BC Geological Survey
Assessment Report
38117

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: 2018 Geological Report on the Angus Property

TOTAL COST: $54,747.92

AUTHOR(S): R.A. (Bob) Lane
SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): n/a
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): 5725316, 5725320, 5725321 & 5725325 / January 4, 2019

YEAR OF WORK: 2018
PROPERTY NAME: Angus
CLAIM NAME(S) (on which work was done): 1052136, 1052830, 1059724, 1059735, 1060171, 1060172, 1060173, 1060174, 1060567, 1060631-633, 1060737

COMMODITIES SOUGHT: Silica Sand

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 093J 042

MINING DIVISION: Cariboo
NTS / BCGS: 093J08W / 093J038
LATITUDE: 54° 23' 46"
LONGITUDE: 122° 24' 25" (at centre of work)
UTM Zone: 10N EASTING: 538504 NORTHING: 6027757

OWNER(S): Corus Exploration Corp.

MAILING ADDRESS: 1084 Richter Street, Kelowna, BC V1Y 2K5

OPERATOR(S) [who paid for the work]: Corus Exploration Corp.

MAILING ADDRESS: 1084 Richter Street, Kelowna, BC V1Y 2K5

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**): Quartz Arenite, Quartzite, Proterozoic Misinchinka Group, Ordovician Monkman Quartzite, Silica Sand, Frac Sand

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 37549

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	(1:5,000; 6 sq km)	1052136,1052830, 1059724,1059735, 1060171,1060173, 1060567,1060737	$50,747.92
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for …)			
Soil			
Silt			
Rock	10 whole rock	1052136,1052830, 1059724,1059735, 1060171,1060173, 1060567,1060737	$4,000
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
		TOTAL COST	$54,747.92

2018
Geological Report on the Angus Property

Cariboo Mining Division, British Columbia

BCGS Map: 093J038

Latitude 54.396493°N & Longitude 122.405465°W

Statement of Work Events: 5725316, 5725320, 5725321 & 5725325

Prepared for: Corus Exploration Corp.
1084 Richter Street
Kelowna, B.C., Canada, V1Y 2K5

Prepared by: R. A. (Bob) Lane, M.Sc., P.Geo.

Date: January 4, 2019

Table of Contents

List of Figures

List of Tables

List of Plates

List of Appendices

1 SUMMARY

The Angus property is located 19km southeast of the community of Bear Lake, and 59 km north of Prince George. The core area of the property encompasses Mt. Averil. Corus Exploration Corp. (CEC) acquired a number of mineral claims over the Angus frac sand property previously held, but allowed to lapse, by Stikine Energy Corp. (Stikine).

Stikine had previously completed aerial and ground reconnaissance of the Angus property and identified a northwest-trending belt of medium to coarse-grained quartz arenite/quartzite belonging to the Proterozoic Misinchinka Group. Later work on the property by Stikine included diamond drilling, detailed mapping, petrographic thin section studies and the collection of a bulk sample in 2011 for processing in a pilot plant. The work established that the quartz arenite formation of interest had a total semi-continuous strike length of approximately 8 km. Stikine later allowed all of its claims to lapse.

Following acquisition of parts of the former Angus property by staking, CEC completed a modest outcrop mapping program in 2017 mainly adding detail to a section of the western margin of the belt of quartz arenite/quartzite.

In 2018, after acquiring more claims, CEC completed a detailed outcrop mapping program to more fully characterize the surface expression of the Misinchinka quartz arenite/quartzite, and to evaluate other parts of the property for parallel units of similar character with the potential to make frac sand. The mapping covered a total of 6 square kilometres and, together with previous mapping in the area, established that the quartz arenite/quartzite of the Misinchinka Group, called the Averil Trend, has strike length of at least 5.5km and a width of up to 430m. The 2018 work also included identification and mapping of two belts of northwest trending quartz arenite located 2-2.5km east of the Averil Trend; they are part of the Ordovician to Silurian Monkman Quartzite. The east belt of Monkman quartz arenite was mapped in detail: its surface expression is 1.4km and is open to the northwest and southeast. The west belt of Monkman quartz arenite was identified late in the program and received only cursory attention: it has a minimum strike length of 650m and an undefined width. The quartz arenites/quartzites are generally thin to thick bedded, white weathering and beige to pale maroon on fresh surfaces. They are composed of well-sorted subrounded to well-rounded grains of detrital quartz generally comprising >95% of the rock mass.

A total of 10 samples of Misinchinka and Monkman quartz arenite were submitted to MS Analytical for whole rock and trace element analysis, and thin sections from eight (8) of these samples were made by VanPet of Langley, BC, and petrographic descriptions provided by Craig Leitch. Average silicon dioxide (SiO_2) grades of the raw rock exceed 97%.

A 20kg composite surface sample was collected from each of the Averil Trend (Misinchinka Group) and west Monkman Trend (Monkman Quartzite); they were submitted to Met-Solve Laboratories Inc. in Langley, BC, for crushing-grinding-attrition scrubbing and sizing. The Met-Solve work demonstrated that from 43.3-56.9% of the grains report to the 20/40, 40/70 and 70/140 size fractions; the 12/20 and coarser

size fractions are composed of clusters of the finer grain sizes that could readily be liberated with minimal additional scrubbing thereby increasing recovery.

Three resulting size fractions from each sample were submitted to Stim-Labs in Oklahoma for single stage crush testing, that returned encouraging results, and initial proppant testing that yielded results that met or exceeded minimum API requirements (see table below).

Trend	**Monkman**	**Averil**	**Monkman**	**Averil**	**Monkman**	**Averil**
Size Fraction	**20/40**	**20/40**	**40/70**	**40/70**	**70/140**	**70/140**
Roundness	0.8	0.7	0.7	0.7	0.7	0.7
Sphericity	0.8	0.6	0.6	0.6	0.6	0.5
Acid Solubility	0.5%	0.6%	0.8%	0.8%	0.9%	0.9%
Turbidity	39	14	5	12	4	9
Proppant Density						
bulk density (g/cc)	1.48	1.39	1.41	1.35	1.33	1.28
bulk density (lb/ft3)	92.4	86.7	88	84.2	83.0	79.9
apparent density	2.64	2.64	2.64	2.63	2.64	2.63
Crush Resistance						
K Value	5K	3K	7K	4K	8K	5K

The 2018 program of outcrop mapping, petrography, geochemical analysis and subsequent bench-scale testwork (crushing-grinding-attrition scrubbing-sizing, and API evaluations) has confirmed that the Angus property has significant potential to become a source of marketable frac sand.

Recommended future programs should include:

1. Additional outcrop mapping and sampling of the west Monkman Trend quartz arenite to more fully determine its dimensions and to characterize its potential to a host frac sand deposit
2. systematic diamond drilling, sampling, and API and bench-scale testing of the east Monkman Trend to a) establish a resource for the deposit and b) determine the quality of the deposit.
3. drilling of at least one bore hole on the Averil Trend to recover core for additional testing.

The recommended work would require a minimum budget of approximately $800,000 as laid out below.

Angus Project - Proposed 2019 Budget	
(based on a spring-summer 6-week project, incl 2 days of preparation & 2 days of mobe/demobe)	
Item	**Cost Est**
Drilling: 2,200 metres of NQ Coring, incl estimates for fuel, drilling consumables, survey tool, core boxes	$ 294,000
Heavy Equipment Rentals: excavator, dozer, steel sloop, etc	$ 16,000
Field Equipment Rentals: 4x4 pickups, side-by-sides, trailers, core saws, misc camp & field components (surveys)	$ 24,000
Geochemical, Bench-Scale Processing & API Evaluation	$ 220,000
Wages: all-in for drilling support, geological mapping, core handling & sampling, shipping, equipment operation	$ 77,000
Camp per diem: room & board 294 days @ $115/d: crew & drillers	$ 34,000
Freight / Shipping	$ 6,500
Technical Report (deposit modeling & resource estimate) & Assessment Report	$ 56,000
Subtotal	$ 727,500
Contingency (10%)	$ 72,750
Total Estimated Cost	$ 800,250

2 INTRODUCTION

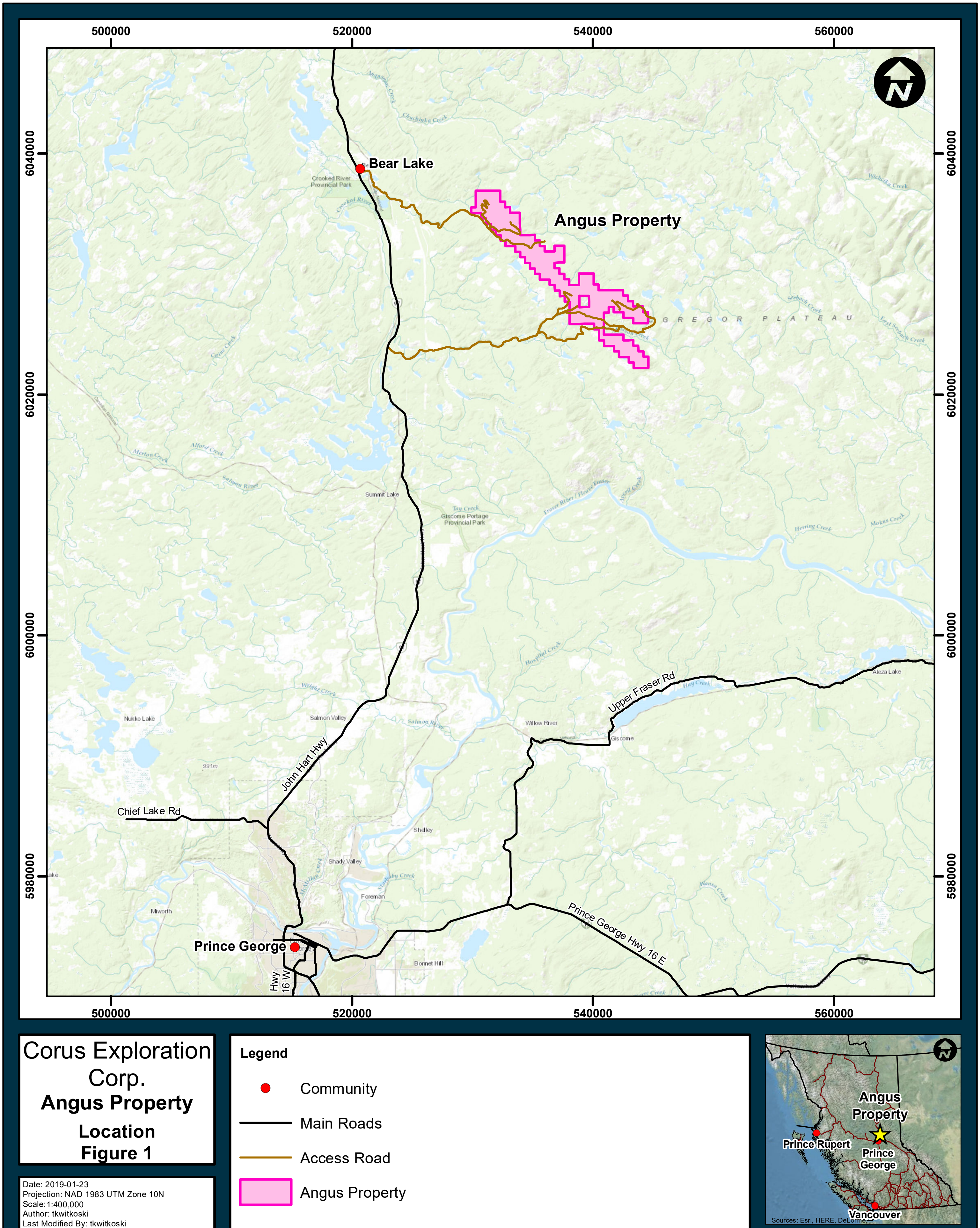
This report has been prepared at the request of Corus Exploration Corp. to summarize results from outcrop mapping, sampling and analysis carried out in the Spring and Summer of 2018 on the Angus property. Project field work was conducted by Bob Lane, P.Geo., and Chris Baldys, P.Eng.

2.1 LOCATION AND ACCESS

The Angus property encompasses Mount Averil in central British Columbia (Plate 1) and is centered 19 km southeast of the community of Bear Lake in the Cariboo Mining Division (Figure 1). The property is approximately one-half hour by air north of Prince George, representing a distance of 59 km. It is centered at Latitude 54.396493°N and Longitude 122.405465°W

Road access to the property is provided by Highway 97 and the N. Olsson Forest Service Road (FSR) which extends eastward from Highway 97 to the southern end of the property. The north end of the property is accessed by the Chuchinka FSR (or 700 Road) and several arterial roads (the 6600 and 6900 roads).

Plate 1: View looking north at Mt Averil



Corus Exploration Corp.

Angus Property

Location
Figure 1

Date: 2019-01-23
Projection: NAD 1983 UTM Zone 10N
Scale:1:400,000
Author: tkwitkoski
Last Modified By: tkwitkoski
Checked By: BL
Revision #:

0 2.5 5 10 15
Kilometers

Allnorth

Path: E:\19PG0003 Bob Lane\2400-GIS Angus Property\2420-MXD\AngusLocation_A.mxd

2.2 PHYSIOGRAPHY AND CLIMATE

The Angus property lies in the Interior Plateau physiographic region. Elevations within the claim group range from about 900 to 1310 meters. The Angus property covers the sparsely-treed subalpine northwest-trending ridge that peaks as Mount Averil. Lower elevation valleys are well-forested mature stands of spruce, balsam with some pine or previously logged plantations with thick underbrush, including alder and devil's club. Away from the central ridge, outcrop exposure is limited due to extensive glacial till cover.

Climate on the property is similar to that recorded for the town of Mackenzie, located about 60km north of Bear Lake. Mackenzie experiences average daily maximum temperatures of -9.8°C for January, and 21.7°C for July. Average minimum temperature for the same two months are -18.7°C and 8°C. Average annual rainfall and snowfall for Mackenzie are 37.5 cm and 337.1 cm respectively.

2.3 MINERAL TENURE OWNERSHIP AND STATUS

The Angus property presently consists of 14 mineral claims that cover 4,234.63 hectares of land (Table 1 and Figure 2). All of the mineral tenures are 100%-owned by CEC (Free Miners Certificate 285065). The Angus property is not encumbered by any provincial or national parks, or other protected areas. The property encompasses one third-party 4-cell claim that covers part of the area explored by Stikine.

Table 1: List of Mineral Claims - Angus Property

Title Number	Claim Name	Title Type	Good To Date	Area (ha)
1052136	ANGUS SOUTH	Mineral Claim	2021/JUN/30	338.99
1052830	ANGUS WEST	Mineral Claim	2021/JUN/30	338.84
1059724	BC FRAC	Mineral Claim	2021/JUN/30	75.30
1059735	ANGUS NORTH	Mineral Claim	2021/JUN/30	244.66
1060171	ANGUS N EXT	Mineral Claim	2021/JUN/30	451.48
1060172	ANGUS SAT N	Mineral Claim	2021/JUN/30	620.50
1060173	ANGUS SAT E	Mineral Claim	2021/JUN/30	451.94
1060174	ANGUS SAT S	Mineral Claim	2021/JUN/30	471.15
1060567	ANGUS SAT FAR N	Mineral Claim	2021/JUN/30	338.30
1060631	ANGUS SAT NE	Mineral Claim	2021/JUN/30	131.60
1060632	ANGUS SAT EXT E	Mineral Claim	2021/JUN/30	150.50
1060633	ANGUS SAT MID E	Mineral Claim	2021/JUN/30	207.05
1060737	ANGUS CONNECTOR	Mineral Claim	2021/JUN/30	395.48
1064884	ANGUS CELL 1	Mineral Claim	2019/DEC/03	18.83
				4,234.63

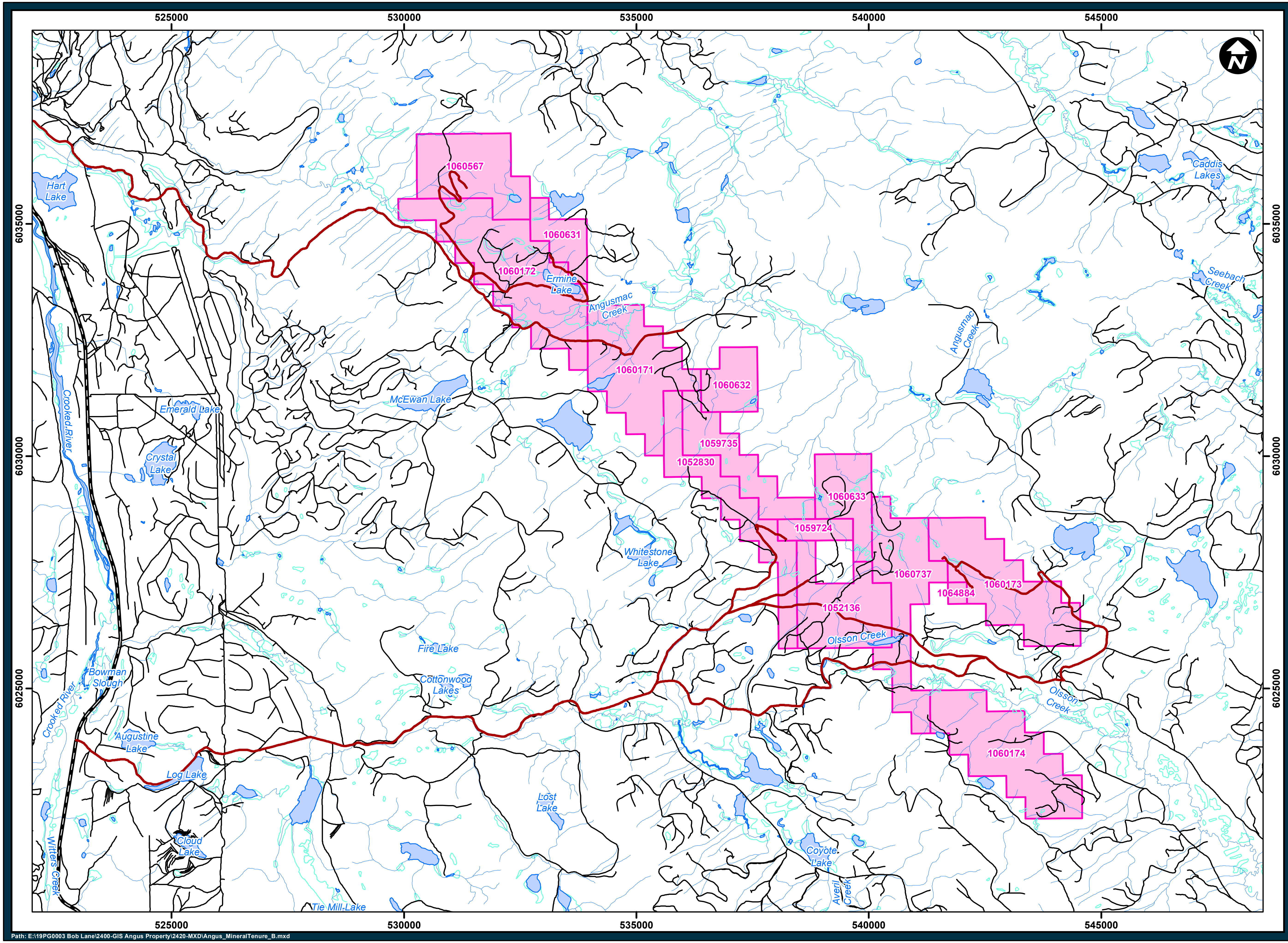
2.4 EXPLORATION HISTORY

The Angus property was staked by Stikine Energy Corp. (Stikine) in 2009 to cover an outcropping sequence of sedimentary rocks of the Upper Proterozoic Misinchinka Group that included quartz arenite/quartzite that may be suitable for high-value frac sand (Lane, 2010). In 2010, an exploration program verified the extent of the favourable Misinchinka quartz arenite/quartzite, and representative samples of the units for geochemical analysis and thin-sections were collected.

In February 2011, a bulk sample of 516 tonnes was collected from the southern part of Mount Averil ridge by drilling and blasting. The sample was shipped to Abbotsford, B.C., for process testing in Stikine's pilot plant (Lane and DeGrace, 2011). Results from the test work are unknown; it may be that the rock from the Angus property was never processed. Later in 2011, Stikine completed an 11-hole, 1850m helicopter-supported diamond drilling program on the Mount Averil ridge area of the property. The area drilled covered approximately 2500m along strike and 430m across strike. A total of 192 core samples were submitted for whole rock geochemical analysis of major oxides and trace elements; results indicated thick beds of quartz arenite with high SiO_2 contents with interbeds of siltstone. The average silica content of the quartz arenite was 95.2% SiO_2. An Inferred mineral resource for the area of drilling, as estimated by Wardrop in December 2011, is 726 million tonnes of material (Wardrop, 2011). The grade (the percentage of rock containing quartz grains within frac sand specifications) of the rock mass was not determined.

In 2014, a short mapping program by Stikine identified an important southwesterly extension to the Mount Averil quartz arenite trend (Mills and Lane, 2015). This work was not followed up, and Stikine forfeited all of its mineral claims in the area.

In 2017, Corus staked its initial claim in the area and carried out a limited mapping program. The work served to establish that the Averil Trend extended continuously well to the north and south beyond the areas of 2011 drilling.



Corus Exploration Corp.
Angus Property
Mineral Tenure
Figure 2

Legend

—	Access Road
═	Highway
—	Road
—	Stream
▨	Lake
☐	Wetland
▨	Mineral Tenure

Date: 2019-01-04
Projection: NAD 1983 UTM Zone 10N
Scale: 1:75,000
Author: tkwitkoski
Last Modified By: tkwitkoski
Checked By: BL
Revision #:

Source: US National Park Service

Allnorth

Path: E:\19PG0003 Bob Lane\2400-GIS Angus Property\2420-MXD\Angus_MineralTenure_B.mxd

3 REGIONAL GEOLOGY

The Angus property covers part of the Cariboo/Cassiar terrane and the adjoining North American tectonic plate. A northwest-trending fault places Cretaceous to Paleogene Wolverine Metamorphic Complex of the Cassiar terrane into contact with the Rocky Mountain Assemblages of the Upper Proterozoic to Cambrian Misinchinka, Gog, Boulder Creek and Cariboo groups, the Cambrian to Ordovician Kechika Group, and the Ordovician to Silurian Monkman Quartzite (Struik, 1994).

The oldest rocks in the area are the metasedimentary and clastic sedimentary rocks of the Upper Proterozoic to Cambrian Misinchinka, Gog, Boulder Creek, and Cariboo groups that are the focus of the property (Figure 3). These rocks are in contact with the quartzite and quartz-rich clastic rocks of the Ordovician to Silurian Monkman Quartzite and the limey sediments and limestone of the Cambrian to Ordovician Kechika Group along several northwest trending faults.

4 PROPERTY GEOLOGY

The Angus property is principally underlain by phyllite, quartzite/quartz arenite, and clastic sedimentary rocks of the Upper Proterozoic to Cambrian Misinchinka, Gog and Boulder Creek groups. The Mount Averil ridge, that has been the focus of exploration in the past, is almost entirely underlain by Misinchinka Group quartzite striking about 120° and dipping moderately-steeply to the southwest. Within the quartzite/quartz arenite interval of interest is a persistent, 2-3m thick quartz-pebble conglomerate layer that serves as a marker unit along the strike length of the exposed deposit. Generally the Misinchinka Group consists of a fine- to medium-grained, well-sorted, subangular quartz sandstone and quartzite.

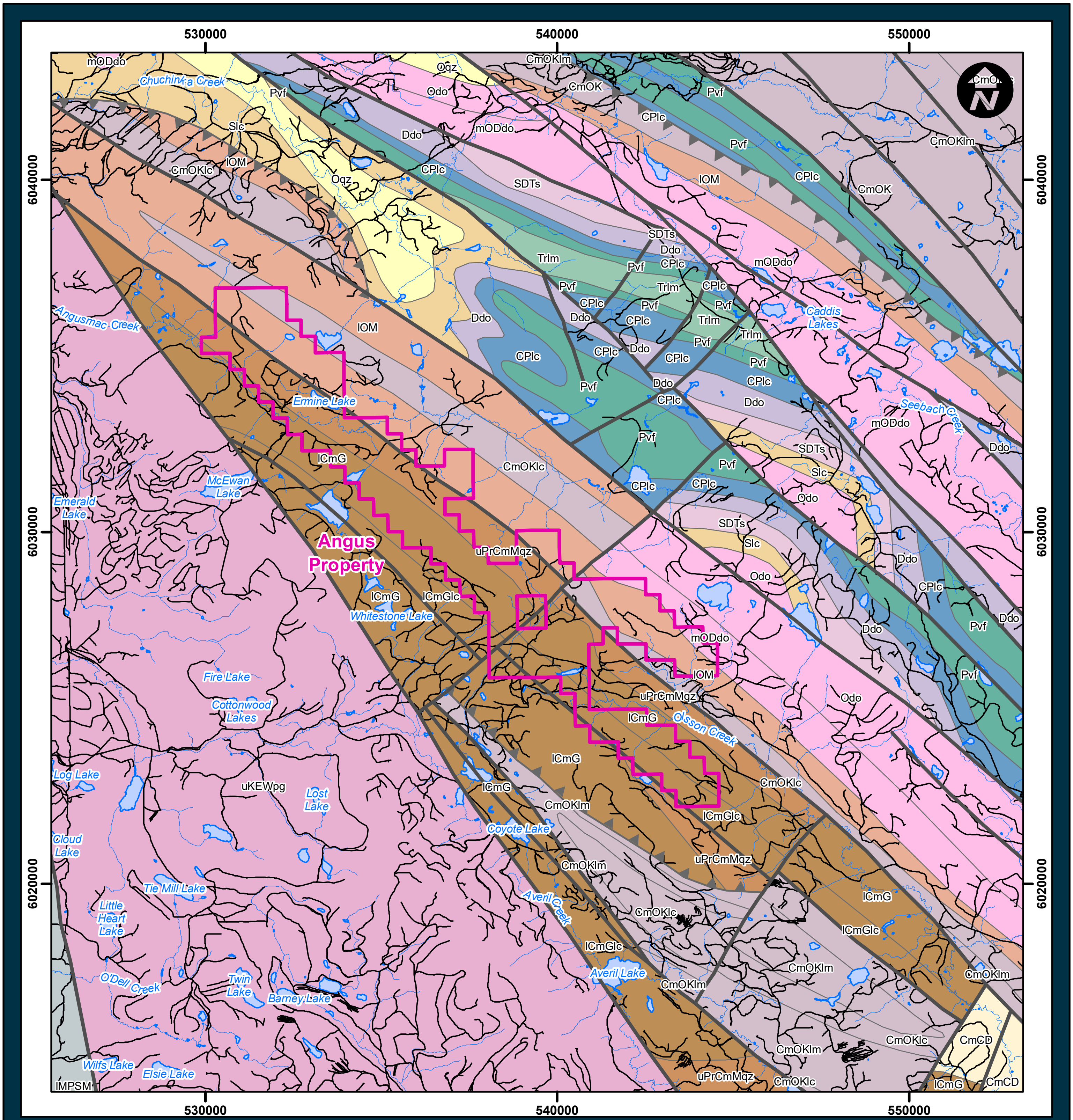
Limestone and shale, likely belonging to the Cambrian to Ordovician Kechika Group are exposed in the eastern parts of the property and are in fault contact with the older sedimentary rocks. Overlying these rocks are northwest-trending, moderately southwest dipping quartz arenite to quartzite and fine-grained quartz-rich clastic rocks of the Monkman Quartzite. The Monkman quartz arenite to quartzite occurs in two subparallel belts that are interpreted to be separated by a northwest trending fault.

5 MINERALIZATION AND GEOLOGICAL MODEL

The Angus property covers two sequences of quartz arenite to quartzite, an older sequence assigned to the Upper Proterozoic Misinchinka Group, and a younger sequence assigned to the Ordovician to Silurian Monkman Quartzite. The persistence and homogeneity of these sedimentary units along strike suggests a littoral depositional environment. Cross-beds in the Misinchinka quartzite are rare but do occur and are interpreted as intermittent channels between baymouth bars (Mills and Lane, 2015). Features of the quartz arenite of the Monkman Quartzite, including sedimentary and biogenic structures, textures, composition, and facies relationships indicate that it is a tidal deposit (Jansa, 1975). Both sequences of quartz arenite / quartzite are potential sources of frac sand.

Frac sand is a sand product used to enhance production in oil and gas by hydraulic fracturing. The sand grains are pumped under pressure into oil and gas reservoirs to prop open fractures through which the hydrocarbons can be retrieved. Frac sand is sourced from three main deposit types: unconsolidated sand, cemented sandstone (quartz arenite), or metamorphosed sandstone (quartzite). Frac sand is a fine-grained, pure quartz material which must meet industry specifications for physical properties. The physical properties of frac sand, as defined by the American Petroleum Institute (API), are quite specific. The optimal frac sand is a naturally occurring, unconsolidated silica sand or friable sandstone that has a nearly pure quartz composition, crush-resistant grains, high sphericity/roundness of grains, and a uniformly medium- to coarse-grain size. Factors that influence the economics of mining are:

- the deposit’s areal extent and thickness,
- textural uniformity,
- accessibility at or near the surface, nearness to trucking and rail transportation routes, and
- proximity to the active unconventional petroleum basins.



Corus Exploration Corp.

Angus Property
Regional Geology
Figure 3

Date: 2019-01-04
Projection: NAD 1983 UTM Zone 10N
Scale:1:150,000
Author: tkwitkoski
Last Modified By: tkwitkoski
Checked By: BL
Revision #:

0 2.5 5
Kilometers

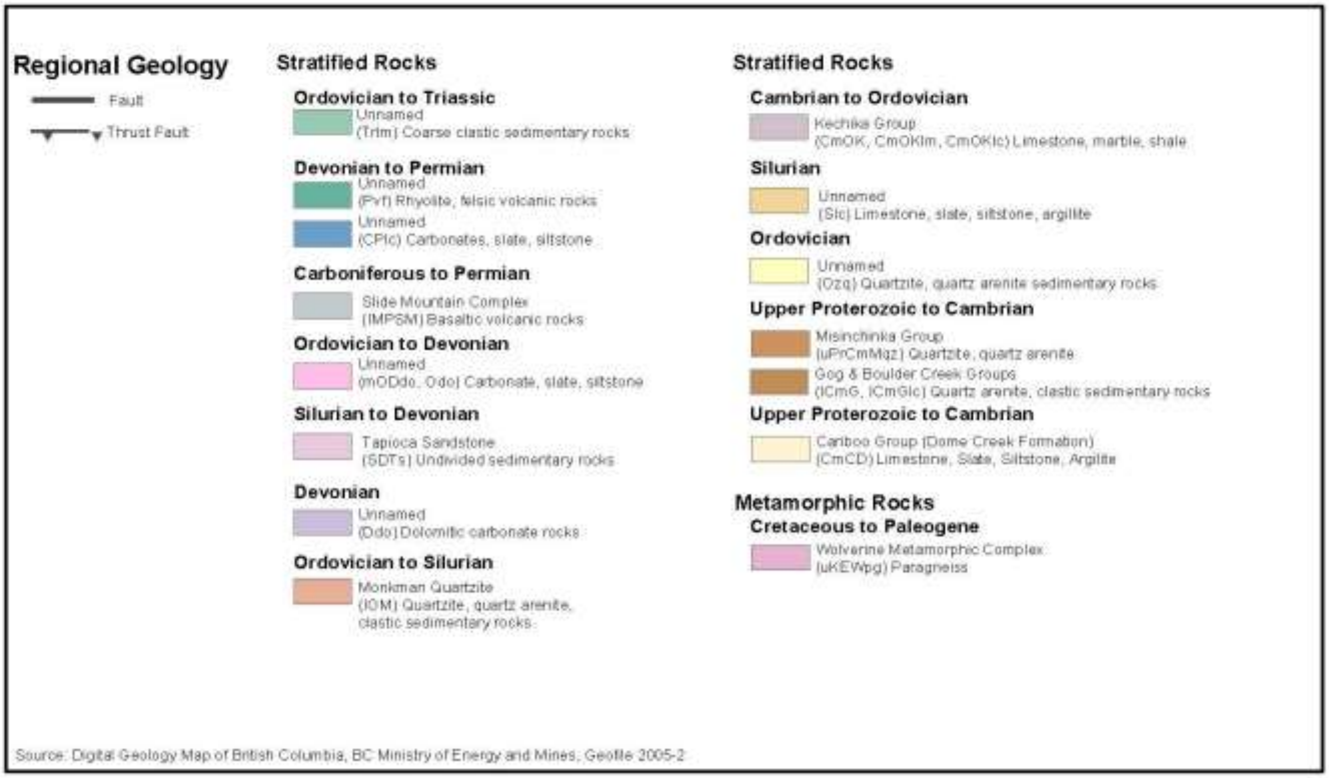
Legend

- Fault
- Thrust Fault
- Road
- Stream
- Lake
- Mineral Tenure

Source: US National Park Service

Allnorth

Path: E:\19PG0003 Bob Lane\2400-GIS Angus Property\2420-MXD\AngusRegionalGeology_A.mxd



Source: Digital Geology Map of British Columbia, BC Ministry of Energy and Mines, Geofile 2005-2

6 2018 EXPLORATION PROGRAM

Exploration in 2018 consisted of outcrop mapping and sampling in two locations on the property that were accessible by road and on foot. Fieldwork was conducted by a crew of two or four and took place over the course of three periods (May 12-16, June 14, and July 8-15, 2018) totaling 36 man-days including travel.

The intent of the field program was to outline the dimensions of the known belt of quartz arenite/quartzite, referred to as the Averil Trend, and to investigate other belts of similar lithology on the claims. One of these other belts, the Monkman (South) Trend, also became a focus of detailed mapping. Location control was by handheld GPS unit.

Samples collected in 2018 from the Averil Trend (7812-7814), from the Monkman North Trend (7809-7811) and from the Monkman South Trend (7815-7816), as well as two samples collected in 2017 from the Averil Trend (7817 and 7818), were submitted for whole rock and trace element geochemistry, and for petrography. Subsequently, composite samples from the Averil and Monkman South were submitted for physical testing.

7 RESULTS

7.1 OUTCROP MAPPING

The 2018 outcrop mapping and sampling program was focussed mainly on two areas of the Angus property totaling approximately six (6) square km.

On the Averil Trend, the work determined the surface expression of the Misinchinka quartz arenite/quartzite and in select areas identified footwall and hangingwall contacts. On the new Monkman Trend, three areas of prospective quartz arenite/quartzite were located with one area, Monkman South, receiving several days of focussed mapping.

The extent of the outcrop mapping and rock sampling is shown on Figure 4. Rock sample locations are listed in Table 2. Figure 5 shows the distribution of outcrop by lithology for the Averil Trend and Figures 6 and 7 show the distribution of outcrop by lithology for the Monkman Trend (North and South), respectively.

7.1.1 Averil Trend

At Mt. Averil (Averil Trend), a belt of quartz arenite/quartzite of the Misinchinka Formation has been mapped continuously from the northern edge of the third-party claim northwestward for a distance of approximately 4.5km and about 1.8km northwest of the previous drilling by Stikine Energy. Previous mapping showed that the belt continues southeast of the third-party claim for at least another 1.0km. Overall, the belt of quartz arenite/quartzite is characterized by slabby outcrop of white weathering, generally thickly bedded quartzite that strikes northwest and dips moderately to the southwest creating a well-developed dip-slope over much length of the area mapped (Plate 2). Broad open folds are evident along strike. The true thickness of the unit averages an estimated 350m, but appears to be structurally thickened by thrust faulting in the Mt. Averil area itself to as much as 500m. Quartzite outcrops over a vertical dimension of close to 300m from the rounded top of Mt Averil at slightly more than 1300m to about 1020m. The southern part of the mapped area includes five bore holes drilled by Stikine Energy in 2011 that provide valuable subsurface data. The distribution of the quartzite extends well beyond the mapped area – to the northwest it continues on high standing Mt Averil ridge, and to the southeast it extends for at least an additional 900m of strike where it occurs in outcrop at an elevation of 920m beside the North Olsson Forest Service Road.

Quartz arenite/quartzite of the Misinchinka Formation is white, pale grey and locally cream to pale orange-coloured, thickly bedded and very homogeneous consisting of fine to medium-grained monocrystalline quartz granules. Beds of quartzite pebble conglomerate up to 3 m thick occur locally, but are volumetrically insignificant. Stringers of late white quartz can account for up to 1% of the rock mass locally and are generally from 1-3mm wide. The quartzite is overlain by a sequence of fissile shale and flaggy siltstone-sandstone, and is underlain by grey limestone and rusty weathering argillite.

Plate 2: Typical slabby outcrop of quartz arenite/quartzite of the Misinchinka Formation

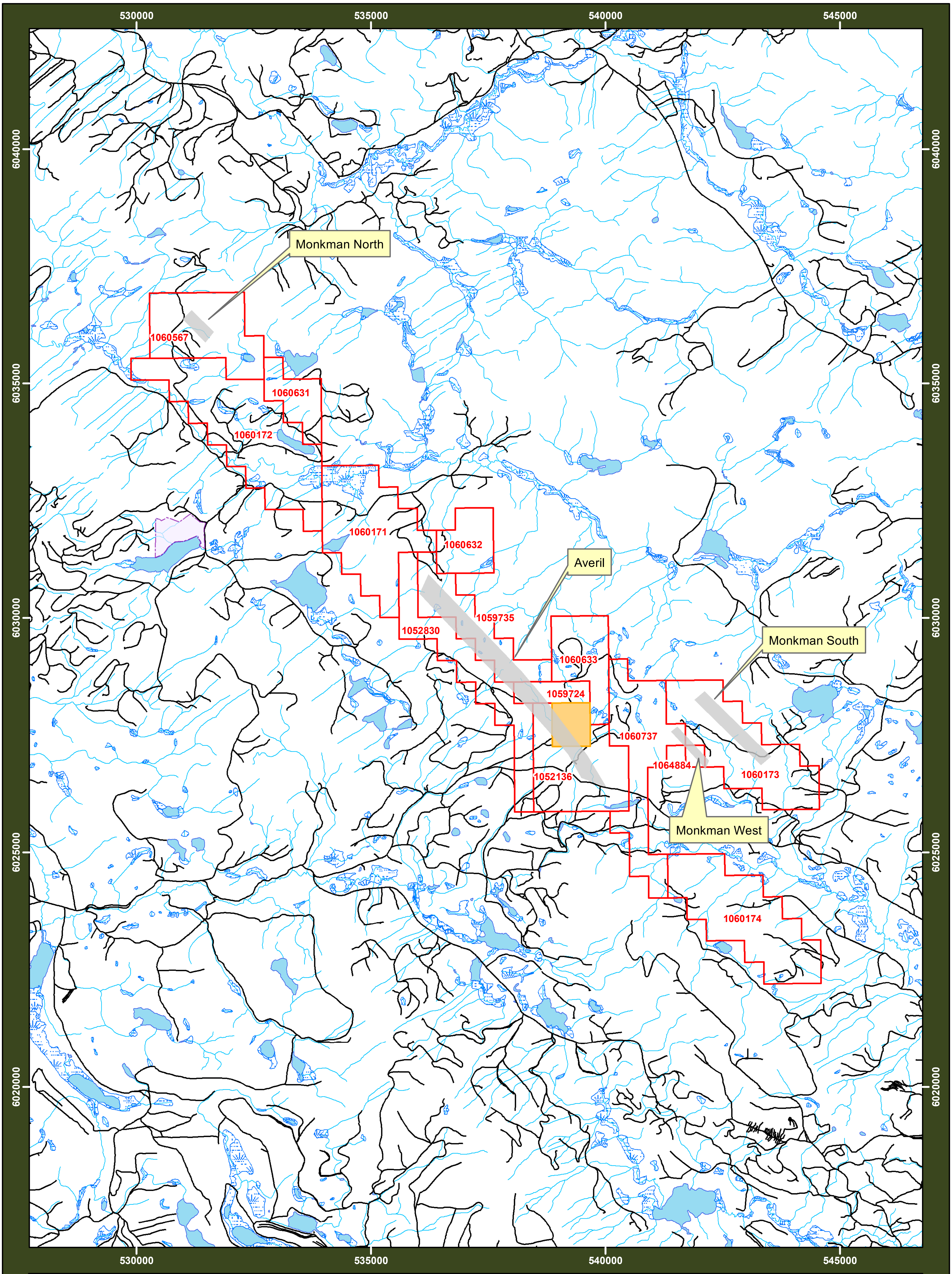
7.1.2 Monkman Trend

Some 2 km east of, and subparallel to, the Averil Trend is a belt of younger quartz arenite not previously evaluated for its frac sand potential. The quartz arenite of the Lower Ordovician Monkman Formation (Monkman Trend) is well exposed in two locations: 1) Monkman North where road cuts and a borrow pit on claim 1060567 (Figure 6) expose the unit over a width of approximately 400m across strike (true width is ~340m), and Monkman South where mapping of rock exposed in a road cut (Plate 3) and outcrop along a ridge crest on claim 1060173 (Figure 7) outlined a continuous band of quartz arenite with a minimum strike length of 1400m and an apparent true width of about 170m. The distance between the Monkman North and Monkman South areas is approximately 12km and has not been evaluated, although claims have been staked to cover high relief areas within this trend that are believed to have potential.

The quartz arenite of the Monkman Formation forms resistant rounded knobs and blocky outcrops, is white to buff and locally pale maroon in colour, and appears to be finer-grained than that of the Misinchinka Formation. It lacks pebble conglomerate beds and any appreciable amount of quartz veining. Monkman South quartz arenite strikes northwest and dips moderately to the southwest; it is capped by gneiss and younger sequence of shale-siltstone. The footwall of the quartzite is marked by grey dolomitic limestone.

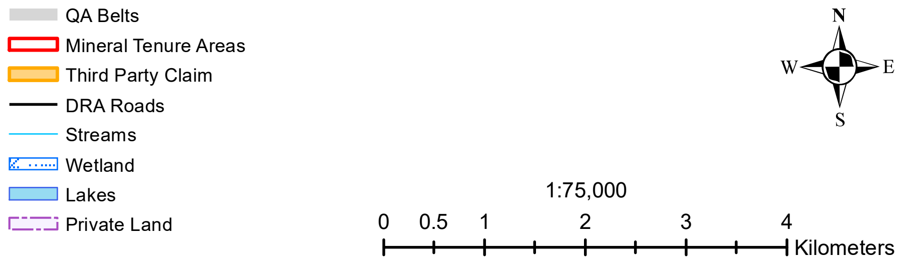
A high-standing forested ridge 700m west of Monkman South exposes a second band of quartz arenite interpreted to be a repeat of the Monkman Fm. It was briefly examined over a strike length of 650m and is believed to be a significant additional source of frac sand. Additional outcrop mapping is required to determine the strike length and width of this zone.

Plate 3: Roadcut exposing quartz arenite of the Monkman Quartzite



Title Number	Claim Name	Owner	Title Type	Map #	Issue Date	Good To Date	Status	Area (ha)
1052136	ANGUS SOUTH	285065 (100%)	Mineral Claim	093J	2017/MAY/24	2019/JUN/30	GOOD	338.990
1052830	ANGUS WEST	285065 (100%)	Mineral Claim	093J	2017/JUN/30	2019/JUN/30	GOOD	338.840
1059724	BC FRAC	285065 (100%)	Mineral Claim	093J	2018/APR/02	2019/APR/02	GOOD	75.304
1059735	ANGUS NORTH	285065 (100%)	Mineral Claim	093J	2018/APR/02	2019/APR/02	GOOD	244.660
1060171	ANGUS N EXT	285065 (100%)	Mineral Claim	093J	2018/APR/19	2019/APR/19	GOOD	451.485
1060172	ANGUS SAT N	285065 (100%)	Mineral Claim	093J	2018/APR/19	2019/APR/19	GOOD	620.500
1060173	ANGUS SAT E	285065 (100%)	Mineral Claim	093J	2018/APR/19	2019/APR/19	GOOD	451.942
1060174	ANGUS SAT S	285065 (100%)	Mineral Claim	093J	2018/APR/19	2019/APR/19	GOOD	471.148
1060567	ANGUS SAT FAR N	285065 (100%)	Mineral Claim	093J	2018/MAY/13	2019/MAY/13	GOOD	338.297
1060631	ANGUS SAT NE	285065 (100%)	Mineral Claim	093J	2018/MAY/16	2019/MAY/16	GOOD	131.602
1060632	ANGUS SAT EXT E	285065 (100%)	Mineral Claim	093J	2018/MAY/16	2019/MAY/16	GOOD	150.505
1060633	ANGUS SAT MID E	285065 (100%)	Mineral Claim	093J	2018/MAY/16	2019/MAY/16	GOOD	207.053
1060737	ANGUS CONNECTOR	285065 (100%)	Mineral Claim	093J	2018/MAY/24	2019/MAY/24	GOOD	395.477
1064884	ANGUS CELL 1	285065 (100%)	Mineral Claim	093J	2018/DEC/03	2019/DEC/03	GOOD	18.832
								4,234.632

Corus Exploration Corp., Angus Property, Quartz Arenite/Quartzite Belts



Sample ID	Geological Belt	NAD 83 Easting	NAD 83 Northing	SiO2 %	Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	Na2O %	P2O5 %	TiO2 %	LOI %	Total %
7809	Monkman North	531256	6036873	97.08	0.5	<0.01	0.06	1.31	0.13	0.02	0.11	<0.01	0.04	0.47	99.73
7810	Monkman North	531006	6036682	95.23	2.96	0.08	0.05	0.85	0.93	0.11	0.13	0.07	0.19	0.83	101.46
7811	Monkman North	530998	6036558	95.23	2.03	0.03	0.07	0.92	0.87	0.06	0.09	0.04	0.05	0.62	100.01
7812	Averil	536206	6030456	97.22	0.32	<0.01	0.07	0.59	0.09	0.01	0.09	<0.01	0.03	0.37	98.79
7813	Averil	536109	6030385	98.74	0.54	<0.01	0.07	0.69	0.16	<0.01	0.19	<0.01	0.05	0.27	100.7
7814	Averil	536119	6030421	99.43	0.41	<0.01	0.07	1.17	0.12	0.02	0.14	<0.01	0.04	0.51	101.92
7815	Monkman South	543303	6027109	99.32	0.51	<0.01	0.07	0.61	0.14	0.03	0.2	0.01	0.03	0.37	101.28
7816	Monkman South	543177	6027104	97.01	0.28	<0.01	0.06	0.49	0.07	0.02	0.17	<0.01	0.03	0.12	98.24
7817	Averil	539646	6026501	97.23	0.3	<0.01	0.06	0.58	0.09	0.02	0.14	<0.01	0.02	0.18	98.63
7818	Averil	538307	6028237	97.1	0.47	<0.01	0.06	0.56	0.14	0.01	0.08	<0.01	0.05	0.27	98.73

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -123.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

N W E S

Scale 1:7,500
0 250
Meters

MAP DATE: 2019-09-06
CREATED BY: Mason Pahl

Corus Exploration Corp - Angus Property Field Map: Averil

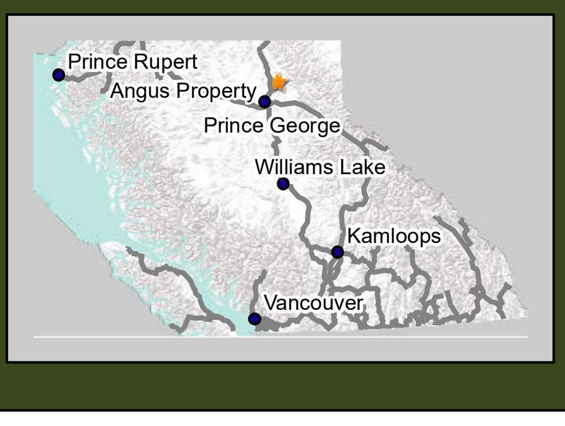
- ● Sample Number (% SiO2)
- Bedding
- Joints
- × Small Outcrop

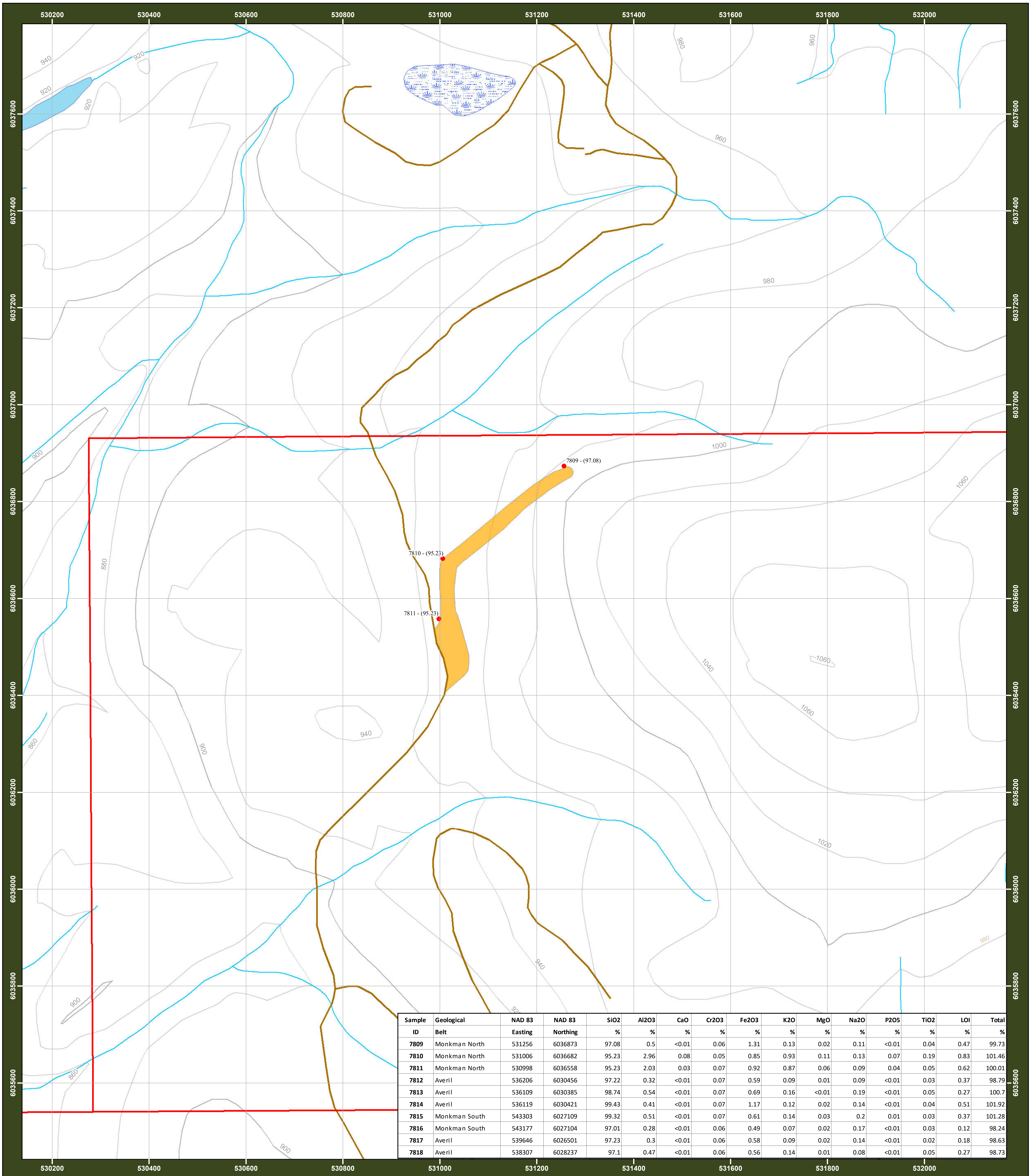
Outcrop

- AG - Argilite
- GNS - Gneiss
- LMS - Limestone
- QA - Quartz Arenite / Quartzite
- SH - Shale
- SST - Sandstone

- Contact
- Fault
- <<< Gulley
- Interpreted Fault
- Outcrop
- Thrust Fault
- Meta-conglomerate

- Mineral Tenure
- TRIM Roads
- FWA Stream
- Wetlands
- Waterbodies





Sample	Geological	NAD 83	NAD 83	SiO2	Al2O3	CaO	Cr2O3	Fe2O3	K2O	MgO	Na2O	P2O5	TiO2	LOI	Total
ID	Belt	Easting	Northing	%	%	%	%	%	%	%	%	%	%	%	%
7809	Monkman North	531256	6036873	97.08	0.5	<0.01	0.06	1.31	0.13	0.02	0.11	<0.01	0.04	0.47	99.73
7810	Monkman North	531006	6036682	95.23	2.96	0.08	0.05	0.85	0.93	0.11	0.13	0.07	0.19	0.83	101.46
7811	Monkman North	530998	6036558	95.23	2.03	0.03	0.07	0.92	0.87	0.06	0.09	0.04	0.05	0.62	100.01
7812	Averil	536206	6030456	97.22	0.32	<0.01	0.07	0.59	0.09	0.01	0.09	<0.01	0.03	0.37	98.79
7813	Averil	536109	6030385	98.74	0.54	<0.01	0.07	0.69	0.16	<0.01	0.19	<0.01	0.05	0.27	100.7
7814	Averil	536119	6030421	99.43	0.41	<0.01	0.07	1.17	0.12	0.02	0.14	<0.01	0.04	0.51	101.92
7815	Monkman South	543303	6027109	99.32	0.51	<0.01	0.07	0.61	0.14	0.03	0.2	0.01	0.03	0.37	101.28
7816	Monkman South	543177	6027104	97.01	0.28	<0.01	0.06	0.49	0.07	0.02	0.17	<0.01	0.03	0.12	98.24
7817	Averil	539646	6026501	97.23	0.3	<0.01	0.06	0.58	0.09	0.02	0.14	<0.01	0.02	0.18	98.63
7818	Averil	538307	6028237	97.1	0.47	<0.01	0.06	0.56	0.14	0.01	0.08	<0.01	0.05	0.27	98.73

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -123.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

MAP DATE: 2019-09-06
CREATED BY: Iverson

0 Scale 1:5,000 200
Meters

Corus Exploration Corp - Angus Property Field Map: Far North

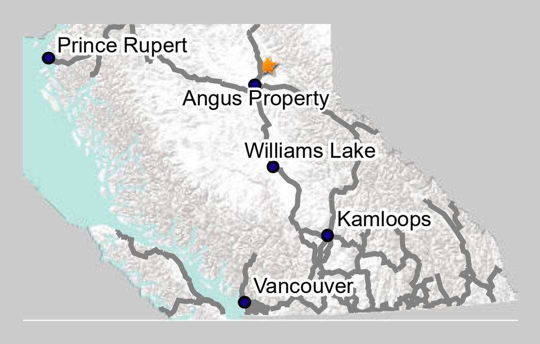
- ● Sample Number (% SiO2)
- ⊥ Bedding
- Joints
- ✕ Small Outcrop

Outcrop

- AG - Argilite
- GNS - Gneiss
- LMS - Limestone
- QA - Quartz Arenite / Quartzite
- SH - Shale
- SST - Sandstone

- Contact
- Fault
- << Gulley
- Interpreted Fault
- Outcrop
- Thrust Fault
- Meta-conglomerate

- Mineral Tenure Area
- TRIM Roads
- Public Roads
- Wetlands - TRIM
- Waterbodies - TRIM
- FWA Stream



Corus Exploration Corp - Angus Property Field Map: Monkman

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500,000.0000
False Northing: 0.0000
Central Meridian: -123.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

MAP DATE: 2019-09-06
CREATED BY: Mason Pahl

Scale 1:5,000
0 200
Meters

● Sample Number (% SiO2)
Bedding
Joints
Small Outcrop
Contact
Fault

Outcrop
GNS - Gneiss
LMS - Limestone
QA - Quartz Arenite / Quartzite
SH - Shale
Mineral Tenure Area

TRIM Roads
FWA Streams
Wetlands - TRIM
Waterbodies - TRIM

Sample	Geological	NAD 83	NAD 83	SiO2	Al2O3	CaO	Cr2O3	Fe2O3	K2O	MgO	Na2O	P2O5	TiO2	LOI	Total
ID	Belt	Easting	Northing	%	%	%	%	%	%	%	%	%	%	%	%
7809	Monkman North	531256	6036873	97.08	0.5	<0.01	0.06	1.31	0.13	0.02	0.11	<0.01	0.04	0.47	99.73
7810	Monkman North	531006	6036682	95.23	2.96	0.08	0.05	0.85	0.93	0.11	0.13	0.07	0.19	0.83	101.46
7811	Monkman North	530998	6036558	95.23	2.03	0.03	0.07	0.92	0.87	0.06	0.09	0.04	0.05	0.62	100.01
7812	Averil	536206	6030456	97.22	0.32	<0.01	0.07	0.59	0.09	0.01	0.09	<0.01	0.03	0.37	98.79
7813	Averil	536109	6030385	98.74	0.54	<0.01	0.07	0.69	0.16	<0.01	0.19	<0.01	0.05	0.27	100.7
7814	Averil	536119	6030421	99.43	0.41	<0.01	0.07	1.17	0.12	0.02	0.14	<0.01	0.04	0.51	101.92
7815	Monkman South	543303	6027109	99.32	0.51	<0.01	0.07	0.61	0.14	0.03	0.2	0.01	0.03	0.37	101.28
7816	Monkman South	543177	6027104	97.01	0.28	<0.01	0.06	0.49	0.07	0.02	0.17	<0.01	0.03	0.12	98.24
7817	Averil	539646	6026501	97.23	0.3	<0.01	0.06	0.58	0.09	0.02	0.14	<0.01	0.02	0.18	98.63
7818	Averil	538307	6028237	97.1	0.47	<0.01	0.06	0.56	0.14	0.01	0.08	<0.01	0.05	0.27	98.73

Table 2: 2018 Outcrop Sample Locations

			NAD 83 Zone 10				
Field ID	Lab ID	Belt	Easting	Northing	StrikeBDG	DipBDG	Rock Type
WP926	7809	Monkman North	531256	6036873			qz aren /qzte /qz peb cong
WP927	7810	“	531006	6036682	126	50	qz aren
WP928	7811	“	530998	6036558			qz aren
WP935	7812	Averil	536206	6030456			qzte
WP943	7813	“	536109	6030385	115	46	qzte
WP947	7814	“	536119	6030421			qzte
WP955	7815	Monkman South	543303	6027109	146	52	qz aren
WP959	7816	“	543177	6027104	135	54	qz aren
WP990	-	“	542767	6027280	130	36	fiss shale
WP993	-	“	542997	6027156			gniess
AG17-17	7817	Averil	539646	6026501			qz aren / qzte
AG17-18	7818	Averil	538307	6028237			qz aren / qzte

7.2 PETROGRAPHY

A total of eight field rock samples (lab IDs 7809 to 7816) were submitted to Vancouver Petrographics of Langley, B.C. for thin sections and petrographic analysis. Three samples were from the Averil Trend, three samples were from Monkman North and two samples were from Monkman South. The following summary is modified from Leitch (2018).

Most of the samples (7809 and 7812-7816) are relatively pure quartzites, composed of 95%+ sub-millimeter sized grains of detrital quartz with only minor strain indicated by weak undulose extinction, sub-grain development, or suturing of grain boundaries. There is a tendency in several samples to a bimodal size distribution, with the larger (>1 mm) sized grains displaying a greater degree or rounding. Possible bedding is marked in two samples by fairly well-defined grain size variation from the coarser grains as described above to finer, more angular, somewhat more flattened and strained grains. The bulk of the detrital grains show only relatively minor, poorly defined overgrowths of secondary quartz, but the rocks would generally be described as well indurated rather than friable. Veinlets or fractures along which secondary quartz is developed are relatively uncommon, although finer-grained, possibly secondary quartz developed around these veinlets or fractures may show evidence of more strain. Local fractures or veinlets may contain traces of limonite, possible Mn-oxides, and sericite. Interstices between quartz grains generally show very minor limonite, lesser sericite or rare possible detrital muscovite flakes and local carbonate. Accessory, probably detrital tourmaline (schorl), possible zircon and epidote are rare.

Two samples (7810 and 7811) from Monkman North are characterized as slightly impure quartzite to impure quartzite, with 90% and 75% quartz respectively, with the balance consisting of sericite or in the latter case K-feldspar (microcline) and sericite. Capsule descriptions are as follows:

- 7809: quartzite composed of sub-mm sized quartz with very minor interstitial opaque (probably mostly limonite, locally possibly after pyrite?), trace sericite and rare possible tourmaline, lithic (feldspar-bearing?) clasts.
- 7810: slightly impure quartzite composed of sub-mm sized quartz with minor sericite and interstitial opaque (probably mostly limonite, lesser Mn-oxides?) partly associated with fractures and possible secondary quartz, plus rare trace tourmaline (?), local lithic (sericitic) clasts.
- 7811: impure quartzite composed of sub-mm sized quartz with interstitial Kspar and sericite; limonite (possibly goethite and jarosite, lesser Mn-oxides?) largely associated with thin, locally vuggy fractures/veinlets of secondary quartz and sericite likely indicate hydrothermal activity.
- 7812: quartzite composed of mm-sized detrital quartz (with significant secondary overgrowth rims and matrix) plus trace interstitial sericite, rare (sericitized?) lithic clasts and trace (detrital?) zircon, altered along thin fractures to very minor limonite-sericite.
- 7813: quartzite composed of mm to sub-mm sized detrital quartz (with minor secondary overgrowth rims and matrix, strained/flattened in certain cm-thick beds?) plus accessory interstitial sericite, limonite, and (partly sericitized?) lithic clasts.
- 7814: quartzite composed of sub-mm sized quartz with minor interstitial opaque (probably mostly limonite, in part possibly after pyrite?), trace sericite and rare lithic (chert?) clasts. Some limonite may be associated with cryptic quartz veinlets.
- 7815: quartzite composed of sub-mm sized quartz with very minor interstitial opaque (partly plucked to leave small voids, probably mostly limonite, locally possibly after pyrite?), carbonate and lesser sericite.
- 7816: quartzite composed of sub-mm sized quartz with common small interstitial voids, in part after opaque (probably mostly limonite, locally possibly after pyrite?), with trace interstitial sericite and rare, probably detrital, epidote (?).

Detailed petrographic descriptions and photomicrographs are appended.

7.3 GEOCHEMICAL RESULTS

Ten field rock samples (lab IDs 7809 to 7818) were sent in for whole rock and trace element analysis. Results are shown in Table 3 and Appendix A.

The analyses of samples from Misinchinka Group of the Averil Trend show pure quartz arenite with silica (SiO_2) contents ranging from 97.10 – 99.43, alumina (Al_2O_3) ranging from 0.30 - 0.54%, iron oxide (Fe_2O_3) ranging from 0.56-1.17%, potassium (K_2O) ranging from 0.09-0.16% and sodium (Na_2O) ranging from 0.08 – 0.19%.

The analyses of samples from Monkman Group of the Monkman (North) Trend show pure quartz arenite with silica (SiO_2) contents ranging from 95.23 – 97.08, alumina (Al_2O_3) ranging from 0.50 – 2.96%, iron oxide (Fe_2O_3) ranging from 0.85-1.31%, potassium (K_2O) ranging from 0.13-0.93% and sodium (Na_2O) ranging from 0.09 – 0.13%. The analyses of samples from Monkman Group of the Monkman (South) Trend show pure quartz arenite with silica (SiO_2) contents ranging from 97.01 – 99.32, alumina (Al_2O_3) ranging from 0.28 - 0.51%, iron oxide (Fe_2O_3) ranging from 0.49-0.61%, potassium (K_2O) ranging from 0.07-0.14% and sodium (Na_2O) ranging from 0.17 – 0.20%.

Table 3: Whole Rock Geochemical Results

Sample ID	Geological Belt	NAD 83 Easting	NAD 83 Northing	SiO2 %	Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	Na2O %	P2O5 %	TiO2 %	LOI %	Total %
7809	Monkman North	531256	6036873	97.08	0.5	<0.01	0.06	1.31	0.13	0.02	0.11	<0.01	0.04	0.47	99.73
7810	Monkman North	531006	6036682	95.23	2.96	0.08	0.05	0.85	0.93	0.11	0.13	0.07	0.19	0.83	101.46
7811	Monkman North	530998	6036558	95.23	2.03	0.03	0.07	0.92	0.87	0.06	0.09	0.04	0.05	0.62	100.01
7812	Averil	536206	6030456	97.22	0.32	<0.01	0.07	0.59	0.09	0.01	0.09	<0.01	0.03	0.37	98.79
7813	Averil	536109	6030385	98.74	0.54	<0.01	0.07	0.69	0.16	<0.01	0.19	<0.01	0.05	0.27	100.7
7814	Averil	536119	6030421	99.43	0.41	<0.01	0.07	1.17	0.12	0.02	0.14	<0.01	0.04	0.51	101.92
7815	Monkman South	543303	6027109	99.32	0.51	<0.01	0.07	0.61	0.14	0.03	0.2	0.01	0.03	0.37	101.28
7816	Monkman South	543177	6027104	97.01	0.28	<0.01	0.06	0.49	0.07	0.02	0.17	<0.01	0.03	0.12	98.24
7817	Averil	539646	6026501	97.23	0.3	<0.01	0.06	0.58	0.09	0.02	0.14	<0.01	0.02	0.18	98.63
7818	Averil	538307	6028237	97.1	0.47	<0.01	0.06	0.56	0.14	0.01	0.08	<0.01	0.05	0.27	98.73

7.4 BENCH-SCALE TESTING

Approximately 20 kg composite samples were collected from the Averil and Monkman South locations in May and submitted to the Met-Solve Laboratory in Langley for crushing-grinding-attrition scrubbing and sizing. Recoveries showed that for Averil, 55.8% of the material processed reported to four marketable size fractions (12/20, 20/40, 40/70, 70/140) and that for Monkman South, 62.8% of the material processed reported to the four size fractions. Only the resulting 20/40, 40/70 and 70/140 size fractions for each sample were subsequently shipped to Stim-Lab in Oklahoma for an initial Single Stress Crush test prior to full API characterization.

A schematic depiction of procedures used by Met-Solve, recoveries achieved, and photographs of the different size fractions are provided in Appendix B. The 12/20 size fractions (and presumably for the +12 size fractions) for the Averil and Monkman samples were dominated by clusters; further processing of these samples would provide additional material for the marketable 20/40, 40/70, 70/140 size fractions.

Stim-lab, Inc. completed ISO 13503-2:2006/API RP19C:2016 evaluations on the six samples (labeled A2040, A4070, A70140, M2040, M4070, and M70140) shipped to them directly by Met-Solve. The samples were received at Stim-Lab on July 2, 2018. Additional testing was requested July 25, 2018 and additional M20/40 sample was provided on August 9, 2018. The samples labeled A2040 and M2040 were disassociated as requested to remove clusters to 1/100 clusters, prior to testing.

The sphericity and roundness (Krumbein Shape Factor), acid solubility, turbidity, bulk density, apparent density, and crush resistance with K-Value results for the samples are summarized in Table 4 and additional details are provided, followed by photographs of each size fraction, in Appendix C.

A comparison with select frac sand producers in the U.S. is provided in Table 5.

Table 4: Results from API Evaluations performed by Stim-Lab, Inc.

Trend	**Monkman**	**Averil**	**Monkman**	**Averil**	**Monkman**	**Averil**
Size Fraction	**20/40**	**20/40**	**40/70**	**40/70**	**70/140**	**70/140**
Roundness	0.8	0.7	0.7	0.7	0.7	0.7
Sphericity	0.8	0.6	0.6	0.6	0.6	0.5
Acid Solubility	0.5%	0.6%	0.8%	0.8%	0.9%	0.9%
Turbidity	39	14	5	12	4	9
Proppant Density						
bulk density (g/cc)	1.48	1.39	1.41	1.35	1.33	1.28
bulk density (lb/ft3)	92.4	86.7	88	84.2	83.0	79.9
apparent density	2.64	2.64	2.64	2.63	2.64	2.63
Crush Resistance						
K Value	5K	3K	7K	4K	8K	5K

Table 5: Averil and Monkman Frac Sand Technical Data & Comparison with Two US Producers

Supplier	**SSS-NW**	**HC-BP**	**Monkman**	**Averil**	**SSS-NW**	**HC-BP**	**Monkman**	**SSS-NS**	**Averil**	**HC-BP**	**SSS-NW**	**Monkman**	**SSS-NS**	**Averil**
Size Fraction	**20/40**	**20/40**	**20/40**	**20/40**	**40/70**	**40/70**	**40/70**	**40/70**	**40/70**	**50/140**	**50/140**	**70/140**	**50/140**	**70/140**
Roundness	0.8	0.7	0.8	0.7	0.8	0.7	0.7	0.6	0.7	0.6	0.8	0.7	0.6	0.7
Sphericity	0.9	0.8	0.8	0.6	0.8	0.7	0.6	0.7	0.6	0.7	0.8	0.6	0.7	0.5
Acid Solubility	0.8%	0.5%	0.5%	0.6%	1.0%	0.9%	0.8%	2.1%	0.8%	1.0%	2.7%	0.9%	2.7%	0.9%
Turbidity	< 25	< 50	39	14	< 25	< 50	5	< 10	12	< 50	< 25	4	< 10	9
Proppant Density														
bulk density (g/cc)	1.53	1.56	1.48	1.39	1.5	1.51	1.41	1.38	1.35	1.51	1.47	1.33	1.37	1.28
bulk density (lb/ft3)	95.54	97.3	92.4	86.7	93.82	94.2	88	86.16	84.2	94.2	91.62	83.0	85.53	79.9
apparent density	2.65	2.65	2.64	2.64	2.67	2.64	2.64	2.65	2.63	2.64	2.68	2.64	2.58	2.63
Crush Resistance														
K Value	7K	7K	5K	3K	11K	10K	7K	5K	4K	12K	11K	8K	7K	5K

HC-BP = Hi Crush "Blair Primary" Frac Sand

SSS-NW = Superior Silica Sands "Northern White" Frac Sand

SSS-NS = Superior Silica Sands "Native Star" Frac Sand

8 SAMPLE METHOD AND APPROACH

All 2018 samples were collected by the author or by co-worker Chris Baldys, P.Eng., and are representative of the mapped rock exposures. Each sample generally consisted of 4-5 fist-sized pieces of rock from the location sampled. Each sample was packed in a thick poly bag and assigned a unique ID number. Each sample bag was secured with a zip tie and then packed in rice bags and shipped in heavy cardboard boxes. Samples were later reviewed and selected samples were similarly repackaged and sent to MS Analytical in Langley, B.C., for analysis. A representative specimen of each sample has been retained by the author.

Samples selected for bench-scale testing were composite samples made up of samples from 4-6 close-spaced outcrops (Averil Trend sample) or from a road-cut (Monkman South Trend sample). The composite samples were shipped in securely sealed five gallon pails to Met-Solve Laboratories Inc. in Langley, B.C., for processing; three of the resulting size fractions from each parent sample were shipped directly by Met-Solve to Stim-Lab Inc. in Duncan, Oklahoma, for API testing.

The approach of the sampling was to provide representative samples from each belt of quartz arenite/quartzite that could be used to further characterize their potential as sources of marketable frac sand.

9 SAMPLE PREPARATION AND ANALYSIS

9.1 GEOCHEMISTRY

Each rock sample was individually crushed and pulverized and the resulting pulps were analyzed. Each rock sample was jaw crushed until 70% passed through a -10 mesh (2 mm) screen. Each sample was split and a 250 g riffle split sample was then pulverized in a mild steel ring-and-puck mill until 85% passed through a 150 mesh (75 µm) screen. Each resulting sample pulp was subjected to total whole rock characterization (major oxides and trace elements) by MS Analytical methods WRA-310 and ICP-230. Analytical Certificates are provided in Appendix A.

9.2 BENCH-SCALE TESTING

Sample preparation and procedures for bench-scale testing are laid out in ISO 13503-2:2006/API RP19C:2016; they are not repeated herein.

10 INTERPRETATIONS AND CONCLUSIONS

The 2018 program of outcrop mapping, petrography, geochemical analysis and subsequent bench-scale testwork (crushing-grinding-attrition scrubbing-sizing, and API evaluations) confirmed that the Angus property has significant potential to become a source of marketable frac sand.

High purity quartz arenite/quartzite occurs in two main belts on the property, the Averil Trend (Proterozoic Misinchinka Group) and Monkman Trend (Lower Ordovician Monkman Quartzite). Outcrop mapping has shown that the belts of quartz arenite/quartzite are homogeneous and continuous with strike lengths ranging from 1.4 – 5.5km and widths ranging from 170 – 430m. Both quartz arenites are white weathering and beige to pale maroon on fresh surfaces. They are thin to thick bedded and well-sorted with sub-rounded to well-rounded grains of detrital quartz generally comprising >95% of the rock mass. Average silicon dioxide (SiO_2) grades of the raw rock exceed 97%. A subsidiary belt of Monkman Quartzite was also identified, but time and budget constraints prevented its full evaluation.

Limited bench-scale testing of composite surface samples from each of the Averil and Monkman trends produced encouraging results. Crushing, attrition scrubbing and screening has demonstrated that from 43.3-56.9% of the grains report to the 20/40, 40/70 and 70/140 size fractions; the 12/20 and coarser size fractions are composed of clusters of the finer grain sizes that could readily be liberated with minimal additional scrubbing thereby increasing recovery. Single stage crush test results returned encouraging results and initial proppant testing yielded results that met or exceeded minimum API requirements (Stim-Lab, 2018).

Corus' work greatly expanded upon the previous studies by Stikine Energy on the Averil Trend and, perhaps more importantly, has determined that a separate belt of quartz arenite of the Lower Ordovician Monkman Quartzite (Monkman Trend), previously unrecognized by Stikine Energy, has the proper characteristics and dimensions to form a substantial, stand-alone frac sand deposit. In summary, the 2018 program determined that the Angus property has merit as a potential source of marketable frac sand. Additional mapping, drilling, sampling and laboratory work are warranted to more fully evaluate its potential.

11 RECOMMENDATIONS

Recommended future programs should include:

1. Additional outcrop mapping and sampling of the west Monkman Trend quartz arenite to more fully determine its dimensions and to characterize its potential to a host frac sand deposit,
2. systematic diamond drilling, sampling, and API and bench-scale testing of the east Monkman Trend to a) establish a resource for the deposit and b) determine the quality of the deposit,
3. drilling of at least one bore hole on the Averil Trend to recover core for additional testing.

A budget estimate for the recommended program is as follows:

Angus Project - Proposed 2019 Budget	
(based on a spring-summer 6-week project, incl 2 days of preparation & 2 days of mobe/demobe)	
Item	**Cost Est**
Drilling: 2,200 metres of NQ Coring, incl estimates for fuel, drilling consumables, survey tool, core boxes	$ 294,000
Heavy Equipment Rentals: excavator, dozer, steel sloop, etc	$ 16,000
Field Equipment Rentals: 4x4 pickups, side-by-sides, trailers, core saws, misc camp & field components (surveys)	$ 24,000
Geochemical, Bench-Scale Processing & API Evaluation	$ 220,000
Wages: all-in for drilling support, geological mapping, core handling & sampling, shipping, equipment operation	$ 77,000
Camp per diem: room & board 294 days @ $115/d: crew & drillers	$ 34,000
Freight / Shipping	$ 6,500
Technical Report (deposit modeling & resource estimate) & Assessment Report	$ 56,000
Subtotal	$ 727,500
Contingency (10%)	$ 72,750
Total Estimated Cost	$ 800,250

12 ITEMIZED COST STATEMENT

Angus Project 2018		Dates Worked	Days/Hrs	Rate	Amount	TOTALS
Wages & Salaries (Project Planning, Travel and Fieldwork)						
Lane, B., P.Geo.		May 12-16, June 14, July 8-15, 2018	12.5	700	8,750.00	
Biagioni, B., Field Technician		May 12-16, July 8-15, 2018	10.5	400	4,200.00	
Baldys, C., P.Eng.		July 9 -15, 2018	6.5	550	3,575.00	
Rohrer, D., Field Assistant		July 9 - 15, 2018	5.5	275	1,512.50	
Johnson, B., Prospector		June 14, 2018	1	400	400.00	
			36		18,437.50	**18,437.50**
Travel (to/from site & on-site)						
Bob Lane	Kms - field & PG-Vernon	May 12-16, 2018	2,069	0.65	1,344.85	
Bob Biagioni	Kms - Penticton/PG rtrn	May 12-16, 2018	1,430	0.65	929.50	
Bob Lane	Kms - field & Quesnel/PG rtrn	June 14, 2018	452	0.65	293.80	
Bob Lane	Kms - field & Vernon/PG rtrn	July 8-15, 2018	2,458	0.65	1,597.70	
Bob Biagioni	Kms - Penticton/Vernon rtrn	July 8-15, 2018	214	0.65	139.10	
					4,304.95	**4,304.95**
Laboratory Costs						
MS Analytical 1			1	415.25	415.25	
Vancouver Petrographics			1	2,235.45	2,235.45	
Met-Solve			1	3,003.00	3,003.00	
Stim-Lab 1			1	4,104.46	4,104.46	
Stim-Lab 2			1	455.00	455.00	
Stim-Lab 3			6	1,820.00	10,920.00	
					21,133.16	**21,133.16**
Sample Shipping						
Greyhound			1	120.95	120.95	
Greyhound			1	55.07	55.07	
Greyhound			1	35.56	35.56	
					211.58	**211.58**
Rentals, Fuel & Consumable Field Supplies						
Hand Held FM Radios (PMC)	$10/day per radio	July 9-15/18	24	10.00	240.00	
Mobile Radio Rental (BK 2Way)		May 12 - July 16/18	1	50.97	50.97	
Fuel		May 12 - July 16/18	1	1,076.84	1,076.84	
Consumable Field Supplies		May 12 - July 16/18	1	227.82	227.82	
					1,595.63	**1,595.63**
Airfare						
Chris Baldys	Vancouver-PG/return	July 9 & 15/18	1	739.26	739.26	
						739.26
Accommodation and Meals						
Meals		May 12-16; June 14; July 8-15	1	1854.05	1854.05	
Accom, PG		May 12-16/18	1	461.73	461.73	
Accom, PG		July 8-15/18	1	1607.76	1607.76	
					3923.54	**3923.54**
Consulting - Report Writing & Data Collection/Processing						
Allnorth Consultants	GIS Mapping Services	May-Jul, 2018	1	1581.30	1581.30	
Conus Management Ltd.	Final Report Maps	Jul-Aug, 2018	1	1071.00	1071.00	
Plateau Minerals Corp.	Data Processing & Report	Aug-Dec, 2018	2.5	700.00	1750.00	
					4,402.30	**4,402.30**
Total Cost	**ANGUS Project 2018**					**54,747.92**

13 REFERENCES

Jansa, L.F. (1975): Tidal Deposits in the Monkman Quartzite (Lower Ordovician) Northeastern British Columbia, Canada; in Tidal Deposits, R.N. Ginsburg (ed.), Springer-Verlag New York Inc., pages 153-154.

Lane, R.A. (2010): 2009 Assessment Report on the Angus Property; *BC Ministry of Energy and Mines;* Assessment Report 31622, 30 p.

Lane, R.A. (2017): 2017 Assessment Report on the Angus Property; *BC Ministry of Energy and Mines;* Assessment Report 37549, 24 p.

Lane, R.A. and DeGrace, J.R. (2011): 2010 Geological and Geochemical Report on the Angus Property; *BC Ministry of Energy and Mines;* Assessment Report 32326, 51 p.

Leitch, C.H.B. (2018): Petrographic report on eight quartzite samples; private report for Corus Exploration Corp., 16 pages.

Massey, N.W.D., MacIntyre, D.G., Desjardins, P.J. and Cooney, R.T. (2005): Geology of British Columbia (compilation); *BC Ministry of Energy and Mines*; Geoscience Map 2005-3.

Mills, H. and Lane, B. (2015): 2014 Geological Report on the Angus Property; *BC Ministry of Energy and Mines;* Assessment Report 35207, 49 pages.

Struik, L.C. (1994): Geology of the McLeod Lake Map Sheet (93 J); *Energy, Mines and Resources Canada*, Open File 2439.

Wardrop (2011): Technical Report and Preliminary Economic Assessment of the Angus Project, Northern BC; report written for Stikine Energy Corp; 181 pages.

14 STATEMENT OF QUALIFICATIONS

I, **R. A. (Bob) Lane** certify that:

1. I am the President of Plateau Minerals Corp., a mineral exploration consulting company with an office located at 3000 18th Street, Vernon, B.C.
2. I am the author of this assessment report, entitled "2018 Geological Report on the Angus Property, Cariboo Mining Division, British Columbia". The report presents the findings of 2018 exploration program and was filed with the B.C. Ministry of Energy and Mines on behalf of Corus Exploration Corp.
3. I spent parts of 13 days on the Angus Project: May 12-16, June 14 and July 8-15, 2018.
4. I am a graduate of the University of British Columbia in 1990 with a M.Sc. in Geology.
5. I am a Professional Geoscientist (P.Geo.) registered with the Association of Professional Engineers and Geoscientists of British Columbia (Registration #18993) and have been a member in good standing since 1992.
6. I have practiced my profession continuously since 1990 and have more than 28 years of experience investigating a number of mineral deposit types, primarily in British Columbia.

Dated this 4th day of January 2019, at Vernon, British Columbia.

R. A. LANE

R. A. (Bob) Lane, P.Geo.

Appendix A Petrographic Report

PETROGRAPHIC REPORT ON 8 QUARTZITE SAMPLES

Report for: Bob Lane (blane2k2@gmail.com) Invoice 180393
3000 18th Street,
Vernon, B.C. V1T 4A6
(250) 540-1330 June 6, 2018.

SUMMARY:

Most of the 8 samples submitted (7809, 7812-7816 inclusive) are relatively pure quartzites, composed of 95%+ sub-millimeter sized grains of detrital quartz with only minor strain indicated by weak undulose extinction, sub-grain development, or suturing of grain boundaries. There is a tendency in several samples to a bimodal size distribution, with the larger (>1 mm) sized grains displaying a greater degree or rounding. Possible bedding is marked in two samples by fairly well-defined grain size variation from the coarser grains as described above to finer, more angular, somewhat more flattened and strained grains. The bulk of the detrital grains show only relatively minor, poorly defined overgrowths of secondary quartz, but the rocks would generally be described as well indurated rather than friable. Veinlets or fractures along which secondary quartz is developed are relatively uncommon, although finer-grained, possibly secondary quartz developed around these veinlets or fractures may show evidence of more strain. Local fractures or veinlets may contain traces of limonite, possible Mn-oxides, and sericite. Interstices between quartz grains generally show very minor limonite (partly plucked out to leave voids; some show cubic outlines suggestive of formation by oxidation of pyrite?), lesser sericite or rare possible detrital muscovite flakes, local carbonate. Accessory, probably detrital tourmaline (schorl), possible zircon and epidote are rare.

Two samples (7810 and 7811) from the Monkman may be characterized as slightly impure quartzite to impure quartzite, with 90% and 75% quartz respectively, the balance being made up of sericite or in the latter case K-feldspar (microcline) and sericite. Capsule descriptions are as follows:

7809: quartzite composed of sub-mm sized quartz with very minor interstitial opaque (probably mostly limonite, locally possibly after pyrite?), trace sericite and rare possible tourmaline, lithic (feldspar-bearing?) clasts.

7810: slightly impure quartzite composed of sub-mm sized quartz with minor sericite and interstitial opaque (probably mostly limonite, lesser Mn-oxides?) partly associated with fractures and possible secondary quartz, plus rare trace tourmaline (?), local lithic (sericitic) clasts.

7811: impure quartzite composed of sub-mm sized quartz with interstitial Kspar and sericite; limonite (possibly goethite and jarosite, lesser Mn-oxides?) largely associated with thin, locally vuggy fractures/veinlets of secondary quartz and sericite likely indicate hydrothermal activity.

7812: quartzite composed of mm-sized detrital quartz (with significant secondary overgrowth rims and matrix) plus trace interstitial sericite, rare (sericitized?) lithic clasts and trace (detrital?) zircon, altered along thin fractures to very minor limonite-sericite.

7813: quartzite composed of mm to sub-mm sized detrital quartz (with minor secondary overgrowth rims and matrix, strained/flattened in certain cm-thick beds?) plus accessory interstitial sericite, limonite, and (partly sericitized?) lithic clasts.

7814: quartzite composed of sub-mm sized quartz with minor interstitial opaque (probably mostly limonite, in part possibly after pyrite?), trace sericite and rare lithic (chert?) clasts. Some limonite may be associated with cryptic quartz veinlets.

7815: quartzite composed of sub-mm sized quartz with very minor interstitial opaque (partly plucked to leave small voids, probably mostly limonite, locally possibly after pyrite?), carbonate and lesser sericite.

7816: quartzite composed of sub-mm sized quartz with common small interstitial voids, in part after opaque (probably mostly limonite, locally possibly after pyrite?), with trace interstitial sericite and rare, probably detrital, epidote (?).

Detailed petrographic descriptions and photomicrographs are appended (by email attachment). If you have any questions regarding the petrography, please do not hesitate to contact me.

Craig H.B. Leitch, Ph.D., P. Eng. (250) 538-1900 dromore61@gmail.com
124 Vesuvius Bay Road, Salt Spring Island, B.C. Canada V8K 1K3

7809: QUARTZITE:SUB-MM SIZED QUARTZ WITH VERY MINOR INTERSTITIAL OPAQUE (PROBABLY MOSTLY LIMONITE, LOCALLY POSSIBLY AFTER PYRITE?), TRACE SERICITE AND RARE POSSIBLE TOURMALINE, LITHIC (FELDSPAR-BEARING?) CLASTS

Described as quartzite-Monkman; hand specimen shows pale beige/buff-white fine-medium grained quartzite partly stained, mainly along poorly defined bedding planes, by red- or orange-brown limonite, or rarely cut by thin (<1 mm) white sub-planar quartz veinlets sub-parallel to bedding that are locally associated with black selvages. The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	95%+
Opaque (mainly limonite?)	2-3%
Sericite (interstitial)	1-2%
Tourmaline (schorlitic?)	<1%
Lithic clasts (?)	<1%

This sample consists essentially of sub-millimeter sized detrital quartz grains with variable interstitial limonite and traces of interstitial white mica (sericite), rare possible tourmaline (?) and possible lithic clasts (?). Bedding is not readily apparent but may be indicated by poorly defined concentrations of limonite. In places, the limonite occurs in partly plucked aggregates with cubic outlines suggestive of having replaced sulfide such as pyrite. The surface of the (uncovered) thin section is commonly partly covered with minute particles (<10 μm) of what is probably grinding compound.

Quartz occurs as closely packed, detrital grains with sub-rounded to sub-angular outlines mainly in the 0.25-0.75 mm size range (rarely as small as 0.1 mm, or rarely to almost 1 mm in diameter). The grains show mainly only weak undulose extinction, indicative of weak strain; stronger undulose extinction, accompanied by minor sub-grain development, and suturing of grain boundaries, is noticeable only around the margins of or interstitial to a few grains, where recrystallization appears to have occurred at pressure points, or due to secondary quartz development. However, well-defined overgrowths or matrix quartz is generally not apparent. The thin veinlets (possible vein quartz) seen in hand specimen are not cut by the section.

Presumed limonite (no polished surface to examine) varies from common semi-translucent to deep red-brown to locally opaque, and is mainly concentrated interstitial to quartz grains as irregular aggregates in the 0.1-0.25 mm size range, locally coalescing to ~0.5 mm. A small proportion of the larger opaque aggregates show distinctive cubic outlines that are partly plucked by section preparation, strongly suggestive of having developed after former pyrite.

Very minor white mica takes the form of minute flakes of sericite mainly <25 μm interstitial to or rarely partly coating quartz grains. Rarely the sericite may form aggregates up to 0.15 mm, also interstitial to the quartz grains.

Tentatively identified tourmaline (one occurrence only) forms a rounded subhedral grain <0.4 mm in diameter, with probable uniaxial negative optic character, medium green colour suggestive of schorlitic composition.

Rare possible lithic clasts (possibly containing sub/anhedral plagioclase feldspar <0.2 mm, variably stained by limonite) are also <0.4 mm, with rounded to subrounded outlines.

In summary, this is confirmed as quartzite composed of sub-mm sized quartz with very minor interstitial opaque (probably mostly limonite, locally possibly after pyrite?), trace sericite and rare possible tourmaline, lithic (feldspar-bearing?) clasts.

7810: SLIGHTLY IMPURE QUARTZITE: SUB-MM SIZED QUARTZ WITH MINOR SERICITE AND INTERSTITIAL OPAQUE (PROBABLY MOSTLY LIMONITE, LESSER MN-OXIDES?) PARTLY ASSOCIATED WITH FRACTURES AND POSSIBLE SECONDARY QUARTZ, PLUS RARE TRACE TOURMALINE (?), LOCAL LITHIC (SERICITIC) CLASTS

Described as quartzite-Monkman; hand specimen shows pale grey-white fine-medium grained quartzite commonly weakly stained, mainly along poorly defined bedding planes, by orange-brown limonite, cut by hairline white fractures oblique to bedding. Rare fractures sub-perpendicular to bedding contain minor black possible Mn-oxide coatings. The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut, but the offcut reveals accessory black possible Mn-oxides (?) associated with the orange-brown limonite, also probably concentrated along bedding planes. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	85%
(interstitial, possibly secondary?)	5%
Sericite (interstitial/on fractures with opaques/lithic clasts?)	5-7%
Opaque (mainly limonite?)	2-3%
(mainly Mn-oxides?)	1-2%
Tourmaline (schorlitic?)	<<1%

This sample consists essentially of sub-millimeter sized detrital quartz grains with variable interstitial white mica (sericite), red-brown limonite (?) and lesser opaque (Mn-oxide?), rare possible tourmaline (?). Bedding may be indicated by vaguely defined concentrations of limonite ±Mn-oxides and local sub-parallel oriented sericitic lithic clasts (?). The surface of the (uncovered) thin section is commonly partly covered with minute particles (<10 µm) of what is probably grinding compound.

Quartz occurs as closely packed, detrital grains with sub-angular to angular outlines mainly in the 0.1-0.5 mm size range (rarely sub-rounded/rounded, up to 0.8 mm in diameter). The grains show mainly only weak undulose extinction, indicative of weak strain. However, interstitial to the framework grains, smaller, irregular grains mostly <0.25 mm display variable stronger undulose extinction, minor sub-grain development, and suturing of grain boundaries, suggestive of secondary quartz or recrystallization (partly associated with increased sericite and opaques; see below). Well-defined overgrowths on detrital quartz are generally not apparent, and veinlet quartz is not seen.

Minor but significant white mica takes the form of minute flakes of sericite mainly <50 µm interstitial to quartz grains (rarely to 0.25 mm; possibly representing detrital mica flakes?). The sericite commonly appears controlled along short discontinuous fractures <0.1 mm thick sub-parallel or oblique to possible bedding, where it may be associated with the possible secondary quartz, and the opaques, suggesting possible hydrothermal origin (?). Locally the sericite also occurs in lensy or flattened aggregates up to 0.65 mm thick by 0.5 cm long (parallel to bedding?), in which the mica flakes may be subhedral, up to 0.25 mm. These aggregates are faintly greenish coloured in the offcut, and could represent possible lithic clasts (?).

Presumed limonite (no polished surface to examine) varies from common semi-translucent to deep red-brown, and is mainly concentrated interstitial to quartz grains as irregular aggregates in the 0.1-0.25 mm size range, locally coalescing to ~0.5 mm but generally lacking cubic outlines suggestive of former pyrite. The aggregates are commonly partly plucked by section preparation. Lesser truly opaque material, in smaller aggregates with irregular wispy outlines mostly <25 µm thick by up to 0.25 mm long, typically occurring along the hairline fractures where they may be associated with sericite, could be Mn-oxides (?).

Tentatively identified tourmaline (one occurrence only) forms a rounded subhedral grain <0.2 mm in diameter, with medium green colour suggestive of schorlitic composition.

In summary, this is slightly impure quartzite composed of sub-mm sized quartz with minor sericite and interstitial opaque (probably mostly limonite, lesser Mn-oxides?) partly associated with fractures and possible secondary quartz, plus rare trace tourmaline (?), local lithic (sericitic) clasts.

7811 IMPURE QUARTZITE: SUB-MM SIZED QUARTZ WITH INTERSTITIAL KSPAR AND SERICITE; LIMONITE (POSSIBLY GOETHITE AND JAROSITE, LESSER MN-OXIDES?) LARGELY ASSOCIATED WITH THIN, LOCALLY VUGGY FRACTURES/VEINLETS OF SECONDARY QUARTZ AND SERICITE LIKELY INDICATE HYDROTHERMAL ACTIVITY

Described as quartzite-Monkman; hand specimen shows pale grey fine-grained impure quartzite with local black possible Mn-oxides (?) associated with minor orange-brown limonite and pale yellowish-green sericite (?) along discontinuous fractures possibly sub-perpendicular to bedding possibly defined by short discontinuous limonitic fractures. The rock is not magnetic, and shows no reaction to cold dilute HCl, but there is minor yellow stain for K-feldspar (smaller grains interstitial to quartz) in the etched offcut, which also reveals thin white, partly vuggy veinlets. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	65%
(secondary/recrystallized?)	10%
K-feldspar (interstitial, mainly detrital microcline?)	10%
Sericite (interstitial, along fractures-hydrothermal?)	10%
Voids (plucked, or locally vugs along veinlets?)	2-3%
Limonite (brown goethite, yellow jarosite?), possibly after pyrite?	1-2%
Opaque (Mn-oxides?)	<1%
Zircon (?), rare detrital	<<1%

This sample consists mainly of sub-millimeter sized detrital quartz grains with lesser interstitial Kspar and white mica (sericite), cut by thin irregular or curving fractures/veinlets of possible secondary quartz (rarely vuggy), sericite, minor brown or yellow limonite and lesser opaque (Mn-oxide?). Rare zircon as irregular subhedra <0.1 mm may be detrital. Bedding is not obvious.

Quartz occurs as distinctive sub-rounded coarse detrital grains up to 1.75 mm in diameter (with local partial overgrowth rims <35 μm thick, or partly recrystallized/replaced by secondary quartz near or along the fracture/veinlet systems) that appear to be set in a “matrix” of closely packed, also probably detrital grains with sub-angular to angular outlines mainly in the 0.1-0.5 mm size range, plus the interstitial Kspar and sericite. The larger quartz grains show mainly only weak undulose extinction, indicative of weak strain, but the smaller, more irregular interstitial grains mostly <0.25 mm display variable stronger undulose extinction, sub-grain development, and suturing of grain boundaries, suggestive of secondary quartz and/or recrystallization along the fractures/veinlets (commonly associated with increased sericite and opaques; see below).

Interstitial Kspar occurs as subhedral crystals (probable detrital grains?) <0.4 mm with mine “grid” twinning characteristic of microcline. The grains are locally partly altered to, and commonly intergrown with, the interstitial white mica (sericite).

White mica mostly takes the form of minute flakes of sericite <35 μm interstitial to quartz grains (but also occurs rarely as subhedral flakes of muscovite to 0.25 mm; possibly representing detrital mica flakes?). The sericite appears partly controlled along the fracture veinlets in selvage or envelope-like zones up to 2.5 mm thick around veinlets that are <1 mm thick. The fractures/veinlets may be sub-perpendicular and sub-parallel to possible bedding; association with the locally vuggy, possible secondary quartz, and the opaques, strongly suggests hydrothermal origin.

In and along the fractures/veinlets, probable limonite varies from pale red-brown (goethite?) to bright yellow (jarosite?), in fine-grained irregular aggregates in the 0.1-0.25 mm size range, locally coalescing to ~0.5 mm lacking cubic outlines (but the presence of jarosite is suggestive of former pyrite), typically closely associated with sericite. The aggregates are commonly partly plucked by section preparation; but locally along the veinlets, probable vugs may be up to 0.5 mm wide by 2 mm long. Lesser truly opaque material, in smaller aggregates with irregular wispy outlines mostly <25 μm thick by up to 0.25 mm long, typically occurring along the fractures, could be Mn-oxides (?).

In summary, this is impure quartzite composed of sub-mm sized quartz with interstitial Kspar and sericite; limonite (possibly goethite and jarosite, lesser Mn-oxides?) largely associated with thin, locally vuggy fractures/veinlets of secondary quartz and sericite likely indicate hydrothermal activity.

7812: QUARTZITE COMPOSED OF MM-SIZED DETRITAL QUARTZ (WITH SIGNIFICANT SECONDARY OVERGROWTH RIMS AND MATRIX) PLUS TRACE INTERSTITIAL SERICITE, RARE (SERICITIZED?) LITHIC CLASTS AND TRACE (DETRITAL?) ZIRCON, ALTERED ALONG THIN FRACTURES TO VERY MINOR LIMONITE-SERICITE

Described as quartzite-Misinchinka; hand specimen shows pale beige/buff-white fine-medium grained quartzite faintly stained by brown limonite, mainly along planar fractures that may be sub-parallel and sub-perpendicular to very poorly defined bedding (?). The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	98%
Sericite (interstitial, or associated with limonite fractures)	1-2%
Opaque (mainly limonite?)	<1%
Lithic clasts (?)	<1%
Zircon (?), rare detrital	<<1%

This sample consists essentially of millimeter-sized detrital quartz grains with traces of interstitial white mica (sericite) and possible lithic clasts (?), cut by thin sub-planar fractures along which opaque (limonite?) occurs sparingly as partly plucked fine-grained aggregates, partly associated with sericite and rare zircon (?). Bedding is not readily apparent.

Quartz occurs as closely packed, detrital grains with sub-rounded to sub-angular outlines mainly in the 0.5-1.5 mm size range (rarely as small as 0.2 mm, or rarely to almost 2.5 mm in diameter). In places, the rounded remnants of detrital cores show well-defined overgrowths that make up the balance of the sub-angular grains, indicating strong secondary quartz activity in the matrix. The larger grains show mainly only weak undulose extinction, indicative of weak strain, but locally, especially in finer-grained, linear zones associated with limonite-bearing fractures (possibly parallel to bedding?) stronger undulose extinction, accompanied by minor sub-grain or planar feature development, and suturing of grain boundaries, is noticeable, where recrystallization or secondary quartz appears to have developed.

Very minor white mica takes the form of minute flakes of sericite mainly <25 µm interstitial to, or rarely partly replacing possible lithic clasts, with rounded to subrounded outlines <0.3 mm. The sericite also appears to be slightly more abundant along the limonitic fractures, suggesting a partly hydrothermal origin. Rare possible zircon (?) forming rounded subhedra <0.1 mm is likely detrital, merely accidentally associated with sericite of the fracture system.

Presumed limonite (no polished surface to examine) varies from common semi-translucent to deep red-brown, and is mainly concentrated as irregular aggregates in the 0.1-0.25 mm size range, locally coalescing to ~0.5 mm, along the irregular, slightly anastamosing (almost stylolitic in appearance) fractures. The limonite is partly plucked by section preparation; it is not demonstrably developed after former pyrite.

In summary, this is confirmed as quartzite composed of mm-sized detrital quartz (with significant secondary overgrowth rims and matrix) plus trace interstitial sericite, rare (sericitized?) lithic clasts and trace (detrital?) zircon, altered along thin fractures to very minor limonite-sericite.

7813: QUARTZITE COMPOSED OF MM TO SUB-MM SIZED DETRITAL QUARTZ (WITH MINOR SECONDARY OVERGROWTH RIMS AND MATRIX, STRAINED/FLATTENED IN CERTAIN CM-THICK BEDS?) PLUS ACCESSORY INTERSTITIAL SERICITE, LIMONITE, AND (PARTLY SERICITIZED?) LITHIC CLASTS

Described as quartzite-Misinchinka; hand specimen shows pale beige/buff-white fine-medium grained quartzite faintly stained by brown limonite, mainly along planar fractures that may be sub-parallel and sub-perpendicular to poorly defined bedding (?) marked by variation in grain size on a cm scale. The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	97%
Sericite (interstitial, or replacing lithic clasts)	~1%
Opaque (mainly limonite?)	~1%
Lithic clasts (?)	~1%

This sample consists essentially of millimeter-sized detrital quartz grains interbedded with <0.5 mm sized, more flattened/strained quartz. There is accessory interstitial white mica (sericite) and limonite, plus local possible lithic clasts (?).

Quartz in the coarser-grained sections (beds?) occurs as closely packed, detrital grains with sub-rounded to sub-angular outlines mainly in the 0.5-1.2 mm size range (interstitial grains may be as small as 0.2 mm). In places, the rounded remnants of detrital cores show poorly-defined overgrowths that make up the balance of the sub-angular grains, indicating secondary quartz activity in the matrix. In the finer-grained beds (?), up to 1.2 cm thick, quartz typically occurs as more elongate/flattened subangular grains in the 0.2-0.5 mm size range (length:width to 2:1, in the plane of bedding or foliation). The larger grains show mainly only weak undulose extinction, indicative of weak strain, but the finer-grained zones (possibly parallel to bedding?) display stronger undulose extinction, accompanied by minor sub-grain development, and suturing of grain boundaries, possibly indicative of recrystallization or secondary quartz development (?).

Very minor white mica takes the form of minute flakes of sericite mainly <30 µm interstitial to, or in places partly replacing possible lithic clasts that have rounded to subrounded outlines <0.6 mm in diameter. Grain size of quartz in these lithic clasts is commonly <50 µm (“chert”) but may be up to 0.2 mm.

Presumed limonite (no polished surface to examine) varies from semi-translucent to deep red-brown, and is mainly found as irregular aggregates in the 0.1-0.2 mm size range, locally coalescing to ~0.4 mm, interstitial to the quartz, commonly associated with the sericite. The limonite is partly plucked by section preparation; it is not demonstrably developed after former pyrite (no obvious cubic casts).

In summary, this is confirmed as quartzite composed of mm to sub-mm sized detrital quartz (with minor secondary overgrowth rims and matrix, strained/flattened in certain cm-thick beds?) plus accessory interstitial sericite, limonite, and (partly sericitized?) lithic clasts.

7814: QUARTZITE COMPOSED OF SUB-MM SIZED QUARTZ WITH MINOR INTERSTITIAL OPAQUE (PROBABLY MOSTLY LIMONITE, IN PART POSSIBLY AFTER PYRITE?), TRACE SERICITE AND RARE LITHIC (CHERT?) CLASTS. SOME LIMONITE MAY BE ASSOCIATED WITH CRYPTIC QUARTZ VEINLETS

Described as quartzite-Misinchinka; hand specimen shows pale orangey-buff fine-medium grained quartzite pervasively stained by limonite, with orange-brown limonite along planar fractures that may be sub-parallel and sub-perpendicular to possible vaguely defined bedding (?). The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	95%
(secondary, along cryptic veinlets)	1%
Opaque (partly plucked, mainly limonite, partly after pyrite?)	2-3%
Sericite (interstitial)	1%
Lithic clasts (?)	<1%

This sample consists essentially of sub-millimeter sized detrital quartz grains with variable interstitial limonite and traces of interstitial white mica (sericite) and small "cherty" lithic clasts (?). Bedding is not readily apparent. In places, the limonite occurs in partly plucked aggregates with cubic outlines suggestive of having replaced sulfide such as pyrite. or occurs sparingly along narrow partly cryptic quartz veinlets. The surface of the (uncovered) thin section is locally partly to heavily covered with minute particles (<10 µm) of what is probably grinding compound.

Quartz occurs as closely packed, detrital grains with sub-rounded to sub-angular outlines mainly in the 0.25-0.75 mm size range (rarely as small as 0.1 mm, or rarely to almost 1 mm in diameter). The grains show mainly moderate undulose extinction, indicative of moderate strain; stronger undulose extinction, accompanied by sub-grain development and suturing of grain boundaries, is noticeable around the margins of or interstitial to grains, where recrystallization appears to have occurred at pressure points, or along the cryptic veinlets, probably due to secondary quartz development. Poorly-defined overgrowths up to 0.15 mm thick on originally rounded grains grades into local secondary/diagenetic matrix quartz. The thin veinlets are <0.1 mm thick, sub-planar to somewhat anastamose, composed of anhedral quartz mostly <40 µm, with walls partly coated by fine-grained to amorphous dark red-brown limonite.

Presumed limonite (no polished surface to examine) varies from common semi-translucent to deep red-brown to locally opaque, and is mainly concentrated interstitial to quartz grains as irregular aggregates in the 0.1-0.25 mm size range, locally coalescing to ~0.4 mm. Many of the larger opaque aggregates show partial cubic outlines that are partly plucked out by section preparation, strongly suggestive of having developed after former pyrite crystals.

Very minor white mica takes the form of minute flakes of sericite mainly <30 µm interstitial to or commonly partly coating quartz grains. Rarely the sericite may form aggregates up to 0.1 mm, also interstitial to the quartz grains.

Very minor possible lithic clasts with rounded to subrounded outlines <0.6 mm typically consist of tightly interlocked, sutured/strained quartz anhedra <50 µm, suggestive of "chert"; some also contain traces of sericite <25 µm.

In summary, this is confirmed as quartzite composed of sub-mm sized quartz with minor interstitial opaque (probably mostly limonite, in part possibly after pyrite?), trace sericite and rare lithic (chert?) clasts. Some limonite may be associated with cryptic quartz veinlets.

7815: QUARTZITE COMPOSED OF SUB-MM SIZED QUARTZ WITH VERY MINOR INTERSTITIAL OPAQUE (PARTLY PLUCKED TO LEAVE SMALL VOIDS, PROBABLY MOSTLY LIMONITE, LOCALLY POSSIBLY AFTER PYRITE?), CARBONATE AND LESSER SERICITE

Described as quartzite-Monkman; hand specimen shows pale orangey-beige/buff fine-medium grained quartzite partly stained, mainly along poorly defined bedding planes, by pale orange-brown limonite, or rarely cut by hairline sub-planar black (Mn-oxide?) fractures sub-parallel to bedding that are locally associated with black dendrites in adjacent rock. The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	95%
Opaque (partly plucked, mainly limonite, partly after pyrite?)	2%
Carbonate (ankerite/siderite?)	1-2%
Sericite (interstitial)	1%
Voids (mainly due to plucking of limonite or carbonate)	<1%

This sample consists essentially of sub-millimeter sized detrital quartz grains with variable interstitial limonite and carbonate plus traces of interstitial white mica (sericite). Bedding is not readily apparent but may be indicated by poorly defined, locally stylolitic concentrations of limonite. In places, the limonite occurs in partly plucked aggregates with cubic or framboidal outlines suggestive of having replaced sulfide such as pyrite. The surface of the (uncovered) thin section is commonly partly covered with minute particles (<10 µm) of what is probably grinding compound.

Quartz occurs as closely packed, detrital grains with sub-rounded to sub-angular outlines mainly in the 0.2-0.8 mm size range (locally as small as 0.1 mm, or rarely to almost 1 mm in diameter; larger grains are most rounded). The grains show mainly only weak undulose extinction, indicative of weak strain. Stronger undulose extinction, with minor sub-grain development, and suturing of grain boundaries, is noticeable mainly for interstitial “matrix” grains/crystals, where recrystallization appears to have occurred at pressure points, or due to secondary quartz development. Poorly-defined thin overgrowth rims on primary grains are generally discontinuous and <65 µm thick.

Presumed limonite (no polished surface to examine) varies from common semi-translucent to deep red-brown to locally opaque, and is mainly concentrated interstitial to quartz grains as irregular aggregates in the 0.1-0.25 mm size range, locally coalescing to ~0.5 mm. A small proportion of the larger opaque aggregates show distinctive cubic outlines that are partly plucked by section preparation, strongly suggestive of having developed after former pyrite. Possible Mn-oxide dendrites and/or fractures were not identified in the section.

Minor carbonate occurs as scattered small sub- to euhedral grains <0.4 mm in diameter, with distinct change of relief on rotation, local pale brownish colour and lack of reaction in hand specimen possibly suggestive of ankeritic or sideritic composition. The grains are partly associated with or locally partly stained by limonite.

Very minor white mica takes the form of minute flakes of sericite mainly <25 µm typically interstitial to or rarely partly coating quartz grains. Rarely the sericite may form aggregates to ~50 µm, also interstitial to the quartz grains.

In summary, this is confirmed as quartzite composed of sub-mm sized quartz with very minor interstitial opaque (partly plucked to leave small voids, probably mostly limonite, locally possibly after pyrite?), carbonate and lesser sericite.

7816: QUARTZITE COMPOSED OF SUB-MM SIZED QUARTZ WITH COMMON SMALL INTERSTITIAL VOIDS, IN PART AFTER OPAQUE (PROBABLY MOSTLY LIMONITE, LOCALLY POSSIBLY AFTER PYRITE?), WITH TRACE INTERSTITIAL SERICITE AND RARE, PROBABLY DETRITAL, EPIDOTE (?)

Described as quartzite-Monkman; hand specimen shows pale beige/buff fine-medium grained quartzite with scattered rounded "spots" of paler coloured or darker brownish coloured rock, and very lightly stained, mainly along fractures, by pale beige-brown limonite. The rock is not magnetic, shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched offcut. Modal mineralogy (uncovered thin section) is approximately:

Quartz (mainly detrital)	95%+
Void space (largely due to plucking?)	3%
Opaque (largely plucked, mainly limonite, partly after pyrite?)	1%
Sericite (interstitial)	1%
Epidote (?)	<<1%

This sample consists essentially of sub-millimeter sized detrital quartz grains with variable interstitial void space (partly after limonite which may have been largely plucked out?) and traces of interstitial white mica (sericite), plus rare, likely detrital, epidote (?). Bedding is not readily apparent. In places, the limonite occurs in partly plucked aggregates with sub-cubic outlines suggestive of having replaced sulfide such as pyrite.

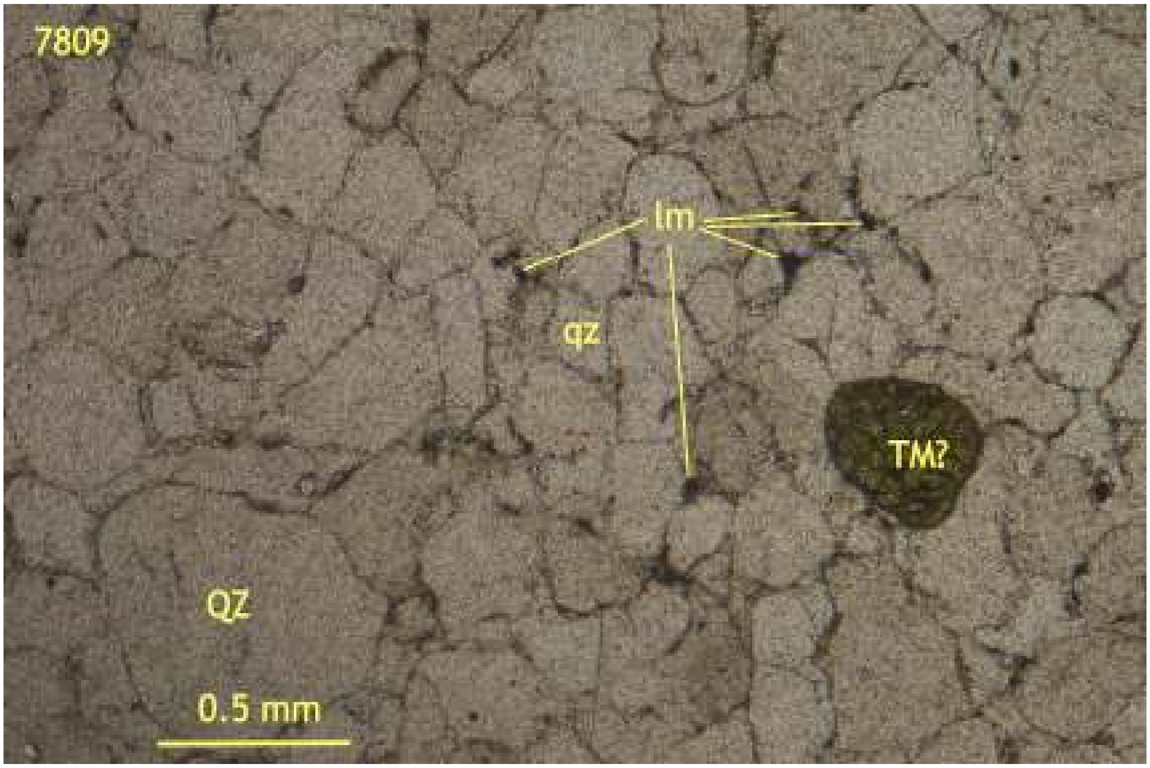
Quartz occurs as closely packed, detrital grains with sub-rounded to sub-angular outlines mainly in the 0.15-0.85 mm size range (rarely smaller than 0.1 mm, or rarely to 1.2 mm in diameter). The grains show mainly only weak undulose extinction, indicative of weak strain, but slightly stronger undulose extinction, accompanied by minor sub-grain development and suturing of grain boundaries, is noticeable locally around the margins of the larger grains or in the finer interstitial to the larger grains, where recrystallization appears to have occurred at pressure points, or there has been minor secondary quartz development. However, generally only thin (<40 µm) poorly-defined overgrowths are seen on grains of the detrital framework.

Voids with irregular outlines mainly <0.5 mm are common in the interstices to quartz grains. Some of these are partly filled with presumed limonite that varies from common semi-translucent to deep red-brown to locally semi-opaque, mainly concentrated interstitial to quartz grains as irregular aggregates in the 0.1-0.25 mm size range. A small proportion of the larger opaque aggregates show distinctive cubic outlines (some of which are partly plucked by section preparation), suggestive of having developed after former pyrite (?).

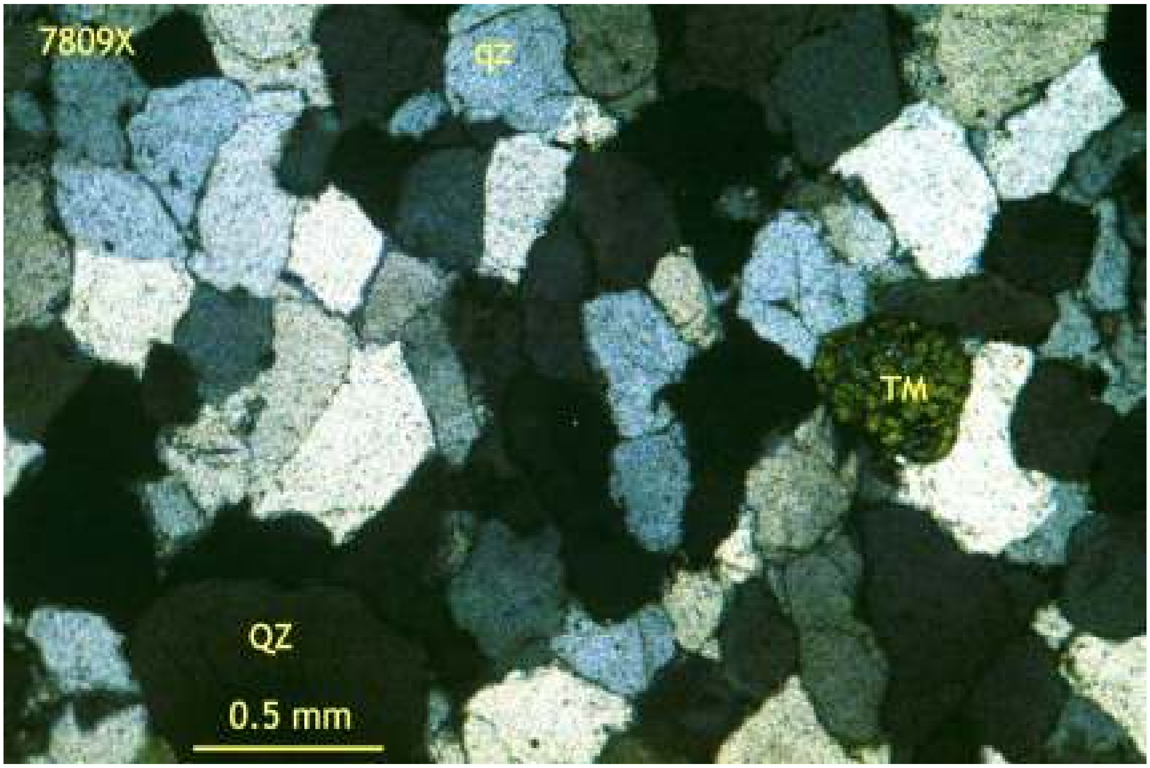
Very minor white mica takes the form of minute flakes of sericite mainly <25 µm interstitial to or rarely partly coating quartz grains. Rarely the sericite may form aggregates up to 65 µm, also interstitial to the quartz grains.

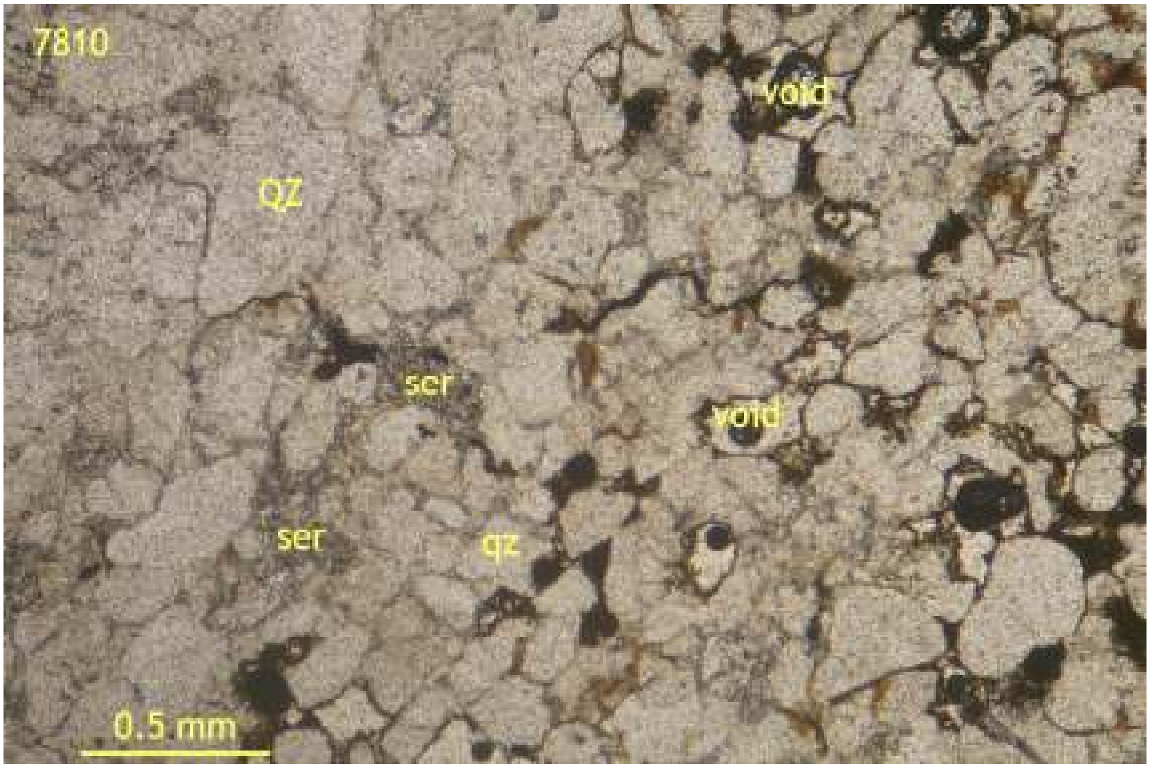
Tentatively identified epidote (likely detrital; one occurrence only) occurs as a rounded subhedral grain <0.3 mm in diameter, with no obvious colour suggestive of Fe-poor composition.

In summary, this is confirmed as quartzite composed of sub-mm sized quartz with common small interstitial voids, in part after opaque (probably mostly limonite, locally possibly after pyrite?), with trace interstitial sericite and rare, probably detrital, epidote (?).

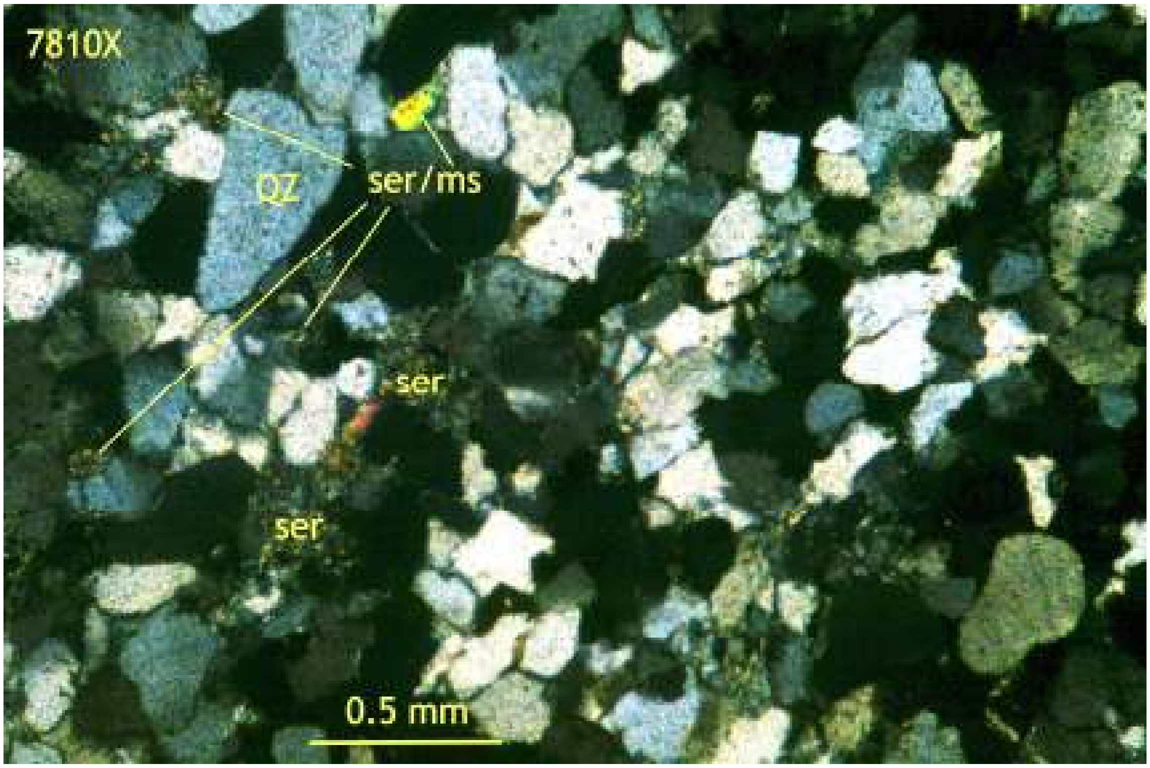


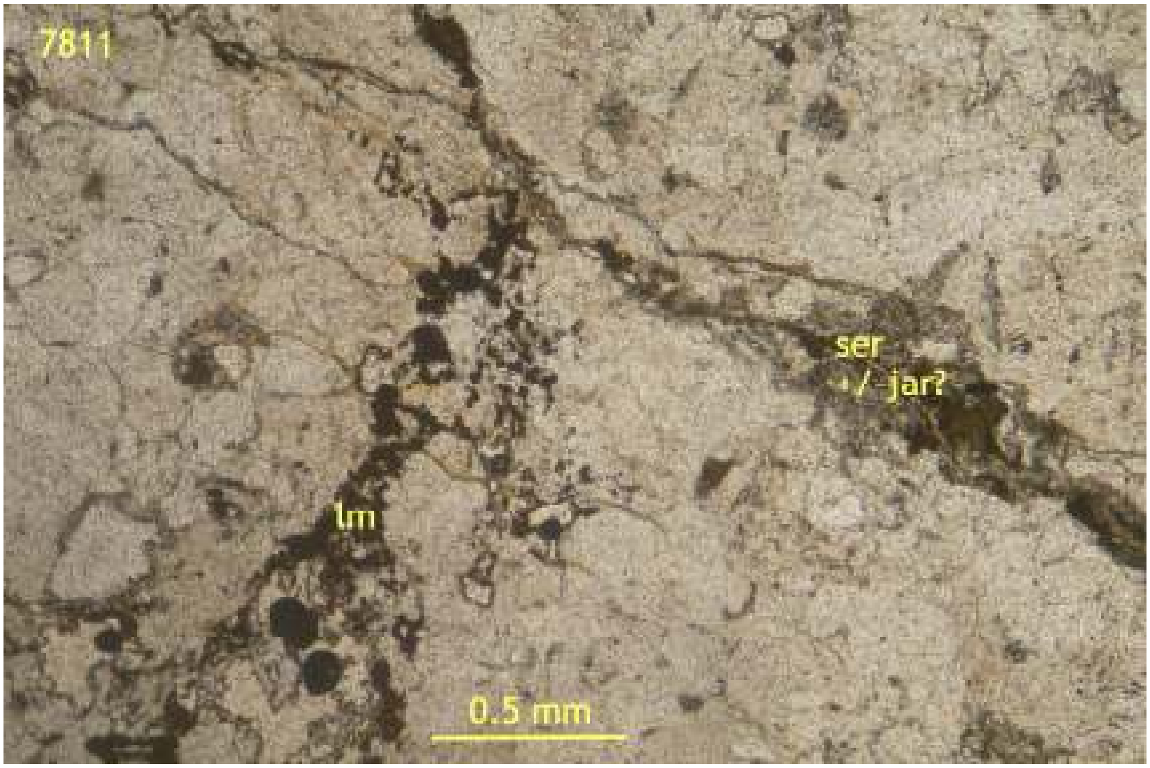
7809: quartzite composed of closely packed, sub-rounded to sub-angular detrital quartz grains mostly in the 0.25-0.75 mm size range, with accessory interstitial opaque (probably mainly limonite; traces of interstitial sericite are hard to see) and rare rounded possible detrital tourmaline (TM?). Transmitted plane light (above), crossed polars (below), field of view ~3 mm wide.



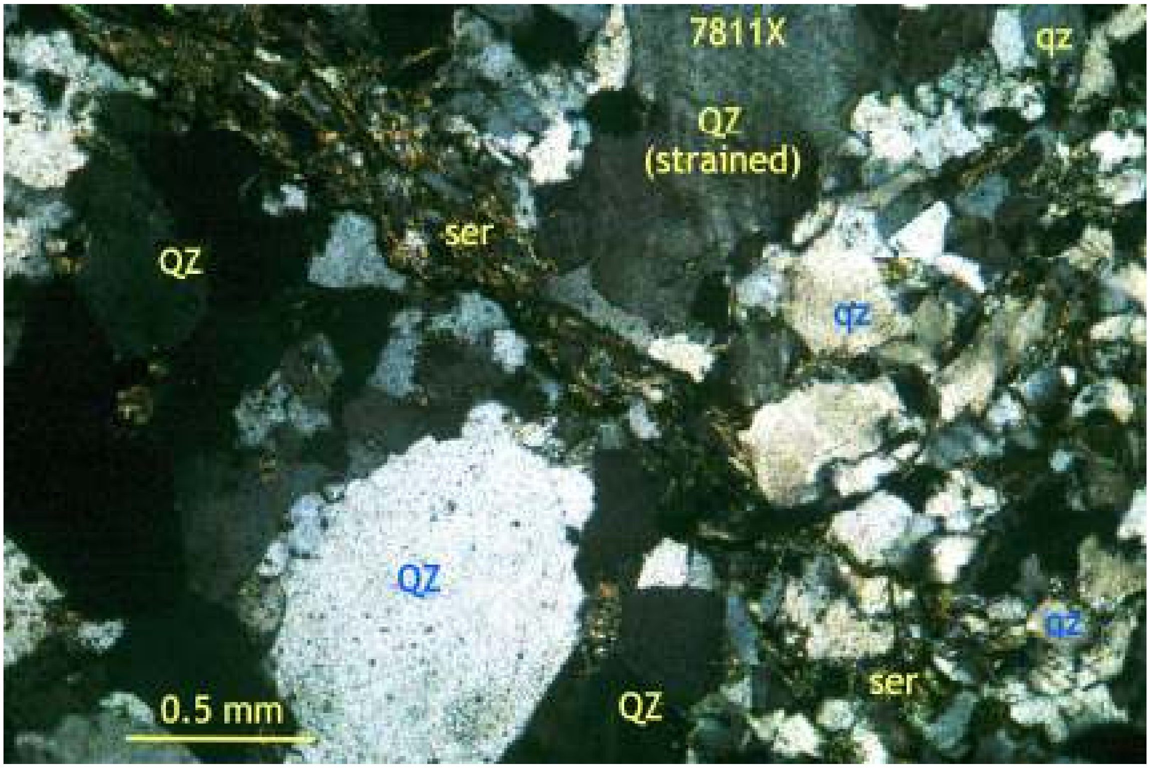


7810: slightly impure quartzite composed of closely packed, sub-angular/angular detrital quartz grains mostly in the 0.1-0.5 mm size range, with interstitial/fracture controlled sericite (ser) partly associated with red-brown limonite, minor opaque Mn-oxides (?). Transmitted plane light (above), crossed polars (below), field of view ~3 mm wide.

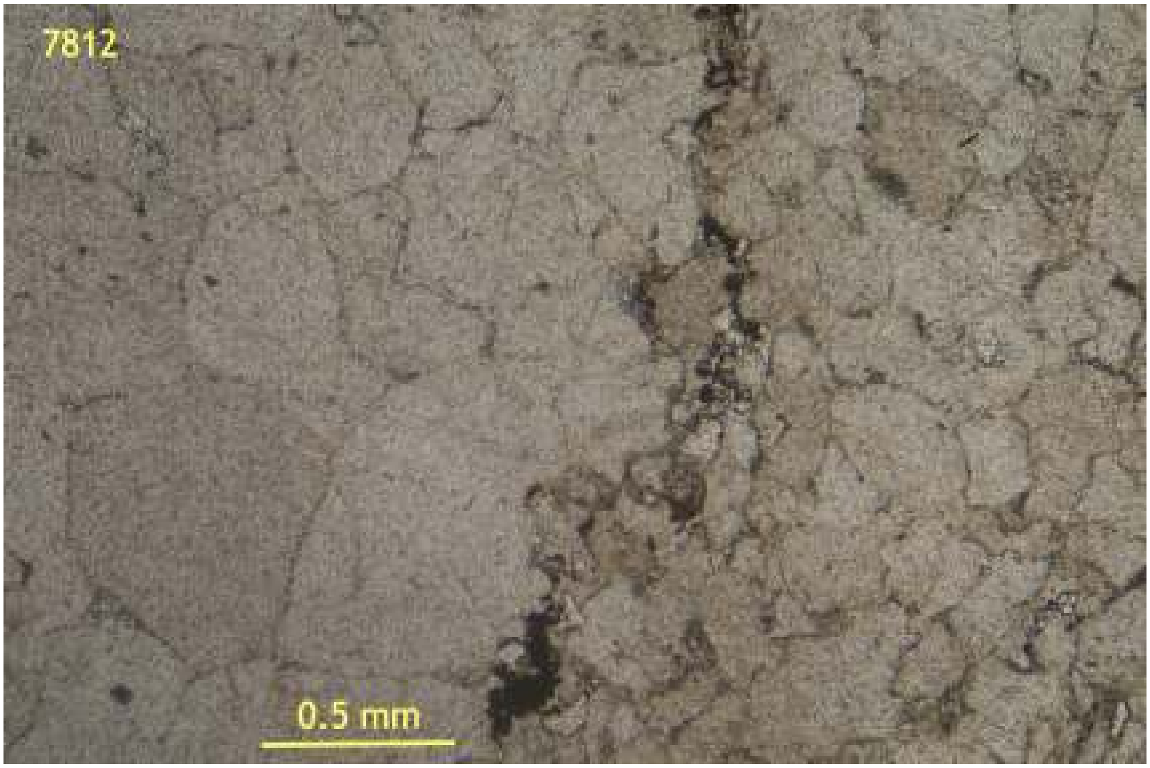




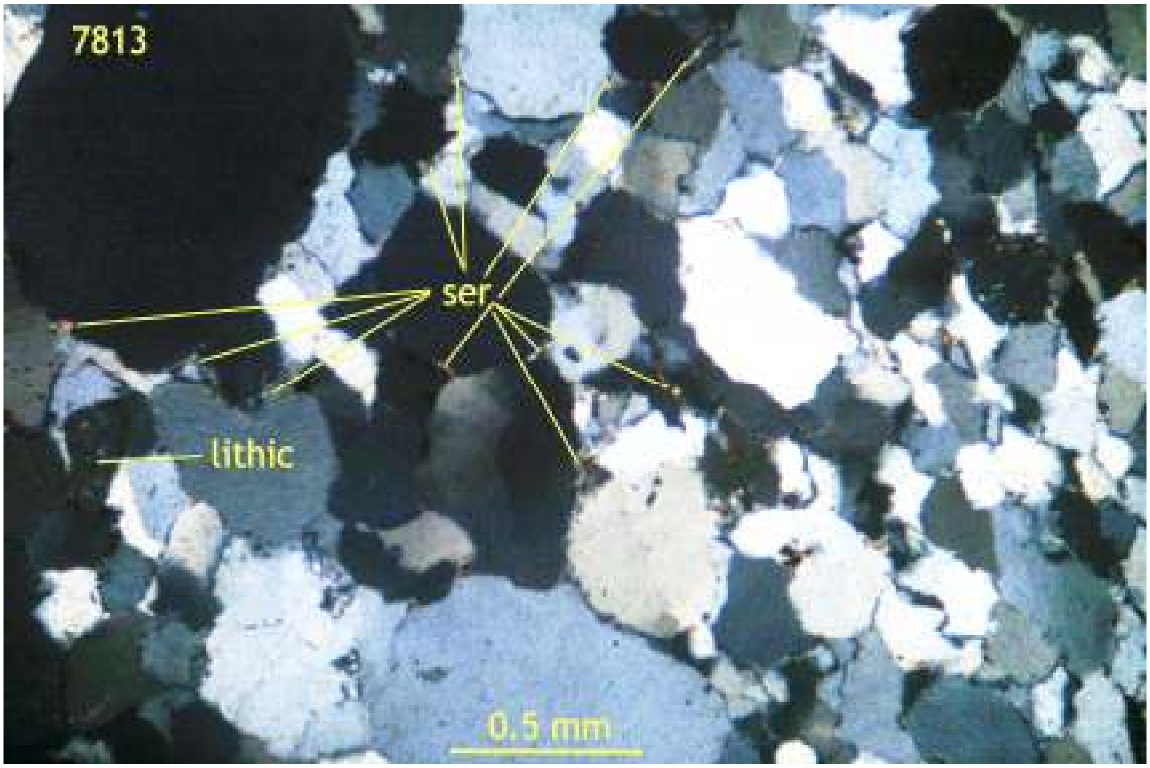
7811: intersection of slightly vuggy irregular quartz-brown goethitic limonite veinlet with irregular sericite-minor yellow possible jarosite (jar?) fracture (both associated with zones of possible secondary or at least recrystallized, finer-grained quartz that is best distinguished in crossed polars, see below). Transmitted plane light, field of view ~3 mm wide.



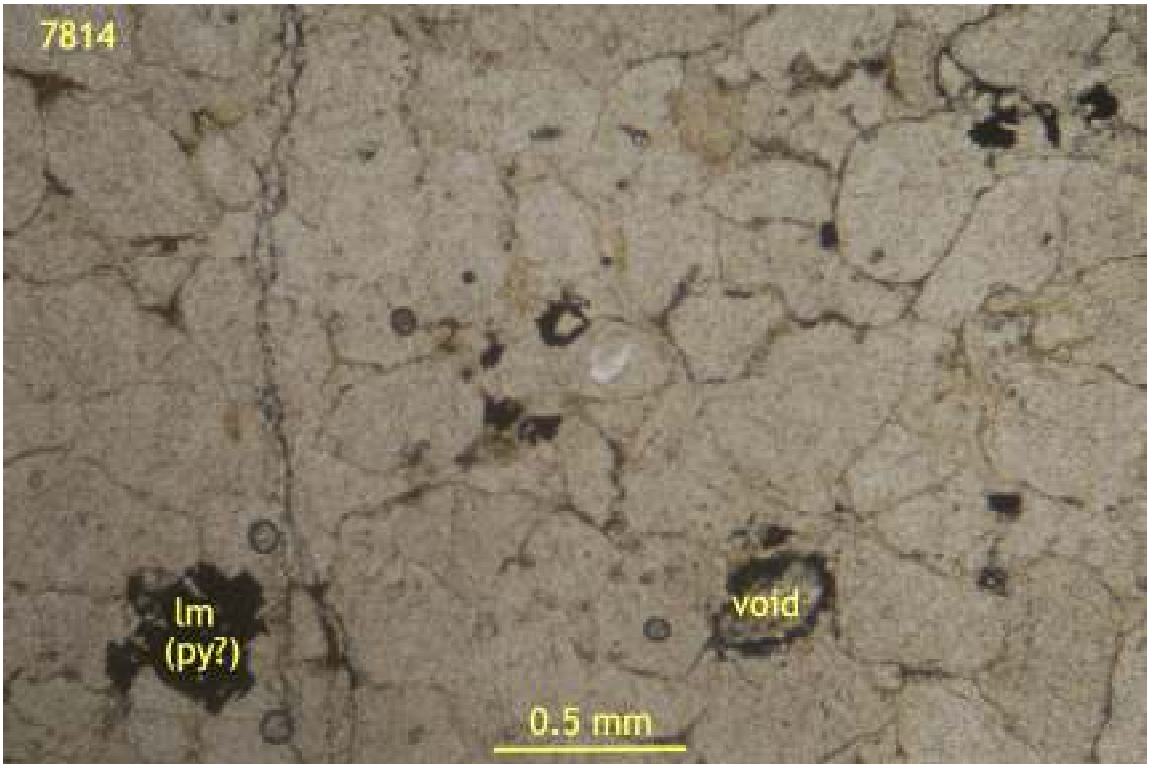
7811X: impure quartzite composed of coarse, relict detrital quartz (QZ) in a matrix of finer, possibly partly secondary quartz (qz), Kspar and sericite, cut by irregular fracture/veinlet zone of sericite (ser) and minor limonite-possible Mn oxide (?). Transmitted light, crossed polars, field of view ~3 mm wide.



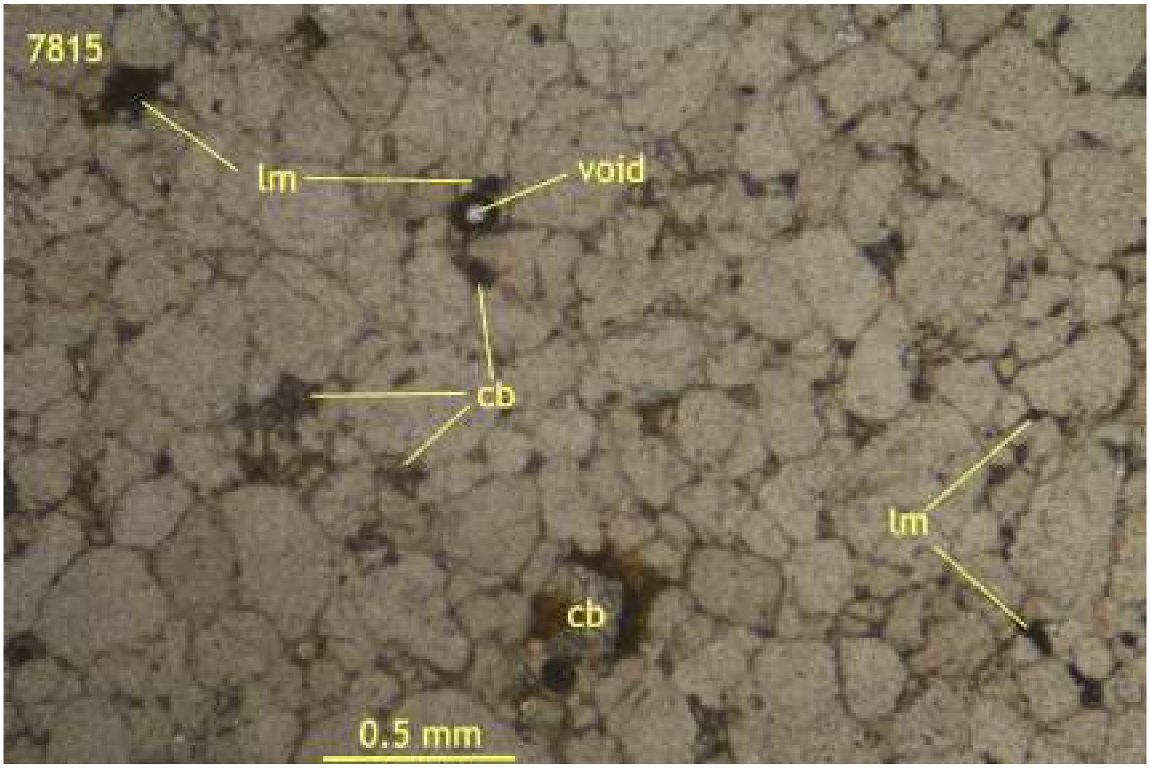
7812: minor opaque (mainly limonite?) in thin aggregates concentrated along anastamose, stylolitic-looking fracture associated with traces of sericite and change from relatively coarse-grained, rounded quartz (on left) to finer-grained, subangular quartz (recrystallized, secondary?) on the right. Transmitted plane light, field of view ~3 mm wide.



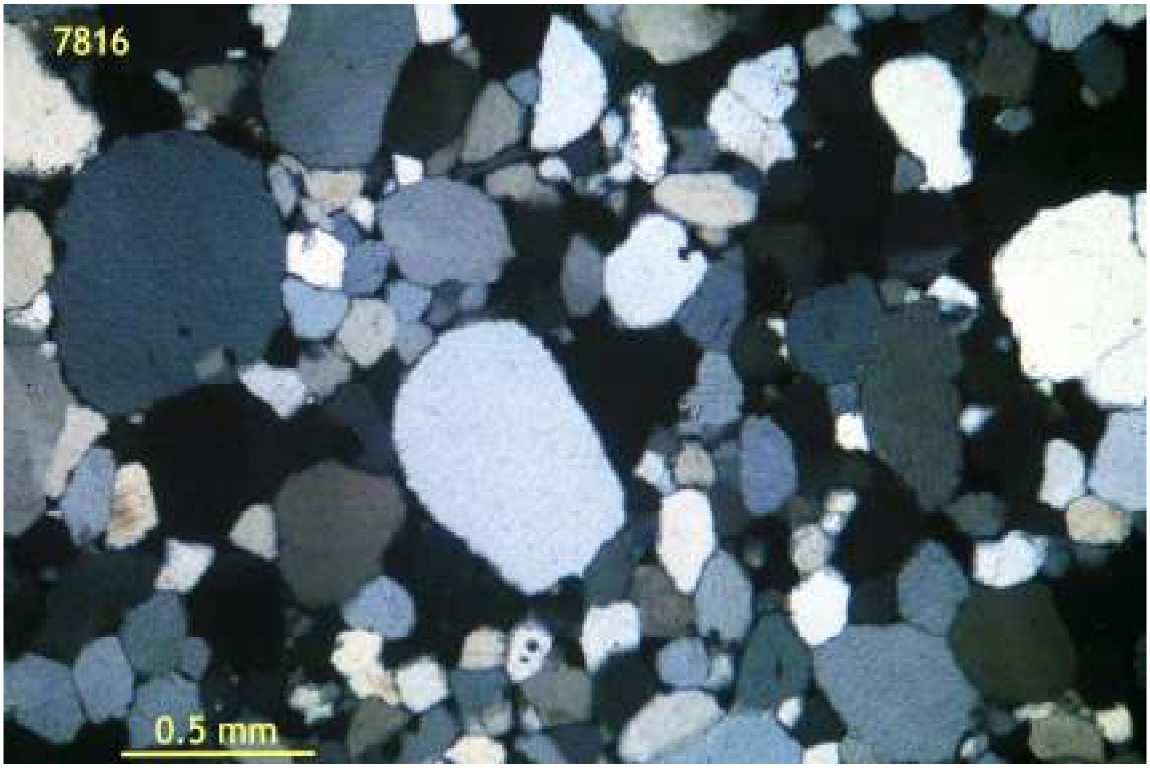
7813: poorly defined boundary between bed with coarser, sub-rounded detrital quartz (on left) and finer, more flattened subangular quartz on right; traces of interstitial sericite (ser), limonite and rare lithic clasts are barely visible in both beds. Transmitted condensed light, crossed polars, field of view ~3 mm wide.



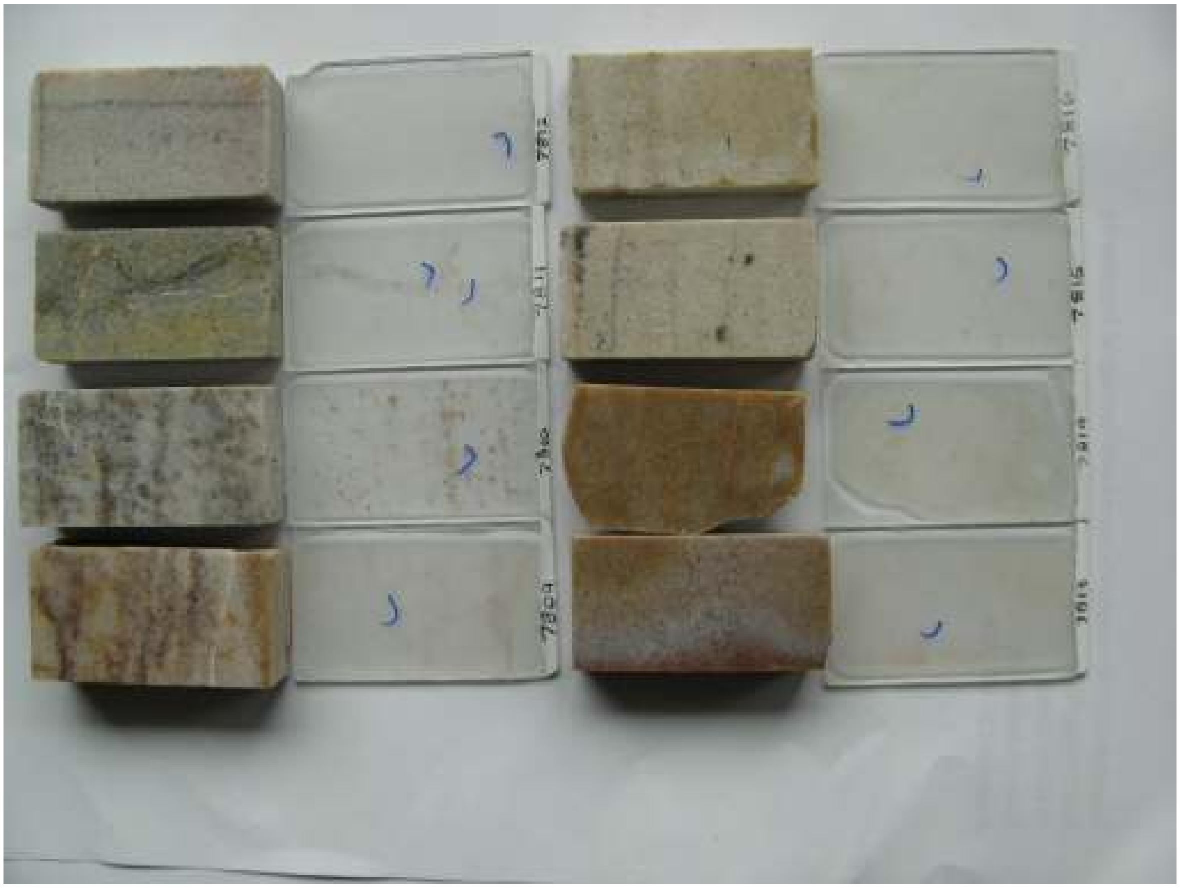
7814: quartzite composed of sub-mm sized quartz grains with minor interstitial limonite (partly in aggregates that may be partly plucked out, or show sub-cubic outlines suggestive of former pyrite?), cut by cryptic quartz veinlet also with traces of limonite. Transmitted plane light, field of view ~3 mm wide.



7815: quartzite composed of sub-mm sized quartz grains with minor interstitial limonite (lm, partly in aggregates that may be partly plucked out or associated with sub/euhedral carbonate, cb); traces of sericite interstitial to quartz are not of a size to be visible. Transmitted plane light, field of view ~3 mm wide.



7816: quartzite composed of typical unstrained, sub-rounded coarser and sub-angular finer, matrix quartz grains with very little secondary quartz in interstices (minor interstitial void spaces partly after plucked-out limonite?). Transmitted light, crossed polars, field of view ~3 mm wide.



Overview of thin sections and offcuts (blue semi-circles mark photomicrograph locations).

Appendix B Laboratory Certificates

MS Analytical
An A2 Global Company

MS Analytical
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To:
Bob Lane
3000 18th Street
Vernon, B.C.
V1T 4A6

CERTIFICATE OF ANALYSIS: YVR1810480

Project Name:	Angus
Job Received Date:	24-May-2018
Job Report Date:	30-May-2018
Number of Samples:	10
Report Version:	Final

SAMPLE PREPARATION

METHOD CODE	DESCRIPTION
PRP-910	Dry, Crush to 70% passing 2mm, Split 250g, Pulverize to 85% passing 75µm

ANALYTICAL METHODS

METHOD CODE	DESCRIPTION
ICP-230	Multi-Element, 0.2g, 4-Acid, ICP-AES, Trace Level
WRA-310	Whole Rock Analysis, 0.15g, Lithium Metaborate Fusion, ICP-AES

COMMENTS:

Test results reported relate only to the samples as received by the laboratory.Unless otherwise stated above, sufficient sample was received for the methods requested and all samples were received in acceptable condition. Analytical results in unsigned reports marked "preliminary" are subject to change, pending final QC review. Please refer to MS Analyticals' *Schedule of Services and Fees* for our complete Terms and Conditions

Signature:

Yvette Hsi, BSc.
Laboratory Manager
MS Analytical

MS Analytical
An A2 Global Company

MS Analytical
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To:
Bob Lane
3000 18th Street
Vernon, B.C.
V1T 4A6

CERTIFICATE OF ANALYSIS: YVR1810480

Project Name:	Angus
Job Received Date:	24-May-2018
Job Report Date:	30-May-2018
Report Version:	Final

Sample ID	Sample Type	PWE-100 Rec. Wt. kg 0.01	Method Analyte Units LOR	WRA-310 Al_2O_3 % 0.01	WRA-310 BaO % 0.01	WRA-310 CaO % 0.01	WRA-310 Cr_2O_3 % 0.01	WRA-310 Fe_2O_3 % 0.01	WRA-310 K_2O % 0.01	WRA-310 MgO % 0.01	WRA-310 MnO % 0.01	WRA-310 Na_2O % 0.01	WRA-310 P_2O_5 % 0.01	WRA-310 SiO_2 % 0.01
Granite Blank	QC-P-BK	--		14.37	0.09	2.51	0.03	3.29	1.99	0.94	0.10	4.82	0.10	70.48
Granite Blank	QC-P-BK	--		13.97	0.09	2.45	0.02	3.23	1.95	0.92	0.10	4.69	0.10	69.80
7809	Rock	1.71		0.50	<0.01	<0.01	0.06	1.31	0.13	0.02	<0.01	0.11	<0.01	97.08
7810	Rock	1.35		2.96	<0.01	0.08	0.05	0.85	0.93	0.11	0.02	0.13	0.07	95.23
7811	Rock	1.32		2.03	0.01	0.03	0.07	0.92	0.87	0.06	<0.01	0.09	0.04	95.23
7812	Rock	1.32		0.32	<0.01	<0.01	0.07	0.59	0.09	0.01	<0.01	0.09	<0.01	97.22
7813	Rock	1.32		0.54	<0.01	<0.01	0.07	0.69	0.16	<0.01	<0.01	0.19	<0.01	98.74
7813PD	QC-PD	--		0.52	<0.01	<0.01	0.06	0.60	0.15	<0.01	<0.01	0.10	<0.01	96.14
7814	Rock	1.72		0.41	<0.01	<0.01	0.07	1.17	0.12	0.02	<0.01	0.14	<0.01	99.43
7815	Rock	1.10		0.51	<0.01	<0.01	0.07	0.61	0.14	0.03	<0.01	0.20	0.01	99.32
7816	Rock	1.62		0.28	<0.01	<0.01	0.06	0.49	0.07	0.02	<0.01	0.17	<0.01	97.01
7817	Rock	1.66		0.30	<0.01	<0.01	0.06	0.58	0.09	0.02	<0.01	0.14	<0.01	97.23
7818	Rock	1.02		0.47	<0.01	<0.01	0.06	0.56	0.14	0.01	<0.01	0.08	<0.01	97.10
DUP 7811														
STD BLANK														
STD BLANK				<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
STD OREAS 601														
STD SY-4				20.64	0.04	7.89	<0.01	6.35	1.66	0.51	0.11	7.29	0.13	49.67
STD GMN-04														

***Please refer to the cover page for comments regarding this certificate. ***

MS Analytical
An A2 Global Company

MS Analytical
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To:
Bob Lane
3000 18th Street
Vernon, B.C.
V1T 4A6

CERTIFICATE OF ANALYSIS: YVR1810480

Project Name: Angus
Job Received Date: 24-May-2018
Job Report Date: 30-May-2018
Report Version: Final

	WRA-310	WRA-310	WRA-310	WRA-310	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230
	SrO	TiO_2	LOI	Total	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr
	%	%	%	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
Sample ID	0.01	0.01	0.01		0.5	0.01	5	10	0.5	2	0.01	0.5	1	1
Granite Blank	0.03	0.41	1.95	101.10	<0.5	7.24	<5	740	0.9	<2	1.66	<0.5	4	122
Granite Blank	0.03	0.39	1.88	99.62	<0.5	7.26	<5	753	1.0	<2	1.68	<0.5	4	103
7809	<0.01	0.04	0.47	99.73	<0.5	0.26	49	<10	<0.5	<2	0.01	<0.5	1	285
7810	<0.01	0.19	0.83	101.46	<0.5	1.50	<5	52	<0.5	<2	0.06	<0.5	2	218
7811	<0.01	0.05	0.62	100.01	<0.5	1.04	<5	105	<0.5	<2	0.03	<0.5	1	276
7812	<0.01	0.03	0.37	98.79	<0.5	0.16	<5	<10	<0.5	<2	<0.01	<0.5	1	285
7813	<0.01	0.05	0.27	100.70	<0.5	0.27	<5	12	<0.5	<2	<0.01	<0.5	1	313
7813PD	<0.01	0.05	0.31	97.93	<0.5	0.27	<5	<10	<0.5	<2	<0.01	<0.5	<1	284
7814	<0.01	0.04	0.51	101.92	<0.5	0.20	<5	<10	<0.5	<2	<0.01	<0.5	2	305
7815	<0.01	0.03	0.37	101.28	<0.5	0.26	<5	<10	<0.5	2	<0.01	<0.5	1	310
7816	<0.01	0.03	0.12	98.24	<0.5	0.14	<5	<10	<0.5	<2	<0.01	<0.5	<1	245
7817	<0.01	0.02	0.18	98.63	<0.5	0.15	<5	<10	<0.5	<2	<0.01	<0.5	2	268
7818	<0.01	0.05	0.27	98.73	<0.5	0.25	<5	<10	<0.5	<2	<0.01	<0.5	<1	273
DUP 7811					<0.5	1.06	<5	107	<0.5	2	0.03	<0.5	1	305
STD BLANK					<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1
STD BLANK	<0.01	<0.01												
STD OREAS 601					48.6	6.16	308	2181	2.0	20	1.24	7.8	4	42
STD SY-4	0.16	0.31												
STD GMN-04			32.87											

***Please refer to the cover page for comments regarding this certificate. ***

MS Analytical
An A2 Global Company

MS Analytical
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To: **Bob Lane**
3000 18th Street
Vernon, B.C.
V1T 4A6

CERTIFICATE OF ANALYSIS: YVR1810480

Project Name: Angus
Job Received Date: 24-May-2018
Job Report Date: 30-May-2018
Report Version: Final

	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230	ICP-230
	Cu	Fe	Ga	K	La	Li	Mg	Mn	Mo	Na	Ni	P	Pb	S
	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%
Sample ID	1	0.01	10	0.01	10	10	0.01	5	1	0.01	1	10	2	0.01
Granite Blank	4	2.13	15	1.59	<10	<10	0.55	656	1	3.43	3	429	14	0.02
Granite Blank	4	2.11	14	1.61	<10	<10	0.55	657	3	3.42	2	437	10	0.02
7809	4	0.84	<10	0.11	<10	<10	0.01	27	5	0.01	6	35	5	0.01
7810	7	0.54	<10	0.74	<10	<10	0.07	123	5	0.01	8	317	<2	<0.01
7811	7	0.60	<10	0.69	<10	<10	0.04	47	5	0.02	8	156	5	<0.01
7812	4	0.37	<10	0.07	<10	<10	<0.01	27	7	<0.01	6	22	<2	<0.01
7813	9	0.43	<10	0.12	<10	<10	<0.01	26	5	<0.01	6	32	3	<0.01
7813PD	9	0.39	<10	0.12	<10	<10	<0.01	22	5	<0.01	5	27	2	<0.01
7814	8	0.69	<10	0.09	<10	<10	<0.01	24	7	<0.01	8	46	7	<0.01
7815	3	0.39	<10	0.11	<10	<10	0.01	34	5	<0.01	9	45	<2	<0.01
7816	3	0.32	<10	0.05	<10	<10	<0.01	22	5	<0.01	7	30	<2	<0.01
7817	4	0.37	<10	0.07	<10	<10	<0.01	24	5	<0.01	7	30	<2	<0.01
7818	7	0.37	<10	0.11	<10	<10	<0.01	27	7	<0.01	6	31	<2	<0.01
DUP 7811	6	0.59	<10	0.71	<10	<10	0.04	47	5	0.02	9	170	4	<0.01
STD BLANK	<1	<0.01	<10	<0.01	<10	<10	<0.01	<5	<1	<0.01	<1	<10	<2	<0.01
STD BLANK														
STD OREAS 601	996	2.38	22	2.06	17	15	0.37	459	4	1.58	26	451	319	1.04
STD SY-4														
STD GMN-04														

***Please refer to the cover page for comments regarding this certificate. ***

MS Analytical

An A2 Global Company

MS Analytical
Unit 1, 20120 102nd Avenue
Langley, BC V1M 4B4
Phone: +1-604-888-0875

To:
Bob Lane
3000 18th Street
Vernon, B.C.
V1T 4A6

CERTIFICATE OF ANALYSIS: YVR1810480

Project Name: Angus
Job Received Date: 24-May-2018
Job Report Date: 30-May-2018
Report Version: Final

Sample ID	ICP-230 Sb ppm 5	ICP-230 Sc ppm 2	ICP-230 Sr ppm 1	ICP-230 Th ppm 10	ICP-230 Ti % 0.01	ICP-230 Tl ppm 10	ICP-230 V ppm 1	ICP-230 W ppm 10	ICP-230 Zn ppm 2	ICP-230 Zr ppm 5
Granite Blank	<5	8	202	<10	0.22	<10	40	<10	47	65
Granite Blank	<5	8	202	<10	0.22	<10	40	<10	46	65
7809	<5	<2	3	<10	0.02	<10	6	<10	5	20
7810	<5	<2	7	<10	0.10	<10	30	<10	6	27
7811	<5	<2	10	<10	0.03	<10	7	<10	5	14
7812	<5	<2	3	<10	0.02	<10	4	12	2	16
7813	<5	<2	4	<10	0.03	<10	7	<10	2	26
7813PD	<5	<2	3	<10	0.03	<10	7	<10	<2	28
7814	<5	<2	4	<10	0.02	<10	6	10	3	29
7815	<5	<2	4	<10	0.02	<10	3	<10	3	18
7816	<5	<2	5	<10	0.02	<10	3	<10	2	20
7817	<5	<2	3	<10	0.01	<10	4	<10	2	16
7818	<5	<2	3	<10	0.03	<10	7	<10	2	30
DUP 7811	<5	<2	11	<10	0.03	<10	8	<10	5	16
STD BLANK	<5	<2	<1	<10	<0.01	<10	<1	<10	<2	<5
STD BLANK										
STD OREAS 601	29	5	232	<10	0.18	<10	26	<10	1350	166
STD SY-4										
STD GMN-04										

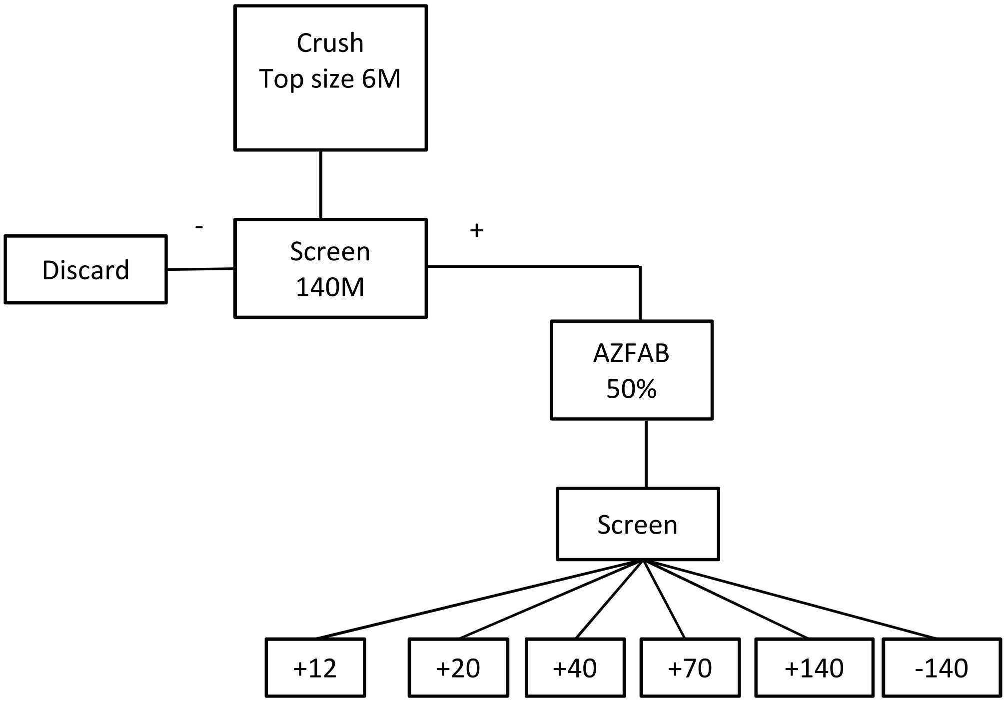
***Please refer to the cover page for comments regarding this certificate. ***

Appendix C Met-Solve Procedures and Results

AZFAB SCRUBBER

Client: Bob Lane
Date: 6-29-18
Test: VI100 & VI200
Project: MS1872
Sample: Averil and Monkman
Objective: Run the Averil and Monkman composites through Azfab scrubber and send size fractions for proppant characterization tests.

Procedure



1. Crush each compostie at 6M topsize
2. Screen at 140M on sweco, discard undersize
3. Split into 4 quarters, approximately 3.5kg each
4. Run at 50% pulp density for 30 minutes in Azfab
5. Screen samples into size fractions listed
6. Split out 1.2kg of 20x40, 40x70, 70x140 for proppant characterization
7. Take photos under microscope

AZFAB SCRUBBER

Client: Bob Lane
Test:
Sample: Averil and Monkman

Date: 6-29-18
Project: MS1872

Results

Averil

	Size Fraction	Weight (kg)	Dist. (%)	Stage Dist. (%)
	+12	2.830	14.2	-
	12x20	2.510	12.6	-
Samples for Testing	20x40	3.035	15.2	35.2
	40x70	3.265	16.4	37.8
	70x140	2.330	11.7	27.0
	Stage Total	**8.630**	**43.3**	**100.0**
	-140	5.980	30.0	-
	Total:	19.95		

Monkman

	Size Fraction	Weight (kg)	Dist. (%)	Stage Dist. (%)
	+12	2.120	10.5	-
	12x20	1.185	5.9	-
Samples for Testing	20x40	1.685	8.4	14.7
	40x70	4.650	23.1	40.6
	70x140	5.105	25.4	44.6
	Stage Total	**11.440**	**56.9**	**100.0**
	-140	5.355	26.6	-
	Total:	20.10		

Appendix D API Results from Stim-Lab

“Measurement of Properties for Proppants Used in Hydraulic Fracturing and Gravel-Packing Operations” Evaluations on Six Sand Samples For Corus Exploration Corp. – Submitted July 2, 2018

Prepared For:

Bob Lane
Corus Exploration Corp.
3000 18th Street
Vernon, British Columbia Canada VIT 4A6
(250) 540-1330
blane2k2@gmail.com

Prepared By:

Stim-Lab, Inc.
7118 North Highway 81
Duncan, OK 73533-8719
(580) 252-4309

Lisa O'Connell

Lisa O’Connell, Laboratory Supervisor

Pre-Invoice 325180786-1M

File Number: SL 12698-2

August 2018

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM SAMPLES AND LOGS, WHICH WERE SUPPLIED. WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE. **Notice: Samples submitted to Stim-Lab, Inc.** for use in testing services are subject to disposal or storage fees following the completion of the testing services. Directive as to the disposition of samples must be submitted in writing with the samples or otherwise provided during the course of the project. Stim-Lab, Inc. reserves the right to request that you pick up samples, whether formation material, chemicals supplied, fixtures or other materials relating to a project. You may be charged a reasonable shipping and packaging fee for return of samples for which pick up arrangements have not been made. Stim-Lab, Inc. expressly disclaims liability for intentional disposal or unintentional loss of submitted samples for which no written directive has been provided.

Stim-Lab
A CORE LABORATORIES COMPANY

STIM-LAB, Inc.
7118 North Highway 81
Duncan, Ok. 73533-8719
Phone: 580-252-4309
Fax: 580-252-6979
www.stimlab.com

August 20, 2018
Re: July 25, 2018

Bob Lane
Corus Exploration Corp.
3000 18th Street
Vernon, British Columbia Canada VIT 4A6

Dear Mr. Lane:

Stim-lab, Inc. has completed the ISO 13503-2:2006/API RP19C:2016 evaluations requested on the submitted sand samples labeled A2040, A4070, A70140, M2040, M4070, and M70140. The samples were received at Stim-Lab, Inc. on July 2, 2018. Additional testing was requested July 25, 2018 and additional M20/40 sample was received August 9, 2018. The samples labeled A2040 and M2040 were disassociated as requested to remove clusters to 1/100 clusters, prior to testing.

The sphericity and roundness (Krumbein Shape Factor), acid solubility, turbidity, bulk density, apparent density, and crush with K-Value results for the samples are provided in Tables 1 through 6. Pictures of the samples are provided following Table 6, for you to review. The procedures followed are as stated in ISO 13503-2:2006/API RP19C:2016.

Thank you for choosing Stim-Lab, Inc. to perform these analyses. We hope you will consider us for your future testing needs. If you have any questions regarding the testing or results, please do not hesitate to give me a call.

Sincerely,

Lisa O'Connell

Lisa O'Connell
Laboratory Supervisor
Conductivity Laboratory

Table 1

Sample ID: A2040
Corus Exploration Corp.
July 2, 2018

Measurement of Properties of Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations

ISO 13503-2:2006/API RP19C:2008, Section 7, "Proppant Sphericity and Roundness"

* mean of a 20 count

Sphericity = 0.7
Roundness = 0.6
Clusters = Approx.1 of Every 100 Grains Contained Clusters

Recommended Sphericity and Roundness for proppants = 0.6 or greater (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 8, "Acid Solubility"

* mean of 3 analyses

Acid Sol. Percent = 0.6%

Recommended Maximum Acid Solubility for proppants 6/12 thru 30/50 = 2.0% (ISO/DIS 13503-2/Amd.1:2009)

Tested as per ISO 13503-2:2006/API RP19C:2008, 100ml of 12:3 HCl:HF* with 5 grams of sand or proppant at 150ºF for 30 minutes,
*Other acids may be specified, depending on desired application

ISO 13503-2:2006/API RP19C:2008, Section 9, "Turbidity Test"

Turbidity = 14 NTU

Method 1: Turbidity, suggested maximum proppant turbidity = equal or less than 250 NTU (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 10, "Procedures for Determining Proppant Bulk Density, Apparent Density"

Bulk Density = 1.39 g/cm^3
Bulk Density = 86.7 lb/ft^3

Apparent Density = (Oil) 2.64 g/cm^3

ISO 13503-2:2006/API RP19C:2008, Section 11, "Proppant Crush-Resistance Test"

Stresses Tested (psi)	***% Fines -20+40 crush prep***
3000	**9.2%**
4000	**14.0%**
K-Value =	**3K**

The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

Table 2

Sample ID: A4070
Corus Exploration Corp.
July 2, 2018

Measurement of Properties of Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations

ISO 13503-2:2006/API RP19C:2008, Section 7, "Proppant Sphericity and Roundness"

* mean of a 20 count

Sphericity =	**0.7**
Roundness =	**0.6**
Clusters =	**None Observed in Field of Count**

Recommended Sphericity and Roundness for proppants = 0.6 or greater (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 8, "Acid Solubility"

* mean of 3 analyses

Acid Sol. Percent = 0.8%

Recommended Maximum Acid Solubility for proppants 40/70 to 70/140 = 3.0% (ISO/DIS 13503-2/Amd.1:2009)

Tested as per ISO 13503-2:2006/API RP19C:2008, 100ml of 12:3 HCl:HF* with 5 grams of sand or proppant at 150ºF for 30 minutes,
*Other acids may be specified, depending on desired application

ISO 13503-2:2006/API RP19C:2008, Section 9, "Turbidity Test"

Turbidity = 12 NTU

Method 1: Turbidity, suggested maximum proppant turbidity = equal or less than 250 NTU (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 10, "Procedures for Determining Proppant Bulk Density, Apparent Density"

Bulk Density =	**1.35**	**g/cm^3**
Bulk Density =	**84.2**	**lb/ft^3**
Apparent Density = (Oil)	**2.63**	**g/cm^3**

ISO 13503-2:2006/API RP19C:2008, Section 11, "Proppant Crush-Resistance Test"

Stresses Tested (psi)	***% Fines -40+70 crush prep***
4000	**7.4%**
5000	**10.6%**
K-Value =	**4K**

The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

Table 3

Sample ID: A70140
Corus Exploration Corp.
July 2, 2018

Measurement of Properties of Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations

ISO 13503-2:2006/API RP19C:2008, Section 7, "Proppant Sphericity and Roundness"

* mean of a 20 count

Sphericity = 0.7
Roundness = 0.5
Clusters = None Observed in Field of Count

*This sample does not meet the minimum recommended roundness per API RP19C:2008

Recommended Sphericity and Roundness for proppants = 0.6 or greater (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 8, "Acid Solubility"

* mean of 3 analyses

Acid Sol. Percent = 0.9%

Recommended Maximum Acid Solubility for proppants 40/70 to 70/140 = 3.0% (ISO/DIS 13503-2/Amd.1:2009)

Tested as per ISO 13503-2:2006/API RP19C:2008, 100ml of 12:3 HCI:HF* with 5 grams of sand or proppant at 150ºF for 30 minutes,
*Other acids may be specified, depending on desired application

ISO 13503-2:2006/API RP19C:2008, Section 9, "Turbidity Test"

Turbidity = 9 NTU

Method 1: Turbidity, suggested maximum proppant turbidity = equal or less than 250 NTU (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 10, "Procedures for Determining Proppant Bulk Density, Apparent Density"

Bulk Density = 1.28 g/cm^3
Bulk Density = 79.9 lb/ft^3

Apparent Density = (Oil) 2.63 g/cm^3

ISO 13503-2:2006/API RP19C:2008, Section 11, "Proppant Crush-Resistance Test"

Stresses Tested (psi)	***% Fines -70+140 crush prep***
5000	9.7%
6000	14.6%
K-Value =	5K

The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

Stim-Lab
A CORE LABORATORIES COMPANY

Table 4

Sample ID: M2040
Corus Exploration Corp.
July 2, 2018

Measurement of Properties of Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations

ISO 13503-2:2006/API RP19C:2008, Section 7, "Proppant Sphericity and Roundness"

* mean of a 21 count

Sphericity = **0.8**
Roundness = **0.8**
Clusters = **Approx.1 of Every 100 Grains Contained Clusters**

Recommended Sphericity and Roundness for proppants = 0.6 or greater (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 8, "Acid Solubility"

* mean of 3 analyses

Acid Sol. Percent = **0.5%**

Recommended Maximum Acid Solubility for proppants 6/12 thru 30/50 = 2.0% (ISO/DIS 13503-2/Amd.1:2009)

Tested as per ISO 13503-2:2006/API RP19C:2008, 100ml of 12:3 HCl:HF* with 5 grams of sand or proppant at 150ºF for 30 minutes,
*Other acids may be specified, depending on desired application

ISO 13503-2:2006/API RP19C:2008, Section 9, "Turbidity Test"

Turbidity = **39** **NTU**

Method 1: Turbidity, suggested maximum proppant turbidity = equal or less than 250 NTU (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 10, "Procedures for Determining Proppant Bulk Density, Apparent Density"

Bulk Density = **1.48** **g/cm^3**
Bulk Density = **92.4** **lb/ft^3**

Apparent Density = (Oil) **2.64** **g/cm^3**

ISO 13503-2:2006/API RP19C:2008, Section 11, "Proppant Crush-Resistance Test"

Stresses Tested (psi)	***% Fines*** ***-20+40 crush prep***
4000	**3.7%**
5000	**9.4%**
6000	**15.2%**
K-Value =	**5K**

The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

Table 5

Sample ID: M4070
Corus Exploration Corp.
July 2, 2018

Measurement of Properties of Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations

ISO 13503-2:2006/API RP19C:2008, Section 7, "Proppant Sphericity and Roundness"

* mean of a 20 count

Sphericity =	**0.7**
Roundness =	**0.6**
Clusters =	**Approx.1 of Every 75 Grains Contained Clusters**

Recommended Sphericity and Roundness for proppants = 0.6 or greater (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 8, "Acid Solubility"

* mean of 3 analyses

Acid Sol. Percent = **0.8%**

Recommended Maximum Acid Solubility for proppants 40/70 to 70/140 = 3.0% (ISO/DIS 13503-2/Amd.1:2009)

Tested as per ISO 13503-2:2006/API RP19C:2008, 100ml of 12:3 HCl:HF* with 5 grams of sand or proppant at 150ºF for 30 minutes,
*Other acids may be specified, depending on desired application

ISO 13503-2:2006/API RP19C:2008, Section 9, "Turbidity Test"

Turbidity = **5** **NTU**

Method 1: Turbidity, suggested maximum proppant turbidity = equal or less than 250 NTU (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 10, "Procedures for Determining Proppant Bulk Density, Apparent Density"

Bulk Density =	**1.41**	**g/cm^3**
Bulk Density =	**88.0**	**lb/ft^3**
Apparent Density = (Oil)	**2.64**	**g/cm^3**

ISO 13503-2:2006/API RP19C:2008, Section 11, "Proppant Crush-Resistance Test"

Stresses Tested (psi)	***% Fines -40+70 crush prep***
5000	**5.1%**
7000	**9.9%**
8000	**12.6%**
K-Value =	**7K**

The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

Table 6

Sample ID: M70140
Corus Exploration Corp.
July 2, 2018

Measurement of Properties of Proppants Used In Hydraulic Fracturing and Gravel-Packing Operations

ISO 13503-2:2006/API RP19C:2008, Section 7, "Proppant Sphericity and Roundness"

* mean of a 20 count

Sphericity =	**0.7**
Roundness =	**0.6**
Clusters =	**None Observed in Field of Count**

Recommended Sphericity and Roundness for proppants = 0.6 or greater (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 8, "Acid Solubility"

* mean of 3 analyses

Acid Sol. Percent = **0.9%**

Recommended Maximum Acid Solubility for proppants 40/70 to 70/140 = 3.0% (ISO/DIS 13503-2/Amd.1:2009)

Tested as per ISO 13503-2:2006/API RP19C:2008, 100ml of 12:3 HCl:HF* with 5 grams of sand or proppant at 150ºF for 30 minutes,
*Other acids may be specified, depending on desired application

ISO 13503-2:2006/API RP19C:2008, Section 9, "Turbidity Test"

Turbidity = **4** **NTU**

Method 1: Turbidity, suggested maximum proppant turbidity = equal or less than 250 NTU (ISO/DIS 13503-2/Amd.1:2009)

ISO 13503-2:2006/API RP19C:2008, Section 10, "Procedures for Determining Proppant Bulk Density, Apparent Density"

Bulk Density =	**1.33**	**g/cm^3**
Bulk Density =	**83.0**	**lb/ft^3**
Apparent Density = (Oil)	**2.64**	**g/cm^3**

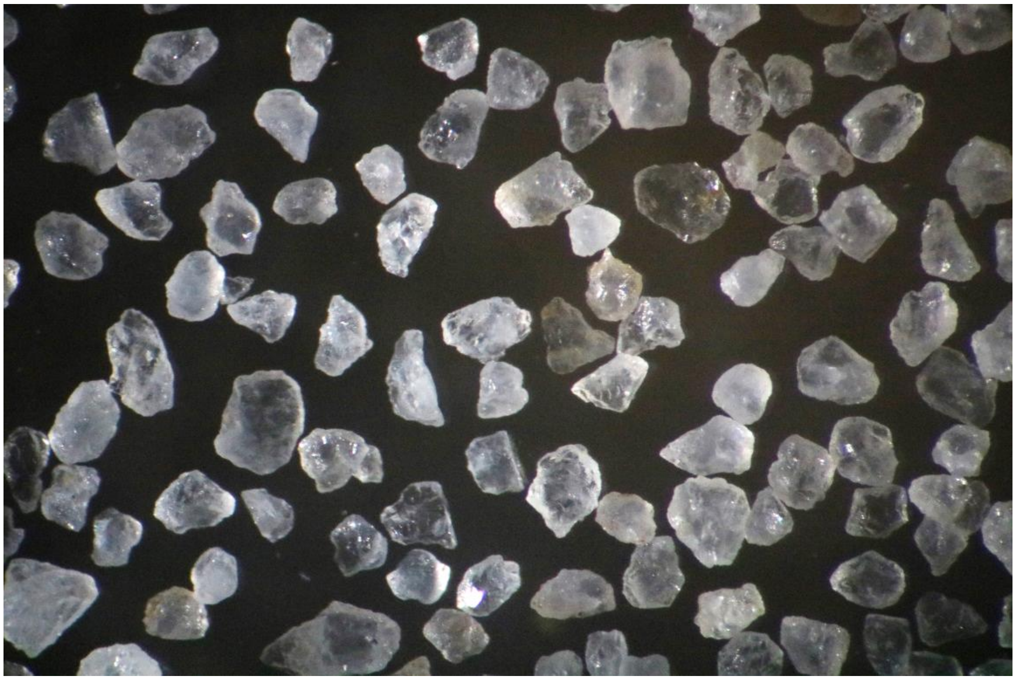
ISO 13503-2:2006/API RP19C:2008, Section 11, "Proppant Crush-Resistance Test"

Stresses Tested (psi)	***% Fines -70+140 crush prep***
5000	**3.2%**
8000	**8.4%**
9000	**11.4%**
K-Value =	**8K**

The highest stress level which proppant generates no more than 10% crushed material, rounded down to the nearest 1000psi = K-Value

A2040

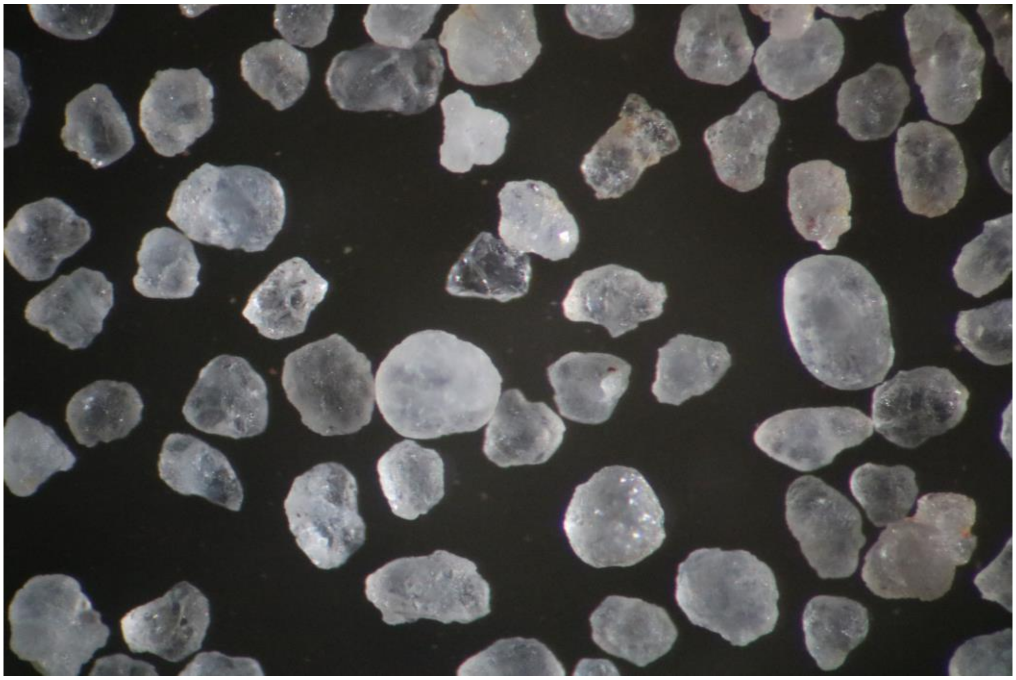
A4070



A70140

M2040

M4070



M70140