	225	24.9	12.2	824	3.37	18.0	1.5	1.3	1.1	39.8	0.07	0.43	0.14	57	0.38	0.076
JWL096	Soil		1.74	8.04	8.00	62.6	68	9.9	5.2	202	2.05	13.0	0.5	1.2	2.1	18.3	0.03	0.51	0.10	45	0.17	0.050
JWL097	Soil		1.06	7.57	7.72	39.8	256	9.1	4.4	209	1.62	5.5	0.7	81.2	1.2	24.8	0.06	0.22	0.08	34	0.25	0.045
JWL098	Soil		2.05	11.33	8.69	68.5	325	13.7	10.3	590	2.56	9.0	0.7	0.8	0.7	25.5	0.08	0.25	0.12	48	0.22	0.085
JWL099	Soil		0.94	8.15	8.21	44.8	75	10.1	5.1	205	1.82	7.4	0.6	1.9	1.9	19.9	0.02	0.29	0.09	38	0.20	0.052
JWL100	Soil		1.47	11.82	8.18	68.5	131	17.3	8.5	295	3.03	13.7	0.6	1.7	2.2	26.0	0.04	0.33	0.10	60	0.26	0.093
JWL101	Soil		0.91	8.15	8.47	39.6	111	8.7	6.0	235	1.44	5.4	0.7	1.1	1.2	22.0	0.04	0.24	0.09	32	0.21	0.041
JWL102	Soil		0.76	5.54	9.13	35.4	97	5.4	4.3	233	0.99	2.1	0.6	8.4	1.5	21.7	0.05	0.17	0.10	25	0.20	0.020
JWL103	Soil		2.34	20.08	9.16	75.5	311	18.1	14.0	725	2.78	6.2	1.8	1.8	1.1	45.2	0.07	0.18	0.14	52	0.39	0.072
JWL104	Soil		1.35	13.98	8.79	79.5	68	19.0	11.3	230	2.99	6.9	0.5	6.4	1.0	15.8	0.06	0.27	0.10	55	0.12	0.100
JWL105	Soil		1.44	12.11	9.11	80.3	79	16.4	9.2	202	2.66	6.4	0.5	0.5	0.9	14.5	0.05	0.24	0.11	53	0.11	0.101
JWL106	Soil		1.49	10.20	8.67	53.1	104	14.6	8.7	209	2.47	9.4	0.6	2.4	2.7	13.1	0.04	0.33	0.12	48	0.11	0.093
JWL107	Soil		1.90	13.60	9.40	91.8	189	19.8	9.9	335	3.39	10.1	0.6	6.8	2.1	22.2	0.07	0.35	0.15	64	0.21	0.117
JWL108	Soil		1.06	9.44	8.29	41.6	40	10.6	6.9	255	2.05	10.2	0.6	3.1	2.0	17.8	0.03	0.33	0.10	42	0.20	0.075
JWL109	Soil		0.93	5.62	8.46	37.3	51	7.4	3.7	155	1.37	5.6	0.6	1.6	1.8	13.5	0.02	0.23	0.12	31	0.13	0.037
JWL110	Soil		1.22	8.68	9.37	41.1	92	9.9	4.8	182	1.65	6.8	1.2	3.2	1.2	22.1	0.02	0.24	0.12	33	0.20	0.045
JWL111	Soil		0.81	5.00	8.48	28.1	95	7.8	4.1	189	1.19	6.3	0.8	5.0	1.9	19.2	0.03	0.25	0.09	27	0.21	0.049
JWL112	Soil		1.31	10.30	8.54	46.2	55	12.1	6.7	324	2.24	12.1	0.6	2.0	2.4	23.0	0.05	0.45	0.10	48	0.24	0.069
JWL113	Soil		2.74	11.72	10.14	71.0	157	14.0	9.3	632	2.52	10.9	1.3	7.2	0.7	32.0	0.05	0.29	0.13	47	0.28	0.067
JWL114	Soil		1.14	7.41	9.50	39.8	57	11.0	5.6	257	1.73	9.5	0.8	2.0	2.4	28.4	0.02	0.40	0.10	38	0.30	0.075
JWL115	Soil		3.35	20.63	12.43	116.7	314	27.3	22.6	1691	4.40	16.1	2.0	2.0	1.3	49.7	0.08	0.30	0.17	79	0.45	0.111
JWL116	Soil		0.58	6.17	8.79	40.1	44	8.5	3.8	224	1.37	5.6	0.7	1.3	1.7	20.3	0.03	0.20	0.09	32	0.21	0.046
JWL117	Soil		0.39	4.94	7.46	29.6	24	7.8	3.6	181	1.16	3.6	0.5	1.3	1.9	17.2	0.01	0.16	0.07	28	0.22	0.046
JWL118	Soil		0.58	6.04	9.12	36.8	40	8.8	5.6	285	1.51	6.3	0.6	17.4	2.1	23.9	0.03	0.23	0.10	35	0.28	0.071
JWL119	Soil		1.87	11.33	8.76	57.3	86	14.7	6.8	219	2.49	12.0	0.6	2.7	2.9	13.5	0.03	0.41	0.10	45	0.11	0.098
JWL120	Soil		1.27	11.94	8.79	44.6	67	14.7	7.6	181	2.10	7.8	0.7	1.9	1.4	12.9	0.02	0.31	0.10	39	0.12	0.109

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		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
JWL091	Soil		15.1	15.9	0.26	65.4	0.104	<1	0.98	0.013	0.04	<0.1	2.2	0.06	<0.02	22	<0.1	<0.02	3.6
JWL092	Soil		18.2	18.2	0.30	78.4	0.088	<1	1.21	0.017	0.05	<0.1	2.6	0.07	<0.02	12	<0.1	<0.02	3.8
JWL093	Soil		17.8	23.7	0.39	104.9	0.060	<1	1.85	0.014	0.07	<0.1	3.1	0.09	<0.02	25	<0.1	<0.02	5.2
JWL094	Soil		32.6	31.4	0.54	172.3	0.052	<1	2.58	0.018	0.12	<0.1	6.3	0.14	<0.02	19	0.4	0.02	6.9
JWL095	Soil		21.9	31.7	0.57	180.7	0.031	<1	3.15	0.017	0.12	<0.1	3.9	0.15	<0.02	32	0.2	0.03	8.1
JWL096	Soil		15.7	18.3	0.21	91.1	0.072	<1	1.38	0.011	0.06	<0.1	2.4	0.08	<0.02	16	<0.1	<0.02	5.0
JWL097	Soil		15.6	16.2	0.28	85.1	0.066	<1	1.33	0.012	0.05	<0.1	2.2	0.07	<0.02	36	0.1	<0.02	4.6
JWL098	Soil		16.2	21.0	0.31	127.9	0.028	<1	2.31	0.008	0.08	<0.1	2.5	0.13	0.02	46	<0.1	<0.02	8.4
JWL099	Soil		15.5	18.9	0.26	72.3	0.083	<1	1.35	0.012	0.04	<0.1	2.3	0.08	<0.02	18	<0.1	<0.02	4.6
JWL100	Soil		14.0	25.6	0.40	142.1	0.071	<1	2.48	0.014	0.07	<0.1	3.0	0.11	<0.02	25	<0.1	<0.02	7.5
JWL101	Soil		15.6	16.3	0.24	78.6	0.056	<1	1.33	0.010	0.05	<0.1	2.0	0.08	<0.02	25	<0.1	<0.02	4.6
JWL102	Soil		16.0	12.9	0.16	67.7	0.074	<1	0.92	0.010	0.04	<0.1	1.8	0.07	<0.02	24	<0.1	<0.02	4.0
JWL103	Soil		18.3	29.6	0.41	184.3	0.015	<1	3.40	0.009	0.08	<0.1	3.2	0.16	0.03	66	0.3	<0.02	9.6
JWL104	Soil		10.9	27.0	0.33	125.2	0.069	<1	2.98	0.007	0.05	<0.1	2.9	0.09	<0.02	49	<0.1	<0.02	7.3
JWL105	Soil		11.0	24.8	0.25	107.1	0.065	1	2.92	0.007	0.05	<0.1	2.7	0.09	<0.02	47	0.2	0.02	7.5
JWL106	Soil		14.4	23.0	0.26	126.1	0.073	1	2.27	0.009	0.05	<0.1	3.1	0.08	<0.02	28	0.1	0.02	4.9
JWL107	Soil		16.5	26.9	0.45	149.0	0.063	1	2.56	0.010	0.08	<0.1	3.4	0.11	<0.02	33	0.1	<0.02	8.2
JWL108	Soil		15.5	18.7	0.28	96.3	0.061	<1	1.46	0.012	0.05	<0.1	2.3	0.07	<0.02	20	<0.1	0.02	3.6
JWL109	Soil		14.3	14.5	0.20	62.5	0.063	<1	1.01	0.010	0.04	<0.1	1.8	0.09	<0.02	19	<0.1	<0.02	3.6
JWL110	Soil		17.8	18.1	0.26	94.0	0.039	<1	1.49	0.013	0.05	<0.1	2.3	0.11	<0.02	27	0.2	<0.02	4.2
JWL111	Soil		16.6	13.5	0.22	74.2	0.072	<1	0.92	0.013	0.05	<0.1	1.8	0.06	<0.02	20	0.1	<0.02	2.9
JWL112	Soil		18.4	21.1	0.31	93.8	0.078	<1	1.36	0.014	0.07	<0.1	2.7	0.08	<0.02	18	0.1	0.03	3.8
JWL113	Soil		19.1	23.9	0.37	132.1	0.030	<1	2.34	0.011	0.07	<0.1	2.5	0.14	0.02	43	0.2	0.02	6.1
JWL114	Soil		20.0	17.8	0.30	96.5	0.086	<1	1.14	0.018	0.07	<0.1	2.5	0.07	<0.02	21	<0.1	<0.02	3.5
JWL115	Soil		23.3	36.3	0.64	220.1	0.015	<1	4.21	0.011	0.13	<0.1	4.0	0.19	0.04	69	0.3	0.03	11.3
JWL116	Soil		16.2	16.4	0.26	77.8	0.082	<1	1.02	0.015	0.06	<0.1	2.0	0.06	<0.02	16	<0.1	<0.02	3.4
JWL117	Soil		14.4	14.2	0.24	61.1	0.086	<1	0.88	0.013	0.04	<0.1	1.9	0.05	<0.02	13	<0.1	<0.02	3.1
JWL118	Soil		17.3	15.8	0.28	84.6	0.097	<1	1.06	0.015	0.06	<0.1	2.1	0.05	<0.02	12	<0.1	<0.02	3.4
JWL119	Soil		15.4	23.3	0.24	129.8	0.057	<1	2.28	0.009	0.05	<0.1	3.0	0.11	<0.02	41	0.1	<0.02	5.8
JWL120	Soil		16.7	21.7	0.24	126.8	0.043	<1	2.46	0.007	0.06	<0.1	2.7	0.10	<0.02	51	0.1	<0.02	6.3

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Client: **Canarc Resources Corp.**
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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
JWL121	Soil		1.31	8.68	7.31	47.4	68	11.1	7.3	288	2.23	9.6	0.5	1.4	2.4	13.5	0.04	0.39	0.09	48	0.14	0.067
JWL122	Soil		0.79	11.34	8.86	49.6	56	11.9	7.0	255	2.31	7.7	0.7	2.2	2.8	16.0	0.03	0.29	0.11	47	0.15	0.065
JWL123	Soil		0.80	7.58	6.95	125.2	43	11.6	6.5	769	2.27	2.2	0.5	0.3	2.1	27.7	0.91	0.24	0.08	51	0.24	0.059
JWL124	Soil		1.13	7.72	6.22	130.8	20	13.4	6.3	779	2.01	2.4	0.4	0.3	1.7	30.1	0.51	0.17	0.07	42	0.37	0.137
JWL125	Soil		1.08	13.09	9.96	74.4	18	31.6	10.4	242	2.99	5.6	0.5	0.9	2.1	28.1	0.12	0.17	0.10	52	0.26	0.069
JWL126	Soil		0.64	13.83	9.59	48.6	13	30.1	9.4	211	2.76	4.9	0.6	0.5	2.2	18.8	0.02	0.16	0.10	50	0.30	0.052
JWL127	Soil		0.79	23.90	7.15	116.8	25	60.4	21.7	520	4.23	5.1	0.5	0.3	2.3	36.6	0.07	0.14	0.08	71	0.38	0.112
JWL128	Soil		0.44	17.56	6.74	55.0	10	30.9	11.1	347	3.20	4.3	0.6	0.8	2.3	30.5	0.03	0.16	0.07	55	0.39	0.058
JWL129	Soil		0.46	9.28	8.22	51.7	12	16.5	8.8	222	2.20	3.3	0.5	<0.2	1.9	26.2	0.04	0.20	0.09	47	0.26	0.046
JWL130	Soil		0.49	10.75	6.47	50.1	12	21.8	8.2	321	2.62	3.0	0.5	<0.2	1.6	27.8	0.04	0.17	0.07	47	0.28	0.058
JWL131	Soil		0.72	10.68	5.43	61.4	14	22.6	10.3	311	2.77	4.4	0.4	0.4	1.8	29.7	0.06	0.21	0.07	52	0.22	0.075
PDM001	Soil		2.31	5.72	12.41	54.1	442	7.0	3.4	196	1.47	18.0	0.5	9.7	2.5	10.9	0.02	0.40	0.09	28	0.10	0.048
PDM002	Soil		2.38	3.98	11.55	25.8	682	3.4	2.1	118	0.93	15.5	0.6	12.4	2.5	7.6	<0.01	0.76	0.09	19	0.06	0.019
PDM003	Soil		3.09	7.32	11.80	42.9	1436	6.4	3.7	195	1.66	28.2	0.6	13.4	2.5	13.8	0.02	0.69	0.10	32	0.11	0.061
PDM004	Soil		1.68	7.33	10.73	44.0	1173	10.0	4.9	154	1.45	10.5	0.6	13.4	2.4	16.8	<0.01	0.41	0.11	30	0.15	0.045
PDM005	Soil		0.93	5.67	11.09	23.0	121	5.9	3.1	109	0.99	5.8	0.5	5.4	1.5	14.5	<0.01	0.30	0.10	23	0.12	0.019
PDM006	Soil		1.35	5.30	9.15	88.0	2537	8.3	4.5	188	1.40	8.4	0.4	3.3	2.3	10.3	0.04	0.26	0.09	29	0.09	0.058
PDM007	Soil		1.24	3.96	7.53	27.1	55	4.2	2.5	125	1.04	8.0	0.4	2.9	2.7	10.0	0.01	0.27	0.09	28	0.10	0.014
PDM008	Soil		1.37	4.47	9.34	38.8	67	4.8	3.0	149	1.22	10.2	0.5	6.2	2.6	11.4	0.02	0.31	0.11	28	0.11	0.022
PDM009	Soil		1.99	5.85	7.55	37.4	162	9.1	5.4	152	2.14	15.9	0.4	2.7	1.6	13.8	0.03	0.37	0.09	46	0.11	0.032
PDM010	Soil		1.48	5.37	8.35	81.8	312	7.8	5.0	162	2.02	11.8	0.4	7.5	2.1	14.5	0.07	0.31	0.11	44	0.13	0.091
PDM011	Soil		1.52	6.11	6.96	48.8	93	7.7	4.8	304	1.83	10.5	0.4	18.2	1.7	12.2	0.03	0.37	0.09	40	0.13	0.061
PDM012	Soil		1.40	6.21	9.32	38.7	100	7.3	3.6	179	1.40	8.8	0.5	7.4	1.8	14.7	0.02	0.29	0.09	30	0.15	0.039
PDM013	Soil		1.12	9.13	8.88	39.5	48	14.0	7.0	248	2.09	6.2	0.5	1.5	1.9	24.3	0.02	0.28	0.09	48	0.22	0.039
PDM014	Soil		1.72	10.11	9.36	49.9	78	14.1	7.2	330	2.21	8.1	0.5	2.1	2.0	19.5	0.03	0.34	0.11	52	0.20	0.049
PDM015	Soil		1.29	4.80	8.93	40.8	112	6.7	4.2	206	1.36	6.1	0.4	1.2	1.6	14.9	0.02	0.24	0.10	31	0.14	0.027
PDM016	Soil		1.79	6.70	9.21	58.5	805	7.5	4.8	183	1.99	9.8	0.5	12.4	2.4	10.0	0.05	0.32	0.13	38	0.08	0.060
PDM017	Soil		1.37	5.32	11.22	77.4	98	5.6	3.8	447	1.37	6.9	0.5	2.1	1.9	19.2	0.06	0.25	0.10	26	0.16	0.047
PDM018	Soil		1.42	7.52	7.82	46.6	58	8.2	4.3	233	1.89	11.6	0.6	2.1	2.7	17.9	0.02	0.44	0.10	37	0.15	0.048
PDM019	Soil		1.25	9.11	7.60	46.3	67	10.4	5.3	198	1.96	9.5	0.6	0.8	2.7	22.5	0.03	0.38	0.09	36	0.17	0.063

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		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
JWL121	Soil		14.7	20.3	0.21	103.1	0.079	<1	1.50	0.008	0.05	<0.1	2.2	0.06	<0.02	23	<0.1	<0.02	4.1
JWL122	Soil		17.6	21.6	0.29	181.2	0.075	<1	1.83	0.010	0.05	<0.1	3.3	0.10	<0.02	22	<0.1	<0.02	5.1
JWL123	Soil		13.1	22.3	0.20	169.3	0.125	<1	1.44	0.010	0.05	<0.1	2.6	0.07	<0.02	24	<0.1	<0.02	4.6
JWL124	Soil		10.6	18.8	0.22	163.3	0.111	<1	1.52	0.009	0.11	<0.1	2.1	0.05	<0.02	37	<0.1	<0.02	4.5
JWL125	Soil		12.0	35.6	0.49	201.9	0.132	<1	1.84	0.009	0.04	<0.1	2.9	0.06	<0.02	34	<0.1	<0.02	6.0
JWL126	Soil		12.8	34.2	0.50	284.3	0.124	<1	1.84	0.011	0.05	<0.1	3.4	0.07	<0.02	28	<0.1	<0.02	5.5
JWL127	Soil		14.0	59.6	0.90	357.9	0.175	<1	3.14	0.013	0.08	<0.1	5.3	0.07	<0.02	27	<0.1	<0.02	8.5
JWL128	Soil		13.0	41.4	0.77	311.3	0.141	<1	1.93	0.021	0.05	<0.1	4.3	0.06	<0.02	19	<0.1	<0.02	5.3
JWL129	Soil		11.2	25.2	0.35	223.9	0.112	<1	1.22	0.014	0.05	<0.1	2.7	0.05	<0.02	28	<0.1	<0.02	4.5
JWL130	Soil		11.7	28.1	0.57	114.3	0.143	<1	1.66	0.016	0.05	<0.1	2.6	0.04	<0.02	14	<0.1	<0.02	4.9
JWL131	Soil		11.3	27.9	0.42	149.6	0.122	<1	1.93	0.013	0.05	<0.1	2.4	0.04	<0.02	18	<0.1	<0.02	5.0
PDM001	Soil		27.3	12.2	0.15	49.2	0.036	<1	1.13	0.008	0.08	<0.1	1.5	0.14	<0.02	21	<0.1	<0.02	3.3
PDM002	Soil		27.9	8.1	0.12	36.0	0.041	<1	0.70	0.006	0.07	<0.1	1.1	0.17	<0.02	20	<0.1	<0.02	2.4
PDM003	Soil		23.6	13.0	0.16	61.6	0.033	<1	1.28	0.008	0.06	<0.1	1.6	0.25	<0.02	42	<0.1	<0.02	4.6
PDM004	Soil		21.3	16.2	0.20	92.3	0.054	<1	1.63	0.009	0.07	<0.1	2.2	0.17	<0.02	46	<0.1	<0.02	5.0
PDM005	Soil		17.1	12.6	0.15	73.2	0.051	<1	1.15	0.010	0.05	<0.1	1.9	0.14	<0.02	16	<0.1	<0.02	4.3
PDM006	Soil		21.1	11.6	0.12	64.1	0.040	<1	1.20	0.007	0.05	<0.1	1.4	0.14	<0.02	42	<0.1	<0.02	3.8
PDM007	Soil		24.1	10.0	0.11	33.8	0.058	<1	0.48	0.007	0.05	<0.1	1.1	0.07	<0.02	12	<0.1	<0.02	2.2
PDM008	Soil		24.2	11.5	0.15	40.1	0.068	<1	0.59	0.009	0.06	<0.1	1.3	0.07	<0.02	12	<0.1	<0.02	2.5
PDM009	Soil		14.0	16.3	0.17	70.8	0.053	<1	1.08	0.009	0.05	<0.1	1.5	0.07	<0.02	13	<0.1	<0.02	3.8
PDM010	Soil		16.8	15.8	0.17	101.7	0.045	1	1.19	0.009	0.06	<0.1	1.7	0.08	<0.02	31	<0.1	0.02	4.4
PDM011	Soil		15.8	16.0	0.17	62.0	0.054	<1	0.98	0.010	0.06	<0.1	1.7	0.08	<0.02	19	<0.1	<0.02	3.8
PDM012	Soil		17.6	13.0	0.18	60.7	0.059	<1	0.89	0.009	0.05	<0.1	1.6	0.09	<0.02	24	<0.1	<0.02	3.2
PDM013	Soil		13.9	22.6	0.31	85.4	0.124	<1	1.09	0.016	0.05	<0.1	2.1	0.07	<0.02	14	<0.1	<0.02	3.9
PDM014	Soil		15.9	23.3	0.28	82.7	0.120	<1	1.09	0.014	0.06	<0.1	2.3	0.08	<0.02	14	<0.1	<0.02	3.8
PDM015	Soil		16.6	12.9	0.18	56.7	0.066	<1	0.85	0.010	0.05	<0.1	1.4	0.09	<0.02	27	<0.1	<0.02	3.3
PDM016	Soil		17.3	14.5	0.13	81.4	0.040	<1	1.49	0.007	0.05	<0.1	1.7	0.14	<0.02	63	<0.1	<0.02	5.1
PDM017	Soil		17.2	11.6	0.14	108.0	0.054	<1	0.87	0.010	0.08	<0.1	1.4	0.10	<0.02	34	<0.1	<0.02	4.0
PDM018	Soil		18.3	15.7	0.20	92.3	0.062	<1	1.15	0.010	0.05	<0.1	1.8	0.09	<0.02	19	<0.1	0.03	3.7
PDM019	Soil		19.0	15.9	0.21	102.0	0.060	<1	1.41	0.011	0.07	<0.1	2.1	0.09	<0.02	21	<0.1	<0.02	3.9

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		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
PDM020	Soil		1.15	7.13	8.65	54.5	57	9.0	4.7	166	1.90	9.6	0.7	0.9	2.2	19.3	0.03	0.33	0.09	36	0.15	0.064
PDM021	Soil		1.30	6.32	7.44	72.0	84	9.8	5.5	229	1.79	10.0	0.4	0.7	2.0	10.9	0.04	0.33	0.08	34	0.10	0.100
PDM022	Soil		1.80	6.45	6.68	48.1	56	12.2	6.3	168	2.12	11.9	0.5	1.0	2.4	11.0	0.03	0.45	0.08	40	0.09	0.092
PDM023	Soil		0.70	10.66	8.49	40.6	19	15.8	7.2	275	2.14	7.7	0.8	0.4	3.2	45.9	0.02	0.37	0.10	45	0.40	0.084
PDM024	Soil		1.61	13.94	8.00	71.7	95	21.4	9.5	294	3.33	14.2	0.5	1.0	2.0	21.3	0.04	0.32	0.11	62	0.21	0.094
PDM025	Soil		1.72	10.52	7.87	68.7	84	20.1	9.9	207	2.77	11.5	0.5	<0.2	2.1	14.7	0.05	0.31	0.10	51	0.11	0.096
PDM026	Soil		0.88	12.70	9.47	62.6	66	14.2	6.1	297	2.09	4.8	0.6	0.7	1.9	33.3	0.02	0.20	0.17	37	0.24	0.056
PDM027	Soil		1.27	8.51	7.06	43.2	71	12.3	6.4	212	2.53	11.2	0.4	<0.2	2.0	12.4	0.05	0.34	0.09	51	0.10	0.091
PDM028	Soil		1.80	14.98	13.37	183.9	693	17.7	9.5	485	4.47	14.7	0.4	2.9	2.6	15.1	0.28	0.32	0.21	67	0.11	0.341
PDM029	Soil		1.25	11.57	7.63	130.9	410	16.4	8.5	419	3.46	15.1	0.5	<0.2	2.2	12.6	0.23	0.32	0.12	54	0.10	0.304
PDM030	Soil		7.04	43.50	22.30	225.1	221	35.4	15.8	562	6.93	26.8	0.4	<0.2	1.7	235.5	0.23	0.51	0.46	59	0.13	0.243
PDM031	Soil		3.52	23.87	12.70	82.8	213	21.5	13.2	716	3.00	12.2	1.3	0.9	1.4	50.1	0.17	0.34	0.13	57	0.49	0.048
PDM032	Soil		2.01	14.47	8.77	71.5	141	14.3	7.3	365	2.30	7.3	0.8	0.6	1.3	29.9	0.07	0.25	0.11	46	0.26	0.053
PDM033	Soil		0.81	8.22	10.49	51.5	85	10.5	4.9	264	1.80	6.4	0.5	2.9	1.5	19.4	0.05	0.23	0.12	37	0.21	0.054
PDM034	Soil		0.92	7.61	10.35	50.7	96	8.5	6.5	314	1.58	4.5	0.5	1.0	1.2	22.7	0.06	0.17	0.11	34	0.21	0.028
PDM035	Soil		1.68	9.71	9.62	72.6	264	13.1	6.1	159	2.79	9.4	0.5	0.5	1.4	11.6	0.05	0.29	0.11	49	0.09	0.148
PDM036	Soil		1.46	8.90	7.84	44.1	83	10.6	6.8	281	2.24	11.1	0.5	0.9	2.2	10.0	0.03	0.38	0.08	45	0.08	0.102
PDM037	Soil		0.82	6.85	8.57	49.7	79	8.8	4.1	170	1.59	4.9	0.4	0.6	1.4	15.5	0.04	0.23	0.09	34	0.15	0.052
PDM038	Soil		1.49	9.54	7.29	42.0	76	10.7	6.0	170	2.52	11.7	0.4	0.3	2.0	13.1	0.04	0.34	0.09	50	0.11	0.202
PDM039	Soil		1.51	11.13	7.59	93.6	175	17.9	7.4	178	2.61	9.3	0.6	1.0	1.5	11.7	0.06	0.30	0.09	44	0.09	0.148
PDM040	Soil		0.98	11.96	7.83	53.2	83	14.9	7.0	229	2.20	8.0	0.5	1.7	2.3	21.5	0.03	0.33	0.09	41	0.20	0.059
PDM041	Soil		1.57	11.68	8.14	58.6	94	13.2	6.4	193	2.72	15.6	0.4	4.7	2.2	11.1	0.09	0.44	0.10	55	0.12	0.106
PDM042	Soil		1.41	8.87	7.49	63.3	71	12.0	5.8	195	2.22	8.6	0.4	2.0	1.6	17.4	0.04	0.27	0.09	46	0.17	0.059
PDM043	Soil		1.23	13.20	8.01	58.0	112	14.5	6.3	276	2.20	7.0	0.7	2.0	1.3	28.6	0.07	0.27	0.08	43	0.24	0.041
PDM044	Soil		1.72	10.65	8.30	60.1	346	12.5	7.5	184	2.84	11.1	0.5	1.6	2.6	8.6	0.04	0.40	0.11	52	0.06	0.125
PDM045	Soil		1.35	8.72	7.90	61.8	118	10.6	6.6	286	2.39	9.4	0.5	2.1	1.7	7.1	0.06	0.32	0.11	44	0.07	0.107
PDM046	Soil		1.72	7.21	11.27	63.0	200	8.4	4.6	267	2.45	10.7	0.6	6.4	3.0	5.6	0.07	0.44	0.13	49	0.05	0.079
PDM047	Soil		0.97	6.43	6.52	51.4	35	9.8	5.9	200	2.17	4.5	0.4	3.4	2.0	12.2	0.04	0.21	0.09	45	0.12	0.113
PDM048	Soil		0.78	5.91	6.47	105.3	17	15.3	8.5	359	2.30	1.9	0.4	2.7	1.7	16.1	0.14	0.14	0.08	46	0.14	0.117
PDM049	Soil		0.81	7.21	7.12	94.6	60	14.3	8.0	283	2.61	3.1	0.4	1.0	1.9	13.2	0.05	0.19	0.10	49	0.13	0.150

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
PDM020	Soil		19.4	15.5	0.16	108.4	0.043	<1	1.54	0.010	0.05	<0.1	2.2	0.10	<0.02	21	<0.1	<0.02	5.1
PDM021	Soil		13.7	14.7	0.13	76.5	0.055	<1	1.39	0.010	0.05	<0.1	1.6	0.08	<0.02	35	<0.1	<0.02	4.5
PDM022	Soil		13.7	18.4	0.15	106.5	0.063	<1	1.81	0.009	0.05	<0.1	2.1	0.06	<0.02	25	<0.1	<0.02	4.5
PDM023	Soil		19.4	24.6	0.43	126.2	0.095	<1	1.53	0.026	0.06	<0.1	3.7	0.07	<0.02	24	<0.1	<0.02	4.3
PDM024	Soil		13.7	26.5	0.47	136.4	0.043	<1	2.97	0.010	0.07	<0.1	3.6	0.10	<0.02	32	<0.1	0.03	7.5
PDM025	Soil		11.6	24.8	0.32	154.5	0.047	<1	2.90	0.006	0.06	<0.1	3.2	0.08	<0.02	47	<0.1	0.05	6.8
PDM026	Soil		14.0	18.6	0.34	99.0	0.052	<1	1.91	0.012	0.07	<0.1	3.2	0.10	<0.02	25	<0.1	0.03	5.8
PDM027	Soil		11.1	20.8	0.23	81.1	0.058	<1	1.88	0.008	0.04	<0.1	2.3	0.08	<0.02	26	<0.1	<0.02	4.8
PDM028	Soil		9.5	31.2	0.33	92.0	0.036	<1	3.72	0.003	0.08	0.1	3.9	0.13	0.02	109	0.2	0.06	10.6
PDM029	Soil		11.3	26.6	0.26	83.9	0.035	<1	3.64	0.005	0.06	<0.1	3.6	0.07	0.02	75	0.2	0.04	7.5
PDM030	Soil		14.0	21.4	0.30	190.5	0.004	<1	3.44	0.004	0.09	<0.1	3.6	0.11	0.03	45	0.4	0.18	10.5
PDM031	Soil		20.5	27.7	0.52	139.8	0.062	<1	2.27	0.020	0.09	<0.1	3.9	0.11	<0.02	35	0.2	0.03	6.4
PDM032	Soil		17.2	21.6	0.35	120.5	0.045	<1	2.04	0.014	0.07	<0.1	3.1	0.09	<0.02	19	<0.1	0.02	6.5
PDM033	Soil		15.3	16.5	0.31	76.9	0.075	<1	1.47	0.012	0.06	<0.1	2.3	0.09	<0.02	14	<0.1	<0.02	4.8
PDM034	Soil		14.5	15.5	0.25	85.3	0.078	<1	1.25	0.014	0.04	<0.1	2.3	0.08	<0.02	16	<0.1	<0.02	4.1
PDM035	Soil		13.1	23.6	0.21	106.8	0.050	<1	2.97	0.005	0.04	<0.1	2.9	0.09	<0.02	55	0.2	0.03	7.6
PDM036	Soil		14.5	19.7	0.19	98.6	0.060	<1	1.81	0.009	0.04	<0.1	2.2	0.10	<0.02	43	<0.1	0.02	4.5
PDM037	Soil		13.1	15.6	0.19	87.4	0.068	<1	1.41	0.009	0.04	<0.1	2.4	0.07	<0.02	23	<0.1	<0.02	5.1
PDM038	Soil		13.1	20.5	0.17	73.8	0.055	<1	1.63	0.007	0.06	<0.1	2.6	0.07	<0.02	37	<0.1	0.03	4.7
PDM039	Soil		13.2	24.5	0.23	109.3	0.044	<1	2.97	0.006	0.05	<0.1	3.0	0.08	<0.02	55	0.1	0.02	6.3
PDM040	Soil		17.2	21.5	0.32	129.4	0.075	<1	2.12	0.011	0.06	<0.1	3.1	0.09	<0.02	22	<0.1	0.02	5.5
PDM041	Soil		13.8	24.1	0.26	74.0	0.061	<1	1.85	0.006	0.05	<0.1	3.0	0.10	<0.02	32	<0.1	0.03	4.8
PDM042	Soil		14.3	19.1	0.28	90.4	0.064	<1	1.80	0.010	0.05	<0.1	2.7	0.08	<0.02	22	<0.1	<0.02	5.6
PDM043	Soil		17.8	21.2	0.31	98.2	0.058	<1	1.89	0.012	0.05	<0.1	3.0	0.10	<0.02	34	0.1	0.02	5.6
PDM044	Soil		12.9	22.8	0.21	84.3	0.070	<1	2.22	0.010	0.05	<0.1	3.0	0.10	<0.02	44	<0.1	0.02	6.1
PDM045	Soil		12.5	18.7	0.19	70.9	0.049	1	2.04	0.009	0.04	<0.1	1.8	0.09	0.06	49	<0.1	<0.02	5.2
PDM046	Soil		18.8	19.4	0.18	74.2	0.044	<1	2.09	0.007	0.04	<0.1	2.3	0.13	0.04	41	0.1	0.02	6.1
PDM047	Soil		12.0	19.9	0.17	84.2	0.087	<1	1.44	0.010	0.04	<0.1	1.8	0.05	0.03	26	<0.1	<0.02	4.0
PDM048	Soil		10.6	22.0	0.19	73.6	0.110	<1	1.46	0.013	0.04	<0.1	1.8	0.05	<0.02	24	<0.1	<0.02	4.7
PDM049	Soil		10.5	21.7	0.21	97.8	0.096	<1	1.86	0.010	0.05	<0.1	2.1	0.05	<0.02	29	<0.1	<0.02	6.0

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Project: Windfall Hills
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	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
	Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
PDM050	Soil	1.26	12.12	8.06	48.5	25	15.5	9.7	555	2.34	2.7	1.2	2.8	2.0	30.7	0.04	0.19	0.12	52	0.32	0.034
PDM051	Soil	0.61	9.20	7.98	51.5	11	16.0	9.7	322	2.16	2.3	0.8	0.8	2.0	28.2	0.03	0.16	0.12	47	0.29	0.050
PDM052	Soil	0.71	7.27	8.92	42.4	27	10.2	5.7	229	1.49	3.6	0.7	1.5	1.9	21.0	0.03	0.17	0.11	31	0.20	0.040
PDM053	Soil	1.20	13.13	7.95	58.9	51	18.2	11.2	416	2.58	4.9	0.6	0.6	1.3	31.7	0.04	0.18	0.09	42	0.33	0.081
PDM054	Soil	2.46	13.94	9.00	76.9	132	16.2	12.4	485	3.07	9.9	0.6	1.1	1.3	20.0	0.06	0.26	0.11	52	0.18	0.087
PDM055	Soil	1.23	6.95	10.20	51.8	56	9.9	4.7	187	1.75	5.9	0.5	0.8	2.0	16.2	0.03	0.21	0.10	37	0.17	0.033
PDM056	Soil	1.80	7.88	7.57	61.6	88	12.3	6.2	184	2.19	10.8	0.4	1.2	1.8	9.3	0.03	0.27	0.08	41	0.10	0.102
PDM057	Soil	1.27	8.08	9.74	52.8	887	8.4	4.7	182	2.19	24.5	0.4	2.9	1.8	7.0	0.06	0.30	0.10	41	0.06	0.094
PDM058	Soil	1.09	6.09	8.63	113.9	278	13.1	7.3	471	2.15	6.1	0.4	0.2	2.1	14.8	0.08	0.24	0.10	40	0.12	0.085
PDM059	Soil	0.98	7.34	7.36	59.6	623	12.2	7.0	510	2.16	7.3	0.4	3.1	1.9	10.8	0.04	0.26	0.09	43	0.11	0.083
PDM060	Soil	1.26	10.83	9.24	124.7	499	16.5	9.2	988	2.89	9.2	0.5	0.4	2.3	9.6	0.12	0.32	0.10	55	0.10	0.114
PDM061	Soil	1.48	10.33	8.06	82.7	111	16.1	7.5	304	2.84	7.7	0.5	1.4	1.9	20.9	0.09	0.29	0.09	54	0.21	0.100
PDM062	Soil	0.82	9.75	9.56	75.8	164	13.4	8.7	406	2.81	4.5	0.5	0.5	1.9	17.5	0.04	0.22	0.11	55	0.13	0.085
PDM063	Soil	0.64	9.36	7.37	79.3	36	14.4	8.5	535	2.64	3.5	0.5	<0.2	2.1	17.4	0.07	0.23	0.09	54	0.17	0.104
PDM064	Soil	0.68	12.20	5.72	72.2	49	23.0	11.8	577	3.08	3.6	0.5	0.9	1.1	27.9	0.09	0.22	0.10	62	0.27	0.085
PDM065	Soil	0.87	10.07	6.76	69.0	34	17.9	10.9	549	2.63	2.0	0.4	0.5	1.3	23.7	0.07	0.17	0.10	53	0.21	0.056
PDM066	Soil	0.44	8.59	7.57	54.5	12	13.8	6.5	189	2.03	1.8	0.5	0.6	1.4	18.9	0.03	0.15	0.11	43	0.22	0.057
PDM067	Soil	1.03	7.47	10.07	42.2	70	8.8	4.7	169	1.63	5.3	0.5	3.7	1.5	16.1	0.02	0.22	0.12	35	0.15	0.039
PDM068	Soil	1.15	6.08	10.01	36.3	60	6.7	4.0	167	1.44	6.2	0.7	5.4	1.1	15.9	0.03	0.30	0.12	31	0.14	0.037
PDM069	Soil	1.71	9.40	8.33	53.4	130	10.3	5.0	263	1.77	6.1	1.2	1.8	0.4	23.2	0.04	0.24	0.13	32	0.21	0.043
PDM070	Soil	1.45	9.70	7.44	51.5	75	13.5	6.5	193	2.03	10.5	0.7	3.7	1.5	17.0	0.03	0.39	0.09	37	0.18	0.060
PDM071	Soil	1.11	6.75	8.52	44.0	143	8.6	5.6	291	1.62	6.4	0.6	15.8	1.3	16.8	0.03	0.25	0.10	31	0.18	0.055
PDM072	Soil	1.01	7.03	9.10	36.8	73	9.3	4.6	161	1.28	6.2	0.6	1.5	1.2	17.3	0.02	0.25	0.10	25	0.19	0.041
PDM073	Soil	0.87	5.86	9.34	37.3	78	7.5	3.5	147	1.17	4.5	0.7	1.2	1.0	17.6	0.02	0.20	0.11	23	0.18	0.034
PDM074	Soil	0.72	6.06	9.71	44.6	88	8.2	4.6	200	1.29	4.4	0.6	10.4	0.8	18.4	0.04	0.20	0.15	25	0.17	0.028
PDM075	Soil	1.27	11.53	8.89	61.2	222	13.4	9.0	412	2.00	6.2	1.0	5.4	0.5	32.1	0.11	0.20	0.12	34	0.33	0.056
PDM076	Soil	0.52	6.12	8.01	35.2	40	8.3	4.5	227	1.35	5.7	0.7	7.0	2.1	23.5	0.03	0.24	0.08	29	0.25	0.055
PDM077	Soil	1.74	17.45	9.96	75.1	175	18.1	11.9	863	2.57	8.3	1.8	1.7	0.7	41.9	0.06	0.26	0.14	45	0.46	0.074
PDM078	Soil	0.77	7.47	8.82	53.9	55	11.2	5.5	284	1.72	6.0	0.9	1.7	1.4	21.6	0.06	0.21	0.10	35	0.20	0.031
PDM079	Soil	0.86	8.28	7.40	53.8	66	10.9	6.3	372	1.71	4.8	0.7	1.0	1.0	20.8	0.04	0.21	0.09	32	0.20	0.037

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Method		AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
Analyte		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
Unit		ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
MDL		0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
PDM050	Soil	24.1	26.0	0.40	102.6	0.099	<1	1.94	0.017	0.05	<0.1	3.2	0.10	<0.02	21	0.1	<0.02	6.0
PDM051	Soil	13.2	25.8	0.41	83.2	0.144	<1	1.51	0.017	0.04	<0.1	2.6	0.07	<0.02	18	<0.1	<0.02	5.0
PDM052	Soil	16.2	17.2	0.24	76.0	0.097	<1	1.14	0.014	0.05	<0.1	2.3	0.09	<0.02	21	<0.1	<0.02	3.9
PDM053	Soil	18.5	22.0	0.49	113.7	0.054	<1	2.11	0.024	0.06	<0.1	2.7	0.09	<0.02	29	<0.1	<0.02	6.5
PDM054	Soil	16.2	23.7	0.36	127.5	0.028	<1	2.80	0.012	0.07	<0.1	3.0	0.17	<0.02	36	<0.1	0.03	8.5
PDM055	Soil	16.1	19.0	0.25	69.1	0.094	<1	1.25	0.011	0.04	<0.1	2.1	0.08	<0.02	14	<0.1	0.02	5.0
PDM056	Soil	12.2	18.2	0.18	86.8	0.053	<1	1.93	0.008	0.05	<0.1	1.9	0.07	<0.02	39	<0.1	0.03	4.8
PDM057	Soil	12.8	16.9	0.14	73.8	0.056	<1	1.54	0.008	0.04	<0.1	1.8	0.11	<0.02	34	<0.1	0.05	4.6
PDM058	Soil	13.9	18.6	0.17	99.8	0.072	<1	1.70	0.009	0.04	<0.1	2.0	0.10	<0.02	25	<0.1	0.02	5.4
PDM059	Soil	12.8	19.0	0.18	80.4	0.085	<1	1.54	0.009	0.05	<0.1	1.9	0.10	<0.02	27	<0.1	0.03	4.7
PDM060	Soil	13.9	24.8	0.24	102.1	0.092	<1	2.51	0.009	0.06	<0.1	2.6	0.19	<0.02	48	0.1	0.04	6.8
PDM061	Soil	14.8	22.2	0.31	126.8	0.071	<1	2.20	0.012	0.06	<0.1	2.8	0.07	<0.02	29	<0.1	0.03	6.8
PDM062	Soil	16.1	21.8	0.29	112.3	0.086	<1	2.49	0.012	0.04	<0.1	3.0	0.13	<0.02	34	0.1	<0.02	7.8
PDM063	Soil	14.4	22.1	0.31	111.3	0.107	<1	2.03	0.011	0.05	<0.1	2.7	0.06	<0.02	22	<0.1	<0.02	5.8
PDM064	Soil	10.7	26.3	0.49	128.9	0.107	<1	1.95	0.014	0.06	<0.1	2.7	0.05	<0.02	27	<0.1	<0.02	5.6
PDM065	Soil	10.0	24.6	0.47	81.4	0.117	<1	1.67	0.013	0.05	<0.1	2.5	0.07	<0.02	29	<0.1	<0.02	6.0
PDM066	Soil	10.3	21.1	0.37	84.9	0.116	<1	1.54	0.012	0.05	<0.1	2.6	0.06	<0.02	19	<0.1	<0.02	5.8
PDM067	Soil	13.5	16.9	0.25	68.7	0.073	<1	1.16	0.011	0.04	<0.1	2.1	0.09	<0.02	18	<0.1	<0.02	4.9
PDM068	Soil	17.1	14.5	0.19	72.3	0.058	<1	1.06	0.011	0.04	<0.1	1.6	0.09	<0.02	23	<0.1	<0.02	4.1
PDM069	Soil	16.2	18.9	0.27	121.1	0.018	<1	1.73	0.011	0.06	<0.1	1.6	0.12	<0.02	28	<0.1	<0.02	5.3
PDM070	Soil	15.3	20.0	0.28	114.2	0.033	<1	2.02	0.011	0.05	<0.1	2.4	0.11	<0.02	27	<0.1	0.02	5.5
PDM071	Soil	15.7	15.5	0.29	68.5	0.059	<1	1.30	0.012	0.04	<0.1	2.0	0.09	<0.02	29	0.1	<0.02	4.8
PDM072	Soil	15.8	14.9	0.24	62.9	0.062	<1	1.09	0.015	0.04	<0.1	1.8	0.09	<0.02	20	<0.1	<0.02	4.4
PDM073	Soil	16.0	13.8	0.24	67.7	0.055	<1	1.07	0.012	0.04	<0.1	1.7	0.08	<0.02	25	<0.1	<0.02	4.0
PDM074	Soil	16.1	14.7	0.26	78.2	0.040	<1	1.24	0.012	0.05	<0.1	1.8	0.09	<0.02	26	<0.1	<0.02	4.4
PDM075	Soil	17.2	20.5	0.35	123.1	0.020	<1	1.94	0.012	0.08	<0.1	2.1	0.10	0.03	46	0.1	<0.02	6.3
PDM076	Soil	16.6	15.4	0.25	77.4	0.083	<1	0.91	0.016	0.05	<0.1	2.1	0.05	<0.02	17	<0.1	<0.02	3.2
PDM077	Soil	24.2	27.0	0.47	167.8	0.025	<1	2.56	0.016	0.09	<0.1	3.2	0.13	0.02	43	0.1	<0.02	7.1
PDM078	Soil	14.9	17.8	0.30	95.3	0.065	<1	1.31	0.016	0.05	<0.1	2.4	0.07	<0.02	18	<0.1	<0.02	4.2
PDM079	Soil	13.7	18.4	0.30	83.2	0.046	<1	1.46	0.012	0.05	<0.1	2.3	0.09	<0.02	23	<0.1	<0.02	4.6

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
	Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
PDM080	Soil	0.76	6.47	7.72	33.9	36	7.2	3.8	171	1.50	4.9	0.6	0.7	1.5	14.0	0.02	0.23	0.10	31	0.17	0.045
PDM081	Soil	0.66	6.93	7.89	38.1	42	8.5	4.2	185	1.61	5.1	0.6	3.1	1.8	17.8	0.03	0.24	0.09	34	0.23	0.051
PDM082	Soil	0.86	9.89	9.38	53.0	108	11.2	6.1	265	1.82	5.2	0.7	0.9	1.2	25.3	0.04	0.22	0.12	33	0.24	0.041
PDM083	Soil	1.99	16.54	9.31	69.4	164	15.1	10.1	842	2.68	8.7	1.3	0.4	0.8	36.3	0.08	0.23	0.13	49	0.37	0.076
SP-TR2-01	Soil	1.64	4.79	9.01	59.2	1263	6.6	3.9	127	1.44	10.8	0.5	0.9	3.4	9.2	0.02	0.27	0.12	28	0.08	0.092
SP-TR2-02	Soil	1.66	5.64	8.98	32.9	350	6.5	4.1	157	1.46	11.5	0.5	0.5	3.5	11.3	0.02	0.42	0.10	32	0.11	0.034
SP-TR2-03	Soil	5.14	11.97	12.93	53.2	231	8.6	5.5	201	2.16	30.1	0.9	10.9	4.9	28.7	0.02	0.94	0.14	37	0.23	0.038
SP-TR2-04	Soil	40.36	9.54	22.53	28.9	2106	5.3	3.2	133	1.50	120.5	1.2	41.9	7.7	36.6	0.04	3.12	0.16	20	0.14	0.032
SP-TR2-05	Soil	56.38	7.99	32.98	13.5	3570	2.0	1.1	42	1.19	227.0	2.5	210.1	10.7	22.1	0.03	6.85	0.18	7	0.08	0.015
SP-TR2-06	Soil	94.00	7.65	29.05	21.1	8649	2.8	1.8	82	1.63	233.9	2.1	441.2	10.9	33.1	0.08	5.06	0.15	9	0.12	0.031
SP-TR5-01	Soil	2.10	7.84	13.18	43.1	385	9.2	5.9	269	1.65	17.1	0.8	39.6	2.2	17.9	0.02	0.48	0.12	30	0.20	0.058
SP-TR5-02	Soil	1.23	8.94	10.90	30.5	266	8.6	5.1	223	1.28	11.9	1.1	10.6	3.0	30.0	0.03	0.54	0.09	26	0.30	0.101
SP-TR5-03	Soil	2.23	19.13	10.45	51.4	305	13.1	7.1	360	2.13	23.4	1.3	21.8	3.0	38.2	0.04	0.89	0.12	38	0.38	0.080
SP-TR5-04	Soil	2.46	24.84	10.32	69.7	207	19.1	10.9	638	2.74	25.0	0.8	13.2	3.6	53.7	0.11	1.05	0.13	47	0.48	0.081

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Project: Windfall Hills
Report Date: November 13, 2018

CERTIFICATE OF ANALYSIS VAN18002832.1

	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
	MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
PDM080	Soil	13.4	14.3	0.23	55.7	0.065	1	1.03	0.013	0.03	<0.1	2.1	0.07	<0.02	19	<0.1	<0.02	3.5
PDM081	Soil	14.6	15.5	0.27	65.8	0.071	<1	1.09	0.013	0.04	<0.1	2.0	0.07	<0.02	23	<0.1	0.03	3.7
PDM082	Soil	16.8	19.7	0.33	96.0	0.048	<1	1.68	0.013	0.06	<0.1	2.6	0.12	<0.02	31	<0.1	<0.02	5.3
PDM083	Soil	19.8	23.3	0.41	149.2	0.025	<1	2.46	0.013	0.07	<0.1	2.6	0.13	0.02	34	0.1	0.03	6.9
SP-TR2-01	Soil	26.0	13.0	0.11	71.3	0.030	<1	1.01	0.007	0.04	<0.1	1.5	0.10	<0.02	37	<0.1	0.02	3.2
SP-TR2-02	Soil	25.9	14.0	0.16	49.0	0.070	<1	0.61	0.008	0.05	<0.1	1.5	0.07	<0.02	16	<0.1	<0.02	2.2
SP-TR2-03	Soil	32.4	18.2	0.28	114.9	0.067	<1	1.09	0.011	0.13	<0.1	3.7	0.23	<0.02	22	0.2	0.03	3.1
SP-TR2-04	Soil	43.9	17.4	0.19	176.3	0.038	<1	0.66	0.008	0.12	1.1	2.1	0.76	0.07	32	0.5	0.04	2.3
SP-TR2-05	Soil	51.7	5.8	0.07	109.0	0.006	<1	0.43	0.004	0.15	1.2	1.0	2.05	0.16	103	0.8	0.05	2.0
SP-TR2-06	Soil	62.1	10.1	0.08	190.5	0.007	<1	0.49	0.008	0.23	3.8	1.0	3.36	0.36	84	1.1	0.04	2.8
SP-TR5-01	Soil	23.0	16.2	0.23	86.3	0.036	<1	1.08	0.010	0.05	<0.1	1.7	0.14	<0.02	26	<0.1	<0.02	3.8
SP-TR5-02	Soil	26.7	16.8	0.20	101.6	0.072	<1	0.68	0.013	0.04	<0.1	1.9	0.08	<0.02	8	0.2	0.03	2.7
SP-TR5-03	Soil	27.6	20.9	0.29	110.4	0.051	<1	1.09	0.020	0.08	<0.1	3.4	0.15	<0.02	32	0.1	0.04	3.8
SP-TR5-04	Soil	26.9	21.1	0.43	126.4	0.053	<1	1.28	0.030	0.11	<0.1	4.6	0.16	<0.02	37	0.1	0.05	4.2

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Project: Windfall Hills
Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002832.1

	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
	Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
Pulp Duplicates																					
JWL025	Soil	1.66	6.54	7.48	46.0	39	9.7	5.7	207	2.14	11.8	0.4	2.5	2.1	15.4	0.02	0.35	0.10	46	0.13	0.064
REP JWL025	QC	1.64	6.60	7.54	46.7	40	9.7	5.5	203	2.12	11.6	0.4	1.5	2.0	15.4	0.03	0.35	0.10	46	0.13	0.067
JWL060	Soil	0.85	8.73	7.64	129.8	9	14.6	8.1	662	2.70	3.0	0.5	1.5	1.9	18.3	0.31	0.23	0.11	56	0.18	0.113
REP JWL060	QC	0.79	8.17	7.22	126.8	10	14.0	7.9	695	2.69	3.0	0.5	0.2	1.8	17.1	0.29	0.22	0.10	55	0.18	0.105
JWL095	Soil	1.88	23.97	9.81	112.2	225	24.9	12.2	824	3.37	18.0	1.5	1.3	1.1	39.8	0.07	0.43	0.14	57	0.38	0.076
REP JWL095	QC	1.85	23.72	9.70	110.4	232	24.0	12.3	833	3.30	17.7	1.5	2.7	1.1	38.9	0.09	0.44	0.14	58	0.37	0.072
JWL130	Soil	0.49	10.75	6.47	50.1	12	21.8	8.2	321	2.62	3.0	0.5	<0.2	1.6	27.8	0.04	0.17	0.07	47	0.28	0.058
REP JWL130	QC	0.51	11.84	6.45	50.6	12	23.1	8.0	326	2.62	3.1	0.5	3.5	1.7	28.8	0.05	0.17	0.07	48	0.27	0.057
PDM034	Soil	0.92	7.61	10.35	50.7	96	8.5	6.5	314	1.58	4.5	0.5	1.0	1.2	22.7	0.06	0.17	0.11	34	0.21	0.028
REP PDM034	QC	0.89	7.71	10.44	49.1	87	8.8	6.9	310	1.59	4.5	0.5	0.2	1.2	23.0	0.06	0.19	0.11	34	0.21	0.029
PDM069	Soil	1.71	9.40	8.33	53.4	130	10.3	5.0	263	1.77	6.1	1.2	1.8	0.4	23.2	0.04	0.24	0.13	32	0.21	0.043
REP PDM069	QC	1.71	9.47	8.27	51.7	129	10.2	5.2	264	1.81	6.0	1.2	1.8	0.4	23.6	0.04	0.22	0.12	33	0.22	0.042
SP-TR2-06	Soil	94.00	7.65	29.05	21.1	8649	2.8	1.8	82	1.63	233.9	2.1	441.2	10.9	33.1	0.08	5.06	0.15	9	0.12	0.031
REP SP-TR2-06	QC	93.35	8.27	29.16	23.0	8377	2.9	1.8	84	1.63	232.7	2.1	428.6	10.8	35.8	0.08	5.08	0.15	9	0.12	0.031
Reference Materials																					
STD DS11	Standard	16.00	144.36	133.60	339.6	1593	76.6	13.4	986	3.10	44.4	2.7	58.0	7.9	68.3	2.31	8.76	11.80	50	1.05	0.076
STD DS11	Standard	15.41	150.98	146.46	346.4	1608	83.7	14.4	1037	3.28	45.9	2.8	74.0	8.0	65.7	2.31	8.74	12.81	52	1.08	0.078
STD DS11	Standard	15.90	159.26	150.31	339.6	1677	87.2	14.0	1040	3.32	44.1	2.8	91.1	8.3	63.6	2.39	8.47	12.62	51	1.08	0.080
STD DS11	Standard	16.69	159.11	143.37	363.6	1676	87.9	14.2	1035	3.22	43.7	2.7	85.7	8.1	69.4	2.43	8.39	12.23	50	1.06	0.078
STD DS11	Standard	15.64	151.66	143.02	334.1	1679	81.0	14.4	1010	3.04	42.5	2.6	65.7	8.1	64.2	2.33	8.70	11.83	48	1.01	0.072
STD DS11	Standard	15.06	150.01	143.73	352.1	1623	81.4	14.3	992	3.03	42.4	2.7	68.9	7.8	62.0	2.28	8.45	11.90	49	1.03	0.072
STD DS11	Standard	16.70	155.91	142.13	351.9	1698	81.2	14.7	1038	3.24	46.3	2.8	81.1	8.2	71.1	2.42	8.73	12.12	51	1.08	0.077
STD OREAS262	Standard	0.74	112.49	56.00	142.7	439	61.7	27.7	544	3.20	36.8	1.2	67.0	8.9	34.8	0.63	5.81	1.05	22	2.88	0.044
STD OREAS262	Standard	0.73	117.40	58.50	148.0	436	67.0	29.6	536	3.36	36.4	1.3	50.5	9.4	34.5	0.63	4.22	1.06	23	2.87	0.042
STD OREAS262	Standard	0.74	115.32	59.33	152.1	428	66.1	28.2	540	3.40	36.5	1.3	67.3	9.7	34.2	0.62	4.95	1.07	23	2.98	0.045
STD OREAS262	Standard	0.70	117.95	61.31	154.8	429	66.8	28.0	527	3.41	36.4	1.3	58.9	9.8	33.7	0.63	4.55	1.10	23	3.04	0.044
STD OREAS262	Standard	0.77	116.43	58.64	145.6	416	65.5	28.0	559	3.09	34.7	1.3	63.1	9.5	33.3	0.62	5.60	1.05	21	2.88	0.042
STD OREAS262	Standard	0.75	115.08	56.61	141.1	413	63.9	28.0	509	3.06	33.1	1.2	60.0	8.9	32.2	0.59	5.30	1.00	21	2.86	0.040

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	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
	MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
Pulp Duplicates																		
JWL025	Soil	14.2	17.9	0.18	85.8	0.057	<1	1.39	0.010	0.06	<0.1	1.9	0.07	<0.02	24	<0.1	<0.02	4.5
REP JWL025	QC	14.0	17.9	0.17	85.8	0.056	<1	1.38	0.009	0.05	<0.1	1.8	0.07	<0.02	24	<0.1	<0.02	4.4
JWL060	Soil	12.0	24.3	0.25	147.2	0.115	1	2.14	0.009	0.06	<0.1	2.6	0.08	<0.02	37	0.1	<0.02	6.4
REP JWL060	QC	11.4	23.3	0.25	136.3	0.111	1	2.05	0.008	0.05	<0.1	2.6	0.07	<0.02	32	<0.1	<0.02	6.1
JWL095	Soil	21.9	31.7	0.57	180.7	0.031	<1	3.15	0.017	0.12	<0.1	3.9	0.15	<0.02	32	0.2	0.03	8.1
REP JWL095	QC	21.3	31.7	0.55	176.8	0.032	<1	3.16	0.016	0.12	<0.1	3.9	0.15	<0.02	34	0.1	0.02	8.3
JWL130	Soil	11.7	28.1	0.57	114.3	0.143	<1	1.66	0.016	0.05	<0.1	2.6	0.04	<0.02	14	<0.1	<0.02	4.9
REP JWL130	QC	11.9	29.4	0.57	110.8	0.149	<1	1.67	0.016	0.05	<0.1	2.7	0.05	<0.02	21	<0.1	<0.02	5.2
PDM034	Soil	14.5	15.5	0.25	85.3	0.078	<1	1.25	0.014	0.04	<0.1	2.3	0.08	<0.02	16	<0.1	<0.02	4.1
REP PDM034	QC	14.8	16.4	0.25	82.7	0.082	<1	1.24	0.013	0.04	<0.1	2.3	0.08	<0.02	22	<0.1	<0.02	4.2
PDM069	Soil	16.2	18.9	0.27	121.1	0.018	<1	1.73	0.011	0.06	<0.1	1.6	0.12	<0.02	28	<0.1	<0.02	5.3
REP PDM069	QC	17.0	19.0	0.29	116.6	0.018	<1	1.77	0.011	0.06	<0.1	1.7	0.11	<0.02	28	0.1	<0.02	5.4
SP-TR2-06	Soil	62.1	10.1	0.08	190.5	0.007	<1	0.49	0.008	0.23	3.8	1.0	3.36	0.36	84	1.1	0.04	2.8
REP SP-TR2-06	QC	59.6	11.0	0.08	200.2	0.007	<1	0.50	0.008	0.22	3.7	1.0	3.35	0.35	83	1.1	0.04	3.0
Reference Materials																		
STD DS11	Standard	20.4	59.7	0.83	351.4	0.092	9	1.17	0.075	0.41	2.9	3.3	4.93	0.28	247	2.2	4.68	5.1
STD DS11	Standard	19.8	62.4	0.86	368.2	0.092	9	1.17	0.074	0.40	3.1	3.3	5.20	0.30	269	2.3	4.85	5.3
STD DS11	Standard	20.6	65.5	0.85	372.4	0.096	7	1.17	0.074	0.41	3.2	3.3	5.11	0.28	281	2.3	4.79	4.6
STD DS11	Standard	21.4	62.7	0.84	391.0	0.097	5	1.18	0.075	0.41	3.2	3.6	5.12	0.28	276	2.3	4.83	5.2
STD DS11	Standard	20.4	64.8	0.81	378.5	0.093	6	1.10	0.071	0.39	3.3	3.1	4.97	0.28	292	2.3	4.77	4.9
STD DS11	Standard	19.8	61.7	0.83	343.6	0.090	7	1.13	0.073	0.40	3.2	3.1	5.11	0.29	247	2.3	4.67	5.2
STD DS11	Standard	23.1	62.6	0.86	400.2	0.103	7	1.19	0.077	0.41	3.2	3.5	5.15	0.28	249	2.4	4.73	5.5
STD OREAS262	Standard	17.2	42.6	1.15	251.4	0.002	4	1.33	0.069	0.31	0.2	3.1	0.47	0.26	152	0.5	0.24	4.1
STD OREAS262	Standard	18.3	45.0	1.17	251.2	0.003	3	1.28	0.068	0.31	0.2	3.3	0.46	0.26	168	0.5	0.21	3.9
STD OREAS262	Standard	17.3	44.2	1.17	248.8	0.003	3	1.28	0.068	0.32	0.2	3.2	0.48	0.26	150	0.5	0.22	3.8
STD OREAS262	Standard	17.7	44.6	1.19	248.5	0.003	3	1.32	0.071	0.32	0.2	3.4	0.49	0.27	158	0.5	0.23	4.2
STD OREAS262	Standard	17.4	45.0	1.14	242.6	0.002	2	1.23	0.068	0.29	0.2	3.0	0.46	0.27	158	0.5	0.23	3.7
STD OREAS262	Standard	15.8	43.0	1.14	227.3	0.003	4	1.20	0.070	0.29	0.3	3.0	0.46	0.27	159	0.5	0.23	3.6

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Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002832.1

		AQ251 Mo ppm 0.01	AQ251 Cu ppm 0.01	AQ251 Pb ppm 0.01	AQ251 Zn ppm 0.1	AQ251 Ag ppb 2	AQ251 Ni ppm 0.1	AQ251 Co ppm 0.1	AQ251 Mn ppm 1	AQ251 Fe % 0.01	AQ251 As ppm 0.1	AQ251 U ppm 0.1	AQ251 Au ppb 0.2	AQ251 Th ppm 0.1	AQ251 Sr ppm 0.5	AQ251 Cd ppm 0.01	AQ251 Sb ppm 0.02	AQ251 Bi ppm 0.02	AQ251 V ppm 1	AQ251 Ca % 0.01	AQ251 P % 0.001
STD OREAS262	Standard	0.69	112.29	55.74	150.1	424	62.9	27.5	515	3.16	36.1	1.2	60.7	9.2	33.9	0.64	4.57	1.02	22	2.86	0.042
STD OXC129	Standard	1.35	26.10	6.21	41.0	11	74.4	19.9	416	2.97	0.6	0.7	199.7	1.9	197.5	0.01	0.04	<0.02	52	0.71	0.105
STD OXC129	Standard	1.47	28.74	6.68	42.5	11	86.1	20.6	449	3.10	0.7	0.7	190.9	2.0	192.0	0.02	0.03	<0.02	55	0.64	0.108
STD OXC129	Standard	1.36	26.85	6.25	43.5	11	79.2	20.2	398	2.97	0.5	0.7	186.0	1.9	179.3	0.02	0.03	<0.02	54	0.68	0.105
STD OXC129	Standard	1.42	28.98	6.49	43.4	13	82.5	21.6	438	3.11	0.5	0.7	190.3	2.0	204.0	0.02	0.04	<0.02	53	0.71	0.109
STD OXC129	Standard	1.45	27.44	6.39	42.1	15	84.8	21.5	421	2.97	0.6	0.7	186.5	1.9	181.0	0.02	0.04	<0.02	51	0.65	0.102
STD OXC129	Standard	1.38	26.70	6.42	41.6	13	78.6	21.1	401	2.90	0.7	0.7	186.4	1.8	173.8	0.02	0.04	<0.02	52	0.64	0.106
STD OXC129	Standard	1.34	28.15	6.69	44.6	16	77.1	21.0	419	3.07	0.5	0.7	205.7	1.9	187.2	0.03	0.05	0.02	54	0.70	0.119
STD OXC129 Expected		1.3	28	6.3	42.9	13	79.5	20.3	421	3.065	0.6	0.69	195	1.9		0.03	0.04		51	0.684	0.102
STD DS11 Expected		14.6	149	138	345	1710	77.7	14.2	1055	3.1	42.8	2.59	79	7.65	67.3	2.37	8.74	12.2	50	1.063	0.0701
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	<0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	0.2	<0.1	1	<0.01	<0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	0.2	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	<0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	0.02	<0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001
BLK	Blank	0.02	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001

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Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 13, 2018

QUALITY CONTROL REPORT VAN18002832.1

		AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
STD OREAS262	Standard	19.6	44.9	1.12	259.8	0.003	4	1.32	0.067	0.32	0.2	3.2	0.48	0.25	153	0.5	0.22	4.1
STD OXC129	Standard	13.3	50.4	1.45	50.4	0.376	2	1.58	0.592	0.36	<0.1	1.1	0.03	<0.02	<5	<0.1	<0.02	5.7
STD OXC129	Standard	14.1	56.6	1.52	53.0	0.416	1	1.57	0.611	0.38	<0.1	1.5	0.03	<0.02	<5	<0.1	<0.02	6.0
STD OXC129	Standard	13.6	53.1	1.45	48.8	0.389	<1	1.48	0.570	0.39	<0.1	1.2	0.03	<0.02	<5	<0.1	<0.02	5.7
STD OXC129	Standard	14.3	55.9	1.49	52.9	0.419	<1	1.60	0.603	0.38	<0.1	1.3	0.03	<0.02	<5	<0.1	<0.02	5.8
STD OXC129	Standard	14.1	53.7	1.51	47.7	0.395	<1	1.52	0.579	0.36	<0.1	1.1	0.03	<0.02	<5	<0.1	<0.02	5.6
STD OXC129	Standard	14.0	52.6	1.51	47.8	0.386	<1	1.51	0.581	0.36	<0.1	1.1	0.04	<0.02	<5	<0.1	<0.02	5.7
STD OXC129	Standard	14.1	53.5	1.52	51.2	0.387	1	1.56	0.616	0.37	<0.1	1.3	0.04	<0.02	<5	<0.1	<0.02	6.0
STD OXC129 Expected		12.5	52	1.545	50	0.4	1	1.58	0.59	0.3655	0.08	1.1	0.03					5.5
STD DS11 Expected		18.6	61.5	0.85	385	0.0976		1.1795	0.0762	0.4	2.9	3.4	4.9	0.2835	260	2.2	4.56	5.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1

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Client: **Canarc Resources Corp.**
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6 Canada

Submitted By: Garry Biles
Receiving Lab: Canada-Vancouver
Received: October 09, 2018
Report Date: November 14, 2018
Page: 1 of 2

CERTIFICATE OF ANALYSIS VAN18002833.1

CLIENT JOB INFORMATION

Project: Windfall Hills
Shipment ID: WH-001
P.O. Number
Number of Samples: 15

SAMPLE DISPOSAL

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

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

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
SS230	15	Dry at 60C sieve 100g to -230 mesh			VAN
AQ251	15	1:1:1 Aqua Regia digestion Ultratrace ICP-MS analysis	15	Completed	VAN
DISPL	15	Disposal of pulps			VAN

ADDITIONAL COMMENTS

Invoice To: Canarc Resources Corp.
Suite 810-625 Howe Street
Vancouver British Columbia V6C 2T6
Canada

CC: Alan Wainwright

BRITISH COLUMBIA CERTIFIED ASSAYER
MARCUS LAU
Production Manager

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

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Vancouver British Columbia V6C 2T6 Canada

Project: Windfall Hills
Report Date: November 14, 2018

CERTIFICATE OF ANALYSIS VAN18002833.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
		Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
		MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
TR1.3	Till		2.58	24.78	12.49	82.8	256	22.4	12.9	661	3.13	25.4	1.5	15.2	5.5	80.6	0.17	1.14	0.21	55	0.78	0.083
TR1.4	Till		2.86	26.58	12.21	82.0	269	23.1	12.9	713	3.20	29.0	1.3	15.3	4.7	80.5	0.14	1.08	0.17	54	0.92	0.087
TR3.1	Till		2.23	21.85	11.56	78.4	244	19.7	10.8	503	2.78	22.7	1.0	7.6	4.9	68.4	0.11	0.98	0.15	47	0.64	0.078
TR3.2	Till		3.26	20.82	13.23	93.0	200	20.7	9.7	790	2.73	23.7	0.9	9.5	5.3	64.3	0.10	1.11	0.17	38	0.76	0.073
TR3.3	Till		2.76	20.00	13.24	84.3	177	17.4	8.4	453	2.77	25.2	0.9	10.0	5.3	58.0	0.07	1.09	0.20	45	0.53	0.068
TR3.4	Till		2.36	20.84	10.14	79.4	119	21.2	11.6	589	2.99	18.4	0.9	4.3	4.4	72.2	0.12	0.83	0.14	56	0.74	0.082
TR4.1	Till		2.00	26.29	11.07	83.2	174	27.3	13.7	767	3.33	18.4	0.8	4.8	4.5	76.4	0.14	0.86	0.15	64	0.93	0.087
TR4.2	Till		4.20	22.29	17.76	84.7	266	18.9	10.8	642	2.78	39.2	0.9	13.0	5.5	64.6	0.16	1.39	0.21	45	0.50	0.071
TR4.3	Till		1.51	25.08	9.98	74.0	170	25.9	12.5	743	3.11	13.3	1.2	24.9	4.4	84.9	0.12	0.80	0.15	61	1.34	0.092
TR5.2	Till		3.65	20.27	14.02	95.2	197	16.2	10.4	502	2.63	29.5	0.8	9.2	4.9	63.2	0.12	1.30	0.17	46	0.48	0.075
TR5.3	Till		1.84	28.32	11.62	76.1	191	25.2	12.9	778	3.28	13.1	1.1	2.7	4.5	83.6	0.14	0.75	0.16	58	1.13	0.090
TR7.1	Till		2.48	24.00	12.30	79.3	234	21.0	11.6	515	3.02	22.5	1.2	7.6	5.0	73.2	0.21	1.79	0.15	53	0.84	0.082
TR7.2	Till		2.98	22.17	12.06	76.5	231	20.7	11.5	650	2.89	27.1	1.0	5.6	5.0	66.8	0.14	1.95	0.16	50	0.71	0.078
TR7.3	Till		3.25	24.78	12.98	82.6	263	19.9	10.0	508	2.95	28.8	1.0	16.6	5.2	66.6	0.14	1.25	0.15	51	0.72	0.077
TR7.4	Till		2.94	24.84	11.58	80.8	309	22.3	11.2	571	3.21	25.0	1.0	13.8	5.0	69.7	0.37	1.11	0.15	60	0.81	0.085

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Project: Windfall Hills
Report Date: November 14, 2018

CERTIFICATE OF ANALYSIS VAN18002833.1

		Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
		Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
		Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
		MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
TR1.3	Till		27.7	25.7	0.63	216.9	0.072	<1	1.69	0.053	0.19	<0.1	5.7	0.20	0.04	44	<0.1	0.05	5.2
TR1.4	Till		27.3	23.3	0.68	210.6	0.069	<1	1.70	0.058	0.20	<0.1	5.4	0.21	0.05	36	<0.1	0.05	4.9
TR3.1	Till		28.3	20.5	0.54	152.8	0.075	<1	1.50	0.044	0.19	<0.1	4.5	0.16	0.08	38	<0.1	0.03	4.4
TR3.2	Till		34.7	18.9	0.45	155.1	0.060	1	1.31	0.038	0.20	<0.1	4.0	0.22	0.09	57	<0.1	0.03	4.3
TR3.3	Till		34.5	23.1	0.41	150.7	0.069	<1	1.42	0.031	0.17	<0.1	4.9	0.20	<0.02	32	<0.1	0.03	4.4
TR3.4	Till		25.5	24.4	0.52	142.8	0.098	<1	1.48	0.052	0.16	<0.1	5.3	0.20	<0.02	31	<0.1	0.03	4.3
TR4.1	Till		27.5	27.7	0.66	153.6	0.099	<1	1.79	0.048	0.18	<0.1	6.2	0.19	<0.02	42	<0.1	0.04	5.5
TR4.2	Till		35.7	20.2	0.44	145.0	0.066	<1	1.38	0.033	0.18	<0.1	4.9	0.32	0.03	35	<0.1	0.03	4.2
TR4.3	Till		24.5	27.3	0.84	195.0	0.085	<1	1.61	0.052	0.18	<0.1	6.2	0.13	0.06	39	<0.1	0.04	5.1
TR5.2	Till		33.8	20.5	0.39	136.7	0.081	2	1.19	0.036	0.14	<0.1	4.6	0.22	0.02	40	<0.1	0.03	3.8
TR5.3	Till		26.4	25.5	0.78	188.0	0.092	<1	1.79	0.059	0.19	<0.1	5.9	0.12	0.04	25	<0.1	0.04	5.3
TR7.1	Till		29.4	23.0	0.61	173.9	0.084	2	1.59	0.049	0.19	<0.1	5.4	0.25	0.03	121	<0.1	0.07	4.8
TR7.2	Till		28.9	22.2	0.56	163.3	0.081	<1	1.51	0.046	0.19	<0.1	5.0	0.30	<0.02	160	<0.1	0.03	4.5
TR7.3	Till		30.0	23.3	0.56	155.8	0.080	<1	1.54	0.043	0.19	<0.1	5.2	0.28	<0.02	61	<0.1	0.08	4.6
TR7.4	Till		27.9	26.6	0.62	144.5	0.092	1	1.66	0.045	0.18	<0.1	6.1	0.21	<0.02	62	<0.1	0.06	4.9

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Project: Windfall Hills

Report Date: November 14, 2018

QUALITY CONTROL REPORT VAN18002833.1

	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P
	Unit	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%
	MDL	0.01	0.01	0.01	0.1	2	0.1	0.1	1	0.01	0.1	0.1	0.2	0.1	0.5	0.01	0.02	0.02	1	0.01	0.001
Pulp Duplicates																					
TR5.2	Till	3.65	20.27	14.02	95.2	197	16.2	10.4	502	2.63	29.5	0.8	9.2	4.9	63.2	0.12	1.30	0.17	46	0.48	0.075
REP TR5.2	QC	3.88	20.14	14.34	95.4	217	17.4	10.6	529	2.68	31.1	0.9	8.5	4.9	65.6	0.14	1.29	0.18	47	0.50	0.082
Reference Materials																					
STD DS11	Standard	14.85	155.54	143.22	355.7	1751	82.8	14.2	1070	3.19	43.0	2.7	77.7	7.8	68.4	2.35	8.78	12.38	50	1.06	0.069
STD OREAS262	Standard	0.67	120.92	59.88	148.1	494	66.0	28.0	544	3.26	35.4	1.3	60.4	9.9	36.6	0.63	5.14	1.09	23	3.06	0.037
STD OXC129	Standard	1.29	28.82	6.81	41.3	15	83.9	21.0	431	3.08	0.6	0.7	196.5	2.2	191.7	<0.01	0.04	0.03	53	0.71	0.095
STD OXC129 Expected		1.3	28	6.3	42.9	13	79.5	20.3	421	3.065	0.6	0.69	195	1.9		0.03	0.04		51	0.684	0.102
STD DS11 Expected		14.6	149	138	345	1710	77.7	14.2	1055	3.1	42.8	2.59	79	7.65	67.3	2.37	8.74	12.2	50	1.063	0.0701
BLK	Blank	<0.01	<0.01	<0.01	<0.1	<2	<0.1	<0.1	<1	<0.01	<0.1	<0.1	<0.2	<0.1	<0.5	<0.01	<0.02	<0.02	<1	<0.01	<0.001

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QUALITY CONTROL REPORT VAN18002833.1

	Method	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251	AQ251
	Analyte	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
	Unit	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
	MDL	0.5	0.5	0.01	0.5	0.001	1	0.01	0.001	0.01	0.1	0.1	0.02	0.02	5	0.1	0.02	0.1
Pulp Duplicates																		
TR5.2	Till	33.8	20.5	0.39	136.7	0.081	2	1.19	0.036	0.14	<0.1	4.6	0.22	0.02	40	<0.1	0.03	3.8
REP TR5.2	QC	35.1	22.6	0.39	141.0	0.090	<1	1.25	0.038	0.15	<0.1	4.7	0.22	0.02	33	<0.1	0.03	3.9
Reference Materials																		
STD DS11	Standard	18.8	61.2	0.87	370.1	0.096	6	1.21	0.075	0.41	3.2	3.2	5.00	0.28	266	2.3	4.70	4.9
STD OREAS262	Standard	17.1	45.3	1.18	249.6	0.003	4	1.31	0.070	0.31	0.2	3.3	0.46	0.26	163	0.3	0.22	4.0
STD OXC129	Standard	13.1	55.1	1.56	51.4	0.433	1	1.65	0.627	0.39	0.1	1.5	0.04	<0.02	<5	<0.1	<0.02	5.9
STD OXC129 Expected		12.5	52	1.545	50	0.4	1	1.58	0.59	0.3655	0.08	1.1	0.03					5.5
STD DS11 Expected		18.6	61.5	0.85	385	0.0976		1.1795	0.0762	0.4	2.9	3.4	4.9	0.2835	260	2.2	4.56	5.1
BLK	Blank	<0.5	<0.5	<0.01	<0.5	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.1	<0.02	<0.02	<5	<0.1	<0.02	<0.1

APPENDIX D: GEOPHYSICS SURVEY LOGISTICS

Final report for 2018 survey by Precision Geophysics.

Precision GeoSurveys

AIRBORNE GEOPHYSICAL SURVEY REPORT

Windfall Hills Survey Block

Ootsa Lake, British Columbia

Canarc Resource Corp.

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October 2018
Job#18157

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1.0 Introduction

This report outlines the geophysical survey operations and data processing procedures taken during the high resolution helicopter-borne aeromagnetic and radiometric survey flown over Windfall Hills survey block for Canarc Resource Corp. The survey block is located in central British Columbia (Figure 1). The geophysical survey was started on September 22, 2018, and completed on September 23, 2018.

Figure 1: Windfall Hills survey block location map.

1.1 Survey Area

The Windfall Hills survey block covers a total area of 38.9 km^2. It is centered approximately 70 km south of Burns Lake, British Columbia, and 182 km southeast of Kitimat, British Columbia (Figure 2).

Figure 2: Windfall Hills survey block 70 km south of Burns Lake, British Columbia.

A total of 470 line km of magnetic and radiometric data were collected on 70 survey lines and 13 tie lines at Windfall Hills. The survey block was flown at 100 meter spacing at a heading of 092°/272°; tie lines were flown at 500 meter spacings at a heading of 002°/182° (Figures 3 and 4).

Figure 3: Plan View – Windfall Hills survey block with actual flight lines displayed in yellow and boundary in red.

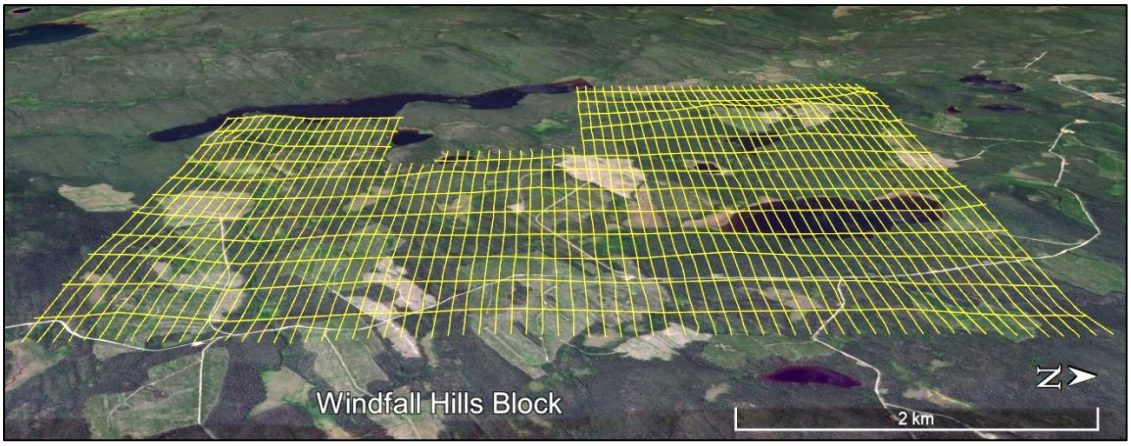


Figure 4: Terrain View – Windfall Hills survey block with actual flight lines displayed in yellow.

1.2 Survey Specifications

The geodetic system used for the geophysical survey was WGS 84 in UTM Zone 10N. A total of 470 line km was flown over 38.9 km^2 (Table 1). Actual distances flown exceeded planned distances due to retained marginal line segments outside of the survey boundary and seven additional tie lines being flown to increase tie line density from 1000 m to 500 m. Polygon coordinates for the survey block are specified in Table 2.

Block Name	Area (km^2)	Line Type	No. of Lines Planned	No. of Lines Completed	Actual Line Spacing (m)	Effective Line Spacing (m)	Line Orientation (UTM grid)	Actual Survey Height (m)	Total Planned Line km	Total Actual km Flown
Windfall Hills	38.9	Survey	70	70	100	100	092°/272°	41.3	392	393
		Tie	6	13	500	500	002°/182°	41.1	77	77
		Total	**83**	**83**					**469**	**470**

Table 1: Survey flight line specifications.

Longitude (deg)	Latitude (deg)	Easting (m)	Northing (m)	N/S	E/W
126.03287946	53.64155581	299520	5947917	N	W
125.93287173	53.64155886	306129	5947640	N	W
125.93286212	53.57906476	305843	5940690	N	W
126.01412147	53.57905767	300465	5940914	N	W
126.01411423	53.59572042	300544	5942767	N	W
125.98911330	53.59572764	302198	5942698	N	W
125.98912023	53.59989082	302217	5943161	N	W
125.99536339	53.59988745	301804	5943178	N	W
125.99537451	53.61199959	301860	5944525	N	W
125.99604203	53.61224364	301817	5944554	N	W
125.99623398	53.61239170	301805	5944571	N	W
126.03287419	53.61239419	299382	5944674	N	W
126.03287383	53.61407575	299390	5944861	N	W
126.03287040	53.61655769	299402	5945137	N	W
126.03287684	53.61664745	299402	5945147	N	W
126.03286711	53.61798754	299409	5945296	N	W
126.03286933	53.61970500	299417	5945487	N	W
126.03288172	53.62072080	299421	5945600	N	W
126.03286956	53.62097289	299423	5945628	N	W
126.03271121	53.62108482	299434	5945640	N	W
126.03270706	53.62123779	299435	5945657	N	W
126.03273983	53.62127293	299433	5945661	N	W
126.03287829	53.62130538	299424	5945665	N	W
126.03287667	53.62486634	299441	5946061	N	W
126.03287860	53.62489327	299441	5946064	N	W
126.03286930	53.62497444	299442	5946073	N	W
126.03288283	53.62516293	299442	5946094	N	W
126.03287739	53.62529795	299443	5946109	N	W
126.03287726	53.62635005	299448	5946226	N	W

Longitude (deg)	Latitude (deg)	Easting (m)	Northing (m)	N/S	E/W
126.03287163	53.62901188	299461	5946522	N	W
126.03257063	53.62924432	299482	5946547	N	W
126.03250028	53.62931804	299487	5946555	N	W
126.03287272	53.62965930	299464	5946594	N	W
126.03287251	53.63028876	299467	5946664	N	W
126.03288346	53.63044135	299467	5946681	N	W
126.03287911	53.63122378	299471	5946768	N	W
126.03286401	53.63122416	299472	5946768	N	W
126.03243545	53.63157673	299502	5946806	N	W
126.03240911	53.63163135	299504	5946812	N	W
126.03223470	53.63194151	299517	5946846	N	W
126.03229131	53.63230875	299515	5946887	N	W
126.03252206	53.63257267	299501	5946917	N	W
126.03287970	53.63270748	299478	5946933	N	W
126.03287177	53.63322923	299481	5946991	N	W
126.03287938	53.63438903	299486	5947120	N	W

Table 2: Windfall Hills survey polygon coordinates using WGS 84 in UTM Zone 10N.

2.0 Geophysical Data

Geophysical data are collected in a variety of ways and are used for many purposes including aiding in the determination of geology, mineral deposits, oil and gas deposits, geotechnical investigations, contaminated land sites, and UXO (unexploded ordnance) detection.

For the purposes of this survey, airborne magnetic and radiometric data were collected to serve in geological mapping and exploration for mineral deposits.

2.1 Magnetic Data

Magnetic surveying is the most common airborne geophysical technology used for both mineral and hydrocarbon exploration. Aeromagnetic surveys measure and record the total intensity of the magnetic field at the magnetometer sensor, which is a combination of the desired magnetic field generated in the Earth as well as small variations due to the temporal effects of the constantly varying solar wind and the magnetic field of the survey aircraft. By subtracting the temporal, regional, and aircraft effects, the resulting aeromagnetic map shows the spatial distribution and relative abundance of magnetic minerals - most commonly the iron oxide mineral magnetite - in the upper levels of Earth's crust, which in turn are related to lithology, structure, and alteration of bedrock. Survey specifications, instrumentation, and

interpretation procedures depend on the objectives of the survey. Magnetic surveys are typically performed for:

- Geological Mapping - to aid in mapping lithology, structure, and alteration.
- Depth to Basement Mapping - for exploration in sedimentary basins or mineralization associated with the basement surface.

2.2 Radiometric Data

Radiometric surveys are used to determine either the absolute or relative amounts of uranium (U), thorium (Th), and potassium (K) in surface rocks and soils using natural radioactive emanations. Gamma radiation is utilized due to its greater penetration depth compared with alpha and beta radiation. Radiometric data are useful for mapping lithology, alteration, and structure as well as providing insights into weathering. For example, the natural radioactivity of igneous rocks generally increases with SiO_2 content and clay minerals tend to fix the natural radioelements.

Gamma rays are electromagnetic waves with frequencies between 10^{19} and 10^{21} Hz emitted spontaneously from an atomic nucleus during radioactive decay, in packets referred to as photons. The energy E transported by a photon is related to the wavelength λ or frequency ν by the formula:

$$E = h\nu = hc/\lambda$$

where: c is the velocity of light
h is Planck's constant (6.626×10^{-34} joule).

All detectable gamma radiation from Earth materials comes from the natural decay products of three primary radioelements: U, Th, and K. Each individual nuclear species (isotope) emits gamma rays at one or more specific energies, as shown in Figure 5. Of the three main natural radioactive elements, only potassium (^{40}K) emits gamma energy directly, at 1.46 MeV. Uranium (^{238}U) and thorium (^{232}Th) emit gamma rays through their respective decay series; ^{214}Bi at 1.76 MeV for uranium and ^{208}Tl at 2.61 MeV for thorium. Accordingly, the ^{214}Bi and ^{208}Tl measurements are considered equivalents for uranium (eU) and thorium (eTh), as the daughter products will be in equilibrium under most natural conditions.

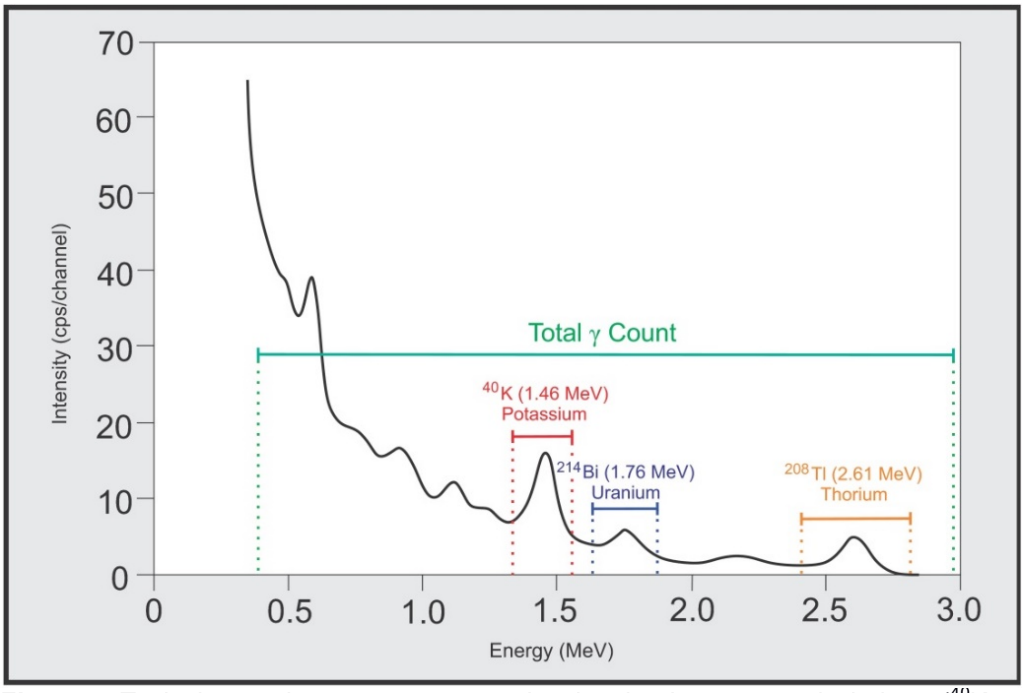


Figure 5: Typical natural gamma spectrum showing the three spectral windows (^{40}K 1.37-1.57 MeV, ^{214}Bi 1.66-1.86 MeV, ^{208}Tl 2.41-2.81 MeV) and total count (0.40-2.81 MeV) window.

Surficial debris, vegetation, standing water (lakes, marshes, swamps), and snow can effectively attenuate gamma rays originating from underlying rocks. Therefore, variations in isotope counts must be evaluated with respect to surficial conditions before they are attributed to changes in underlying geology. An increase in soil moisture can also significantly affect gamma radiation concentrations. For example, a 10% increase in soil moisture can decrease the measured gamma radiation by about the same amount. Radon isotopes are long-lived members of both the U and Th decay series and Ra mobility can influence radiometric surveys. In addition to being directly radioactive, ^{226}Ra and ^{222}Rn can attach to dust particles in the atmosphere. Radioactive precipitation of these dust particles by rain can lead to apparent increases of more than 2000% in uranium ground concentration (IAEA, 2003). Therefore, gamma ray surveying should not be carried out during a rainfall, or shortly after a rainfall.

3.0 Survey Operations

The survey was flown on September 22, 2018, and September 23, 2018, in dry, windy, and snow-free conditions. The experience of the pilot ensured that the data quality objectives were met, and that the safety of the flight crew was never compromised given the potential risks involved in airborne geophysical surveying. Field processing and quality control checks were performed daily.

3.1 Operations Base and Crew

The base of operations was at Burns Lake Airport, BC (Figure 6) north of the Windfall Hills survey block.

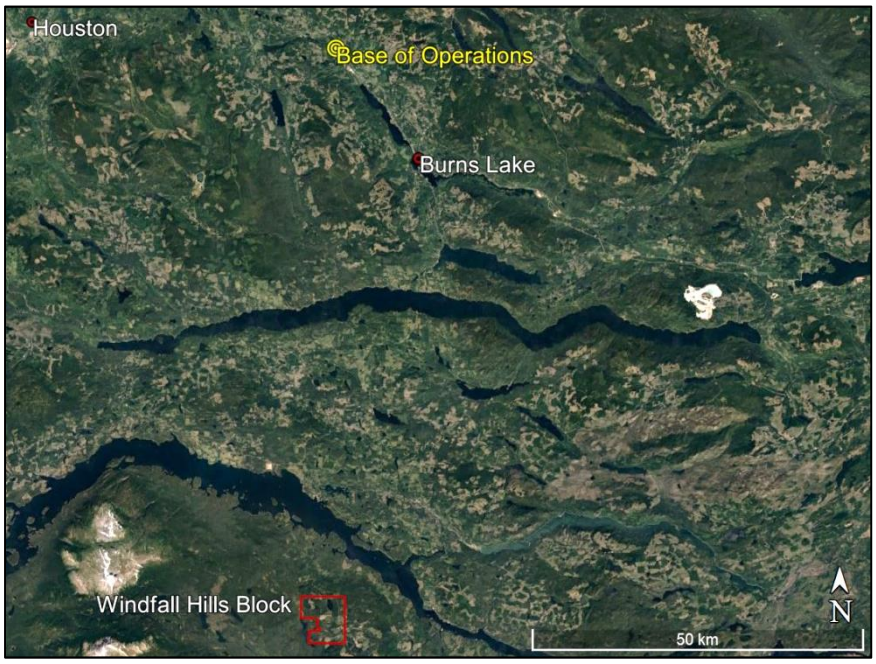


Figure 6: Map showing base of operations at Burns Lake Airport

The Precision geophysical crew consisted of four members (Table 3):

Crew Member	Position
Harmen Keyser, P.Geo.	Helicopter survey pilot and geophysical operator
Jenny Poon, B.Sc., P.Geo.	Geophysicist and data processor (off-site)
Shawn Walker, M.Sc., P.Geo.	Geophysicist and data processor (off-site)
Collin Paul, B.Sc.,	Geophysicist – reporting

Table 3: List of survey crew members.

3.2 Magnetic Base Station Specifications

Changes in the Earth's magnetic field over time, such as diurnal variations, magnetic pulsations, and geomagnetic storms, were measured and recorded by two stationary GEM GSM-19T proton precession magnetometers. The magnetic base stations were installed in an area (Table 4; Figures 7 and 8) of low magnetic noise away from metallic items such as ferromagnetic objects, vehicles, or power lines that could affect the base stations and ultimately the survey data.

Station name	Easting/Northing	Longitude/Latitude	Datum/ Projection
GEM 1 S/N 8052735	301699E 5950307N	53°39'49.83" N 126°00'05.37" W	WGS 84, Zone 10N
GEM 2 S/N 2065369	301702E 5950272N	53°39'48.69" N 126°00'05.13" W	WGS 84, Zone 10N

Table 4: Magnetic base station locations.

Magnetic readings were reviewed at regular intervals to ensure that no airborne data were collected during periods of high magnetic activity (greater than 10 nT change per minute).

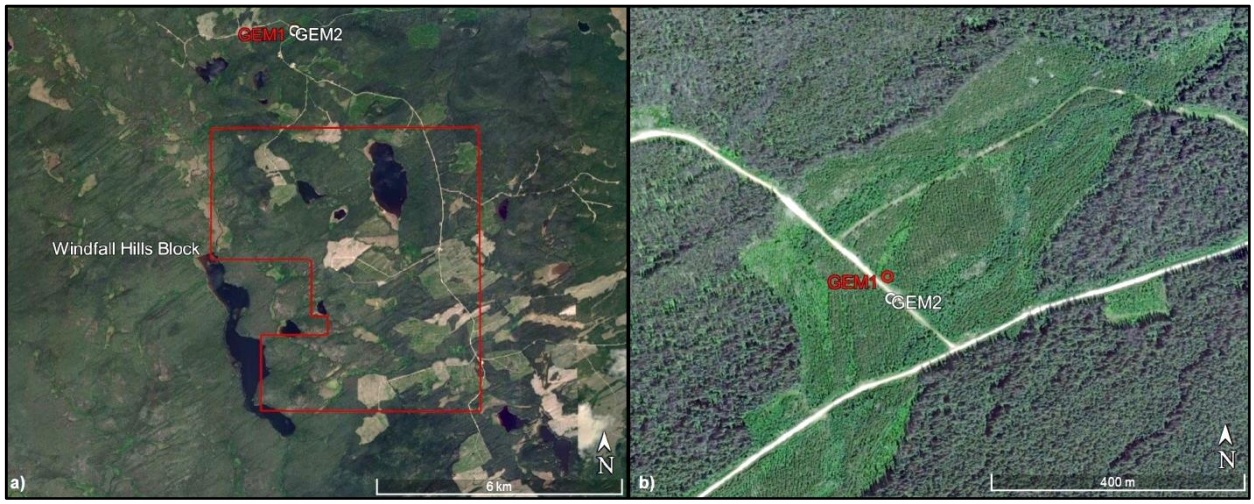


Figure 7: a) GEM 1 and GEM 2 magnetic base stations located 3 km north of the Windfall Hills survey block. b) GEM 1 and 2 located north of the Windfall Hills survey block off the sides of a forestry road.

Figure 8: GEM 1 (left) and GEM 2 (right) magnetic base stations located in the trees beside a logging road north of Windfall Hills survey block. Note that snow coverage in these images is not representative of the survey block as the base stations were located at higher elevation on a north facing slope.

3.3 Field Processing and Quality Control

On a flight-by-flight basis, survey data were transferred from the aircraft's data acquisition system onto a USB memory stick and copied onto a field data processing laptop. The raw data files in PEI binary data format were converted into Geosoft GDB database format. Using Geosoft Oasis Montaj 9.4.3, the data were inspected to ensure compliance with contract specifications (Table 5; Figures 9 to 11).

Parameter	Specification	Tolerance
Position	Line Spacing	Flight line deviation within 8 m L/R from ideal flight path. No exceedance for more than 1 km.
	Height	Nominal flight height of 40 m AGL with tolerance of +/- 10 m. No exceedance for more than 1 km, provided deviation is not due to tall trees, topography, mitigation of wildlife/livestock harassment, cultural features, or other obstacles beyond the pilot's control.
	GPS	GPS signals from four or more satellites must be received at all times, except where signal loss is due to topography. No exceedance for more than 1 km.
Magnetics	Temporal/Diurnal Variations	Non-linear temporal magnetic variations within 10 nT of a linear chord of length 1 minute.
	Normalized 4th Difference	Magnetic data within 0.20 nT peak to peak. No exceedance for distances greater than 1 km or more, provided noise is not due to geological or cultural features.
Radiometrics	Test Line Data	If the survey takes more than one day, a radiometric test line will be flown once every survey day.

Table 5: Contract survey specifications. The second day consisted of infill tie lines and did not require a radiometric reference line to be flown.

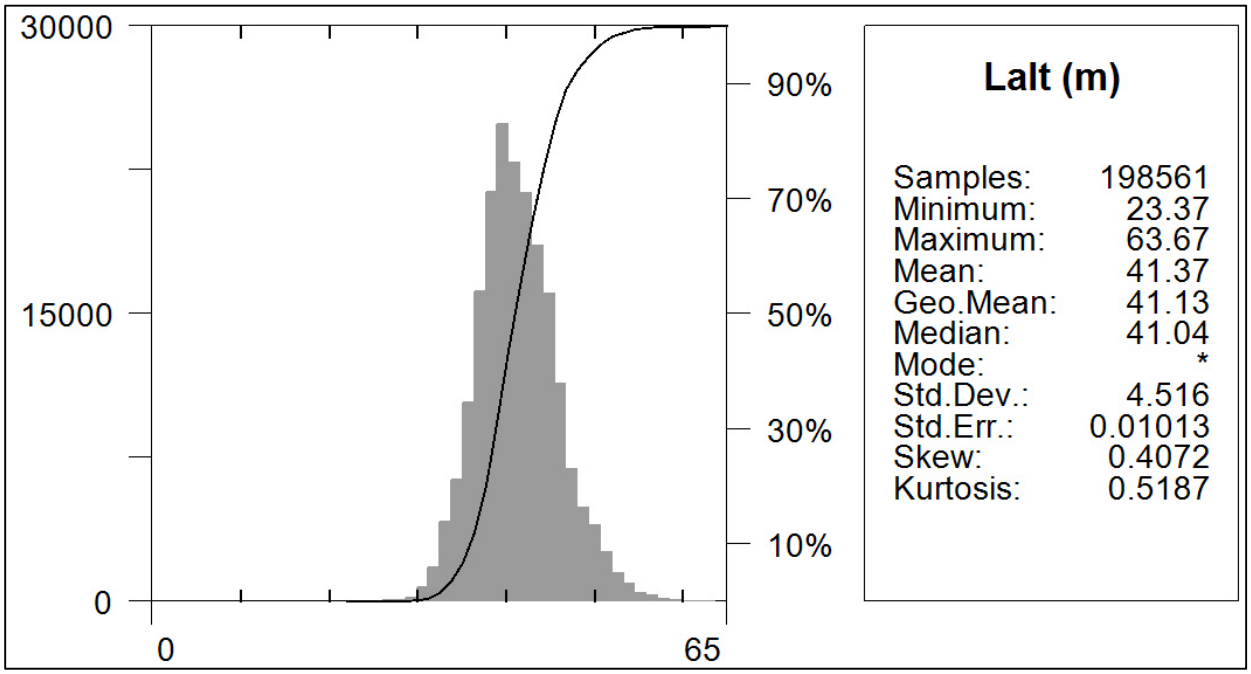


Figure 9: Histogram showing survey elevation vertically above ground.

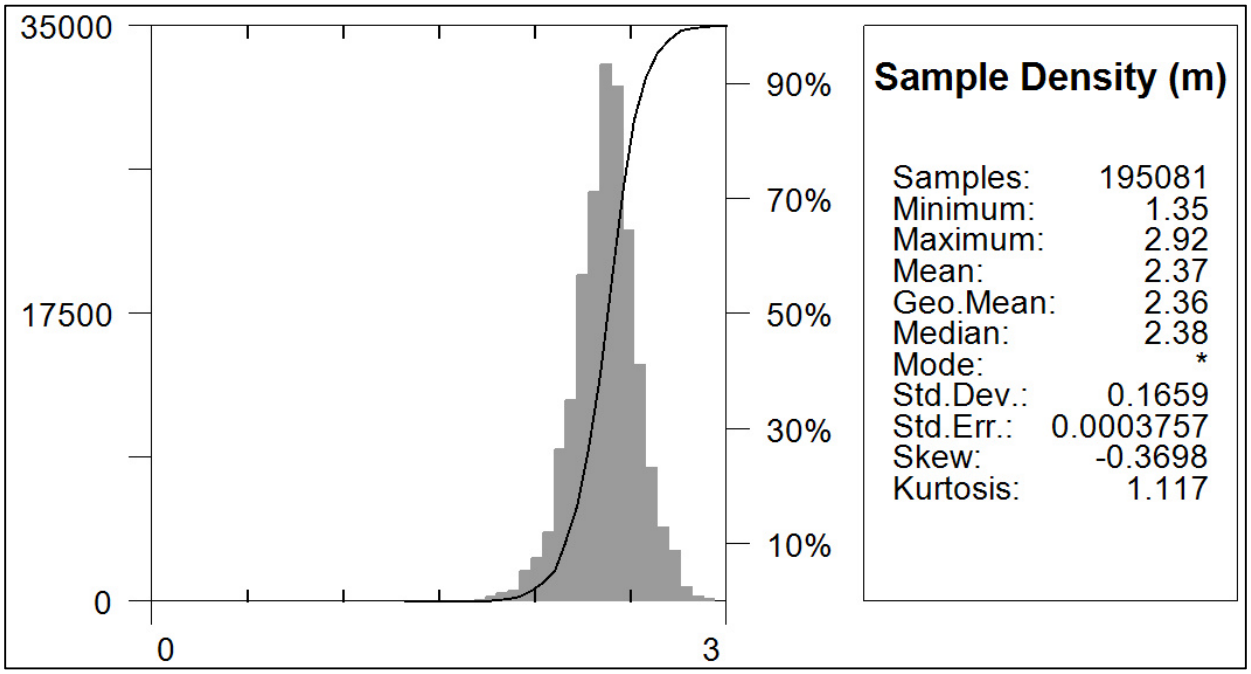


Figure 10: Histogram showing magnetic sample density. Horizontal distance in meters between adjacent measurement locations; magnetic sample frequency 20 Hz.

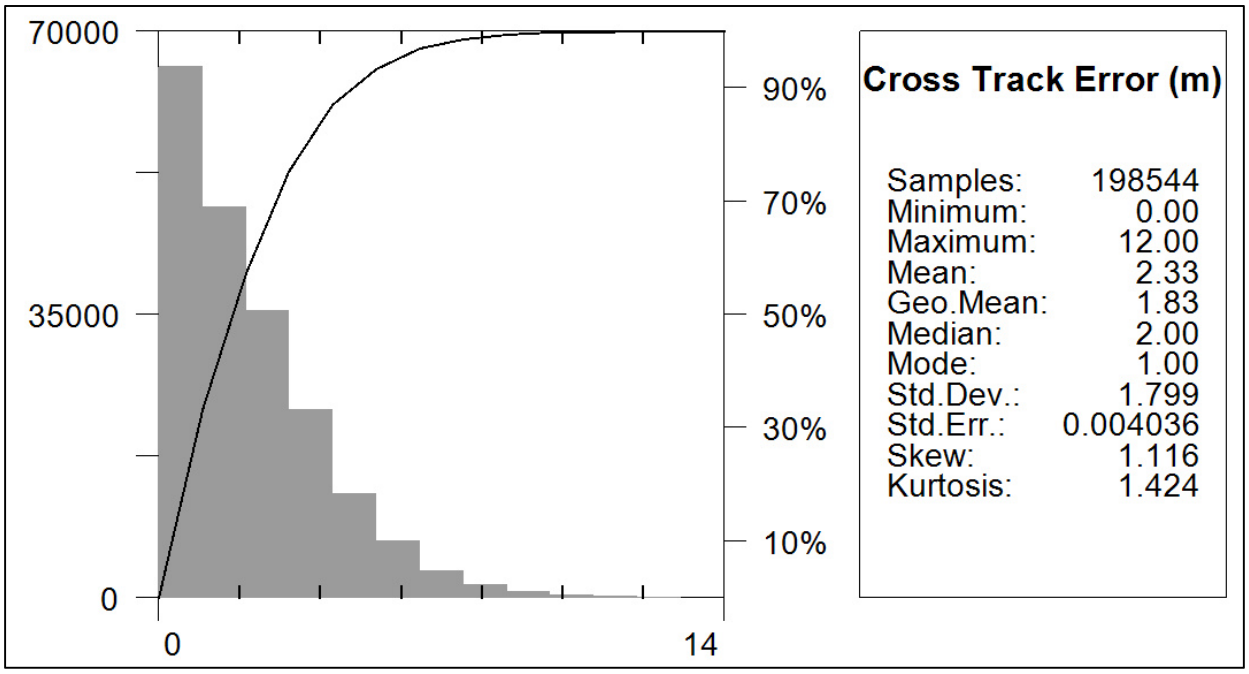


Figure 11: Histogram showing cross track error.

4.0 Aircraft and Equipment

All geophysical and subsidiary equipment were carefully installed on a Precision GeoSurveys aircraft to collect integrated magnetic and radiometric data.

4.1 Aircraft

Precision GeoSurveys flew the survey using an Airbus AS350 helicopter, registration C-GSVY, at a nominal height of 40 m AGL.

4.2 Geophysical Equipment

The survey aircraft (Figure 12) was equipped with a magnetometer, spectrometer, data acquisition system, laser altimeter, magnetic compensation system, barometer, temperature/humidity probe, pilot guidance unit (PGU), and GPS navigation system. In addition, two magnetic base stations were used to record temporal magnetic variations.

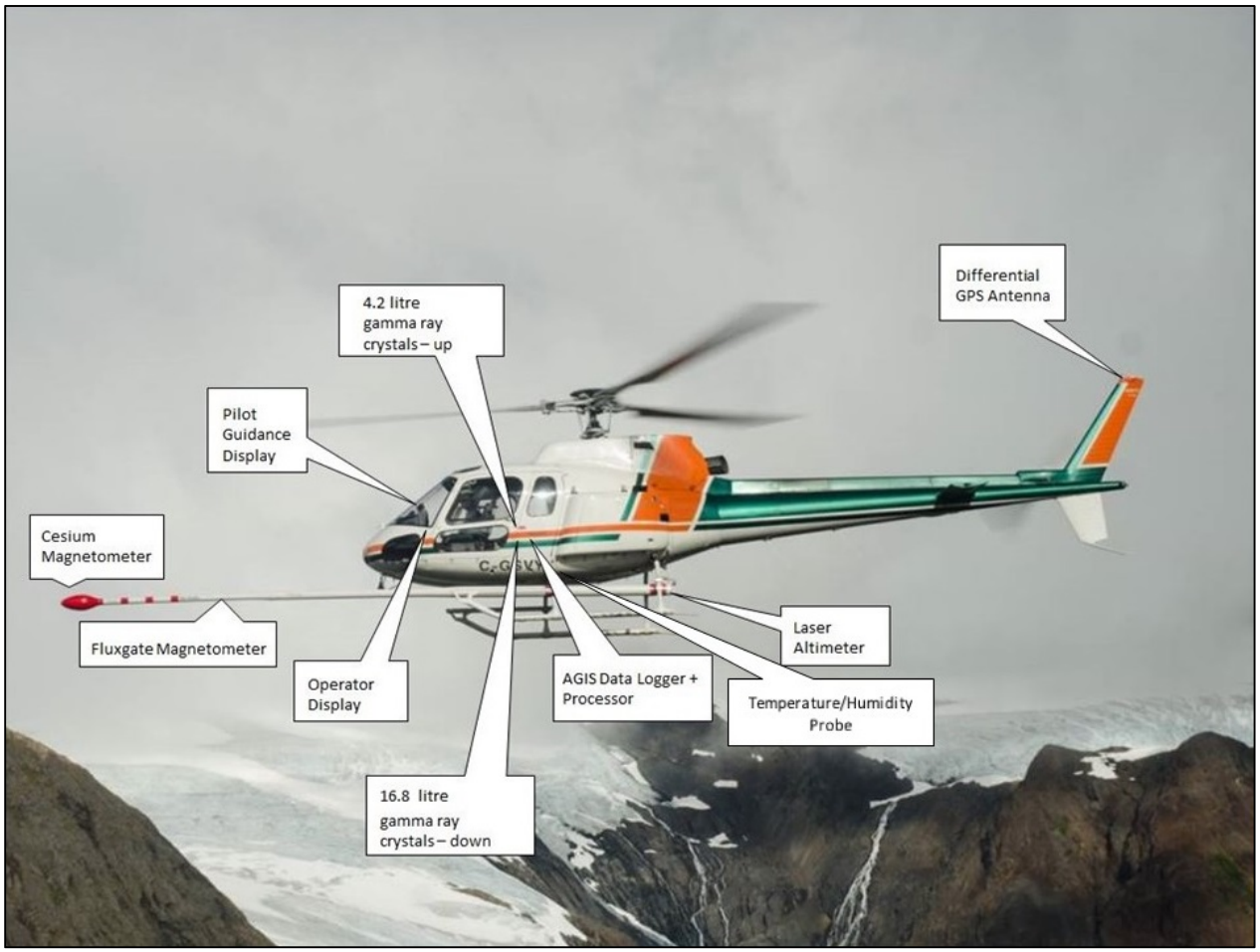


Figure 12: Survey helicopter equipped with geophysical equipment.

4.2.1 AGIS

The Airborne Geophysical Information System (AGIS), manufactured by NUVIA Dynamics Inc. (previously PICO Envirotec Inc.), is the main computer used in integrated data recording, data synchronizing, displaying real-time quality control data for the geophysical operator and the generation of navigation information for the pilot and operator display systems. Information such as magnetic field components, aircraft position, survey altitude, and survey speed are recorded to solid-state memory and can all be monitored on the AGIS airborne operator's display (Figure 13) for immediate quality control.

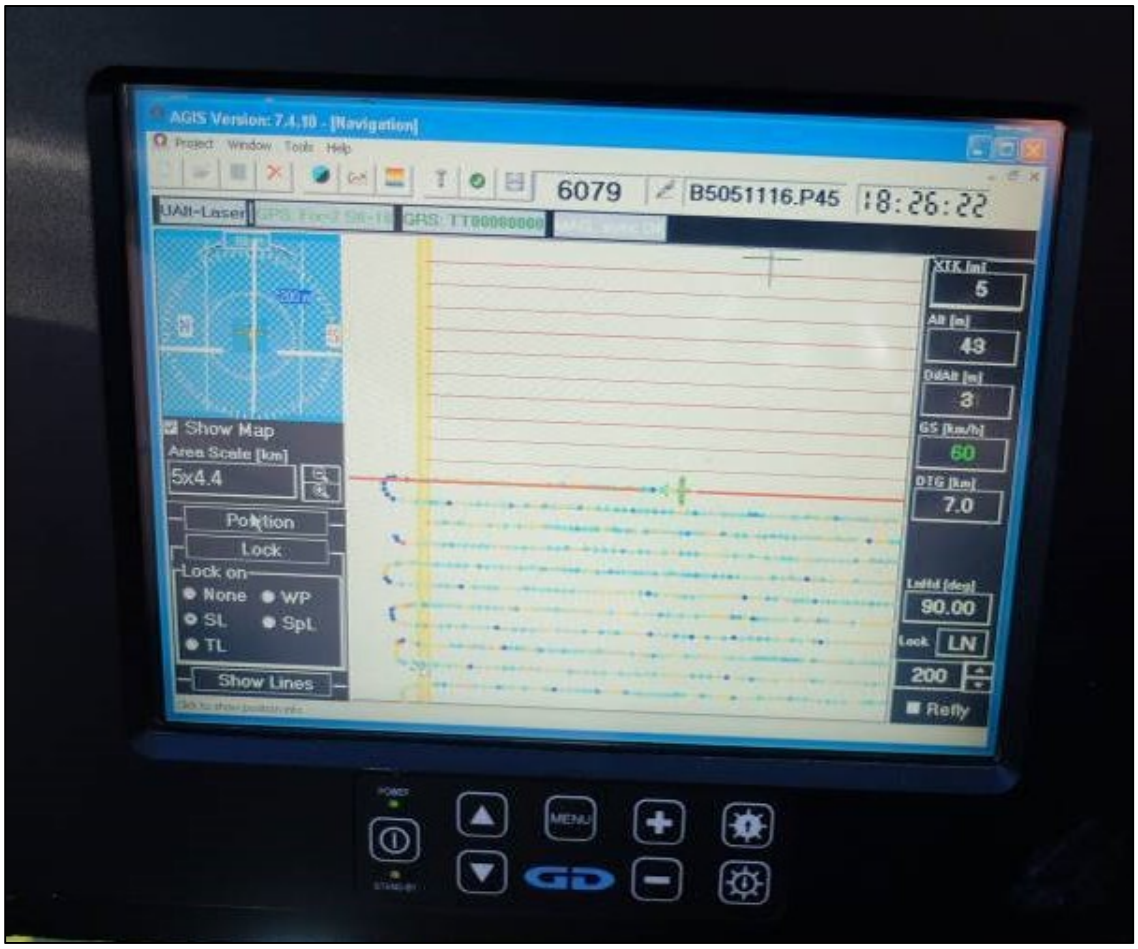


Figure 13: AGIS operator display installed in Airbus AS350 survey helicopter, with screen displaying real time flight line recording and navigation parameters. Additional windows display real time geophysical data to operator.

4.2.2 Magnetometer

A Scintrex CS-3 cesium vapor magnetometer (S/N 0712302) was used to measure total magnetic intensity at 20 Hz on this survey. It is a high sensitivity/low noise magnetometer with automatic hemisphere switching and a wide voltage range; the static noise rating for the unit is +/- 0.01 nT. A separate fluxgate magnetometer determined the aircraft's attitude (pitches, rolls, and yaws) relative to the inclination and declination of the Earth's magnetic field, which was necessary to remove magnetic noise created by movement of the aircraft through a compensation process. The magnetic sensors were mounted on the front of the helicopter in an approved non-magnetic and non-conductive "stinger" configuration (Figure 14) to reduce influence from the aircraft's magnetic field.

Figure 14: View of cesium vapor magnetometer. Sensor oriented 45° from vertical to couple with local magnetic field at the Windfall Hills survey block.

4.2.3 Spectrometer

The GRS-10 radiometric data acquisition system is a fully integrated gamma radiation detection system (Figure 15) containing a total of 21 litres of NaI(Tl) synthetic crystals; 16.8 litres downward-looking and 4.2 litres of upward-looking, with 256 channel output at 1 Hz sampling rate. The downward-looking crystals are designed to measure gamma rays from below the aircraft and are equipped with upward-shielding high density RayShield® gamma-attenuating blankets to minimize cosmic and solar gamma noise. The upward-looking crystal measures cosmic and solar gamma radiation originating from above the survey aircraft and is shielded from terrestrial radiation by the downward-looking crystals. All crystals are installed in the rear cabin of the helicopter away from variable fuel cell gamma attenuation.

Figure 15: GRS-10 thallium-activated sodium iodide gamma spectrometer crystal packs. The open unit on the right shows two individual 4.2 litre gamma detectors.

4.2.4 Magnetic Base Station

To monitor and record the Earth's temporal magnetic field variations, particularly diurnal, Precision GeoSurveys operated two GEM GSM-19T base station magnetometers at all times while airborne data were being collected. The base stations were located in an area with low magnetic gradient, away from electric power transmission lines and moving ferrous objects, such as motor vehicles, that could affect the survey data integrity.

The GEM GSM-19T magnetometer (Figure 16) with integrated GPS time synchronization uses proton precession technology with a 1 Hz sampling rate. The GSM-19T has an absolute accuracy of +/- 0.2 nT and sensitivity of 0.15 nT at 1 Hz. Base station magnetic data were recorded on internal solid-state memory and downloaded onto a field laptop computer using a serial cable and GEMLink 5.4 software. Profile plots of the base station readings were generated, updated, and reviewed at the end of each survey day.

Figure 16: GEM GSM-19T proton precession magnetometer.

4.2.5 Laser Altimeter

Terrain clearance is measured by an Opti-Logic RS800 Rangefinder laser altimeter (Figure 17) attached to the aft end of the magnetometer boom. The RS800 laser is a time-of-flight sensor that measures distance by a rapidly modulated and collimated laser beam that creates a dot on the target surface. The maximum range of the laser altimeter is 700 m off natural surfaces with an accuracy of +/- 1 meter on 1 x 1 m diffuse target with 50% (+/- 20%) reflectivity. Within the sensor unit, reflected signal light is collected by the lens and focused onto a photodiode. Through serial communications and digital outputs, ground clearance data are transmitted to an RS-232 compatible port and recorded and displayed by the AGIS and PGU at 10 Hz in meters.

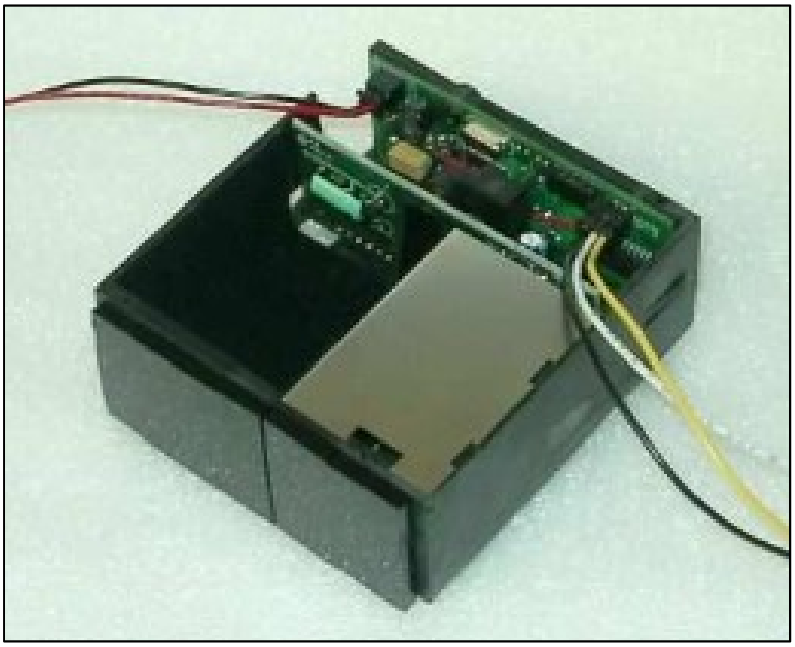


Figure 17: Opti-Logic RS800 Rangefinder laser altimeter.

4.2.6 Pilot Guidance Unit

Steering and elevation (ground clearance) information is continuously provided to the pilot by the Pilot Guidance Unit (PGU). The graphical display is mounted on top of the aircraft's instrument panel, remotely from the data acquisition system. The PGU is the primary navigation aid (Figure 18) to assist the pilot in keeping the aircraft on the planned flight path, heading, speed, and at the desired ground clearance.

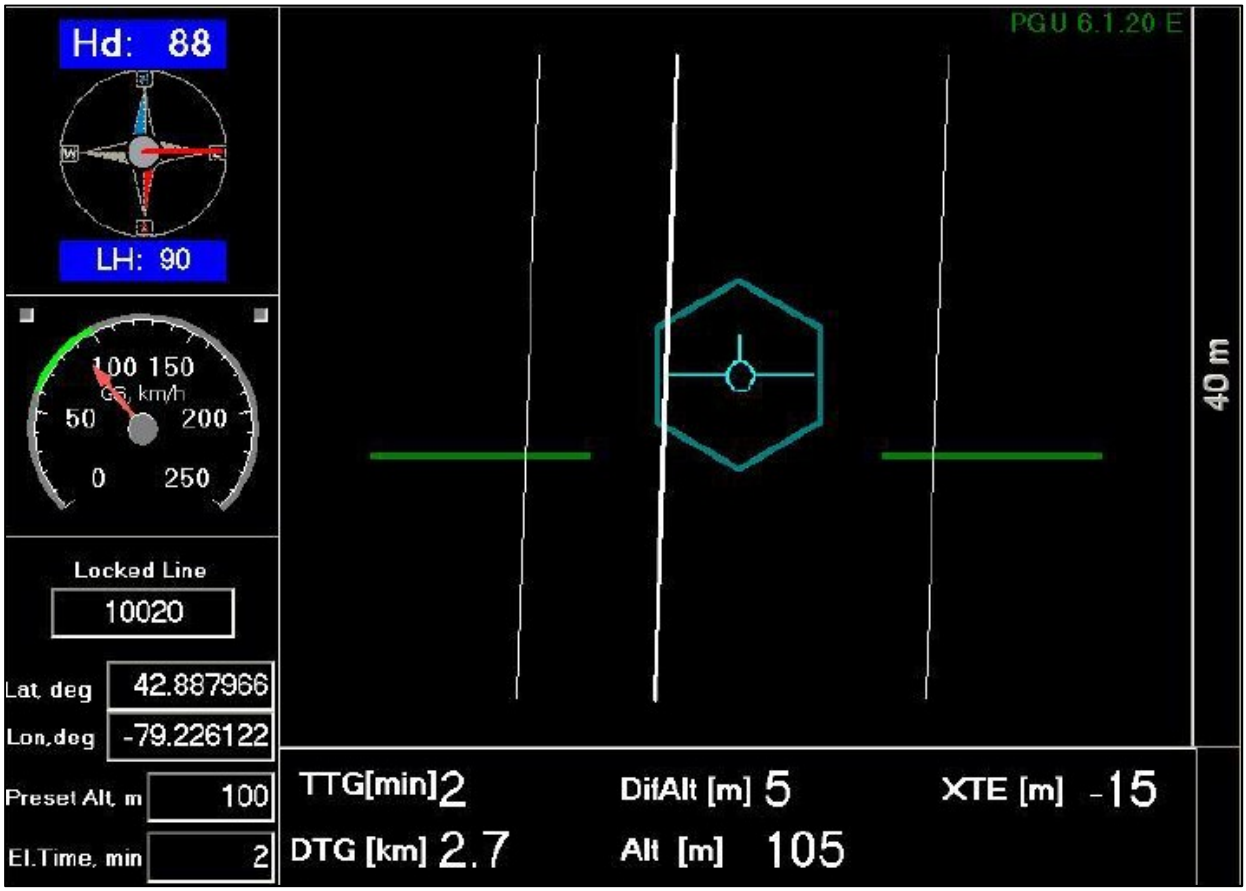


Figure 18: PGU screen displaying navigation information.

The LCD monitor is a full VGA 800 x 600 pixel 7 inch (17.8 cm) display. The CPU for the PGU is contained in a PC-104 console and uses Microsoft Windows operating system control, with input from the GPS antenna, embedded drape surface profile or laser altimeter, and AGIS.

4.2.7 GPS Navigation System

A Hemisphere R120 GPS receiver (Figure 19) is integrated with the GPS antenna and AGIS navigation system to provide accurate navigational information and control. The R120 GPS receiver supports fast updates and outputs messages at a rate of up to 20 Hz (20 times per second); delivering sub-meter positioning accuracy in three dimensions. It employs COAST

technology that allows continuous operation for at least 40 minutes during temporary differential signal outages.

The receiver supports GPS, SBAS (Satellite-Based Augmentation System), and L-Band (OmniSTAR HP and XP) differential corrections to provide accurate positioning.

Figure 19: Hemisphere R120 GPS receiver.

5.0 Data Acquisition Equipment Checks and Calibration

Airborne equipment tests and calibrations were conducted for the laser altimeter, magnetometer, and spectrometer. A lag test was performed for all three sensors. There were two tests conducted for the airborne magnetometer: compensation flight and heading error test. There were three tests conducted for the gamma spectrometer: calibration pad test, cosmic flight test, and altitude correction and sensitivity test.

5.1 Lag Test

A lag test was performed to determine the difference in time the digital reading was recorded for the magnetometer, gamma spectrometer, and laser altimeter with the position fix time that the fiducial of the reading was obtained by the GPS system resulting from a combination of system lag and different locations of the various sensors and the GPS antenna. The test was flown in the

four orthogonal survey headings over an identifiable magnetic anomaly at survey speed and height. The resulting data (Table 6) were used to correct for time and position.

Sensor	Lag Fiducials	Lag Seconds
Magnetometer	11	0.55
Spectrometer	12	0.60
Laser altimeter	16	0.80

Table 6*:* Survey lag corrections.

5.2 Magnetometer Tests

The magnetometer was tested and calibrated with a series of dedicated flights specifically for removing undesired effects of aircraft movement, speed, and heading direction.

5.2.1 Compensation Flight Test

During aeromagnetic surveying a small but significant amount of noise is introduced to the magnetic data by the aircraft itself, as the magnetometer is within the aircraft's magnetic field. Movement of the aircraft (roll, pitch, and yaw) combined with the permanent magnetization of certain aircraft parts (in particular the engine and other ferrous magnetic objects) contribute to this noise. The aircraft was degaussed using proprietary technology prior to starting the survey and the remaining magnetic noise was removed by a process called magnetic compensation.

A magnetic compensation flight was completed (Table 7). The process consists of a series of prescribed maneuvers where the aircraft flies in the four orthogonal headings required for the survey (002°/092°/182°/272° in the case of this survey) at a sufficient altitude (typically > 2,500 m AGL) in an area of low magnetic gradient where the Earth's magnetic field becomes nearly uniform at the scale of the compensation flight. In each heading direction, three specified roll, pitch, and yaw maneuvers (total 36) are performed by the pilot at constant elevation so that any magnetic variation recorded by the airborne magnetometer can be attributed to aircraft movement. These maneuvers are recorded by the airborne fluxgate magnetometer and provide the data that are required to calculate the necessary parameters for compensating the magnetic data to remove aircraft noise from survey data.

Pre-Compensation					Post-Compensation				
Heading	**Roll**	**Pitch**	**Yaw**	**Total**	**Heading**	**Roll**	**Pitch**	**Yaw**	**Total**
002°	3.5094	0.8766	1.6559	6.0419	002°	0.2635	0.2369	0.2496	0.7500
092°	3.1753	1.2844	0.7302	5.1899	092°	0.2185	0.2974	0.2321	0.7480
182°	2.8539	2.4234	1.0129	6.2902	182°	0.2298	0.3058	0.2932	0.8288
272°	2.6442	1.2666	1.129	5.0398	272°	0.2228	0.2065	0.2449	0.6742
Total	12.1828	5.851	4.528		Total	0.9346	1.0466	1.0198	
FOM (nT) = 22.5618					**FOM (nT) = 3.0010**				

Table 7: Figure of Merit maneuver test results for 002°/092°/182°/272° compensation flight flown on September 22, 2018.

5.2.2 Heading Error Test

To determine the magnetic heading effect a cloverleaf pattern flight test was conducted. The cloverleaf test was flown in the same orthogonal headings (Table 8) as the survey and tie lines (002°/092°/182°/272°) at >1000 m AGL in an area with low magnetic gradient. For the cloverleaf test, the survey aircraft must pass over the same mid-point all four times at the same elevation so that any change in measured magnetic intensity can be attributed to heading.

Heading	Fiducial	Mag (nT)	Correction (nT)
002°	851.1	56181.38	2.55
092°	619.8	56188.57	-4.64
182°	970.6	56188.54	-4.61
272°	729.2	56177.23	6.70
	Average	56183.88	
	Total		0.00

Table 8: Heading error test data format flown on September 7, 2018.

5.3 Gamma-ray Spectrometer Tests and Calibrations

Calibration and testing of the GRS-10 airborne gamma-ray spectrometry system was carried out prior to the start of the survey. The calibration of the spectrometer system involved three tests which enabled the conversion of airborne data to ground concentration of natural radioactive elements. These tests were the calibration pad test, cosmic flight test, and the altitude correction and sensitivity test. Measurements were made in accordance with IAEA technical report series No. 323, *Airborne Gamma Ray Spectrometer Surveying*, and AGSO Record 1995/60, *A Guide to the Technical Specifications for Airborne Gamma-Ray Surveys*.

5.3.1 Calibration Pad Test

The calibration pad test was conducted by PICO Envirotec using GSC (Geological Survey of Canada) portable calibration pads. The pads are slabs of concrete containing known concentrations

of the radioelements (K, Th, and U) and are used to simulate ideal geological sources of radiation. The measurements collected from the calibration pad test were used to determine the Compton scattering and Grasty backscatter (spectral overlap between element windows) coefficients.

5.3.2 Cosmic Flight Test

While the background source of gamma radiation from the aircraft itself is essentially constant, the amount of signal detected from ground sources varies with ground clearance. As the height of the aircraft increases, the distance between the ground and the spectrometer crystals increases, and the proportion of cosmic radiation in each spectral window increases exponentially due to radiation of cosmic origin. The cosmic flight test is conducted to determine the aircraft's background attenuation coefficients for the detector crystal packs and the cosmic coefficients. The pilot is required to fly over the same location repeatedly in opposite directions at 900, 1500, 2100, 2400, and 2700 m above ground, for approximately 2 minutes each to collect gamma data used to determine the amount of non-terrestrial signal present in the total gamma signal.

5.3.3 Altitude Correction and Sensitivity Test

The altitude and sensitivity test is similar to the cosmic flight test but is conducted at lower elevations (from ground level). The pilot is required to fly over the same location at 30, 60, 90, 120, 150, 210, 270, and 360 meters above ground, for 2 minutes each. As the distance of the aircraft increases above the radioactive ground source, the source signature exponentially degrades. As a result, this test is used to determine the altitude attenuation coefficients and the radio-element sensitivity of the airborne spectrometer system.

6.0 Data Processing

After all data were collected, several procedures were undertaken to ensure that the data met a high standard of quality. All magnetic and radiometric data recorded by the AGIS are converted into Geosoft or ASCII file formats by using PICO Envirotec software. Further processing (Figure 20) was carried out using Geosoft Oasis Montaj 9.4.3 geophysical processing software along with proprietary processing algorithms. Laser altimeter, GPS and gamma-ray spectrometer data were resampled to 20 Hz to correspond with the sampling rate of the magnetometer.

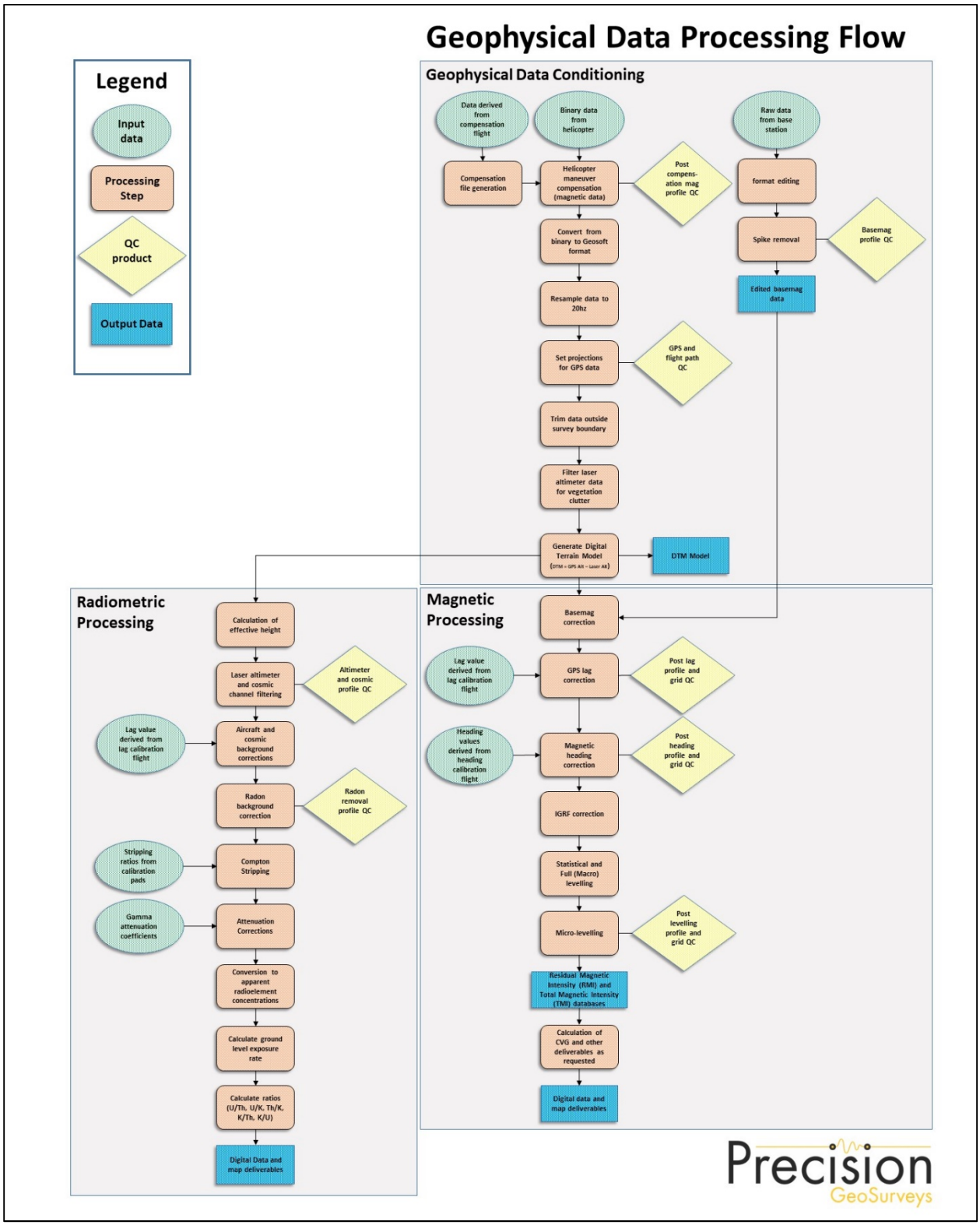


Figure 20: Magnetic and radiometric data processing flow.

6.1 Flight Height and Digital Terrain Model

Laser altimeters cannot provide valid data over glassy water, fog, or dense vegetation. Over areas with dense vegetation a certain proportion of the laser signal does not penetrate through the trees to record actual ground clearance and high frequency variations are recorded. A Rolling Statistics filter was applied to the lag-corrected laser altimeter data to remove vegetation clutter. A Low Pass filter was then applied to smooth out the laser altimeter profile to eliminate isolated high frequency noise and generate a surface closely corresponding to the actual ground profile.

A Digital Terrain Model (DTM) channel was calculated by subtracting the processed laser altimeter data from the filtered GPS altimeter data defined by the WGS 84 ellipsoidal height. DTM accuracy is affected by the geometric relationship between the GPS antenna and the laser altimeter as well as flight attitude of the aircraft, slope of the ground, and sample density.

6.2 Magnetic Processing

Raw magnetic data, as collected by the airborne instruments, were corrected for aircraft influence, flight maneuvers, temporal variations, lag, and heading. The data were examined for magnetic noise and spikes, which were removed as required. Survey and tie line data of the resulting total magnetic field were leveled and the background magnetic field, International Geomagnetic Reference Field of the Earth, removed.

6.2.1 Flight Compensation

Data obtained from the compensation flight test were applied to the raw magnetic data as the first step of data processing. A computer program called PEIComp was used to create a model from the compensation flight test for each survey to remove the noise induced by the aircraft and its movement; this model was applied to data from each survey flight.

6.2.2 Base Station Correction

The next step in processing the compensated magnetic data was to correct for temporal variation of the Earth's magnetic field. Magnetic data from base station GEM 2 were used for correcting the airborne magnetic survey data, and GEM 1 data were retained for backup. The data were edited, plotted, and merged into a Geosoft database (.GDB) on a daily basis.

The base station measurements were averaged to establish a magnetic reference datum at 55832.136 nT, and this value was used to calculate the observed magnetic base station deviations resulting from variations of the Earth's magnetic field over time with reference to the datum. The airborne magnetic data were then corrected for temporal variations by subtracting the base

station deviations from the data collected on the aircraft, which effectively removed the effects of diurnal and other temporal variations.

6.2.3 Lag Correction

Following the base station correction, a lag correction of 0.55 seconds was applied to each total magnetic field data point to compensate for the combination of lag in the recording system and the magnetometer sensor flying 14.7 m ahead of the GPS antenna.

6.2.4 Heading Correction

For each survey heading, changes in instrument magnetic fields along a survey flight line are detected and these systematic shifts are recorded. These values are used to construct a heading table (.TBL) file. An intersection table was created, containing all magnetic field values where tie lines intersected the survey lines and the overall average magnetic field value was calculated. For each of the four headings, the averages were calculated and then compared to the overall average to determine four values to be used for heading error correction in each flight direction.

6.2.5 IGRF Removal

The International Geomagnetic Reference Field (IGRF) model is the empirical representation of the Earth's magnetic field (main core field without external sources) collected and disseminated from satellite data and from magnetic observatories around the world. The IGRF is generally revised and updated every five years by a group of modelers associated with the International Association of Geomagnetism and Aeronomy (IAGA). Accordingly, the 12th generation IGRF (IGRF-12), an IGRF model for epoch 2015.0 was used with the actual survey date obtained from the "Date" channel.

Residual Magnetic Intensity (RMI) was calculated by taking the difference between IGRF and the non-leveled Total Magnetic Intensity (TMI) to create a more valid model of individual near-surface anomalies. This model is independent of time to allow for other magnetic data (previous or future) to be more easily incorporated into each survey database.

6.2.6 Leveling and Micro-leveling

Residual Magnetic Intensity (RMI) data from survey and tie lines were used to level the entire survey dataset. Two types of leveling were applied to the corrected data: conventional leveling and micro-leveling. There were two components to conventional leveling; statistical leveling to level tie lines and full leveling to level survey lines. The statistical leveling method corrected the SL/TL intersection errors that follow a specific pattern or trend. Through the error channel, an algorithm calculated a least-squares trend line and derived a trend error curve, which was then

added to the channel to be leveled. The second component was full leveling. This adjusted the magnetic value of the survey lines so that all lines matched the trended tie lines at each intersection point.

Following statistical leveling, micro-leveling was applied to the corrected conventional leveled data. This iterative grid-based process removed low amplitude components of flight line noise that still remained in the data after tie line and survey line leveling and resulted in fully leveled RMI data. The IGRF was then added back onto the RMI to allow for the production of a leveled TMI grid and map.

6.2.7 Reduction to Magnetic Pole

Reduced to Magnetic Pole (RTP) data were computed from the leveled Residual Magnetic Intensity (RMI) data. The RTP filter was applied in the Fourier domain and it migrates the observed magnetic inclination and declination field to what the field would look like at the north magnetic pole.

6.2.8 Calculation of First Vertical Derivative

The first vertical derivative was computed from the leveled Residual Magnetic Intensity (RMI) data. The first vertical derivative calculates the vertical rate of change in the magnetic field. It is used to enhance shorter wavelength signals; therefore, edges of magnetic anomalies are highlighted, and deep geologic sources in the data are suppressed.

The first vertical derivative calculated from the RMI was designated as Calculated Vertical Gradient of RMI, or CVG.

The filter, L, used to produce the n^{th} vertical derivative is described by:

$$L(r) = r^n$$

where r is the radial component in the wavenumber domain

6.2.9 Calculation of Horizontal Gradient

The Calculated Horizontal Gradient (CHG) is the magnitude of the total horizontal gradient. It is used to estimate contact locations of magnetic bodies at shallow depths, reveal anomaly texture, and highlight anomaly-pattern discontinuities.

If M is the magnetic field, then the CHG is calculated as:

$$\mathrm{CHG}(x,y) = \sqrt{\left(\frac{\partial M}{\partial x}\right)^2 + \left(\frac{\partial M}{\partial y}\right)^2}$$

6.3 Radiometric Processing

Radiometric surveys map gamma rays from the concentration of radioelements at or near Earth's surface; typically, up to 1.5 meters below surface. Before any processing of the airborne radiometric data, the spectrometer system is calibrated with the calibration pad test, cosmic flight test, and altitude correction and sensitivity test. Once calibration of the system was complete, the radiometric data were processed by windowing the full spectrum to create individual channels for U, Th, K, and total count.

Steps taken to process acquired radiometric data are summarized below:

- Calculation of effective height
- Lag Correction
- Aircraft and Cosmic background corrections
- Radon background correction
- Stripping ratios
- Attenuation corrections
- Conversion to apparent radioelement concentrations

6.3.1 Calculation of Effective Height

Laser/Radar altimeter data were converted to effective height (h_{ef}) in meters using the acquired laser/radar altimeter, temperature and pressure data, according to the formula below:

$$h_{ef} = h * \frac{273.15}{T + 273.15} * \frac{P}{1013.25}$$

where: h is observed laser/radar altitude in meters
T is measured air temperature in degrees Celsius
P is barometric pressure in millibars

6.3.2 Lag Correction

Following the calculation of effective height, a lag correction of 0.60 seconds was applied to each radiometric channel to compensate for the combination of lag in the recording system and the difference in position of the spectrometer and the GPS antenna.

6.3.3 Aircraft and Cosmic Background Corrections

Aircraft background and cosmic stripping corrections are applied to all three elements, and total count, using the following formula:

$$C_{ac} = \mathrm{a}_c + b_c * Cos_f$$

where: C_{ac} is the background and cosmic corrected channel
a_c is the aircraft background for this channel
b_c is the cosmic stripping coefficient for this channel
Cos_f is the filtered cosmic channel

6.3.4 Radon Background Correction

To strip the effects of atmospheric radon from the downward-looking detectors, there are multiple methods available for radon background estimation. The method selected was the background table method. Procedures to the background table method and how to determine the radiometric values filled within the table in detail are outlined in the IAEA 1363 report, *Guidelines for Radioelement Mapping using Gamma Ray Spectrometry Data*.

6.3.5 Compton Stripping

Spectral overlap corrections are applied to potassium, uranium, and thorium as part of the Compton stripping process. This is done by using the stripping ratios that have been calculated for the spectrometer by prior calibration; this breaks the corrected elemental values down into the apparent radioelement concentrations.

Stripping ratios α, β, and γ are first modified according to altitude. Then an adjustment factor (derived from the cosmic flight test), the reversed stripping ratio, uranium into thorium, is calculated.

$$\alpha_h = \alpha + h_{ef} * 0.00049$$

$$\beta_h = \beta + h_{ef} * 0.00065$$

$$\gamma_h = \gamma + h_{ef} * 0.00069$$

where: $\alpha, \beta. \gamma$ are the Compton stripping coefficients
$\alpha_h, \beta_h. \gamma_h$ are the height corrected Compton stripping coefficients
h_{ef} is the effective height above ground in metres at STP

The stripping corrections are then carried out using the following formulas:

$$Th_c = Th_{bc}(1 - g\beta_h) + U_{bc}(b\gamma_h - a) + K_{bc}(ag - b)/A$$

$$U_c = Th_{bc}(g\beta_h - \alpha_h) + U_{bc}(1 - b\beta_h) + K_{bc}(b\alpha_h - g)/A$$

$$K_c = [Th_{bc}(\alpha_h\gamma_h - \beta_h) + U_{bc}(a\beta_h - \gamma_h) + K_{bc}(1 - a\alpha_h)]/A$$

where: $U_c, Th_c,$ and K_c are stripping corrected uranium, thorium and potassium
$\alpha_h, \beta_h. \gamma_h$ are height corrected Compton stripping coefficients
$U_{bc}, Th_{bc},$ and K_{bc} are background corrected uranium, thorium and potassium
a is the spectral ratio Th/U
b is the spectral ratio Th/K
g is the spectral ratio U/K
$A = 1 - g\gamma_h - (\alpha_h - g\,\beta_h) - b(\beta_h - \alpha_h\,\gamma_h)$ is the backscatter correction

6.3.6 Attenuation Corrections

The total count, potassium, uranium, and thorium data are then corrected to a nominal survey altitude (corrected to remove vegetation clutter from radar/laser altimeter data); in this case the survey height was 40 meters. This is done according to the equation:

$$C_a = C * e^{\mu(h_{ef} - h_0)}$$

where: C_a is the output altitude corrected channel
C is the input channel
μ is the attenuation correction for that channel
h_{ef} is the effective altitude, usually in m
h_0 is the nominal survey altitude used as datum

6.3.7 Conversion to Apparent Radioelement Concentrations

With all corrections applied to the radiometric data, the final step is to convert the corrected potassium (^{40}K), uranium (from ^{214}Bi), and thorium (from ^{212}Tl) to apparent radioelement concentrations using the following formula:

$$eE = C_{cor}/S$$

where: eE is the element concentration K (%) and equivalent element concentration of U (ppm) & Th (ppm)
S is the experimentally determined sensitivity
C_{cor} is the fully corrected channel

Conversion of total count to natural exposure rate (Grasty et al, 1984) is determined by using the following formula:

$$\text{Natural Exposure} = [(1.505 * K) + (0.625 * eU) + (0.31 * eTh)]$$

where: Natural Exposure in µR/hr
K is the concentration of potassium (%)
eU is the equivalent concentration of uranium (ppm)
eTh is the equivalent concentration of thorium (ppm)

6.3.8 Radiometric Ratios

To calculate some of the common radiometric ratios (U/Th, Th/K, and U/K and their inverses) the guidelines of the IAEA are followed. Due to statistical uncertainties in the individual radioelement measurements, care is taken during ratio calculation in order to obtain statistically significant values. The following guidelines were used to determine the ratios:

1. For each concentration the lowest corrected count rate is determined.
2. Element concentrations of adjacent points on either side of each data point are summed until they exceed a pre-determined threshold value.
3. The ratios are calculated using the accumulated sums.

With these guidelines, errors associated with the calculated ratios are minimized and comparable for all data points.

6.3.9 Ternary Radioelement Map

A ternary radioelement map is an image which maps each of the primary colours - yellow, magenta (red), and cyan (blue) in proportion to the radioelement concentration values of the K, Th, and U grids. Areas of low radioactivity, and consequently low signal to noise ratios, can be masked and are shaded in white by setting the TC as the shaded grid.

7.0 Deliverables

Survey data are presented as digital databases, maps, and a logistics report.

7.1 Digital Data

The digital files have been provided in two formats, the first is a .GDB file for use in Geosoft Oasis Montaj and the second format is a text (.XYZ) file. Full descriptions of the digital data and contents are included in the report (Appendix B).

The digital data were represented as grids as listed below:

- Digital Terrain Model (DTM)
- Total Magnetic Intensity (TMI)
- Residual Magnetic Intensity (RMI) – removal of IGRF from TMI
- Calculated Vertical Gradient (CVG) - first vertical derivative of RMI
- Reduced to Magnetic Pole (RTP) – reduced to magnetic pole of RMI
- Calculated Horizontal Gradient (CHG) – total horizontal gradient of RMI
- Potassium – Percentage (%K)
- Thorium – Equivalent Concentration (eTh)
- Uranium – Equivalent Concentration (eU)
- Total Count (TC)
- Total Count – Exposure Rate (TCexp)
- Potassium over Thorium Ratio (%K/eTh)
- Potassium over Uranium Ratio (%K/eU)
- Uranium over Thorium Ratio (eU/eTh)
- Uranium over Potassium Ratio (eU/%K)
- Thorium over Potassium Ratio (eTh/%K)
- Thorium over Uranium Ratio (eTh/eU)
- Ternary Map (TM)

7.1.1 Grids

Digital data were gridded and displayed using the following Geosoft parameters:

- Grid cell size: 25 m
- Low-pass desampling factor: 2
- Tolerance: 0.001
- % pass tolerance: 99.99
- Maximum iterations: 100

All grids were drawn with a histogram-equalized color shade; sun illumination inclination at 45° and declination at 045°.

7.2 KMZ

The digital data represented as grids were exported into .kmz files which can be displayed using Google Earth. The grids can be draped onto topography and rendered to give a 3D view.

7.3 Maps

Digital maps were created for the Windfall Hills survey block. The following map products were prepared:
Overview Maps (colour images with elevation contour lines):

- Actual flight lines, with block boundary and claim outlines
- DTM

Magnetic Maps (colour images with elevation contour lines):

- TMI with actual flight lines
- TMI
- RMI
- CVG of RMI
- RTP of RMI
- CHG of RMI

Radiometric Maps (colour images with elevation contour lines):

- %K – Percentage
- eTh – Equivalent Concentration

- eU – Equivalent Concentration
- TC
- TCexp – Exposure Rate
- %K/eTh Ratio
- %K/eU Ratio
- eU/eTh Ratio
- eU/%K Ratio
- eTh/%K Ratio
- eTh/eU Ratio
- Ternary Map

All survey maps were prepared in WGS 84 and UTM Zone 10N.

7.4 Report

A pdf copy of the logistics report is included along with digital data and maps. The report provides information on the data acquisition procedures, data processing, and presentation of the Windfall Hills survey block data.

8.0 Conclusions and Recommendations

While the objective of geophysical data processing is to accurately represent the Earth's geophysical features, continual processing, such as the calculation of derivatives, can generate false features as the signal-to-noise ratio decreases. In addition, false features can appear near the edges of a survey block where gridding algorithms are unable to properly calculate grids, such as in "edge effects." Therefore, subtle geophysical features in derivative-enhanced map products or near the survey margins must be used with discretion.

The airborne geophysical data were acquired to map the geophysical characteristics of the survey area, which are in turn related to the distribution and concentration of magnetic minerals and radioactive elements in the Earth. Geophysical data are not a direct indication of mineral deposits and therefore interpretation and careful integration with existing and new geological, geochemical, and other geophysical data are recommended to maximize value from the survey investment.

Appendix A

Equipment Specifications

- GEM GSM-19T Proton Precession Magnetometer (Magnetic Base Station)
- Hemisphere R120 GPS Receiver
- Opti-Logic RS800 Rangefinder Laser Altimeter
- Setra Model 276 Barometric Pressure
- Scintrex CS-3 Survey Magnetometer
- Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer
- Pico Envirotec GRS-10 Gamma Spectrometer
- Pico Envirotec AGIS data recorder system (for navigation and geophysical data acquisition)

GEM GSM-19T Proton Precession Magnetometer (Magnetic Base Station)

Sensitivity	0.15 nT @ 1 Hz
Resolution	0.01 nT (gamma), magnetic field and gradient
Absolute accuracy	± 0.2 nT @ 1 Hz
Operating Range	20,000 to 120,000 nT
Gradient Tolerance	Over 7,000 nT/m
Operating Ranges	Temperature: -40°C to +50°C Battery Voltage: 10.0 V minimum to 15 V maximum Humidity: up to 90% relative, non-condensing
Storage Temperature	-50°C to +50°C
Dimensions	Console: 223 x 69 x 40 mm Sensor Staff: 4 x 450 mm sections Sensor: 170 x 71 mm dia. Weight: console 2.1 kg, sensor and staff assembly 2.2 kg
Integrated GPS	Yes

Hemisphere R120 GPS Receiver

GPS Sensor	Receiver Type	L1, C/A code, with carrier phase smoothing (Patented COAST technology during differential signal outage
	Channels	12-channel, parallel tracking (10-channel when tracking SBAS)
	Update Rate	Up to 20 Hz position
	Cold Start Time	<60 s
	SBAS Tracking	2-channel, parallel tracking
	Horizontal Accuracy	<0.02 m 95% confidence (RTK 1, 2) <0.28 m 95% confidence (L-Dif 1, 2) <0.6 m 95% confidence (DGPS 1,3) <2.5 m 95% confidence (autonomous, no SA1)
	Differential Options	SBAS, Autonomous, External RTCM, RTK, OmniSTAR (HP/XP)
Beacon Sensor Specifications	Channels	2-channel, parallel tracking
	Frequency Range	283.5 to 325 kHz
	MSK Bit Rates	50, 100, and 200 bps
L-Band Sensor	Channels	Single channel
	Frequency Range	1530 MHz to 1560 MHz
	Satellite Selection	Manual or Automatic (based on location)
	Startup and Satellite Reacquisition Time	15 seconds typical
Communications	Serial Ports	2 full duplex RS232C
	Baud Rates	4800 – 115200
	USB Ports	1 Communications
	Correction I/O Protocol	RTCM SC-104
	Data I/O Protocol	NMEA 0183
	Timing Output	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)
	Raw Data	Proprietary binary (RINEX utility available)
Environmental	Operating Temperature	-30°C to +70°C
	Storage Temperature	-40°C to +85°C
	Humidity	95% non-condensing
Power	Input Voltage Range	8 to 36 VDC
	Power Consumption	3 Watts
	Current Consumption	< 250 mA @ 12 VDC
	Antenna Voltage Output	5.0 VDC

[1] Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity.
[2] Up to 5 km baseline length.
[3] Depends also on baseline length.

Opti-Logic RS800 Rangefinder Laser Altimeter

Accuracy	+/- 1 m on 1x1 m^2 diffuse target with 50% reflectivity, up to 700 m
Resolution	0.2 m
Communication Protocol	RS232-8,N,1
Baud Rate	19200
Data Raw Counts	~200 Hz
Data Calibrated Range	~10 Hz
Calibrated Range Units	Feet, Meters, Yards
Laser	Class I (eye-safe) 905 nm +/- 10 nm
Power	7-9 VDC conditioned required, current draw at full power (~ 1.8 W)
Laser Wavelength	RS100 905 nm +/- 10 nm
Laser Divergence	Vertical axis – 3.5 mrad half-angle divergence; Horizontal axis – 1 mrad half-angle divergence; (Approximate beam footprint at 100 m is 35 cm x 5 cm)
Data Rate	~200 Hz raw counts for un-calibrated operation; ~10 Hz for calibrated operation (averaging algorithm seeks 8 good readings)
Dimensions	32 x 78 x 84 mm (lens face cross section is 32 x 78 mm)
Weight	< 227 g (8 oz)
Casing	RS100/RS400/RS800 units are supplied as OEM modules consisting of an open chassis containing optics and circuit boards. Custom housings can be designed and built on request.

Setra Model 276 Barometric Pressure

Pressure Ranges	600 to 1100 hPa/mb 800 to 1100 hPa/mb 0 to 20 psia
Accuracy	±0.25% FS
Output	0.1 to 5.1 VDC 0.5 to 4.5 VDC
Excitation	12 VDC (9.0 to 14.5) 24 VDC (21.6 to 26.0) 5 VDC (4.9 to 7.1)
Size	2” dia. x 1” (5 cm x 2.5 cm)

Scintrex CS-3 Magnetometer

Operating Principal	Self-oscillating split-beam Cesium Vapor (non-radioactive ^{133}Cs)
Operating Range	15,000 to 105,000 nT
Gradient Tolerance	40,000 nT/meter
Operating Zones	10° to 85° and 95° to 170°
Hemisphere Switching	a) Automatic b) Electronic control actuated by the control voltage levels (TTL/CMOS) c) Manual
Sensitivity	0.0006 nT √Hz rms
Noise Envelope	Typically 0.002 nT P-P, 0.1 to 1 Hz bandwidth
Heading Error	+/- 0.25 nT (inside the optical axis to the field direction angle range 15° to 75° and 105° to 165°)
Absolute Accuracy	<2.5 nT throughout range
Output	a) Continuous signal at the Larmor frequency which is proportional to the magnetic field (proportionality constant 3.49857 Hz/nT) sine wave signal amplitude modulated on the power supply voltage b) Square wave signal at the I/O connector, TTL/CMOS compatible
Information Bandwidth	Only limited by the magnetometer processor used
Sensor Head	Diameter: 63 mm (2.5”) Length: 160 mm (6.3”) Weight: 1.15 kg (2.6 lb)
Sensor Electronics	Diameter: 63 mm (2.5”) Length: 350 mm (13.8”) Weight: 1.5 kg (3.3 lb)
Cable, Sensor to Sensor Electronics	3 m (9’ 8”), lengths up to 5 m (16’ 4”) available
Operating Temperature	-40°C to +50°C
Humidity	Up to 100%, splash proof
Supply Power	24 to 35 Volts DC
Supply Current	Approx. 1.5 A at start up, decreasing to 0.5 A at 20°C
Power Up Time	Less than 15 minutes at -30°C

Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer

Axial Alignment	Orthogonality better than ± 1°
Input Voltage Options	15 to 34 VDC @ 30 mA
Field Measurement Range Options	± 100 µT = ± 10V
Accuracy	± 0.75% of full scale (0.5% typical)
Linearity	± 0.015% of full scale
Sensitivity	100 µV/nT
Scale Factor Temperature Shift	0.007% full scale/°C
Noise	≤12 pT rms/√Hz @ 1 Hz
Output Ripple	3 mV peak to peak @ 2^{nd} harmonic
Analog Output at Zero Field	± 0.025 V
Zero Shift with Temperature	± 0.6 nT/°C
Susceptibility to Perming	± 8 nT shift with ± 5 Gauss applied
Output Impedance	332 Ω ± 5%
Frequency Response	3 dB @ > 500 Hz (to > 4 KHz wide band)
Over Load Recovery	± 5 Gauss slew < 2 milliseconds
Random Vibration	> 20G rms 20 Hz to 2 KHz
Temperature Range	- 55°C to + 85°C
Acceleration	> 60G
Weight	100 g
Size	3.51 cm x 3.23 cm x 8.26 cm
Connector	Chassis mounted 9 pin male "D" type

Pico Envirotec GRS-10 Gamma Spectrometer

Crystal volume	16.8 litres of NaI(Tl) synthetic downward-looking crystals and 4.2 litre NaI(Tl) synthetic upward-looking crystal
Resolution	256/512 channels
Tuning	Automatic using peak determination algorithm
Detector	Digital Peak
Calibration	Fully automated detector
Real Time	Linearization and gain stabilization
Communication	RS232
Detectors	Expandable to 10 detectors and digital peak
Count Rate	Up to 60,000 cps per detector
Count Capacity per channel	65545
Energy detection range:	36 KeV to 3 MeV
Cosmic channel	Above 3 MeV
Upward Shielding	RayShield® non-radioactive shielding on downward-looking crystals
Downward Shielding	6 mm thick lead plate is used for downward-shielding
Spectra	Collected spectra of 256/512 channels, internal spectrum resolution 1024
Software	Calibration: High voltage adjustment, linearity correction coefficients calculation, and communication test support Real Time Data Collection: Automatic Gain real time control on natural isotopes, and PC based test and calibration software suite
Sensor	Each box containing two (2) gamma detection NaI(Tl) crystals – each 4.2 litres. (256 cu in.) (approx. 100 x 100 x 650 mm) Total volume of approx 8.4 litres or 512 cu in with detector electronics
Spectra Stabilization	Real time automatic corrections on radio nuclei: Th, U, K. No implanted sources

Pico Envirotec AGIS data recorder system

(for navigation and geophysical data acquisition)

Functions	Airborne Geophysical Information System (AGIS) with integrated Global Positioning System Receiver (GPS) and all necessary navigation guidance software. Inputs for geophysical sensors - portable gamma ray spectrometer GRS-10/AGRS, MMS4 Magnetometer, Totem 2A EM, A/D converter, temperature probe, humidity probe, barometric pressure probe, and laser altimeter. Output for the multi-parameter PGU (Pilot Guidance Unit)
Display	Touch screen with display of 800 x 600 pixels; customized keypad and operator keyboard. Multi-screen options for real-time viewing of all data inputs, fiducial points, flight line tracking, and GPS channels by operator.
GPS Navigation	12 channel, WAAS/SBAS-enabled
Data Sampling	Sensor dependent
Data Synchronization	Synchronized to GPS position
Data File	PEI Binary data format
Storage	80 GB
Supplied Software	PEIView: Allows fast data Quality Control (QC) Data Format: Geosoft GBN and ASCII output PEIConv: For survey preparation and survey plot after data acquisition
Software	Calibration: High voltage adjustment, linearity correction coefficients calculation, and communication test support Real Time Data Collection: Automatic Gain real time control on natural isotopes and PC based test and calibration software suite
Power Requirements	24 to 32 VDC
Temperature	Operating: -10°C to +55°C; storage: -20°C to +70°C

Appendix B

Digital File Descriptions

- Magnetic database description
- Radiometric database description
- Grids
- Maps

Magnetic Database:

Abbreviations used in the GDB/XYZ files listed below:

CHANNEL	UNITS	DESCRIPTION
X_WGS84	m	UTM Easting – WGS 84 Zone 10N
Y_WGS84	m	UTM Northing – WGS 84 Zone 10N
Lon_deg	Decimal degree	Longitude
Lat_deg	Decimal degree	Latitude
Date	yyyy/mm/dd	Dates of the survey flight(s) – Local
FLT		Flight Line numbers
LineNo		Line numbers
STL		Number of satellite(s)
GPSfix		1 = non-differential 2 = WAAS/SBAS differential
GPStime	Hours:min:secs	GPS time (UTC)
Geos_m	m	Geoidal separation
GHead_deg	Decimal degree	Heading of the aircraft
XTE_m	m	Cross track error
Galt	m	GPS height – WGS 84 Zone 10N (ASL)
Lalt	m	Laser Altimeter readings (AGL)
DTM	m	Digital Terrain Model
Sample_Density	m	Horizontal distance in meters between adjacent measurement locations; sample frequency is 20 Hz
Speed_km_hr	km/hr	Ground speed of aircraft in km/hr
basemag	nT	Base station temporal data
IGRF		International Geomagnetic Reference Field 2015; 12th generation
Declin	Decimal degree	Calculated declination of magnetic field
Inclin	Decimal degree	Calculated inclination of magnetic field
TMI	nT	Total Magnetic Intensity (levelled)
RMI	nT	Residual Magnetic Intensity (levelled)

Radiometric Database:

Abbreviations used in the GDB/XYZ files:

CHANNEL	UNITS	DESCRIPTION
X_WGS84	m	UTM Easting – WGS 84 Zone 10N
Y_WGS84	m	UTM Northing – WGS 84 Zone 10N
Lon_deg	degree	Longitude
Lat_deg	degree	Latitude
Date	yyyy/mm/dd	Dates of the survey flight(s) – Local
FLT		Flight numbers
LineNo		Line numbers
STL		Number of satellite(s)
GPStime	Hours:min:secs	GPS time (UTC)
Geos_m	m	Geoidal separation
GPSFix		1 = non-differential 2 = WAAS/SBAS differential
GHead_deg	degree	Heading of the aircraft
XTE_m	m	Flight line cross distance
Galt	m	GPS height – WGS 84 Zone 10N (ASL)
Lalt	m	Laser Altimeter readings (AGL)
DTM	m	Digital Terrain Model
Sample_Density	m	Horizontal distance in metres between adjacent measurement locations; sample frequency is 20 measurements per second
Speed_km_hr	km/hr	Ground speed of aircraft in km/hr
BaroSTP_kPa	KiloPascal	Barometric Altitude (Press and Temp Corrected)
Temp_degC	Degrees C	Air Temperature
Press_kPa	KiloPascal	Atmospheric Pressure
COSFILT	counts/sec	Spectrometer - Filtered Cosmic
UPUFILT	counts/sec	Spectrometer – Filtered Upward Uranium
Kcor	%	Concentration in Percentage - Potassium
Thcor	ppm	Equivalent Concentration - Thorium
Ucor	ppm	Equivalent Concentration - Uranium
TCcor	nGy/hour	Total Count
TCexp	µR/hour	Exposure Rate
KThratio		Spectrometer –%K/eTh ratio
KUratio		Spectrometer –%K/eU ratio
ThKratio		Spectrometer – eTh/%K ratio
ThUratio		Spectrometer – eTh/eU ratio
UKratio		Spectrometer – eU/%K ratio
UThratio		Spectrometer – eU/eTh ratio

Grids: Windfall Hills Survey Block, WGS 84 Datum, Zone 10N, cell size at 25 m

FILE NAME	DESCRIPTION
WindfallHills_DTM_25m.grd	Digital Terrain Model gridded at 25 m cell size
WindfallHills_TMI_25m.grd	Total Magnetic Intensity gridded at 25 m cell size
WindfallHills_RMI_25m.grd	Residual Magnetic Intensity gridded at 25 m cell size
WindfallHills_CVG_25m.grd	Calculated Vertical Gradient of RMI gridded at 25 m cell size
WindfallHills_RTP_25m.grd	Reduced to Magnetic Pole of RMI gridded at 25 m cell size
WindfallHills_CHG_25m.grd	Calculated Horizontal Gradient of RMI gridded at 25 m cell size
WindfallHills_Kcor_25m.grd	Potassium (%K) - concentration in percentage gridded at 25 m cell size
WindfallHills_Thcor_25m.grd	Thorium (eTh) – equivalent concentration gridded at 25 m cell size
WindfallHills_Ucor_25m.grd	Uranium (eU) – equivalent concentration gridded at 25 m cell size
WindfallHills_TCcor_25m.grd	Total Count (TC) gridded at 25 m cell size
WindfallHills_TCexp_25m.grd	Total Count (TCexp) – exposure rate gridded at 25 m cell size
WindfallHills_KThratio_25m.grd	Potassium over Thorium ratio (%K/eTh) gridded at 25 m cell size
WindfallHills_KUratio_25m.grd	Potassium over Uranium ratio (%K/eU) gridded at 25 m cell size
WindfallHills_UThratio_25m.grd	Uranium over Thorium ratio (eU/eTh) gridded at 25 m cell size
WindfallHills_UKratio_25m.grd	Uranium over Potassium ratio (eU/%K) gridded at 25 m cell size
WindfallHills_ThKratio_25m.grd	Thorium over Potassium ratio (eTh/%K) gridded at 25 m cell size
WindfallHills_ThUratio_25m.grd	Thorium over Uranium ratio (eTh/eU) gridded at 25 m cell size

Maps: Windfall Hills Survey Block, WGS 84 Datum, Zone 10N (jpegs and pdfs)

FILE NAME	DESCRIPTION
WindfallHills_ActualFlightLines	Plotted actual flown flight lines
WindfallHills_DTM_25m	Digital Terrain Model gridded at 25 m cell size
WindfallHills_TMI_wFL_25m	Total Magnetic Intensity gridded at 25 m cell size with plotted actual flown flight lines
WindfallHills_TMI_25m	Total Magnetic Intensity gridded at 25 m cell size
WindfallHills_RMI_25m	Residual Magnetic Intensity gridded at 25 m cell size
WindfallHills_CVG_25m	Calculated Vertical Gradient of RMI gridded at 25 m cell size
WindfallHills_RTP_25m	Reduced to Magnetic Pole of RMI gridded at 25 m cell size
WindfallHills_CHG_25m	Calculated Horizontal Gradient of RMI gridded at 25 m cell size
WindfallHills_Kcor_25m	Potassium (%K) - concentration in percentage gridded at 25 m cell size
WindfallHills_Thcor_25m	Thorium (eTh) – equivalent concentration gridded at 25 m cell size
WindfallHills_Ucor_25m	Uranium (eU) – equivalent concentration gridded at 25 m cell size
WindfallHills_TCcor_25m	Total Count (TC) gridded at 25 m cell size
WindfallHills_TCexp_25m	Total Count (TCexp) – exposure rate gridded at 25 m cell size
WindfallHills_KThratio_25m	Potassium over Thorium ratio (%K/eTh) gridded at 25 m cell size
WindfallHills_KUratio_25m	Potassium over Uranium ratio (%K/eU) gridded at 25 m cell size
WindfallHills_UThratio_25m	Uranium over Thorium ratio (eU/eTh) gridded at 25 m cell size
WindfallHills_UKratio_25m	Uranium over Potassium ratio (eU/%K) gridded at 25 m cell size
WindfallHills_ThKratio_25m	Thorium over Potassium ratio (eTh/%K) gridded at 25 m cell size
WindfallHills_ThUratio_25m	Thorium over Uranium ratio (eTh/eU) gridded at 25 m cell size
WindfallHills_TernaryMap_25m	Displaying ratios of all three elements (%K, eTh, eU)

Plates

Windfall Hills Survey Block
Scale 1:15,000

- Plate 1: Windfall Hills Block - Actual Flight Lines (FL)
- Plate 2: Windfall Hills Block - Digital Terrain Model (DTM)
- Plate 3: Windfall Hills Block - Total Magnetic Intensity with Actual Flight Lines (TMI_wFL)
- Plate 4: Windfall Hills Block - Total Magnetic Intensity (TMI)
- Plate 5: Windfall Hills Block - Residual Magnetic Intensity (RMI)
- Plate 6: Windfall Hills Block - Calculated Vertical Gradient (CVG) of RMI
- Plate 7: Windfall Hills Block - Reduced to Magnetic Pole (RTP) of RMI
- Plate 8: Windfall Hills Block - Calculated Horizontal Gradient (CHG) of RMI
- Plate 9: Windfall Hills Block - Potassium – Percentage (%K)
- Plate 10: Windfall Hills Block - Thorium – Equivalent Concentration (eTh)
- Plate 11: Windfall Hills Block - Uranium – Equivalent Concentration (eU)
- Plate 12: Windfall Hills Block - Total Count (TC)
- Plate 13: Windfall Hills Block - Total Count – Exposure Rate (TCexp)
- Plate 14: Windfall Hills Block - Potassium over Thorium Ratio (%K/eTh)
- Plate 15: Windfall Hills Block - Potassium over Uranium Ratio (%K/eU)
- Plate 16: Windfall Hills Block - Uranium over Thorium Ratio (eU/eTh)
- Plate 17: Windfall Hills Block - Uranium over Potassium Ratio (eU/%K)
- Plate 18: Windfall Hills Block - Thorium over Potassium Ratio (eTh/%K)
- Plate 19: Windfall Hills Block - Thorium over Uranium Ratio (eTh/eU)
- Plate 20: Windfall Hills Block - Ternary Map (TM)

APPENDIX E: DETAILED MAPS

Drafted and scaled for ANSI E paper (34 by 44 inch)
NAD83 UTM zone 10

PROPERTY-WIDE MAPS:

MAP 1A: 1:8000 ROCK Sample Numbers
MAP 1B: 1:8000 ROCK GOLD
MAP 1C: 1:8000 ROCK SILVER
MAP 1D: 1:8000 ROCK ARSENIC
MAP 1E: 1:8000 ROCK ANTIMONY

MAP 2A: 1:8000 SOIL Sample Numbers
MAP 2B: 1:8000 SOIL GOLD
MAP 2C: 1:8000 SOIL SILVER
MAP 2D: 1:8000 SOIL ARSENIC
MAP 2E: 1:8000 SOIL ANTIMONY

INSET MAPS:

MAP 3A: 1:500 ROCK Sample Numbers
MAP 3B: 1:500 ROCK GOLD
MAP 3C: 1:500 ROCK SILVER
MAP 3D: 1:500 ROCK ARSENIC
MAP 3E: 1:500 ROCK ANTIMONY

MAP 4A: 1:500 SOIL Sample Numbers
MAP 4B: 1:500 SOIL GOLD
MAP 4C: 1:500 SOIL SILVER
MAP 4D: 1:500 SOIL ARSENIC
MAP 4E: 1:500 SOIL ANTIMONY

MAP 5A: 1:1000 TILL Sample Numbers
MAP 5B: 1:1000 TILL GOLD
MAP 5C: 1:1000 TILL SILVER
MAP 5D: 1:1000 TILL ARSENIC
MAP 5E: 1:1000 TILL ANTIMONY

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

1751872
1751873
1751856
1751857
1751858 1751859
1751855
1751877
1751653
1751668
1751863
1751660
1751659
1751862
1751662
1751861
1751854
1751625
1751627
1751852
1751617
1751604
1751603
1751638
1751640
1751642
1751693
1751672
1751652
1751865
1751696
1751874
1751866
1751875
1751867
1751876
1751868
1751869
1751870
1751871
1751666
1751667
1751665

INSET FOR MAP 5

INSET FOR MAP 3

INSET FOR MAP 4

Rock Sample
- Rock Sample
- contour
- watercourse
- waterbody

MAP 1A
1:8000
ROCK SAMPLE
NAD83 Zone 10

500 250 0 500 Meters

N
W E
S

300000 000000
302000 000000
304000 000000
306000 000000
5948000
5946000
5944000
5942000
5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

Au ppb

- 1.000000 - 50.000000
- 50.000001 - 150.000000
- 150.000001 - 500.000000
- 500.000001 - 7195.000000
- contour
- watercourse
- waterbody

MAP 1B
1:8000
ROCK GOLD
NAD83 Zone 10

500 250 0 500 Meters

N
W E
S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

Ag ppm

- 0.050000 - 3.000000
- 3.000001 - 10.000000
- 10.000001 - 20.000000
- 20.000001 - 64.800000
- contour
- watercourse
- waterbody

MAP 1C
1:8000
ROCK SILVER
NAD83 Zone 10

500 250 0 500 Meters

N
W E
S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

As ppm

- 2.000000 - 61.000000
- 61.000001 - 170.000000
- 170.000001 - 379.000000
- 379.000001 - 1076.000000
- contour
- watercourse
- waterbody

MAP 1D
1:8000
ROCK ARSENIC
NAD83 Zone 10

500 250 0 500 Meters

N W E S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

Sb ppm

- 0.050000 - 5.000000
- 5.000001 - 11.000000
- 11.000001 - 24.000000
- 24.000001 - 83.600000
- contour
- watercourse
- waterbody

MAP 1E
1:8000
ROCK ANTIMONY
NAD83 Zone 10

500 250 0 500 Meters

N W E S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

JWL081 JWL080 JWL079 JWL078 JWL077 JWL076 JWL075 JWL074 JWL073

JWL082 JWL083 JWL084 JWL085 JWL086 JWL087 JWL088 JWL089 PDM066 PDM065 PDM064 PDM063 PDM062 PDM061 PDM060 PDM059 PDM058 PDM057 PDM056 PDM055 PDM054 PDM053

PDM052 PDM051 PDM050 PDM049 PDM048 PDM047

JWL072 JWL071 JWL070 JWL069 JWL068 JWL067 JWL066 JWL065 JWL064 JWL063 JWL062 JWL061

PDM023 PDM024 PDM025 PDM026 PDM027 PDM028 PDM029 PDM030 PDM031 PDM032 PDM033 PDM034 PDM035

PDM036 PDM037 PDM038 PDM039 PDM040 PDM041 PDM042 PDM043

INSET FOR MAP 4

INSET FOR MAP 5

INSET FOR MAP 3

PDM005 PDM004 PDM003 PDM002 PDM001 JWL001 JWL002 PDM006 JWL003 PDM007 PDM008 PDM016 JWL005 PDM009 PDM015 JWL006 PDM010 PDM014 JWL007 PDM013 JWL008 PDM012 JWL009 PDM011 JWL010

PDM044 PDM045 PDM046 JWL119 JWL120 JWL121 JWL122

PDM017 PDM018 PDM019 PDM020 PDM021 PDM022

JWL011 JWL012 JWL013 JWL014 JWL015 JWL016 JWL017 JWL018 JWL019 JWL020 JWL021 JWL022 JWL023 JWL024 JWL025

JWL050 JWL049 JWL048 JWL047 JWL046 JWL045 JWL044 JWL043 JWL042 JWL041 JWL040 JWL039

JWL051 JWL052 JWL053 JWL054 JWL055 JWL056

JWL131 JWL130 JWL129 JWL128 JWL127 JWL126 JWL125

JWL057 JWL058 JWL059 JWL060 JWL123 JWL124

JWL026 JWL027 JWL028 JWL029 JWL030 JWL031 JWL032 JWL033 JWL034 JWL035

JWL036 JWL037 JWL038

Soil Sample
contour
watercourse
waterbody

MAP 2A
1:8000
SOIL SAMPLE
NAD83 Zone 10

500 250 0 500 Meters

N W E S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

Au ppb

- 0.100000 - 5.000000
- 5.000001 - 10.000000
- 10.000001 - 20.000000
- 20.000001 - 81.200000
- contour
- watercourse
- waterbody

MAP 2B
1:8000
SOIL GOLD
NAD83 Zone 10

500 250 0 500 Meters

N W E S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

Ag ppb
- 5.000000 - 148.000000
- 148.000001 - 442.000000
- 442.000001 - 887.000000
- 887.000001 - 2537.000000
- contour
- watercourse
- waterbody

MAP 2C
1:8000
SOIL SILVER
NAD83 Zone 10

500 250 0 500 Meters

N W E S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

As ppm

- 1.700000 - 6.000000
- 6.000001 - 10.000000
- 10.000001 - 21.000000
- 21.000001 - 67.800000
- contour
- watercourse
- waterbody

MAP 2D
1:8000
SOIL ARSENIC
NAD83 Zone 10

500 250 0 500 Meters

N W E S

300000 302000 304000 306000

5948000 5946000 5944000 5942000 5940000

INSET FOR MAP 3

INSET FOR MAP 4

INSET FOR MAP 5

Sb ppm

- 0.140000 - 0.250000
- 0.250001 - 0.370000
- 0.370001 - 0.580000
- 0.580001 - 1.200000
- contour
- watercourse
- waterbody

MAP 2E
1:8000
SOIL ANTIMONY
NAD83 Zone 10

500 250 0 500 Meters

N W E S

302400 302500 302600 302700 302800

5944300 5944200 5944100 5944000

1751660
1751702
1751634
1751633
1751854
1751632
1751701
1751630
1751629
1751628
1751627
1751626
1751625
1751624
1751623
1751622
1751851
1751601
1751602
1751603
1751852
1751650
1751620
1751619
1751618
1751617
1751649
1751615
1751614
1751613
1751612
1751611
1751610
1751609
1751608
1751607
1751605
1751606
1751853
1751636
1751637
1751638
1751639
1751640
1751641
1751642
1751604
1751693
1751699
1751651
1751652
1751656
1751669
1751657
1751655
1751654
1751672
1751674
1751677
1751679
1751680
1751698
1751682
1751683
1751685
1751686
1751687
1751688
1751695
1751696
1751691
1751703
1751704
1751706
1751865
1751644
1751646
1751647
1751648

2018_rocks
contour
watercourse
waterbody

MAP 3A
ROCK SAMPLES
1:500
NAD83 zone 10

50 25 0 50 Meters

N
W E
S

302400 302500 302600 302700 302800

5944300 5944200 5944100 5944000

20 186 35 29 7195 20 68 24 27 58 64 52 79 54 60 56

75 88 150 1 2

29 9 12 28 59 35 50 45 14 10 10 35 20 5 9 247 9 11 19 11 1 4 58 27 34

9

163 97 97

65 91 80 115 78 58 41 38 93 192 59 2843 99 48 82 67 51 39 85 75 84 81 37 12

58 30 77 306 19 62 62 61 45 42 32 15

122

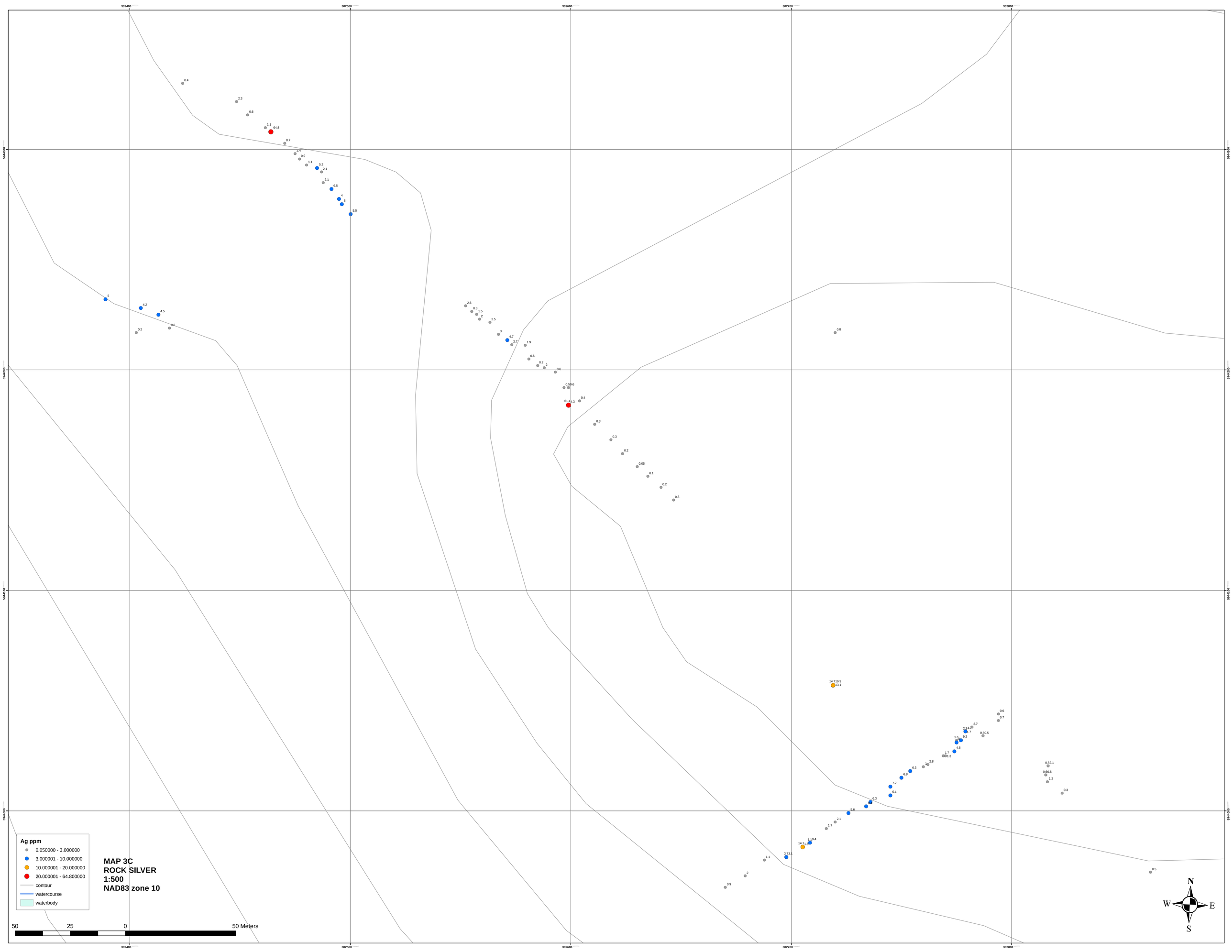
Au ppb

- 1.000000 - 50.000000
- 50.000001 - 150.000000
- 150.000001 - 500.000000
- 500.000001 - 7195.000000
- contour
- watercourse
- waterbody

MAP 3B
ROCK GOLD
1:500
NAD83 zone 10

50 25 0 50 Meters

N W E S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302500
302600
302700
302800
5944300
5944200
5944100
5944000
0.4
2.3
0.6
1.1
64.8
0.7
2.4
0.9
1.1
5.2
2.1
2.1
6.5
4
5
5.5
5
4.2
4.5
0.6
0.2
2.6
0.3
1.5
2
2.5
3
4.7
2.7
1.9
0.6
0.2
2
0.6
0.5
0.6
61.1
4.3
0.4
0.3
0.3
0.2
0.05
0.1
0.2
0.3
0.8
14.7
16.9
13.1
0.6
0.7
2.7
2.4
2.7
0.50.5
1.6
9.2
4.6
1.7
1.3
2.8
6.3
0.8
7.7
5.1
6.3
5.6
2.1
1.7
1.1
9.4
14.1
3.7
3.1
1.1
2
0.9
0.8
2.1
0.6
0.6
1.2
0.3
0.5
Ag ppm
0.050000 - 3.000000
3.000001 - 10.000000
10.000001 - 20.000000
20.000001 - 64.800000
contour
watercourse
waterbody
MAP 3C
ROCK SILVER
1:500
NAD83 zone 10
50
25
0
50 Meters
N
W
E
S

302400 302500 302600 302700 302800

5944300 5944200 5944100 5944000

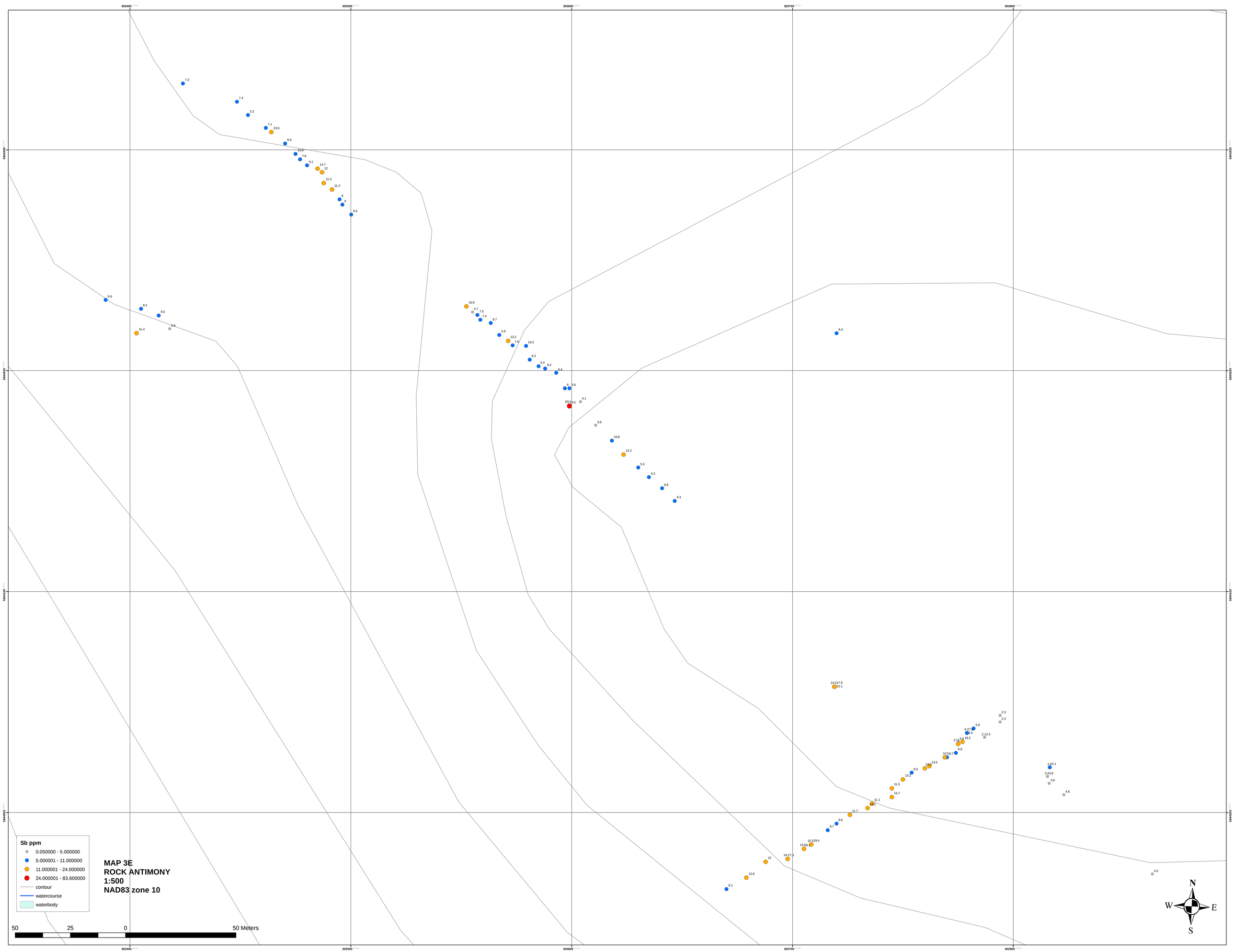
42
42
28
40
379
23
90
47
33
47
68
31
44
45
36
61
64
34
140
6
7
90
10
38
38
46
42
56
32
45
16
19
61
29
23
45
1076
90
24
28
23
22
6
23
31
17
24
17096
161
40
54
289
229
352
187250
231
379
42
24
22
48
48
48
84
101
78
76
98
56
45
225
17
1221
8
66
91
31
67
37
11864
10197
49
46
116

As ppm
- 2.000000 - 61.000000
- 61.000001 - 170.000000
- 170.000001 - 379.000000
- 379.000001 - 1076.000000
- contour
- watercourse
- waterbody

MAP 3D
ROCK ARSENIC
1:500
NAD83 zone 10

50 25 0 50 Meters

N
W E
S


302400
302500
302600
302700
302800
5944300
5944200
5944100
5944000
7.3
7.4
5.2
7.1
23.6
6.9
10.8
7.8
9.1
14.7
12
11.5
11.2
8
6
6.5
9.9
8.2
9.5
0.8
11.4
15.6
4.7
7.5
7.4
9.7
5.9
13.2
7.9
10.2
6.2
5.4
9.2
6.4
6
5.6
83.6
5.5
4.1
3.8
10.8
12.2
5.5
6.2
8.8
9.3
8.4
14.4
17.5
12.1
2.3
2.3
5.9
6.2
5.5
2.1
2.4
17.8
4.9
19.2
9.8
12.5
8.7
2.6
5.1
3.4
3.9
3.6
4.6
8.5
13.2
12.4
13.5
11.5
15.7
11.1
10.2
11.7
8.6
9.7
10.3
19.4
13.8
6
14.2
7.9
12
12.6
8.1
4.5
Sb ppm
0.050000 - 5.000000
5.000001 - 11.000000
11.000001 - 24.000000
24.000001 - 83.600000
contour
watercourse
waterbody
MAP 3E
ROCK ANTIMONY
1:500
NAD83 zone 10
50
25
0
50 Meters
N
W
E
S

304800 304900 305000 305100 305200 305300

5945000 5944900 5944800 5944700

PDM-081
PDM-080
PDM-079
PDM-078
PDM-077
PDM-076
PDM-082
PDM-083
PDM-075
PDM-074
JWL-118
JWL-117
PDM-073
JWL-116
PDM-072
JWL-115
PDM-071
JWL-090
JWL-114
JWL-091
JWL-113
PDM-070
JWL-092
PDM-069
JWL-093
PDM-068
JWL-094
PDM-067
JWL-112
JWL-095
JWL-111
JWL-096
JWL-110
JWL-109
JWL-097
JWL-108
JWL-098
JWL-107
JWL-106
JWL-099
JWL-100
JWL-101
JWL-102
JWL-103
JWL-104 JWL-105

Soil Samples
contour
watercourse
waterbody

MAP 4A
SOIL - SAMPLES
1:500
NAD83 zone 10

50 25 0 50 Meters

N
W E
S

304800 304900 305000 305100 305200 305300

5945000 5944900 5944800 5944700

3.1 0.7 1 1.7 1.7 7 0.9 0.4 17.4 1.3 1.3 2 2 5.4 10.4 1.2 1.5 15.8 3.7 0.9 2.3 3.2 7.2 3.7 1.8 5.4 2 3.7 2.4 1.3 1.2 5 3.2 1.6 81.2 0.8 3.1 6.8 2.4 1.9 1.7 1.1 8.4 1.8 6.40.5

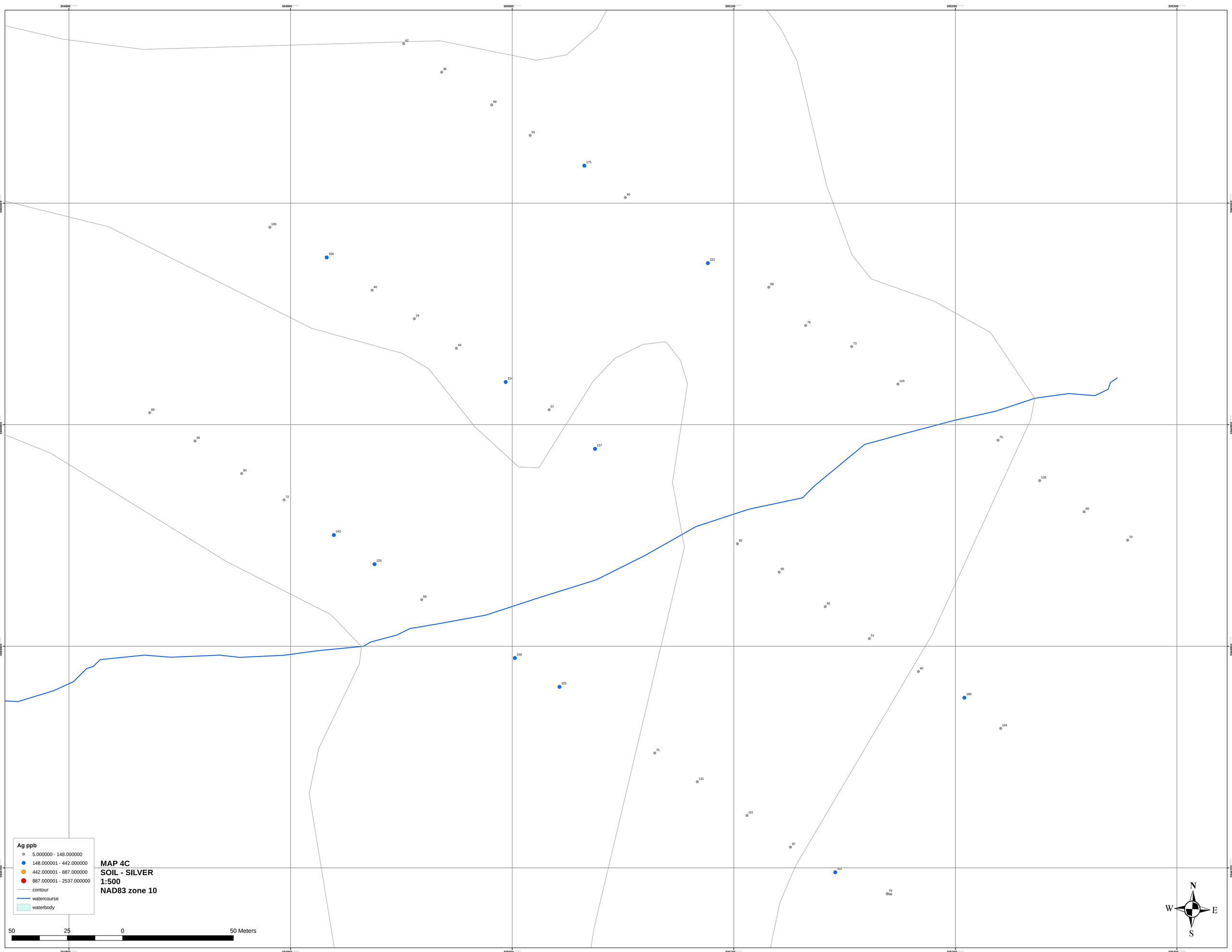
Au ppb

- 0.100000 - 5.000000
- 5.000001 - 10.000000
- 10.000001 - 20.000000
- 20.000001 - 81.200000
- contour
- watercourse
- waterbody

MAP 4B
SOIL - GOLD
1:500
NAD83 zone 10

50 25 0 50 Meters

N W E S


304800
304900
305000
305100
305200
305300
5945000
5944900
5944800
5944700
42
36
66
55
175
40
108
164
222
40
88
24
78
44
73
314
143
60
57
39
157
75
50
130
72
60
243
70
225
55
95
68
92
51
256
40
325
189
104
75
131
111
97
311
79
Ag ppb
5.000000 - 148.000000
148.000001 - 442.000000
442.000001 - 887.000000
887.000001 - 2537.000000
contour
watercourse
waterbody
MAP 4C
SOIL - SILVER
1:500
NAD83 zone 10
50
25
0
50 Meters
N
W
E
S

304800 304900 305000 305100 305200 305300

5945000 5944900 5944800 5944700

5.1 4.9 4.8 6 8.3 5.7 5.2 8.7 6.3 3.6 5.6 16.1 9.5 5.1 4.1 12.5 9.4 16.3 18 13 6.2 4.4 4.5 6.2 6.4 10.9 12.1 6.3 6.8 5.6 5.5 9 7.4 13.7 5.4 2.1 6.2 6.4 10.5 6.1 6.2 5.3 10.2 10.1 9.4

As ppm

- 1.700000 - 6.000000
- 6.000001 - 10.000000
- 10.000001 - 21.000000
- 21.000001 - 67.800000
- contour
- watercourse
- waterbody

MAP 4D
SOIL - ARSENIC
1:500
NAD83 zone 10

50 25 0 50 Meters

N W E S

304800 304900 305000 305100 305200 305300

5945000 5944900 5944800 5944700

0.24 0.23 0.21 0.21 0.26 0.24
0.22 0.23 0.23 0.16 0.2 0.3 0.4 0.2
0.2 0.2 0.2 0.25 0.25
0.19 0.44 0.32 0.29 0.39 0.24 0.3
0.38 0.43 0.51 0.45 0.25 0.24 0.23 0.22
0.22 0.25 0.33 0.35 0.33 0.29 0.33 0.24 0.17 0.18 0.27 0.24 0.25 0.23

Sb ppm
- 0.140000 - 0.250000
- 0.250001 - 0.370000
- 0.370001 - 0.580000
- 0.580001 - 1.200000
- contour
- watercourse
- waterbody

MAP 4E
SOIL - ANTIMONY
1:500
NAD83 zone 10

50 25 0 50 Meters

N W E S

302800 000000

303200 000000

5944800 000000

5944400 000000

5944000 000000

TR7.1

TR7.2

TR7.3

TR7.4

TR5.3

TR5.2

TR4.3

TR4.2

TR4.1

TR3.3

TR3.2

TR3.1

TR3.4

TR1.3

TR1.4

Till Sample
contour
watercourse
waterbody

MAP 5A
TILL - SAMPLE
1:1000
NAD83 zone 10

100 50 0 100 Meters

N
W E
S

302800 000000

303200 000000

5944800 000000

5944400 000000

5944000 000000

7.6

5.6

16.6

13.8

2.7

9.2

24.9

13

4.8

10

9.5

7.5

4.3

15.2

15.3

Au ppb

- 0.000000 - 10.000000
- 10.000001 - 15.000000
- 15.000001 - 20.000000
- 20.000001 - 24.900000
- contour
- watercourse
- waterbody

MAP 5B
TILL - GOLD
1:1000
NAD83 zone 10

100 50 0 100 Meters

N
W E
S

302800 000000

303200 000000

5944800 000000

5944400 000000

5944000 000000

234

231

263

309

191

197

170

266

174

177

200

244

119

256

269

Ag ppb

- 0
- 1 - 200
- 201 - 256
- 257 - 309
- contour
- watercourse
- waterbody

MAP 5C
TILL - SILVER
1:1000
NAD83 zone 10

100 50 0 100 Meters

N

W E

S

302800 000000

303200 000000

5944800 000000

5944400 000000

5944000 000000

22.5

27.1

28.8

25

13.1

29.5

13.3

39.2

18.4

25.2

23.7

22.7

18.4

25.4

29

As ppm

- 0.000000 - 13.300000
- 13.300001 - 23.700000
- 23.700001 - 29.500000
- 29.500001 - 39.200000
- contour
- watercourse
- waterbody

MAP 5D
TILL - ARSENIC
1:1000
NAD83 zone 10

100 50 0 100 Meters

N

W E

S

302800 000000

303200 000000

5944800 000000

5944400 000000

5944000 000000

1.79

1.95

1.25

1.11

0.75

1.3

0.8

1.39

0.86

1.09

1.11

0.98

0.83

1.14

1.08

Sb ppm

- 0.000000
- 0.000001 - 0.980000
- 0.980001 - 1.390000
- 1.390001 - 1.950000
- contour
- watercourse
- waterbody

MAP 5E
TILL - ANTIMONY
1:1000
NAD83 zone 10

100 50 0 100 Meters

N

W E

S