REPORT OF 2018 EXPLORATION

ON THE GWYN LAKE GOLD PROSPECT,

NORTH-WESTERN ONTARIO, CANADA

Thunder Bay Mining Division

McComber and Vincent Townships
(G-0166, G-0163)

NTS N49.63464 Latitude, W87.77830 Longitude
UTM (NAD83) Zone 16
443800E and 5498300N

Prepared for

Empire Metals Corp.
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by

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Date: February 20, 2019

Table of Contents

Figures

Tables

Appendices

SUMMARY

The Gwyn Lake Gold Prospect ("GLGP") is a greenstone-hosted gold mineralization target situated approximately 15 km east of Beardmore in North-western Ontario. It lies within the Beardmore-Geraldton Gold Camp ("BGGC"), a well-known gold mining district, where strata-bound gold mineralization associated with banded iron formations ("BIF") has been mined since the early 20th century.

Buck Lake Ventures Ltd. ("Buck") optioned the GLGP in 2003 from the claim holder F. A. Houghton. During the period 2008 – 2010 the company conducted extensive road cutting, stripping and systematic channel and chip sampling and two new claims adjoining the GLGP on the west were added to the claim block. In 2010, Buck's successor Ultra Uranium Corp. ("Ultra") optioned 70 % interest to Pierre Enterprises Ltd. Under a new name Empire Metals Corp. ("Empire") the company continues to operate the GLGP. In 2018 the claim holder F. A. Houghton passed away and Empire is now in a process of transferring the claims to a company's representative.

The results achieved to-date indicate significant gold mineralization occurs on the GLGP and can be made drill-ready within a short period of time. The areas with most notable mineralization include Dominion Showing - #12 Showing - Gwyn Lake West Extension - Gwyn Lake Showing – Gwyn lake East Extension (a strip with a total length of approximately 1.7 kilometers), Ralph Lake Showing, Orion – Blacksmith Showing with east and west extensions and the Historical Showing.

Further work on the GLGP is warranted and the writer recommends systematic outcrop mapping of under-explored areas, chip and channel sampling of the BIF and gabbro outcrops. Remediation of the historical stripped areas should be conducted to allow for additional stripping.

1. INTRODUCTION

Empire retained the writer in May 2018 to conduct an exploration program on the GLGP and to prepare a report with recommendations for further work. The writer is a consulting geologist and a Professional Geoscientist (BC) with over forty five years of experience in mineral exploration. The writer with field assistants worked the GLGP claims intermittently from June 19 to 22, 2018 and from September 27 to October 9, 2018. The fieldwork consisted of outcrop mapping, chip and channel sampling on the cell claims 220827, 303118, 191691, 191714, 207262, 314384, 199259, 291036, 107844, 283719, 283720, 145034, 247839 and 110057. After the fieldwork, the writer dispatched samples to Agat Laboratories and/or Activation Laboratories Ltd. in Thunder Bay for analysis.

For parts of this report the writer relied on his and F. Houghton's previous work and on the work of other experts, the assessment reports and information available from the Ministry of Northern Development and Mines, Ontario ("MNDM") website. The information by other experts who are not qualified persons for this project is generally presented without comments, and is to the best of writer's knowledge and experience correct and suitable for inclusion in this report. The writer took steps to verify the previous exploration and assay results by re-examining and re-sampling some of the anomalous areas. The sources of all information not based on personal examination are quoted in the References item. The claims description provided herein relates to the status as of November 09, 2018.

1.1. Location and Access

The Gwyn Lake Gold Prospect lies approximately 200 km north-northeast of Thunder Bay in Northwestern Ontario, within the Thunder Bay Mining Division (Figs. 1, 2). The prospect is centered about 15 kilometers east of Beardmore at N49.63464 latitude and W87.77830 longitude (map sheet G-0166 and G-0163) and the UTM coordinates for the CZ of the prospect are approximately 443800 E and 5498000 N (NAD83) on the NTS UTM zone 16. The prospect is comprised of 85 single cell claims and 19 boundary cell claims covering approximately 1,931 hectares (19.31 sq km) and lies in a previously under-explored area.

1.2. The Claims

Table 1: GLGP claim status as of November 9, 2018

Legacy Claim	Township / Area	Tenure ID	Cell ID	Type	Anniversary Date
3011477	MCCOMBER	107844	42E12F174	SINGLE	11/10/2018
3011487	VINCENT	307665	42E12G081	BOUNDARY	11/10/2018
3011487	VINCENT	307666	42E12G101	BOUNDARY	11/10/2018
3011478	VINCENT	110877	42E12F180	SINGLE	12/15/2018
3011887	VINCENT	137117	53G13D175	BOUNDARY	12/15/2018
3011488	VINCENT	142570	42E12G122	BOUNDARY	12/15/2018
3011478	VINCENT	159179	42E12F100	BOUNDARY	12/15/2018
3018950	MCCOMBER	181056	42E12F215	SINGLE	12/15/2018
3011478	MCCOMBER,VINCENT	187748	42E12F098	BOUNDARY	12/15/2018
3011478	VINCENT	187749	42E12F159	SINGLE	12/15/2018
3011478	VINCENT	191714	42E12F120	BOUNDARY	12/15/2018
3011478	VINCENT	199258	42E12F139	SINGLE	12/15/2018
3011478	VINCENT	199259	42E12F160	SINGLE	12/15/2018
3011488	VINCENT	201271	42E12G083	BOUNDARY	12/15/2018
3011479	VINCENT	202457	42E12G181	SINGLE	12/15/2018
3011478	VINCENT	207262	42E12F140	BOUNDARY	12/15/2018
3011488	VINCENT	220826	42E12G084	BOUNDARY	12/15/2018
3011488	VINCENT	220827	42E12G104	SINGLE	12/15/2018
3011488	VINCENT	220828	42E12G125	SINGLE	12/15/2018
3011488	VINCENT	220829	42E12G123	SINGLE	12/15/2018
3011488	VINCENT	237886	42E12G103	SINGLE	12/15/2018
3011887	VINCENT	257340	42E12G141	BOUNDARY	12/15/2018
3011479	VINCENT	258485	42E12F200	SINGLE	12/15/2018
3011488	VINCENT	275260	42E12G124	SINGLE	12/15/2018
3011477	MCCOMBER	283719	42E12F194	SINGLE	12/15/2018
3018950	MCCOMBER	291037	42E12F214	SINGLE	12/15/2018
3011478	VINCENT	303118	42E12F119	SINGLE	12/15/2018
3011479	VINCENT	305674	42E12G161	BOUNDARY	12/15/2018
3011487	VINCENT	307664	42E12G082	BOUNDARY	12/15/2018
3011478	VINCENT	322634	42E12F099	BOUNDARY	12/15/2018
3011488	VINCENT	324613	42E12G105	BOUNDARY	12/15/2018
3011487	VINCENT	327081	42E12G102	BOUNDARY	12/15/2018
4225182	MCCOMBER	110216	42E12F226	SINGLE	1/17/2019
4225182	MCCOMBER	122218	42E12F209	SINGLE	1/17/2019
4225182	MCCOMBER	141088	42E12F187	SINGLE	1/17/2019
4225182	MCCOMBER	141089	42E12F228	SINGLE	1/17/2019

4225182	MCCOMBER	187632	42E12F207	SINGLE	1/17/2019
4225182	MCCOMBER	199844	42E12F206	SINGLE	1/17/2019
4225181	MCCOMBER	236283	42E12F188	SINGLE	1/17/2019
4225182	MCCOMBER	254954	42E12F208	SINGLE	1/17/2019
4225182	MCCOMBER	254955	42E12F229	SINGLE	1/17/2019
4225181	MCCOMBER	261282	42E12F168	BOUNDARY	1/17/2019
4225182	MCCOMBER	290953	42E12F227	SINGLE	1/17/2019
4209002	MCCOMBER	110057	42E12F171	SINGLE	11/24/2019
4209002	MCCOMBER	110215	42E12F210	SINGLE	11/24/2019
4209001	MCCOMBER	111057	42E12F134	SINGLE	11/24/2019
3018950	MCCOMBER	123123	42E12F213	SINGLE	11/24/2019
4209002	MCCOMBER	139036	42E12F211	SINGLE	11/24/2019
3011477	MCCOMBER	142303	42E12F173	SINGLE	11/24/2019
4209002	MCCOMBER	145034	42E12F192	SINGLE	11/24/2019
4209001	MCCOMBER	146487	42E12F133	SINGLE	11/24/2019
4209001	MCCOMBER	160594	42E12F111	SINGLE	11/24/2019
4209002	MCCOMBER	173602	42E12F232	SINGLE	11/24/2019
3011477	MCCOMBER	181492	42E12F153	SINGLE	11/24/2019
4209002	MCCOMBER	187631	42E12F190	SINGLE	11/24/2019
4209002	MCCOMBER	199843	42E12F189	SINGLE	11/24/2019
4209001	MCCOMBER	203847	42E12F151	SINGLE	11/24/2019
4209002	MCCOMBER	239779	42E12F212	SINGLE	11/24/2019
4209002	MCCOMBER	239780	42E12F233	SINGLE	11/24/2019
4209001	MCCOMBER	241776	42E12F115	SINGLE	11/24/2019
4209001	MCCOMBER	241777	42E12F129	SINGLE	11/24/2019
4209002	MCCOMBER	247839	42E12F172	SINGLE	11/24/2019
4209002	MCCOMBER	259853	42E12F231	SINGLE	11/24/2019
4209001	MCCOMBER	261813	42E12F113	SINGLE	11/24/2019
4209001	MCCOMBER	268594	42E12F110	SINGLE	11/24/2019
4209001	MCCOMBER	268595	42E12F132	SINGLE	11/24/2019
4209001	MCCOMBER	276527	42E12F152	SINGLE	11/24/2019
4209002	MCCOMBER	276528	42E12F191	SINGLE	11/24/2019
3011477	MCCOMBER	283720	42E12F193	SINGLE	11/24/2019
3011477	MCCOMBER	284065	42E12F154	SINGLE	11/24/2019
4209001	MCCOMBER	307085	42E12F150	SINGLE	11/24/2019
4209001	MCCOMBER	307086	42E12F149	BOUNDARY	11/24/2019
4209002	MCCOMBER	310369	42E12F230	SINGLE	11/24/2019
4209001	MCCOMBER	315802	42E12F112	SINGLE	11/24/2019
4209001	MCCOMBER	315803	42E12F130	SINGLE	11/24/2019
4209002	MCCOMBER	326525	42E12F169	BOUNDARY	11/24/2019
4209001	MCCOMBER	328519	42E12F114	SINGLE	11/24/2019

4209001	MCCOMBER	328520	42E12F131	SINGLE	11/24/2019
4209002	MCCOMBER	335238	42E12F170	SINGLE	11/24/2019
3005108	MCCOMBER	107843	42E12F155	SINGLE	2/20/2020
3005109	VINCENT	137627	42E12F199	SINGLE	2/20/2020
3005109	VINCENT	143670	42E12F179	SINGLE	2/20/2020
3005108	MCCOMBER,VINCENT	151132	42E12F118	SINGLE	2/20/2020
3005108	MCCOMBER	193665	42E12F135	SINGLE	2/20/2020
4209001	MCCOMBER	193665	42E12F135	SINGLE	2/20/2020
3005108	MCCOMBER	197351	42E12F136	SINGLE	2/20/2020
3005108	MCCOMBER,VINCENT	207263	42E12F138	SINGLE	2/20/2020
3005108	MCCOMBER,VINCENT	207264	42E12F158	SINGLE	2/20/2020
3011478	MCCOMBER,VINCENT	207264	42E12F158	SINGLE	2/20/2020
3005108	MCCOMBER	216435	42E12F196	SINGLE	2/20/2020
3005108	MCCOMBER	236043	42E12F175	SINGLE	2/20/2020
3005108	MCCOMBER	245163	42E12F197	SINGLE	2/20/2020
3005110	MCCOMBER,VINCENT	253197	42E12F218	SINGLE	2/20/2020
3005108	MCCOMBER,VINCENT	273250	42E12F178	SINGLE	2/20/2020
3005110	MCCOMBER	283721	42E12F216	SINGLE	2/20/2020
3018950	MCCOMBER	291036	42E12F195	SINGLE	2/20/2020
3005108	MCCOMBER	300694	42E12F117	SINGLE	2/20/2020
3005108	MCCOMBER	300695	42E12F156	SINGLE	2/20/2020
3005108	MCCOMBER	317960	42E12F137	SINGLE	2/20/2020
3005110	MCCOMBER	319166	42E12F217	SINGLE	2/20/2020
3005108	MCCOMBER	332933	42E12F177	SINGLE	2/20/2020
3005108	MCCOMBER	332934	42E12F176	SINGLE	2/20/2020
3005110	MCCOMBER,VINCENT	333063	42E12F198	SINGLE	2/20/2020

Recorded holders of the adjacent claims are Maki, N. R. (legacy claims 1138900, 1197034, 603295, 603296 and 603297), TLC Explorations Inc. (legacy claims 4203994, 4210062 and 4215198) and Skalesky A. (legacy claim 862665). Adjoining to the east and west are active mining leases owned by Goldstone Resources Inc., Tombill Mines Ltd., and by other undisclosed holders.

1.3. Topography, Vegetation and Local Resources

Topography of the GLGP area is flat to gently rolling with elongated hills aligned east-northeast, i. e. parallel to regional geological structure. The relief ranges from 320 to 400

meters above sea level. The bedrock is exposed in places in the form of elongated ridges and /or scarps of various lengths and heights.

Vegetation consists of mature stands of spruce, pine, balsam and birch with moss-covered regolith and some underbrush in the forested areas. Patchy areas of thick willow bushes are common. Swampy areas and lakes occupy much of the lower relief and often contain willow, dwarf cedar and labrador tooth vegetation. The climate in the area is typical of north-western Ontario. Warm summers and long, cold winters with average annual temperatures from – 37 to + 35 ºC, annual rainfall from 50 to 63 centimeters and snow precipitation from 13 to 25 centimeters (water equivalent). The prevailing wind direction is westerly, most of the year.

Power and gas are within two kilometers of the claim boundary and qualified manpower is available in Beardmore and nearby communities. The town of Thunder Bay is the closest industrial centre that provides most services needed for mineral exploration.

1.4. History

Early 1900's: the first production phase from the gold mines located within BGGC, which ranked among the top five in Canada with production of 4.1 million ounces (127.4 tonnes) of gold from 19.5 million tons of ore and a combined average grade 0.21 oz gold/ton (6.5 g/t), (Malouf, 2003).

Early 1930s: extensive exploration including trenching, drilling and geophysical surveys conducted on the Vega-Craskie claims east of Gwyn Lake.

1929: trenching on the former Colins, Webster Holmes and Humphries holdings (Langford, 1929). One trench uncovered a 10 feet (3.04 meters) wide iron band running along strike for 30 ft and the best gold assay returned $ 3.20 over five feet (1.52 meters). Minor exploration was conducted from the Gwyn Lake area including hand trenching and sampling. One of the MNDM reports describes a mineralization within the southern zone, comprised of several sub-parallel veins, the largest being 50 meters long, five meters thick and open in both directions.

Fig. 1: Gwyn Lake Gold Prospect, location map.

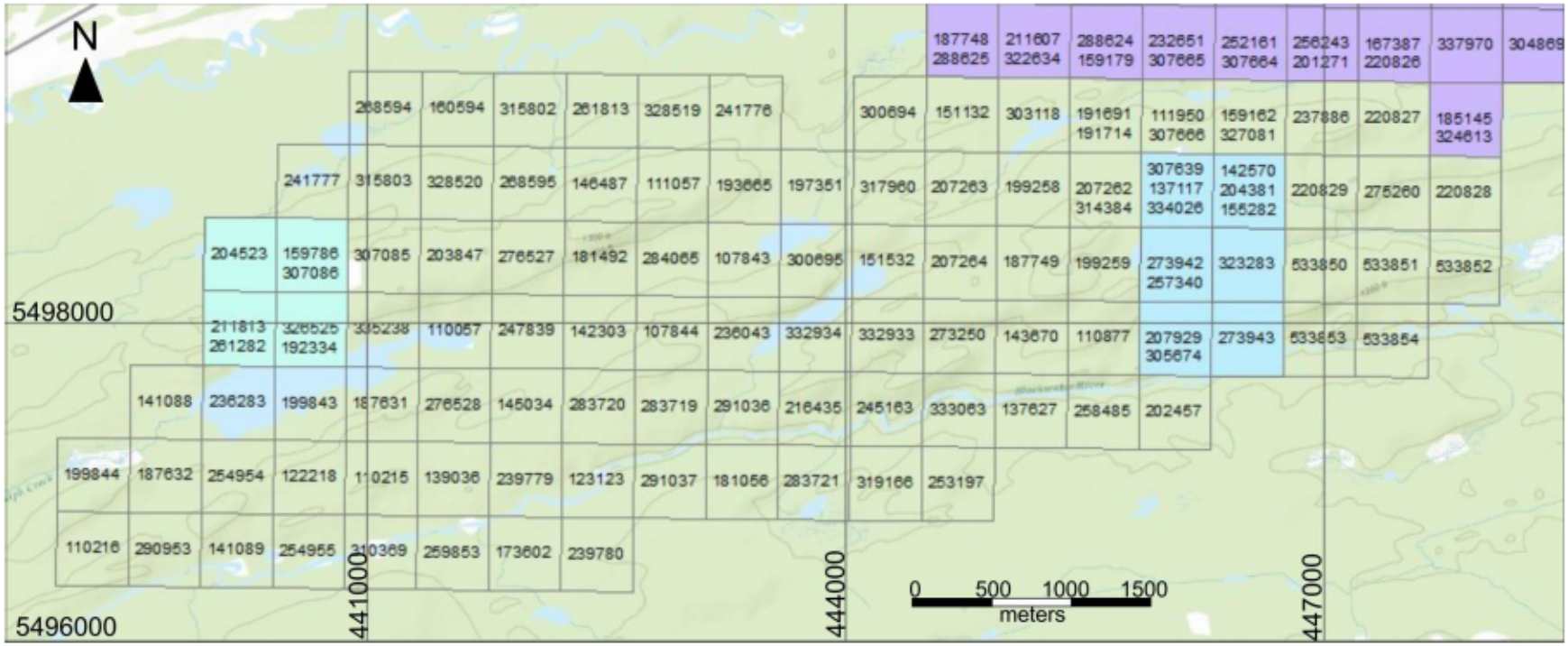

Fig. 2: Gwyn Lake Gold Prospect, claim block (map from ArcMap 10.5).

Chip sampling from the vein returned up to 1.23 oz/t (38.25 g/t) gold over two feet.

1985: an airborne magnetometer and VLF EM geophysical survey flown over the GLGP. Three prominent east – west trending geophysical anomalies were detected.

2003-2005: Buck Lake Ventures Ltd. ("Buck") optioned the GLGP from F. A. Houghton and conducted a reconnaissance program to map, trench and sample the geophysical anomalies. Grab and chip samples from the hand dug channels from the North and South zones included 4.56 ppm over 2.5 meters and 7.44 ppm gold over 0.27 meter in the former and up to 5.33 ppm gold over 2 meters in the latter zone (Brickner, 2005; Molak et al., 2006).

2007-2009: Buck changed its name to Ultra Uranium Corp. ("Ultra") and optioned the New Claims (13 units) adjoining the Extension Claims in the southwest. Ultra's work included an extensive trail cutting, stripping and systematic channel-sampling of the BIF exposures within the GLGP. More than 500 continuous channel, chip and grab samples were collected and many assays from the Gwyn Lake showing, Ralph Lake showing, Camp Lake showing, # 12 showing, Blacksmith – Orion and other showings returned ore-grade gold values (Molak, 2009).

2010: Ultra entered into an option agreement with Pierre Enterprises Ltd. ("Pierre") and the exploration continued by stripping and continuous channel sampling of the historical Orion – Blacksmith showing and the Gwyn Lake showing extensions (Molak, 2010).

2014 - 2017: Under a new names Ultra Resources Corp., and later Empire Rock Minerals Inc. ("Empire"), the company further explored the GLGP by chip, grab and channel sampling of the Dominion Showing, Ralph Lake Showing, Gwyn Lake Showing, # 11 Showing and the claims 3011477, 3011478, 3011488. Several continuous channel samples from Dominion, Ralph and Gwyn Lake showings returned ore-grade gold values (Molak and Houghton, 2014, 2016, 2017).

1.5. Regional Geology

The Beardmore-Geraldton area lies along the southern margin of the Archean Wabigoon subprovince of the Superior Province within the Canadian Shield. It is flanked by the Quetico subprovince in the south and by the Wawa subprovince in the north. The region consists of shear-bounded, interleaved, meta-sedimentary and meta-volcanic units of Archean age, which are typically intruded by numerous bodies of various compositions. The units comprised in the area were imbricated between 2,696 and 2,691 Ma, during the thrusting and accretion of the Wabigoon, Quetico and Wawa sub-provinces. Subsequent deformation events following the accretion of these sub-provinces formed the regional BGGC.

The greenstone belts at the Central Zone of the central Wabigoon subprovince (~ 2.7 Ga) show evidence of an oceanic environment (Tomlinson et al., 1997). They are believed to be ancient volcanic arcs and/or adjacent submarine troughs. Comprised in them are banded iron formations ("BIF"), which are made up of repeated layers of iron oxides (magnetite, hematite) alternating with bands of iron-poor shale and chert. The BIFs may vary between carbonate-oxide iron-formation and arsenical sulphide-silicate iron-formation. Metamorphic grade ranges from lowest greenschist to upper amphibolite facies. Gold occurs as inclusions in massive sulphides or disseminations made of pyrite, pyrrhotite and arsenopyrite or in native form in altered and sheared zones, and conformable or crosscutting quartz veins and veinlets associated with BIFs.

Metallogenetically, the mineralization at Gwyn Lake can be classified as an iron (ironstone) formation-hosted gold mineralization. Related metallogenetic styles include mesothermal vein mineralization (McMillan, 1996a), gold-bearing quartz veins, also termed lode veins, greenstone gold, lode gold, mesothermal gold-quartz veins, shear-hosted lode gold or low-sulphide gold-quartz veins (Ash and Alldrick, 1996), lode gold banded iron-formations (Gross, 1996) and turbidite-hosted Au-quartz veins (McMillan, 1996b). Examples of iron formation-hosted gold mineralizations include Lupin and Cullaton Lake B-Zone (Northwest Territories, Canada), Detour Lake, Madsen Red Lake, Pickle Crow, Musselwhite, Dona Lake, (Ontario, Canada), Homestake (South Dakota, USA), Mt. Morgans (Western Australia); Morro Velho and Raposos, Mineas Gerais (Brazil); Vubachikwe and Bar 20 (Zimbabwe); Mallappakoda,

Kolar District (India) (Boyle, 1979, Fyon et al., 1992, Fripp,1976, Kerswill 1993, Padgham and Brophy 1986, Rye and Rye 1974), Siddaiah et al. 1994, Thorpe and Franklin 1984, Vielreicher et al. 1994).

Blackburn et al. (1991) described two types of gold mineralization within the BGGC, the first being shear-related quartz veining and the second being pyritized BIFs. Sulphide replacement of magnetite occurs within banded iron formations, which are interbedded in the meta-volcanic greenstone. The replacement of magnetite with pyrite in the BIF followed development of a late, regional cleavage along the Wabigoon - Quetico subprovince boundary and accompanied veining and gold deposition in shear zones.

Based on classification of the Canadian gold deposits (Poulsen et al., 2000), the Gwyn Lake prospect belongs to the family of Archean gold deposits in the Superior and Slave Provinces. The Archean terranes in Canada contain an estimated 8,122 tonnes of gold, accounting for approximately 80 per cent of the country's production and reserves. In both metallogenetic provinces, the gold deposits are hosted mainly by supracrustal sequences and coeval intrusions. The majority of them occur within, or immediately adjacent to greenstone belts, commonly in spatial association with crustal-scale fault zones marking lithological boundaries.

1.6. Local Geology and Mineralization

The Archean to Proterozoic greenstone belt formation on the GLGP hosts several parallel to sub-parallel, gold-bearing east-northeast-trending BIFs. Both, the greenstones and the BIFs are folded and deformed and the latter contains alteration and shear zones and conformable or cross-cutting quartz veins, which are the principal hosts for the gold mineralization. It occurs in a native form, but more commonly in association with disseminated, or massive sulphides, mainly arsenopyrite. The mineralization commonly occurs in the axial plane cleavage areas or in the fold hinges.

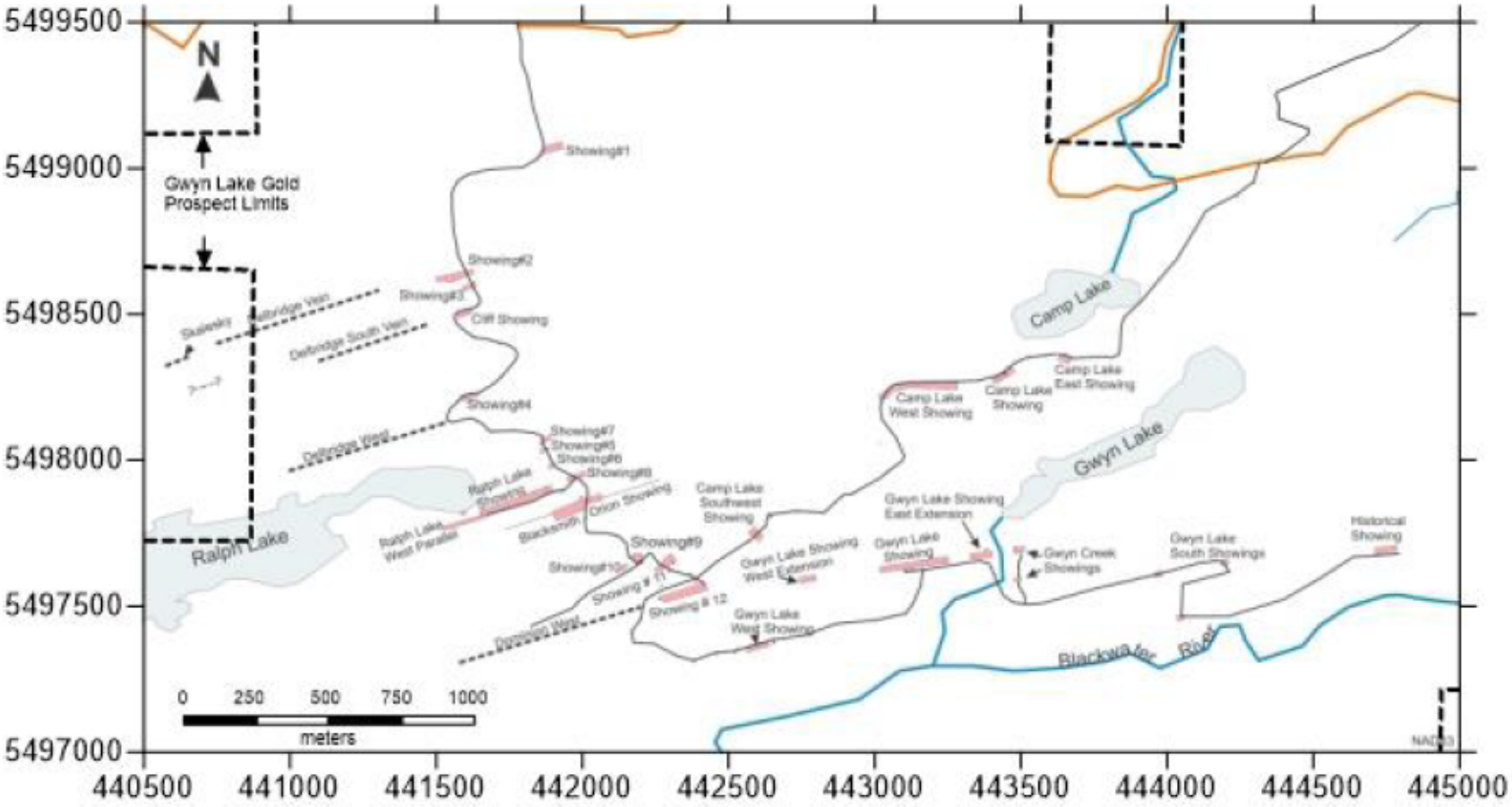

Fig. 3: Gwyn Lake Gold Prospect, western part with access trails and showings.

Airborne magnetic and electromagnetic anomalies clearly delineate the BIFs and are suitable guides to mineralization. The gold-mineralized alteration and shear zones may also occur in the weakly-magnetic greenstone and/or BIF, such as those adjoining the GLGP to the north.

The most significant gold mineralization appears to be located within a strip Dominion Showing - # 12 showing – Gwyn Lake West – Gwyn Lake – Gwyn Lake East showings, which measures approximately 1,750 meters along strike. A few swampy areas occur within the strip, which haven't been explored, but indications are that the gold mineralization is contiguous. The principal ore minerals on the GLGP are pyrite, arsenopyrite, magnetite, pyrrhotite, and subordinate chalcopyrite, sphalerite, galena, stibnite, native gold and rare gold tellurides. Visible gold inclusions up to 0.5 millimeter in diameter in arsenopyrite from the Ralph Lake showing were reported (Harris in: Molak, 2009).

For more information on the regional and local geology we refer to previous reports by Molak et al. (2006), Molak (2009), Molak and Houghton (2010, 2015a, 2015b, and 2017).

2. 2018 EXPLORATION

The writer aided by assistants David Siccia and Lena Houghton conducted a rock geochemistry program on the cell claims 220827, 303118, 191691, 191714, 207262, 314384, 199259, 291036, 107844, 283719, 283720, 145034, 247839 and 110057 intermittently from June 19 to October 9, 2018 (Figs. 3 to 12) with an objective to map and sample the BIFs and gabbroic rocks as potential sources of gold and platinum group mineralization. A total of 58 chip and channel samples were collected and submitted for assays at Agat Laboratories and/or Activation Laboratories Ltd. in Thunder Bay.

2.1. Itinerary

June 19. 2018: B. Molak, PGeo, (BM) arrives at Beardmore, prepares for the fieldwork.

June 20, 2018: BM drives to claim 220827, traverses the area to locate greenstone, BIF and/or gabbro outcrops. Chip samples 5560914, 5560915 collected for assays (Figs. 8, 12).

June 21, 2018: BM drives to cell claims 191714 and 314384 to locate greenstone, BIF and/or gabbro outcrops and to collect rock samples for analysis (Fig. 7). Chip samples 5560916 to 5560920 collected.

June 22, 2018: BM travels from Beardmore to Thunder Bay to submit samples to Agat Laboratories for assays.

September 27, 2018: B. Molak (BM) and D. Siccia (DS) travel to Beardmore from Thunder Bay to continue outcrop mapping and sampling.

September 28, 2018: BM and DS traverse the cell claims 191714 and 307666 to map and sample the outcrops (Fig. 7). Chip samples 1408563 to 1408565 collected.

September 29, 2018: BM and DS continue to traverse the cell claim 191714 to map and sample outcrops (Fig. 7). Chip samples 1408566 and 1408567collected.

September 30, 2018: BM and L. Houghton (LH) continue to traverse the cell claims191714 and 314384 to map and sample outcrops (Fig. 7). Chip sample 1408568 collected.

October 1, 2018: BM, DS and LH continue to traverse the cell claim 303118 to map and sample outcrops (Fig. 7). Chip samples 1408569 to 1408576 collected.

October 2, 2018: BM, DS and LH continue to traverse the cell claim 191714 to map and sample outcrops (Fig. 7). Chip samples 1408577 to1408581 collected.

October 3, 2018: BM and DS drive to Thunder Bay to rent ATVs for work on the central and western portions of the claim block.

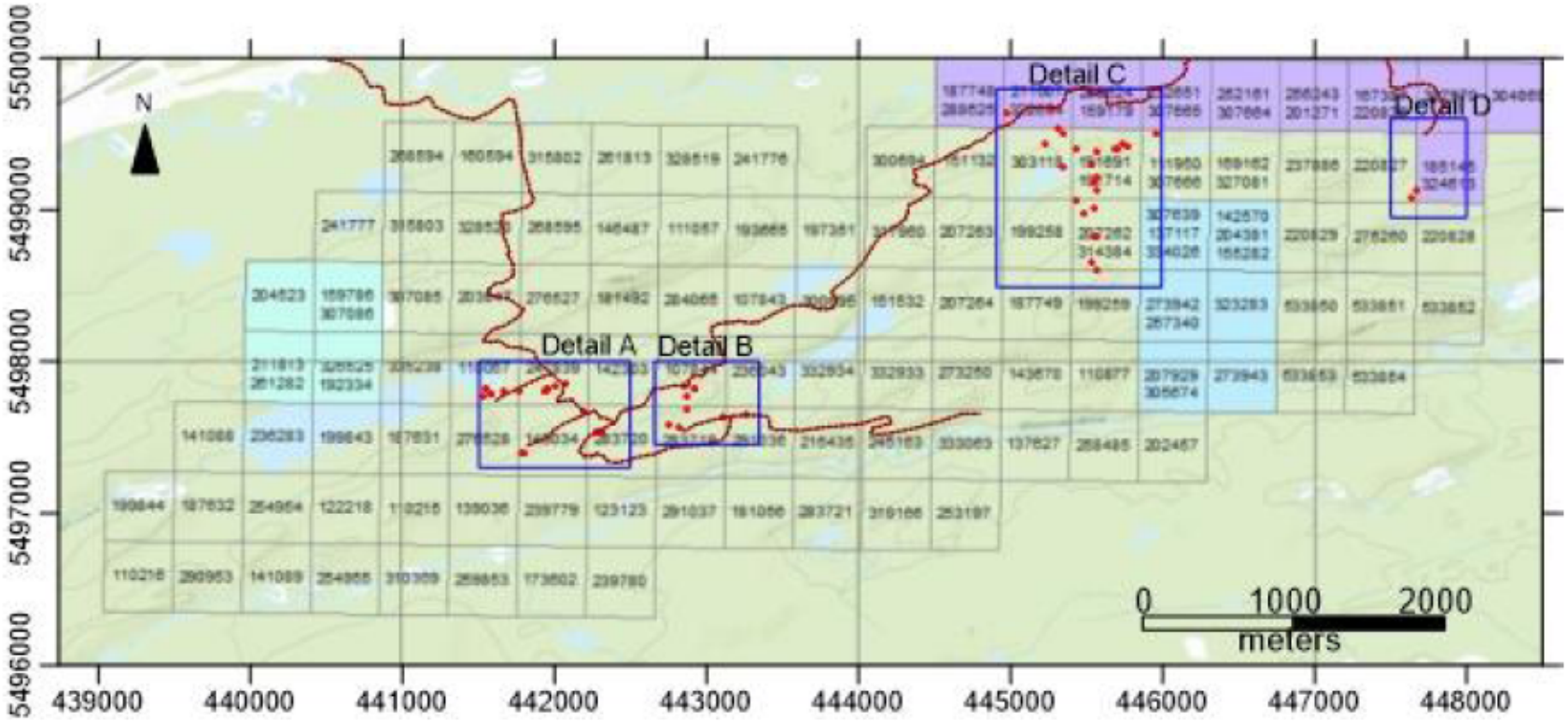

Fig. 4: Claim map with access trails, 2018 sample sites (red dots) and detail areas A, B, C, D.

October 4, 2018: BM, DS and LH ride to cell claims 107844, 283719 and 291036 to continue traversing, outcrop mapping and sampling (Fig. 5). Chip samples 1408582 to 1408584 collected.

October 5, 2018: BM, DS and LH ride to cell claims 107844, 283719 and 291036 to continue traversing, outcrop mapping and sampling (Fig. 5). Chip samples 1408585 to 1408590 collected.

October 6, 2018: BM, DS and LH ride to cell claims 283720 and 145034 to continue traversing, outcrop mapping and sampling (Fig. 5). Continuous channel samples 1408591 to 1408596 and chip samples 1408597 to 1408598 collected.

October 7, 2018: BM, DS and LH ride to cell claims 145034 and 247839 to continue traversing, outcrop mapping and sampling (Fig. 5). Chip samples 1408599 to 1408600 and 5560867 to 5560671 collected.

October 8, 2018: BM, DS and LH ride to cell claims 145034, 247839 and 110057 to continue traversing, outcrop mapping and sampling (Fig. 5). Chip samples 5560872 to 5560878 collected.

October 9, 2018: BM and DS drive from Beardmore to Thunder Bay to tow the ATVs back to renting site and to submit samples to Activation Laboratories.

2.2. Sampling Method and Analysis

Traversing and outcrop mapping was conducted on the cell claims 220827, 303118, 191691, 191714, 207262, 314384, 199259, 291036, 107844, 283719, 283720, 145034, 247839 and 110057 (Details A, B, C and D in Figs. 4 to 12) with an objective to locate BIFs and gabbroic rock outcrops and chip sampling. Sample descriptions are listed in Appendix I and the assay certificates are attached as Appendix II.

The chip samples were collected using a sledgehammer and chisel. The samples were placed in standard, polypropylene bags, provided with tags with sample numbers and closed with

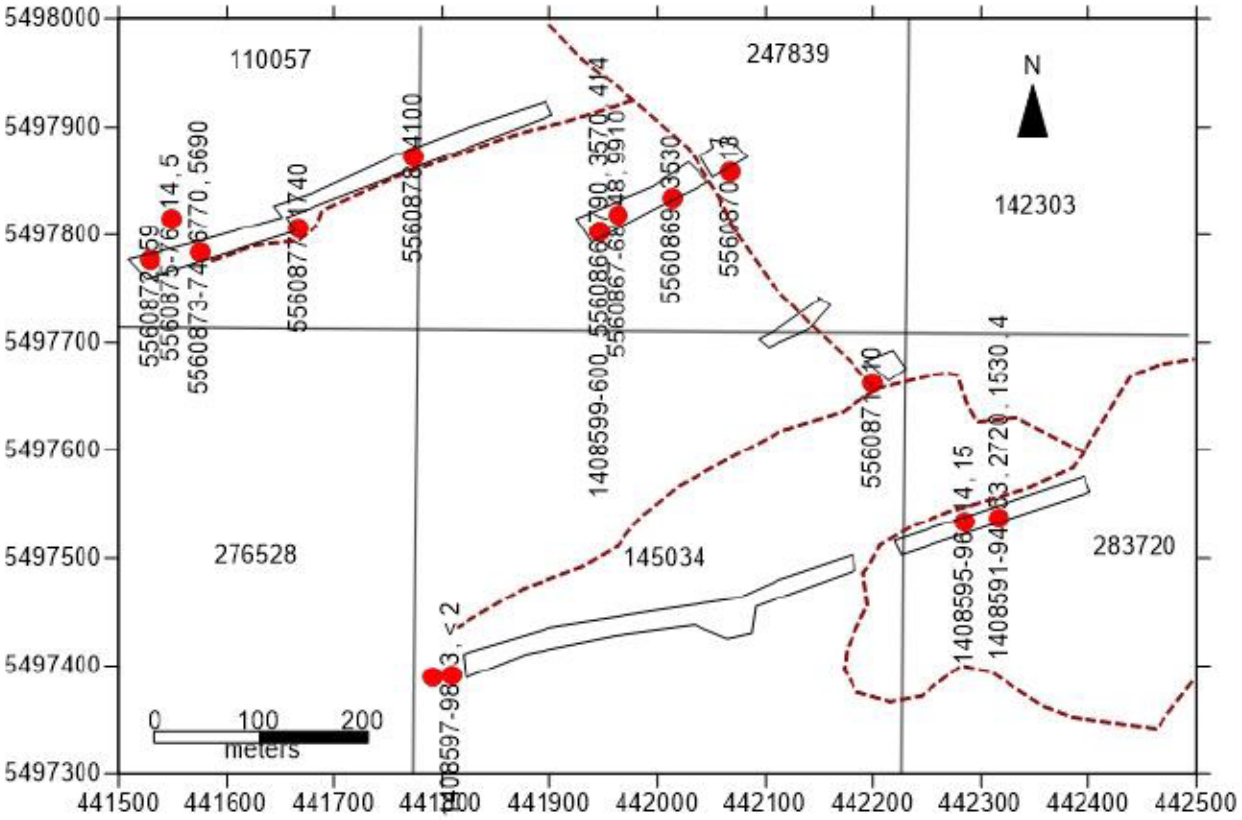

Fig. 5: Detail A, samples (red circles) with sample numbers (below) and gold values (above).

flagging tape. Sample locations were recorded using GPS in NAD 83 (zone 16) projection. The samples were not modified after collection. The writer personally dispatched samples to Activation Laboratories Ltd. ("Actlabs") and/or to Agat Laboratories ("Agatlabs") in Thunder Bay for analysis.

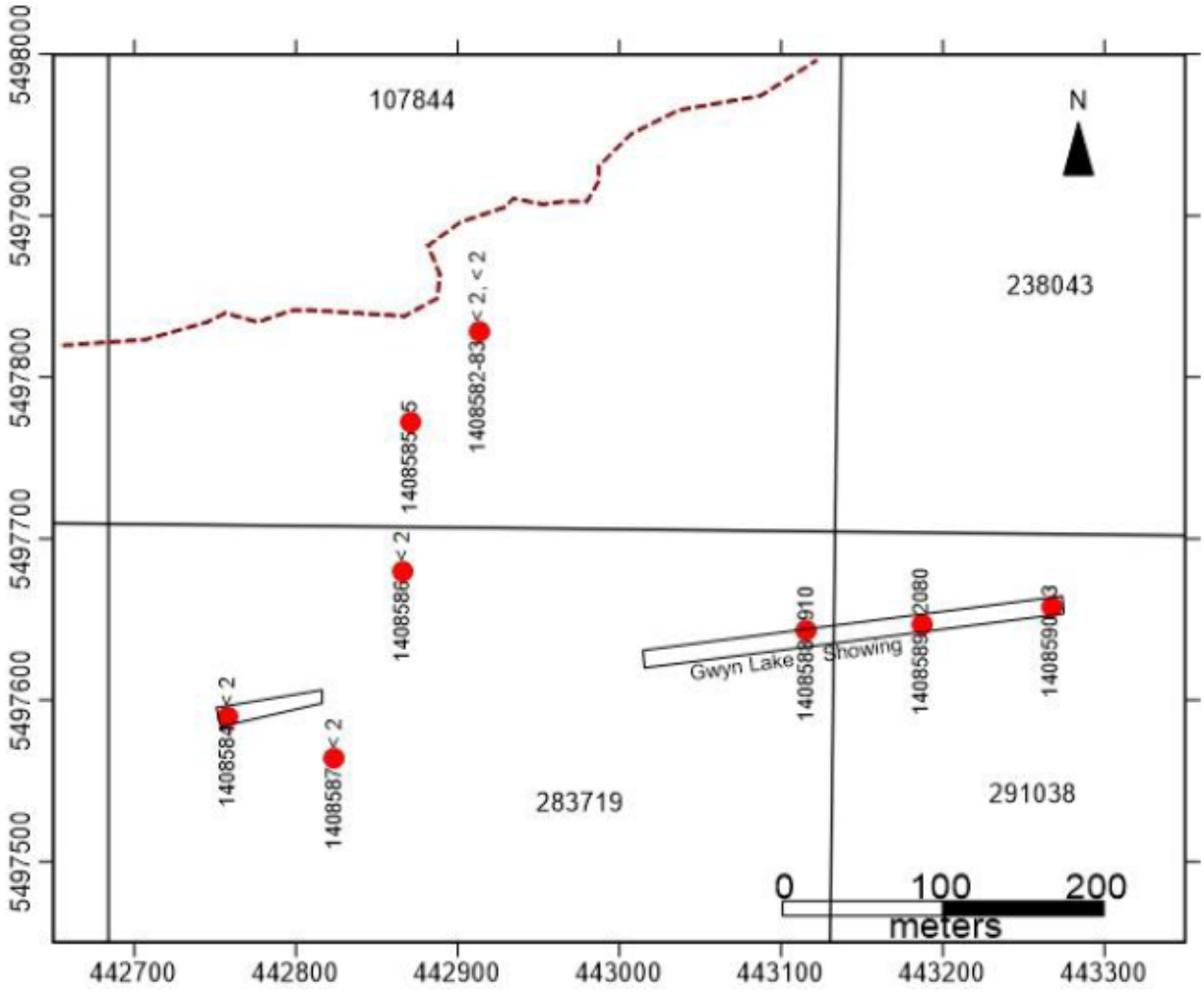

Fig. 6: Detail B, samples (red circles) with sample numbers (below) and gold values (above).

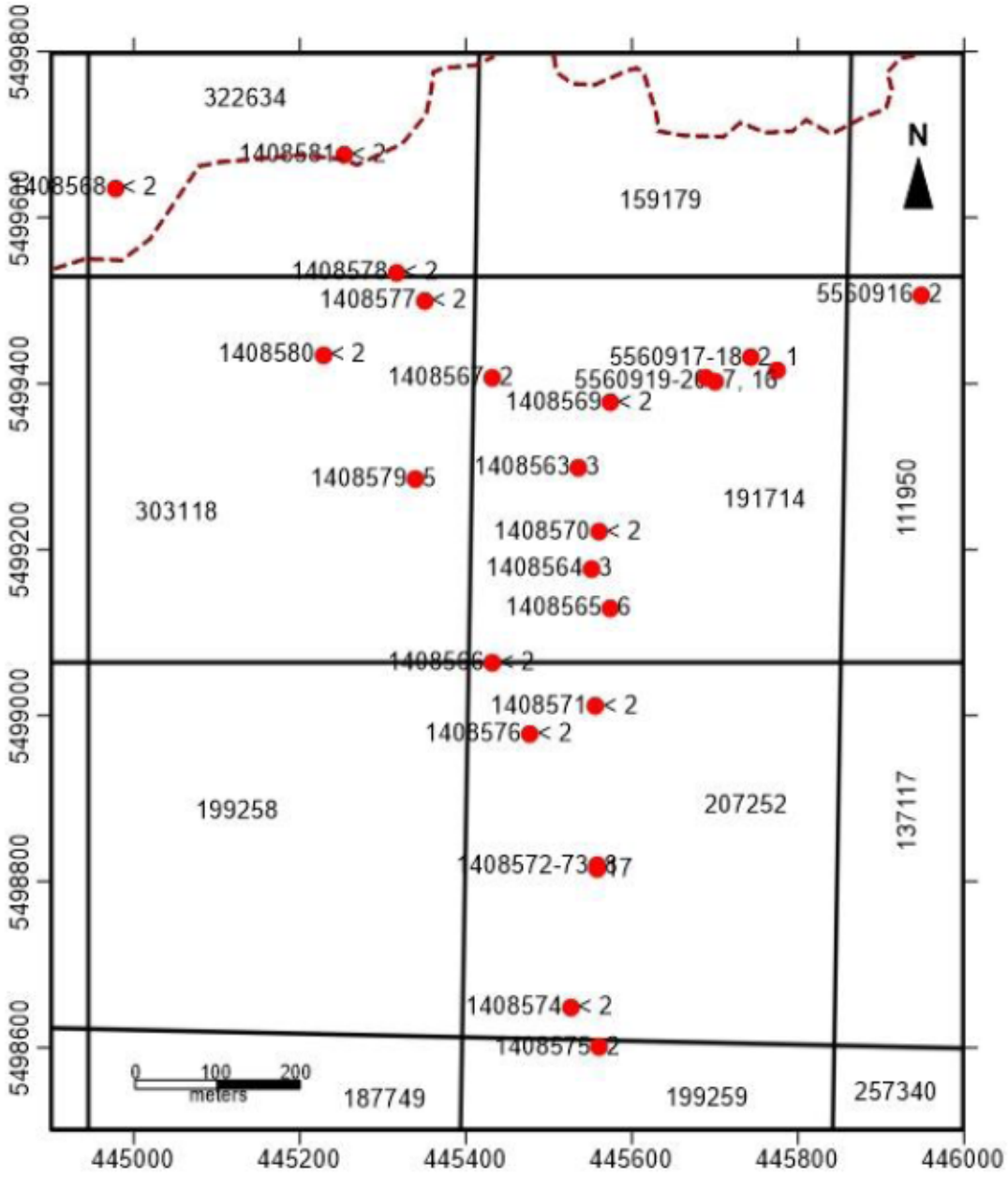

Fig. 7: Detail C, samples (red circles) with sample numbers (left) and gold values (right).

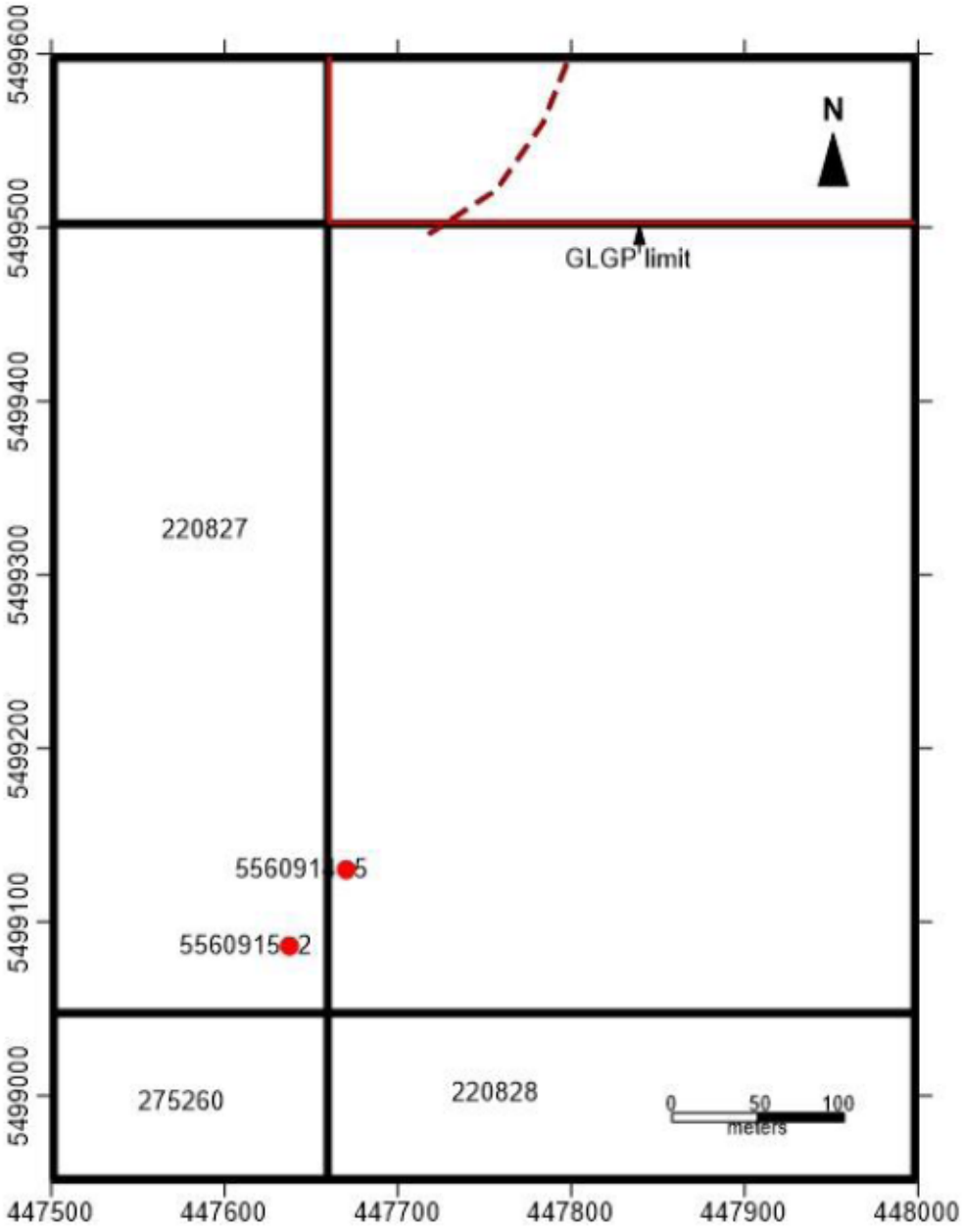

Fig. 8: Detail D, samples (red circles) with sample numbers (left) and gold values (right).

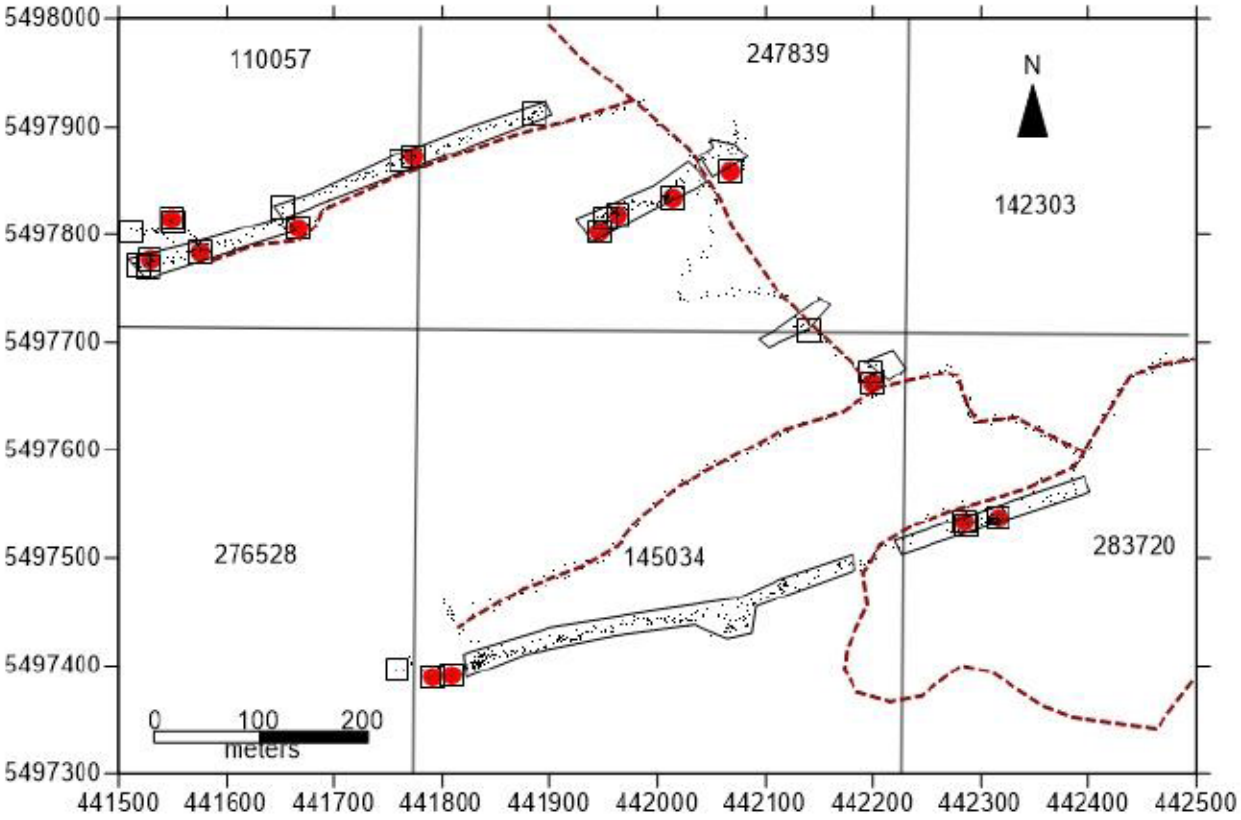

Fig. 9: Detail A, traverses, outcrops (squares) and sample sites (red circles).

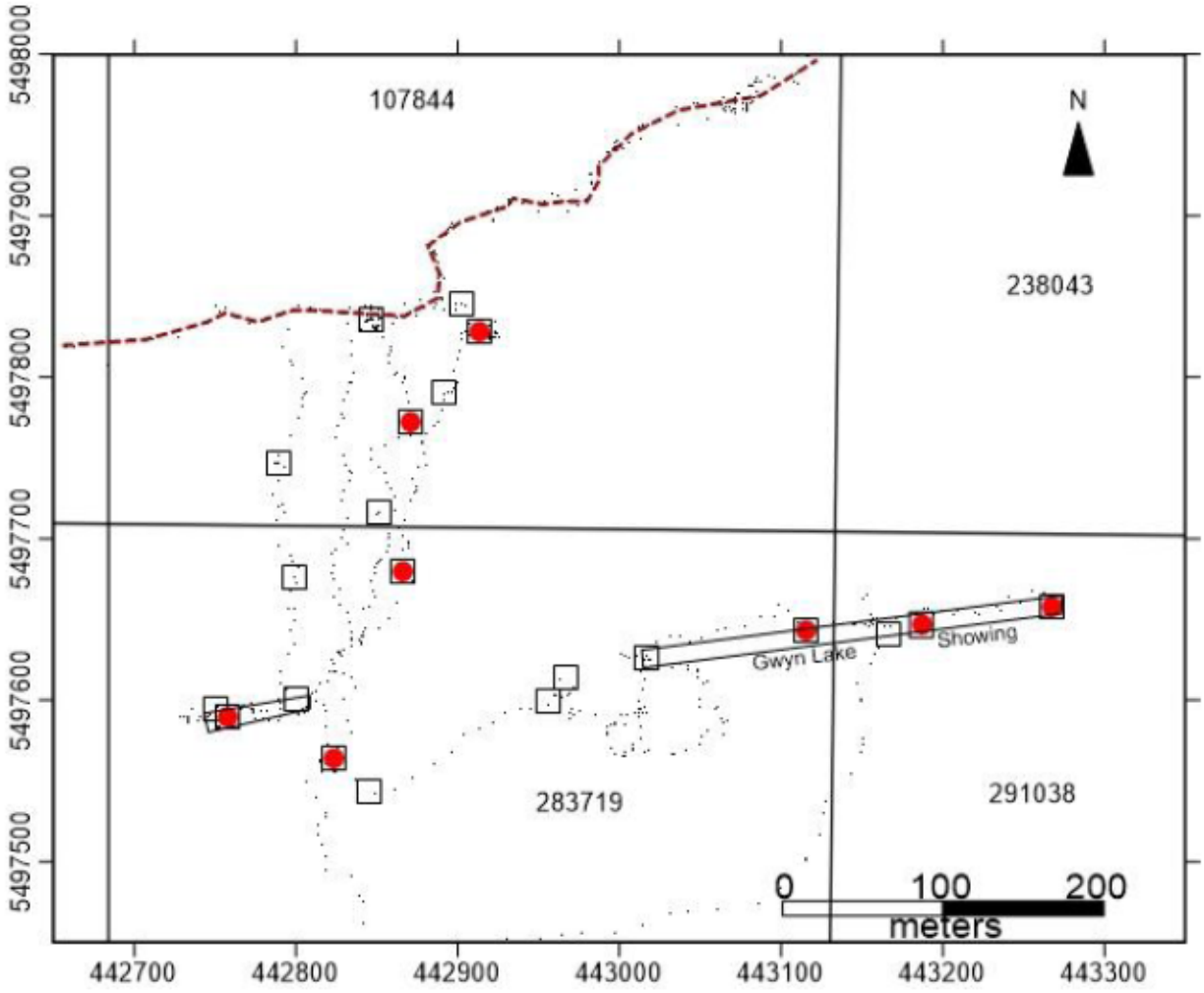

Fig. 10: Detail B, traverses, outcrops (squares) and sample sites (red circles).

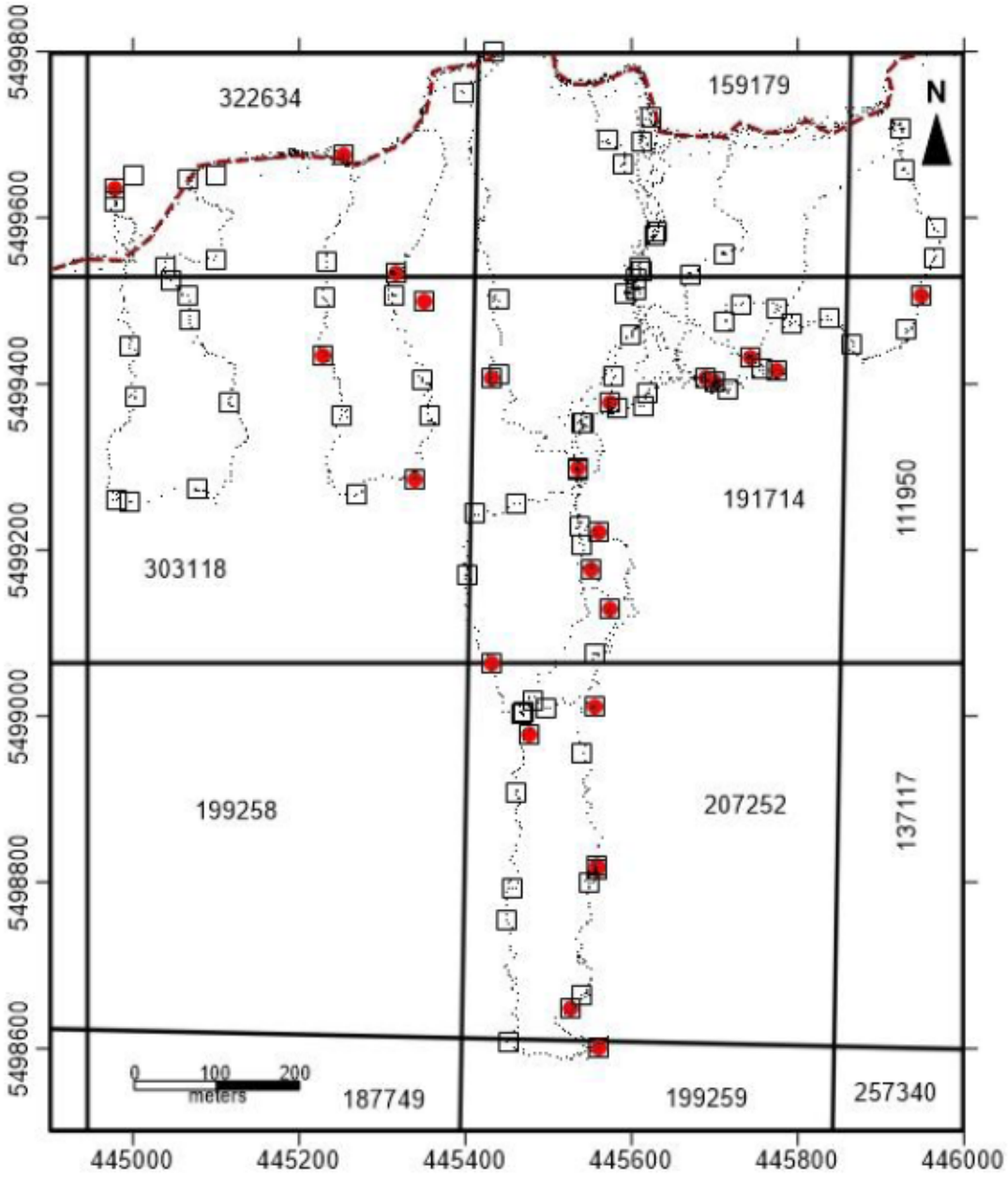

Fig. 11: Detail C, traverses, outcrops (squares) and sample sites (red circles).

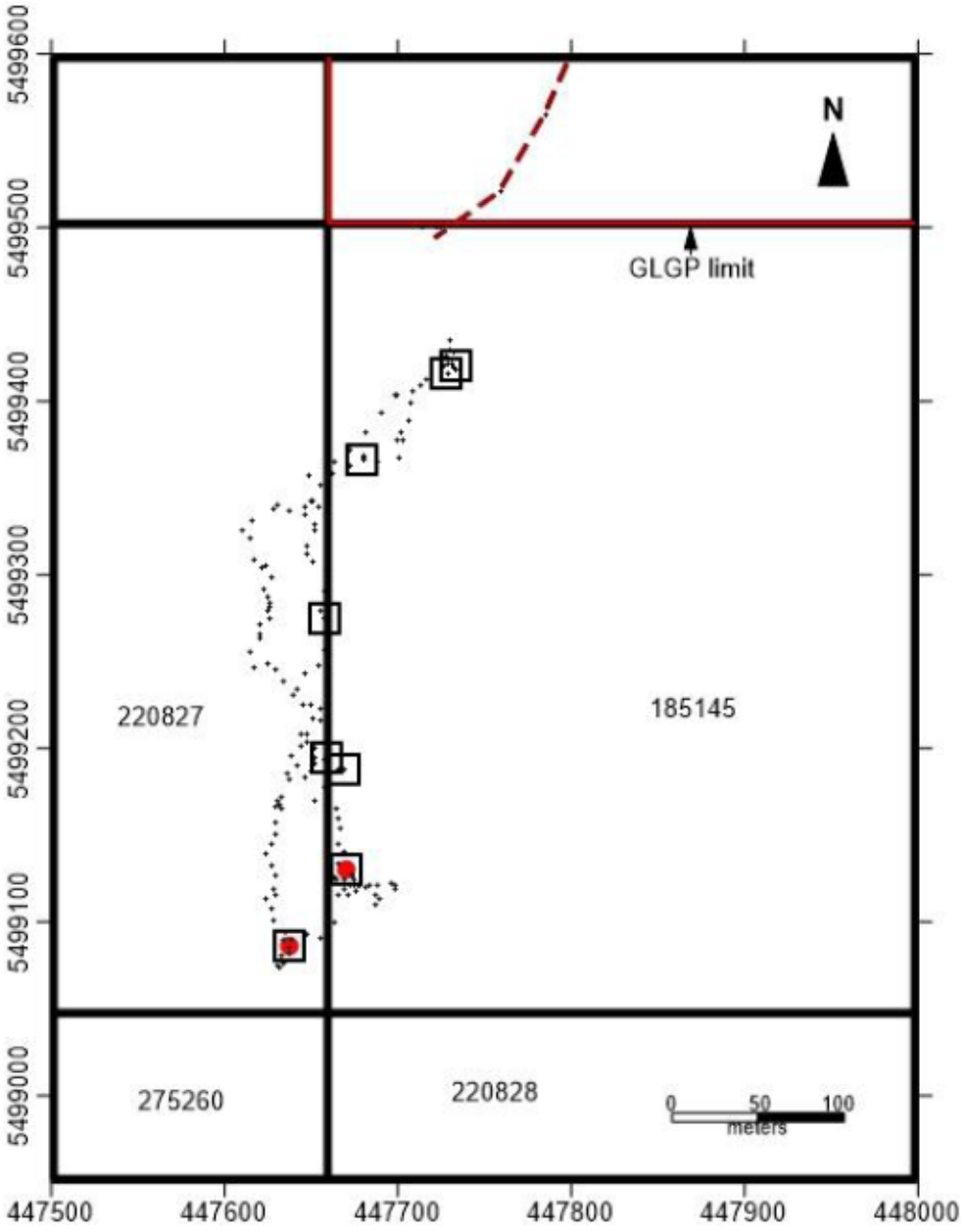

Fig. 12: Detail D, traverses, outcrops (squares) and sample sites (red circles).

Actlabs is ISO 17025 accredited, with CAN-P-1579 for specific registered tests. The protocol for sample preparation involves crushing, splitting, pulverizing and matting. If necessary, the samples are placed in a drying oven prior to preparation (approximately 50 ° C) until dry. The entire samples are crushed to -10 mesh. Approximately 500 gram sub-sample is split and pulverized to 90 per cent - 150 mesh (105 microns). The bowls are cleaned with silica sand between each sample. Pulverized samples are matted to ensure homogeneity.

Actlabs use fire assay for determinations of platinum, palladium and gold an ICP/OES analysis and a suite of 38 elements by ICP/MS, the laboratory codes FA-ICP and AR-ICP, respectively. The protocol for fire assay involves weighing, fluxing, fusion and cupellation. A 30 gram sample mass is used. The sample weights may be changed to accommodate for the sample chemistry. A furnace load consists of 24 – 26 samples with a check of every 10^{th} sample along with a blank and quality control standard.

The samples submitted for this project did not require any preliminary treatment and could be mixed directly with the assay flux and fused. The fusing takes 75 minutes at 1000 ° C and 20 – 50 gram lead buttons are cupelled at 1000 ° C for 50 minutes, then digested using a nitric and hydrochloric acids and bulked up with distilled water. All samples have a final volume of 3 ml.

Calibration standards for gold, platinum, palladium, copper and nickel are made from 1000 ppm certified stock solution. Quality Control check solutions are made up from separately purchased 1000 ppm certified stock solutions and are read after the standards and periodically throughout the analysis.

Actlabs' reports are produced using a LIMS program. All duplicate assays are reported on the certificate of analysis. All data generated for Quality Control standards, blanks and duplicates are retained and used in the validation of results. Warning lines on the chart are set at ± 2 standard deviations, and control lines are set at ± 3 standard deviations. Any data that falls between the ± 2 or ± 3 lines requires 10 % of the samples in that batch to be re-assayed and have their values compared with the previous set of results. Results will be accepted as long as the standards for each batch of samples fall within the ± 2 standard deviation lines. Any data

that falls outside the ± 3 standard deviation lines will result in rejection of all results and the re-assay of the entire batch.

In-house standards are used for platinum, palladium and gold analysis. They are made up from a rock source provided to AL by a third party. The Quality Assurance (QA) sample is made in the laboratory from certified stock solutions purchased from an ISO 9000 certified supplier. The solution is different from the solution used to make calibration standards. Although a standard or quality assurance standard may not be listed by job number on the control charts, a standard and quality assurance sample was run with each job.

Agatlabs are ISO 9001:2008 and ISO/IEC 17025:2005 accredited and adopt a Laboratory Information Management System (LIMS) and a comprehensive quality control program to monitor the whole process from registry, through sample preparation to analysis. Analytical accuracy is monitored using reagent blanks, reference materials and replicate samples. AgatLabs participate in the inter-laboratory test programs.

Sample preparation at AgatLabs includes fine crushing to better than 70 per cent < 20 mm, by rifle splitting to 250 grams and pulverized and rifle split to better than 85 per cent passing 75 micron. The homogenized, pulverized samples were assayed using the following procedures: 45 elements *aqua regia* digestion, ICP-OES finish (code 201073). Gold was assayed by fire assay, trace Au ICP-OES finish (code 202052).

2.3. Quality Control

Actlabs' analytical quality and accuracy control ("QC") included four repeats (samples 1408568, 1408596, 5560875 and 5560878), five standards (OREAS 520, 621, 904, 922 and 923 for 37 elements), PK2 standard for Au, Pt and Pd and three blanks. The QC also included two field duplicates (samples 5560874 and 5560876) to independently check the lab performance. The QC for whole rock analysis included five standards: NIST 694, DNC-1, W-2a, SV-4 and BR-1a and one blank. The QC graphs are in Figs. 14 to 21. Blanks are all below detection limit except one, where gold assayed 3 ppb.

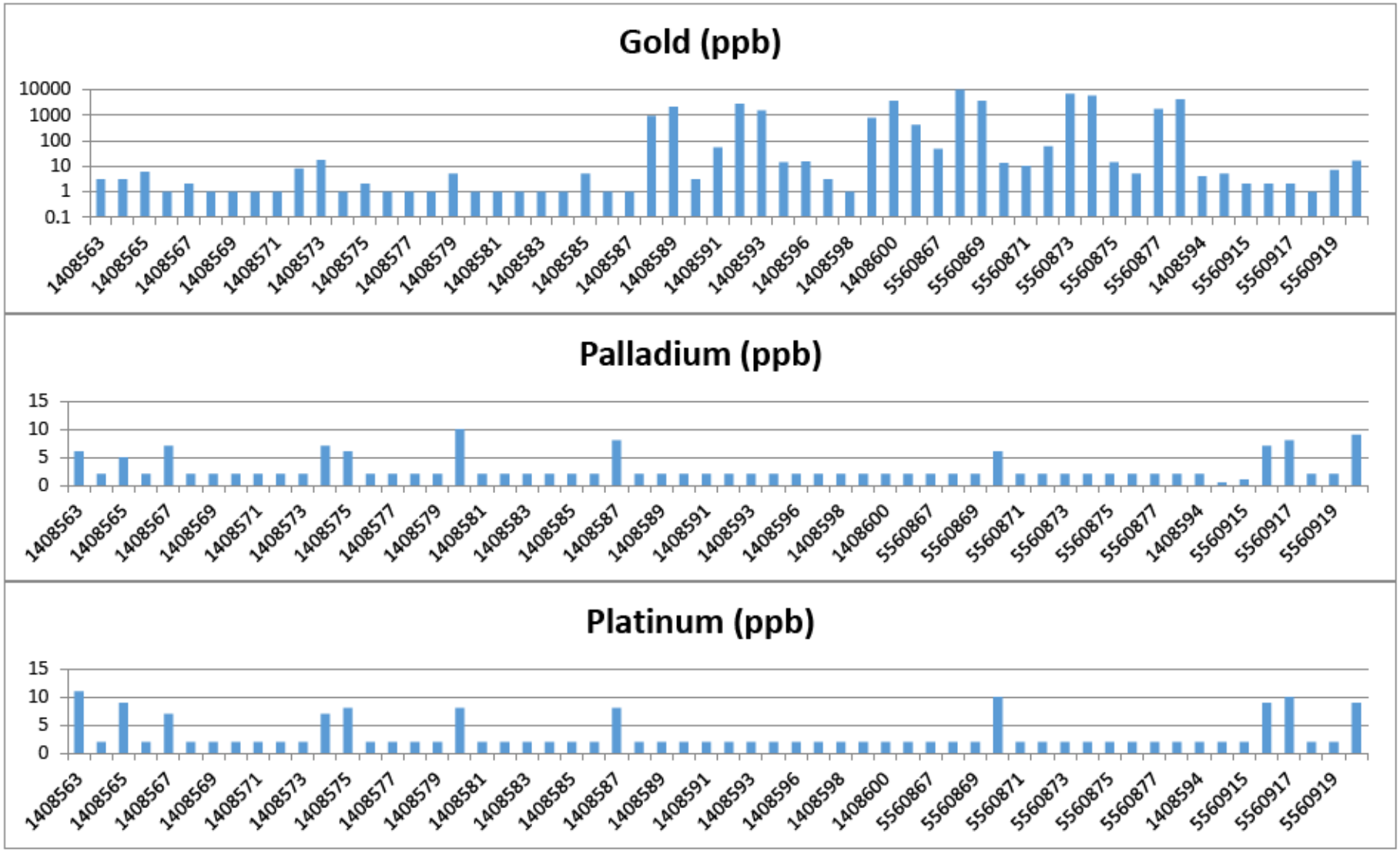

Fig. 13 a, b, c: graphs for gold, palladium and platinum.

Table 2: descriptive statistics

	Au	*Ag*	*Cu*	*Mn*	*Ni*	*Zn*	*As*	*Cr*	*Fe*	*S*	*Sb*
Count	15	15	15	15	15	15	15	15	15	15	15
Mean	2924.07	0.75	333.47	2848.80	15.87	47.67	9131.60	12.87	16.32	3.80	10.47
Standard Error	720.13	0.14	94.52	770.40	3.19	10.46	1769.61	3.45	1.68	0.92	2.24
Median	2080	0.6	146	1480	13	33	15000	8	16.2	3.03	7
St. Deviation	2789.05	0.53	366.09	2983.73	12.37	40.50	6853.67	13.35	6.51	3.57	8.66
Samp. Variance	7778792.35	0.28	134018.55	8902652.03	152.98	1640.38	46972786.83	178.27	42.44	12.78	74.98
Kurtosis	1.46	-0.77	1.46	-0.16	3.26	5.42	-1.96	2.70	-0.17	-0.76	0.59
Skewness	1.27	0.49	1.52	1.19	1.62	2.09	-0.40	1.87	-0.12	0.77	1.34
Range	9862	1.7	1189	8937	49	162	14970	45	22.91	11.03	27
Minimum	48	<0.2	41	163	1	7	30	2	5.09	0.07	2
Maximum	9910	1.8	1230	9100	50	169	>10000	47	28	11.1	29

Table 3: correlation matrix

	Au	*Ag*	*Cu*	*Mn*	*Ni*	*Zn*	*As*	*Cr*	*Fe*	*S*	*Sb*
Au	1.000										
Ag	0.709	1.000									
Cu	-0.379	-0.123	1.000								
Mn	0.243	0.412	-0.238	1.000							
Ni	-0.371	-0.246	0.644	-0.257	1.000						
Zn	-0.054	0.019	-0.211	0.462	0.164	1.000					
As	0.304	0.335	0.358	0.120	0.231	0.154	1.000				
Cr	-0.372	-0.527	-0.104	-0.301	0.386	0.556	-0.202	1.000			
Fe	0.203	0.393	-0.077	0.737	0.077	0.368	0.440	-0.275	1.000		
S	0.325	0.313	0.550	-0.175	0.523	-0.193	0.736	-0.261	0.241	1.000	
Sb	0.713	0.523	-0.214	0.109	-0.043	-0.011	0.601	-0.296	0.487	0.650	1.000

25-50% co-variance >50-75% co-variance

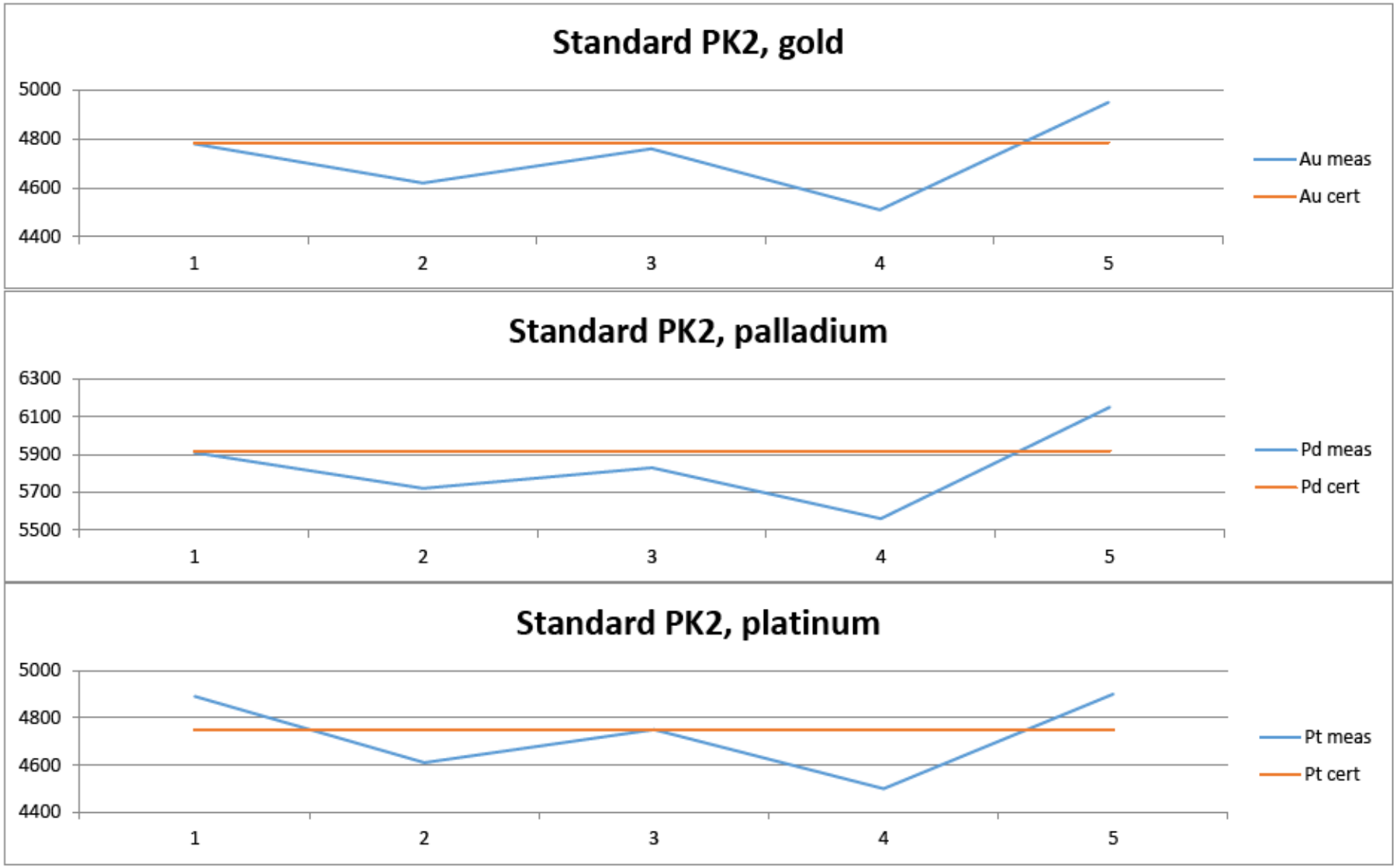

Fig. 14 a, b, c: standard PK2 for gold, palladium and platinum (in ppb).

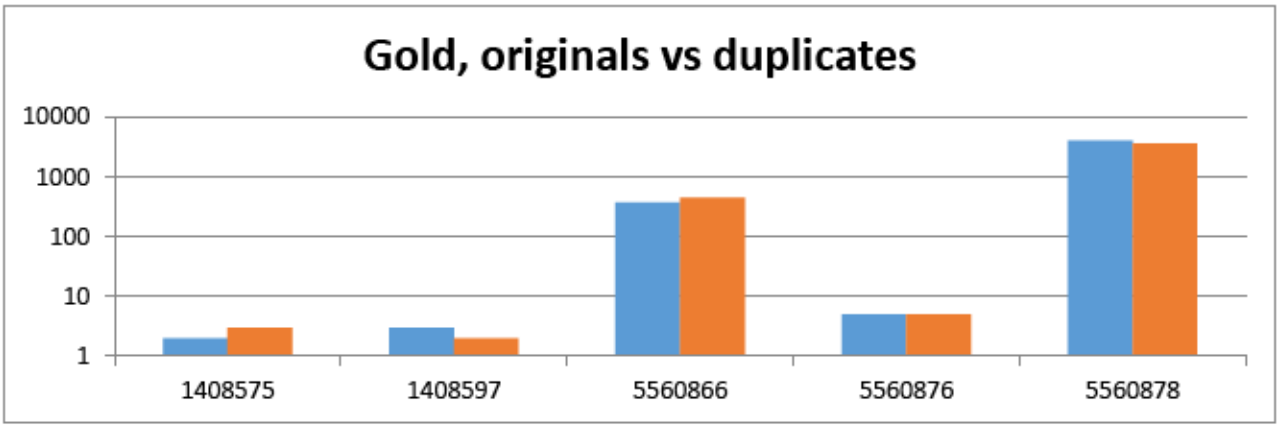

Fig. 15: gold in original (blue) vs duplicate (brown) assays.

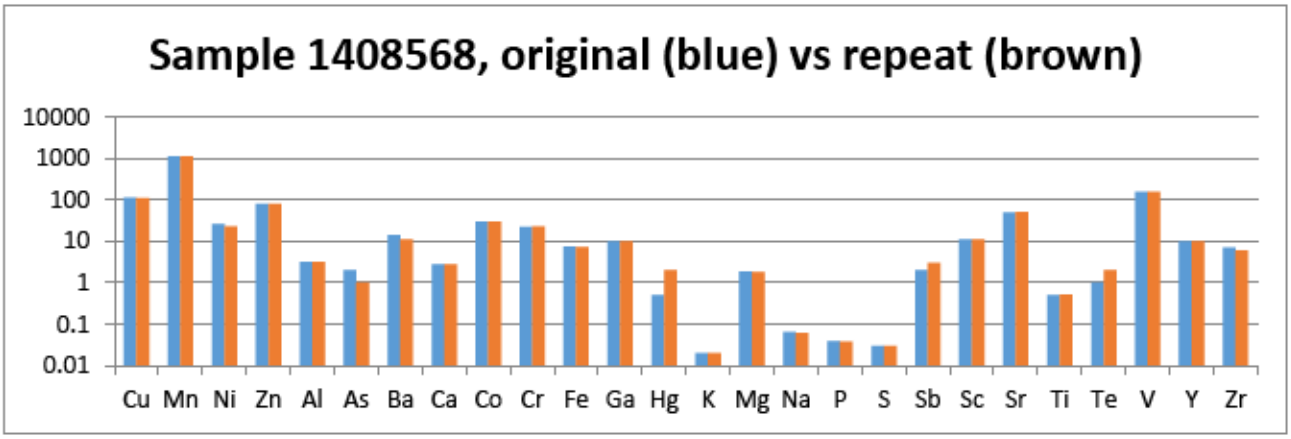

Fig. 16: sample 1408568, original vs repeat.

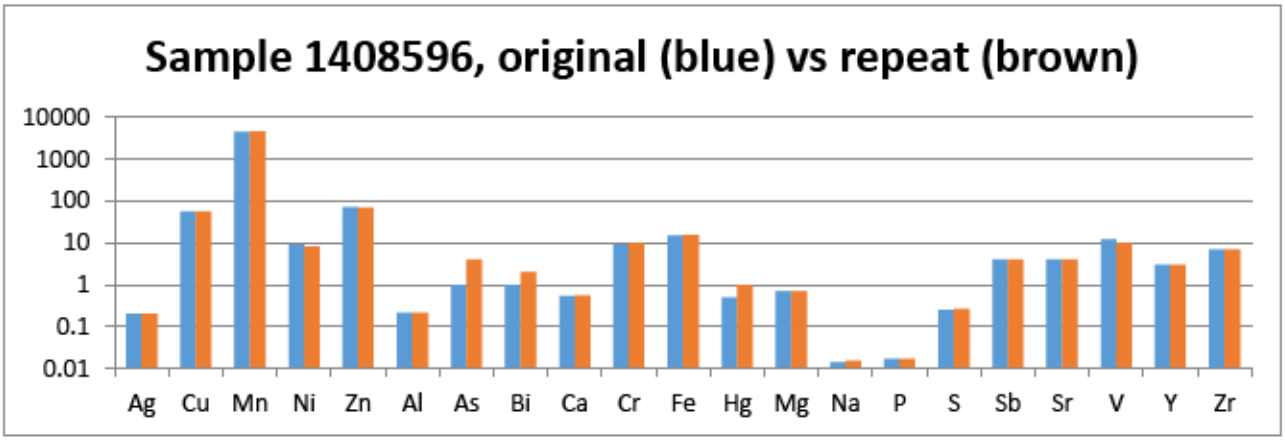

Fig. 17: sample 1408596, original vs repeat.

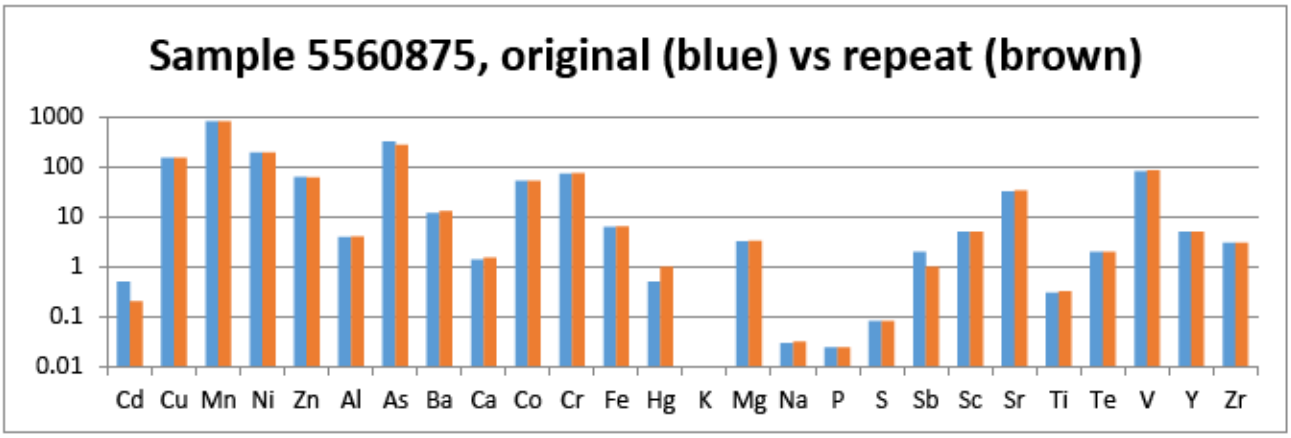

Fig. 18: sample 5560875, original vs repeat.

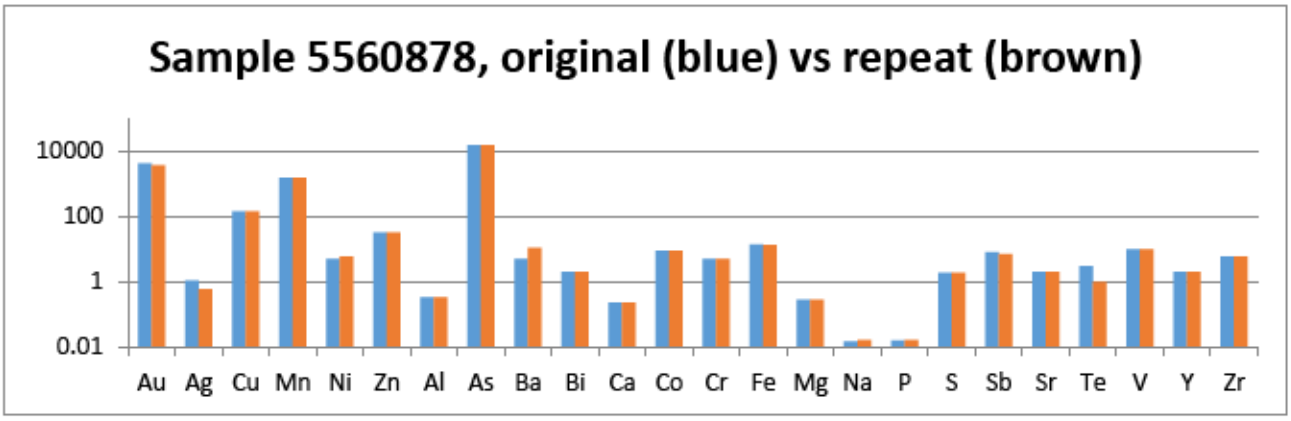

Fig. 19: sample 5560878, original vs repeat.

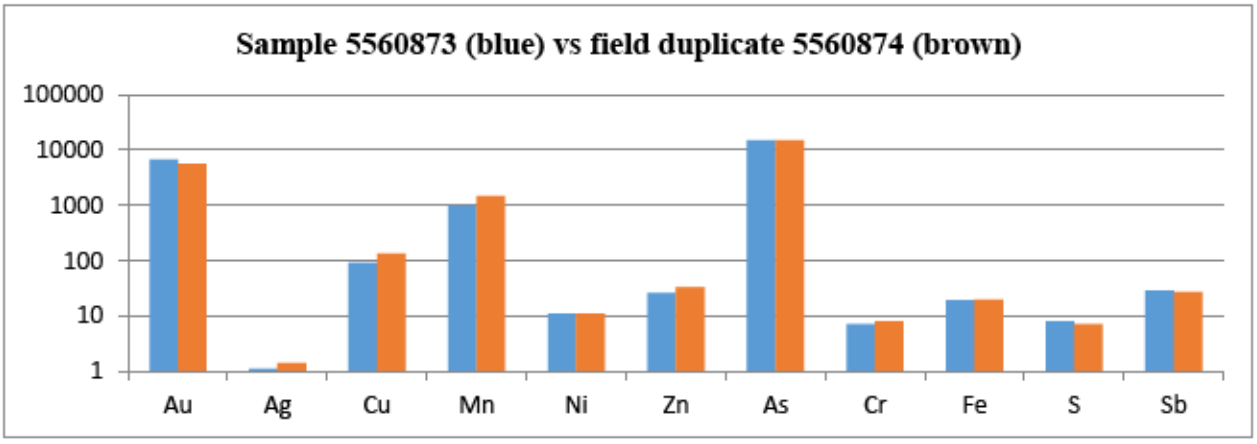

Fig. 20: graph for original vs field duplicate.

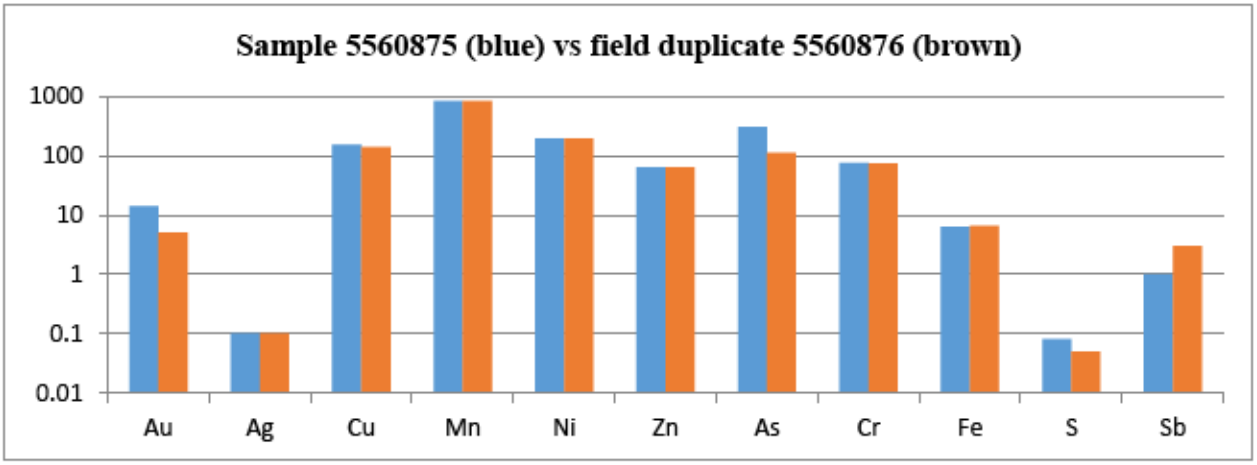

Fig. 21: graph for original vs field duplicate.

Agatlabs assayed 7 rock samples and the QA assays included two replicates (Table 4) and one standard PG129 (Table 5).

Table 4: originals vs replicates

Elem	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD
Au	5560914	0.005	0.007	+40%	5560920	0.016	0.012	-28.6%
Pd	5560914	< 0.001	< 0.001	0.0%	9351951	0.009	0.009	0.0%
Pt	5560914	< 0.005	< 0.005	0.0%	9351951	0.009	0.009	0.0%

Table 5: Standard PG129

Element	Expect	Actual	Recovery limits	%
Au	1.1	1	94%	90% - 110%
Pd	0.115	0.114	99%	90% - 110%
Pt	0.239	0.228	96%	90% - 110%

As shown (Table 4), replicate of sample 5560914 assayed by 40% more gold than its original, while palladium and platinum were both below detection limits. Replicate of sample 5560920 assayed 28.6% less gold than its original, whereas palladium and platinum assays are identical.

Table 5 shows the standard PG129 performance for gold, palladium and platinum. As shown, the actual values are all within ± 10% limits.

In conclusion, the quality control made for this project indicates that reproducibility and accuracy of the 2018 Actlab's and Agatlab's assays are sufficient for this stage of the project.

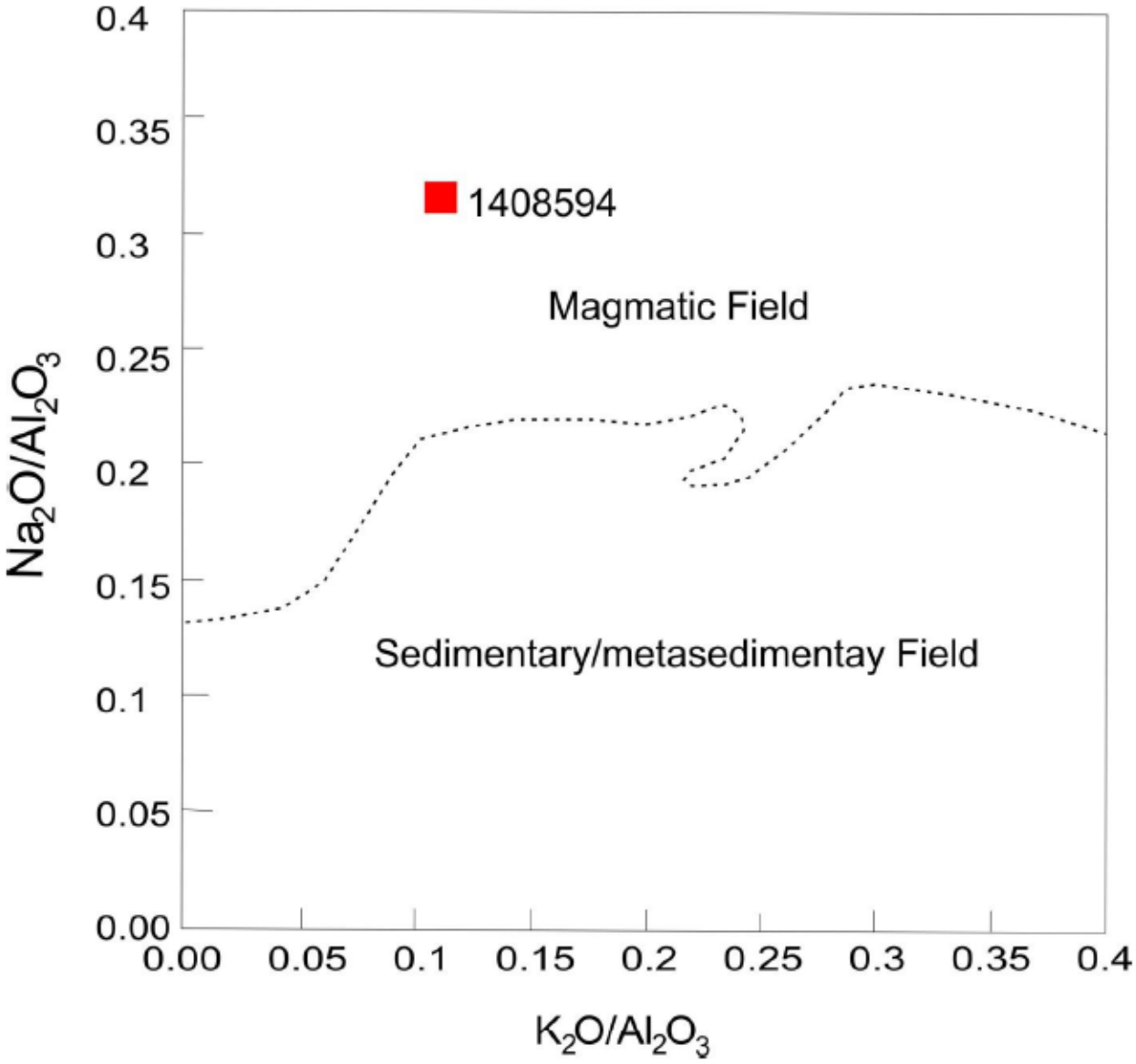

Fig. 22: whole rock analysis, classification diagram (after Garrels and MacKenzie, 1971).

3. CONCLUSIONS AND RECOMMENDATIONS

Empire's 2018 geochemical survey, outcrop mapping and sampling took place on the cell claims 220827, 303118, 191691, 191714, 207262, 314384, 199259, 291036, 107844, 283719, 283720, 145034, 247839 and 110057. The focus was on hydrothermal alteration zones, shear zones and quartz veins associated with the BIF and the gabbroic rocks with a potential to host platinum group mineralization.

A total of 58 channel and chip samples were collected and their locations and descriptions are in Figs. 5 to 8 and in Appendix I. Several samples from Gwyn Lake, Ralph Lake, Orion-Blacksmith and #12 showings with visible sulphidic mineralization returned anomalous to ore-grade gold values, which compare well with the previously reported data. Chip sampling and assays of the gabbroic rocks from the cell claims 191714, 314383 and 220827 resulted in most platinum and palladium values being below detection limit ("DL"). The assays above DL included 11 with Pt values ranging from 7 to 11 ppb and 13 with Pd values ranging from 5 to 10 ppb. Of interest is that all samples with high gold values returned Pt and Pd below detection limit. The whole rock analysis on a sample previously thought to be of sedimentary origin (greywacke) indicates a magmatic origin (Fig. 22) and can therefore be classified as porphyry.

Further work on the GLGP is warranted and should focus on the mineralized shear zones associated with the BIF in the western extension of the Dominion showings and eastern extension of the Gwyn Lake showing, with an objective to identify drilling targets. Remediation of the already sampled areas should be made to allow for further stripping. The platinum group potential of the gabbroic rocks should be further tested.

Proposed budget for the recommended work is as follows:

Geologist (10 days @ $ 900/day)	9,000.00
Prospector (10 days @ $ 350/day)	3,500.00
Assistant (10 days @ $ 250/day)	2,500.00
Assistant (10 days @ $ 250/day)	2,500.00
Truck rent (10 days @ $ 75/day, 50 km/day @ 0.35/km)	925.00
ATV rental with trailer (2 ATVs 10 days)	3000.00
Rock saws (2 x 10 days @ $ 40/day)	800.00
Accommodation and meals (4x10 x $ 150/day)	6,000.00
Assays (50 x $ 40)	2,000.00
Gas	500.00
Mob, demob (ON only)	400.00
Report (10 %)	3,112.50
Total	**34,237.50**

IN ACCOUNT WITH

XYQUEST MINING CORP.

Suite 702 • 889 West Pender Street • Vancouver BC • V6C 3B2 • Tel. 604.683.3288

Empire Metals Corp.
702-889 West Pender Street
Vancouver, BC V6C 3B2

14-Dec-18
Account #2018-006
GST#896269297

RE: Gwyn Lake Property Exploration 2018

	Days	Fees per Day	Amount
Senior Geologist, Dr. Bohumil B. Molak, PhD, PGeo			
June 2018 Field work	2.50	$ 900.00	$ 2,250.00
September 2018 Field work	12.50	$ 900.00	11,250.00
Mobilization and demobilization	1	$ 900.00	900.00
Report Preparation	5	$ 800.00	4,000.00
			$ 18,400.00
Geological Assistant, David Siccia			
September 2018 Field work	12.5	$ 350.00	$ 4,375.00
Mobilization and demobilization	1	$ 350.00	350.00
			$ 4,725.00
Geological Assistant, Lena Houghton			
September 2018 Field work	7	$ 350.00	$ 2,450.00
Mobilization and demobilization	0.5	$ 350.00	175.00
			$ 2,625.00
Geological Assistant, Luis Botto			
	25	$ 350.00	8,750.00
Research new system upgrades, numerous communication with Ontario Mining Recorder regarding system upgrade, data and map preparation / input for new system and resolution of same			$ 8,750.00
Expenses:			
Airfare			1,298.89
Accommodation			1,895.40
Food (Meals, Groceries, etc.)			707.91
Fuel/ Transportation charges			343.74
ATV Rental with Trailer (2 ATV's + Trailer)			2,100.00
Truck Rental (12 days @ $75/day, 70km/day @ $0.35/Km)			811.92
Assays (65 samples)			2,571.20
Equipment rental (Satellite Phone - 12 days)			60.00
Expense Administration Fee and Office Charge			1,468.36
Total Expenses			$ 11,257.43
Digitization, Preliminary Exploration Report (at 10% of costs)			$ 4,575.74
Subtotal			$ 50,333.17
GST 5%			$ 2,516.66
Total			**$ 52,849.83**

This is our account herein

XYQUEST MINING CORP.

per:

ANTHONY J. BERUSCHI

• INTEREST OF 2% PER MONTH, COMPOUNDED MONTHLY,
OR 26.8% PER ANNUM CHARGED ON OVERDUE ACCOUNTS

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www.sedar.com, Empire's MD&A and Interim financial statements.

6. STATEMENT OF QUALIFICATIONS

I, Bohumil (Boris) Molak, Ph.D., P.Geo., do hereby certify that:

1. I am a self-employed Professional Geoscientist residing at 312, 9298 University Crescent, Burnaby, BC., V5A 4X8, Canada.

2. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (License No. 28600) in good standing.

3. I graduated from the Comenius University of Czechoslovakia in 1970 with a Bachelor of Science (Mgr.) in Economic Geology. From the same university I obtained in 1980 a title Master of Science in Economic Geology (RNDr.) and in 1990, the degree Doctor of Philosophy (CSc.). I have practiced my profession continuously since 1970.

4. My geological practice includes research, prospecting, and exploration for precious, base, ferrous and other metals in Slovakia, Zambia, Cuba, Guinea, Canada, Chile and Argentina.

5. Since July 2003 until present I am a self-employed, consulting geoscientist.

6. I conducted the field work and supervised the exploration programs on the Gwyn Lake Gold Prospect in 2005, 2007, 2008, 2010, 2014, 2015, 2016, 2017 and 2018. I am responsible for all items in this report except the item "In account with Xyquest Mining Corp.", which was prepared by Xyquest Mining Corp.

7. I am the Qualified Person for the purposes of this report.

8. The sources of all information not based on personal examination are quoted in the References item. As of the date of this Certificate I am not aware of any material fact or material change with respect to the subject matter of this report that is not reflected in this report, the omission of which would make the report misleading.

9. I am independent of Empire Metals Corp.

Dated at Vancouver, BC, Canada, this 22nd day of February, 2019.

APPENDIX I

Sample descriptions, coordinates with gold, platinum, palladium, copper and nickel assays

Easting	Northing	Description	#	Au	Pd	Pt	Cu	Ni
445536	5499299	Small ledge outcrop, gabbro with some feldspar, thin fractures with Fe-ox coating	1408563	3	6	11	139	23
445551	5499177	Small outcrop, faintly foliated to massive greenstone, 1-2mm qtz, flsp veinlets, diss sulph 2-3%	1408564	3	< 5	< 5	109	39
445574	5499130	Small ledge, faintly foliated gabbro flesdspar veinlets, rare diss sulph with feldspar	1408565	6	5	9	96	77
445432	5499064	Small ledge, vey fine grained gabbro a calcite (?) veinlet 1 cm, fractures coated with Fe-oxides	1408566	< 2	< 5	< 5	121	41
445432	5499407	Ridge outcrop, med gr gabbro beige felspar diss sulph 2-3 %	1408567	2	7	7	191	48
444977	5499636	Scarpy outcrop, foliated greenstone, diss prt 1-2%, f-260/65S	1408568	< 2	< 5	< 5	111	25
445574	5499377	Small outcrop, faintly foliated gabbroic rock f-260/70S	1408569	< 2	< 5	< 5	79	58
445560	5499221	Scarp (3m high), foliated greenstone, whitish quartz, calcite veinlets, prt 1-2%, f-255/80S	1408570	< 2	< 5	< 5	96	53
445556	5499011	Small ridge outcrop, med gr chloritized gabbro diss sulph 2-3 %, brown Fe-ox infiltrations	1408571	< 2	< 5	< 5	79	38
445558	5498819	Small outcrop, white quartz boulders <0.3m, brown streaks with prt, arsprt crystal <1cm,	1408572	8	< 5	< 5	7	3
445559	5498815	Small outcrop, white quartz boulders <0.3m, brown streaks with prt, arsprt crystal <1cm,	1408573	17	< 5	< 5	18	8
445526	5498649	Ledge outcrop, sheared, platy chlorite schist s1, s2 planes, 2-3% diss prt	1408574	< 2	7	7	69	35
445561	5498600	Scarp up to 8m high, 20 m long greenstone, whitish sugary quartz, along foliation, Fe-ox	1408575	2	6	8	58	78
445477	5498978	Small outcrop, greenstone at swamp edge, diss prt 2-3%	1408576	< 2	< 5	< 5	58	72
445350	5499500	Small ridge outcrop, gabbro (?) diss sulph 2-3 %	1408577	< 2	< 5	< 5	97	32
445316	5499534	Large outcrop, greenstone cut by quartz ± calcite, epidote veinlets <2 cm, sulph crystals <1cm	1408578	< 2	< 5	< 5	261	48
445339	5499285	Large outcrop, med gr gabbro, nmerous brown specks after sulph?	1408579	5	< 5	< 5	64	40
445228	5499435	Ledge outcrop, sheared, platy chlorite schist s1, s2 planes, 2-3% diss prt	1408580	< 2	10	8	86	61
445253	5499676	A ledge outcrop, med gr gabbroic greenstone diss sulph <1 %	1408581	< 2	< 5	< 5	86	53
442913	5497828	Old trench, strongly weathered, sheared brown grnstn, qtz±carb lenses, numerous magnetite, prt	1408582	< 2	< 5	< 5	8	7
442913	5497828	Old trench, strongly weathered, sheared brown grnstn, qtz±carb lenses, numerous magnetite, prt	1408583	< 2	< 5	< 5	11	2
442758	5497590	Old trench, greenstone, with quatz veins, lenses, with brown specks	1408584	< 2	< 5	< 5	6	8
442871	5497772	Outcrop, finely foliated chloritic schist, brown Fe-ox infiltrations	1408585	5	< 5	< 5	89	46
442866	5497680	Ledge outcrop, greenstone, diss prt 2-3%, f 260/90± 10	1408586	< 2	< 5	< 5	94	143
442824	5497564	Small outcrop, gabbroic rocks, diss prt, arsprt 2-3%	1408587	< 2	8	8	115	23

443116	5497643	Gwyn Lake showing, quartz vein with arsenopyrite	1408588	910	< 5	< 5	41	8
443187	5497647	Gwyn Lake showing, brown Fe-ox shear with vein quartz, altered rock, numerous arsenopyrite grains	1408589	2080	< 5	< 5	118	14
443267	5497658	Gwyn Lake showing, quartz vein with arsenopyrite	1408590	3	< 5	< 5	5	130
442317	5497537	Old showing, continuous channel (0.4m), shear zone with quartz, arsenopyrite	1408591	53	< 5	< 5	150	8
442317	5497537	Old showing, continuous channel (0.4m), shear zone with quartz, arsenopyrite	1408592	2720	< 5	< 5	172	17
442317	5497537	Old showing, continuous channel (0.4), shear zone with quartz, arsenopyrite	1408593	1530	< 5	< 5	83	21
442317	5497537	Old showing, pale brown porphyry (WR)	1408594	4	< 5	< 5		
442285	5497533	Old showing, continuous channel (0.4m), shear zone with quartz, arsenopyrite	1408595	14	< 5	< 5	79	5
442285	5497533	Old showing, continuous channel (0.4m), shear zone with quartz, arsenopyrite	1408596	15	< 5	< 5	56	8
441808	5497392	Small outcrop, green-brown schist, sulphides 1-2%	1408597	3	< 5	< 5	131	76
441792	5497390	Small outcrop,green-brown silicified, very hard rock	1408598	< 2	< 5	< 5	1	108
441946	5497803	Yellow saccaroidal quartz with brown bands and fine arsenopyrite and pyrite in them	1408599	790	< 5	< 5	1230	27
441946	5497803	Sulphidic veinlet <1cm, cuts across banded saccaroidal quartz with arsenopyrite and pyrite	1408600	3570	< 5	< 5	665	13
441946	5497803	Quartz lense with arsenopyrite	5560866	414	< 5	< 5	970	50
441963	5497818	Heavily altered BIF with quartz lenses, arsenopyrite, pyrite, discontinuous channel (1.2 m)	5560867	48	< 5	< 5	410	30
441963	5497818	Quartz lense with arsenopyrite and pyrite (?)	5560868	9910	< 5	< 5	69	9
442013	5497834	Sheared, brown to dark brown schist with quartz lenses, heavily Fe-oxidic	5560869	3530	< 5	< 5	264	16
442068	5498959	Scarp, greenstone with grey, brown, beige quartz lenses, f-250/85	5560870	13	6	10	13	119
442200	5497663	N. 9 showing, shear next to BIF (magnetic), grey quartz lense with lots of Fe-ox patinas, arsenopyrite?	5560871	10	< 5	< 5	30	21
441529	5497776	Old pit, alternating bands of brown, beige quartz, dark magnetite bands, quartz bands <0.3 m thick	5560872	59	< 5	< 5	58	1
441575	5497783	BIF, up to 3 m thick, with quartz lenses <0.8 m thick arsenopyrite, f- 220/90 ± 10°	5560873	6770	< 5	< 5	92	11
441575	5497783	BIF, up to 3 m thick, with qtz lns <0.8 m thick arsprt, f- 220/90 ± 10°,field duplicate of 5560873	5560874	5690	< 5	< 5	134	11
441549	5497815	Large flat outcrop on Ralph Lake shore, green med gr gabbro, diss prt 1-2%	5560875	14	< 5	< 5	153	195
441549	5497815	Large flat outcrop on Ralph Lake shore, green med gr gabbro, diss prt 1-2%; field duplicate of 5560875	5560876	5	< 5	< 5	140	193
441667	5497807	BIF, shear zone, brown, gossanous vuggy rock	5560877	1740	< 5	< 5	550	5
441774	5497812	BIF, up to 3.5 m thick, with shear stuffed with arsenopyrite, (1-2cm), f- 240/90 ± 10°	5560878	4100	< 5	< 5	146	5
447670	5499130	Ledge-like outcrop, med grained, foliated greenstone, rare diss sulphides ~ 1%, f-90/80±10	5560914	5	<1	<5		
447637	5499086	Ledge-like outcrop, foliated greenstone, lots of brown Fe-oxidic specks	5560915	2	1	<5		
445949	5499507	Small outcrop, strongly sheared greenstone, lots of brown Fe-oxidic flecks and infiltrations, qtz lns	5560916	2	7	9		

445743	5499431	Flattish outcrop, massive greenstone, fractures filled by epidote, scarce disseminated (prt) sulphides	5560917	2	8	10		
445776	5499415	Ledge-like outcrop, light brown, folded greenstone with saccaroidal quartz, some sulphides, Fe-ox	5560918	1	2	<5		
445701	5499403	Outcrop, sheared greenstone, f-85/70 S, tiny sulphides on fractures and/or foliation planes	5560919	7	2	<5		
445688	5499406	Sub-crop or boulder (?) dark, garnetiferous rock, brown specks after sulphides (?)	5560920	16	9	9		

Abbreviations: asprt – arsenopyrite ; diss – disseminated; f – foliation; Fe-ox – iron oxides; flsp – feldspar; gr – grained; med – medium; lns – lense; prt – pyrite; qtz – quartz; WR – whole rock analysis.

APPENDIX II

Assay Certificates

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

CLIENT NAME: MISC AGAT CLIENT ON, ON

ATTENTION TO: .Boris Molak

PROJECT:

AGAT WORK ORDER: 18B353935

SOLID ANALYSIS REVIEWED BY: Adel Mina, Mining Chief Chemist

DATE REPORTED: Jul 30, 2018

PAGES (INCLUDING COVER): 7

Should you require any information regarding this analysis please contact your client services representative at (905) 501-9998

*NOTES

All samples are stored at no charge for 90 days. Please contact the lab if you require additional sample storage time.

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18B353935
PROJECT:

CLIENT NAME: MISC AGAT CLIENT ON

ATTENTION TO: .Boris Molak

(200-) Sample Login Weight

DATE SAMPLED: Jun 21, 2018 | DATE RECEIVED: Jun 22, 2018 | DATE REPORTED: Jul 30, 2018 | SAMPLE TYPE: Rock

Analyte:	Sample Login Weight
Unit:	kg
Sample ID (AGAT ID) RDL:	0.01
5560914 (9351945)	1.22
5560915 (9351946)	1.18
5560916 (9351947)	0.75
5560917 (9351948)	1.11
5560918 (9351949)	1.50
5560919 (9351950)	1.53
5560920 (9351951)	1.77

Comments: RDL - Reported Detection Limit

Certified By:

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18B353935
PROJECT:

CLIENT NAME: MISC AGAT CLIENT ON

ATTENTION TO: .Boris Molak

(202-055) Fire Assay - Au, Pt, Pd Trace Levels, ICP-OES finish

DATE SAMPLED: Jun 21, 2018 | DATE RECEIVED: Jun 22, 2018 | DATE REPORTED: Jul 30, 2018 | SAMPLE TYPE: Rock

Analyte:	Au	Pd	Pt
Unit:	ppm	ppm	ppm
Sample ID (AGAT ID) RDL:	0.001	0.001	0.005
5560914 (9351945)	0.005	<0.001	<0.005
5560915 (9351946)	0.002	0.001	<0.005
5560916 (9351947)	0.002	0.007	0.009
5560917 (9351948)	0.002	0.008	0.010
5560918 (9351949)	0.001	0.002	<0.005
5560919 (9351950)	0.007	0.002	<0.005
5560920 (9351951)	0.016	0.009	0.009

Comments: RDL - Reported Detection Limit

Certified By:

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18B353935
PROJECT:

CLIENT NAME: MISC AGAT CLIENT ON

ATTENTION TO: .Boris Molak

Sieving - % Passing (Pulverizing)

DATE SAMPLED: Jun 21, 2018 | DATE RECEIVED: Jun 22, 2018 | DATE REPORTED: Jul 30, 2018 | SAMPLE TYPE: Rock

	Analyte:	Pass %
	Unit:	%
Sample ID (AGAT ID)	RDL:	0.01
5560914 (9351945)		90.9

Comments: RDL - Reported Detection Limit

Certified By:

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

Quality Assurance - Replicate

AGAT WORK ORDER: 18B353935
PROJECT:

CLIENT NAME: MISC AGAT CLIENT ON

ATTENTION TO: .Boris Molak

(202-055) Fire Assay - Au, Pt, Pd Trace Levels, ICP-OES finish

	REPLICATE #1				REPLICATE #2											
Parameter	Sample ID	Original	Replicate	RPD	Sample ID	Original	Replicate	RPD								
Au	9351945	0.005	0.007		9351951	0.016	0.012	28.6%								
Pd	9351945	< 0.001	< 0.001	0.0%	9351951	0.009	0.009	0.0%								
Pt	9351945	< 0.005	< 0.005	0.0%	9351951	0.009	0.009	0.0%								

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

Quality Assurance - Certified Reference materials

AGAT WORK ORDER: 18B353935

PROJECT:

CLIENT NAME: MISC AGAT CLIENT ON

ATTENTION TO: .Boris Molak

(202-055) Fire Assay - Au, Pt, Pd Trace Levels, ICP-OES finish

	CRM #1 (ref.PG129)															
Parameter	Expect	Actual	Recovery	Limits												
Au	1.1	1	94%	90% - 110%												
Pd	0.115	0.114	99%	90% - 110%												
Pt	0.239	0.228	96%	90% - 110%												

AGAT Laboratories

5623 McADAM ROAD
MISSISSAUGA, ONTARIO
CANADA L4Z 1N9
TEL (905)501-9998
FAX (905)501-0589
http://www.agatlabs.com

Method Summary

CLIENT NAME: MISC AGAT CLIENT ON

AGAT WORK ORDER: 18B353935

PROJECT:

ATTENTION TO: .Boris Molak

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Solid Analysis			
Sample Login Weight	MIN-12009		BALANCE
Au	MIN-200-12006	BUGBEE, E: A Textbook of Fire Assaying	ICP/OES
Pd	MIN-200-12006	BUGBEE, E: A Textbook of Fire Assaying	ICP/OES
Pt	MIN-200-12006	BUGBEE, E: A Textbook of Fire Assaying	ICP/OES
Pass %			BALANCE

Quality Analysis ... *Innovative Technologies*

Date Submitted: 09-Oct-18
Invoice No.: A18-14726
Invoice Date: 18-Dec-18
Your Reference:

Empire Metals Corp.
702-889 W. Pender St
Vancouver BC
Canada

ATTN: Boris Molak

CERTIFICATE OF ANALYSIS

51 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 1C-OES-Tbay Fire Assay ICPOES (QOP Fire Assay Tbay)
Code 1E3-Tbay Aqua Regia ICP(AQUAGEO)

REPORT **A18-14726**

Notes:

Total includes all elements in % oxide to the left of total.

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
1201 Walsh Street West, Thunder Bay, Ontario, Canada, P7E 4X6
TELEPHONE +807 622-6707 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Tbay@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Date Submitted: 09-Oct-18
Invoice No.: A18-14726
Invoice Date: 18-Dec-18
Your Reference:

Empire Metals Corp.
702-889 W. Pender St
Vancouver BC
Canada

ATTN: Boris Molak

CERTIFICATE OF ANALYSIS

51 Rock samples were submitted for analysis.

The following analytical package(s) were requested: Code 4B (1-10) Major Elements Fusion ICP(WRA)

REPORT **A18-14726**

Notes:

Total includes all elements in % oxide to the left of total.

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm
Lower Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1
Method Code	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1408563	3	6	11	< 0.2	< 0.5	139	1100	< 1	23	< 2	100	3.58	5	< 10	12	< 0.5	< 2	2.02	30	18	7.78	< 10	< 1
1408564	3	< 5	< 5	< 0.2	< 0.5	109	753	< 1	39	< 2	52	2.62	34	< 10	12	< 0.5	< 2	2.62	38	24	5.39	< 10	3
1408565	6	5	9	< 0.2	< 0.5	96	630	< 1	77	< 2	37	2.59	5	< 10	34	< 0.5	< 2	1.98	27	82	4.12	< 10	< 1
1408566	< 2	< 5	< 5	< 0.2	< 0.5	121	362	< 1	41	< 2	27	1.69	16	< 10	12	< 0.5	< 2	1.73	25	32	3.13	< 10	< 1
1408567	2	7	7	< 0.2	< 0.5	191	833	< 1	48	< 2	64	2.61	3	< 10	22	< 0.5	< 2	1.96	31	37	5.96	10	2
1408568	< 2	< 5	< 5	< 0.2	< 0.5	111	1120	< 1	25	< 2	79	3.19	< 2	< 10	13	< 0.5	< 2	2.77	30	23	7.27	10	< 1
1408569	< 2	< 5	< 5	< 0.2	< 0.5	79	962	< 1	58	< 2	105	3.11	< 2	< 10	14	< 0.5	< 2	1.22	33	98	6.87	10	< 1
1408570	< 2	< 5	< 5	< 0.2	< 0.5	96	1170	< 1	53	< 2	54	2.80	< 2	< 10	14	< 0.5	< 2	3.01	31	61	5.07	< 10	< 1
1408571	< 2	< 5	< 5	< 0.2	< 0.5	79	669	< 1	38	< 2	43	2.64	8	< 10	16	< 0.5	< 2	1.42	22	34	5.40	< 10	4
1408572	8	< 5	< 5	< 0.2	< 0.5	7	155	2	3	< 2	< 2	0.07	1570	< 10	14	< 0.5	< 2	0.24	1	19	0.67	< 10	< 1
1408573	17	< 5	< 5	< 0.2	< 0.5	18	262	2	8	< 2	8	0.17	2260	< 10	13	< 0.5	< 2	0.63	3	30	1.10	< 10	< 1
1408574	< 2	7	7	0.3	< 0.5	69	6390	< 1	35	< 2	46	3.46	< 2	< 10	13	< 0.5	< 2	7.10	12	40	18.8	< 10	1
1408575	2	6	8	< 0.2	< 0.5	58	1200	4	78	< 2	70	3.67	3	< 10	12	< 0.5	< 2	3.89	34	59	6.86	< 10	< 1
1408576	< 2	< 5	< 5	< 0.2	< 0.5	58	774	< 1	72	< 2	51	2.64	16	< 10	16	< 0.5	< 2	2.18	28	75	4.60	< 10	1
1408577	< 2	< 5	< 5	< 0.2	< 0.5	97	405	< 1	32	< 2	50	4.41	< 2	< 10	39	< 0.5	< 2	2.84	21	29	4.45	< 10	< 1
1408578	< 2	< 5	< 5	< 0.2	< 0.5	261	537	< 1	48	< 2	14	2.52	5	< 10	15	< 0.5	< 2	3.12	22	77	3.68	< 10	< 1
1408579	5	< 5	< 5	< 0.2	< 0.5	64	768	< 1	40	< 2	57	2.59	< 2	< 10	12	< 0.5	< 2	1.30	24	66	5.35	< 10	2
1408580	< 2	10	8	< 0.2	< 0.5	86	849	< 1	61	< 2	77	5.22	3	< 10	16	< 0.5	< 2	0.93	34	73	9.48	10	1
1408581	< 2	< 5	< 5	< 0.2	< 0.5	86	991	< 1	53	< 2	77	3.46	2	< 10	14	< 0.5	< 2	1.64	36	31	8.05	10	3
1408582	< 2	< 5	< 5	< 0.2	< 0.5	8	263	2	7	< 2	9	0.29	6	< 10	11	< 0.5	< 2	0.58	3	24	1.91	< 10	< 1
1408583	< 2	< 5	< 5	< 0.2	< 0.5	11	5260	< 1	2	< 2	14	0.13	7	< 10	< 10	< 0.5	< 2	7.77	< 1	6	15.8	< 10	< 1
1408584	< 2	< 5	< 5	< 0.2	< 0.5	6	835	3	8	< 2	19	0.37	6	< 10	18	< 0.5	< 2	0.66	4	26	1.95	< 10	< 1
1408585	5	< 5	< 5	< 0.2	1.6	89	1420	< 1	46	< 2	235	2.90	< 2	< 10	65	< 0.5	< 2	0.50	26	113	6.83	10	3
1408586	< 2	< 5	< 5	< 0.2	< 0.5	94	924	< 1	143	< 2	63	3.78	3	< 10	14	< 0.5	< 2	3.64	39	207	5.88	< 10	2
1408587	< 2	8	8	< 0.2	< 0.5	115	592	< 1	23	< 2	60	2.84	< 2	< 10	11	< 0.5	< 2	1.61	24	19	5.19	< 10	< 1
1408588	910	< 5	< 5	0.4	0.7	41	1420	2	8	< 2	25	0.30	1930	< 10	< 10	< 0.5	4	0.15	3	17	5.16	< 10	< 1
1408589	2080	< 5	< 5	0.6	< 0.5	118	9100	< 1	14	< 2	82	0.33	9270	< 10	< 10	< 0.5	4	3.68	< 1	3	28.0	< 10	< 1
1408590	3	< 5	< 5	< 0.2	< 0.5	5	2250	< 1	130	< 2	36	1.22	142	< 10	75	< 0.5	< 2	5.82	26	137	5.96	< 10	< 1
1408591	53	< 5	< 5	< 0.2	1.4	150	2450	< 1	8	4	220	0.54	401	< 10	22	< 0.5	< 2	0.17	13	8	9.78	< 10	4
1408592	2720	< 5	< 5	0.2	0.9	172	1820	< 1	17	< 2	47	0.27	458	< 10	15	< 0.5	< 2	1.41	1	22	13.8	< 10	1
1408593	1530	< 5	< 5	< 0.2	0.9	83	772	< 1	21	< 2	41	1.08	617	< 10	16	0.8	< 2	0.30	4	39	12.7	< 10	< 1
1408595	14	< 5	< 5	0.3	< 0.5	79	2460	< 1	5	3	52	0.31	3	< 10	< 10	< 0.5	< 2	0.80	< 1	6	13.2	< 10	2
1408596	15	< 5	< 5	0.2	< 0.5	56	4520	< 1	8	< 2	69	0.21	< 2	< 10	< 10	< 0.5	< 2	0.55	< 1	10	15.0	< 10	< 1
1408597	3	< 5	< 5	< 0.2	< 0.5	131	1180	< 1	76	< 2	72	3.13	36	< 10	< 10	< 0.5	2	5.79	31	341	7.91	< 10	1
1408598	< 2	< 5	< 5	< 0.2	0.6	1	2810	< 1	108	< 2	48	0.55	232	< 10	25	< 0.5	< 2	> 10.0	40	119	10.9	< 10	2
1408599	790	< 5	< 5	0.4	< 0.5	1230	266	< 1	27	3	11	0.07	> 10000	< 10	< 10	< 0.5	< 2	0.06	21	8	11.4	< 10	< 1
1408600	3570	< 5	< 5	0.8	< 0.5	665	163	< 1	13	< 2	7	0.03	4240	< 10	< 10	< 0.5	< 2	0.02	< 1	6	5.09	< 10	< 1
5560866	414	< 5	< 5	0.6	< 0.5	970	821	< 1	50	< 2	22	0.13	> 10000	< 10	< 10	< 0.5	3	0.01	63	10	20.8	< 10	< 1
5560867	48	< 5	< 5	0.3	< 0.5	410	2480	< 1	30	< 2	169	1.42	> 10000	< 10	14	< 0.5	3	0.84	21	47	16.2	< 10	< 1
5560868	9910	< 5	< 5	1.4	1.4	69	7020	1	9	< 2	73	0.43	> 10000	< 10	< 10	< 0.5	6	4.61	3	5	19.8	< 10	< 1
5560869	3530	< 5	< 5	1.8	0.7	264	6070	< 1	16	2	75	0.94	429	< 10	16	< 0.5	2	0.68	10	8	20.0	< 10	< 1
5560870	13	6	10	< 0.2	< 0.5	13	1910	< 1	119	< 2	40	0.91	333	< 10	14	< 0.5	< 2	5.82	49	104	3.64	< 10	< 1

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm
Lower Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1
Method Code	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
5560871	10	< 5	< 5	< 0.2	1.4	30	987	2	21	7	545	0.22	58	< 10	24	< 0.5	< 2	0.52	12	16	9.20	< 10	1
5560872	59	< 5	< 5	< 0.2	< 0.5	58	1200	< 1	1	2	24	0.47	30	< 10	28	< 0.5	< 2	0.91	< 1	6	13.6	< 10	3
5560873	6770	< 5	< 5	1.1	0.7	92	990	3	11	3	26	0.49	> 10000	< 10	< 10	< 0.5	4	1.69	22	7	19.4	< 10	< 1
5560874	5690	< 5	< 5	1.4	1.3	134	1480	2	11	< 2	33	0.58	> 10000	< 10	< 10	< 0.5	4	2.90	29	8	19.5	< 10	< 1
5560875	14	< 5	< 5	< 0.2	< 0.5	153	825	< 1	195	< 2	63	3.97	304	< 10	13	< 0.5	< 2	1.45	52	75	6.29	< 10	< 1
5560876	5	< 5	< 5	< 0.2	< 0.5	140	830	< 1	193	< 2	63	4.19	112	< 10	13	< 0.5	< 2	1.62	42	74	6.49	< 10	2
5560877	1740	< 5	< 5	1.0	< 0.5	550	7590	< 1	5	< 2	47	0.73	> 10000	< 10	< 10	< 0.5	5	4.08	< 1	2	25.5	< 10	< 1
5560878	4100	< 5	< 5	1.1	< 0.5	146	1540	< 1	5	< 2	33	0.34	> 10000	< 10	< 10	< 0.5	2	0.23	9	5	13.8	< 10	< 1
1408594	4	< 5	< 5																				

Analyte Symbol	K	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	SiO2	Al2O3	Fe2O3(T)	MnO	MgO
Unit Symbol	%	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%
Lower Limit	0.01	10	0.01	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	0.01	0.01	0.01	0.001	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
1408563	0.02	< 10	1.84	0.061	0.040	< 0.01	3	10	46	0.45	< 20	1	< 2	< 10	131	< 10	9	6					
1408564	0.01	< 10	1.87	0.048	0.035	0.12	< 2	6	15	0.41	< 20	3	< 2	< 10	116	< 10	8	4					
1408565	0.02	< 10	2.22	0.057	0.019	0.02	< 2	6	52	0.36	< 20	3	< 2	< 10	100	< 10	6	3					
1408566	0.01	< 10	0.95	0.054	0.020	0.25	2	5	31	0.52	< 20	4	< 2	< 10	83	< 10	7	5					
1408567	0.03	< 10	1.81	0.058	0.038	0.10	2	5	29	0.50	< 20	4	< 2	< 10	126	< 10	10	7					
1408568	0.02	< 10	1.82	0.063	0.038	0.03	3	11	50	0.50	< 20	2	< 2	< 10	155	< 10	10	7					
1408569	0.01	< 10	2.31	0.054	0.036	0.04	3	8	31	0.47	< 20	4	< 2	< 10	167	< 10	11	5					
1408570	< 0.01	< 10	1.78	0.048	0.029	0.05	2	7	23	0.53	< 20	4	< 2	< 10	110	< 10	7	5					
1408571	0.03	< 10	2.13	0.065	0.040	0.09	3	6	25	0.49	< 20	6	< 2	< 10	117	< 10	10	6					
1408572	< 0.01	< 10	0.02	0.035	0.003	0.07	< 2	< 1	3	< 0.01	< 20	< 1	< 2	< 10	2	< 10	< 1	< 1					
1408573	< 0.01	< 10	0.08	0.036	0.002	0.15	< 2	1	5	< 0.01	< 20	< 1	< 2	< 10	8	< 10	< 1	2					
1408574	< 0.01	< 10	3.00	0.016	0.015	0.06	4	19	75	0.08	< 20	< 1	< 2	< 10	130	< 10	4	6					
1408575	< 0.01	< 10	3.13	0.031	0.023	< 0.01	< 2	11	21	0.25	< 20	4	< 2	< 10	131	< 10	6	4					
1408576	< 0.01	< 10	2.28	0.047	0.019	0.06	2	5	27	0.39	< 20	< 1	< 2	< 10	95	< 10	6	4					
1408577	0.14	< 10	1.15	0.620	0.028	0.07	2	4	77	0.25	< 20	< 1	< 2	< 10	151	< 10	4	8					
1408578	< 0.01	< 10	1.11	0.092	0.027	0.12	< 2	6	83	0.33	< 20	2	< 2	< 10	95	< 10	6	4					
1408579	0.01	< 10	1.61	0.051	0.041	0.04	2	7	42	0.51	< 20	6	< 2	< 10	140	< 10	9	6					
1408580	0.01	< 10	5.13	0.024	0.029	0.02	3	8	9	0.39	< 20	< 1	< 2	< 10	149	< 10	7	4					
1408581	0.02	< 10	2.24	0.053	0.038	0.06	4	7	32	0.49	< 20	3	< 2	< 10	150	< 10	11	6					
1408582	< 0.01	< 10	0.23	0.023	0.010	< 0.01	< 2	< 1	3	0.02	< 20	< 1	< 2	< 10	14	< 10	< 1	< 1					
1408583	< 0.01	< 10	0.20	0.018	0.005	0.80	4	< 1	24	< 0.01	< 20	< 1	< 2	< 10	7	< 10	4	6					
1408584	< 0.01	< 10	0.15	0.021	0.002	< 0.01	< 2	3	5	< 0.01	< 20	4	< 2	< 10	14	< 10	1	1					
1408585	0.10	< 10	3.06	0.038	0.026	0.38	3	16	4	0.44	< 20	< 1	< 2	< 10	203	< 10	10	7					
1408586	< 0.01	< 10	3.27	0.028	0.023	0.02	6	10	45	0.33	< 20	2	< 2	< 10	111	< 10	5	3					
1408587	0.01	< 10	1.64	0.060	0.026	0.01	3	5	30	0.38	< 20	5	< 2	< 10	113	< 10	7	8					
1408588	< 0.01	< 10	0.27	0.016	0.003	0.63	3	< 1	2	< 0.01	< 20	< 1	< 2	< 10	10	< 10	< 1	3					
1408589	< 0.01	< 10	1.62	0.015	0.001	0.96	12	2	31	< 0.01	< 20	< 1	< 2	< 10	14	< 10	3	12					
1408590	0.05	< 10	2.44	0.028	0.029	< 0.01	< 2	10	52	< 0.01	< 20	< 1	< 2	< 10	47	< 10	4	4					
1408591	0.01	< 10	0.36	0.025	0.013	0.37	3	1	3	0.01	< 20	< 1	< 2	< 10	14	< 10	2	7					
1408592	< 0.01	< 10	0.57	0.016	0.021	0.61	5	3	15	< 0.01	< 20	< 1	< 2	< 10	11	< 10	3	7					
1408593	< 0.01	< 10	0.63	0.018	0.025	0.26	4	6	2	0.01	< 20	< 1	2	< 10	44	< 10	5	8					
1408595	< 0.01	< 10	0.63	0.012	0.024	0.36	4	< 1	6	< 0.01	< 20	< 1	< 2	< 10	12	< 10	3	7					
1408596	< 0.01	< 10	0.70	0.014	0.017	0.26	4	< 1	4	< 0.01	< 20	< 1	< 2	< 10	11	< 10	3	7					
1408597	0.02	< 10	3.76	0.087	0.023	0.03	2	30	19	< 0.01	< 20	< 1	< 2	< 10	132	< 10	3	3					
1408598	0.02	< 10	4.54	0.025	0.003	< 0.01	4	17	112	< 0.01	< 20	< 1	< 2	< 10	33	< 10	2	8					
1408599	< 0.01	< 10	0.03	0.017	0.006	8.26	7	1	1	< 0.01	< 20	3	< 2	< 10	7	< 10	< 1	4					
1408600	< 0.01	< 10	0.01	0.018	0.007	3.03	2	< 1	< 1	< 0.01	< 20	< 1	< 2	< 10	3	< 10	< 1	3					
5560866	0.02	< 10	0.02	0.016	0.004	11.1	13	4	4	< 0.01	< 20	8	< 2	< 10	18	< 10	1	9					
5560867	0.06	< 10	0.68	0.023	0.020	3.17	7	9	4	< 0.01	< 20	< 1	< 2	< 10	62	< 10	2	10					
5560868	< 0.01	< 10	1.21	0.015	< 0.001	7.30	22	4	32	< 0.01	< 20	49	< 2	< 10	23	< 10	1	8					
5560869	< 0.01	< 10	0.42	0.016	0.010	1.53	6	3	4	< 0.01	< 20	< 1	< 2	< 10	19	< 10	4	7					

Analyte Symbol	K	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	SiO2	Al2O3	Fe2O3(T)	MnO	MgO
Unit Symbol	%	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%
Lower Limit	0.01	10	0.01	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	0.01	0.01	0.01	0.001	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
5560870	0.03	< 10	1.34	0.071	0.019	0.02	< 2	15	31	< 0.01	< 20	2	< 2	< 10	72	< 10	3	3					
5560871	0.03	< 10	0.08	0.018	0.004	1.17	4	1	4	< 0.01	< 20	< 1	< 2	< 10	7	< 10	4	19					
5560872	< 0.01	< 10	0.12	0.017	0.024	0.07	5	1	5	0.01	< 20	< 1	< 2	< 10	11	< 10	3	9					
5560873	< 0.01	< 10	0.26	0.013	0.065	7.98	29	1	10	< 0.01	< 20	3	< 2	< 10	19	< 10	2	14					
5560874	< 0.01	< 10	0.42	0.016	0.088	7.11	27	2	16	< 0.01	< 20	2	< 2	< 10	21	< 10	2	16					
5560875	0.01	< 10	3.28	0.030	0.024	0.08	< 2	5	33	0.31	< 20	2	< 2	< 10	83	< 10	5	3					
5560876	0.01	< 10	3.34	0.034	0.024	0.05	3	6	38	0.34	< 20	< 1	< 2	< 10	89	< 10	5	3					
5560877	< 0.01	< 10	0.82	0.015	0.078	3.12	7	5	25	< 0.01	< 20	< 1	< 2	< 10	23	< 10	3	10					
5560878	< 0.01	< 10	0.29	0.015	0.016	1.88	8	< 1	2	< 0.01	< 20	3	< 2	< 10	10	< 10	2	6					
1408594																			69.37	17.49	1.33	0.029	0.43

Analyte Symbol	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Ba	Sr	Y	Sc	Zr	Be	V
Unit Symbol	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01		0.01	2	2	1	1	2	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
1408563														
1408564														
1408565														
1408566														
1408567														
1408568														
1408569														
1408570														
1408571														
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1408597														
1408598														
1408599														
1408600														
5560866														
5560867														
5560868														
5560869														

Analyte Symbol	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Ba	Sr	Y	Sc	Zr	Be	V
Unit Symbol	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01		0.01	2	2	1	1	2	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
5560870														
5560871														
5560872														
5560873														
5560874														
5560875														
5560876														
5560877														
5560878														
1408594	1.53	5.54	2.07	0.045	0.03	2.24	100.1	495	238	< 1	1	15	< 1	< 5

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm
Lower Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1
Method Code	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas																							
DNC-1 Cert																							
W-2a Meas																							
W-2a Cert																							
SY-4 Meas																							
SY-4 Cert																							
BIR-1a Meas																							
BIR-1a Cert																							
PK2 Meas	4780	5910	4890																				
PK2 Cert	4785	5918	4749																				
PK2 Meas	4620	5720	4610																				
PK2 Cert	4785	5918	4749																				
PK2 Meas	4760	5830	4750																				
PK2 Cert	4785	5918	4749																				
PK2 Meas	4510	5560	4500																				
PK2 Cert	4785	5918	4749																				
PK2 Meas	4950	6150	4900																				
PK2 Cert	4785	5918	4749																				
OREAS 904 (Aqua Regia) Meas				0.4	0.7	6320	459	2	37	7	28	2.03	100		78	7.7	< 2	0.05	92	25	6.73	< 10	
OREAS 904 (Aqua Regia) Cert				0.366	0.0580	6300	410	2.02	36.6	8.49	22.4	1.25	91.0		68.0	6.54	3.74	0.0404	82.0	17.5	6.40	3.40	
OREAS 904 (Aqua Regia) Meas				0.3	< 0.5	6510	464	1	37	9	25	2.08	95		84	7.6	9	0.05	91	27	6.54	< 10	
OREAS 904 (Aqua Regia) Cert				0.366	0.0580	6300	410	2.02	36.6	8.49	22.4	1.25	91.0		68.0	6.54	3.74	0.0404	82.0	17.5	6.40	3.40	
OREAS 922 (AQUA REGIA) Meas				0.8	< 0.5	2270	785	< 1	36	64	267	3.12	7		76	0.8	3	0.40	18	46	5.61	< 10	
OREAS 922 (AQUA REGIA) Cert				0.851	0.28	2176	730	0.69	34.3	60	256	2.72	6.12		70	0.65	10.3	0.324	19.4	40.7	5.05	7.62	
OREAS 922 (AQUA REGIA) Meas				1.6	< 0.5	2460	840	< 1	37	67	278	3.17	7		83	0.8	6	0.43	19	48	5.63	< 10	
OREAS 922 (AQUA REGIA) Cert				0.851	0.28	2176	730	0.69	34.3	60	256	2.72	6.12		70	0.65	10.3	0.324	19.4	40.7	5.05	7.62	
OREAS 923 (AQUA REGIA) Meas				1.7	< 0.5	4460	888	< 1	34	72	338	3.04	6		45	0.7	37	0.40	20	42	6.21	< 10	
OREAS 923				1.62	0.40	4248	850	0.84	32.7	81	335	2.80	7.07		54	0.61	21.8	0.326	22.2	39.4	5.91	8.01	

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm
Lower Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1
Method Code	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
(AQUA REGIA) Cert																							
OREAS 923 (AQUA REGIA) Meas				1.5	0.6	4700	899	< 1	33	83	341	3.08	4		54	0.7	19	0.42	20	43	6.23	< 10	
OREAS 923 (AQUA REGIA) Cert				1.62	0.40	4248	850	0.84	32.7	81	335	2.80	7.07		54	0.61	21.8	0.326	22.2	39.4	5.91	8.01	
OREAS 520 (Aqua Regia) Meas						3030	2070	57	74	3	20	1.67	151			0.6	2	3.37	176	35	17.4	10	
OREAS 520 (Aqua Regia) Cert						2960	2280	62.0	73.0	5.22	20.7	1.56	152			0.540	2.90	3.84	196	37.4	15.74	13.7	
OREAS 520 (Aqua Regia) Meas						2930	2080	56	71	5	20	1.56	141			0.6	< 2	3.48	175	36	16.0	10	
OREAS 520 (Aqua Regia) Cert						2960	2280	62.0	73.0	5.22	20.7	1.56	152			0.540	2.90	3.84	196	37.4	15.74	13.7	
Oreas 621 (Aqua Regia) Meas				70.6	296	3560	559	15	28	> 5000	> 10000	1.94	80			0.6	4	1.75	30	34	3.67	10	4
Oreas 621 (Aqua Regia) Cert				68.0	278	3660	520	13.3	25.8	13600	51700	1.60	75.0			0.530	3.85	1.65	27.9	31.3	3.43	9.29	3.93
Oreas 621 (Aqua Regia) Meas				70.3	291	3810	557	14	27	> 5000	> 10000	1.94	78			0.6	6	1.69	29	34	3.55	10	3
Oreas 621 (Aqua Regia) Cert				68.0	278	3660	520	13.3	25.8	13600	51700	1.60	75.0			0.530	3.85	1.65	27.9	31.3	3.43	9.29	3.93
1408568 Orig				< 0.2	< 0.5	112	1110	< 1	26	< 2	79	3.21	2	< 10	14	< 0.5	< 2	2.77	30	22	7.34	10	< 1
1408568 Dup				< 0.2	< 0.5	110	1120	< 1	23	< 2	79	3.17	< 2	< 10	11	< 0.5	< 2	2.78	30	23	7.20	10	2
1408575 Orig	2	7	7																				
1408575 Dup	3	6	8																				
1408586 Orig	< 2	< 5	< 5																				
1408586 Dup	< 2	< 5	< 5																				
1408596 Orig				0.2	< 0.5	56	4480	< 1	9	< 2	70	0.21	< 2	< 10	< 10	< 0.5	< 2	0.54	< 1	9	15.0	< 10	< 1
1408596 Dup				0.2	< 0.5	56	4560	< 1	8	< 2	69	0.21	4	< 10	< 10	< 0.5	2	0.55	< 1	10	15.1	< 10	1
1408597 Orig	3	< 5	< 5																				
1408597 Dup	2	< 5	< 5																				
5560866 Orig	374	< 5	< 5																				
5560866 Dup	453	< 5	< 5																				
5560875 Orig				< 0.2	0.5	152	823	< 1	196	< 2	63	3.91	329	< 10	12	< 0.5	< 2	1.40	52	74	6.19	< 10	< 1
5560875 Dup				< 0.2	< 0.5	154	827	< 1	194	< 2	62	4.04	280	< 10	13	< 0.5	< 2	1.50	52	75	6.38	< 10	1
5560876 Orig	5	< 5	< 5																				
5560876 Dup	5	< 5	< 5																				
5560878 Orig	4100	< 5	< 5	1.1	< 0.5	146	1540	< 1	5	< 2	33	0.34	> 10000	< 10	< 10	< 0.5	2	0.23	9	5	13.8	< 10	< 1
5560878 Split PREP DUP	3640	< 5	< 5	0.6	< 0.5	146	1530	< 1	6	< 2	33	0.34	> 10000	< 10	11	< 0.5	2	0.23	9	5	13.7	< 10	< 1
Method Blank				< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm
Lower Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1
Method Code	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
Method Blank	3	< 5	< 5																				
Method Blank	< 2	< 5	< 5																				
Method Blank	< 2	< 5	< 5																				
Method Blank	< 2	< 5	< 5																				
Method Blank				< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1
Method Blank																							
Method Blank				< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1
Method Blank	< 2	< 5	< 5																				

Analyte Symbol	K	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	SiO2	Al2O3	Fe2O3(T)	MnO	MgO
Unit Symbol	%	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%
Lower Limit	0.01	10	0.01	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	0.01	0.01	0.01	0.001	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
NIST 694 Meas																			11.39	1.89	0.74	0.020	0.34
NIST 694 Cert																			11.2	1.80	0.790	0.0116	0.330
DNC-1 Meas																			47.30	18.36	9.78	0.150	9.98
DNC-1 Cert																			47.15	18.34	9.97	0.150	10.13
W-2a Meas																			53.10	15.64	10.72	0.160	6.20
W-2a Cert																			52.4	15.4	10.7	0.163	6.37
SY-4 Meas																			50.14	20.47	6.19	0.110	0.50
SY-4 Cert																			49.9	20.69	6.21	0.108	0.54
BIR-1a Meas																			48.16	15.45	11.07	0.170	9.51
BIR-1a Cert																			47.96	15.50	11.30	0.175	9.700
PK2 Meas																							
PK2 Cert																							
PK2 Meas																							
PK2 Cert																							
PK2 Meas																							
PK2 Cert																							
PK2 Meas																							
PK2 Cert																							
PK2 Meas																							
PK2 Cert																							
OREAS 904 (Aqua Regia) Meas	0.97	42	0.22		0.101	0.04	3	5	20		< 20		2	< 10	32		17						
OREAS 904 (Aqua Regia) Cert	0.603	33.9	0.143		0.0950	0.0340	0.780	3.83	16.5		7.56		0.150	5.20	21.7		17.2						
OREAS 904 (Aqua Regia) Meas	1.01	37	0.23		0.100	0.04	2	5	20		< 20		2	< 10	33		18						
OREAS 904 (Aqua Regia) Cert	0.603	33.9	0.143		0.0950	0.0340	0.780	3.83	16.5		7.56		0.150	5.20	21.7		17.2						
OREAS 922 (AQUA REGIA) Meas	0.52	38	1.45	0.034	0.062	0.37	3	4	17		< 20		2	< 10	35	< 10	16	14					
OREAS 922 (AQUA REGIA) Cert	0.376	32.5	1.33	0.021	0.063	0.386	0.57	3.15	15.0		14.5		0.14	1.98	29.4	1.12	16.0	22.3					
OREAS 922 (AQUA REGIA) Meas	0.54	37	1.52	0.033	0.065	0.38	3	4	18		< 20		< 2	< 10	37	< 10	20	11					
OREAS 922 (AQUA REGIA) Cert	0.376	32.5	1.33	0.021	0.063	0.386	0.57	3.15	15.0		14.5		0.14	1.98	29.4	1.12	16.0	22.3					
OREAS 923 (AQUA REGIA)	0.44	34	1.50		0.059	0.65	< 2	4	15		< 20		< 2	< 10	34	< 10	15	24					

Analyte Symbol	K	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	SiO2	Al2O3	Fe2O3(T)	MnO	MgO
Unit Symbol	%	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%
Lower Limit	0.01	10	0.01	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	0.01	0.01	0.01	0.001	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
Meas																							
OREAS 923 (AQUA REGIA) Cert	0.322	30.0	1.43		0.061	0.684	0.58	3.09	13.6		14.3		0.12	1.80	30.6	1.96	14.3	22.5					
OREAS 923 (AQUA REGIA) Meas	0.45	32	1.57		0.060	0.65	3	4	15		< 20		< 2	< 10	35	< 10	18	19					
OREAS 923 (AQUA REGIA) Cert	0.322	30.0	1.43		0.061	0.684	0.58	3.09	13.6		14.3		0.12	1.80	30.6	1.96	14.3	22.5					
OREAS 520 (Aqua Regia) Meas	0.54	67	1.24	0.073	0.069	0.70	5	12	27	0.14	< 20	< 1	< 2	< 10	228	23	10	25					
OREAS 520 (Aqua Regia) Cert	0.506	83.0	1.14	0.0520	0.0740	1.03	1.97	11.8	36.0	0.135	8.03	0.33	0.0900	14.9	247	29.6	14.3	28.0					
OREAS 520 (Aqua Regia) Meas	0.51	62	1.18	0.065	0.069	0.84	6	11	29	0.15	< 20	< 1	< 2	< 10	224	25	11	40					
OREAS 520 (Aqua Regia) Cert	0.506	83.0	1.14	0.0520	0.0740	1.03	1.97	11.8	36.0	0.135	8.03	0.33	0.0900	14.9	247	29.6	14.3	28.0					
Oreas 621 (Aqua Regia) Meas	0.39	20	0.47	0.187	0.033	4.84	123	3	19		< 20		< 2	< 10	13	< 10	7	61					
Oreas 621 (Aqua Regia) Cert	0.333	19.4	0.436	0.160	0.0335	4.50	107	2.20	18.9		5.91		0.770	1.63	10.9	1.00	6.87	55.0					
Oreas 621 (Aqua Regia) Meas	0.42	18	0.49	0.194	0.031	4.58	97	3	19		< 20		< 2	< 10	13	< 10	7	20					
Oreas 621 (Aqua Regia) Cert	0.333	19.4	0.436	0.160	0.0335	4.50	107	2.20	18.9		5.91		0.770	1.63	10.9	1.00	6.87	55.0					
1408568 Orig	0.02	< 10	1.83	0.064	0.039	0.03	2	11	49	0.50	< 20	1	< 2	< 10	155	< 10	10	7					
1408568 Dup	0.02	< 10	1.82	0.061	0.038	0.03	3	11	50	0.51	< 20	2	< 2	< 10	155	< 10	10	6					
1408575 Orig																							
1408575 Dup																							
1408586 Orig																							
1408586 Dup																							
1408596 Orig	< 0.01	< 10	0.70	0.014	0.017	0.25	4	< 1	4	< 0.01	< 20	< 1	< 2	< 10	12	< 10	3	7					
1408596 Dup	< 0.01	< 10	0.70	0.015	0.017	0.26	4	< 1	4	< 0.01	< 20	< 1	< 2	< 10	10	< 10	3	7					
1408597 Orig																							
1408597 Dup																							
5560866 Orig																							
5560866 Dup																							
5560875 Orig	0.01	< 10	3.26	0.029	0.024	0.08	2	5	32	0.30	< 20	2	< 2	< 10	82	< 10	5	3					
5560875 Dup	0.01	< 10	3.31	0.031	0.024	0.08	< 2	5	34	0.32	< 20	2	< 2	< 10	85	< 10	5	3					
5560876 Orig																							
5560876 Dup																							

Analyte Symbol	K	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Th	Te	Tl	U	V	W	Y	Zr	SiO2	Al2O3	Fe2O3(T)	MnO	MgO
Unit Symbol	%	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%
Lower Limit	0.01	10	0.01	0.001	0.001	0.01	2	1	1	0.01	20	1	2	10	1	10	1	1	0.01	0.01	0.01	0.001	0.01
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
5560878 Orig	< 0.01	< 10	0.29	0.015	0.016	1.88	8	< 1	2	< 0.01	< 20	3	< 2	< 10	10	< 10	2	6					
5560878 Split PREP DUP	< 0.01	< 10	0.29	0.017	0.017	1.85	7	< 1	2	< 0.01	< 20	1	< 2	< 10	10	< 10	2	6					
Method Blank	< 0.01	< 10	< 0.01	0.013	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 20	< 1	< 2	< 10	< 1	< 10	< 1	< 1					
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank																							
Method Blank	< 0.01	< 10	< 0.01	0.012	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 20	< 1	< 2	< 10	< 1	< 10	< 1	< 1					
Method Blank																			< 0.01	< 0.01	< 0.01	0.001	0.01
Method Blank	< 0.01	< 10	< 0.01	0.014	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 20	< 1	< 2	< 10	< 1	< 10	< 1	< 1					
Method Blank																							

Analyte Symbol	CaO	Na2O	K2O	TiO2	P2O5	Ba	Sr	Y	Sc	Zr	Be	V
Unit Symbol	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	2	2	1	1	2	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
NIST 694 Meas	42.79	0.89	0.56	0.120	30.21							1583
NIST 694 Cert	43.6	0.860	0.510	0.110	30.2							1740
DNC-1 Meas	11.41	1.90	0.22	0.480	0.06	108	144	17	31	31		145
DNC-1 Cert	11.49	1.890	0.234	0.480	0.070	118	144.0	18.0	31	38		148
W-2a Meas	11.05	2.22	0.62	1.100	0.13	177	199	19	36	79	< 1	262
W-2a Cert	10.9	2.14	0.626	1.06	0.140	182	190	24.0	36.0	94.0	1.30	262
SY-4 Meas	8.10	7.00	1.68	0.290	0.13	347	1215	114	1	536	3	< 5
SY-4 Cert	8.05	7.10	1.66	0.287	0.131	340	1191	119	1.1	517	2.6	8.0
BIR-1a Meas	13.57	1.78	0.02	0.970	0.03	10	106	13	43	12	< 1	319
BIR-1a Cert	13.30	1.82	0.030	0.96	0.021	6	110	16	44	18	0.58	310
PK2 Meas												
PK2 Cert												
PK2 Meas												
PK2 Cert												
PK2 Meas												
PK2 Cert												
PK2 Meas												
PK2 Cert												
PK2 Meas												
PK2 Cert												
OREAS 904 (Aqua Regia) Meas												
OREAS 904 (Aqua Regia) Cert												
OREAS 904 (Aqua Regia) Meas												
OREAS 904 (Aqua Regia) Cert												
OREAS 922 (AQUA REGIA) Meas												
OREAS 922 (AQUA REGIA) Cert												
OREAS 922 (AQUA REGIA) Meas												
OREAS 922 (AQUA REGIA) Cert												
OREAS 923 (AQUA REGIA) Meas												

Analyte Symbol	CaO	Na2O	K2O	TiO2	P2O5	Ba	Sr	Y	Sc	Zr	Be	V
Unit Symbol	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	2	2	1	1	2	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
OREAS 923 (AQUA REGIA) Cert												
OREAS 923 (AQUA REGIA) Meas												
OREAS 923 (AQUA REGIA) Cert												
OREAS 520 (Aqua Regia) Meas												
OREAS 520 (Aqua Regia) Cert												
OREAS 520 (Aqua Regia) Meas												
OREAS 520 (Aqua Regia) Cert												
Oreas 621 (Aqua Regia) Meas												
Oreas 621 (Aqua Regia) Cert												
Oreas 621 (Aqua Regia) Meas												
Oreas 621 (Aqua Regia) Cert												
1408568 Orig												
1408568 Dup												
1408575 Orig												
1408575 Dup												
1408586 Orig												
1408586 Dup												
1408596 Orig												
1408596 Dup												
1408597 Orig												
1408597 Dup												
5560866 Orig												
5560866 Dup												
5560875 Orig												
5560875 Dup												
5560876 Orig												
5560876 Dup												
5560878 Orig												
5560878 Split												

Analyte Symbol	CaO	Na2O	K2O	TiO2	P2O5	Ba	Sr	Y	Sc	Zr	Be	V
Unit Symbol	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	2	2	1	1	2	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
PREP DUP												
Method Blank												
Method Blank												
Method Blank												
Method Blank												
Method Blank												
Method Blank												
Method Blank	< 0.01	< 0.01	< 0.01	0.001	< 0.01	< 2	< 2	< 1	< 1	< 2	< 1	< 5
Method Blank												
Method Blank												

APPENDIX III

Gwyn Lake Gold Prospect, Claim Map at Scale 1:10,000