

Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

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

TOTAL COST: \$2,773.25

AUTHOR(S): Andris Kikauka

SIGNATURE(S):

A. Kikauka

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): _____

YEAR OF WORK: 2019

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5754451

PROPERTY NAME: Gibraltar South

CLAIM NAME(S) (on which the work was done): Gibraltar South (1068010), Gibraltar South 2 (1068013)

COMMODITIES SOUGHT: Silica

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

MINING DIVISION: Golden

NTS/BCGS: NTS 082J 5E, BCGS 082J.022

LATITUDE: 50 ° 17 ' 5.7 " LONGITUDE: 115 ° 40 ' 29.75 " (at centre of work)

OWNER(S):

1) Andris Kikauka

2) Glen Rodgers

MAILING ADDRESS:

4199 Highway 101, Powell R, BC V8A 0C7

PO Box 215, Station Main, Cranbrook, BC V1C 4H7

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

1) same

2) same

MAILING ADDRESS:

same

same

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

Unnamed Cambrian-Ordovician age, NW trending recrystallized limestone, siltstone (slate), quartzite, argillite underlies property
A 15-40 m wide layer of Mt Wilson Fm orthoquartzite occurs in an arenaceous section of the stratigraphic sequence. Relatively
pure (99.5% SiO₂) silica has been traced for 250 m strike length, dips steep-moderate, open at both ends. High purity quartzite
may be suitable for metallurgical grade silica (& solar grade silicon), and ferrosilicon end use.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: _____

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock	9 samples ALS ME-ICP06 whole rock oxides	1068010, 1068013	2,773.25
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
TOTAL COST:			2,773.25

NTS 082J 5/E, TRIM 082J.022
LAT. 50 17' 5.7" N
LONG. 115 40' 29.75" W

GEOCHEMICAL
REPORT ON MINERAL TENURES
1068010, 1068013
WORK PERFORM ON 1068010, 1068013
GIBRALTAR SOUTH SILICA
MINERAL OCCURRENCES
CANAL FLATS, B.C.

Golden Mining Division

by

Andris Kikauka, P.Geo.
4199 Highway 101,
Powell River, BC V8A 0C7

Sept 10, 2019

38,487

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Recorder: KIKAUKA, ANDRIS
ARTURS (114051)

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ARTURS (114051)

Recorded: 2019/SEP/08

Effective: 2019/SEP/08

D/E Date: 2019/SEP/08

Confirmation

If you have not yet submitted your report for this work program, your technical work report is due in 90 days. The Exploration and Development Work/Expiry Date Change event number is required with your report submission. **Please attach a copy of this confirmation page to your report.** Contact Mineral Titles Branch for more information.

Event Number: 5754451

Work Type: Technical Work

Technical Items: Geochemical, PAC Withdrawal (up to 30% of technical work required)

Work Start Date: 2019/JUN/23

Work Stop Date: 2019/JUN/24

Total Value of Work: \$ 2773.25

Mine Permit No:
Summary of the work value:

Title Number	Claim Name/Property	Issue Date	Good To Date	New Good To Date	# of Days Forward	Area in Ha	Applied Work Value	Sub-mission Fee
1068010	GIBRALTER SOUTH	2019/APR/18	2020/APR/18	2025/jun/29	1898	61.93	\$ 2970.07	\$ 0.00
1068013	GIBRALTER SOUTH 2	2019/APR/18	2020/APR/18	2025/jun/29	1898	20.64	\$ 989.89	\$ 0.00

Financial Summary:
Total applied work value: \$ 3959.96

PAC name: Andris Arturs Kikauka

Debited PAC amount: \$ 1186.71

Credited PAC amount: \$ 0

Total Submission Fees: \$ 0.0

Total Paid: \$ 0.0

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1.0 SUMMARY

The Gibraltar South mineral property consists of 2 mineral claims (MTO tenure numbers 1068010 & 1068013) located in the Golden Mining Division. The property is centered at 115 degrees 40' 29.75" West Longitude and 50 degrees 17' 5.7" North Latitude. The property is located 23 kilometers northeast of Canal Flats & approximately 90 km northeast of Cranbrook.

Geochemical fieldwork carried out June 23-24, 2019 consisted of 9 rock chip samples taken from Mt Wilson Formation orthoquartzite outcropping on relatively small relief (5 meter vertical relief) ridge in the north portion of MTO tenure 1068010. All outcrop in a 10 hectare area between boundary of MTO claim 1068010 & 1068013 was examined and orthoquartzite was sampled. Mt Wilson orthoquartzite is exposed along a north-northwest trending ridge that parallels a steep fault scarp, located approximately 100 meters to the west. The steep scarp forms a prominent topographic feature (100 meters vertical relief) consisting of impure quartzite that is fine to coarse grained grey, moderate to shallow dipping east. The cliff-forming impure quartzite (unnamed formation, approximately 100 meters thickness) to the west and relatively pure, orthoquartzite (Mt Wilson Formation, approximately 15-40 meters thickness), is separated by a fault. The fault along the west contact of the Mt Wilson Fm orthoquartzite is not exposed, but interpreted from a localized topographic lineament, and from examination of Mt Wilson Formation orthoquartzite exposed 4 kilometers to the north (where the west boundary of orthoquartzite is fault-bound).

A total of 9 rock chip samples were taken from a 225 meter strike length of exposed orthoquartzite outcrop in the north portion of MTO tenure 1068010 (Fig 5-8). All 9 rock samples were analyzed for whole rock by ALS Canada Labs using lithium borate fusion disc, and ICP finish (method ME-ICP06) and sample prep was done with carbide pulverizing (PUL-33 method) in order to minimize iron contamination from using steel for pulverizing samples (Appendix A).

2019 rock chip sample descriptions and geochemical analysis results are listed as follows:

Sample ID	Zone name	MTO claim	Easting NAD 83	Northing NAD 83	Elev (m)	Elev (ft)
19GIBS-1	Promising Ledge	1068013	594385	5571250	1078	3535.8
19GIBS-2	Promising Ledge	1068013	594388	5571238	1084	3555.5
19GIBS-3	Promising Ledge	1068013	594390	5571221	1120	3673.6
19GIBS-4	Promising Ledge	1068013	594400	5571239	1114	3653.9
19GIBS-5	Promising Ledge	1068010	594401	5571207	1110	3640.8
19GIBS-6	Promising Ledge	1068010	594415	5571189	1109	3637.5
19GIBS-7	Promising Ledge	1068010	594423	5571153	1107	3631
19GIBS-8	Promising Ledge	1068010	594436	5571106	1108	3634.2
19GIBS-9	Promising Ledge	1068010	594442	5571026	1101	3611.3

Sample ID	Lithology	Sample type, slope described	Bed Strike	Bed Dip	Width (cm)
19GIBS-1	quartzite	outcrop, moderate slope	150	65 E	100
19GIBS-2	quartzite	outcrop, moderate slope	153	67 E	100
19GIBS-3	quartzite	outcrop, moderate slope	151	66 E	100
19GIBS-4	quartzite	outcrop, moderate slope			100
19GIBS-5	quartzite	outcrop, flat ridge	148	70 E	100
19GIBS-6	quartzite	outcrop, flat ridge	152	70 E	100
19GIBS-7	quartzite	outcrop, flat ridge			100
19GIBS-8	quartzite	outcrop, flat ridge			100
19GIBS-9	quartzite	outcrop, flat ridge			100

Sample ID	% SiO2	% Al2O3	% Fe2O3	% CaO	% MgO	Na2O	K2O	% LOI	% Total	SiO2/Total
19GIBS-1	98.1	0.33	0.18	0.15	0.15	0.04	0.09	-0.01	99.08	99.01
19GIBS-2	98.2	0.17	0.05	0.05	0.04	0.02	0.07	-0.04	98.59	99.6
19GIBS-3	98.4	0.19	0.04	0.2	0.04	0.02	0.07	0.11	99.1	99.29
19GIBS-4	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.18	99.53	99.27
19GIBS-5	98.9	0.2	0.03	0.05	0.03	0.01	0.08	0.11	99.43	99.47
19GIBS-6	100	0.11	0.05	0.01	0.02	0.02	0.08	0.03	100.36	99.64
19GIBS-7	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.1	98.86	99.64
19GIBS-8	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.03	100.09	99.61
19GIBS-9	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0	99.22	99.68
average	98.8	0.174	0.0578	0.08	0.05	0	0.1	0.06	99.36	99.4678

Based on sum of SiO2%/Total% values, the mean value of the SiO2%/Total% for 9 out of 9 rock chip samples analyzed is 99.47%. This purity is considered suitable for glass making (including production of fiberglass & ceramics), filler applications such as paints, putty, stucco, other building materials, and/or ferrosilicon production, as well as metallurgical grade silicon that is used for solar panels (& other technical end use products requiring high purity SiO2).

The relatively high SiO2 content of 9 out of 9 samples (19GIBS-1 to 9, Fig 4-8) taken along approximately 225 meter strike length of well exposed Mt Wilson Formation quartzite on the Gibraltar South showings, and compares favourably with other silica producers such as Moberly, Hunt and HCJ Properties near Golden, BC. Impurity compounds of interest (Al2O3, MgO, CaO, Fe2O3) approach specifications required for producing ferrosilicon alloy. Based on the range of %SiO2 and impurity values such as MgO, CaO, P2O5, Al2O3, and Fe2O3, it is possible that the Gibraltar South quartzite silica is suitable for use as a raw material for ferrosilicon production. Based on favourable geochemical analysis results in 2019 from rock chip sampling on Gibraltar South Orthoquartzite Zone, further geological mapping, geochemical sampling, and evaluation of commercial applications for Mt Wilson Fm orthoquartzite is warranted. Recommended future fieldwork would consist of 0.5 km access trail (from Kootenay Eastside FSR access to north portion of MTO Tenure 1068010) in order to perform core drilling (using light and portable skid mounted core drill), and geochemical analysis to estimate grade and tonnage of high purity

quartzite. Approximate budget of \$175,000 is recommended in order to complete proposed 7 drill holes to a depth of 80 meters.

A key feature of the Gibraltar South mineral property is the relative ease of year-round access, and has potential for 1,000,000 tonnes of orthoquartzite with silica grade that averages >99% SiO₂. Proposed drilling would test the zone to a depth of 25-50 meters. Drilling could be carried out without seasonal restrictions, and steep terrains that are present on other exposures of Mt Wilson quartzite located in the Kootenay area of eastern BC.

2.0 Introduction

This assessment report describes property history and geochemical fieldwork performed on the Gibraltar Silica mineral occurrences (June 23-24, 2019).

British Columbia has not been a major producer of silica. Some quartz, especially from veins, has been used as a flux in smelter operations. The Gypo quartz vein near Oliver produced about 600,000 tonnes of quartz up to 1968 when the main mining operations ceased. Most of this material was used in the building industry and to produce ferrosilicon. In more recent years a significant amount of production has taken place from the Moberly Mountain and Hunt deposits, in quartzite of the Mount Wilson Formation, near Golden. Silica sand from the Moberly Mountain deposit is sold for a variety of uses. Quarrying was begun in 1980 and the 1984 production was 85,000 to 90,000 tonnes. The Hunt deposit has produced intermittently since 1980 at approximately 30,000 tonnes per year, with much of the product being shipped to a ferrosilicon plant in Wenatchee, Washington. Some of the fines have been used by cement producers in British Columbia and Alberta.

3.0 Location, Access, Infrastructure, & Physiography

The Gibraltar South property consists of 2 mineral claims (MTO tenure numbers 1068010, & 1068013) located in the Golden Mining Division. The property is centered at 115 degrees 40' 29.75" West Longitude and 50 degrees 17' 5.7" North Latitude. The property is located 23 kilometers northeast of Canal Flats & approximately 90 km northeast of Cranbrook, BC.

Road access to the claim block is via Highway 95A north from Cranbrook for 75 kilometers to Canal Flats. The Kootenay River Forest service Road is then traveled for 9 kilometers northeast to the bridge that leads to Kootenay R Eastside FSR that has a good grade all-weather gravel haul road that leads to the property.

Soil cover is negligible over the high elevation portions of the property. The lower elevation portions of the property exhibits moderate, vegetated slopes with a good 10-30 cm soil profile. Glacial till many meters thick covers the creek gully portions of the property and gradually thins to the ridge crests. Two periods of glaciation are evident with the predominant direction of ice retreat being to the northeast. The property is forested with spruce, pine and fir.

4.0 Property Status

Property status data obtained from MTO website indicates the Gibraltar South property is registered 50% to Andris Kikauka (Free Miner Certificate number 114051), and 50% to Glen Rodgers (Free Miner Certificate number 123054).

The Gibraltar South claims consists of two (2) mineral tenures (listed below) located within the Golden Mining Division (Figure 2).

Title Number	Claim Name	Owner	Issue Date	Good To Date	Status	Area (ha)
1068010	GIBRALTER SOUTH	114051 (50%)	2019/APR/18	2025/JUN/29	GOOD	61.9295
1068013	GIBRALTER SOUTH 2	114051 (50%)	2019/APR/18	2025/JUN/29	GOOD	20.6404

The total area of the mineral tenures that comprise the property is 82.57 hectares (203.95 acres). Details of the status of tenure ownership for the Gibraltar South on mineral tenures acquired electronically online using a grid cell selection system. Tenure boundaries are based on lines of latitude and longitude. There is no requirement to mark claim boundaries on the ground as these can be determined with reasonable accuracy using a GPS. The Gibraltar South silica claim has not been surveyed.

The mineral tenures comprising the Gibraltar Silica mineral property are shown in Figure 2. The claim map shown in Figure 2 was generated from GIS spatial data downloaded from the Government of BC GeoBC website. These spatial layers are the same as those incorporated into the Mineral-Titles-Online (MTO) electronic staking system that is used to locate and record mineral tenures in British Columbia.

5.0 Area History

Burnais Fm Gypsum Property History:

Sink holes located east and west of Lussier River are associated with gypsum/anhydrite deposits that occur in clusters oriented roughly N-S. The gypsum deposits are hosted in Devonian Burnais Formation that outcrops approximately 10-20 km south and southwest of the Gibraltar silica property. Several of these gypsum deposits have been commercially developed to production by Georgia Pacific (Domtar).

Red Cloud (Gibraltar) Silica Property History:

In 1967, the Gibraltar Red Cloud Quarry (30 X 3 meter area) was the site for excavating Mt Wilson Formation orthoquartzite. The Gibraltar (Red Cloud) mineral property is located approximately 5 km north of Gibraltar South. A small shipment was sent to a mill for testing. Results and production data were not recorded in the public record. In 2017, MGX Minerals Inc carried out work on the Red Cloud (Gibraltar) mineral claims. The main target includes a

moderately west dipping, 20-40 meter wide Ordovician age (Mt Wilson Fm) high purity quartzite bed exposed over a strike length of approximately 420 meters. A total of 7 rock chip quartzite samples (ID numbers 15GIBR-1 to 15GIBR-7) were taken from the base of the Main Zone. Whole rock geochemical analysis is summarized as follows:

Sample ID	% SiO2	% Al2O3	% Fe2O3	% MgO	% CaO	Na2O	K2O	% LOI	% Total	SiO2/Total
17GIBR-1	99.8	0.24	0.39	0.1	0.04	0.02	0.07	0.28	100.97	98.84
17GIBR-2	100	0.16	0.32	0.11	0.26	0.02	0.06	0.51	101.46	98.56
17GIBR-3	98.1	0.25	0.4	0.09	0.39	0.02	0.11	0.56	99.96	98.14
17GIBR-4	88.5	0.08	0.34	0.02	0.07	<0.01	0.03	0.27	99.68	88.78
17GIBR-5	98.7	0.33	0.52	0.04	0.01	0.01	0.12	0.11	99.89	99.23
17GIBR-6	99	0.06	0.4	0.01	0.02	0.02	0.01	0.15	99.76	98.91
17GIBR-7	99	0.3	0.41	0.03	0.03	0.02	0.1	0.18	100.09	98.75

6.0 Geological Setting

The Gibraltar South property is located in the foreland thrust zone of the Hughes Range of the Rocky Mountains. It covers a sedimentary clastic-carbonate rock package located near the confluence of Kootenay and White River. Sedimentary rocks generally have a northwest strike, but locally a north-northwest strike is prominent. Minor folding was noted in the carbonate-clastic sequence immediately west of the Mt Wilson Fm quartzite.

Westerly dipping thrust faults (Hay, Carter, 1988) are believed to run north-south close to the eastern edge of the Gibraltar property. These faults are thought to have served as a locus for a number of small Cretaceous monzonitic intrusions which begin at Wildhorse Creek and diminish in size to the north, terminating with the small quartz monzonite intrusion. The following table lists the formations and gives a brief lithological description:

Age	Formation Name	Lithology	Thickness
Pleistocene		Glacial till (2 events), travertine, conglomerate	1-10 m
Mid Devonian	Duh Harrogate	Limestone	40-110 m
Mid Devonian	Db Burnais	Limestone, gypsum, anhydrite	150-400 m
Silurian-Ordovician	Os Beaverfoot Br isco	Limestone, dolomite	450-600 m
Ordovician	Ow Gibraltar	Quartzite, sandstone	0-300 m
Ordovician	Og Glenogle	Shale, limestone, siltstone	0-640 m
Cambrian	Com McKay	Limestone, shale, conglomerate	0-1,200 m
Cambrian	Cmuj Jubilee	Cherty dolomite, limestone	450-600 m
Middle Proterozoic	MPrPS Purcell Supergroup	Undivided sedimentary rocks	1,000-2,000 m

Formations recognized in the area of the Gibraltar South silica property are summarized:

Nicol Creek Formation

Found on the eastern slope of upper Diorite Creek, the distinctive amygdaloidal basalt of the Nicol Creek Formation (also correlated with the lower Gateway Formation by G.B. Leech, 1959) comprises the western most lithological unit mapped on the Gibraltar property. It is composed chiefly of green andesitic lava, green-black amygdaloidal basalt, green-grey-purple siltstone, sandstone and mudstone. Amygdules are commonly 0.5-1.0 cm in diameter, filled with quartz and carbonate. Nicol Creek basalt frequently exhibits vesicles and sub-surface flow structures.

Sheppard Formation

Mapped as a distinct formation (Hoy, T. and Carter, G. 1988), the Sheppard Formation sits above the Nicol Creek basalt to the west and its upper contact with the Jubilee Dolomites forming a north-south trending ridge. It is locally composed of thinly bedded conglomerate at its base with dolomitic quartzite through the section to the upper contact.

Jubilee Formation

The Jubilee Formation consists of massive-thick bedded dolostone, is generally grey in colour, and weathers to white-grey. Chemically it consists of more than 95% dolomite. It ranges in thickness of between 450 and 600m thick and is divided into upper and lower units. The Lower Jubilee dolomite is distinguishable from the Upper Jubilee dolomite by its well-bedded, laminated character. Except for occasional beds of mottled, partially dolomitized limestone, it is composed chiefly of fine grained light-dark grey dolomites that occur in well defined beds from 15 cm to 1.2 m thick. Black, brown or white chert is found in small quantities throughout many beds in the form of irregular blebs and lenses, and occasionally as more abundant irregular lace-like intergrowths parallel to bedding. The Upper Jubilee dolomite is characterized by an absence of regular bedding. Where stratification is evident, beds are very thick, commonly up to 6 m and are difficult to identify. The Upper Jubilee consists mostly of fine-grained light-grey crystalline dolomite. Occasionally beds are fragmental containing fragments of dolomite less than 1 cm in diameter in a matrix of fine-grained crystalline dolomite. Most beds contain granular chert in the form of irregular masses, honey-comb structures and lenses. The chert in places resembles silicified corals. It is normally white but can also be pink or reddish-brown.

McKay Formation

The McKay Formation ranges in age from Upper Cambrian to Ordovician and comprises a thick succession of alternating thinly bedded limestones, limey shales and limey argillites with occasional massive limestone and cherty dolomite sub-units. Many of the limestone beds are intraformational conglomerates with oval shaped fragments of dense fine-grained limestone in a matrix of fine-grained limestone which is occasionally dolomitic and/or ferruginous. Cherty nodules and lenses are common near the top of the McKay Formation. Ripple marks and mud cracks are common. The weathered colour is commonly light-grey but reddish-brown where ferruginous. The McKay Formation usually weathers recessively. It reaches maximum thickness of 1200 meters.

Gibraltar Mt Wilson Formation Quartzite

No fossils have been found in this formation but from its stratigraphic position it is known to be middle-upper Ordovician in age. It consists of massive beds of white sedimentary quartzite

and a few brownish -white beds. The quartzite is a compact, medium grained rock which usually contains about 98% well rounded quartz grains. The brownish-white beds are medium to coarse grained and are less pure in composition. Gibraltar has a whitish weathering colour which makes it distinctive and useful as a marker bed. Occasionally where small amounts of hematite are present as fracture coating, the Mt Wilson Fm quartzite unit is typically coated in a distinct, jet black lichen, contrasting the snow white colour of the quartzite. A slight difference in grain size is the only way to distinguish bedding. Coarser grained beds weather more readily. Possible cross-bedding is occasionally seen. The Mt Wilson Formation is known to thin southward, but thickens near In the Brisco Range it is reported to be over 300m thick, in the Stanford Range it is known only to be at most 120m thick. On the subject property, the formation reaches about 50 meters in maximum thickness, to 20 meters minimum thickness. The next nearest known outcropping of Gibraltar Formation to the Gibraltar property is at Gibraltar Rock on the Kootenay River east of Canal Flats, but outcrop is sparse. The actual contact between the Glenogle and the Gibraltar is always concordant, however the Gibraltar rests in different places on different age zones of Glenogle, implying either post Glenogle erosion or irregular Glenogle deposition.

Beaverfoot-Brisco Formation

This formation is known from fossil evidence to be Ordovician to Silurian in age. It consists chiefly of thin-medium bedded light-grey dolomites and blue-grey limestones. Near the top, the rocks are mostly limestones with minor black-shaley interbeds. Occasional sub-units are nodular and appear mottled on weathered surface. These nodules formed from selective dolomitization of the primary limestone. Minor chert nodules and lenses are present. The formation weathers light-grey and can be distinguished from the Jubilee dolomites by its well bedded character, presence of fossils and scarcity of laminations. It reaches thicknesses of up to 600 meters.

Burnais Formation

The Burnais is a recent name for the thick succession of bedded gypsum/anhydrite and interbedded fossiliferous limestones that occur between Wardner and Invermere. The Burnais is composed mainly of well bedded, laminated dark-grey-black gypsum which was laid down as an evaporitic deposit within an inter-tidal basin. Thicknesses of over 600 ft (183 m) have been recorded for the gypsum beds. Occasional interbeds and lenses of black fetid cherty limestone are found within the gypsum unit. The Burnais commonly weathers recessively and is exposed only when faulted up or when shielded from erosion by more resistant strata. The Burnais gypsum usually averages 85%-90% gypsum and the depth of hydration (the original anhydrite beds after thousands of years of contact with near surface waters were turned into gypsum) usually ranges from 12 to 30 meters. Salt (NaCl) is usually present as sporadic and irregular patches. The presence of sinkholes at surface is a reliable indicator of gypsum below in the Lussier River valley. Gypsite, which is a sulphate efflorescence or caliche, also indicates underlying gypsum. The black, nodular limestone that is also grouped with the Burnais is occasionally fossiliferous.

Harrogate Formation

This formation underlies the far north-east corner of the map area. It consists of thin-medium bedded purple-grey-black limestone which weathers light-grey. The limestone is occasionally nodular, fossiliferous, fetid and shaley in appearance due to interbeds of calcareous shale.

Large scale folding is absent from the area although some minor folds were observed associated with bedding plane slip or as drag folding due to faulting. The general bedding attitude of all the formations are to strike about 340° and to dip 40° - 50° east. Foliation is strong in places and generally strikes north and dips 50° - 70° east. Foliation becomes more pronounced in argillaceous or silty rock. All formational contacts are known to be conformable with the exception of the Sheppard/Jubilee contact, and possibly also the Glenogle/Gibraltar contact. The Lussier River Fault (Hoy, To and Carter, Go) is thought to pass just east of the map area. Industrial Mineral potential includes the Gibraltar Quartzite (Main Zone located in centre of Gibraltar property), that may be of economic interest as source of silica for glass making, ferrosilicon, and other high purity silica end uses.

7.0 Deposit Types

The Gibraltar South silica property has potential to host a high purity quartzite type silica deposit similar to the other quartzite deposits of the Mount Wilson Formation in SE British Columbia. The Mount Wilson Formation hosts silica producers such as Moberly (Van Heemskirk), Hunt and HCJ Properties near Golden, BC. The Mount Wilson Formation is formerly known as the Wonah Formation. The Mount Wilson (Gibraltar) Formation is a quartzite deposit type that rests unconformably on argillaceous, coarse clastics, and calcareous sediments

The best sources of silica raw materials in British Columbia are probably quartzite units (vs quartz vein and/or pegmatite), due to high purity, and large potential size of the quartzite deposits (Foye, 1987). Quartzite units are resistant to weathering and form prominent outcrop. Bedding is inconspicuous, but can usually be distinguished by variations in grain size between beds.

The Gibraltar South quartzite consists of snow white coloured, high purity silica that contains $>99\%$ SiO_2 and $< 1\%$ impurities such as Al_2O_3 , Fe_2O_3 , CaO , MgO , Na_2O , K_2O .

8.0 Exploration

Approximately 10 hectares of the Gibraltar South property was mapped and geochemically sampled. The area that was mapped and a total of 9 outcrops were rock chip channel sampled across a width of 1 meter of exposed portions of outcrop. Rock samples were taken using a rock hammer and chisel. Approximately 0.88-1.94 kgs of acorn sized broken rock chips were collected (avoiding contamination by vegetation and contact with metallic objects such as rock hammers), placed in marked poly ore bags, and shipped to ALS Minerals Ltd. Rock chip sample and geological mapping station locations were described and located by Garmin 60Cx portable GPS receivers.

Rock samples were analyzed by ALS Minerals, North Vancouver, BC, using Prep 31: a special zirconia (tungsten carbide) ring pulverization disc was used (ALS code PUL-33) versus chrome steel pulverization disc, in order to minimize iron contamination, and finished using whole rock analysis fused bead lithium borate fusion method (ME-ICP-06).

A description of 9 rock chip samples taken from the Promising Ledge Zone is listed as follows:

Sample ID	Zone name	MTO claim	Easting NAD 83	Northing NAD 83	Elev (m)	Elev (ft)
19GIBS-1	Promising Ledge	1068013	594385	5571250	1078	3535.8
19GIBS-2	Promising Ledge	1068013	594388	5571238	1084	3555.5
19GIBS-3	Promising Ledge	1068013	594390	5571221	1120	3673.6
19GIBS-4	Promising Ledge	1068013	594400	5571239	1114	3653.9
19GIBS-5	Promising Ledge	1068010	594401	5571207	1110	3640.8
19GIBS-6	Promising Ledge	1068010	594415	5571189	1109	3637.5
19GIBS-7	Promising Ledge	1068010	594423	5571153	1107	3631
19GIBS-8	Promising Ledge	1068010	594436	5571106	1108	3634.2
19GIBS-9	Promising Ledge	1068010	594442	5571026	1101	3611.3

Sample ID	Lithology	Sample type, slope described	Bed Strike	Bed Dip	Width (cm)
19GIBS-1	quartzite	outcrop, moderate slope	150	65 E	100
19GIBS-2	quartzite	outcrop, moderate slope	153	67 E	100
19GIBS-3	quartzite	outcrop, moderate slope	151	66 E	100
19GIBS-4	quartzite	outcrop, moderate slope			100
19GIBS-5	quartzite	outcrop, flat ridge	148	70 E	100
19GIBS-6	quartzite	outcrop, flat ridge	152	70 E	100
19GIBS-7	quartzite	outcrop, flat ridge			100
19GIBS-8	quartzite	outcrop, flat ridge			100
19GIBS-9	quartzite	outcrop, flat ridge			100

Sample ID	% SiO2	% Al2O3	% Fe2O3	% CaO	% MgO	Na2O	K2O	% LOI	% Total	SiO2/Total
19GIBS-1	98.1	0.33	0.18	0.15	0.15	0.04	0.09	-0.01	99.08	99.01
19GIBS-2	98.2	0.17	0.05	0.05	0.04	0.02	0.07	-0.04	98.59	99.6
19GIBS-3	98.4	0.19	0.04	0.2	0.04	0.02	0.07	0.11	99.1	99.29
19GIBS-4	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.18	99.53	99.27
19GIBS-5	98.9	0.2	0.03	0.05	0.03	0.01	0.08	0.11	99.43	99.47
19GIBS-6	100	0.11	0.05	0.01	0.02	0.02	0.08	0.03	100.36	99.64
19GIBS-7	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.1	98.86	99.64
19GIBS-8	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.03	100.09	99.61
19GIBS-9	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0	99.22	99.68
average	98.8	0.174	0.0578	0.08	0.05	0	0.1	0.06	99.36	99.4678

9.0 Discussion of Results

The relatively high SiO₂ content of 9 out of 9 samples (19GIBS-1 to 9, Fig 4-8) taken along approximately 225 meter strike length of well exposed Mt Wilson Formation quartzite on the Gibraltar South showings, and compares favourably with other silica producers such as Moberly, Hunt and HCJ Properties near Golden, BC. Impurity compounds of interest (Al₂O₃, MgO, CaO, Fe₂O₃) approach specifications required for producing ferrosilicon alloy. Based on the range of %SiO₂ and impurity values such as MgO, CaO, P₂O₅, Al₂O₃, and Fe₂O₃, it is possible that the Gibraltar South quartzite silica is suitable for use as a raw material for ferrosilicon production. Based on favourable geochemical analysis results in 2019 from rock chip sampling on Gibraltar South Orthoquartzite Zone, further geological mapping, geochemical sampling, and evaluation of commercial applications for Gibraltar silica is warranted. Recommended future fieldwork would consist of 0.5 km access trail (from Kootenay Eastside FSR access to north portion of MTO Tenure 1068010) in order to perform core drilling (using light and portable skid mounted core drill), and geochemical analysis to estimate grade and tonnage of high purity quartzite. Approximate budget of \$175,000 is recommended in order to complete proposed 7 drill holes to a depth of 80 meters.

A key feature of the Gibraltar South mineral property is the relative ease of year-round access, and has potential for 1,000,000 tonnes of orthoquartzite with silica grade that averages >99% SiO₂. Proposed drilling would test the zone to a depth of 25-50 meters. Drilling could be carried out without seasonal restrictions, and steep terrains that are present on other exposures of Mt Wilson quartzite located in the Kootenay area of eastern BC.

Orthoquartzite (equivalent to Mount Wilson Formation) located on Gibraltar South (tenures 1068010), covers an area of approximately 300 X 30 m. Further mapping, sampling and exploration core drilling at 50 meter spacing (shallow angle drill holes at base of quartzite exposure), can establish continuity of grade of the Gibraltar South quartzite. There appears to be relatively good continuity of SiO₂ grades from 9 rock chip samples taken along approximately 225 meters of strike length where several small outcrops are exposed.

10.0 Conclusions

The Gibraltar silica property has potential to host quartzite occurrences that are similar to past producers. Reviewing available data, the writer offers the following interpretations & conclusions. The Gibraltar quartzite is a significant silica resource, comparing favourably in size with other deposits in BC such as Moberly Mountain, Hunt, & HCJ silica deposits that are located near Golden. The high purity of the Gibraltar property silica may be favourable for high tech end uses. Metallurgical testing, in order to test for processing of silica quartz to metallurgical grade silicon, is warranted.

Access to the property is relatively good with a reasonable access road connecting Gibraltar Silica. There is good infrastructure in the form of a well maintained Forest Service Road to CPR rail line in the Canal Flats valley, and major powerline.

The Gibraltar property features exposed Gibraltar Formation (equivalent to Mount Wilson Formation) high purity silica as a quartzite lithology that follows a segmented ridge crest that strikes north, and dips steeply to the east. Quartzite exposed along the crest of the ridge is accessible by logging roads. The orientation of the deposit along the crest of a ridge is ideal for open pit mining with a relatively low stripping ratio.

11.0 Recommendations

Future exploration and development of Gibraltar South Silica should be focused on defining the depth and lateral extensions of known quartzite formations. In order to outline exploration and development of Gibraltar property zones of high purity quartzite, geochemical data should be collected and can be used to interpret economics of projected cost vs benefit preliminary economic analysis of mining, mineral processing and marketing. Core drilling, geological mapping, and geochemical sampling is also recommended. In order to provide light track vehicle access to the 'Promising Ledge Zone', a 0.5 kilometer distance of temporary access trail to the site, is warranted.

Further metallurgical testing for use in ferrosilicon production and other end uses is warranted. Silicon production for the Aluminum or chemical market is another possible end use. The SiO₂-reactivity test, also known as the Hanover drum test measures the thermal stability of quartz, and tests for the reducing agents is an important one for choosing the right material; improper material will reduce the effectiveness of the processing. For a feasible furnace operation, it is very important that the SiO₂ is stable in the lower furnace part, and the stability property is tested by the Hanover drum test. Approximate cost for completing core drilling and metallurgical testing is \$125,000.00.

12.0 References

Dawson, K.; Sangster D., 1984, Canadian Mineral Deposit Types: A - Geological Synopsis, Economic Geology Section Report #36,

Foye, G, 1987 Silica Occurrences of BC, BCEMPR Open File 1987-15

Hobbs, S.W.; Fryklund Jr., V.C., 1967. The Coeur d'Alene District, Idaho, AIME, Ore Deposits of Western U.S., Ridge, J. ed.

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Rodgers, 1990, Geological, Geochemical and Geophysical Report, Dragoon No 1-6 Claims, Fort Steele Mining Division, for South Kootenay Goldfields Inc. BC Assessment Report 20,754

CERTIFICATE AND DATE

I, Andris Kikauka, of 4199 Highway, Powell River, BC am a self-employed professional geoscientist. I hereby certify that:

1. I am a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980.
2. I am a Fellow in good standing with the Geological Association of Canada.
3. I am registered in the Province of British Columbia as a Professional Geoscientist.
4. I have practiced my profession for twenty five years in precious and base metal exploration in the Cordillera of Western Canada, U.S.A., Mexico, Central America, Africa, Asia and South America, as well as for three years in uranium exploration in the Canadian Shield.
5. The information, opinions, and recommendations in this report are based on fieldwork carried out in my presence on the subject property during which time a technical evaluation consisting of geological mapping, geochemical rock sampling of mineralized zones carried out June 23-24, 2019.
6. I have a direct interest in the Gibraltar Property. The recommendations in this report cannot be used for the purpose of public financing.
7. I am not aware of any material fact or material change with respect to the subject matter of this Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
8. This technical work report supports requirements of BCEMPR for Exploration and Development Work/Expiry Date Change.

Andris Kikauka, P. Geo.,



September 10, 2019

**ITEMIZED COST STATEMENT-
GIBRALTAR SOUTH MINERAL TENURES 1068010, 1068013
FIELDWORK PERFORMED JUNE 23-24, 2019,
WORK PERFORMED ON MINERAL TENURE 1068010, 1068013
GOLDEN MINING DIVISION, NTS 82J 5E (TRIM 082J ~~032~~
.022)**

FIELD CREW:

A. Kikauka (Geologist) 2 days (surveying, mapping, sampling) \$ 1,155.00

FIELD COSTS:

Mob/demob/preparation	139.75
Meals and accommodations	125.50
Equipment & Supplies (bags, flags, tags, consumables)	11.95
Truck mileage & fuel	300.50
Li Borate Fusion ICP AES geochemical analysis (9 rock samples)	440.55
Report	600.00

TOTAL = \$ 2,773.25



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Page: 1
Total # Pages: 2 (A - B)
Plus Appendix Pages
Finalized Date: 3-SEP-2019
Account: KIKAND

Appendix A Geochemical Analysis Certificate

CERTIFICATE VA19198731

Project: Gibraltar South

This report is for 9 Rock samples submitted to our lab in Vancouver, BC, Canada on 10-AUG-2019.

The following have access to data associated with this certificate:

ANDRIS KIKAUKA

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-QC	Crushing QC Test
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
PUL-33	Pulverise in Tungsten Carbide
SPL-21	Split sample - riffle splitter
DISP-01	Disposal of all sample fractions

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP06	Whole Rock Package - ICP-AES	ICP-AES
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
TOT-ICP06	Total Calculation for ICP06	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Colin Ramshaw, Vancouver Laboratory Manager



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Page: 2 - A
 Total # Pages: 2 (A - B)
 Plus Appendix Pages
 Finalized Date: 3-SEP-2019
 Account: KIKAND

Project: Gibraltar South

CERTIFICATE OF ANALYSIS VA19198731

Sample Description	Method Analyte Units LOD	WEI-21	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	OA-GRA05
		Recvd Wt. kg	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %	K2O %	Cr2O3 %	TiO2 %	MnO %	P2O5 %	SrO %	BaO %	LOI %
19GIBS-1		0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.002	0.01	0.01	0.01	0.01	0.01	0.01	0.01
19GIBS-2		1.94	98.1	0.33	0.18	0.15	0.15	0.04	0.09	0.004	0.02	0.01	<0.01	<0.01	0.02	-0.01
19GIBS-3		1.54	98.2	0.17	0.05	0.05	0.04	0.02	0.07	0.003	0.01	0.01	<0.01	<0.01	<0.01	-0.04
19GIBS-4		1.24	98.4	0.19	0.04	0.20	0.04	0.02	0.07	0.003	0.01	<0.01	0.02	<0.01	<0.01	0.11
19GIBS-5		1.24	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.002	0.01	0.01	<0.01	<0.01	<0.01	0.18
19GIBS-6		1.44	98.9	0.20	0.03	0.05	0.03	0.01	0.08	0.004	0.01	<0.01	0.01	<0.01	<0.01	0.11
19GIBS-7		1.54	100.0	0.11	0.05	0.01	0.02	0.02	0.08	0.005	0.01	<0.01	0.02	<0.01	<0.01	0.03
19GIBS-8		0.88	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.003	0.01	<0.01	0.01	<0.01	<0.01	0.10
19GIBS-9		1.52	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.004	0.01	<0.01	0.01	<0.01	<0.01	0.03
19GIBS-9		1.54	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0.004	0.01	<0.01	0.02	<0.01	<0.01	0.00

***** See Appendix Page for comments regarding this certificate *****



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Finalized Date: 3-SEP-2019
Account: KIKAND

Project: Gibraltar South

CERTIFICATE OF ANALYSIS VA19198731

Sample Description	Method Analyte Units LOD	TOT-ICP06 Total % 0.01
19GIBS-1 19GIBS-2 19GIBS-3 19GIBS-4 19GIBS-5		99.08 98.59 99.10 99.53 99.43
19GIBS-6 19GIBS-7 19GIBS-8 19GIBS-9		100.36 98.86 100.09 99.22

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Account: KIKAND

Project: Gibraltar South

CERTIFICATE OF ANALYSIS VA19198731

CERTIFICATE COMMENTS

LABORATORY ADDRESSES

Applies to Method:

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

CRU-31
ME-ICP06
TOT-ICP06

CRU-QC
OA-GRA05
WEI-21

DISP-01
PUL-33

LOG-22
SPL-21



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Plus Appendix Pages
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Account: KIKAND

QC CERTIFICATE VA19198731

Project: Gibraltar South

This report is for 9 Rock samples submitted to our lab in Vancouver, BC, Canada on 10-AUG-2019.

The following have access to data associated with this certificate:
ANDRIS KIKAUKA

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-QC	Crushing QC Test
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
PUL-33	Pulverise in Tungsten Carbide
SPL-21	Split sample - riffle splitter
DISP-01	Disposal of all sample fractions

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP06	Whole Rock Package - ICP-AES	ICP-AES
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
TOT-ICP06	Total Calculation for ICP06	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:



Colin Ramshaw, Vancouver Laboratory Manager

***** See Appendix Page for comments regarding this certificate *****



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Page: Appendix 1
Total # Appendix Pages: 1
Finalized Date: 3-SEP-2019
Account: KIKAND

Project: Gibraltar South

QC CERTIFICATE OF ANALYSIS VA19198731

CERTIFICATE COMMENTS													
Applies to Method:	<p style="text-align: center;">LABORATORY ADDRESSES</p> <p>Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.</p> <table><tr><td>CRU-31</td><td>CRU-QC</td><td>DISP-01</td><td>LOG-22</td></tr><tr><td>ME-ICP06</td><td>OA-GRA05</td><td>PUL-33</td><td>SPL-21</td></tr><tr><td>TOT-ICP06</td><td>WEI-21</td><td></td><td></td></tr></table>	CRU-31	CRU-QC	DISP-01	LOG-22	ME-ICP06	OA-GRA05	PUL-33	SPL-21	TOT-ICP06	WEI-21		
CRU-31	CRU-QC	DISP-01	LOG-22										
ME-ICP06	OA-GRA05	PUL-33	SPL-21										
TOT-ICP06	WEI-21												

SAMPLE PREPARATION PACKAGE

PREP- 31

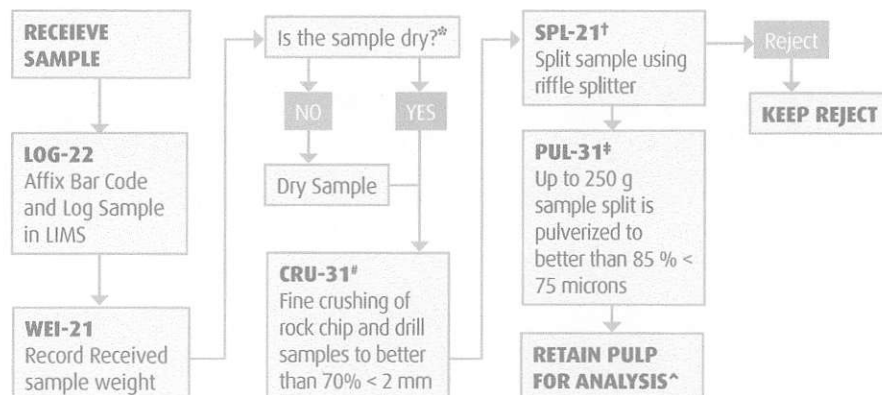
STANDARD SAMPLE PREPARATION: DRY, CRUSH, SPLIT AND PULVERIZE

Sample preparation is the most critical step in the entire laboratory operation. The purpose of preparation is to produce a homogeneous analytical sub-sample that is fully representative of the material submitted to the laboratory.

The sample is logged in the tracking system, weighed, dried and finely crushed to better than 70 % passing a 2 mm (Tyler 9 mesh, US Std. No.10) screen. A split of up to 250 g is taken and pulverized to better than 85 % passing a 75 micron (Tyler 200 mesh, US Std. No. 200) screen. This method is appropriate for rock chip or drill samples.

METHOD CODE	DESCRIPTION
LOG-22	Sample is logged in tracking system and a bar code label is attached.
DRY-21	Drying of excessively wet samples in drying ovens. This is the default drying procedure for most rock chip and drill samples.
CRU-31	Fine crushing of rock chip and drill samples to better than 70% of the sample passing 2 mm.
SPL-21	Split sample using riffle splitter.
PUL-31	A sample split of up to 250 g is pulverized to better than 85% of the sample passing 75 microns.

FLOW CHART - SAMPLE PREPARATION PACKAGE - PREP-31 STANDARD SAMPLE PREPARATION: DRY, CRUSH, SPLIT AND PULVERIZE



*If samples air-dry overnight, no charge to client. If samples are excessively wet, the sample should be dried to a maximum of 120°C. (DRY-21)

#QC testing of crushing efficiency is conducted on random samples (CRU-QC).

†The sample reject is saved or dumped pending client instructions. Prolonged storage (> 45 days) of rejects will be charged to the client.

‡QC testing of pulverizing efficiency is conducted on random samples (PUL-QC).

[^]Lab splits are required when analyses must be performed at a location different than where samples received.

WHOLE ROCK GEOCHEMISTRY

ME- XRF06

SAMPLE DECOMPOSITION

50% - 50% $\text{Li}_2\text{B}_4\text{O}_7$ - LiBO_2 (WEI- GRA06)

ANALYTICAL METHOD

X-Ray Fluorescence Spectroscopy (XRF)

A calcined or ignited sample (0.9 g) is added to 9.0g of Lithium Borate Flux (50 % - 50 % $\text{Li}_2\text{B}_4\text{O}_7$ - LiBO_2), mixed well and fused in an auto fluxer between 1050 - 1100°C. A flat molten glass disc is prepared from the resulting melt. This disc is then analysed by X-ray fluorescence spectrometry.

ELEMENT	SYMBOL	UNITS	LOWER LIMIT	UPPER LIMIT
Aluminum Oxide	Al_2O_3	%	0.01	100
Barium Oxide	BaO	%	0.01	100
Calcium Oxide	CaO	%	0.01	100
Chromium Oxide	Cr_2O_3	%	0.01	100
Ferric Oxide	Fe_2O_3	%	0.01	100
Potassium Oxide	K_2O	%	0.01	100
Magnesium Oxide	MgO	%	0.01	100
Manganese Oxide	MgO	%	0.01	100
Sodium Oxide	Na_2O	%	0.01	100
Phosphorus Oxide	P_2O_5	%	0.01	100
Silicon Oxide	SiO_2	%	0.01	100
Strontium Oxide	SrO	%	0.01	100
Titanium Oxide	TiO_2	%	0.01	100
Loss On Ignition	LOI	%	0.01	100
	Total	%	0.01	101

NOTE: Since samples that are high in sulphides or base metals can damage Platinum crucibles, a ME- ICP06 finish method can be selected as an alternative method.

Appendix C - Gibraltar South 2019 Rock Sample Descriptions

Sample ID	Zone name	MTO claim	Easting NAD 83	Northing NAD 83	Elev (m)	Elev (ft)
19GIBS-1	Promising Ledge	1068013	594385	5571250	1078	3535.8
19GIBS-2	Promising Ledge	1068013	594388	5571238	1084	3555.5
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19GIBS-6	Promising Ledge	1068010	594415	5571189	1109	3637.5
19GIBS-7	Promising Ledge	1068010	594423	5571153	1107	3631
19GIBS-8	Promising Ledge	1068010	594436	5571106	1108	3634.2
19GIBS-9	Promising Ledge	1068010	594442	5571026	1101	3611.3

Sample ID	Lithology	Sample type, slope described	Bed Strike	Bed Dip	Width (cm)
19GIBS-1	quartzite	outcrop, moderate slope	150	65 E	100
19GIBS-2	quartzite	outcrop, moderate slope	153	67 E	100
19GIBS-3	quartzite	outcrop, moderate slope	151	66 E	100
19GIBS-4	quartzite	outcrop, moderate slope			100
19GIBS-5	quartzite	outcrop, flat ridge	148	70 E	100
19GIBS-6	quartzite	outcrop, flat ridge	152	70 E	100
19GIBS-7	quartzite	outcrop, flat ridge			100
19GIBS-8	quartzite	outcrop, flat ridge			100
19GIBS-9	quartzite	outcrop, flat ridge			100

Sample ID	% SiO2	% Al2O3	% Fe2O3	% CaO	% MgO	Na2O	K2O	% LOI	% Total	SiO2/Total
19GIBS-1	98.1	0.33	0.18	0.15	0.15	0.04	0.09	-0.01	99.08	99.01
19GIBS-2	98.2	0.17	0.05	0.05	0.04	0.02	0.07	-0.04	98.59	99.6
19GIBS-3	98.4	0.19	0.04	0.2	0.04	0.02	0.07	0.11	99.1	99.29
19GIBS-4	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.18	99.53	99.27
19GIBS-5	98.9	0.2	0.03	0.05	0.03	0.01	0.08	0.11	99.43	99.47
19GIBS-6	100	0.11	0.05	0.01	0.02	0.02	0.08	0.03	100.36	99.64
19GIBS-7	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.1	98.86	99.64
19GIBS-8	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.03	100.09	99.61
19GIBS-9	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0	99.22	99.68

average	<u>98.83</u>	<u>0.17</u>	<u>0.057</u>	<u>0.078</u>	<u>0.04</u>	<u>0.02</u>	<u>0.07</u>	<u>0.05</u>	<u>99.36</u>	<u>99.47</u>
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Fig 1 Gibraltar South Claims General Location

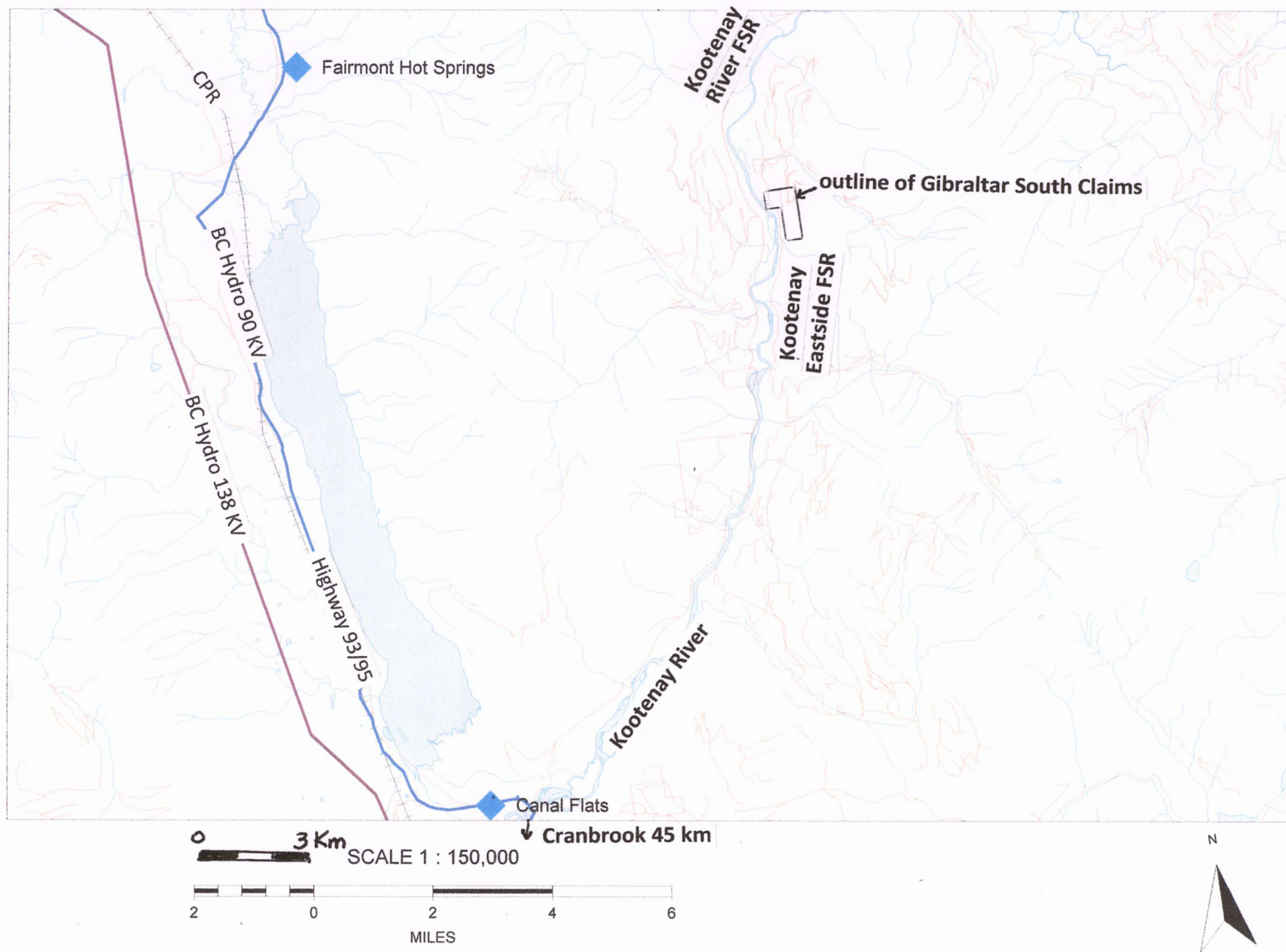


Fig 2 MTO Mineral Claim Map



Legend

Mineral Titles (MTO)

- MTO Grid
- Title (current)
 - LEASE
 - CLAIM
- Reserves
 - No Registration
 - Conditional
- Heritage/Historic Site

Other Mining Layers

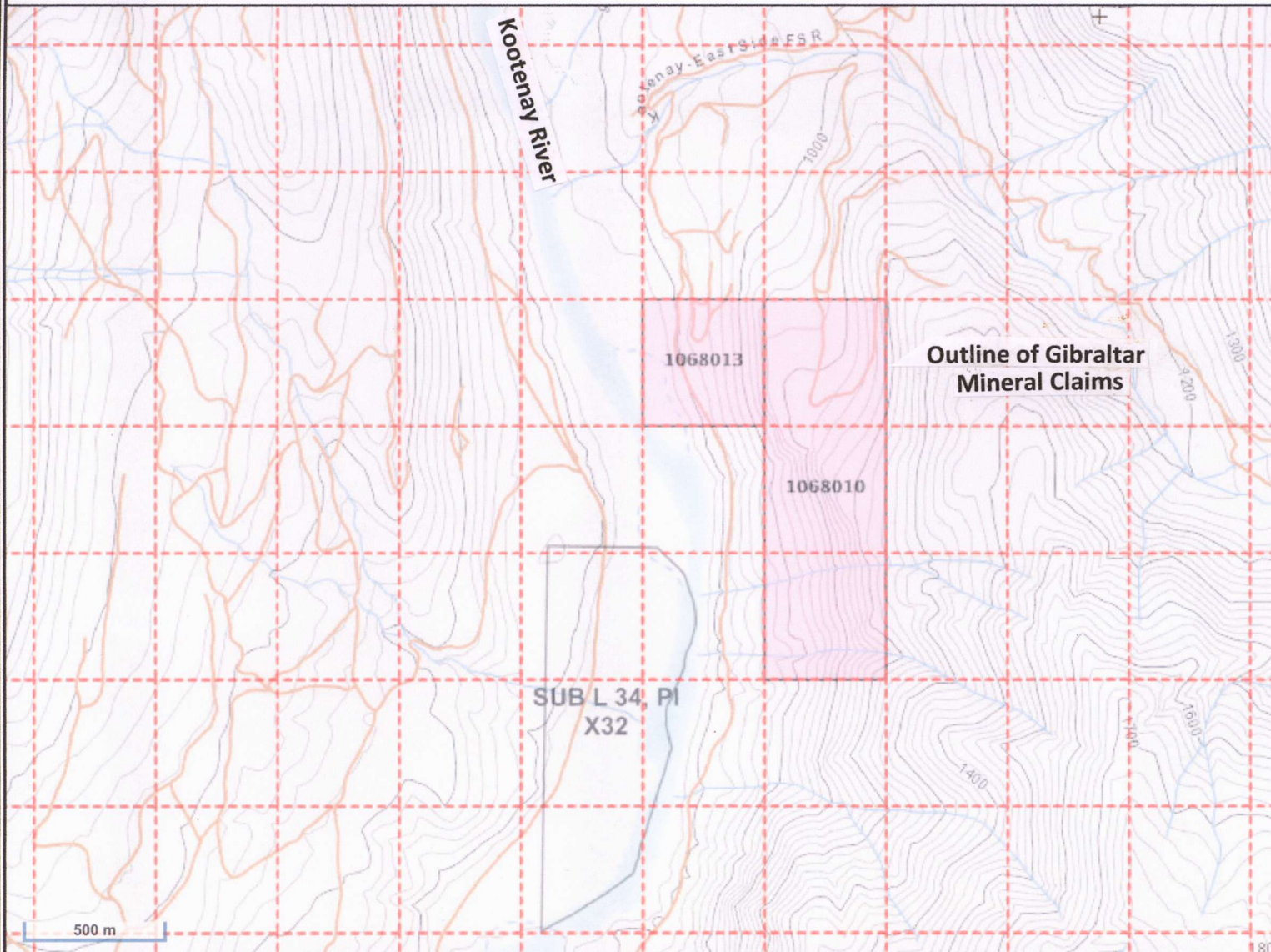
- Mineral Occurrences (MINFILE)
 - Producer
 - Past Producer
 - Developed Prospect
 - Other

Crown Land Layers (Tantalis)

- Land Act Survey Parcels - Tantalis - Legal Descriptions
- Label Text
- Land Act Survey Parcels - Tantalis - Outlined

Administrative Boundaries

- Federal Transfer Lands - Outlined
- Federal Transfer Lands - Colour Filled
- National Parks - Outlined
- National Park
- National Parks - Colour Filled
- Conservancy Areas - Tantalis - Colour Filled
- Conservancy Areas
- Ecological Reserves - Tantalis - Colour Filled



This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Printed using the Mineral Titles Online (MTO) application. NTS082J 5E, BCGS082J.002 Golden MD

Center: 50°16'54", -115°40'56"
Scale: 1 : 33855
SRS: EPSG:3857
UTM Zone: 11



Fig 3 Gibraltar South Claims General Geology

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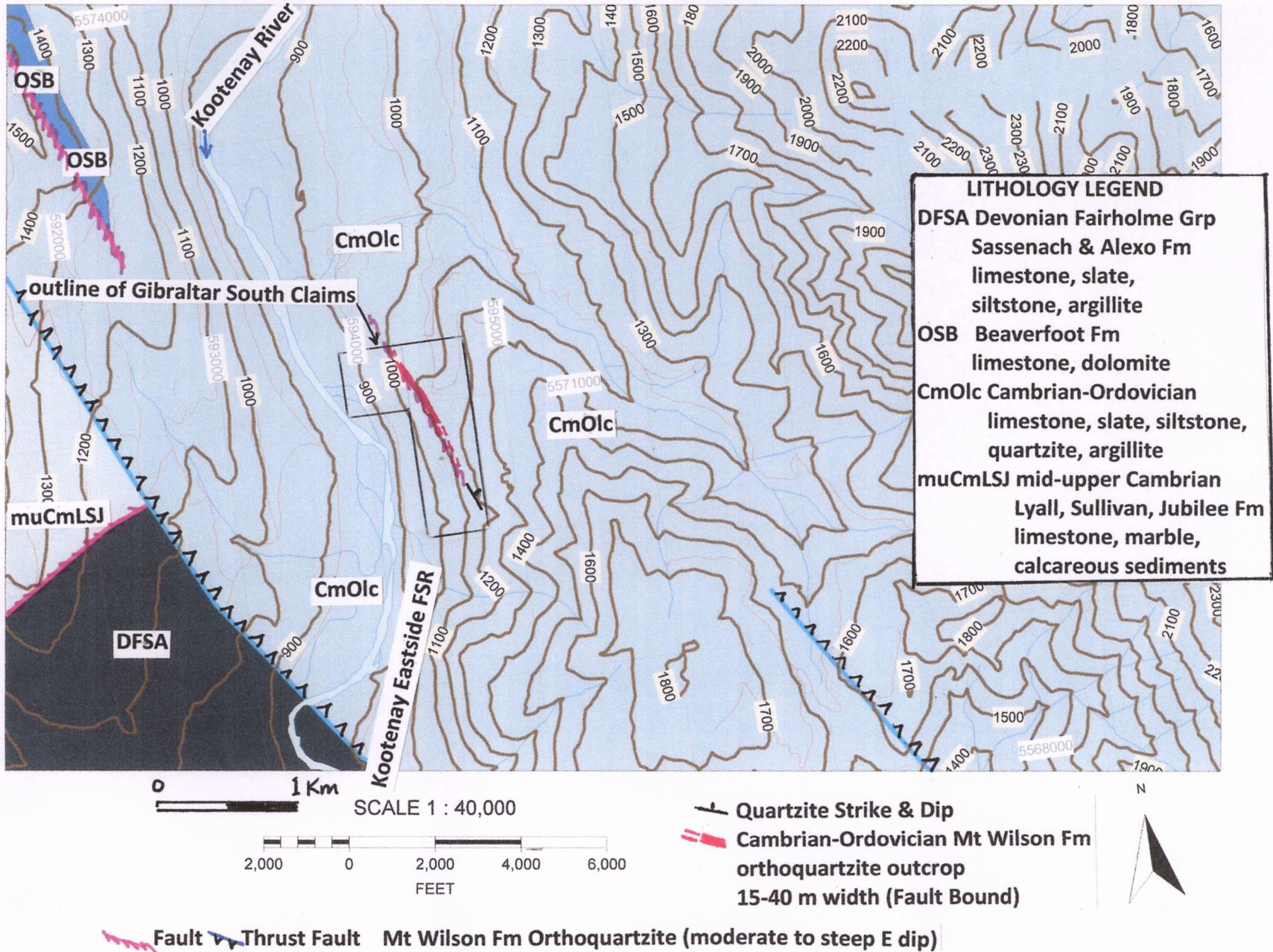
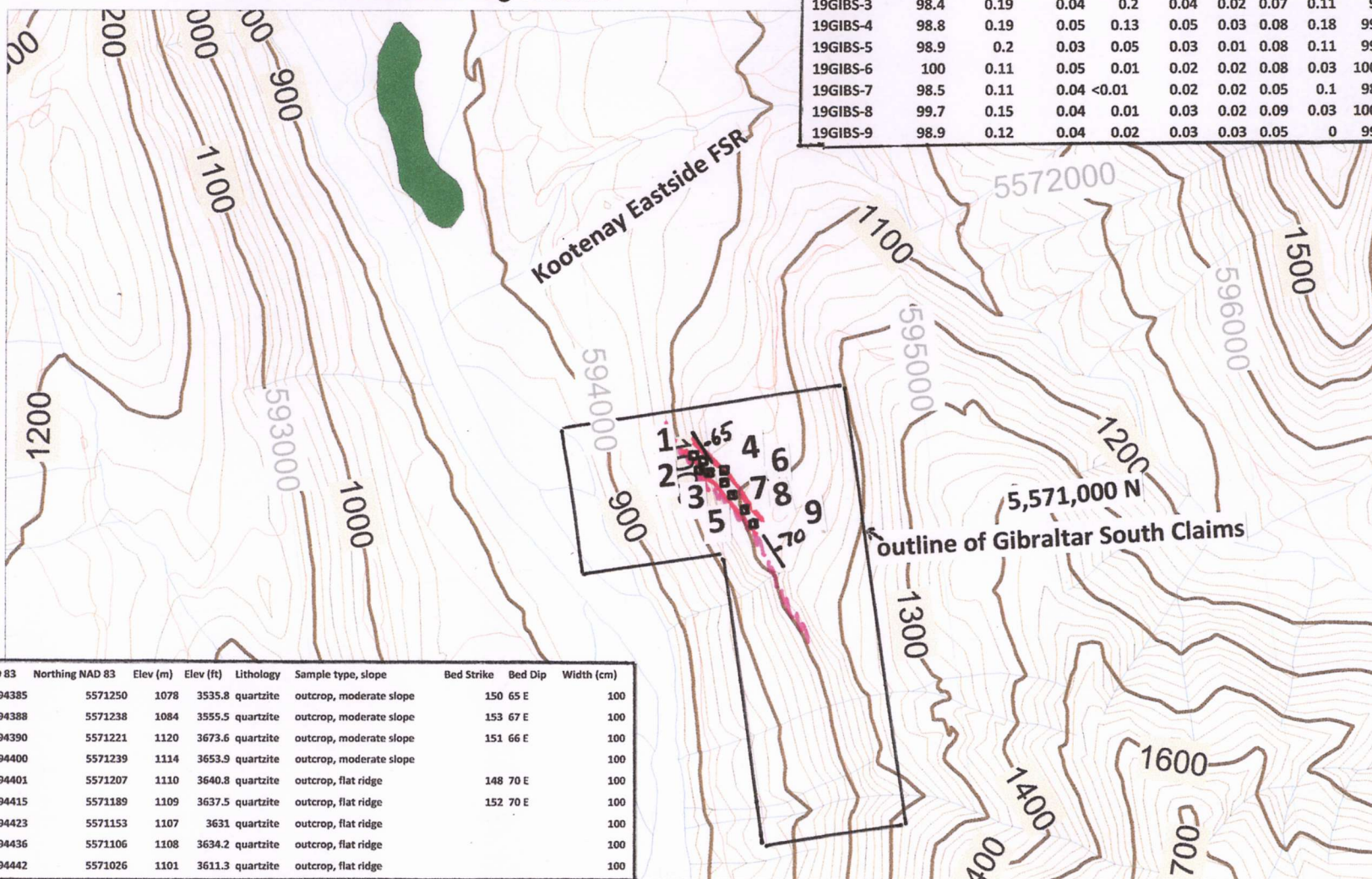


Fig 4 Gibraltar South 2019 Rock Chip Samples

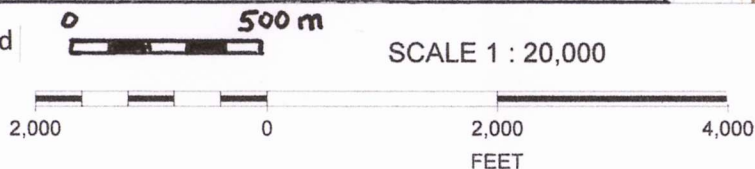
NTS 082J 05/E, BCGS 082J.022
Golden Mining Division

Sample ID	% SiO2	% Al2O3	% Fe2O3	% CaO	% MgO	Na2O	K2O	% LOI	% Total	SiO2/Total
19GIBS-1	98.1	0.33	0.18	0.15	0.15	0.04	0.09	-0.01	99.08	99.01
19GIBS-2	98.2	0.17	0.05	0.05	0.04	0.02	0.07	-0.04	98.59	99.6
19GIBS-3	98.4	0.19	0.04	0.2	0.04	0.02	0.07	0.11	99.1	99.29
19GIBS-4	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.18	99.53	99.27
19GIBS-5	98.9	0.2	0.03	0.05	0.03	0.01	0.08	0.11	99.43	99.47
19GIBS-6	100	0.11	0.05	0.01	0.02	0.02	0.08	0.03	100.36	99.64
19GIBS-7	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.1	98.86	99.64
19GIBS-8	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.03	100.09	99.61
19GIBS-9	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0	99.22	99.68



Sample ID	Easting NAD 83	Northing NAD 83	Elev (m)	Elev (ft)	Lithology	Sample type, slope	Bed Strike	Bed Dip	Width (cm)
19GIBS-1	594385	5571250	1078	3535.8	quartzite	outcrop, moderate slope	150 65 E	100	
19GIBS-2	594388	5571238	1084	3555.5	quartzite	outcrop, moderate slope	153 67 E	100	
19GIBS-3	594390	5571221	1120	3673.6	quartzite	outcrop, moderate slope	151 66 E	100	
19GIBS-4	594400	5571239	1114	3653.9	quartzite	outcrop, moderate slope		100	
19GIBS-5	594401	5571207	1110	3640.8	quartzite	outcrop, flat ridge	148 70 E	100	
19GIBS-6	594415	5571189	1109	3637.5	quartzite	outcrop, flat ridge	152 70 E	100	
19GIBS-7	594423	5571153	1107	3631	quartzite	outcrop, flat ridge		100	
19GIBS-8	594436	5571106	1108	3634.2	quartzite	outcrop, flat ridge		100	
19GIBS-9	594442	5571026	1101	3611.3	quartzite	outcrop, flat ridge		100	

Green = Wetland



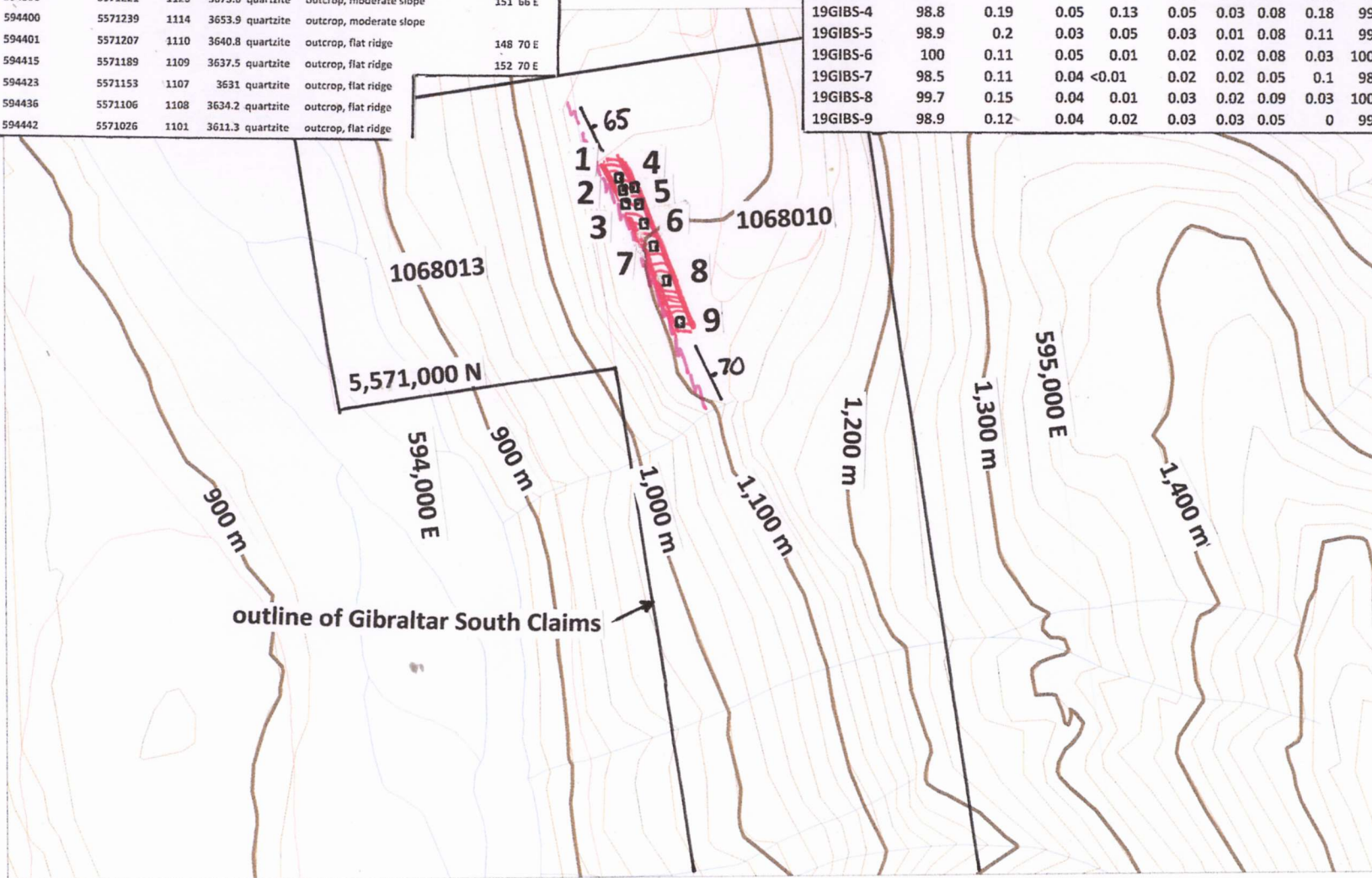
- Quartzite Strike & Dip
- Cambrian-Ordovician Mt Wilson Fm orthoquartzite outcrop
- 15-40 m width (Fault Bound)
- Fault

1 ■ Rock Chip Sample (all samples prefixed 19GIBS-)

Fig 5 Gibraltar South 2019 Rock Chip Samples (Detail)

Sample ID	Easting NAD 83	Northing NAD 83	Elev (m)	Elev (ft)	Lithology	Sample type, slope	Bed Strike	Bed Dip
19GIBS-1	594385	5571250	1078	3535.8	quartzite	outcrop, moderate slope	150	65 E
19GIBS-2	594388	5571238	1084	3555.5	quartzite	outcrop, moderate slope	153	67 E
19GIBS-3	594390	5571221	1120	3673.6	quartzite	outcrop, moderate slope	151	66 E
19GIBS-4	594400	5571239	1114	3653.9	quartzite	outcrop, moderate slope		
19GIBS-5	594401	5571207	1110	3640.8	quartzite	outcrop, flat ridge	148	70 E
19GIBS-6	594415	5571189	1109	3637.5	quartzite	outcrop, flat ridge	152	70 E
19GIBS-7	594423	5571153	1107	3631	quartzite	outcrop, flat ridge		
19GIBS-8	594436	5571106	1108	3634.2	quartzite	outcrop, flat ridge		
19GIBS-9	594442	5571026	1101	3611.3	quartzite	outcrop, flat ridge		

Sample ID	% SiO2	% Al2O3	% Fe2O3	% CaO	% MgO	Na2O	K2O	% LOI	% Total	SiO2/Total
19GIBS-1	98.1	0.33	0.18	0.15	0.15	0.04	0.09	-0.01	99.08	99.01
19GIBS-2	98.2	0.17	0.05	0.05	0.04	0.02	0.07	-0.04	98.59	99.6
19GIBS-3	98.4	0.19	0.04	0.2	0.04	0.02	0.07	0.11	99.1	99.29
19GIBS-4	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.18	99.53	99.27
19GIBS-5	98.9	0.2	0.03	0.05	0.03	0.01	0.08	0.11	99.43	99.47
19GIBS-6	100	0.11	0.05	0.01	0.02	0.02	0.08	0.03	100.36	99.64
19GIBS-7	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.1	98.86	99.64
19GIBS-8	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.03	100.09	99.61
19GIBS-9	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0	99.22	99.68



0 300m

SCALE 1 : 10,000



1 □ Rock Chip Sample (all samples prefixed 19GIBS-)

Quartzite Strike & Dip
Cambrian-Ordovician Mt Wilson Fm
orthoquartzite outcrop
15-40 m width (Fault Bound)



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Fig 6 Gibraltar South 2019 Rock Chip Samples (More Detail)

Sample ID	Easting NAD 83	Northing NAD 83	Elev (m)	Elev (ft)	Lithology	Sample type, slope	Bed Strike	Bed Dip
19GIBS-1	594385	5571250	1078	3535.8	quartzite	outcrop, moderate slope	150	65 E
19GIBS-2	594388	5571238	1084	3555.5	quartzite	outcrop, moderate slope	153	67 E
19GIBS-3	594390	5571221	1120	3673.6	quartzite	outcrop, moderate slope	151	66 E
19GIBS-4	594400	5571239	1114	3653.9	quartzite	outcrop, moderate slope		
19GIBS-5	594401	5571207	1110	3640.8	quartzite	outcrop, flat ridge	148	70 E
19GIBS-6	594415	5571189	1109	3637.5	quartzite	outcrop, moderate slope	152	70 E
19GIBS-7	594423	5571153	1107	3631	quartzite	outcrop, flat ridge		
19GIBS-8	594436	5571106	1108	3634.2	quartzite	outcrop, flat ridge		
19GIBS-9	594442	5571026	1101	3611.3	quartzite	outcrop, flat ridge		

Sample ID	% SiO2	% Al2O3	% Fe2O3	% CaO	% MgO	Na2O	K2O	% LOI	% Total	SiO2/Total
19GIBS-1	98.1	0.33	0.18	0.15	0.15	0.04	0.09	-0.01	99.08	99.01
19GIBS-2	98.2	0.17	0.05	0.05	0.04	0.02	0.07	-0.04	98.59	99.6
19GIBS-3	98.4	0.19	0.04	0.2	0.04	0.02	0.07	0.11	99.1	99.29
19GIBS-4	98.8	0.19	0.05	0.13	0.05	0.03	0.08	0.18	99.53	99.27
19GIBS-5	98.9	0.2	0.03	0.05	0.03	0.01	0.08	0.11	99.43	99.47
19GIBS-6	100	0.11	0.05	0.01	0.02	0.02	0.08	0.03	100.36	99.64
19GIBS-7	98.5	0.11	0.04	<0.01	0.02	0.02	0.05	0.1	98.86	99.64
19GIBS-8	99.7	0.15	0.04	0.01	0.03	0.02	0.09	0.03	100.09	99.61
19GIBS-9	98.9	0.12	0.04	0.02	0.03	0.03	0.05	0	99.22	99.68

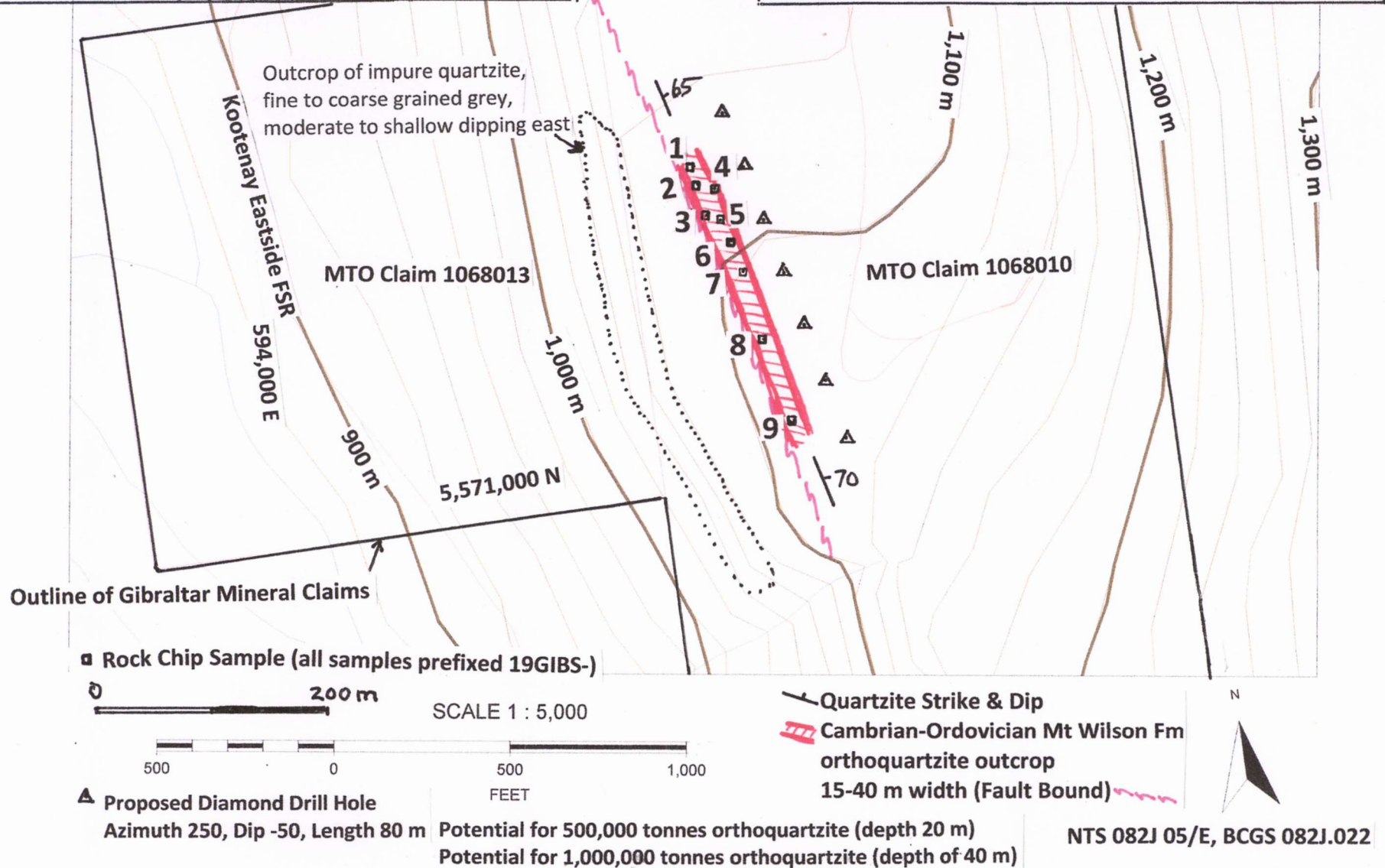


Fig 7 Rock Samples

Mt Wilson Fm Quartzite surface trace

Legend

Rock Sample

- 19G1
- 19G2
- 19G4
- 19G3
- 19G5
- 19G6
- 19G7
- 19G8
- 19G9

Google Earth

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100 m

Fig 8 Rock Samples

 Mt Wilson Fm Quartzite surface trace

Legend

 Rock Sample

- 19G4
- 19G5
- 19G6
- 19G7
- 19G8
- 19G9

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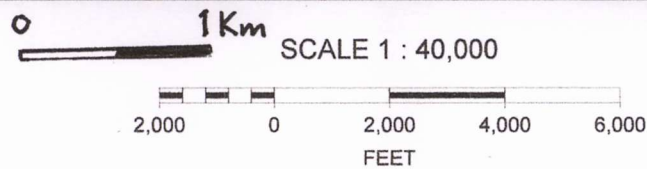
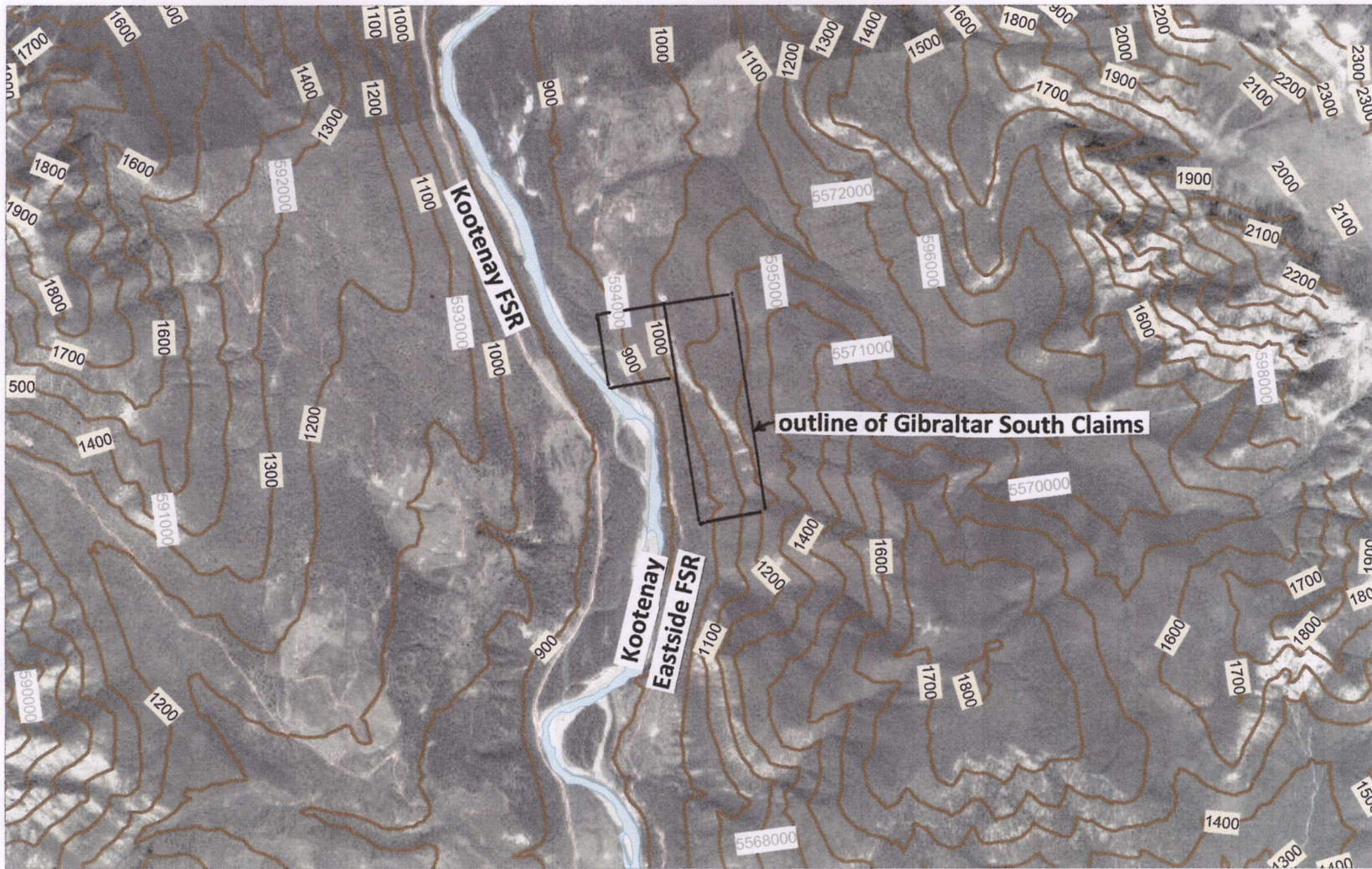
Google Earth

Image © 2019 Maxar Technologies



200 m

Fig 9 Gibraltar South Orthophoto



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