LONGFORD
EXPLORATION

Prospecting, Geological and Geochemical Survey Report

On the

Catalyst North Property

Quill Creek, Whitehorse Mining District, Yukon, Canada

Located Within:
NTS Sheet 115 G 5, 6 & 11

Centered at Approximately:
Latitude 61.30° North by Longitude 139.30° West

CLAIM NAMES: BC 229-323
Grant Numbers:
YE64829-YE64923

GROUPING CERTIFICATE:
HWO7655

Field Work Conducted July 9-14, 2017

Report Prepared For:
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January 26, 2017

traverse the earth

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1 Introduction

The Catalyst North Property consists of 95 claim units (BC 229-323) with grant numbers (YE64829-YE64923) covering an area of the front ranges of the Kluane Mountains known as the Shakwak Valley centered over the Quill Creek drainage, approximately 25 km northwest of Burwash Landing, Yukon Territory in the Whitehorse Mining District.

The 2017 exploration program on the BC claims comprised preliminary geological mapping, soil geochemical survey and stream sediment geochemical survey undertaken to provide targets for future exploration.

2 Summary of Previous Investigations

The region was first explored in the early 1900's by prospectors looking for the source of placer copper on the upper White River. One native copper deposit (Canyon City) was discovered in 1905. Limited development work uncovered several large tabular masses of native copper. In the 1930's placer miners were active on Quill, Arch, Wade and Swede Johnson Creeks. Old camps and eqipement mark the creeks that were mined.

The area surrounding the Catalyst North property has been explored periodically since the early 1950's after the completion of the Alaska Highway in 1942-1945 provided access to the Quill Creek drainage. The discovery of the Wellgreen mineral deposit on upper Quill Creek initiated an exploration boom through the Kluane Ranges focussed on rocks of the Kluane Ultramafic Belt a 600km long trend in the southwest corner of the Yukon characterized by Cu-Ni mineralization in mafic to ultramafic Triassic aged sills.

The best known deposit and the sole past producer in the belt is the Wellgreen Deposit (Minfile 15G024). The Wellgreen deposit, 7 km southwest of Catalyst North claims, was mined between 1972 and 1973, producing 171,652 tonnes with an average grade of 2.23% Ni, 1.39% Cu, 0.073% Co and 2.15 grams/tonne Pt and Pd, then shut down due to weak metal prices, excessive dilution and erratic distribution. The deposit, now 100% owned by Wellgreen Platinum Ltd Inferred Mineral Resource of 846 million tonnes at 1.57 g/t Pt Eq. or 0.41% Ni Eq, both at a 0.57 g/t Pt Eq or 0.15% Ni Eq cut off (Simpson, 2014).

One MINFILE occurrence of note is located in the vicinity of the Catalyst North claims. The Arpy, (Minfile Number 115G 095), as documented by the Yukon Geological Survey *(T. Bremner, 1988)*. Contour soil sampling in 1988 outlined two areas with anomalous values up to 55 ppb Pt, 55 ppb Pd and 104 ppb Au. In the claim area, rocks of the Pennsylvanian to Lower Permian Skolai Group (Station Creek and Hasen Creek Formations) make up the majority of bedrock. To the west Skolai rocks are locally intruded by ultramafic sills, close to the favourable unit contact, which host the target PGE-Ni-Cu mineralization. Overlying the Skolai rocks are basalts of the upper Triassic Nikolai formation. All rocks have been folded into a series of anticlines and synclines along fold axis parallel to the dominant 290-310^{o} trend and then folded again along NE axes. At lower elevations along the Shakwak Valley, the bedrock is overlain by Quaternary unconsolidated glacial, glaciofluvial and glaciolacustrine deposits. Outcrop is limited to the banks of incised creek gullies.

The following recommendations are taken from the assessment reports.

1. Prospect and take geochemical samples (stream, soil, rock, etc.) in the creek valleys and uplands above Quill Creek along the contact between Station Creek volcanics and Hasen sediments.
2. Follow up anomalous stream sediment and soil samples. Prospect creeks for outcrops on the north & south side of the Quill Creek valley.

Assessment reports and drill logs found in the Yukon Geological Survey database with information pertaining to the property can be summarized as follows:

Table 2.1 Assessment report & geological files concerning the Property.

Date	Report ID	Author	Title
1988	092537	Davidson, G.	Assessment Report on the Greg 1-36 Mineral Claims

Date	Report ID	Author	Title
1997	GSC Bulletin 506	Hulbert, L.J. 1997	Geology and metallogeny of the Kluane mafic-ultramafic belt, Yukon territory.
2004	Open File 2004-20	S. Israel & D.P. Van Zeyl	Preliminary geological map of the Quill Creek map area, (parts of NTS 115G/5, 6 and 12).
2017	Open File 2017-36	Aurora Geosciences	Reprocessing of airborne magnetic data for NTS 115G.

A detailed list of references accompanies this report in section 10.

3 Property Description and Location

3.1 Location

The Catalyst North Property is located on the south margin of the Shakwak Valley, 7km south west of Mile 1110 on the Alaska Highway centered over 61.30° Lat., 139.30° Long. within National Topographic System (NTS) map sheet 115 G5/6. The property lies 285 km northwest of the city of Whitehorse, Yukon (Figure 3.1) that is well equipped to support the mining industry with general service as well as an available skilled labour force, transportation (the Alaska Highway, Whitehorse airport) and abundant hydroelectric grid power. The property is located within the Kluane & White River First Nations territorial lands.

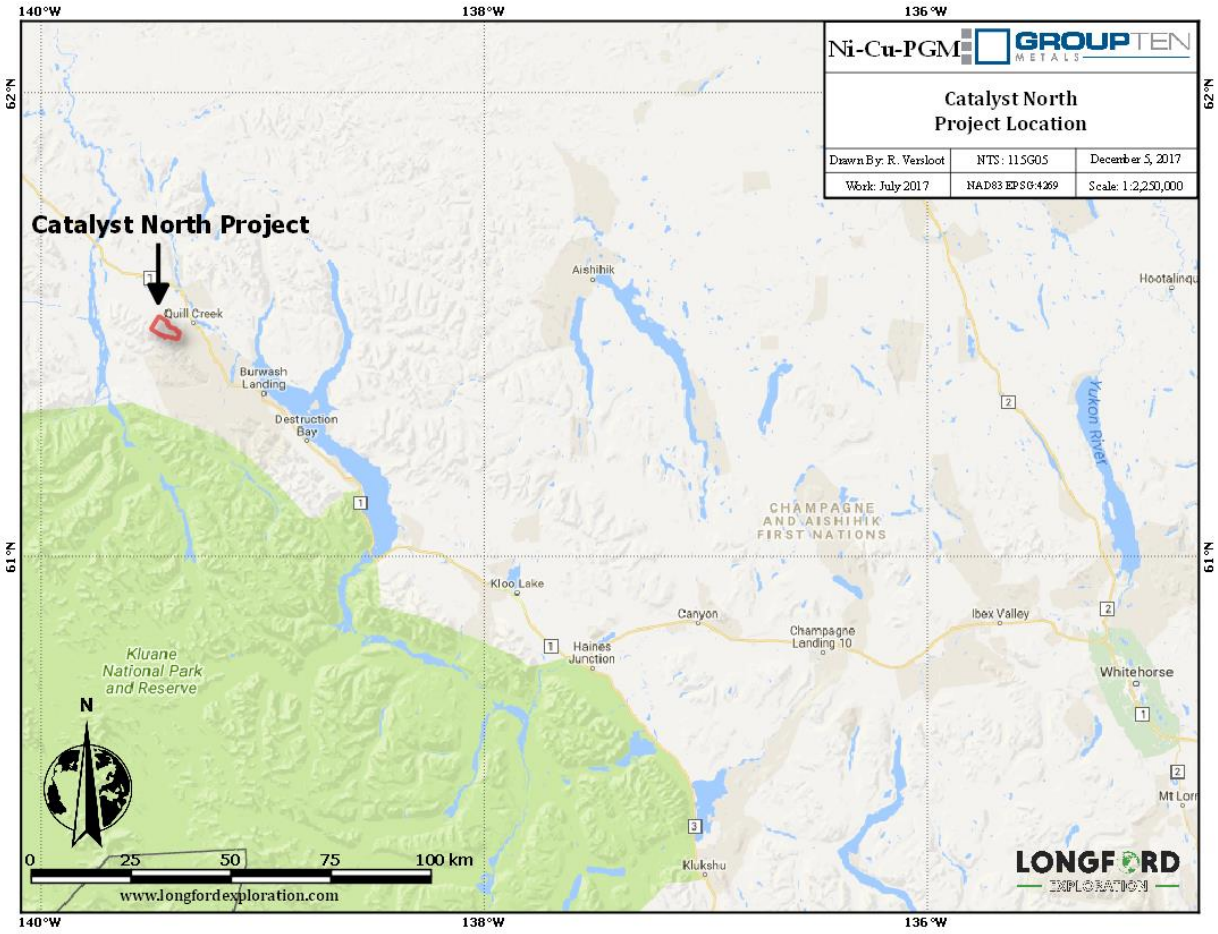

Figure 3.1 Catalyst North project location map.

3.2 Mineral Titles

Group Ten Metals Inc. owns 100% of the BC Claim Group. James Rogers of Longford Exploration filed an Application to Group Mineral Claims (YQMA Form 12) in respect of these claims and an Application for a Certificate of Work (YQMA Form 4) on July 28th, 2017.

The 95 mineral claims (Figure 3.2) under Grouping Certificate HW07655 that are subject of this Assessment Report are listed in Table 3.1.

Table 3.1 Mineral tenure summary

Claim Name	Grant Numbers	District	Owner	Grouping Certificate	Renewal Date	Expiry Date
BC 229-323	YE64829-YE64923	Whitehorse	Group Ten Metals. Inc.	HW07655	2011-07-17	2020-07-15

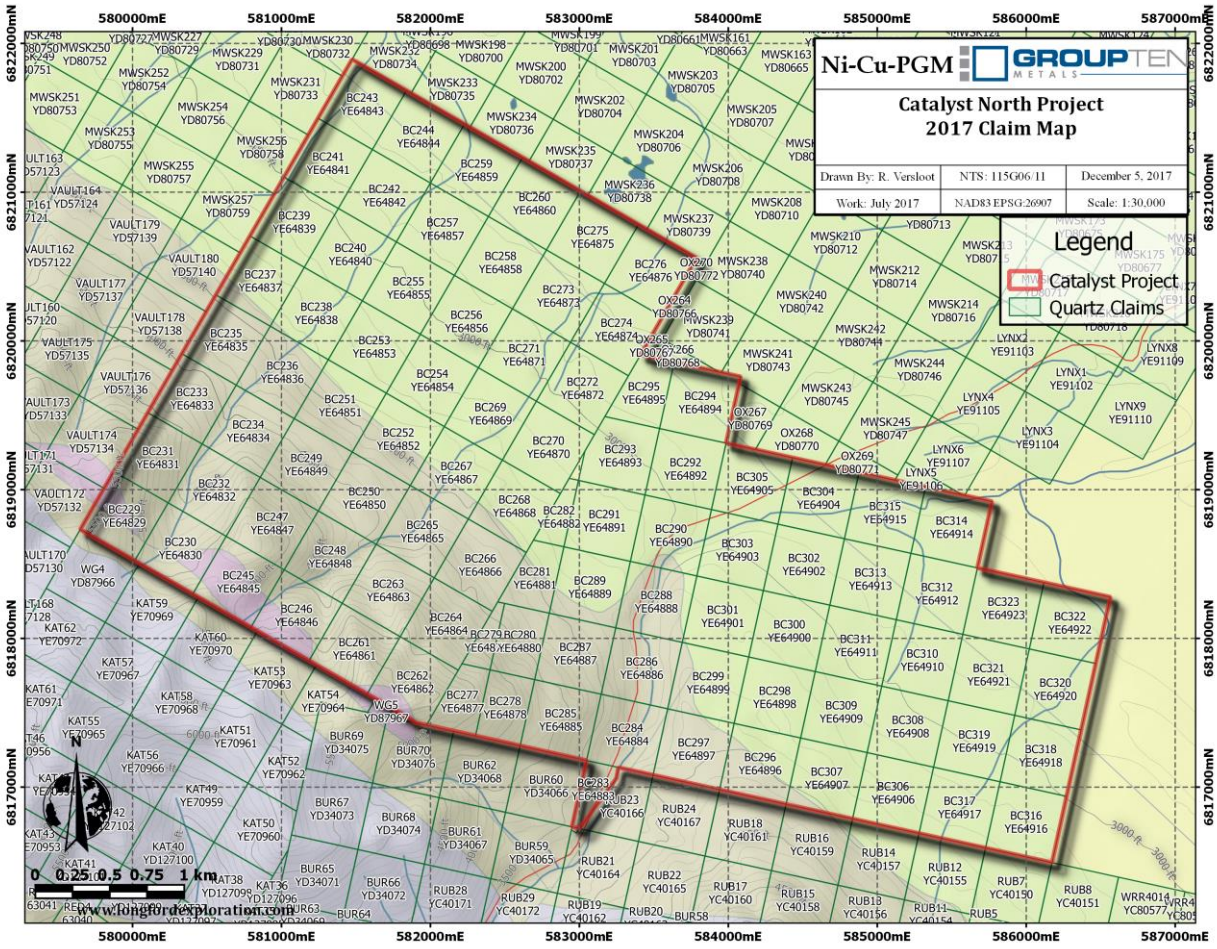

Figure 3.2 Claim map of Catalyst North project area.

3.3 Property Legal Status

The Yukon Mining Recorder website (http://www.yukonminingrecorder.ca/) confirms that all claims of the Property as described in Table 3.1 Mineral tenure summary were in good standing at the date of this report and that no legal encumbrances were registered with the Yukon Mining Recorder against the titles at that date. The author makes no assertion with regard to the legal status of the property. The property has not been legally surveyed to date and no requirement to do so has existed. There are no other royalties, back-in rights, environmental liabilities, or other known risks to undertake exploration.

4 Accessibility, Infrastructure and Climate,

4.1 Accessibility

The BC claims are located on the southwest side of the Shakwak Valley, 7 km southwest of Mile 1110 on the Alaska Highway. The village of Destruction Bay is 35 km to the southeast and the Yukon capital Whitehorse lies 310 km southeast of the property. The Quill Creek gravel road passes through the claims providing access to the camp which was located at kilometer 7 from the Alaska Highway (Figure 4.1). Road distances from the property to communities are summarized in the following table:

Table 4.1 Driving distances to the Property.

Location	Description	Road Distance
Whitehorse (pop. 25,000)	Nearest city with services	310 km
Haines Junction	village	115 km
Destruction Bay	village	45 km

4.2 Climate

The Quill Creek area features a northern interior climate with long cold winters and low annual precipitation. The exploration season extends from early June until late September with occasional thunderstorms and a few intervals of warm dry conditions.

4.3 Topography and Vegetation

The project is on the northeast facing slope of the Shakwak Valley, surrounding Quill Creek. Upland areas above 1200m elevation feature open slopes of grass and rock with thickets of willow and alder in incised stream gullies. Rocky ridges crest above 1800m elevation while the valley floor is at 900m elevation, featuring spruce forest and swampy areas. The forest cover on the property is light, with treeline at approximately 1200m elevation. Black spruce, white spruce, balsam, poplar and white poplar dominate the forested slopes; pockets of alder willow and sub-alpine flora are found at and above the timberline.

Figure 4.1 Photo showing the access conditions, campsite, and exposure along creek.

5 History

The area surrounding the Catalyst North property has been explored periodically since the early 1950's after the completion of the Alaska Highway in 1942-1945 provided access to the Quill Creek drainage. The discovery of the Wellgreen mineral deposit on upper Quill Creek (Minfile 115G024) initiated an exploration boom through the Kluane Ranges focussed on rocks of the Kluane Ultramafic Belt.

Assessment report #092537 summarizes a preliminary exploration program:

> "In 1988 S. Ridgway and M. Glynn performed a prospecting and reconnaissance sampling program on the GREG claims. Camp was established at Quill Creek just west of the junction with Nickel Creek. Four man days of prospecting and contour sampling traverses were undertaken on the claims.
>
> The property is underlain by Permo-Triassic volcanic and sedimentary rocks intruded by bodies of Triassic gabbro. Analysis of the samples recorded weakly anomalous values in Pt and Pd, consistent with results obtained from gabbroic source rocks throughout the district. Sample values in Cu are also elevated, however little correlation exists between Cu and Pt-Pd. Several anomalous areas were outlined by the contour soil sampling. On contour soil line GS-1 above background Pt-Pd values extend from station 3+00 to 6+00 and contour soil line GS-2 weakly anomalous Pt values extend from 2+00 to 3+50.
>
> The presence of gabbroic rocks and the anomalous Pt-W values outlined in the June, 1988 work program indicate that there is good potential for discovering platinum group bearing sulphide mineralization at the GREG claims. On the adjoining Wellgreen property altered gabbro host disseminated chalcopyrite, pyrrhotite and pentlandite. This mineralization assays an average 800 ppb Pt and 833 ppb W and can represent low grade ore delineated as reserves.
>
> Further prospecting and sampling is required to try and locate nickel copper sulphide mineralization on the GREG claims. Traverses should target contacts between gabbroic rocks and Permo-Triassic sediments and volcanics of the Skolai Group."(Davidson, G. 1988)

6 Geological Setting and Mineralization

6.1 Regional geology

The Catalyst North Claim Group is located on the southwest side of the Shakwak Valley underlain by mafic volcanic rocks of island arc and ocean floor genesis (Wrangellia Terrane) with thick assemblages of overlying oceanic sedimentary rocks that range in age from 400 to 220 million years old (Figure 6.1).

The Wrangellian Terrane is characterized by widespread Triassic flood basalts and complementary mafic intrusive rocks which are believed to have originated by in a mantle plume which erupted onto the extinct Pennsylvanian and Permian Sicker-Skolai island arc (Carne, R. 2001). The Upper Triassic Nikolai Formation forms a discontinuous linear belt extending across southwest Yukon and is characterized by basal conglomerate and/or volcanic breccia, amygdaloidal basalt and andesitic flows and local tuff, breccia, shale and limestone. The Nikolai Formation was initially mapped in the area of the Pacer Claim Group by Kindle (1976) as partly serpentinized peridotite, talc schist and green serpentine schist of Lower Cretaceous or later age.

The Catalyst North property lies on the margin of the Kluane Ultramafic Belt, a 600km long belt of rocks in the southwest corner of the Yukon that are characterized by mineralized mafic to ultramafic Triassic aged sills known as the Kluane mafic-ultramafic suite. The Kluane Ultramafic Belt extends from northern BC into Alaska and hosts magmatic Ni-Cu-PGE (+/- Au) deposits and occurrences. It is the second largest Ni-Cu-PGE mafic-ultramafic belt in North America after the Circum-Superior Belt in central Canada (Hulbert, 1997).

Topographically, the Kluane Ultramafic Belt is in the Kluane Ranges which are foothills to the St. Elias Mountains that range along the Yukon-Alaska border. The ultramafic rocks are distinctively coloured (glossy black to dark brown or light green to pale grey when altered) and can be seen as distinctive linear features. The dominant structural direction, controlled by the major Duke River and Denali faults, ranges in orientation from 290^{o} to 310^{o}. Movement of Wrangellia northwards along the Denali Fault began in the Tertiary and continues today. The fault is steeply dipping and the order of displacement may be 100s of kilometres. The Duke River Fault is also near vertical and joins the Denali Fault southwest of Haines Junction. Between the major faults small scale faulting is common and faults increase in number to the southeast. Major fold axes are oriented in the same dominant northwest direction. The folds are tight and inclined to the southwest. A later folding episode has refolded the strata at right angles to the dominant direction along northeast axes (Carne, 2001).

The Kluane mafic-ultramafic sills are elongated cumulate bodies than are postulated to be the crystallized magma chambers that fed the overlying Triassic Nikolai basalts. The sills are layered, with a thin rim of gabbro around the margins grading into an ultramafic core of peridotite and dunite (Hulbert, 1997). The width of the sills ranges from less than 10 to 600m and they can cover up to 20 km in strike length. The sills intrude the older Pennsylvanian to Permian Skolai Group near the contact between the lower Station Creek Formation and the overlying Hasen Creek formation. Most of the sills are poorly exposed and some are deformed and altered by faults. Nickel and Copper values increase from east to west along the belt. Compared to other Ni-Cu-PGE deposits worldwide, the belt is known for having high concentrations of PGEs such as Osmium, Iridium, Ruthenium and Rhodium and high Platinum to Palladium ratio (James, 2016).

The Skolai Group contains the oldest rocks in the ultramafic belt, the Station Creek Formation a sequence of volcanic and volcaniclastics rocks with increasing sedimentary content in the upper half. In the upper 400m of the Station Creek formation, shale siltstone, limestone and argillite are interbedded with fine grained tuff layers that decrease in abundance upwards. The contact with the overlying Hasen Creek Formation is gradual and is placed at the top of the tuff layers. The Hasen Creek Formation is a subaqueous sequence consisting of shale, cherty argillite, chert and siltstone grading up into limestone, conglomerate, greywacke and sandstone.

Sill-like gabbroic bodies of the Maple Creek Gabbro intrude the Hasen Creek Formation. They are generally found higher in the sequence than the ultramafic sills and may be feeders to the Nikolai volcanics. Maple Creek gabbros can be distinguished from Kluane gabbros because they do not grade into peridotite or dunite, can be finer grained and may display columnar jointing. They also are not associated with Ni-Cu-PGE mineralization (James, 2016).

The upper Triassic Nikolai Group is widespread consisting of basalt flows and pillow lavas with local interbedded limestone, unconformably overlying the Hasen Creek formation. The likely sources of the Nikolai volcanics are magma chambers represented by the Kluane ultramafic sills and feeders represented by the Maple Creek Gabbro.

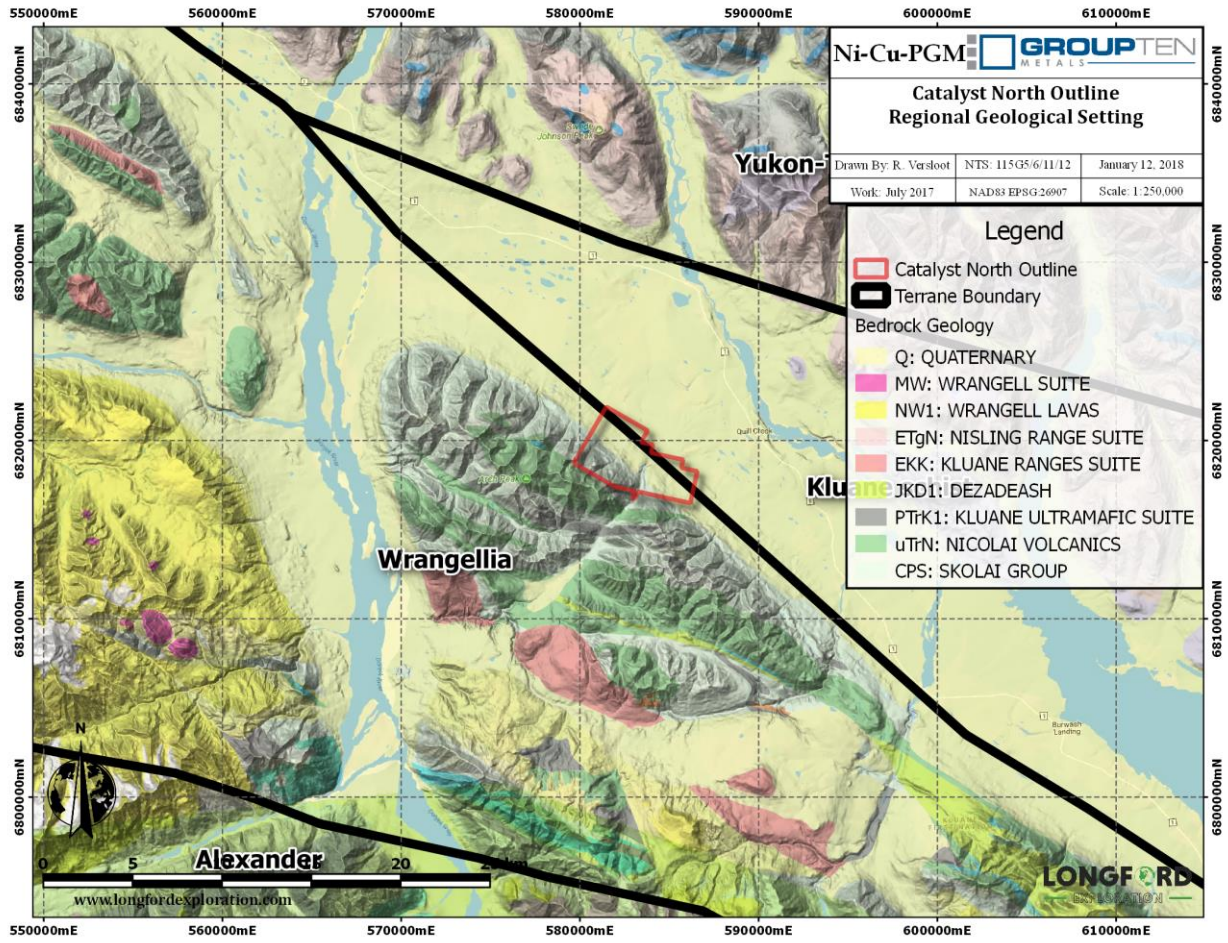

Figure 6.1 Catalyst North regional geological setting.

Table 6.1 Table of formations (Units and descriptions modified from the Yukon Geological Survey digital geology map (Open File 2016-1))

Q – Quaternary	Unconsolidated alluvium, colluvium and glacial deposits.
NW Miocene to Pliocene Wrangell Lavas	NW1 -Extensive volcanic unit, volumetrically significant but not associated with mineralization. Occur on the southwest side of Wrangellia overlapping onto the Alexander Terrane. Abundant west of the Donjek River and typically form piles 400-1000m thick. Mafic to felsic volcanic rock with NW2 – volcanic conglomerate.
MW Mid to late Miocene Wrangell Suite	Youngest intrusions in the area. Related to the Wrangell Lavas. Felsic to mafic composition.
OT Oligocene Tkope Suite	Homogeneous granite with lesser granodiorite, diorite and gabbro. Subvolcanic rhyolite, rhyodacite and dacite.
Kgd, Kd, Kg late Early Cretaceous Kluane Ranges Suite	Found along the length of the ultramafic belt but are more prevalent in the north. Medium to coarse-grained, biotite-hornblende granodiorite, quartz diorite, quartz monzonite and hornblende diorite. Minor diorite and gabbro.

uTrC upper Triassic Chitistone	Conformably overlies the Nikolai Group, varying in thickness from zero to several hundred metres. Argillaceous limestone and argillite; massive limestone, limestone breccia and well-bedded limestone, gypsum and anhydrite. (McCarthy, Chitistone and Nazina limestone)
uTrNv upper Triassic Nikolai formation	uTrN3 – thinly bedded grey limestone and argillite. uTrN2 – dark green to maroon amygdaloidal basalt and basaltic andesite flows, locally pyroxene and plagioclase phyric. (Nicolai Greenstone) uTrN1 – light to dark green volcanic breccia, pillow lava and basal conglomerate.
LTrK late Triassic Kluane Ultramafic Suite.	Preferentially intrudes at or near the Hasen Creek-Station Creek contact. LTrK1 - peridotite, dunite and clinopyroxenite, layered intrusions, locally with gabbroic chilled margins.(Kluane-type mafic-Ultramafics Gabbro-Diabase Sills) LTrK2 - Maple Creek gabbro. Fine to coarse grained diabase and gabbro sills and dykes. Intrudes the Skolai Group and locally the Kluane ultramafic suite.
PH lower Permian Skolai Group - Hasen Creek Fm.	PHp – fine-grained clastic rocks. Lower part contains volcaniclastics, rare basalts, rare chert beds and chert-pebble conglomerate. PHc – limestone, locally fossiliferous, massive to bedded.
PSv Mississippian to Pennsylvanian Skolai Group- Station Creek Fm.	PSv-undifferentiated Skolai Gp; includes Hasen and Station Creek formations PSvb - Dark green basalt flows, pillows, pillow breccia, local magnetite-rich jasper. PSvt – bedded to massive chert, tuff PSv – interbedded volcanic breccia, volcaniclastics; minor basalt flow. PSvt – laminated volcanic tuff and volcanoclastic siltstone.

6.2 Regional Mineralization

There are four main types of Ni-Cu-PGE mineralization in the Kluane Ultramafic Belt found in all the mineralized sills from southeast Alaska to northern B.C. (Hulbert, 1997):

1. Basal accumulations of massive sulphides
2. Disseminated sulphides at the gabbro-ultramafic contact in each intrusion
3. PGE and Au rich zones associated with hydrothermal quartz-carbonate alteration at the edges of the sills and extending into the country rock.
4. Disseminated and lesser net textured or massive sulphides in the ultramafic core of each sill.

Two other types of mineralization have a limited range (Hulbert, 1997):

1. Skarn ores developed in Permian carbonates at Wellgreen.
2. Ni-rich ores within the footwall in the White River sill.

The most common sulphide minerals are pyrrhotite, pyrite, pentlandite and chalcopyrite; the common oxide minerals are magnetite and ilmenite. Figure 6.2 below illustrates a typical, simplified ultramafic sill. The best known deposit and the sole producer in the belt is Wellgreen Platinum's Wellgreen Deposit (Minfile 115G024). At Wellgreen the platinum group metals combine with As, Sb, Te, Bi, Ni, S, Co and Fe to form minerals and alloys. Sperrylite ($PtAs_2$) and Sudburyite (PdSb) are two of the more abundant minerals (Hulbert, 1997).

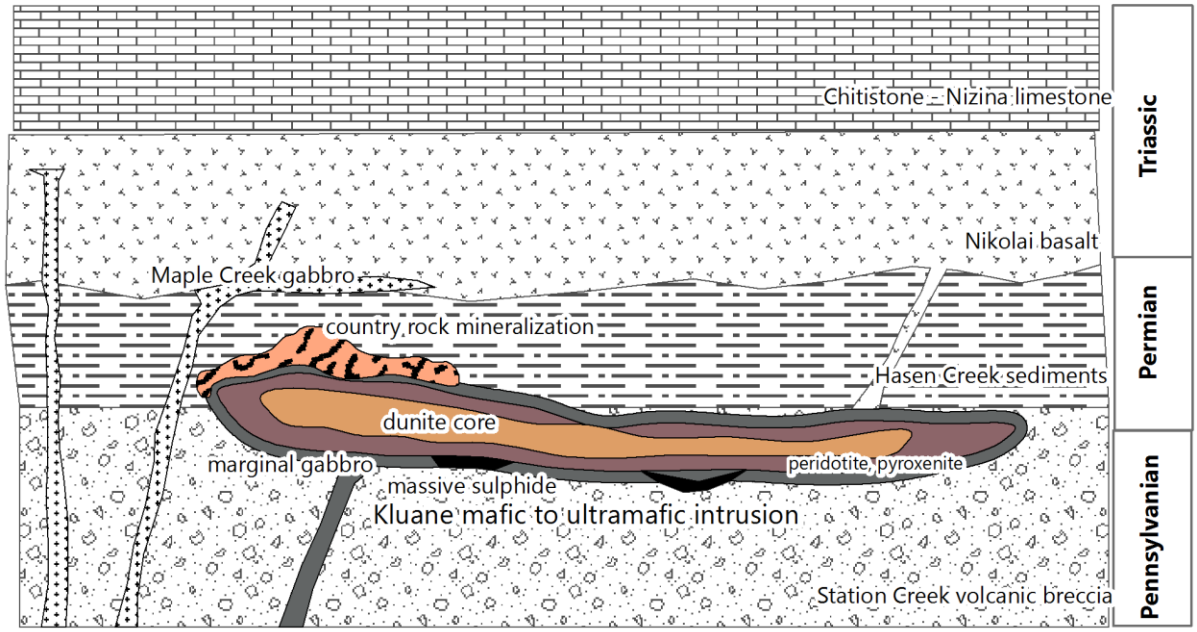

Figure 6.2 Deposit model for the Kluane Belt (modified from Hulbert, 1997)

6.3 Property Geology

On the Catalyst North claims, rocks include Triassic Nikolai mafic volcanics and the Permian Skolai Group consisting of Station Creek volcanics and Hasen Creek sediments (Figure 6.3). North of the property Skolai rocks are locally intruded by ultramafic sills, close to the favourable unit contact, which host the target PGE-Ni-Cu mineralization. All rocks have been folded into a series of anticlines and synclines along fold axis at the dominant 290-310 deg. trend parallel to the Shakwak Valley. At lower elevations in the Quill Creek valley the above units are locally overlain by Quaternary unconsolidated glacial, glacio-fluvial and glacio-lacustrine deposits.

Along Quill Creek, Skolai Group sediments and metasedimentary rocks outcrop at lower elevations and extend northwest across gently sloping areas. Station Creek volcanics mainly mafic tuffaceous and porphyritic volcanics underlie the sediments. The Skolai rocks are locally intruded by Kluane Ranges Suite quartz feldspar porphyry dykes. On higher slopes and along the ridge tops, the upper Triassic Nikolai formation consists of basalts and mafic volcanic tuffs.

Figure 6.3 Hasen Creek sediments along steep bank above Quill Creek.

7 Work Program: Geological and Geochemical Survey

Recent expenditures on the Catalyst North are summarized as follows:

2017 Exploration Program, July 8 – July 17, 2017: prospecting, geological mapping, soil, rock and sediment sampling: $33,027.

A Longford Field Crew mobilized to the BC claims on July 8, 2017 and set up camp at kilometer 7 in a gravel pit beside the Quill Creek road. Field personnel included: project manager James Rogers, geologists Graham Davidson and Ryan Versloot, and field assistants Josh Mckenzie and Matt Martinolich. Local supplies, services and fuel were obtained from Destruction Bay and Burwash Landing. A total of 29 man-days were spent on the exploration program with collection of 161 soil, rock & silt samples and identification of 17 geological reference points.

7.1 Geological Survey, Prospecting & Pan Sampling

Preliminary geological mapping of the BC Claim Group was undertaken in the 2017 field season, with access by daily traverses from camp across claims BC 263, 264, 277, 278, 280, 283-290, 296-301, 307-309 (Figure 7.1). A total of 4 representative rock samples were collected and 17 geological points were described (Appendix A). Mapping was focused on tracing the contact between Hasen sediments and Station Creek volcanics. No mineralization associated with ultramafic rocks was located during the 2017 program on the Catalyst North property.

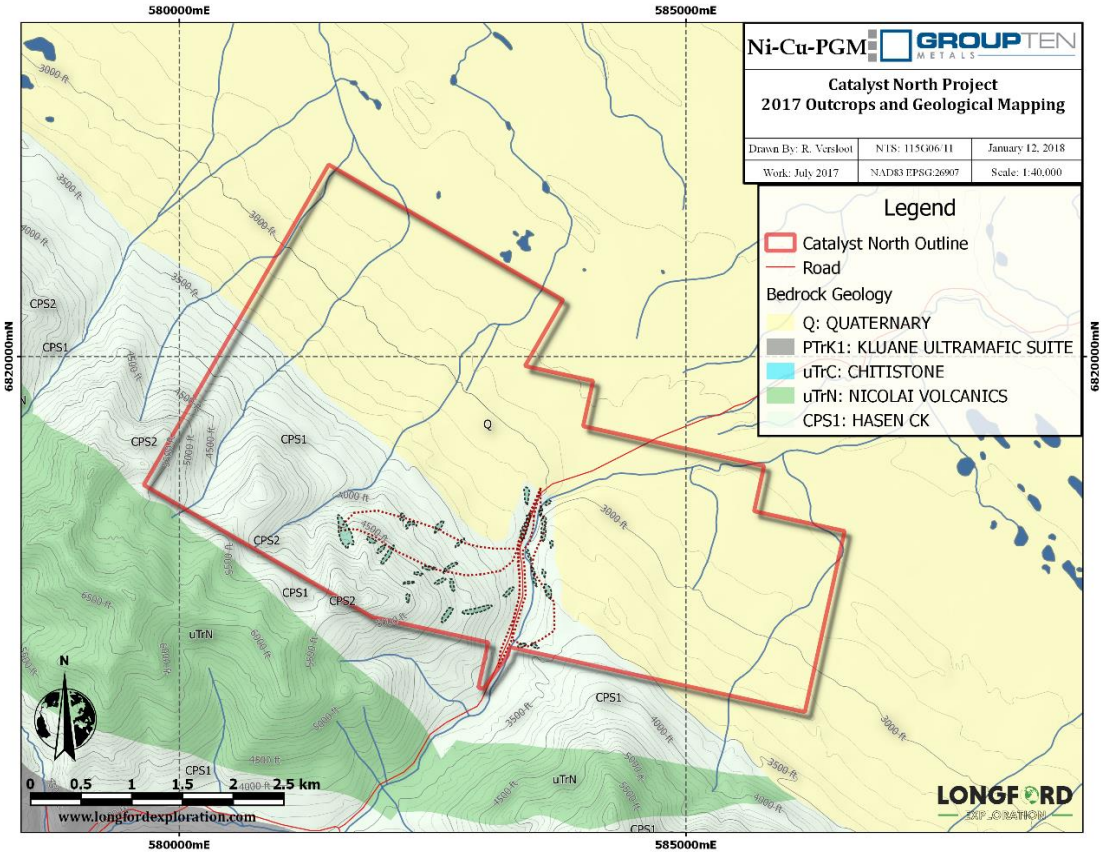

Figure 7.1 Property geology and traverse map.

Outcrop on the claims was limited to the banks of Quill Creek and small creek gullies incising the slopes northwest of Quill Creek along the slopes of the Shakwak Valley. Rocks of the Pennsylvanian to Lower Permian Skolai Group (Station Creek and Hasen Creek formations) make up the majority of bedrock. Along Quill Creek, weathered exposures of the Station Creek Formation are occasionally iron stained with patchy quartz carbonate veining and minor disseminated pyrite and pyrrhotite. The volcanics are locally sheared with intervals of chloritic and graphitic schist. A few quartz veins are evident in the volcanics both cross-cutting and parallel to the foliation. The dominant foliation is 275-290° trend parallel to the Shakwak Valley axes.

Rock sample 1889409 of Station Creek volcanic breccia collected northwest of Quill Creek contained dioritic inclusions and 2-5% pyrite, pyrrhotite and minor chalcopyrite, patchy malachite stain returned a copper value of 1.8%. Stream sediment concentrate sample 1889412 taken from a small creek in the soil geochemical survey area returned gold values of 2572ppb.

Pan sampling showed the best Cu values to come from the same area as the grab sample with the highest Cu value along the steep north facing slopes in the southwest of the property (Figure 7.2).

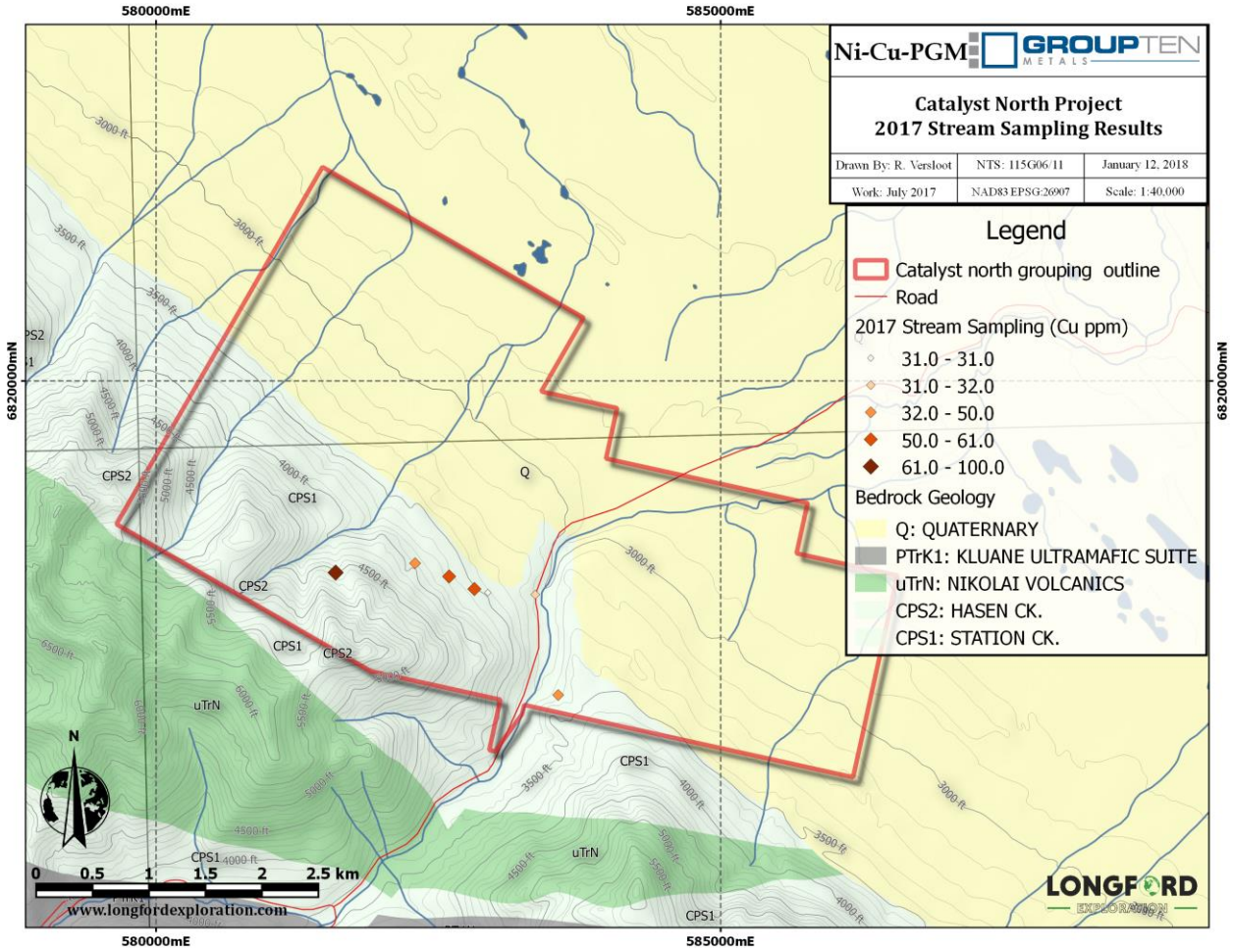

Figure 7.2 Stream sampling results for Cu.

Results from four rock samples and seven pan concentrate samples were collected on the traverses, summarized in Table 7.1.

Table 7.1 Stream sediment and rock sample summary

Sample No.	Easting	Northing	Sample Source	Au_ PPB	Cu_ PPM	Ni_ PPM
1889401	583481	6818280	Outcrop	3	9	7
1889402	583358	6818110	Stream	564	32	39
1889403	582938	6818127	Stream	6	31	32
1889404	582819	6818159	Stream	I.S.	61	42
1889405	582782	6818175	Outcrop	59	7	2
1889406	582595	6818270	Stream	I.S.	52	40
1889407	582294	6818387	Stream	I.S.	50	40
1889408	581590	6818304	Stream	I.S.	100	67
1889409	581587	6818282	Outcrop	20	18000	56
1889411	583596	6818295	Outcrop	6	99	88
1889412	583561	6817221	Stream	2572	42	49

7.2 Soil Geochemical Survey

Longford field crews collected 151 soil samples on a GPS grid with sample intervals at 50m along lines at 100m intervals over an area east of Quill Creek where the contact between Hasen and Station Creek Formations was considered a favourable target for mineralization. The samples were submitted for analysis to the Bureau Veritas lab in Whitehorse, Yukon. Anomalous results favoured the Hasen Creek formation over the quaternary cover.

The soil sample results and locations are shown for nickel, arsenic, and lead in Figures 7.3, 7.4 and 7.5 respectively. Assay certificates can be found in Appendix B.

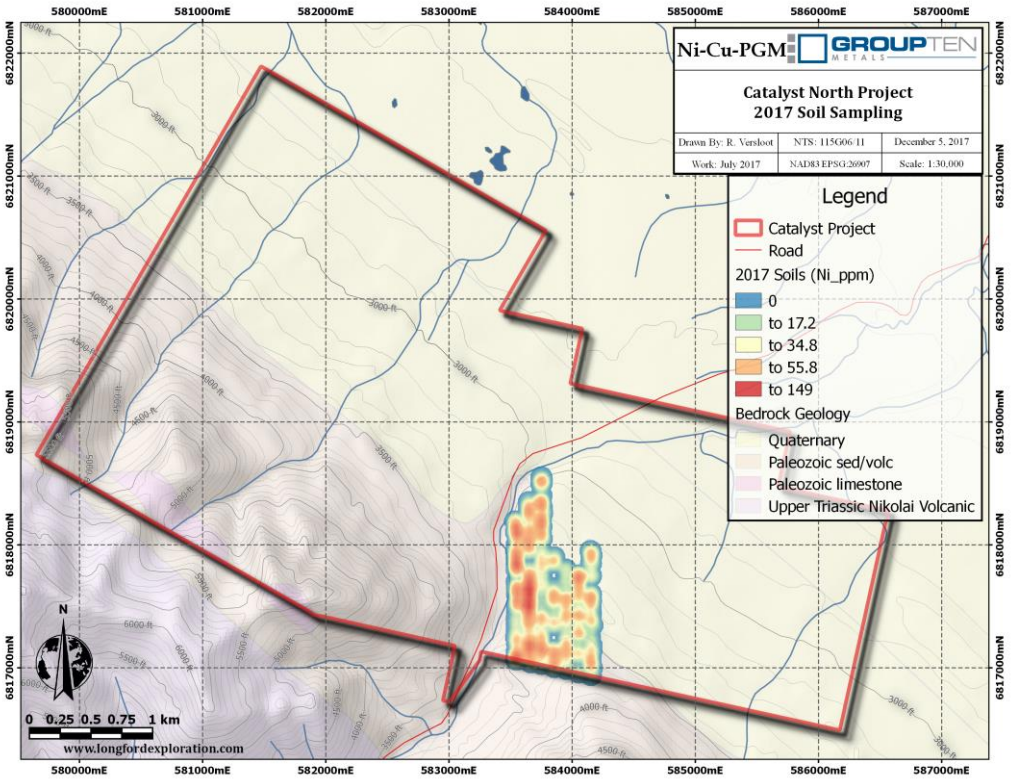

Figure 7.3 Soil sampling results for Ni.

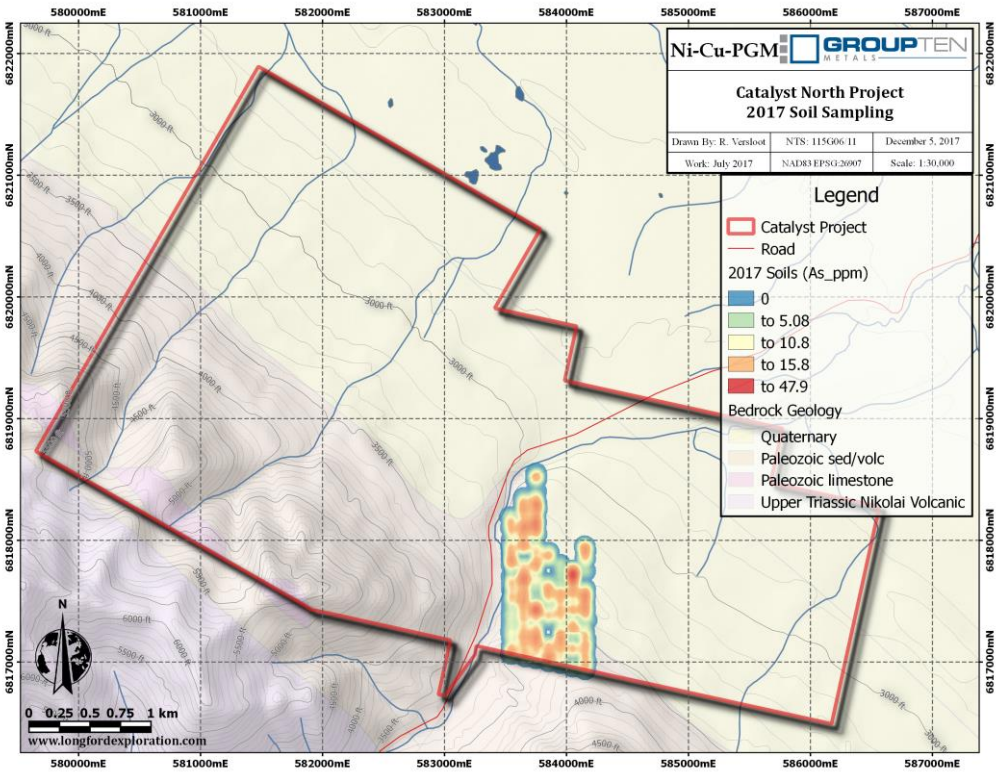

Figure 7.4 Soil sampling results for As.

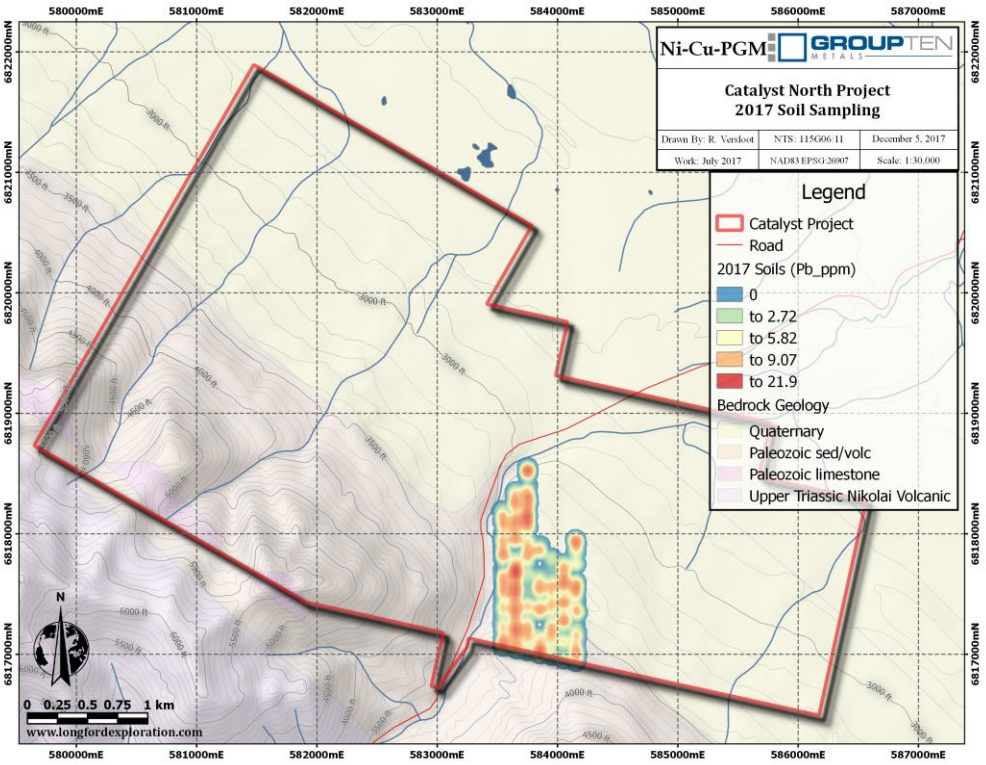

Figure 7.5 Soil sampling results for Pb.

7.3 Geophysical Interpretation

The re-processing of the airborne magnetic data for the 115 G Map Sheet is shown with potential target areas for the Catalyst North property in Figure 7.6. A linear anomaly in the southwest of the property corresponds to Upper Hasen Creek bedrock and to a grab sample and stream sample elevated in Cu. A larger more muted anomaly passes through the entire property on a northwest trend and would correspond to the more favourable contact between the Station Creek and Hasen Creek formations, however it is likely entirely buried by quaternary cover.

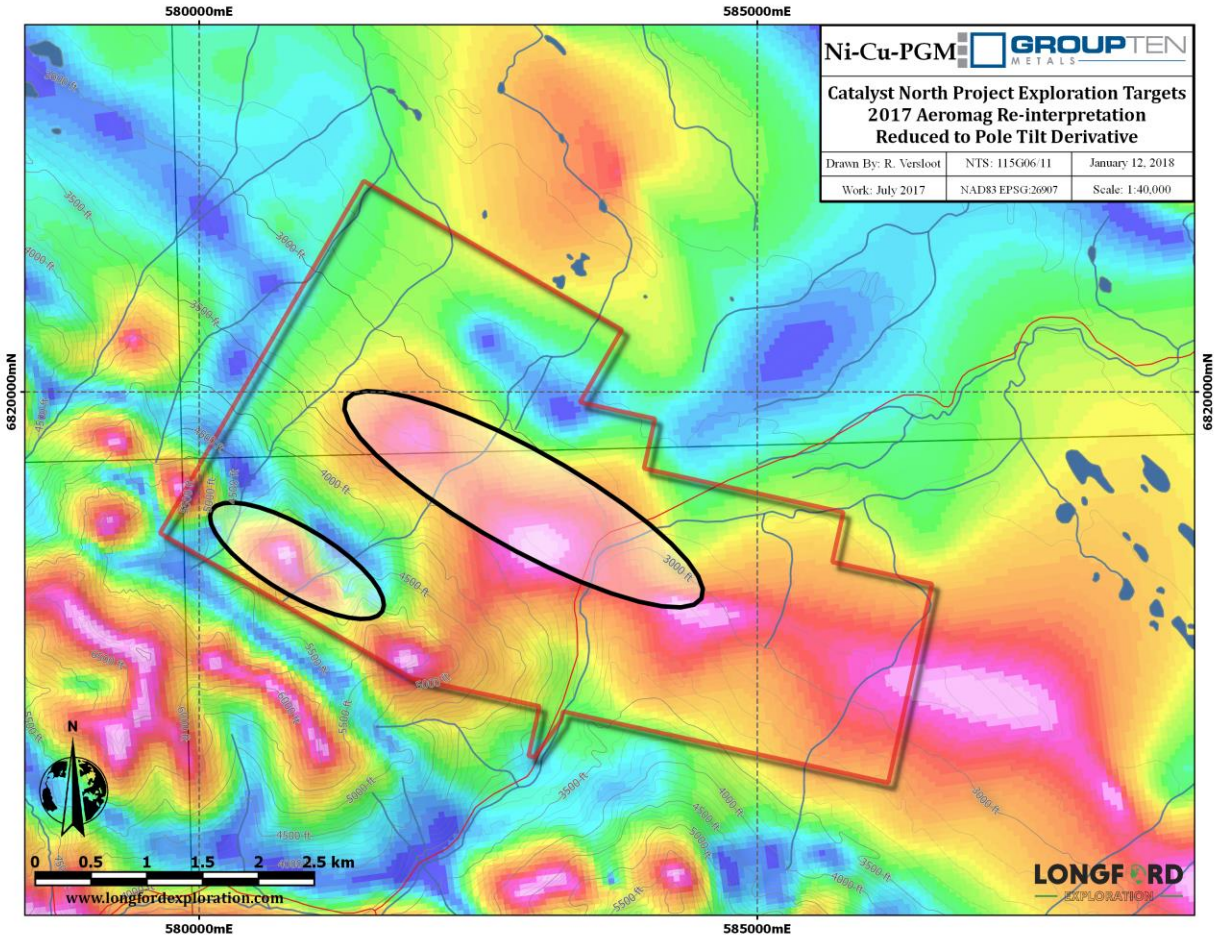

Figure 7.6 2017 aeromagnetic re-interpretation of the Catalyst North property with exploration targets.

8 Interpretation and Conclusions

Regional geology, regional stream sediment geochemistry and the exploration history of the Quill Creek area and showings make the BC Claims an exploration target.

Preliminary geological mapping suggests that the geological package is consistent along strike north westerly from an encouraging rock sample with a copper value of 1.8% and one pan concentrate sample of 2572 ppb Au have been identified. In addition to the Cu-Au values known to date, the Nikolai Formation volcanics have the potential to host Ni and PGE mineralization.

Prospecting and mapping of the southwest portion of the BC claims is recommended, to follow up the rock sample results. Investigating the creeks for bedrock exposure where quaternary cover is abundant is also recommended to better understand the long muted aeromagnetic anomaly running northwest through the middle of the property. Depending on results of these inquiries, contingency planning might contemplate trenching late in the 2018 field season.

A budget of $ 40,000 is proposed for this follow-up program.

9 Recommendations

Soil sample results on the Catalyst North property in 2017 were weakly anomalous in copper, nickel and gold. One rock sample and one pan sample returned elevated copper and gold values which warrant follow up examination. A limited program of further prospecting, soil sampling, geophysical survey and mapping as follows:

Phase I $40,000

- Compilation, digitization, and interpretation of all available historic data $5,000
- Structural mapping and prospecting $15,000
- Detailed structural mapping and sampling to identify additional shear zones and investigate the potential for gold bearing disseminated sulfides throughout the property.
- Geophysics, mag & VLF survey $10,000
- Geochemical sampling $10,000

10 References

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Pautler, J.M. (2017). Geophysical and Geochemical Report on the Tobi Project. Report for 41376 Yukon Inc.

Pautler, J.M. (2017). YMEP proposal for a target evaluation program on the Tobi Project. Report for 41376 Yukon Inc.

Vanwermeskerken, M.T. (2001): Geological and geochemical report on the AR 1-61 mineral claims; submitted by Auterra Ventures Inc., Yukon Ministry of Energy Mines and Resources, assessment report 094217.

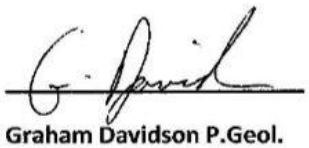
Walcott, P.E. (2016): Review of geophysical data on the Catalyst property for Group Ten Metals Inc.

11 Statement of Qualifications

Statement of Qualifications

I, Graham Davidson, with business address at 53 Grandin Woods, St. Albert, Alberta T8N 2Y4 hereby certify that:

- I am a practising Geologist, resident in St. Albert, Alberta;
- I am a member in good standing with Association of Professional Engineers, Geologists and Geophysicists of Alberta (# 42308);
- I hold a Bachelor of Science (Honours) degree in Geology (1982) from the University of Western Ontario;
- I have practiced my profession as a geologist since graduation;
- I have no direct or indirect interest in the Catalyst Project, which is the subject of this report.
- I have based this report on:
    - Field work conducted by exploration contractors under my direct supervision
    - Historical research into past operations on and adjacent to the subject claims
- I consent to the use of this report for any Filing Statement, Statement of Material Facts, or support document.



Graham Davidson P.Geol.

APPENDIX A: Detailed Descriptions of Geosites

Sample No.	Easting	Northing	NAD83 Zone	Date	Lithology	Colour	Alteration	Mineral	Description
	583494	6818327	7	7-12-2017	mafic volcanic	gn	sheared	chlorite	Outcrop, massive mafic volcanic, non mag, lim stn
	583433	6818185	7	7-12-2017	mafic volcanic	gn blk	sheared	chlorite	Outcrop, mafic volcanic, chloritic schist ip, non mag, lim stn
	583151	6816936	7	7-12-2017	mafic volcanic	gn blk	sheared	qtz-carb vns	Outcrop, qtz-carb vns in schistose tuffaceous volcanic
	583468	6817895	7	7-12-2017	mafic volcanic	gn	chlotite, sericite		Outcrop, mafic volcanic, granular, tuffaceous
1889401	583481	6818280	7	7-12-2017	quartz pophyry	lt gy wh	qtz-carb vns		Outcrop, quartz porphyry dyke, mnr qtz-carb vns, rusty weathering,
	583567	6818446	7	7-12-2017	argillite	tan	siliceous	graphite	Outcrop, graphitic gouge seam in silicified argillite, redish orange weathering
1889405	582782	6818175	7	7-13-2017	qtz sericite schist		sheared	qtz-sericite	Sub crop, sericite schist w qtz-carb vns, rusty weathering
	582584	6818288	7	7-13-2017	felsic porphyry	lt gy tan			Outcrop, feldspar porphyry, tan to grainy weathering
1889409	581587	6818282	7	7-13-2017	mafic volcanic	gn	sheared	qtz vnlets	Outcrop, mafic volcanic, chlorite schist, mnr qtz vns
	582099	6818109	7	7-13-2017	mafic volcanic	gn	sheared	chlorite sericite	Outcrop, chlorite schist, mnr qtz-carb vns
	583499	6818430	7	7-14-2017	mafic volcanic	gn	sheared, qtz-carb		Outcrop, massive green volcanic rx, chloritic, qtz-carb vns, minor limonite stain
	583595	6818380	7	7-14-2017	mafic volcanic	gn	sheared	chlorite sericite	Outcrop, mafic volcanic - greenschist, brn weathering
	583613	6818363	7	7-14-2017	mafic volcanic	gn	sheared	chlorite sericite	Outcrop, mottled grey green meta volcanic, non mag
1889411	583596	6818295	7	7-14-2017	volcanic breccia	gy-gn	sheared	qtz-carb vns	Outcrop, dioritic inclusions, weakly mag, qtz-carb vns, rusty brn weathering
	585573	6818257	7	7-14-2017	mafic volcanic	gn	sheared	argillic	Outcrop, chloite sericite schist ip, argillaceous laminations, non mag, brn weathering
	583589	6818237	7	7-14-2017	Dyke	lt gy	argillic	kaolinite	Outcrop, feldspar porphyry, plag phenocrysts, qtz mtx, non mag
	583623	6817683	7	7-14-2017	mafic volcanic	blk gn	sheared	argillic	Outcrop, folded meta volcanic, argillaceous, quartz boudins, non mag.
	583391	6817139	7	7-14-2017	volcanic	blk	schistose	qtz bdns	Sub crop, chlorite sericite schist w qtz-carb vns, rusty weathering

APPENDIX B: Statement of Costs

DATE: January 19, 2018

LONGFORD EXPLORATION

SEND TO:
Group Ten Metals
#814 - 675 West Hastings Street
Vancouver, BC
V6B 1N2
604 357-4790

Longford Exploration Services
14501 Kidston Road
Coldstream, BC
Canada V1B1R7
778-809-7009

Catalyst North 2017 Cost Summary

			Days	Rate	Line Total
Personnel					
	Pgeo Graham Davidson	July 11-15	5	$ 550.00	$ 2,750.00
	Geologist-Versloot	July 11-15	5	$ 500.00	$ 2,500.00
	Project Manager - Rogers	July 8-12	5	$ 800.00	$ 4,000.00
	Soil Sampler/assistant- Mckenzie	July 9-15	7	$ 300.00	$ 2,100.00
	Soil Sampler/assistant - Martinolich	July 9-15	7	$ 300.00	$ 2,100.00
			29	**Cat. Total**	**$ 13,450.00**
Food and Lodging			Units	Rate	Line Total
	Food and Groceries		1	$ 702.52	$ 702.52
				Cat. Total	**$ 702.52**
Transportation			Units/Days	Unit Price	Line Total
	Truck	1 ton with safety and recovery gear	11	$ 140.00	$ 1,540.00
	Trailer	18' 7000lb covered trailer	7	$ 50.00	$ 350.00
	Fuel	per km for truck	1500	$ 0.55	$ 825.00
				Cat. Total	**$ 2,715.00**
Equipment Rentals			Units	Unit Price	Line Total
	Electronics Kit	Radios, Sat phones, GPS, per man day	31	$ 20.00	$ 620.00
	portable XRF with Stand	Per Day	7	$ 177.42	$ 1,241.94
	Fly Camp	4 person setup, per man day	26	$ 40.00	$ 1,040.00
				Cat. Total	**$ 2,901.94**
Consumable			Units	Unit Price	Line Total
	Sample Bags				$ 100.00
	Flagging Tape				$ 50.00
	office consumables				$ 50.00
				Cat. Total	**$ 200.00**
Analytical			Units	Unit Price	Line Total
	Analysis-Sediment	SS80, AQ300 FA330	7	$ 30.25	$ 211.75
	Analysis-soil	SS80, AQ300 FA330	151	$ 30.25	$ 4,567.75
	Analysis-rock	prp70-250, FA330, AQ300	3	$ 34.25	$ 102.75
				Cat. Total	**$ 4,882.25**
Post Field			Units	Unit Price	Line Total
	Assessment Report prep and work filing		1	$ 2,500.00	$ 2,500.00
				Cat. Total	**$ 2,500.00**

Estimated Sub Total	$	27,351.71
Management 15%	$	4,102.76
SUB TOTAL	$	31,454.47
GST 5%	$	1,572.72
Total	$	33,027.19

APPENDIX C: 2017 Assay Certificates

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: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Submitted By: James Rogers
Receiving Lab: Canada-Whitehorse
Received: July 21, 2017
Report Date: August 30, 2017
Page: 1 of 2

CERTIFICATE OF ANALYSIS WHI17000323.1

CLIENT JOB INFORMATION

Project: Catalyst
Shipment ID:
P.O. Number
Number of Samples: 7

SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps
PICKUP-RJT Client to Pickup Rejects

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	7	Dry at 60C			WHI
SS80	7	Dry at 60C sieve 100g to -80 mesh			WHI
SVRJT	7	Save all or part of Soil Reject			WHI
FA330	3	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	7	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	7	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	7	Per sample shipping charges for branch shipments			VAN

ADDITIONAL COMMENTS

Invoice To: Longford Exploration Services Ltd.
6970 Napier Street
Burnaby British Columbia V5B 2C4
Canada

CC:

BRITISH COLUMBIA CERTIFIED ASSAYER
Marcus Lau
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

www.bureauveritas.com/um

Bureau Veritas Commodities Canada Ltd.

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000323.1

	Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1889402	Stream	564	5	5	<1	32	<3	47	<0.3	39	16	425	4.34	24	<2	43	<0.5	<3	<3	149	1.68
1889403	Stream	6	<3	7	<1	31	<3	65	<0.3	32	17	418	4.69	3	<2	16	<0.5	<3	<3	154	0.60
1889404	Stream	I.S.	I.S.	I.S.	<1	61	<3	60	0.5	42	23	522	4.52	4	<2	18	<0.5	<3	<3	152	0.80
1889406	Stream	I.S.	I.S.	I.S.	<1	52	6	96	0.4	40	25	563	4.88	25	<2	32	<0.5	<3	<3	112	1.00
1889407	Stream	I.S.	I.S.	I.S.	<1	50	7	73	<0.3	40	21	614	4.19	10	<2	27	<0.5	<3	<3	104	1.01
1889408	Stream	I.S.	I.S.	I.S.	<1	100	<3	81	<0.3	67	28	608	5.67	10	<2	27	<0.5	<3	<3	169	1.20
1889412	Stream	2572	4	10	<1	42	<3	66	0.3	49	28	432	6.25	13	<2	24	<0.5	<3	<3	187	0.96

BUREAU VERITAS MINERAL LABORATORIES Canada

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Bureau Veritas Commodities Canada Ltd.

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000323.1

	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889402	Stream	0.068	6	72	1.18	46	0.176	<20	1.23	0.01	0.05	<2	0.10	<1	<5	<5	<5
1889403	Stream	0.060	4	50	1.15	32	0.278	<20	1.28	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
1889404	Stream	0.049	2	62	1.73	25	0.367	<20	1.80	<0.01	0.06	<2	<0.05	<1	<5	<5	6
1889406	Stream	0.065	3	57	1.65	155	0.158	<20	1.63	<0.01	0.05	<2	0.52	<1	<5	<5	<5
1889407	Stream	0.057	4	69	1.74	105	0.171	<20	1.86	<0.01	0.06	<2	0.13	<1	<5	<5	<5
1889408	Stream	0.064	4	111	2.13	121	0.321	<20	2.14	<0.01	0.04	<2	0.10	<1	<5	<5	6
1889412	Stream	0.072	6	75	1.22	48	0.252	<20	1.26	<0.01	0.04	<2	0.77	<1	<5	<5	<5

BUREAU VERITAS MINERAL LABORATORIES Canada

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Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

PHONE (604) 253-3158

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000323.1

		Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
Reference Materials																						
STD CDN-PGMS-19	Standard		272	101	482																	
STD CDN-PGMS-23	Standard		516	457	2170																	
STD DS10	Standard					13	144	139	340	2.0	70	12	845	2.64	44	7	60	2.3	7	12	41	1.01
STD OREAS45EA	Standard					2	681	10	27	0.6	364	50	395	21.41	12	11	3	1.0	<3	<3	301	0.03
STD CDN-PGMS-19 Expected			230	108	476																	
STD CDN-PGMS-23 Expected			496	456	2032																	
STD DS10 Expected						13.6	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	46.2	7.5	67.1	2.62	9	11.65	43	1.0625
STD OREAS45EA Expected						1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303	0.036
BLK	Blank		<2	<3	<2																	
BLK	Blank		<2	<3	<2																	
BLK	Blank					<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01

BUREAU VERITAS MINERAL LABORATORIES Canada

www.bureauveritas.com/um

Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

PHONE (604) 253-3158

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst

Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000323.1

		Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
Reference Materials																		
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-23	Standard																	
STD DS10	Standard	0.070	16	54	0.77	409	0.075	<20	1.00	0.07	0.31	3	0.27	<1	<5	<5	<5	
STD OREAS45EA	Standard	0.029	7	904	0.09	144	0.099	<20	3.25	0.02	0.05	<2	<0.05	<1	<5	<5	83	
STD CDN-PGMS-19 Expected																		
STD CDN-PGMS-23 Expected																		
STD DS10 Expected		0.0765	17.5	54.6	0.775	412	0.0817	7.13	1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8	
STD OREAS45EA Expected		0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78	
BLK	Blank																	
BLK	Blank																	
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5	

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: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Submitted By: James Rogers
Receiving Lab: Canada-Whitehorse
Received: July 21, 2017
Report Date: August 30, 2017
Page: 1 of 2

CERTIFICATE OF ANALYSIS WHI17000325.1

CLIENT JOB INFORMATION

Project: Catalyst
Shipment ID:
P.O. Number
Number of Samples: 4

SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps
PICKUP-RJT Client to Pickup Rejects

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	4	Crush, split and pulverize 250 g rock to 200 mesh			WHI
FA330	4	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	4	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	4	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	4	Per sample shipping charges for branch shipments			VAN

ADDITIONAL COMMENTS

Invoice To: Longford Exploration Services Ltd.
6970 Napier Street
Burnaby British Columbia V5B 2C4
Canada

CC:

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

www.bureauveritas.com/um

Bureau Veritas Commodities Canada Ltd.

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000325.1

	Method	WGHT	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Wgt	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1
1889401	Rock	1.22	3	3	<2	<1	9	<3	67	<0.3	7	7	389	2.12	7	<2	153	<0.5	<3	<3	11
1889405	Rock	0.95	59	<3	3	<1	7	<3	16	<0.3	2	4	769	1.28	6	<2	150	<0.5	<3	<3	4
1889409	Rock	0.64	20	<3	20	<1	>10000	4	64	3.0	56	31	1113	5.15	<2	<2	20	0.6	<3	<3	125
1889411	Rock	1.56	6	5	7	<1	99	4	30	<0.3	88	20	549	2.78	3	<2	86	<0.5	<3	<3	66

BUREAU VERITAS MINERAL LABORATORIES Canada

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Bureau Veritas Commodities Canada Ltd.

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000325.1

		Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		MDL	0.01	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889401	Rock		2.29	0.098	6	7	0.92	81	<0.001	<20	0.74	0.07	0.10	<2	<0.05	<1	<5	<5	<5
1889405	Rock		2.18	0.029	<1	2	0.33	23	<0.001	<20	0.23	<0.01	0.04	<2	<0.05	<1	<5	<5	<5
1889409	Rock		3.86	0.057	1	98	2.46	14	0.440	<20	2.47	0.02	0.07	2	0.79	<1	<5	<5	<5
1889411	Rock		2.10	0.071	3	289	2.20	48	0.085	<20	1.85	0.09	0.10	<2	0.10	<1	<5	<5	<5

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000325.1

	Method	WGHT	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Wgt	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1
Reference Materials																					
STD CDN-PGMS-19	Standard		199	107	478																
STD CDN-PGMS-23	Standard		543	484	2140																
STD DS10	Standard					13	144	143	360	1.9	72	12	895	2.73	45	6	63	2.3	9	10	42
STD DS11	Standard					13	143	128	340	1.6	77	13	1040	3.06	40	6	64	2.2	7	9	48
STD OREAS45EA	Standard					1	726	13	30	0.4	384	52	426	22.39	5	15	4	<0.5	7	<3	314
STD DS10 Expected						13.6	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	46.2	7.5	67.1	2.62	9	11.65	43
STD OREAS45EA Expected						1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303
STD DS11 Expected						13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50
STD CDN-PGMS-19 Expected			230	108	476																
STD CDN-PGMS-23 Expected			496	456	2032																
BLK	Blank					<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1
BLK	Blank		3	4	2																
BLK	Blank		3	<3	3																
Prep Wash																					
ROCK-WHI	Prep Blank		4	<3	6	<1	54	<3	36	<0.3	2	4	551	1.76	17	<2	19	<0.5	<3	<3	24

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000325.1

	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.01	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
Reference Materials																		
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-23	Standard																	
STD DS10	Standard	1.03	0.073	16	53	0.75	428	0.073	<20	0.99	0.06	0.32	3	0.28	<1	<5	<5	<5
STD DS11	Standard	1.02	0.069	17	54	0.81	424	0.089	<20	1.11	0.07	0.39	3	0.28	<1	<5	<5	<5
STD OREAS45EA	Standard	0.03	0.031	9	871	0.10	147	0.098	<20	3.30	0.03	0.06	<2	<0.05	<1	<5	9	88
STD DS10 Expected		1.0625	0.0765	17.5	54.6	0.775	412	0.0817	7.13	1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8
STD OREAS45EA Expected		0.036	0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78
STD DS11 Expected		1.063	0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1
STD CDN-PGMS-19 Expected																		
STD CDN-PGMS-23 Expected																		
BLK	Blank	<0.01	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank																	
BLK	Blank																	
Prep Wash																		
ROCK-WHI	Prep Blank	0.55	0.039	5	4	0.49	52	0.070	<20	0.82	0.05	0.08	<2	<0.05	<1	<5	<5	<5

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Submitted By: James Rogers
Receiving Lab: Canada-Whitehorse
Received: July 21, 2017
Report Date: September 14, 2017
Page: 1 of 2

CERTIFICATE OF ANALYSIS WHI17000325.2

CLIENT JOB INFORMATION

Project: Catalyst
Shipment ID:
P.O. Number
Number of Samples: 4

SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps
PICKUP-RJT Client to Pickup Rejects

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	4	Crush, split and pulverize 250 g rock to 200 mesh			WHI
FA330	4	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	4	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	4	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	4	Per sample shipping charges for branch shipments			VAN
MA370	1	4-Acid Digestion ICP-ES Finish	0.5	Completed	VAN

ADDITIONAL COMMENTS

Version 2 : MA370-Cu included.

Invoice To: Longford Exploration Services Ltd.
6970 Napier Street
Burnaby British Columbia V5B 2C4
Canada

CC:

BRITISH COLUMBIA CERTIFIED ASSAYER
MARCUS LAU
Production Manager

BUREAU VERITAS MINERAL LABORATORIES Canada

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Bureau Veritas Commodities Canada Ltd.

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: September 14, 2017

CERTIFICATE OF ANALYSIS WHI17000325.2

	Method	WGHT	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Wgt	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1
1889401	Rock	1.22	3	3	<2	<1	9	<3	67	<0.3	7	7	389	2.12	7	<2	153	<0.5	<3	<3	11
1889405	Rock	0.95	59	<3	3	<1	7	<3	16	<0.3	2	4	769	1.28	6	<2	150	<0.5	<3	<3	4
1889409	Rock	0.64	20	<3	20	<1	>10000	4	64	3.0	56	31	1113	5.15	<2	<2	20	0.6	<3	<3	125
1889411	Rock	1.56	6	5	7	<1	99	4	30	<0.3	88	20	549	2.78	3	<2	86	<0.5	<3	<3	66

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: September 14, 2017

CERTIFICATE OF ANALYSIS WHI17000325.2

		Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	MA370
		Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	Cu
		Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%
		MDL	0.01	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	0.001
1889401	Rock		2.29	0.098	6	7	0.92	81	<0.001	<20	0.74	0.07	0.10	<2	<0.05	<1	<5	<5	<5	
1889405	Rock		2.18	0.029	<1	2	0.33	23	<0.001	<20	0.23	<0.01	0.04	<2	<0.05	<1	<5	<5	<5	
1889409	Rock		3.86	0.057	1	98	2.46	14	0.440	<20	2.47	0.02	0.07	2	0.79	<1	<5	<5	<5	1.833
1889411	Rock		2.10	0.071	3	289	2.20	48	0.085	<20	1.85	0.09	0.10	<2	0.10	<1	<5	<5	<5	

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: September 14, 2017

QUALITY CONTROL REPORT WHI17000325.2

	Method	WGHT	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Wgt	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V
	Unit	kg	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1
Reference Materials																					
STD CDN-ME-14	Standard																				
STD CDN-ME-9	Standard																				
STD CDN-PGMS-19	Standard		199	107	478																
STD CDN-PGMS-23	Standard		543	484	2140																
STD DS10	Standard					13	144	143	360	1.9	72	12	895	2.73	45	6	63	2.3	9	10	42
STD DS11	Standard					13	143	128	340	1.6	77	13	1040	3.06	40	6	64	2.2	7	9	48
STD OREAS45EA	Standard					1	726	13	30	0.4	384	52	426	22.39	5	15	4	<0.5	7	<3	314
STD DS10 Expected						13.6	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	46.2	7.5	67.1	2.62	9	11.65	43
STD OREAS45EA Expected						1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303
STD DS11 Expected						13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50
STD CDN-PGMS-19 Expected			230	108	476																
STD CDN-PGMS-23 Expected			496	456	2032																
STD CDN-ME-14 Expected																					
STD CDN-ME-9 Expected																					
BLK	Blank					<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1
BLK	Blank		3	4	2																
BLK	Blank		3	<3	3																
BLK	Blank																				
Prep Wash																					
ROCK-WHI	Prep Blank		4	<3	6	<1	54	<3	36	<0.3	2	4	551	1.76	17	<2	19	<0.5	<3	<3	24

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: September 14, 2017

QUALITY CONTROL REPORT WHI17000325.2

	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	MA370
	Analyte	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc	Cu
	Unit	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%
	MDL	0.01	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5	0.001
Reference Materials																			
STD CDN-ME-14	Standard																		1.267
STD CDN-ME-9	Standard																		0.677
STD CDN-PGMS-19	Standard																		
STD CDN-PGMS-23	Standard																		
STD DS10	Standard	1.03	0.073	16	53	0.75	428	0.073	<20	0.99	0.06	0.32	3	0.28	<1	<5	<5	<5	
STD DS11	Standard	1.02	0.069	17	54	0.81	424	0.089	<20	1.11	0.07	0.39	3	0.28	<1	<5	<5	<5	
STD OREAS45EA	Standard	0.03	0.031	9	871	0.10	147	0.098	<20	3.30	0.03	0.06	<2	<0.05	<1	<5	9	88	
STD DS10 Expected		1.0625	0.0765	17.5	54.6	0.775	412	0.0817	7.13	1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8	
STD OREAS45EA Expected		0.036	0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78	
STD DS11 Expected		1.063	0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1	
STD CDN-PGMS-19 Expected																			
STD CDN-PGMS-23 Expected																			
STD CDN-ME-14 Expected																			1.221
STD CDN-ME-9 Expected																			0.654
BLK	Blank	<0.01	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5	
BLK	Blank																		
BLK	Blank																		
BLK	Blank																		<0.001
Prep Wash																			
ROCK-WHI	Prep Blank	0.55	0.039	5	4	0.49	52	0.070	<20	0.82	0.05	0.08	<2	<0.05	<1	<5	<5	<5	

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Submitted By: James Rogers
Receiving Lab: Canada-Whitehorse
Received: July 24, 2017
Report Date: August 30, 2017
Page: 1 of 6

CERTIFICATE OF ANALYSIS WHI17000342.1

CLIENT JOB INFORMATION

Project: Catalyst
Shipment ID:
P.O. Number
Number of Samples: 145

SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps
PICKUP-RJT Client to Pickup Rejects

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	144	Dry at 60C			WHI
SS80	144	Dry at 60C sieve 100g to -80 mesh			WHI
SVRJT	144	Save all or part of Soil Reject			WHI
FA330	139	Fire assay fusion Au Pt Pd by ICP-ES	30	Completed	VAN
EN002	144	Environmental disposal charge-Fire assay lead waste			VAN
AQ300	143	1:1:1 Aqua Regia digestion ICP-ES analysis	0.5	Completed	VAN
SHP01	144	Per sample shipping charges for branch shipments			VAN

ADDITIONAL COMMENTS

Invoice To: Longford Exploration Services Ltd.
6970 Napier Street
Burnaby British Columbia V5B 2C4
Canada

CC:

JEFFREY CANNON
Geochemistry Department Supervisor

BUREAU VERITAS MINERAL LABORATORIES Canada

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Bureau Veritas Commodities Canada Ltd.

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

	Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1889451	Soil	8	<3	3	<1	64	7	99	<0.3	49	16	722	2.64	9	<2	38	<0.5	<3	<3	53	0.97
1889452	Soil	7	<3	3	<1	58	4	55	<0.3	27	11	378	1.80	5	<2	52	<0.5	<3	<3	39	1.75
1889453	Soil	9	<3	<2	<1	35	4	39	<0.3	14	5	204	1.39	4	<2	47	<0.5	<3	<3	32	1.55
1889454	Soil	4	<3	<2	<1	20	<3	21	<0.3	7	3	116	0.72	3	<2	23	<0.5	<3	<3	16	0.51
1889455	Soil	29	4	4	<1	60	7	61	<0.3	49	19	754	2.96	10	<2	42	<0.5	<3	<3	58	1.29
1889456	Soil	15	4	5	<1	60	7	68	<0.3	60	20	693	3.34	11	<2	36	<0.5	<3	<3	71	1.01
1889457	Soil	18	4	9	<1	111	8	74	<0.3	65	24	678	3.87	13	3	53	<0.5	<3	<3	90	1.91
1889458	Soil	8	3	2	1	47	7	74	<0.3	49	18	575	3.31	10	<2	32	<0.5	<3	<3	72	0.71
1889459	Soil	9	<3	2	<1	47	7	74	<0.3	47	17	522	2.83	8	<2	43	<0.5	<3	<3	61	1.11
1889460	Soil	8	<3	5	<1	55	7	79	<0.3	45	17	555	2.85	9	<2	47	<0.5	<3	<3	62	1.20
1889461	Soil	5	<3	5	<1	75	7	71	<0.3	52	16	542	2.80	9	<2	61	<0.5	<3	<3	58	2.16
1889462	Soil	5	<3	2	1	34	6	62	<0.3	32	13	386	2.67	10	<2	30	<0.5	<3	<3	60	0.55
1889463	Soil	9	<3	2	1	45	7	62	<0.3	47	18	684	3.01	9	<2	25	<0.5	<3	<3	65	0.54
1889464	Soil	8	<3	8	<1	176	7	98	<0.3	65	16	707	2.76	11	<2	48	<0.5	<3	<3	55	1.60
1889465	Soil	13	<3	5	<1	75	10	79	<0.3	56	21	759	3.37	9	<2	48	<0.5	<3	<3	72	1.31
1889466	Soil	6	<3	5	1	46	6	61	<0.3	26	11	540	2.32	11	<2	47	<0.5	<3	<3	47	1.55
1889467	Soil	7	<3	3	1	30	6	72	<0.3	25	11	325	2.01	6	<2	49	<0.5	<3	<3	39	1.24
1889468	Soil	7	<3	3	<1	40	8	66	<0.3	32	14	452	2.47	8	<2	57	<0.5	<3	<3	52	1.78
1889469	Soil	9	<3	6	<1	122	8	71	<0.3	50	16	862	2.43	9	<2	54	<0.5	<3	<3	49	1.97
1889470	Soil	8	<3	2	<1	51	5	35	<0.3	25	10	376	1.53	7	<2	35	<0.5	<3	<3	30	1.00
1889471	Soil	6	<3	3	<1	54	6	63	<0.3	56	18	501	3.39	10	<2	37	<0.5	<3	<3	73	0.82
1889472	Soil	7	<3	3	<1	69	7	67	<0.3	68	20	612	3.58	10	<2	43	<0.5	<3	<3	78	1.56
1889473	Soil	9	3	4	<1	86	10	77	<0.3	73	22	672	3.83	12	<2	37	<0.5	<3	<3	79	1.16
1889474	Soil	6	4	4	<1	65	7	68	<0.3	78	23	623	3.85	11	<2	37	<0.5	<3	<3	83	1.32
1889475	Soil	8	4	5	<1	68	6	67	<0.3	75	21	655	3.69	9	2	59	<0.5	<3	<3	83	2.54
1889476	Soil	70	<3	6	1	98	16	75	<0.3	59	21	763	3.58	22	<2	37	<0.5	<3	<3	57	1.02
1889477	Soil	6	3	4	<1	49	6	69	<0.3	58	19	674	3.51	8	<2	40	<0.5	<3	<3	82	0.97
1889478	Soil	6	<3	2	2	28	10	80	<0.3	31	13	273	3.35	18	<2	32	<0.5	<3	<3	79	0.53
1889479	Soil	5	<3	2	1	37	6	65	<0.3	35	15	443	2.98	10	<2	36	<0.5	<3	<3	65	0.76
1889480	Soil	5	<3	3	2	45	8	72	<0.3	44	18	481	3.50	12	<2	37	<0.5	<3	<3	73	0.76

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Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

		Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889451	Soil		0.065	9	51	0.95	127	0.056	<20	1.51	0.02	0.06	<2	0.06	<1	<5	6	<5
1889452	Soil		0.049	6	32	0.65	93	0.054	<20	0.86	0.03	0.06	<2	0.06	<1	<5	<5	<5
1889453	Soil		0.048	5	15	0.23	90	0.038	<20	0.52	0.02	0.04	<2	0.08	<1	<5	<5	<5
1889454	Soil		0.026	3	10	0.12	60	0.022	<20	0.34	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889455	Soil		0.065	7	55	1.20	112	0.068	<20	1.51	0.02	0.07	<2	<0.05	<1	<5	<5	5
1889456	Soil		0.068	8	66	1.42	96	0.097	<20	1.71	0.02	0.07	<2	<0.05	<1	<5	6	6
1889457	Soil		0.071	9	72	1.78	124	0.087	<20	2.11	0.02	0.10	<2	<0.05	<1	<5	7	8
1889458	Soil		0.057	9	63	1.16	136	0.074	<20	1.79	0.01	0.06	<2	<0.05	<1	<5	5	5
1889459	Soil		0.063	8	55	1.06	138	0.063	<20	1.60	0.02	0.07	<2	<0.05	<1	<5	6	<5
1889460	Soil		0.065	8	50	0.96	142	0.064	<20	1.49	0.02	0.07	<2	<0.05	<1	<5	<5	<5
1889461	Soil		0.077	9	52	1.09	123	0.083	<20	1.50	0.03	0.10	<2	<0.05	<1	<5	<5	<5
1889462	Soil		0.057	7	43	0.77	110	0.064	<20	1.40	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889463	Soil		0.052	7	54	0.99	99	0.079	<20	1.66	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889464	Soil		0.065	11	56	0.98	156	0.055	<20	1.63	0.02	0.06	<2	0.07	<1	<5	<5	8
1889465	Soil		0.069	9	69	1.30	149	0.077	<20	1.86	0.02	0.08	<2	<0.05	<1	<5	6	6
1889466	Soil		0.046	9	30	0.42	145	0.037	<20	1.11	0.02	0.06	<2	0.06	<1	<5	<5	<5
1889467	Soil		0.065	7	27	0.50	119	0.039	<20	0.99	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889468	Soil		0.050	7	37	0.72	133	0.059	<20	1.18	0.02	0.06	<2	0.07	<1	<5	<5	<5
1889469	Soil		0.065	9	44	0.86	141	0.056	<20	1.24	0.03	0.06	<2	0.06	<1	<5	<5	<5
1889470	Soil		0.036	6	24	0.45	77	0.035	<20	0.82	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889471	Soil		0.068	11	66	1.29	126	0.095	<20	1.80	0.02	0.07	<2	<0.05	<1	<5	<5	6
1889472	Soil		0.068	10	70	1.48	125	0.112	<20	1.88	0.02	0.07	<2	<0.05	<1	<5	5	6
1889473	Soil		0.078	11	75	1.51	147	0.087	<20	2.05	0.02	0.08	<2	<0.05	<1	<5	9	7
1889474	Soil		0.072	9	78	1.81	106	0.120	<20	1.97	0.02	0.07	<2	<0.05	<1	<5	5	7
1889475	Soil		0.075	8	75	1.83	112	0.136	<20	1.94	0.02	0.08	<2	<0.05	<1	<5	5	7
1889476	Soil		0.054	10	52	1.03	116	0.064	<20	1.58	0.02	0.06	<2	0.06	<1	<5	<5	6
1889477	Soil		0.085	10	69	1.45	135	0.115	<20	1.85	0.02	0.05	<2	<0.05	<1	<5	<5	7
1889478	Soil		0.057	9	46	0.84	125	0.063	<20	1.79	0.01	0.05	<2	<0.05	<1	<5	8	<5
1889479	Soil		0.068	10	42	0.82	144	0.072	<20	1.55	0.02	0.05	<2	<0.05	<1	<5	5	<5
1889480	Soil		0.066	12	54	0.98	159	0.078	<20	1.81	0.02	0.06	<2	<0.05	<1	<5	6	5

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Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

	Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1889481	Soil	5	<3	2	1	48	6	57	<0.3	28	13	795	2.48	12	<2	49	<0.5	<3	<3	43	1.17
1889482	Soil	6	<3	2	1	49	10	75	<0.3	49	18	464	3.48	13	<2	34	<0.5	<3	<3	72	0.65
1889483	Soil	7	<3	<2	1	57	5	42	<0.3	21	10	675	1.46	6	<2	66	<0.5	<3	<3	27	1.85
1889484	Soil	11	<3	4	2	65	10	63	<0.3	37	16	488	3.09	12	<2	43	<0.5	<3	<3	66	0.89
1889485	Soil	6	3	3	2	31	9	85	<0.3	35	12	221	3.29	15	<2	25	<0.5	<3	<3	80	0.48
1889486	Soil	6	8	4	1	37	4	66	<0.3	45	18	639	3.06	9	<2	28	<0.5	<3	<3	69	0.61
1889487	Soil	6	7	4	6	70	5	78	<0.3	48	193	>10000	4.04	11	12	25	1.4	<3	<3	36	0.42
1889488	Soil	11	6	8	<1	103	7	77	<0.3	30	6	978	1.52	5	<2	42	<0.5	<3	<3	29	1.17
1889489	Soil	6	4	3	1	44	7	46	<0.3	25	13	429	2.55	12	<2	30	<0.5	<3	<3	47	0.51
1889490	Soil	7	6	<2	<1	16	3	25	<0.3	10	6	208	1.52	8	<2	17	<0.5	<3	<3	29	0.27
1889491	Soil	5	<3	<2	<1	48	4	28	<0.3	17	10	556	1.67	7	<2	30	<0.5	<3	<3	29	0.50
1889492	Soil	6	4	4	<1	61	8	83	<0.3	37	11	210	2.63	9	<2	34	<0.5	<3	<3	62	0.57
1889493	Soil	15	7	12	<1	179	4	46	0.4	44	15	2576	2.47	14	<2	56	0.7	<3	<3	39	1.50
1889494	Soil	5	3	<2	1	43	3	41	<0.3	16	7	403	1.45	7	<2	34	<0.5	<3	<3	27	0.67
1889495	Soil	6	4	3	1	35	8	63	<0.3	37	16	314	2.90	11	<2	37	<0.5	<3	<3	61	0.71
1889496	Soil	7	<3	3	2	45	3	61	<0.3	25	28	2085	2.97	10	<2	42	<0.5	<3	<3	42	0.91
1889497	Soil	5	4	3	2	29	5	36	<0.3	17	20	761	2.12	11	<2	28	<0.5	<3	<3	47	0.51
1889498	Soil	5	6	3	2	52	6	47	<0.3	24	20	845	2.39	10	<2	46	<0.5	<3	<3	48	1.02
1889499	Soil	6	5	6	1	52	7	69	<0.3	49	16	397	3.02	8	<2	25	<0.5	<3	<3	69	0.52
1889500	Soil	9	12	9	9	79	9	90	<0.3	49	80	>10000	4.12	17	8	43	1.4	<3	<3	67	0.98
1889501	Soil	4	<3	3	2	33	5	67	<0.3	45	17	300	3.70	12	<2	31	<0.5	<3	<3	79	0.66
1889502	Soil	6	4	3	1	30	4	62	<0.3	20	14	958	2.63	8	<2	32	<0.5	<3	<3	65	0.61
1889503	Soil	8	4	8	<1	35	<3	28	<0.3	14	6	208	1.29	6	<2	21	<0.5	<3	<3	28	0.43
1889504	Soil	5	4	5	<1	37	4	70	<0.3	34	16	669	2.65	8	<2	32	<0.5	<3	<3	56	0.63
1889505	Soil	I.S.	I.S.	I.S.	6	217	5	88	<0.3	39	45	8918	3.78	12	3	43	1.8	<3	<3	49	1.04
1889506	Soil	19	3	3	2	27	7	74	<0.3	29	14	516	3.09	14	<2	31	<0.5	<3	<3	69	0.57
1889507	Soil	7	14	3	1	37	4	37	<0.3	18	7	227	1.98	9	<2	28	<0.5	<3	<3	37	0.51
1889508	Soil	6	3	<2	1	18	<3	30	<0.3	9	8	321	1.32	3	<2	21	<0.5	<3	<3	27	0.41
1889509	Soil	4	<3	<2	<1	33	3	48	<0.3	17	8	310	1.70	7	<2	26	<0.5	<3	<3	34	0.44
1889511	Soil	9	3	<2	1	38	5	56	<0.3	30	13	354	2.60	9	<2	29	<0.5	<3	<3	55	0.63

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Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889481	Soil	0.075	10	27	0.42	183	0.032	<20	1.23	0.02	0.04	<2	0.06	<1	<5	<5	<5
1889482	Soil	0.066	13	56	0.97	176	0.070	<20	1.96	0.02	0.05	<2	<0.05	<1	<5	7	5
1889483	Soil	0.060	8	17	0.31	139	0.029	<20	0.79	0.03	0.03	<2	0.10	<1	<5	<5	<5
1889484	Soil	0.058	12	43	0.71	191	0.049	<20	1.59	0.02	0.06	<2	<0.05	<1	<5	7	<5
1889485	Soil	0.063	8	56	1.00	95	0.076	<20	1.85	<0.01	0.05	<2	<0.05	<1	<5	8	<5
1889486	Soil	0.065	7	63	1.13	97	0.089	<20	1.66	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1889487	Soil	0.082	11	24	0.23	661	0.041	<20	1.30	0.02	0.04	<2	0.07	<1	<5	<5	<5
1889488	Soil	0.095	10	34	0.50	137	0.035	<20	1.29	0.03	0.05	<2	0.16	<1	<5	<5	<5
1889489	Soil	0.056	13	33	0.50	125	0.043	<20	1.39	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889490	Soil	0.040	5	15	0.21	61	0.035	<20	0.77	0.03	0.03	<2	<0.05	<1	<5	<5	<5
1889491	Soil	0.047	8	18	0.30	135	0.033	<20	0.93	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889492	Soil	0.053	12	50	0.85	146	0.057	<20	1.93	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889493	Soil	0.082	16	25	0.35	176	0.034	<20	1.15	0.03	0.04	<2	0.12	<1	<5	<5	6
1889494	Soil	0.055	6	16	0.24	111	0.024	<20	0.75	0.03	0.03	<2	0.05	<1	<5	<5	<5
1889495	Soil	0.060	12	47	0.78	158	0.048	<20	1.70	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889496	Soil	0.082	8	23	0.37	146	0.045	<20	0.98	0.03	0.05	<2	0.08	<1	<5	<5	<5
1889497	Soil	0.053	5	24	0.36	89	0.043	<20	0.86	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889498	Soil	0.080	9	30	0.50	133	0.039	<20	1.02	0.02	0.05	<2	0.12	<1	<5	<5	<5
1889499	Soil	0.056	7	75	1.25	89	0.076	<20	2.02	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889500	Soil	0.143	13	38	0.43	510	0.041	<20	1.55	0.03	0.06	<2	0.13	<1	11	5	<5
1889501	Soil	0.055	9	63	1.07	119	0.084	<20	1.97	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1889502	Soil	0.071	7	30	0.46	114	0.067	<20	1.06	0.02	0.05	<2	0.06	<1	<5	<5	<5
1889503	Soil	0.041	5	17	0.25	65	0.034	<20	0.72	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889504	Soil	0.049	7	49	0.90	135	0.068	<20	1.56	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889505	Soil	0.099	13	32	0.53	338	0.033	<20	1.67	0.03	0.05	<2	0.21	<1	<5	<5	<5
1889506	Soil	0.073	8	47	0.76	110	0.057	<20	1.50	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889507	Soil	0.050	9	22	0.32	92	0.037	<20	1.05	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889508	Soil	0.047	4	15	0.19	59	0.038	<20	0.62	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889509	Soil	0.061	6	19	0.30	102	0.038	<20	0.89	0.03	0.05	<2	<0.05	<1	<5	<5	<5
1889511	Soil	0.044	7	35	0.59	114	0.059	<20	1.39	0.02	0.06	<2	<0.05	<1	<5	<5	<5

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	Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1889512	Soil	5	3	3	1	30	5	64	<0.3	37	15	467	3.09	10	<2	39	<0.5	<3	<3	62	0.81
1889513	Soil	6	<3	4	<1	40	<3	63	<0.3	17	9	611	3.14	5	<2	29	<0.5	<3	<3	53	0.69
1889514	Soil	6	<3	3	2	50	8	77	<0.3	51	21	491	3.90	15	4	26	<0.5	<3	<3	80	0.43
1889515	Soil	7	<3	4	1	51	4	41	<0.3	24	6	173	2.28	7	<2	47	<0.5	<3	<3	55	1.00
1889510	Soil	5	<3	<2	1	61	5	98	<0.3	27	15	748	2.75	11	<2	37	<0.5	<3	<3	55	0.66
1889517	Soil	9	4	3	1	46	<3	56	<0.3	23	8	1421	1.64	5	<2	52	<0.5	<3	<3	33	1.32
1889519	Soil	6	4	3	1	32	4	65	<0.3	25	15	912	2.43	6	<2	38	<0.5	<3	<3	54	0.75
1889520	Soil	6	5	3	2	30	5	67	<0.3	22	12	301	3.01	9	<2	32	<0.5	<3	<3	71	0.59
1889521	Soil	7	<3	3	1	32	6	63	<0.3	31	14	368	2.94	13	<2	26	<0.5	<3	<3	63	0.48
1889522	Soil	10	7	7	<1	45	<3	53	<0.3	21	11	447	1.83	5	<2	54	<0.5	<3	<3	38	2.14
1889523	Soil	6	<3	3	2	37	5	47	<0.3	19	21	1541	2.53	6	<2	25	<0.5	<3	<3	42	0.47
1889524	Soil	7	<3	4	1	56	10	144	<0.3	49	25	702	3.55	17	<2	32	<0.5	<3	<3	75	0.58
1889525	Soil	9	3	6	2	62	6	116	<0.3	36	13	1442	2.30	8	<2	60	<0.5	<3	<3	40	1.39
1889526	Soil	5	<3	4	2	40	9	86	<0.3	41	13	288	3.93	13	<2	33	<0.5	<3	<3	75	0.60
1889527	Soil	4	<3	4	2	50	6	85	<0.3	26	19	2402	2.75	13	<2	49	<0.5	<3	<3	54	1.10
1889528	Soil	5	<3	3	1	31	10	84	<0.3	33	10	285	2.62	10	<2	37	<0.5	<3	<3	56	0.72
1889529	Soil	5	<3	2	1	66	5	62	<0.3	32	16	2154	2.44	12	<2	43	<0.5	<3	<3	36	0.86
1889530	Soil	4	<3	<2	1	119	6	95	<0.3	41	14	768	2.44	9	<2	47	<0.5	<3	<3	50	1.02
1889531	Soil	7	<3	9	<1	157	7	76	<0.3	44	12	464	3.62	29	<2	43	<0.5	<3	<3	62	1.17
1889532	Soil	5	<3	7	5	109	5	74	0.3	76	53	7080	7.73	27	<2	57	<0.5	<3	<3	32	1.69
1889533	Soil	5	<3	5	<1	70	6	58	<0.3	33	13	653	3.24	5	<2	37	<0.5	<3	<3	49	0.93
1889534	Soil	4	<3	4	2	69	5	54	<0.3	32	14	1780	2.27	13	<2	59	<0.5	<3	<3	32	1.77
1889535	Soil	5	<3	<2	2	31	10	115	<0.3	29	12	384	2.85	14	<2	32	<0.5	<3	<3	61	0.54
1889351	Soil	9	<3	8	2	32	8	73	<0.3	29	17	721	2.69	11	<2	48	<0.5	<3	<3	60	1.04
1889352	Soil	10	<3	3	<1	37	7	82	<0.3	41	19	825	3.04	7	<2	41	<0.5	<3	<3	65	0.95
1889353	Soil	7	4	5	<1	19	4	54	<0.3	12	7	185	2.14	2	<2	25	<0.5	<3	<3	61	0.51
1889354	Soil	8	<3	<2	<1	15	<3	51	<0.3	13	8	219	2.49	2	<2	29	<0.5	<3	<3	71	0.54
1889355	Soil	6	4	5	1	81	7	79	<0.3	72	20	660	3.76	11	<2	32	<0.5	<3	<3	86	0.75
1889356	Soil	6	<3	<2	1	27	6	45	<0.3	18	8	183	2.27	13	<2	39	<0.5	<3	<3	47	0.73
1889357	Soil	4	<3	2	2	47	9	75	<0.3	37	16	557	3.52	16	<2	32	<0.5	<3	<3	76	0.53

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Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889512	Soil	0.069	9	50	0.91	143	0.061	<20	1.67	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1889513	Soil	0.090	7	18	0.29	95	0.085	<20	0.78	0.02	0.04	<2	0.08	<1	<5	<5	<5
1889514	Soil	0.029	13	61	0.96	133	0.086	<20	2.25	0.02	0.05	<2	<0.05	<1	<5	<5	6
1889515	Soil	0.075	8	26	0.40	135	0.042	<20	0.96	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889510	Soil	0.088	11	34	0.56	186	0.055	<20	1.51	0.03	0.07	<2	<0.05	<1	<5	<5	<5
1889517	Soil	0.072	7	22	0.40	144	0.036	<20	0.96	0.03	0.04	<2	0.08	<1	<5	<5	<5
1889519	Soil	0.075	9	33	0.56	130	0.060	<20	1.27	0.02	0.05	<2	0.07	<1	<5	<5	<5
1889520	Soil	0.076	7	34	0.59	117	0.078	<20	1.15	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1889521	Soil	0.047	9	47	0.88	98	0.078	<20	1.67	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889522	Soil	0.067	9	25	0.41	124	0.043	<20	0.99	0.03	0.05	<2	0.10	<1	<5	<5	<5
1889523	Soil	0.070	8	23	0.35	92	0.045	<20	0.98	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889524	Soil	0.061	9	62	1.08	145	0.076	<20	1.74	0.02	0.06	<2	<0.05	<1	<5	6	<5
1889525	Soil	0.106	11	32	0.63	165	0.034	<20	1.29	0.03	0.06	<2	0.12	<1	<5	<5	<5
1889526	Soil	0.071	10	54	0.95	123	0.076	<20	1.87	0.01	0.06	<2	<0.05	<1	<5	5	<5
1889527	Soil	0.094	8	23	0.42	154	0.059	<20	0.97	0.04	0.05	<2	0.10	<1	<5	<5	<5
1889528	Soil	0.063	8	46	0.81	126	0.055	<20	1.61	0.02	0.06	<2	<0.05	<1	<5	<5	<5
1889529	Soil	0.077	11	23	0.38	188	0.034	<20	1.17	0.03	0.04	<2	0.06	<1	<5	<5	<5
1889530	Soil	0.080	10	28	0.53	171	0.058	<20	1.25	0.03	0.05	<2	0.06	<1	<5	<5	<5
1889531	Soil	0.074	10	39	0.58	159	0.044	<20	1.27	0.02	0.05	<2	0.16	<1	<5	<5	8
1889532	Soil	0.082	9	21	0.31	400	0.029	<20	1.11	0.03	0.04	<2	0.12	<1	9	<5	<5
1889533	Soil	0.077	8	31	0.57	146	0.062	<20	1.08	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889534	Soil	0.066	8	20	0.40	188	0.034	<20	1.04	0.03	0.05	<2	0.09	<1	<5	<5	<5
1889535	Soil	0.060	8	34	0.50	224	0.045	<20	1.56	0.02	0.05	<2	<0.05	<1	<5	5	<5
1889351	Soil	0.078	8	42	0.72	145	0.051	<20	1.34	0.02	0.06	<2	0.08	<1	<5	7	<5
1889352	Soil	0.075	9	55	1.09	124	0.072	<20	1.68	0.02	0.07	<2	<0.05	<1	<5	5	5
1889353	Soil	0.040	5	15	0.23	65	0.073	<20	0.53	0.02	0.03	<2	<0.05	<1	<5	<5	<5
1889354	Soil	0.063	7	16	0.34	75	0.100	<20	0.72	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889355	Soil	0.078	14	64	1.22	163	0.120	<20	1.96	0.02	0.08	<2	<0.05	<1	<5	5	7
1889356	Soil	0.045	9	25	0.40	109	0.041	<20	1.16	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889357	Soil	0.040	12	42	0.63	214	0.058	<20	1.93	0.02	0.04	<2	<0.05	<1	<5	7	<5

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Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

	Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
	Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
	MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1889358	Soil	6	3	4	<1	73	8	84	<0.3	67	20	669	3.36	12	<2	29	<0.5	<3	<3	76	0.75
1889359	Soil	5	<3	3	3	36	10	85	<0.3	38	16	352	4.44	18	<2	37	<0.5	<3	<3	82	0.57
1889360	Soil	4	<3	2	2	48	10	81	<0.3	40	17	624	3.21	16	<2	36	<0.5	<3	<3	71	0.69
1889361	Soil	4	<3	3	1	59	7	61	<0.3	37	13	529	2.71	11	<2	36	<0.5	<3	<3	56	0.68
1889362	Soil	6	<3	<2	1	37	5	44	<0.3	18	10	701	1.83	7	<2	36	<0.5	<3	<3	39	0.64
1889363	Soil	3	<3	<2	2	59	4	43	<0.3	21	17	1244	1.86	8	<2	29	<0.5	<3	<3	37	0.50
1889364	Soil	5	<3	3	<1	34	8	79	<0.3	35	12	370	2.54	8	<2	31	<0.5	<3	<3	69	0.54
1889365	Soil	10	<3	3	3	33	5	49	<0.3	17	30	2779	2.65	16	<2	30	<0.5	<3	<3	41	0.54
1889366	Soil	20	5	5	<1	58	6	81	<0.3	61	21	562	3.64	9	<2	36	<0.5	<3	<3	82	0.87
1889367	Soil	3	<3	2	<1	40	4	50	<0.3	23	8	231	2.07	5	<2	41	<0.5	<3	<3	49	1.00
1889368	Soil	5	<3	4	<1	26	5	85	<0.3	35	15	531	2.83	7	<2	31	<0.5	<3	<3	76	0.74
1889369	Soil	9	<3	5	<1	24	<3	28	<0.3	16	7	236	1.48	5	<2	30	<0.5	<3	<3	35	0.89
1889370	Soil	I.S.	I.S.	I.S.	1	23	5	68	<0.3	15	9	240	2.28	5	<2	41	<0.5	<3	<3	60	1.01
1889371	Soil	9	18	22	<1	51	5	46	<0.3	35	11	337	1.98	6	<2	62	<0.5	<3	<3	39	2.38
1889372	Soil	7	8	11	<1	49	6	51	<0.3	40	13	375	2.18	5	<2	68	<0.5	<3	<3	45	2.29
1889373	Soil	I.S.	I.S.	I.S.	<1	26	<3	51	<0.3	19	8	271	1.76	5	<2	55	<0.5	<3	<3	37	1.89
1889374	Soil	9	<3	6	<1	101	6	73	<0.3	58	21	695	3.34	12	3	41	<0.5	<3	<3	69	1.03
1889375	Soil	9	<3	6	<1	64	4	64	<0.3	60	21	666	3.57	10	3	37	<0.5	<3	<3	77	0.95
1889376	Soil	3	3	7	<1	26	<3	41	<0.3	15	6	154	1.89	3	<2	48	<0.5	<3	<3	47	1.73
1889377	Soil	4	<3	4	<1	51	3	82	<0.3	47	15	547	2.64	7	<2	48	<0.5	<3	<3	54	1.43
1889378	Soil	11	<3	9	<1	83	4	62	<0.3	53	22	554	3.74	9	<2	52	<0.5	<3	<3	83	2.07
1889379	Soil	4	<3	2	<1	44	3	38	<0.3	26	11	421	1.99	8	<2	39	<0.5	<3	<3	35	0.89
1889380	Soil	8	<3	3	<1	43	<3	36	<0.3	23	8	307	1.79	6	<2	47	<0.5	<3	<3	33	1.16
1889381	Soil	4	<3	5	1	34	4	51	<0.3	30	12	318	2.64	9	<2	27	<0.5	<3	<3	55	0.51
1889382	Soil	8	3	9	<1	86	5	71	<0.3	65	20	524	3.54	12	<2	28	<0.5	<3	<3	77	0.84
1889383	Soil	5	4	3	3	28	7	58	<0.3	31	14	304	3.70	16	3	27	<0.5	<3	<3	76	0.38
1889384	Soil	8	<3	3	2	32	5	54	<0.3	34	15	348	3.14	11	<2	29	<0.5	<3	<3	65	0.50
1889385	Soil	I.S.	I.S.	I.S.	<1	59	<3	36	<0.3	16	7	357	1.46	6	<2	32	<0.5	<3	<3	29	1.13
1889386	Soil	7	6	3	<1	40	<3	52	<0.3	15	7	499	1.29	3	<2	24	<0.5	<3	<3	30	0.57
1889387	Soil	7	6	3	2	50	7	66	<0.3	43	18	277	3.95	17	<2	31	<0.5	<3	<3	79	0.61

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	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889358	Soil	0.076	11	64	1.21	117	0.106	<20	1.84	0.02	0.06	<2	<0.05	<1	<5	6	7
1889359	Soil	0.074	11	53	0.92	151	0.064	<20	2.22	0.01	0.05	<2	<0.05	<1	<5	7	<5
1889360	Soil	0.052	11	47	0.75	184	0.058	<20	1.84	0.02	0.05	<2	<0.05	<1	<5	6	<5
1889361	Soil	0.060	11	39	0.70	154	0.055	<20	1.52	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889362	Soil	0.060	8	19	0.32	127	0.038	<20	0.93	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889363	Soil	0.073	7	20	0.32	105	0.040	<20	0.87	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889364	Soil	0.056	11	50	0.90	128	0.073	<20	1.76	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889365	Soil	0.074	8	17	0.26	127	0.041	<20	1.01	0.03	0.03	<2	<0.05	<1	<5	<5	<5
1889366	Soil	0.078	10	75	1.50	105	0.117	<20	1.95	0.02	0.09	<2	<0.05	<1	<5	8	7
1889367	Soil	0.059	8	25	0.43	110	0.059	<20	0.99	0.03	0.05	<2	0.06	<1	<5	<5	<5
1889368	Soil	0.062	7	56	1.04	65	0.107	<20	1.38	0.02	0.06	<2	<0.05	<1	<5	6	<5
1889369	Soil	0.034	4	22	0.38	56	0.044	<20	0.67	0.03	0.03	<2	<0.05	<1	<5	<5	<5
1889370	Soil	0.073	6	21	0.38	88	0.061	<20	0.79	0.02	0.05	<2	0.07	<1	<5	<5	<5
1889371	Soil	0.037	6	35	0.80	91	0.063	<20	1.02	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889372	Soil	0.060	6	40	0.89	110	0.058	<20	1.15	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889373	Soil	0.066	7	24	0.50	105	0.036	<20	0.86	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889374	Soil	0.039	11	59	1.10	152	0.079	<20	1.94	0.02	0.07	<2	<0.05	<1	<5	<5	6
1889375	Soil	0.062	9	69	1.43	114	0.116	<20	1.93	0.02	0.10	<2	<0.05	<1	<5	<5	7
1889376	Soil	0.043	5	18	0.31	100	0.065	<20	0.65	0.02	0.05	<2	0.06	<1	<5	<5	<5
1889377	Soil	0.070	8	53	1.06	114	0.063	<20	1.54	0.02	0.07	<2	0.06	<1	<5	<5	<5
1889378	Soil	0.042	8	75	1.37	176	0.059	<20	1.97	0.02	0.10	<2	0.06	<1	<5	<5	9
1889379	Soil	0.048	10	27	0.44	165	0.035	<20	1.15	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889380	Soil	0.044	8	25	0.40	171	0.039	<20	0.97	0.02	0.04	<2	0.06	<1	<5	<5	<5
1889381	Soil	0.063	8	39	0.70	107	0.063	<20	1.34	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889382	Soil	0.067	9	73	1.45	99	0.102	<20	1.97	0.01	0.05	<2	<0.05	<1	<5	<5	7
1889383	Soil	0.038	10	46	0.66	137	0.061	<20	1.89	<0.01	0.05	<2	<0.05	<1	<5	5	<5
1889384	Soil	0.055	10	43	0.78	136	0.072	<20	1.69	0.01	0.04	<2	<0.05	<1	<5	<5	<5
1889385	Soil	0.053	6	17	0.27	93	0.037	<20	0.69	0.03	0.03	<2	<0.05	<1	<5	<5	<5
1889386	Soil	0.066	5	11	0.18	62	0.038	<20	0.51	0.02	0.03	<2	<0.05	<1	<5	<5	<5
1889387	Soil	0.055	13	57	0.98	154	0.073	<20	2.14	0.01	0.05	<2	<0.05	<1	<5	<5	<5

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Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

		Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
1889388	Soil		3	4	2	2	39	<3	36	<0.3	19	12	559	2.89	24	<2	33	<0.5	<3	<3	51	0.70
1889389	Soil		6	5	15	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.
1889390	Soil		9	10	14	2	23	<3	71	<0.3	17	22	1306	3.95	8	<2	32	<0.5	<3	<3	95	0.66
1889391	Soil		5	8	19	<1	25	<3	37	<0.3	14	7	635	1.90	4	<2	23	<0.5	<3	<3	46	0.40
1889393	Soil		5	6	11	2	47	3	71	<0.3	25	10	820	2.31	7	<2	50	<0.5	<3	<3	49	1.15
1889394	Soil		4	4	2	<1	33	<3	62	<0.3	19	11	758	2.44	6	<2	38	<0.5	<3	<3	61	0.92
1889395	Soil		I.S.	I.S.	I.S.	<1	26	<3	51	<0.3	13	8	583	2.06	2	<2	35	<0.5	<3	<3	55	0.83
1889396	Soil		5	<3	2	1	31	4	48	<0.3	28	12	409	2.43	10	<2	29	<0.5	<3	<3	50	0.56
1889397	Soil		13	<3	5	1	39	5	71	<0.3	53	20	545	3.57	9	<2	35	<0.5	<3	<3	81	0.78
1889398	Soil		5	3	5	3	46	7	71	<0.3	36	24	674	3.78	15	<2	34	<0.5	<3	<3	68	0.60
1889399	Soil		4	<3	3	1	40	<3	27	<0.3	15	11	820	1.56	7	<2	31	<0.5	<3	<3	29	0.70
1889400	Soil		5	<3	3	1	61	3	35	<0.3	19	8	388	1.56	7	<2	29	<0.5	<3	<3	30	0.62
1889651	Soil		6	<3	6	1	62	<3	31	<0.3	21	12	502	2.10	9	<2	48	<0.5	<3	<3	37	1.02
1889652	Soil		4	<3	6	2	20	5	64	<0.3	28	13	392	2.78	9	<2	29	<0.5	<3	<3	66	0.54
1889653	Soil		4	<3	5	2	29	4	35	<0.3	15	11	971	2.18	8	<2	28	<0.5	<3	<3	45	0.51
1889654	Soil		3	4	3	2	41	<3	40	<0.3	18	15	1114	2.11	11	<2	34	<0.5	<3	<3	36	0.73
1889655	Soil		8	<3	4	<1	24	8	64	<0.3	23	7	206	2.02	6	<2	26	<0.5	<3	<3	52	0.42
1889656	Soil		4	<3	3	2	66	3	61	<0.3	34	13	1137	2.39	9	<2	52	<0.5	<3	<3	38	1.30
1889657	Soil		7	<3	2	<1	20	<3	33	<0.3	12	7	396	2.11	15	<2	22	<0.5	<3	<3	30	0.42
1889658	Soil		5	<3	2	1	38	6	66	<0.3	28	12	338	2.70	13	<2	27	<0.5	<3	<3	57	0.52
1889659	Soil		6	<3	3	2	40	9	102	<0.3	46	20	896	3.51	18	<2	33	<0.5	<3	<3	70	0.66
1889660	Soil		10	3	4	2	50	9	99	<0.3	55	22	846	3.62	17	<2	30	<0.5	<3	<3	70	0.58
1889661	Soil		5	3	4	<1	41	7	78	<0.3	44	16	364	2.99	9	<2	28	<0.5	<3	<3	67	0.53
1889662	Soil		L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
1889663	Soil		4	<3	3	1	52	7	115	<0.3	41	16	742	3.03	12	<2	40	<0.5	<3	<3	53	0.83

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Project: Catalyst
Report Date: August 30, 2017

CERTIFICATE OF ANALYSIS WHI17000342.1

	Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
	Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
	Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
	MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
1889388	Soil	0.059	7	20	0.31	112	0.046	<20	0.96	0.02	0.04	<2	0.05	<1	<5	<5	<5
1889389	Soil	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.	I.S.
1889390	Soil	0.096	7	20	0.33	100	0.116	<20	0.73	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889391	Soil	0.065	6	18	0.28	96	0.054	<20	0.75	0.02	0.03	<2	<0.05	<1	<5	<5	<5
1889393	Soil	0.080	8	24	0.43	151	0.050	<20	1.04	0.02	0.05	<2	0.08	<1	<5	<5	<5
1889394	Soil	0.072	7	18	0.33	100	0.071	<20	0.74	0.02	0.03	<2	0.06	<1	<5	<5	<5
1889395	Soil	0.094	6	14	0.30	84	0.073	<20	0.67	0.02	0.03	<2	0.06	<1	<5	<5	<5
1889396	Soil	0.048	9	34	0.57	125	0.053	<20	1.36	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889397	Soil	0.065	9	70	1.36	149	0.109	<20	2.17	0.02	0.06	<2	<0.05	<1	<5	<5	5
1889398	Soil	0.072	14	51	0.81	150	0.064	<20	1.93	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889399	Soil	0.042	5	13	0.22	100	0.033	<20	0.70	0.03	0.03	<2	<0.05	<1	<5	<5	<5
1889400	Soil	0.042	5	16	0.28	95	0.034	<20	0.74	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889651	Soil	0.069	10	22	0.35	160	0.035	<20	0.97	0.03	0.04	<2	0.09	<1	<5	<5	<5
1889652	Soil	0.053	6	41	0.79	102	0.076	<20	1.39	0.02	0.05	<2	<0.05	<1	<5	<5	<5
1889653	Soil	0.067	6	22	0.34	98	0.045	<20	0.94	0.03	0.04	<2	0.06	<1	<5	<5	<5
1889654	Soil	0.064	6	17	0.31	124	0.034	<20	0.80	0.04	0.04	<2	0.07	<1	<5	<5	<5
1889655	Soil	0.045	7	50	0.80	94	0.058	<20	1.58	0.01	0.05	<2	<0.05	<1	<5	<5	<5
1889656	Soil	0.077	10	29	0.51	164	0.032	<20	1.20	0.02	0.05	<2	0.09	<1	<5	<5	<5
1889657	Soil	0.063	5	20	0.32	66	0.035	<20	0.81	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889658	Soil	0.037	8	34	0.54	126	0.050	<20	1.37	0.02	0.04	<2	<0.05	<1	<5	<5	<5
1889659	Soil	0.070	8	56	0.96	130	0.060	<20	1.77	<0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889660	Soil	0.066	8	62	1.01	130	0.057	<20	1.90	0.01	0.06	<2	<0.05	<1	<5	5	<5
1889661	Soil	0.064	10	56	1.05	112	0.080	<20	1.75	0.01	0.06	<2	<0.05	<1	<5	<5	<5
1889662	Soil	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
1889663	Soil	0.045	8	35	0.61	161	0.059	<20	1.37	0.02	0.10	<2	<0.05	<1	<5	<5	<5

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Project: Catalyst
Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000342.1

		Method	FA330	FA330	FA330	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	Au	Pt	Pd	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	Th	Sr	Cd	Sb	Bi	V	Ca
		Unit	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
		MDL	2	3	2	1	1	3	1	0.3	1	1	2	0.01	2	2	1	0.5	3	3	1	0.01
Pulp Duplicates																						
1889459	Soil		9	<3	2	<1	47	7	74	<0.3	47	17	522	2.83	8	<2	43	<0.5	<3	<3	61	1.11
REP 1889459	QC		5	<3	3																	
1889477	Soil		6	3	4	<1	49	6	69	<0.3	58	19	674	3.51	8	<2	40	<0.5	<3	<3	82	0.97
REP 1889477	QC					<1	50	6	70	<0.3	59	20	680	3.53	7	<2	41	<0.5	<3	<3	82	0.99
1889494	Soil		5	3	<2	1	43	3	41	<0.3	16	7	403	1.45	7	<2	34	<0.5	<3	<3	27	0.67
REP 1889494	QC		4	3	<2																	
1889513	Soil		6	<3	4	<1	40	<3	63	<0.3	17	9	611	3.14	5	<2	29	<0.5	<3	<3	53	0.69
REP 1889513	QC					1	39	<3	62	<0.3	17	9	641	3.20	5	<2	29	<0.5	<3	<3	54	0.70
1889526	Soil		5	<3	4	2	40	9	86	<0.3	41	13	288	3.93	13	<2	33	<0.5	<3	<3	75	0.60
REP 1889526	QC		8	<3	4																	
1889364	Soil		5	<3	3	<1	34	8	79	<0.3	35	12	370	2.54	8	<2	31	<0.5	<3	<3	69	0.54
REP 1889364	QC					<1	34	8	80	<0.3	35	12	376	2.58	8	<2	32	<0.5	<3	<3	70	0.55
1889381	Soil		4	<3	5	1	34	4	51	<0.3	30	12	318	2.64	9	<2	27	<0.5	<3	<3	55	0.51
REP 1889381	QC		14	3	10																	
1889400	Soil		5	<3	3	1	61	3	35	<0.3	19	8	388	1.56	7	<2	29	<0.5	<3	<3	30	0.62
REP 1889400	QC					1	60	<3	35	<0.3	18	8	380	1.54	7	<2	29	<0.5	<3	<3	30	0.61
1889658	Soil		5	<3	2	1	38	6	66	<0.3	28	12	338	2.70	13	<2	27	<0.5	<3	<3	57	0.52
REP 1889658	QC		6	<3	3																	
Reference Materials																						
STD CDN-PGMS-19	Standard		232	104	459																	
STD CDN-PGMS-23	Standard		485	467	2116																	
STD CDN-PGMS-19	Standard		242	115	491																	
STD CDN-PGMS-19	Standard		274	110	505																	
STD CDN-PGMS-23	Standard		478	449	2025																	
STD CDN-PGMS-19	Standard		244	135	474																	
STD CDN-PGMS-23	Standard		486	471	2098																	
STD CDN-PGMS-19	Standard		220	99	471																	
STD CDN-PGMS-23	Standard		512	458	2178																	

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Project: Catalyst
Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000342.1

		Method	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300	AQ300
		Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	S	Hg	Tl	Ga	Sc
		Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	%	ppm	ppm	ppm	ppm
		MDL	0.001	1	1	0.01	1	0.001	20	0.01	0.01	0.01	2	0.05	1	5	5	5
Pulp Duplicates																		
1889459	Soil		0.063	8	55	1.06	138	0.063	<20	1.60	0.02	0.07	<2	<0.05	<1	<5	6	<5
REP 1889459	QC																	
1889477	Soil		0.085	10	69	1.45	135	0.115	<20	1.85	0.02	0.05	<2	<0.05	<1	<5	<5	7
REP 1889477	QC		0.086	11	69	1.45	138	0.117	<20	1.86	0.02	0.06	<2	<0.05	<1	<5	5	7
1889494	Soil		0.055	6	16	0.24	111	0.024	<20	0.75	0.03	0.03	<2	0.05	<1	<5	<5	<5
REP 1889494	QC																	
1889513	Soil		0.090	7	18	0.29	95	0.085	<20	0.78	0.02	0.04	<2	0.08	<1	<5	<5	<5
REP 1889513	QC		0.090	6	18	0.29	94	0.089	<20	0.77	0.02	0.04	<2	0.08	<1	<5	<5	<5
1889526	Soil		0.071	10	54	0.95	123	0.076	<20	1.87	0.01	0.06	<2	<0.05	<1	<5	5	<5
REP 1889526	QC																	
1889364	Soil		0.056	11	50	0.90	128	0.073	<20	1.76	0.01	0.06	<2	<0.05	<1	<5	<5	<5
REP 1889364	QC		0.057	11	50	0.91	130	0.075	<20	1.80	0.01	0.06	<2	<0.05	<1	<5	7	<5
1889381	Soil		0.063	8	39	0.70	107	0.063	<20	1.34	0.02	0.04	<2	<0.05	<1	<5	<5	<5
REP 1889381	QC																	
1889400	Soil		0.042	5	16	0.28	95	0.034	<20	0.74	0.03	0.04	<2	<0.05	<1	<5	<5	<5
REP 1889400	QC		0.041	5	16	0.27	95	0.033	<20	0.73	0.03	0.04	<2	<0.05	<1	<5	<5	<5
1889658	Soil		0.037	8	34	0.54	126	0.050	<20	1.37	0.02	0.04	<2	<0.05	<1	<5	<5	<5
REP 1889658	QC																	
Reference Materials																		
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-23	Standard																	
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-23	Standard																	
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-23	Standard																	
STD CDN-PGMS-19	Standard																	
STD CDN-PGMS-23	Standard																	

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QUALITY CONTROL REPORT WHI17000342.1

		FA330 Au ppb 2	FA330 Pt ppb 3	FA330 Pd ppb 2	AQ300 Mo ppm 1	AQ300 Cu ppm 1	AQ300 Pb ppm 3	AQ300 Zn ppm 1	AQ300 Ag ppm 0.3	AQ300 Ni ppm 1	AQ300 Co ppm 1	AQ300 Mn ppm 2	AQ300 Fe % 0.01	AQ300 As ppm 2	AQ300 Th ppm 2	AQ300 Sr ppm 1	AQ300 Cd ppm 0.5	AQ300 Sb ppm 3	AQ300 Bi ppm 3	AQ300 V ppm 1	AQ300 Ca % 0.01
STD DS10	Standard				14	153	149	370	1.7	74	12	893	2.71	44	5	67	2.3	8	11	42	1.07
STD DS10	Standard				14	159	148	372	1.7	75	13	894	2.74	46	4	67	2.4	7	11	44	1.10
STD DS10	Standard				14	155	153	371	1.7	74	13	890	2.74	46	3	68	2.5	7	11	44	1.08
STD DS10	Standard				14	158	151	376	1.8	74	13	908	2.82	43	8	65	2.6	6	11	43	1.08
STD DS10	Standard				15	154	151	372	1.9	77	13	920	2.85	44	9	66	2.5	7	12	44	1.11
STD DS11	Standard				14	151	135	356	1.9	80	13	1067	3.14	44	5	67	2.2	7	10	50	1.05
STD DS11	Standard				13	148	136	350	1.6	76	13	1018	3.01	43	4	64	2.3	7	11	48	1.03
STD DS11	Standard				13	147	140	341	1.5	77	13	1012	3.02	43	<2	64	2.2	6	10	48	1.03
STD DS11	Standard				13	147	136	349	1.6	78	14	1046	3.10	43	8	64	2.5	7	11	49	1.07
STD DS11	Standard				13	153	142	351	1.8	78	14	1057	3.25	43	9	66	2.4	6	11	50	1.11
STD OREAS45EA	Standard				2	703	15	30	0.3	386	54	413	21.74	6	6	4	<0.5	<3	<3	311	0.04
STD OREAS45EA	Standard				2	697	16	30	<0.3	376	52	407	21.11	5	8	4	<0.5	<3	<3	302	0.04
STD OREAS45EA	Standard				1	707	14	30	<0.3	390	53	408	21.54	6	7	4	<0.5	<3	<3	307	0.04
STD OREAS45EA	Standard				2	725	12	31	0.4	389	55	423	23.70	11	12	4	0.6	<3	<3	318	0.03
STD OREAS45EA	Standard				2	701	16	31	0.5	380	54	413	22.18	11	12	4	1.8	<3	<3	306	0.03
STD CDN-PGMS-19 Expected		230	108	476																	
STD CDN-PGMS-23 Expected		496	456	2032																	
STD DS10 Expected					13.6	154.61	150.55	370	2.02	74.6	12.9	875	2.7188	46.2	7.5	67.1	2.62	9	11.65	43	1.0625
STD OREAS45EA Expected					1.6	709	14.3	31.4	0.26	381	52	400	23.51	10	10.7	3.5				303	0.036
STD DS11 Expected					13.9	156	138	345	1.71	81.9	14.2	1055	3.2082	42.8	7.65	67.3	2.37	7.2	12.2	50	1.063
BLK	Blank	2	<3	<2																	
BLK	Blank	2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank				<1	<1	<3	<1	<0.3	<1	<1	<2	<0.01	<2	<2	<1	<0.5	<3	<3	<1	<0.01
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	
BLK	Blank	<2	<3	<2																	

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

Client: **Longford Exploration Services Ltd.**
6970 Napier Street
Burnaby British Columbia V5B 2C4 Canada

Project: Catalyst
Report Date: August 30, 2017

QUALITY CONTROL REPORT WHI17000342.1

		AQ300 P % 0.001	AQ300 La ppm 1	AQ300 Cr ppm 1	AQ300 Mg % 0.01	AQ300 Ba ppm 1	AQ300 Ti % 0.001	AQ300 B ppm 20	AQ300 Al % 0.01	AQ300 Na % 0.01	AQ300 K % 0.01	AQ300 W ppm 2	AQ300 S % 0.05	AQ300 Hg ppm 1	AQ300 Tl ppm 5	AQ300 Ga ppm 5	AQ300 Sc ppm 5
STD DS10	Standard	0.076	16	55	0.80	420	0.076	<20	1.02	0.07	0.34	4	0.29	<1	6	<5	<5
STD DS10	Standard	0.077	17	55	0.82	428	0.076	<20	1.04	0.07	0.35	3	0.29	<1	7	<5	<5
STD DS10	Standard	0.076	17	54	0.80	428	0.079	<20	1.05	0.07	0.35	3	0.29	<1	6	6	<5
STD DS10	Standard	0.075	16	57	0.83	438	0.079	<20	1.07	0.07	0.34	3	0.28	<1	<5	<5	<5
STD DS10	Standard	0.074	17	59	0.84	431	0.083	<20	1.09	0.07	0.34	4	0.29	<1	<5	<5	<5
STD DS11	Standard	0.071	18	59	0.88	439	0.093	<20	1.16	0.07	0.41	3	0.29	<1	6	<5	<5
STD DS11	Standard	0.070	16	58	0.86	418	0.085	<20	1.09	0.07	0.40	3	0.28	<1	7	<5	<5
STD DS11	Standard	0.069	17	58	0.85	419	0.088	<20	1.10	0.07	0.40	2	0.28	<1	5	6	<5
STD DS11	Standard	0.070	17	58	0.89	433	0.090	<20	1.12	0.07	0.39	2	0.27	<1	5	<5	<5
STD DS11	Standard	0.071	18	63	0.91	445	0.095	<20	1.20	0.08	0.42	3	0.29	<1	<5	<5	<5
STD OREAS45EA	Standard	0.030	8	891	0.10	148	0.100	<20	3.23	0.01	0.06	<2	<0.05	<1	<5	20	84
STD OREAS45EA	Standard	0.030	8	859	0.10	148	0.098	<20	3.19	0.02	0.06	<2	<0.05	<1	<5	23	82
STD OREAS45EA	Standard	0.030	8	887	0.10	148	0.100	<20	3.33	0.02	0.06	<2	<0.05	<1	<5	20	83
STD OREAS45EA	Standard	0.030	8	974	0.10	152	0.103	<20	3.45	0.02	0.06	<2	<0.05	<1	<5	5	89
STD OREAS45EA	Standard	0.030	8	957	0.10	149	0.101	<20	3.43	0.02	0.06	<2	<0.05	<1	<5	12	87
STD CDN-PGMS-19 Expected																	
STD CDN-PGMS-23 Expected																	
STD DS10 Expected		0.0765	17.5	54.6	0.775	412	0.0817	7.13	1.0259	0.067	0.338	3.32	0.29	0.3	5.1	4.3	2.8
STD OREAS45EA Expected		0.029	7.06	849	0.095	148	0.0984		3.13	0.02	0.053		0.036			12.4	78
STD DS11 Expected		0.0701	18.6	61.5	0.85	417	0.0976	6	1.129	0.0694	0.4	2.9	0.2835	0.3	4.9	4.7	3.1
BLK	Blank																
BLK	Blank																
BLK	Blank																
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<20	<0.01	<0.01	<0.01	<2	<0.05	<1	<5	<5	<5
BLK	Blank																
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QUALITY CONTROL REPORT WHI17000342.1

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

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