Geological and Geochemical Report

On the

Kiev Property

North Yukon

KV19 - KV38

Grant Number YF81679 - YF81698

NTS Sheet 116I16

Centered at 441230mE, 7406200Mn (NAD83 UTM Zone 8)

Dawson Mining District

Property Owner: Tao Song

Word Performed by: Tao Song

Work Period: Aug 21-26, 2019 & July 14-15, 2020

Report Author: Tao Song

Nov 15, 2020

TABLE OF CONTENTS

LIST OF FIGURES ..... **II**

LIST OF TABLES ..... **II**

SUMMARY ..... **III**

1 INTRODUCTION **1**

2 PROPERTY DESCRIPTION AND LOCATION **2**

2.1 PROPERTY LOCATION AND DESCRIPTION 2
2.2 MINERAL CLAIMS DESCRIPTION 3

3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY **5**

3.1 ACCESSIBILITY 5
3.2 CLIMATE 5
3.3 LOCAL RESOURCES AND INFRASTRUCTURES 5
3.4 PHYSIOGRAPHY 5

4 HISTORY **7**

5 GEOLOGICAL SETTING AND MINERALIZATION **8**

5.1 REGIONAL GEOLOGY 8
5.2 CANOL FORMATION AND VANADIUM VALUES AT TRAIL RIVER 9
5.3 PROPERTY GEOLOGY AND MINERALIZATION 10

6 DEPOSIT TYPES **11**

7 EXPLORATION **13**

7.1 EXPLORATION ON KV19-36 DURING AUG 21-25, 2019 13
7.1.1 Sampling and Analytical Procedures *13*
7.1.2 XRF Calibration *14*
7.1.3 Rock Results by XRF *15*
7.1.4 Comments on Rock Sampling and Portable XRF *15*
7.1.5 Drone Photogrammetry *16*
7.2 EXPLORATION ON KV37-38 DURING JULY 14-15, 2020 17
7.2.1 Sampling and Analytical Procedures *17*
7.2.2 XRF calibration *17*
7.2.3 Rock Sample Results by XRF *18*
7.2.4 Comments on Rock Sampling *18*
7.2.5 Drone Photogrammetry *18*

8 METALLURGICAL TESTS **20**

8.1 COMPOSITE PREPARATION 20
8.2 SEM ANALYSIS 20
8.3 ACID LEACHING TEST 21

9 INTERPRETATION & CONCLUSIONS **23**

10 RECOMMENDATIONS **23**

REFERENCES **24**

STATEMENT OF QUALIFICATION **25**
APPENDIX I - STATEMENT OF EXPENDITURE **26**
APPENDIX II - SAMPLE DESCRIPTION AND XRF RESULTS ON KV19-36 ..... **29**
APPENDIX III - ROCK SAMPLE ID AND RESULTS ON KV19-36 ..... **33**
APPENDIX IV - SAMPLE DESCRIPTION AND XRF RESULTS ON KV37-38 ..... **35**
APPENDIX V - MINERALOGY REPORT BY BUREAU VERITAS **38**
APPENDIX VI - ACID LEACHING TEST REPORT **47**
APPENDIX VII - REGIONAL GEOLOGY **64**

LIST OF FIGURES

Figure 1. Kiev Property Location 2
Figure 2. Kiev Property Mineral Claims 4
Figure 3. Discontinuous Mounds and Richardson Mountains 6
Figure 4. Vanadium Values along the Trail River Section 9
Figure 5. Black Shale Chips 10
Figure 6. Dark Grey Cherty Shale (looking north) 10
Figure 7. Black Shale Hosted Vanadium 12
Figure 8. Rock Sample and XRF Reading 13
Figure 9. Vanadium Result Comparison - XRF vs Four Acid 14
Figure 10. Vanadium Values of Rock Samples on Property by XRF 15
Figure 11. Drone Photogrammetry on KV19-36 16
Figure 12. Statistics of Rock Samples Results 18
Figure 13. Rock Results on KV37-38 19
Figure 14. Vanadium Deportments 20
Figure 15. Vanadium Extraction Rate and Acid Concentration 21
Figure 16. L1 leachate Color 22
Figure 17. L2 & L3 leachate Color 22
Figure 18. L4 & L5 Leachate Color 22
Figure 19. Demonstrative Cross Section of Stratigraphy and V_2O_5 Values 23

LIST OF TABLES

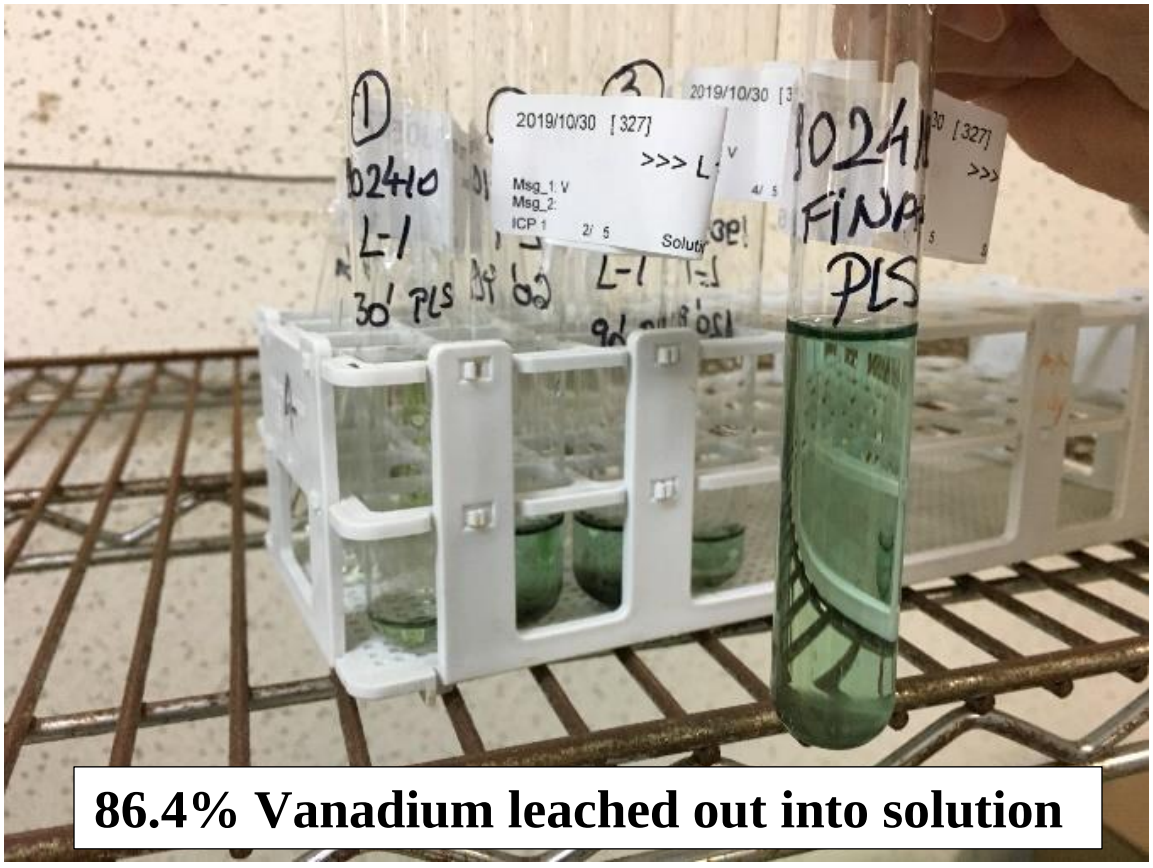
Table 1. KV Claims and Grant Numbers 3
Table 2. Sample Number and Location Summary 13
Table 3. Composite Sample Assay 20
Table 4. Acid Leaching Conditions 21

SUMMARY

The Kiev property consists of 20 mineral claims (KV19-38), located in the North Yukon. It is accessible by year-round well maintained Dempster Highway. Work was performed by Tao Song during Aug 21-26, 2019 and July 14-16, 2020, including geochemical sampling and drone photogrammetry. SEM analysis and acid leaching tests were conducted on the composited rock samples at Bureau Veritas, Vancouver.

A strike length of 4.5 kilometers of vanadium mineralization was identified by rock sampling on the property. SEM analysis on the composite sample proved that vanadium is mainly hosted in oxides. Acid leaching test achieved 86.4% vanadium recovery by using 1:3 sulphuric acid at 90°C for 2 hours.

It is recommended to conduct more exploration on surface and downdip to define vanadium resources and carry out more metallurgical test to improve vanadium extraction rates at a lower acid consumption ratio.



1 INTRODUCTION

Vanadium occurrences were identified during a regional prospecting in June 2019. Subsequent to the positive results of initial regional prospecting, 20 full-size contiguous mineral claims (KV19-KV38) were staked to cover the vanadium occurrences. Field work was performed in August 2019 and July 2020 to assess the vanadium mineralization over a strike length of 4.5km. Acid leaching testwork was aimed to provide preliminary results of vanadium recoveries.

2 PROPERTY DESCRIPTION AND LOCATION

2.1 Property Location and Description

Kiev property is located in North Yukon, approximately 23 km by road north of the Arctic Circle, 60 km by road north of Eagle Plains and 470 km by road north of Dawson City (Figure 1). The property is on the NTS 1:50,000 map sheet 116I-16. The center of the property is at latitude 66°46'8'' N and longitude 136°20'7'' W of NAD 83 datum.

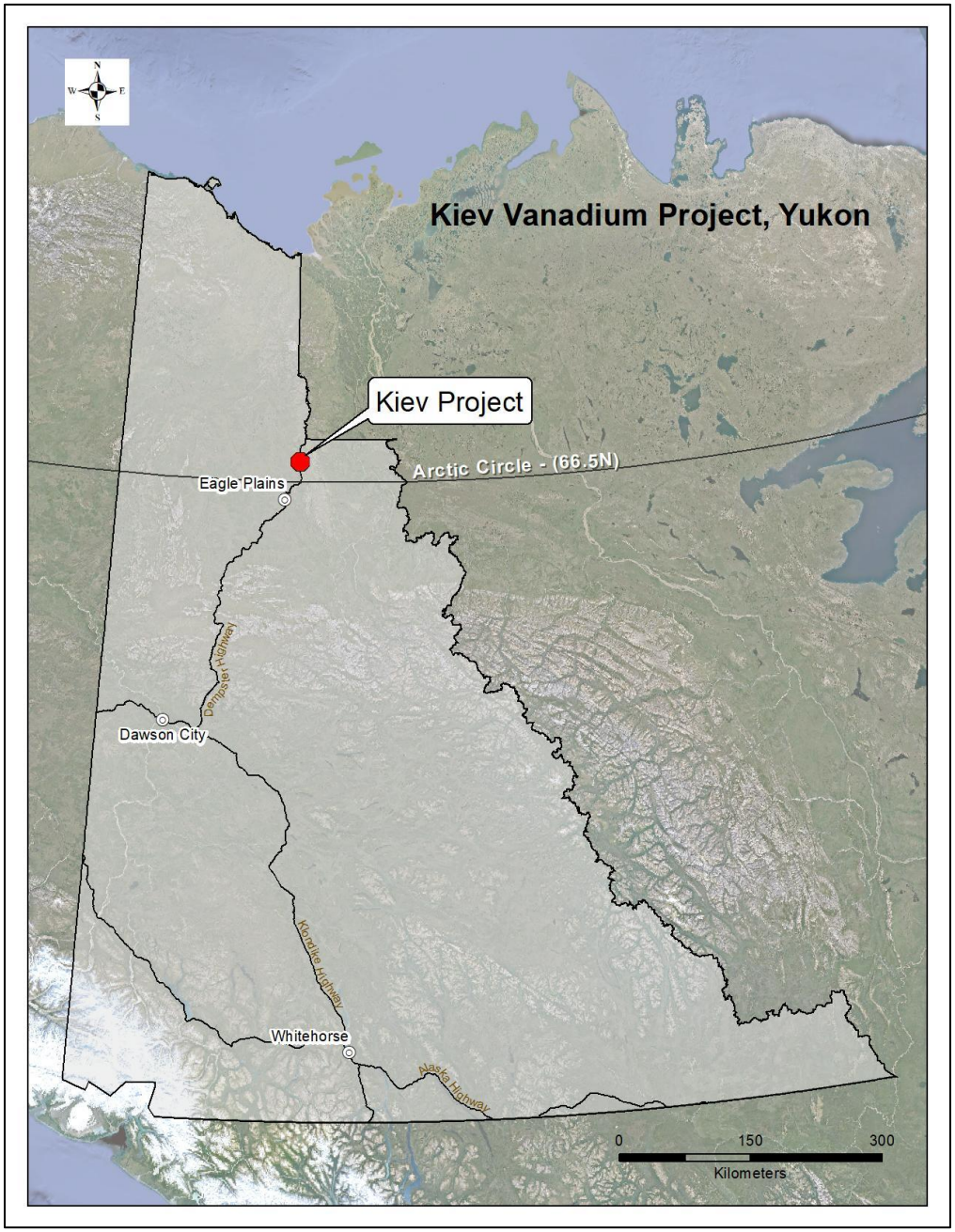


Figure 1. Kiev Property Location

2.2 Mineral Claims Description

Kiev property consists of 20 full-size contiguous mineral claims, totaling 4.18 km^2 (Figure 2). Claims were ground staked and registered at the Dawson Mining Recorder Office in August 2019. Table 1 shows the claim names, grant numbers, recorded dates, and ownership.

Table 1. KV Claims and Grant Numbers

GRANT_NUM	TENURE	Claim Name	Recorded Date	OWNER
YF81679	Quartz	KV 19	2019-08-21	Tao Song - 100%
YF81680	Quartz	KV 20	2019-08-21	Tao Song - 100%
YF81681	Quartz	KV 21	2019-08-21	Tao Song - 100%
YF81682	Quartz	KV 22	2019-08-21	Tao Song - 100%
YF81683	Quartz	KV 23	2019-08-21	Tao Song - 100%
YF81684	Quartz	KV 24	2019-08-21	Tao Song - 100%
YF81685	Quartz	KV 25	2019-08-21	Tao Song - 100%
YF81686	Quartz	KV 26	2019-08-21	Tao Song - 100%
YF81687	Quartz	KV 27	2019-08-21	Tao Song - 100%
YF81688	Quartz	KV 28	2019-08-21	Tao Song - 100%
YF81689	Quartz	KV 29	2019-08-21	Tao Song - 100%
YF81690	Quartz	KV 30	2019-08-21	Tao Song - 100%
YF81691	Quartz	KV 31	2019-08-21	Tao Song - 100%
YF81692	Quartz	KV 32	2019-08-21	Tao Song - 100%
YF81693	Quartz	KV 33	2019-08-21	Tao Song - 100%
YF81694	Quartz	KV 34	2019-08-21	Tao Song - 100%
YF81695	Quartz	KV 35	2019-08-21	Tao Song - 100%
YF81696	Quartz	KV 36	2019-08-21	Tao Song - 100%
YF81697	Quartz	KV 37	2019-08-26	Tao Song - 100%
YF81698	Quartz	KV 38	2019-08-26	Tao Song - 100%

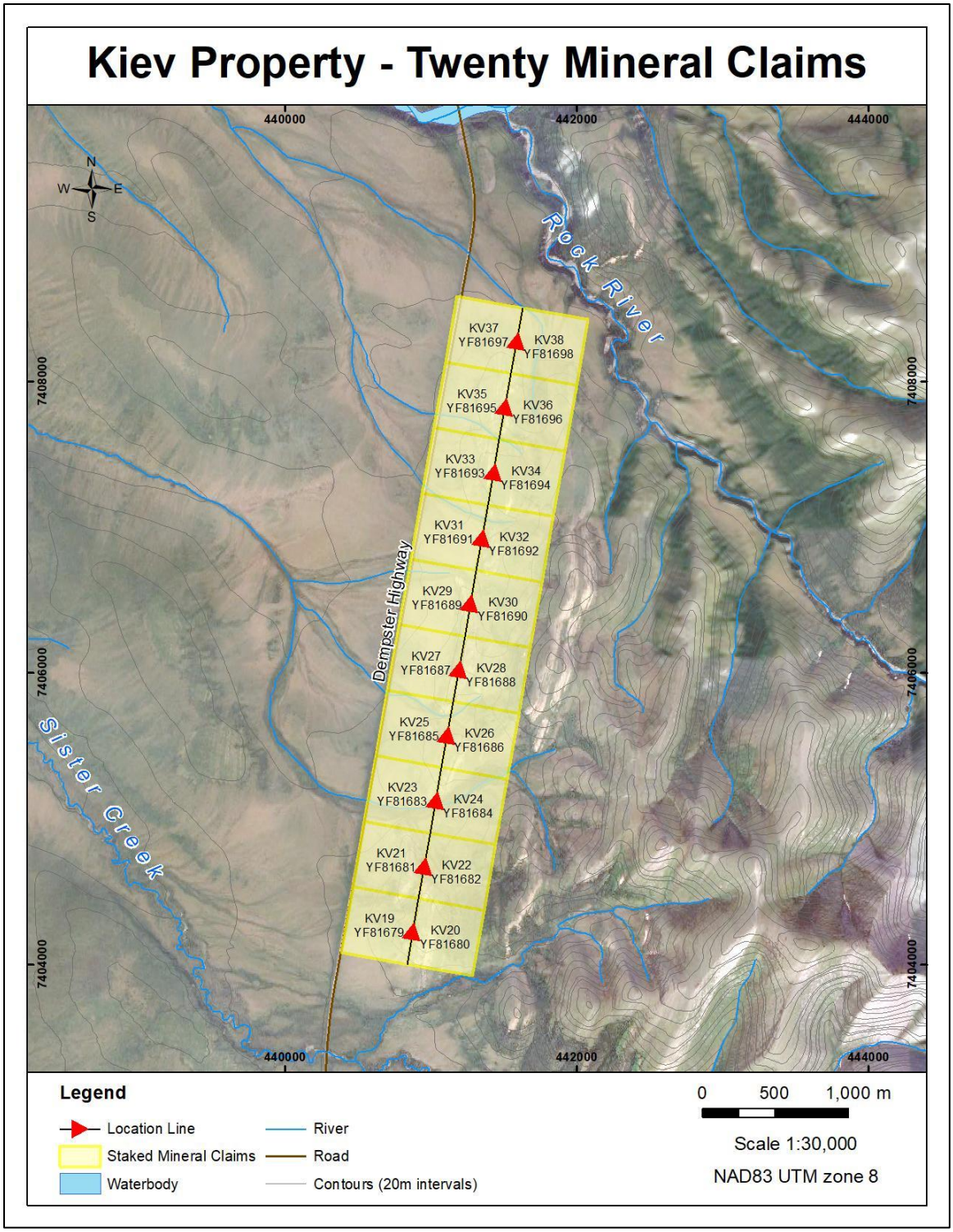


Figure 2. Kiev Property Mineral Claims

3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

3.1 Accessibility

The property is accessible by Dempster Highway. Dempster Highway is an all-weather year-round gravel road that connects the Canadian road network to Arctic Ocean.

The entrance of Dempster Highway is near the Klondike Highway 674 km post and 40 km east of Dawson City. Travel time from Dawson City to the Kiev property is approximately 6 hours over 470 km by road. Travelling from Eagle Plains to the site is about 50 minutes over 60 km by road.

3.2 Climate

The mean annual temperature for the Eagle Plains area is -6.5°C with a summer mean of 10°C and a winter mean of -23.5°C. Mean annual precipitation ranges 400-450 mm.

3.3 Local Resources and Infrastructures

The closest supply station is Eagle Plains in North Yukon, 60 km south of the property. It has a population of 10, and provides services of accommodation, restaurant, gas, car repairing and showing.

The second closest supply station is Fort McPherson in NWT, on the east bank of Peel River. It has a population of 700, and has convenience stores, gas stations and accommodation facilities. Rock River Campground is 12 km north of the property.

Dawson City has a population of 1300-1400, the second largest town of Yukon. Two helicopter companies are based in Dawson. Dawson City is connected to the provincial power grids and is the northernmost that power grids extend.

3.4 Physiography

The Kiev property is in the foothills of the western edge of Richardson Mountains. The main watercourses close to the property are Rock River to the north and Sister Creek to the south. The elevations on the property change mildly from 660 to 730 meters. A series of discontinuous mounds trending north was developed on the property and continue both north and south directions. To the east of the property, the elevation starts to gain from 700 to 1200 meters.

This region is classified as a high subarctic eco-climate. The vegetative cover of this ecoregion is subarctic forest. Open, often very stunted stands of black spruce and tamarack with secondary quantities of white spruce and ground cover of dwarf birch, willow, ericaceous shrubs, cotton grass, lichen, and moss, are predominant.

The region is largely covered by vegetations. Rock outcrops at water cuts or at gravel pits. Gravel pits are found along the highway (Figure 3). A total of eleven gravel pits from Eagle Plains to the Yukon border were numbered in the field for future reference.

Figure 3. Discontinuous Mounds and Richardson Mountains

4 HISTORY

The Eagle Plains area was assessed for mineral potentials by Yukon Geological Survey in 1997 (Heon, 2006). One rock sample was taken on the Kiev property but returned low metal grades.

Shawn Ryan in 2005 explored for the nickel bearing horizon in the vicinity of the property area. Fifteen soil samples north of Rock River returned V_2O_5 higher than 0.2%.

Strategic Metals staked the Fox and NiMo Sum property in 2006, 4 km north of the Kiev property. In 2007, seven diamond holes were drilled on NiMo Sun and White Fox showings to determine the downdip extension of the Nick horizon from surface. 50 samples were sent for analysis at ALS, and 30 of them contained more than 0.2% V_2O_5, the highest being 0.62%. Since Strategic Metals was focused on nickel and zinc, sampling was performed on the Nick horizon only. Vanadium was overlooked, and no samples were taken on high vanadium intervals.

NiMo Sun and White Fox claims expired in 2012 and Strategic Metals let them lapse. DVY196 staked these claims in 2018.

Oil was discovered in the Eagle Plain basin in 1959. Extensive exploration for petroleum was incurred in the 1960s, with 33 wells were drilled and hydrocarbon reserves defined (Osadetz, 2005). No production was made.

5 GEOLOGICAL SETTING AND MINERALIZATION

5.1 Regional Geology

The region is underlain by three lithological units (Appendix VII):

1) Imperial Formation: an Upper Devonian–Mississippian, marine, siliciclastic unit overlying the Canol Formation

2) Canol Formation: a Middle-Upper Devonian dark grey to black, soft to very hard, non-calcareous black shale (Fraser, 2013)

3) Road River Group: a thick succession of calcareous shale unit underlying the Canol Formation (Fraser, 2013)

The contact between the Canol Formation and Road River Group is marked by Ni-Zn-PGE mineralization, named Nick horizon.

The Kiev property lies along the western margin of the Richardson Mountains. Episodic reactivation of the Richardson Fault Array in Early and Middle Paleozoic formed a north- to northwest-trending intracratonic depression known as the Richardson Trough.

Richardson Mountains coincide with the location of the former early to middle Paleozoic Richardson trough (Lentz, 1972). The trough was a north-south oriented deep-water sedimentary basin flanked by carbonate shelves, Mackenzie Platform to the east and Porcupine Platform to the west (Jeletzky, 1962), that existed from Cambrian to Devonian time. The trough was inverted into a faulted, north-plunging anticlinorium by the reactivation of Paleozoic faults in Late Cretaceous and Tertiary time (Norris, 1997), resulting in the mountain range observed today.

5.2 Canol Formation and Vanadium Values at Trail River

Tiffani Fraser, of Yukon Geological Survey, measured and analyzed a section of 261m along the Trail River in 2013. Canol Formation outcrop is situated on the north bank of the Trail River, on the eastern flank of the Richardson Mountains.

The section starts from Road River Group, go to the Road River – Canol Transition zone, through the main body of the Canol Formation, into the Imperial Formation.

The Road River – Canol Transition zone is about 3 meters thick. It is known to contain the Nick horizon. Nick horizon is cherty, phosphorus, with elevated nickel and zinc. At the transition zone, vanadium content is elevated from 80 ppm to 600 ppm (Fraser, 2013). Highest vanadium values are found in the lower half of the Canol Formation and above the transition zone, 50-meter-thick averaging 0.22% V_2O_5 (Figure 4).

Road River Group and Imperial Formation contain vanadium values between 20 and 200ppm, significantly lower than Canol Formation.

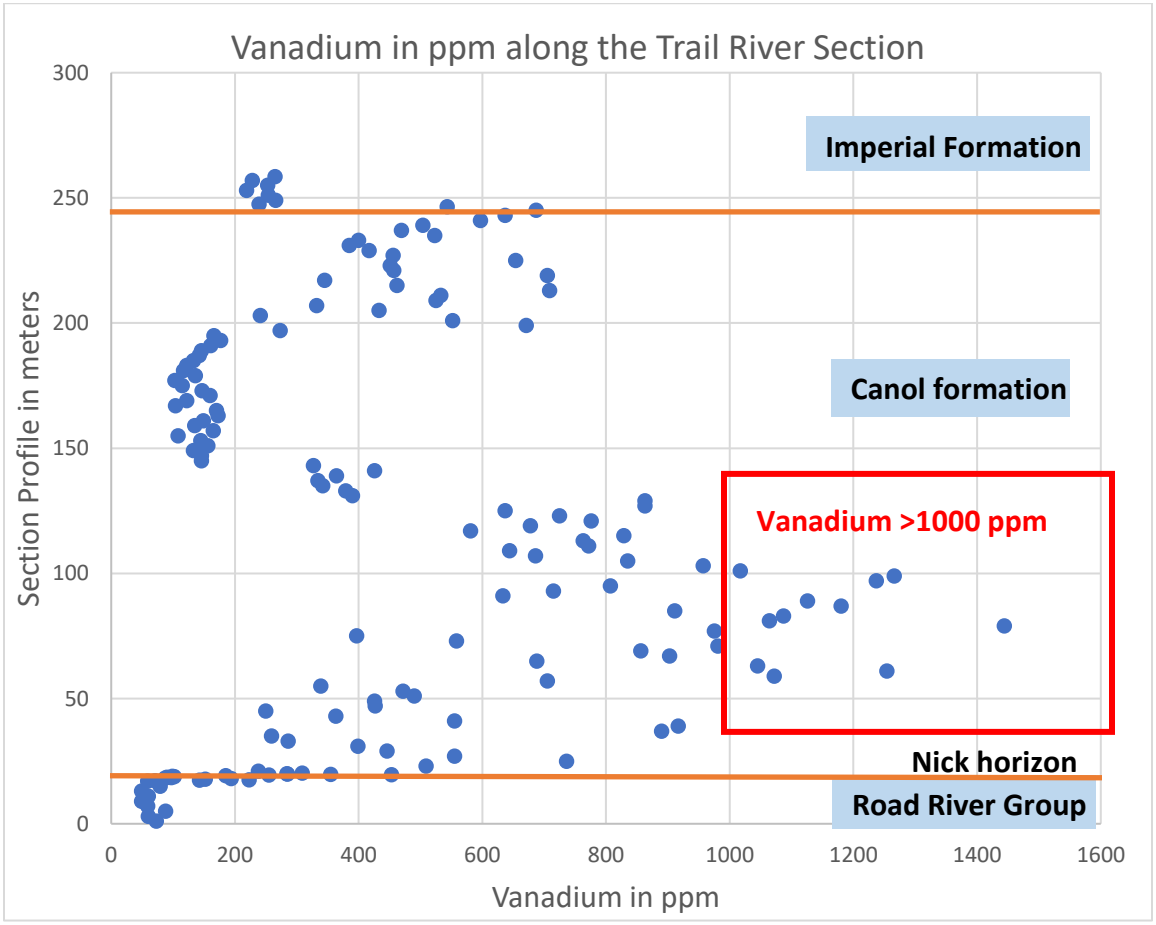


Figure 4. Vanadium Values along the Trail River Section

5.3 Property Geology and Mineralization

The Kiev property is underlain by Canol Formation that is characteristic of cherty organic rich non-calcareous black shale, dipping west 15-25°. Rocks outcrop or sub-crop at water cuts and gravel pits. The outcropped shale is commonly broken down into small angular pieces in sizes of 2-10 cm (Figure 5).

Canol Formation is composed of cherty shale with varying amount of silica. The very bottom of Canol Formation is almost grey to dark grey chert, containing vanadium lower than detection limit. On top of the chert unit is dark grey to black organic rich cherty shale, hosting V_2O_5 in the range of 0.1 to 0.5%. When weathered, rock surface becomes light grey, with some dark grey color in background. Overlying the vanadium rich unit is cherty shale. This unit has high silica content and serves as a cap to protect the organic rich cherty shale unit. Discontinuous mounds east of Dempster Highway are made of this competent unit, while the depression east of mounds is made of organic rich cherty shale, covered by vegetations. Figure 6 shows the sub-cropped dark grey cherty shale on discontinuous mounds (water cuts).

Figure 5. Black Shale Chips

Within the organic rich cherty shale, vanadium values are high in the core and degrades upwards and downwards. This observation on the property is consistent analytical results at Trail River by Tiffani Fraser.

Figure 6. Dark Grey Cherty Shale (looking north)

6 DEPOSIT TYPES

There are four types of vanadium deposits identified in the world: 1) Ti-V magnetite, 2) sandstone hosted vanadium, 3) black shale hosted vanadium, and 4) vanadate.

Kiev prospect belongs to the category of black shale hosted vanadium. This type of deposits is also found in China, US, Australia, Sweden and Madagascar (Figure 7). China has a number of shale host vanadium mines in production.

Black shale vanadium deposits are believed to have formed by direct precipitation of vanadium from seawater. This method of mineralization is similar to the processes which form syngenetic copper or iron deposits. Typically, a restricted basin develops containing seawater, which was already enriched with vanadium. Over time, evaporation or deep-water stagnation enriches the vanadium content within a primarily reducing environment and the vanadium precipitates out as the siliceous sediments are deposited in a low energy environment. Vanadium is commonly bound with Fe or Mn oxides or with kerogen. Subsequent oxidation and remobilization of the vanadium can occur.

Vanadium is thought to have originally formed in a deep, restricted marine basin associated with the depositional environment of the western assemblage lithologies. It is interpreted that the vanadium was concentrated into laterally relatively continuous shale units by precipitation, absorption and evaporation processes as the restricted basin filled, evaporated and concentrated the seawater into salts.

The sedimentary environment was the primary control on mineralization. The mineralization is tabular, stratigraphically controlled and appears to follow the strike and dip of the host shale.

Adsorption and precipitation under optimum environmental conditions must have been important in precipitating these constituents from sea water. Most of the anomalous organic shale deposits are marine. Some black shale contains multiple metals with elevated sub-economic to economic quantities. The majority of black shale in the world has no economically viable metal anomalies. The metals in black shale appear to have had little direct association or genetic affiliation with volcanism or hydrothermal processes. Much of the organic content is kerogen, and some shale bodies have been examined for hydrocarbon resources, such as Canol Formation and Road River Group.

The vanadium-rich shale-hosted stratigraphic units are visually indistinguishable from the unmineralized shale units above and below. There do not appear to be any lithological or physical markers in the shale sequence which indicate areas of mineralization. All the mineralized zones shall be defined by chemical analysis.

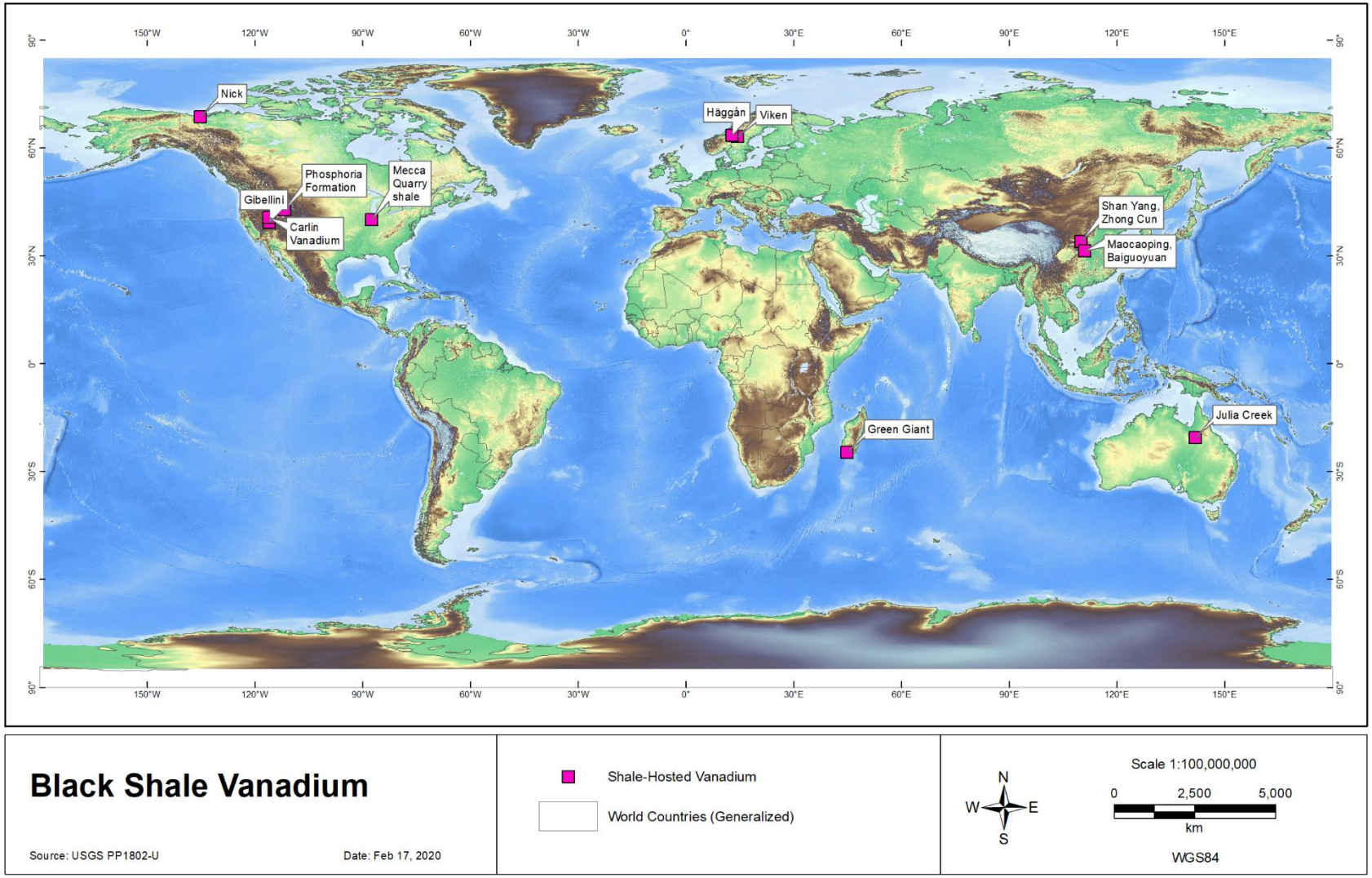


Figure 7. Black Shale Hosted Vanadium

7 EXPLORATION

Exploration on the Kiev property was performed in two episodes:

1) Aug 21-25, 2019 on KV 19-36

2) July 14-15, 2020 on KV 37-38

7.1 Exploration on KV19-36 during Aug 21-25, 2019

One-person crew travelled from Whitehorse to Eagle Plains which was then used as the daily base. Daily commute to the property is by truck driving along the Dempster Highway to perform the field work.

121 rock samples were taken on and adjacent to mineral claims KV19-36 during Aug 21-25, 2019. Drone photogrammetry was engaged to cover the rock sampling area.

7.1.1 Sampling and Analytical Procedures

A total of 121 rock samples were taken on or adjacent to the property, as summarized in Table 2. Sample locations were recorded by a handheld GPS in UTM zone 8 coordinates. Sample stations were not flagged in the field.

Table 2. Sample Number and Location Summary

Location	Number of Samples
On property	98
Adjacent to the property	23

Rock samples are very angular, flaky to platy, in sizes of centimeters, common on mounds and interstitially exposed where vegetations are thin. Four to five pieces of rock samples were collected at each sample station (Figure 8). They were placed into zip lock bags and were analyzed in the field by a portable Olympus Vanta XRF analyzer for vanadium values.

Portable XRF was calibrated for vanadium values by applying the formula Y = 1.6291x - 11.554. Sample surfaces were cleared off soils, moisture, and mosses. No crushing or grinding was applied on rock samples. Each sample received at least 2 readings, but only the first reading was recorded on the field book and Tyvek tag.

Figure 8. Rock Sample and XRF Reading

7.1.2 XRF Calibration

XRF calibration was performed on 40 pulps. Pulps were prepared from 40 rock samples that were collected during the regional prospecting in June 2018. Rock samples were prepared at ALS Whitehorse using the code PREP-31. Samples were crushed to 70% less than 2mm, riffle split off 250 grams, and pulverized to 85% passing 75 microns. Prepared samples were sent to ALS Vancouver for chemical analyses using the 48-element four acid method ME-MS61.

V_2O_5 values from assaying and XRF testing are plotted in Figure 9. A near perfect trend line is projected. No outliners exist. The formula Y=1.6291x-11.554 is used to calibrate the XRF for field use.

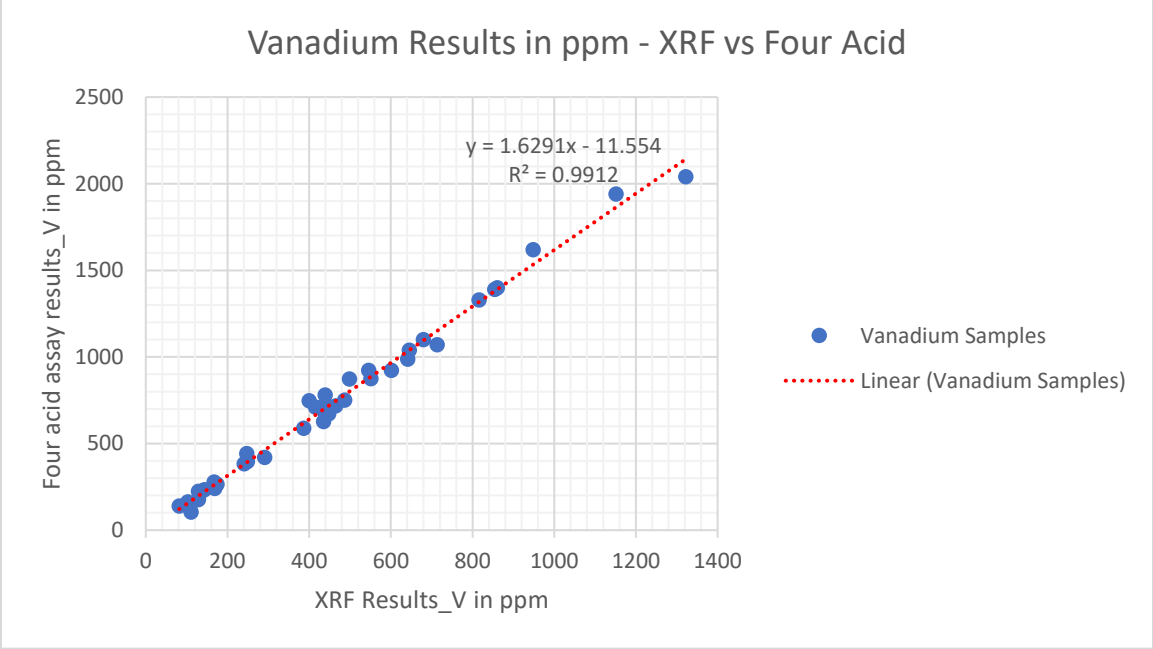


Figure 9. Vanadium Result Comparison - XRF vs Four Acid

The downside of XRF analysis is that it only reads on a small portion of rock and its values do not represent the whole rock. In the metallurgical test, surface rock samples were made into one composite returning 0.32% V_2O_5, 25% higher than that of the averaged XRF value of the same batch of rocks (0.254% V_2O_5). Even though XRF results are lower and less representative, the immediate analytical results guide the exploration to the right direction.

7.1.3 Rock Results by XRF

Rock sample description and locations are provided in Appendix II. Rock sample results are plots and provided in Appendix III.

Of 98 rock samples on the property, 33 samples contain V_2O_5 between 0.2 and 0.3% and 9 samples contain V_2O_5 between 0.3 and 0.6% (Figure 10).

Immediately to the east of the property is underlain by chert, returning vanadium values lower than detection limit.

Immediately to the north and south of the property contains V_2O_5 0.1-0.3% and is the continuation of the vanadium mineralization.

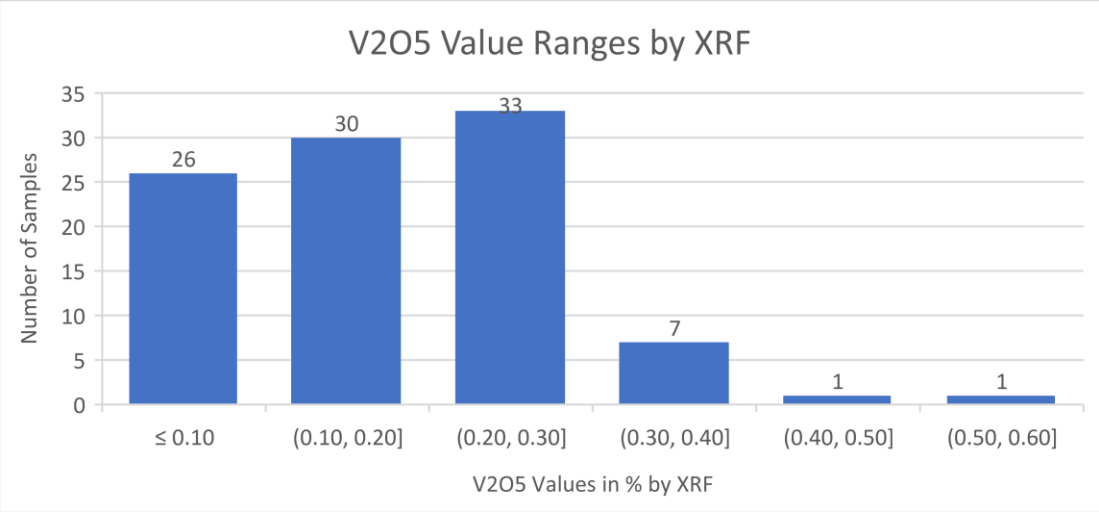


Figure 10. Vanadium Values of Rock Samples on Property by XRF

7.1.4 Comments on Rock Sampling and Portable XRF

Rock exposure is largely found at water cuts and gravel pits. Elsewhere is covered by dense vegetation, which made rock sampling difficult.

98 rock samples on property were randomly collected, more or less forming a N-S trend line. This reflects rock exposure and geology. Higher grade vanadium bearing rocks are in general carbon rich, thus softer in comparison to overlying and underlying rock units. The nature of softness made the unit vulnerable to weathering and tends to form a low land fringed by competent cherty unit. Vegetation grows vastly at the low land and obscure the trace of vanadium-bearing unit.

XRF readings on the same rock but at different test spots yielded different V_2O_5 values. The difference is common and can be up to 1-2 times higher or lower. This reflects a strong nugget effect of vanadium mineralization. Averaging multiple XRF readings on the same rock was not practiced. The goal of this phase of exploration is to identify a mineralized zone, rather than quantitatively estimating the grade.

An effective approach to collect samples should be developed in future programs.

7.1.5 Drone Photogrammetry

Drone photogrammetry was performed to cover the extent of KV19-36. Drone images were processed in Pix4D to produce an orthophoto (Figure 11).

High resolution orthophoto is provided in the digital data folder.

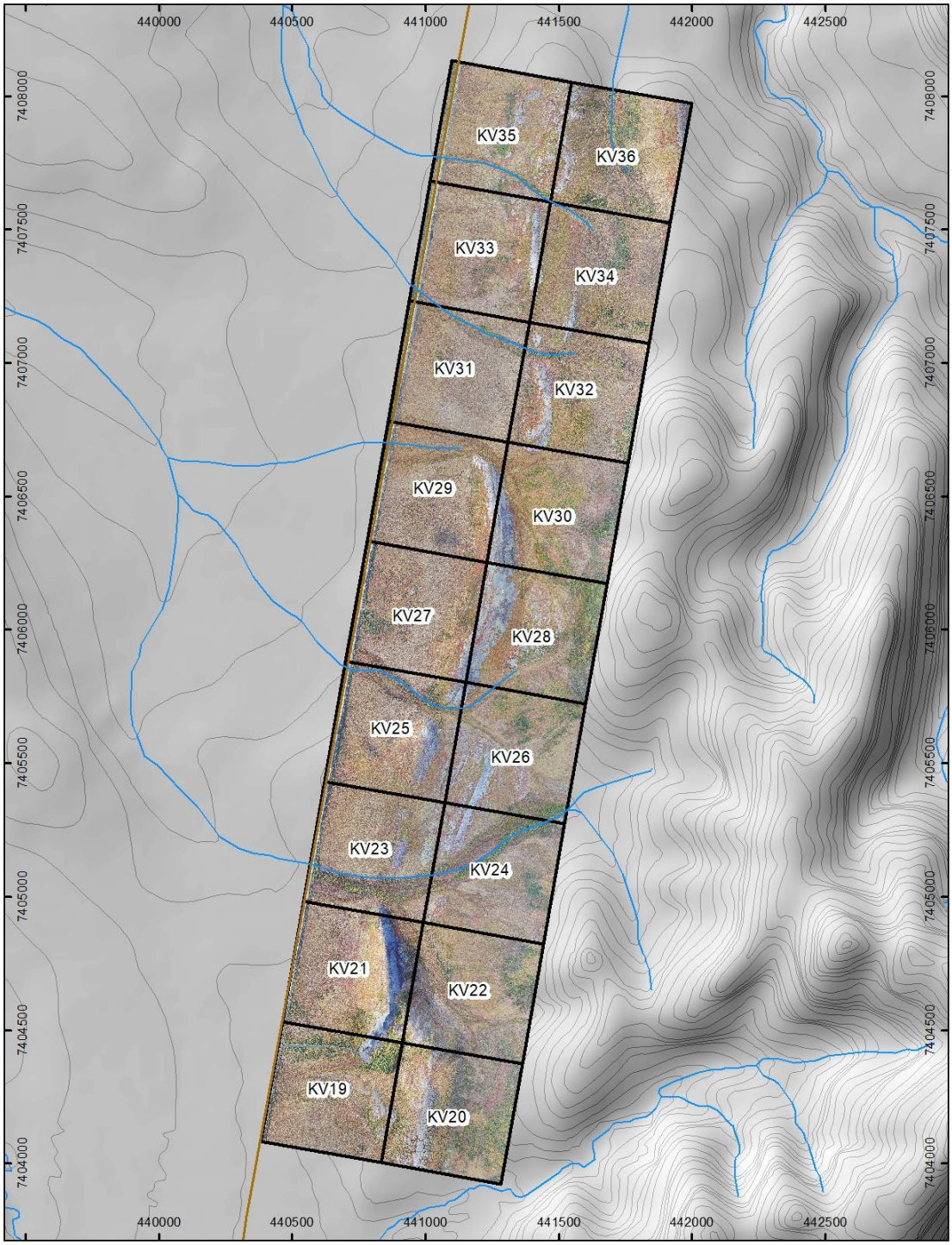


Figure 11. Drone Photogrammetry on KV19-36

7.2 Exploration on KV37-38 during July 14-15, 2020

45 rock samples were taken on mineral claims KV37-38 during July 14-15, 2020. Drone photogrammetry was engaged to cover the rock sampling area.

One-person crew travelled from Whitehorse to Eagle Plains which was then used as the daily base. Daily commute to the property is by truck driving along the Dempster Highway to perform the field work.

7.2.1 Sampling and Analytical Procedures

A total of 45 rock samples were taken on mineral claims KV37-38. Sample locations were recorded by a handheld GPS in UTM zone 8 coordinates. Sample stations were not flagged in the field.

Rock samples are very angular, flaky to platy, in sizes of centimeters, common on mounds and interstitially exposed where vegetations are thin. Four to five pieces of rock samples were collected at each sample station. They were placed into zip lock bags and were analyzed in the field by a portable Niton xl3t XRF analyzer for vanadium values.

Sample surfaces were cleared off soils, moisture, and mosses. No crushing or grinding was applied on rock samples. Each sample received at least 2 readings, but only the first reading was written on the field book and Tyvek tag.

7.2.2 XRF calibration

Niton xl3t portable XRF analyzer was hired for field work. Calibration was performed on 40 pulps. Pulps were prepared from 40 rock samples that were collected during the regional prospecting in June 2018. Rock samples were prepared at ALS Whitehorse using the code PREP-31. Samples were crushed to 70% less than 2mm, riffle split off 250 grams, and pulverized to 85% passing 75 microns. Prepared samples were sent to ALS Vancouver for chemical analyses using the 48-element four acid method ME-MS61.

XRF results approximate four acid results closely, with less than 5% difference in vanadium values. Therefore, no manual calibration is required.

7.2.3 Rock Sample Results by XRF

Of 45 rock samples on the KV37-38, 25 samples contain V_2O_5 between 0.3 and 0.7% (Figure 12).

Rock sample description and locations are provided in Appendix IV. Rock sample results are ploted in Figure 13.

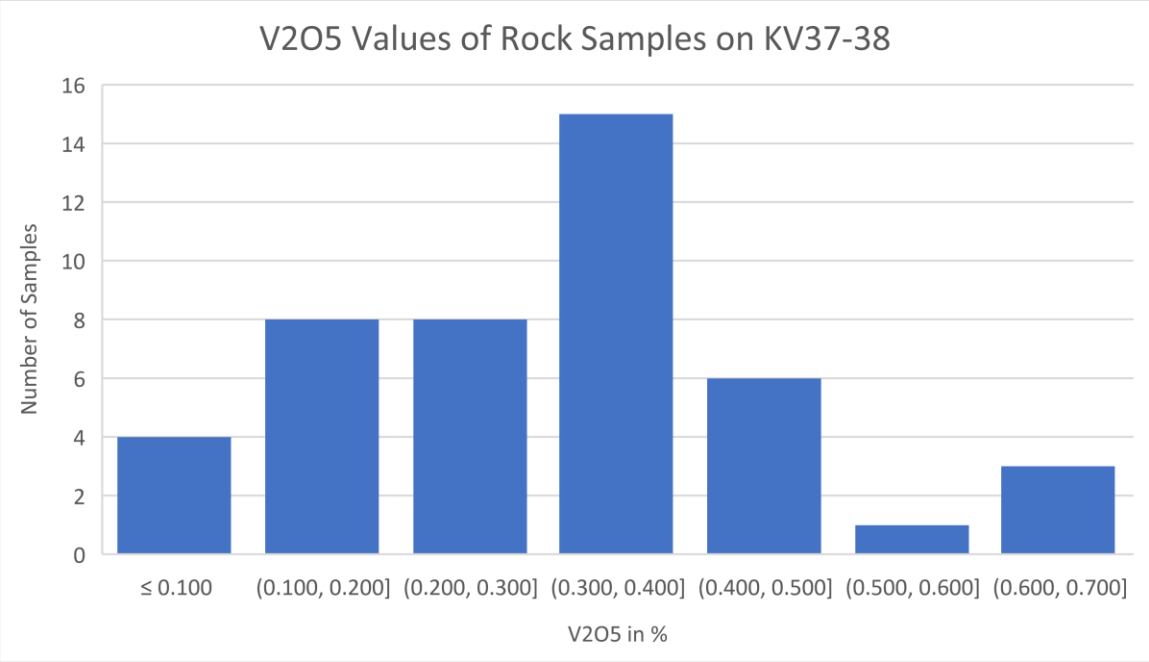


Figure 12. Statistics of Rock Samples Results

7.2.4 Comments on Rock Sampling

V_2O_5 grades of samples on KV37-38 are on average much higher than those on KV19-36. This reflects the changes in sampling technique and difference in XRF equipment.

Instead of random rock sampling, a tight grid of 25m interval spacing was chosen. Two traverse lines are oriented W-E to cross the mineralized zone. Sampling stopped at the eastern most where dense vegetation and poor rock exposure prohibited the work. A more prominent factor of achieving higher V2O2 grades is because of XRF equipment. In the metallurgical test, 50 surface rock samples were made into one composited sample returning 0.321% V_2O_5, which is 25% higher than that of the averaged XRF values of the same batch of rocks (0.254% V_2O_5 by portable XRF).

7.2.5 Drone Photogrammetry

Drone photogrammetry was performed to cover the area of KV37-38. Drone images were processed in Pix4D to produce an orthophoto (Figure 13).

High resolution orthophoto is provided in the digital data folder.

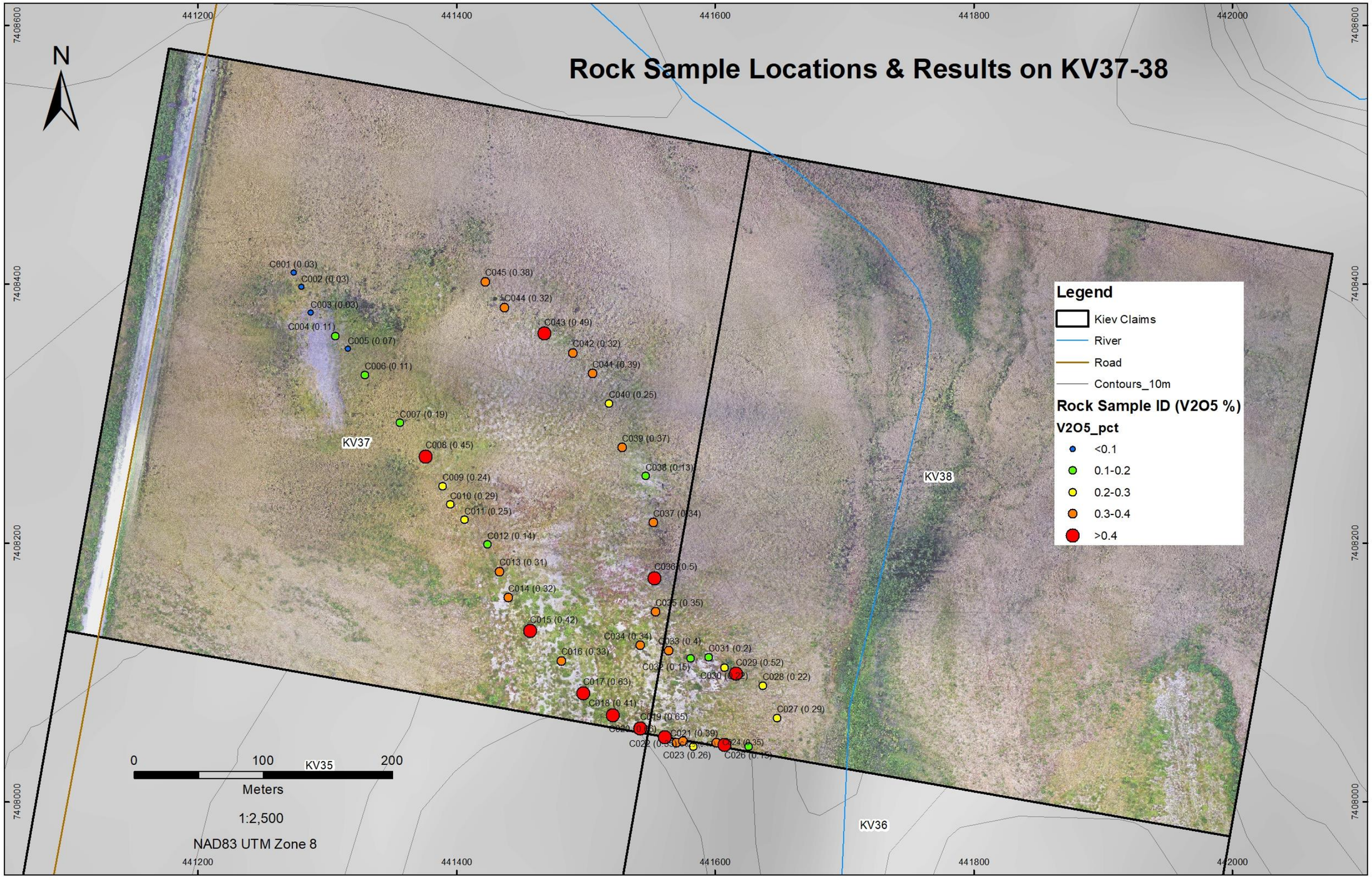


Figure 13. Rock Results on KV37-38

8 METALLURGICAL TESTS

Owing to the positive results from rock sampling in August, preliminary metallurgical testwork was commissioned. Acid leaching test and mineralogical studies were undertaken by Bureau Veritas over the period of Nov 2019 to Mar 2020.

8.1 Composite Preparation

50 surface rock samples were submitted to Bureau Veritas for preliminary acid leaching test. They have V_2O_5values from 0.14-0.55%, averaged at 0.254% $V_2O_5$by portable XRF, and are weighed at about 7-8 kg. These samples were combined into one composite sample, crushed, and pulverized to 80% passing 42 microns. The composite was assayed at 0.321% V_2O_5.

Whole rock chemical analysis (code XF701) was used to determine the head grade (Table 3).

Table 3. Composite Sample Assay

Sample ID	Al2O3	CaO	Fe2O3	MgO	SiO2	V_2O_5_%	ZnO %
Composite	3.99	1.4	1.18	0.36	84.35	0.321	0.063

8.2 SEM Analysis

The composited rock sample was submitted for SEM analysis. Vanadium content of the composite (the 2nd column in Figure 14) is mostly hosted in oxides, such as goethite, paramonoseite, and tivanite. This reflects surface weathering and oxidation.

The SEM report is included in Appendix V.

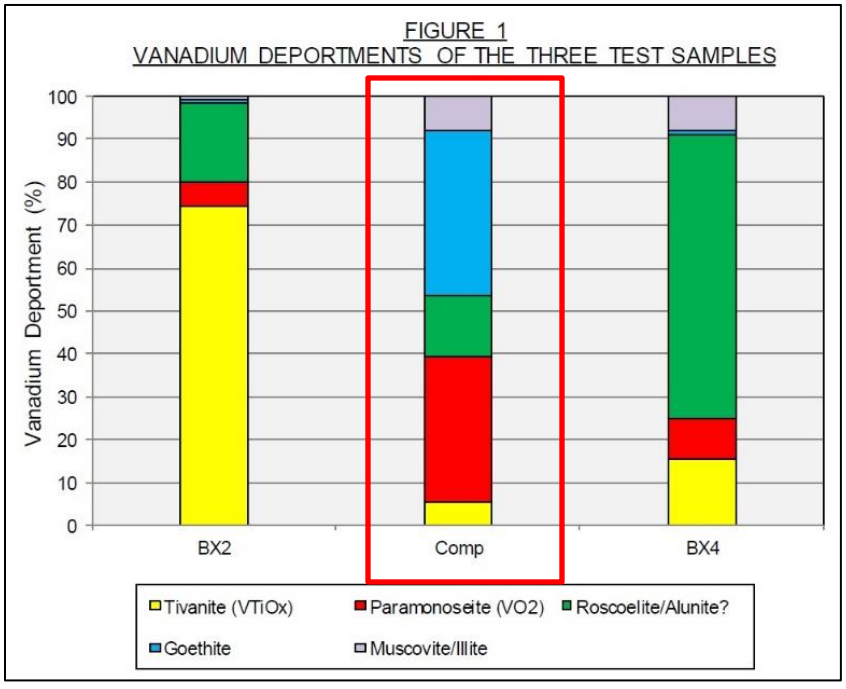


Figure 14. Vanadium Deportments

8.3 Acid Leaching Test

The material for leaching test is exclusively from the composite of 50 surface rock samples.

Leaching conditions are summarized in Table 4. The best leaching recovery is achieved at 86.4% from L1 test by using 1:3 sulphuric acid at 90°C for 2 hours.

A complete report is included in Appendix VI.

Table 4. Acid Leaching Conditions

Test ID	Temperature °C	H2SO4 dosage kg/t	Acid Con %	solids %	Duration hour	V Extraction %	Fe Extraction %
L1	90	1000	33	23	2	86.4	93.7
L2	60	100	3.1	23	6	7.6	28.6
L3	90	100	3.1	23	6	11.9	50.8
L4	90	150	10	40	4	21.2	73
L5	90	300	20	40	4	45.7	77.3

Vanadium extraction ratio is proportional to acid concentration (Figure 15). Higher acid concentration yields higher extraction ratio.

Higher vanadium extraction is suggested by greenish color in solution (Figure 16 & Figure 18), while low vanadium extraction is characterized by yellow brownish color (Figure 17).

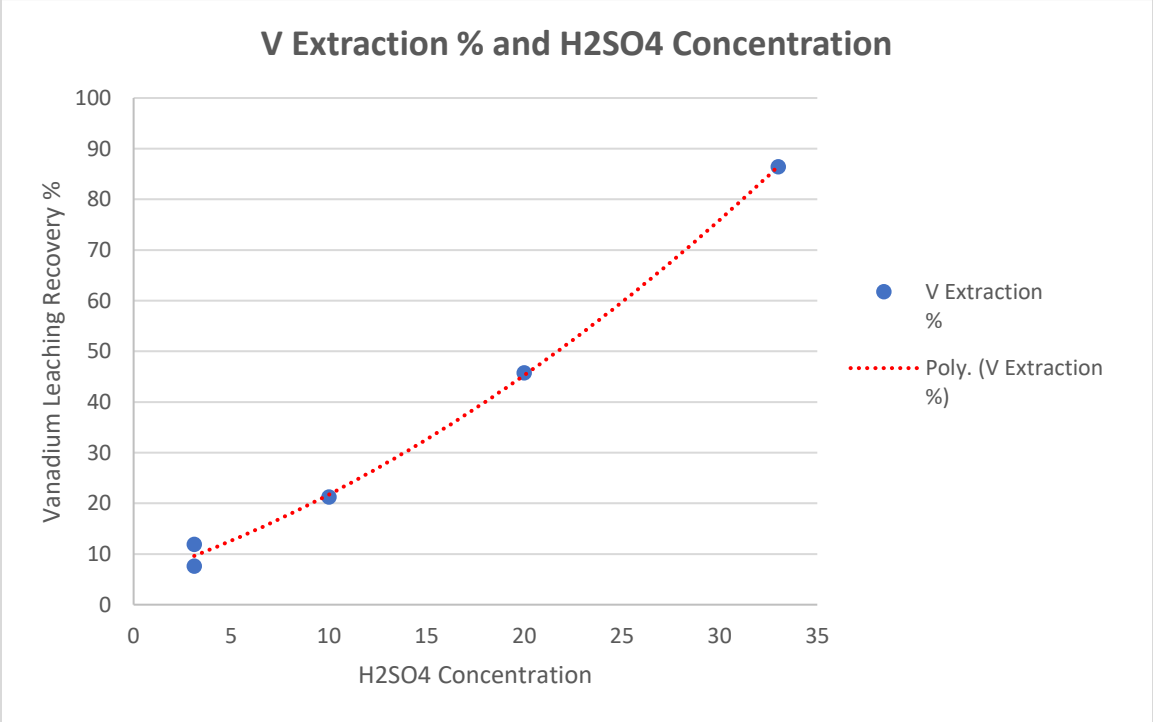


Figure 15. Vanadium Extraction Rate and Acid Concentration

Figure 16. L1 leachate Color

Figure 17. L2 & L3 leachate Color

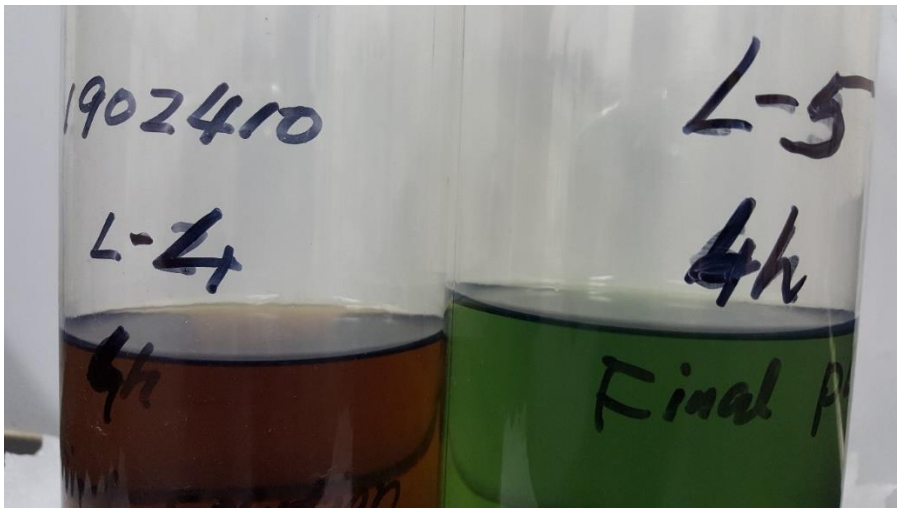


Figure 18. L4 & L5 Leachate Color

9 INTERPRETATION & CONCLUSIONS

Rock sampling program is successful in identifying vanadium mineralization on surface. The mineralization has a strike length of 4.5km, trending N-S. Vanadium is hosted in carbonaceous black shale unit, fringed by competent vanadium-poor cherty shale (Figure 19).

Mineralogy studies suggest vanadium is hosted in oxides and aluminum silicates. Preliminary acid leaching tests returned the best extraction rate of 86.4% by using 1:3 sulphuric acid at 90°C over a duration of 2 hours.

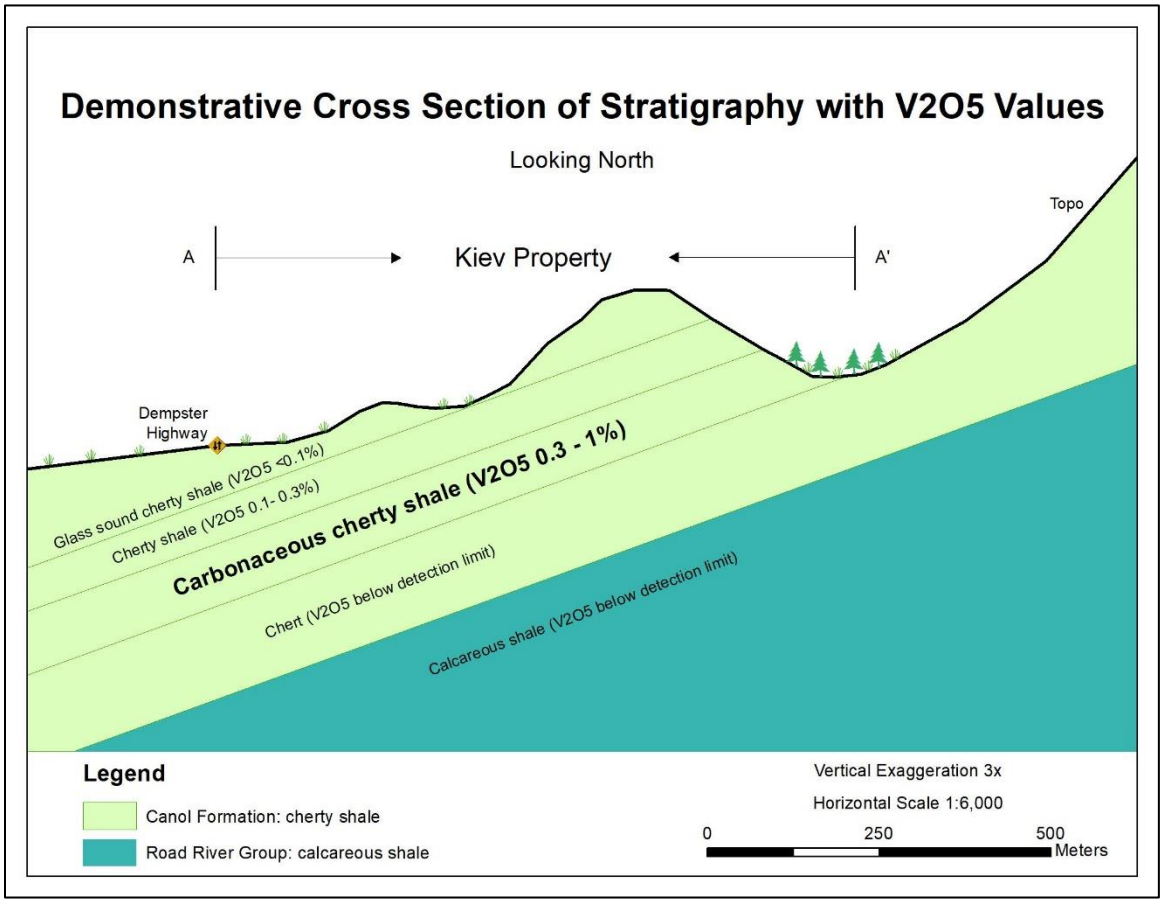


Figure 19. Demonstrative Cross Section of Stratigraphy and V_2O_5 Values

10 RECOMMENDATIONS

It is recommended to conduct more exploration work to identify the width of vanadium mineralization and follow along the N-S trend to the south of the property for additional vanadium mineralization. Metallurgical work should be aimed to improve the extraction rate by using lower acid concentration with the addition of chemical reagents.

REFERENCES

Dumala, M. (2007). *PROSPECTING, MAPPING, GEOCHEMICAL SAMPLING, GEOPHYSICAL SURVEYS AND DIAMOND DRILLING at the RICH PROPERTY.* Whitehorse: Archer, Cathro & Associates.

Fraser, T. (2013). *Field descriptions of the Middle-Upper Devonian Canol Formation on Trail River*. Whitehorse: Yukon Geological Survey.

Heon, D. (2006). Mineral Assessment of the Eagle Plain Study Area, Yukon. *Yukon Geological Survey Open File 2006-3*.

Hulbert, L. (1992). Sedimentary Nickel, Zinc, and Platinum-group-element Mineralization in. *Exploration Mining Geology, Vol. 1, No. 1*, pp 39-62.

Jeletzky, J. (1962). *Pre-Cretaceous Richardson Mountain trough: its place in the tectonic framework of Arctic Canada and its bearing on some geosynclinal concepts.* Royal Society of Canada.

Lentz, A. (1972). Ordovician to Devonian history of northern Yukon and adjacent District of Mackenzie. *Bulletin of Canadian Petroleum Geology, 20*, 321-361.

Norris, A. (1997). *The Geology, Mineral and Hydrocarbon Potential of Northern Yukon Territory and Northwestern District of Mackenzie,*. Geological Survey of Canada.

Osadetz, K. (2005). Petroleum Resource Assessment, Eagle Plain Basin and Environs, Yukon. *Yukon Geological Survey Open File 2005-2*.

Whitney, G. (1986). Vanadium Chlorite from a Sandstone-Hosted Vanadium-Uranium Deposit, Henry Basin, Utah. *Clays and Clay Minerals, Vol. 34*, P 488-495.

STATEMENT OF QUALIFICATION

I, Tao Song, submit the following information to support my competence that is required to carry out the field work and prepare for the assessment report on the Kiev project.

Education

- Bachelor of Computer Engineering degree, specialized in database, Yanshan University, China, 2005
- Bachelor of Science degree in Geology, University of British Columbia, 2010

Experience

- 4 years of experience as a company geologist with Merit Mining, Vancouver
  - Resource modeling
  - Drill ready exploration projects and grassroot programs in Canada
  - Project evaluation from early stage to producing (Au, Cu, Pb, Zn)
  - Development of a global mining and geology database

- 5 years of experience as a consulting geologist, Vancouver
  - Drill program supervision
  - Regional targeting
  - Project evaluation
  - Resource evaluation

Professional Affiliations

- Geoscientist in Training with the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada, System ID 164368, since February 2011.
- Member of AME BC
- Member of PDAC

APPENDIX I - STATEMENT OF EXPENDITURE

QUARTZ RENEWAL NUMBER

STATEMENT OF EXPENDITURES

This form is to be submitted to the Mining Recorder with the renewal application form when requesting that actual costs be considered for representation work assessment credit at the discretion of the Mining Recorder.

Applicant Name: **Tao Song**

Company Name:

Work Dates: 21-Aug-2019 (*1st day of Work*) 25-Aug-19 (*Last day of Work*)

Claim Names & Grant Numbers:
YF81679-YF81696, KV19-KV36

Eligible Expenses — *Please refer to the appropriate Schedule of Representation Work, Prospecting Lease Guidelines, YMIP Rate Guidelines, and/or YG Third Party Rental Book available on-line.* ***Provide photocopies of receipts and/or invoices.***

Personnel Expenses

Employee Full Name and Duties	*Hourly/Daily*	*Qty*	*Pay Rate*	***Total Expenditure***
Tao Song/ Geologist/ Field work	Daily Rate	5.0	$ 400.00	$ 2,000.00
Tao Song/ Geologist/ report writing	Daily Rate	2.0	$ 400.00	$ 800.00
Tao Song/ Geologist/ drone photogramm	Daily Rate	1.0	$ 400.00	$ 400.00

Equipment Description	Receipt Provided	Owned / Rented	Rates* Cost	Wet/Dry Rate	Daily/Hourly Rate	Number of Days	***Total Expenditure***
Drone	☑	Owned	$ 50.00	Wet	Daily Rate	5.00	$ 250.00
Olympus Vanta XRF	☑	Rented	$ 252.28		Daily Rate	7.00	$ 1,765.94
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						

Other Eligible Expenses - Please provide further details:	
SEM, assay, acid leaching by Bureau Veritas	$ 4,035.49
Truck rental 4x4, personal, at $0.68/km, over 2200km	$ 1,496.00
Hotels and meals for 5 days	$ 815.43

Personnel Expenses Sub-Total:	**$ 3,200.00**
Equipment Sub-Total:	**$ 2,015.94**
Other Expenses Sub-Total:	**$ 6,617.66**
TOTAL EXPENSES CLAIMED:	**$ 11,562.86**

**Please attach additional pages, AND copies of receipts and invoices as required.*

18-Aug-2020
Dated

Tao Song
Signed

Yukon

QUARTZ RENEWAL NUMBER

STATEMENT OF EXPENDITURES

This form is to be submitted to the Mining Recorder with the renewal application form when requesting that actual costs be considered for representation work assessment credit at the discretion of the Mining Recorder.

Applicant Name: **Tao Song**

Company Name:

Work Dates: 14-Jul-2020 (*1st day of Work*) 15-Jul-20 (*Last day of Work*)

Claim Names & Grant Numbers:
YF81697-YF81698, KV37-KV38

Eligible Expenses — *Please refer to the appropriate Schedule of Representation Work, Prospecting Lease Guidelines, YMIP Rate Guidelines, and/or YG Third Party Rental Book available on-line.* ***Provide photocopies of receipts and/or invoices.***

Personnel Expenses

Employee Full Name and Duties	*Hourly/Daily*	*Qty*	*Pay Rate*	***Total Expenditure***
Tao Song/ Geologist/ Field work	Daily Rate	2.0	$ 400.00	$ 800.00
Tao Song/ Geologist/ report writing	Daily Rate	0.5	$ 400.00	$ 200.00
Tao Song/ Geologist/ drone photogramm	Daily Rate	0.6	$ 400.00	$ 240.00

Equipment Description	Receipt Provided	Owned / Rented	Rates* Cost	Wet/Dry Rate	Daily/Hourly Rate	Number of Days	***Total Expenditure***
Drone	☑	Owned	$ 50.00	Wet	Daily Rate	2.00	$ 100.00
Niton XRF	☑	Owned	$ 150.00		Daily Rate	2.00	$ 300.00
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						
	☐						

Other Eligible Expenses - Please provide further details:	
Truck rental 4x4, at $0.68/km, from Whitehorse to site, over 1200km	$ 816.00
Hotels 1 night and meals for 2 days	$ 275.00

Personnel Expenses Sub-Total:	**$ 1,240.00**
Equipment Sub-Total:	**$ 400.00**
Other Expenses Sub-Total:	**$ 1,091.00**
TOTAL EXPENSES CLAIMED:	**$ 2,731.00**

**Please attach additional pages, AND copies of receipts and invoices as required.*

18-Aug-2020
Dated

Tao Song
Signed

APPENDIX II - SAMPLE DESCRIPTION AND XRF RESULTS ON KV19-36

SampleID	Easting	Northing	Datum	Elev_m	SampleType	Type	Color	Litho	Location	V2O5_pXRF
K06	440964	7403900	NAD83UTM8	692	Rock	Subcrop	dark grey	shale	flat	0.16
K07	440962	7403929	NAD83UTM8	685	Rock	Subcrop	dark grey	shale	flat	0.18
K08	440951	7403941	NAD83UTM8	686	Rock	Subcrop	dark grey	shale	flat	0.21
K09	440854	7404089	NAD83UTM8	700	Rock	Subcrop	black	shale	flat	0.21
K10	440849	7404111	NAD83UTM8	704	Rock	Subcrop	black	cherty shale	flat	0.06
K100	441515	7404172	NAD83UTM8	750	Rock	Subcrop	black	cherty shale	mod slope	0.02
K101	441514	7404199	NAD83UTM8	752	Rock	Subcrop	black	cherty shale	mod slope	0.04
K102	441534	7404263	NAD83UTM8	764	Rock	Subcrop	black	cherty shale	mod slope	0.02
K103	441587	7404307	NAD83UTM8	782	Rock	Outcrop	black	chert	mod slope	0.01
K104	441558	7404395	NAD83UTM8	770	Rock	Subcrop	black	cherty shale	mod slope	0.02
K105	441541	7404412	NAD83UTM8	762	Rock	Subcrop	black	cherty shale	mod slope	0.01
K106	441108	7404391	NAD83UTM8	702	Rock	Float	black	cherty shale	gentle slope, dense veg	0.12
K107	441101	7404385	NAD83UTM8	704	Rock	Float	black	cherty shale	gentle slope, dense veg	0.16
K108	441053	7404406	NAD83UTM8	713	Rock	Float	black	cherty shale	gentle slope, dense veg	0.14
K109	440988	7404410	NAD83UTM8	718	Rock	Float	black	cherty shale	gentle slope, dense veg	0.19
K11	440877	7404185	NAD83UTM8	720	Rock	Subcrop	black	shale	flat	0.04
K110	440912	7404487	NAD83UTM8	715	Rock	Subcrop	black	cherty shale	gentle slop	0.19
K111	440896	7404491	NAD83UTM8	711	Rock	Float	deep black	oil shale	mod slope	0.12
K112	440896	7406050	NAD83UTM8	643	Rock	Float	deep black	oil shale	flat	0.07
K113	440928	7406048	NAD83UTM8	646	Rock	Subcrop	deep black	oil shale	flat	0.04
K114	441109	7405969	NAD83UTM8	668	Rock	Float	deep black	shale	flat	0.13
K115	441157	7405937	NAD83UTM8	680	Rock	Outcrop	black	shale	mound top	0.09
K116	441223	7405904	NAD83UTM8	679	Rock	Outcrop	black	cherty shale	mound top	0.02
K117	441242	7405885	NAD83UTM8	678	Rock	Float	black	shale	flat low land, thin veg	0.04
K118	441295	7405844	NAD83UTM8	676	Rock	Float	black	shale	flat low land, thin veg	0.25
K119	441327	7405856	NAD83UTM8	677	Rock	Float	black	shale	flat low land, thin veg	0.29
K12	440951	7404448	NAD83UTM8	719	Rock	Subcrop	black	shale	gentle	0.21

K120	440837	7406087	NAD83UTM8	640	Rock	Float	black	cherty shale	flat low land, thin veg	0.09
K13	440972	7404461	NAD83UTM8	722	Rock	Subcrop	black	shale	mound top	0.55
K136	440772	7404433	NAD83UTM8	687	Rock	Outcrop	black	oil shale	gravel pit cut	0.12
K137	440779	7404440	NAD83UTM8	690	Rock	Outcrop	black	cherty shale	gravel pit cut	0.08
K138	440784	7404439	NAD83UTM8	690	Rock	Outcrop	black	cherty shale	gravel pit cut	0.18
K139	440791	7404430	NAD83UTM8	687	Rock	Outcrop	black	oil shale	gravel pit cut	0.16
K14	440996	7404477	NAD83UTM8	719	Rock	Subcrop	black	shale	mound top	0.24
K140	440768	7404432	NAD83UTM8	686	Rock	Outcrop	black	cherty shale	gravel pit cut	0.07
K141	440763	7404428	NAD83UTM8	687	Rock	Outcrop	black	cherty shale	gravel pit cut	0.17
K15	440995	7404483	NAD83UTM8	718	Rock	Subcrop	black	shale	mound top	0.24
K16	441004	7404531	NAD83UTM8	701	Rock	Subcrop	black	shale	gentle	0.29
K17	440800	7404527	NAD83UTM8	710	Rock	Subcrop	black	shale	mod	0.13
K18	440885	7404632	NAD83UTM8	707	Rock	Subcrop	black	shale	mod	0.06
K19	440988	7404935	NAD83UTM8	665	Rock	Float	black	shale	flat low land	0.15
K20	441011	7405136	NAD83UTM8	667	Rock	Subcrop	black	shale	flat low land	0.27
K21	441032	7405245	NAD83UTM8	675	Rock	Subcrop	black	shale	flat	0.19
K22	441068	7405286	NAD83UTM8	678	Rock	Subcrop	black	shale	flat	0.21
K23	441109	7405332	NAD83UTM8	681	Rock	Subcrop	black	shale	flat	0.27
K24	441139	7405305	NAD83UTM8	682	Rock	Subcrop	black	shale	flat	0.15
K25	441153	7405290	NAD83UTM8	680	Rock	Subcrop	black	shale	flat	0.17
K26	441134	7405244	NAD83UTM8	675	Rock	Subcrop	black	shale	flat	0.13
K27	441107	7405233	NAD83UTM8	675	Rock	Subcrop	black	shale	flat	0.14
K28	441081	7405395	NAD83UTM8	684	Rock	Subcrop	black	shale	flat	0.21
K29	441118	7405495	NAD83UTM8	687	Rock	Subcrop	black	shale	flat	0.29
K30	441159	7405571	NAD83UTM8	674	Rock	Subcrop	black	shale	mod	0.30
K31	441146	7405739	NAD83UTM8	662	Rock	Subcrop	black	shale	mod	0.08
K32	441152	7405801	NAD83UTM8	662	Rock	Subcrop	black	shale	mod	0.02
K33	441183	7405801	NAD83UTM8	670	Rock	Subcrop	black	shale	mod	0.02
K34	441198	7405780	NAD83UTM8	665	Rock	Float	black	shale	flat low land	0.06
K35	441227	7405780	NAD83UTM8	665	Rock	Float	black	shale	flat low land	0.03
K36	441076	7405786	NAD83UTM8	660	Rock	Float	black	shale	flat low land	0.12
K37	441012	7405825	NAD83UTM8	650	Rock	Float	black	shale	flat low land	0.12
K38	441230	7406252	NAD83UTM8	689	Rock	Subcrop	black	shale	mound top	0.15
K39	441273	7406346	NAD83UTM8	692	Rock	Subcrop	black	shale	mound top	0.05

K40	441269	7406380	NAD83UTM8	688	Rock	Subcrop	black	shale	mound top	0.05
K41	441268	7406406	NAD83UTM8	686	Rock	Subcrop	black	shale	mound top	0.10
K42	441273	7406532	NAD83UTM8	662	Rock	Subcrop	black	shale	gentle slope	0.11
K43	441354	7406675	NAD83UTM8	656	Rock	Float	black	shale	flat low land	0.06
K44	441388	7406674	NAD83UTM8	660	Rock	Subcrop	black	shale	gentle slope	0.09
K45	441315	7406718	NAD83UTM8	653	Rock	Float	black	shale	flat low land	0.07
K46	441336	7406970	NAD83UTM8	644	Rock	Float	black	shale	flat low land	0.06
K47	441385	7407106	NAD83UTM8	646	Rock	Float	black	shale	flat low land	0.13
K48	441370	7407226	NAD83UTM8	652	Rock	Float	black	shale	gentle slope	0.22
K49	441384	7407282	NAD83UTM8	662	Rock	Subcrop	black	shale	gentle slope	0.37
K50	441402	7407318	NAD83UTM8	667	Rock	Subcrop	black	shale	mound top	0.29
K51	441436	7407357	NAD83UTM8	669	Rock	Subcrop	black	shale	mound top	0.21
K52	441431	7407444	NAD83UTM8	667	Rock	Subcrop	black	shale	mound top	0.10
K53	441404	7407472	NAD83UTM8	668	Rock	Subcrop	black	shale	mound top	0.19
K54	441428	7407518	NAD83UTM8	661	Rock	Subcrop	black	shale	mound top	0.28
K55	441454	7407571	NAD83UTM8	650	Rock	Subcrop	black	shale	gentle slope	0.23
K56	441509	7407613	NAD83UTM8	648	Rock	Subcrop	black	shale	flat low land, thin veg	0.14
K57	441521	7407615	NAD83UTM8	649	Rock	Subcrop	black	shale	flat low land, thin veg	0.25
K58	441530	7407622	NAD83UTM8	650	Rock	Subcrop	black	shale	flat low land, thin veg	0.22
K59	441557	7407676	NAD83UTM8	656	Rock	Subcrop	black	shale	flat low land, thin veg	0.23
K60	441531	7407748	NAD83UTM8	658	Rock	Subcrop	black	shale	mound top	0.24
K61	441533	7407848	NAD83UTM8	655	Rock	Subcrop	black	shale	mound top	0.20
K62	441540	7407949	NAD83UTM8	652	Rock	Subcrop	black	shale	mound top	0.40
K63	441571	7408042	NAD83UTM8	647	Rock	Subcrop	black	shale	gentle slope	0.31
K64	441576	7408033	NAD83UTM8	645	Rock	Subcrop	black	shale	gentle slope	0.17
K65	441587	7408280	NAD83UTM8	616	Rock	Float	black	shale	gentle slope	0.19
K66	441578	7408263	NAD83UTM8	617	Rock	Float	black	shale	gentle slope	0.21
K67	441577	7408175	NAD83UTM8	628	Rock	Float	black	shale	gentle slope	0.17
K68	441435	7408053	NAD83UTM8	647	Rock	Subcrop	black	shale	gentle slope	0.07
K69	441403	7408082	NAD83UTM8	641	Rock	Subcrop	black	shale	gentle slope	0.38
K70	441448	7408041	NAD83UTM8	650	Rock	Subcrop	black	cherty shale	gentle slope	0.38
K71	441478	7408035	NAD83UTM8	653	Rock	Subcrop	dark grey	cherty shale	mound top	0.31
K72	441508	7408043	NAD83UTM8	652	Rock	Subcrop	dark grey	cherty shale	mound top	0.22
K73	441545	7408049	NAD83UTM8	650	Rock	Subcrop	black	shale	mound top	0.29

K74	441564	7408024	NAD83UTM8	649	Rock	Subcrop	black	shale	mound top	0.26
K75	441581	7407995	NAD83UTM8	644	Rock	Subcrop	black	shale	mound top	0.18
K76	441628	7407909	NAD83UTM8	636	Rock	Float	deep black	shale	swampy	0.28
K77	441650	7407831	NAD83UTM8	641	Rock	Float	deep black	shale	swampy	0.20
K78	441663	7407811	NAD83UTM8	640	Rock	Float	deep black	shale	swampy	0.16
K79	441613	7407809	NAD83UTM8	648	Rock	Float	deep black	shale	swampy	0.26
K80	441590	7407817	NAD83UTM8	652	Rock	Float	deep black	shale	swampy	0.32
K81	441323	7408337	NAD83UTM8	621	Rock	Subcrop	dark grey	cherty shale	flat	0.03
K82	441303	7408342	NAD83UTM8	622	Rock	Subcrop	dark grey	cherty shale	mound top	0.05
K83	440911	7404322	NAD83UTM8	707	Rock	Subcrop	black	cherty shale	gentle slope	0.40
K84	440955	7404313	NAD83UTM8	714	Rock	Subcrop	black	cherty shale	gentle slope	0.30
K85	440988	7404318	NAD83UTM8	716	Rock	Subcrop	black	cherty shale	mound top	0.21
K86	441019	7404302	NAD83UTM8	719	Rock	Subcrop	black	shale	mound top	0.29
K87	441088	7404243	NAD83UTM8	723	Rock	Subcrop	black	shale	gentle slope	0.11
K88	441093	7404230	NAD83UTM8	722	Rock	Subcrop	black	shale	gentle slope	0.12
K89	441110	7404208	NAD83UTM8	716	Rock	Subcrop	black	shale	gentle slope	0.16
K90	441190	7404178	NAD83UTM8	708	Rock	Float	black	shale	flat low land, thin veg	0.04
K91	441434	7404003	NAD83UTM8	696	Rock	Float	black	cherty shale	flat low land, thin veg	0.02
K92	441513	7403953	NAD83UTM8	701	Rock	Subcrop	black	cherty shale	local steep slope	0.02
K93	441507	7403945	NAD83UTM8	707	Rock	Subcrop	black	cherty shale	local steep slope	0.01
K94	441548	7403838	NAD83UTM8	757	Rock	Outcrop	black	cherty shale	mod slope	0.01
K95	441573	7403710	NAD83UTM8	798	Rock	Outcrop	black	cherty shale	mountain top	0.02
K96	441584	7403678	NAD83UTM8	792	Rock	Outcrop	black	cherty shale	mountain top	0.01
K97	441515	7404037	NAD83UTM8	707	Rock	Subcrop	black	cherty shale	mod slope	0.01
K98	441518	7404061	NAD83UTM8	715	Rock	Subcrop	black	cherty shale	mod slope	0.02
K99	441525	7404114	NAD83UTM8	732	Rock	Subcrop	black	cherty shale	mod slope	0.03

APPENDIX III - ROCK SAMPLE ID AND RESULTS ON KV19-36

Rock Sample Results on Kiev Property

N

439500 440000 440500 441000 441500 442000 442500

7408000 7407500 7407000 7406500 7406000 7405500 7405000 7404500 7404000

KV19 KV20 KV21 KV22 KV23 KV24 KV25 KV26 KV27 KV28 KV29 KV30 KV31 KV32 KV33 KV34 KV35 KV36

K1 (0.15) K2 (0.11) K3 (0.55) K4 (0.24) K5 (0.21) K6 (0.16) K7 (0.18) K8 (0.21) K9 (0.15) K10 (0.19) K11 (0.04) K12 (0.09) K13 (0.55) K14 (0.24) K15 (0.24) K16 (0.29) K17 (0.13) K18 (0.06) K19 (0.09) K20 (0.27) K21 (0.19) K22 (0.21) K23 (0.27) K24 (0.15) K25 (0.17) K26 (0.13) K27 (0.14) K28 (0.21) K29 (0.29) K30 (0.3) K31 (0.08) K32 (0.12) K33 (0.02) K34 (0.06) K35 (0.03) K36 (0.12) K37 (0.12) K38 (0.15) K39 (0.05) K40 (0.05) K41 (0.1) K42 (0.11) K43 (0.05) K44 (0.09) K45 (0.07) K46 (0.06) K47 (0.13) K48 (0.22) K49 (0.37) K50 (0.29) K51 (0.21) K52 (0.1) K53 (0.19) K54 (0.28) K55 (0.23) K56 (0.14) K57 (0.25) K58 (0.22) K59 (0.23) K60 (0.24) K61 (0.2) K62 (0.4) K63 (0.31) K64 (0.17) K65 (0.19) K66 (0.21) K67 (0.17) K68 (0.07) K69 (0.38) K70 (0.38) K71 (0.31) K72 (0.22) K73 (0.29) K74 (0.26) K75 (0.18) K76 (0.28) K77 (0.2) K78 (0.16) K79 (0.26) K80 (0.32) K81 (0.03) K82 (0.05) K83 (0.4) K84 (0.3) K85 (0.21) K86 (0.29) K87 (0.11) K88 (0.12) K89 (0.16) K90 (0.04) K91 (0.02) K92 (0.02) K93 (0.01) K94 (0.01) K95 (0.02) K96 (0.01) K97 (0.01) K98 (0.02) K99 (0.03) K100 (0.02) K101 (0.04) K102 (0.02) K103 (0.01) K104 (0.02) K105 (0.01) K106 (0.12) K107 (0.16) K108 (0.14) K109 (0.19) K110 (0.09) K111 (0.12) K112 (0.07) K113 (0.04) K114 (0.13) K115 (0.09) K116 (0.02) K117 (0.04) K118 (0.25) K119 (0.29) K120 (0.09) K121 (0.07) K122 (0.16) K123 (0.18) K124 (0.07) K125 (0.16) K126 (0.12) K127 (0.17)

0 62.5 125 250
Meters
NAD83 UTM Zone 8
Scale 1:4,000

APPENDIX IV - SAMPLE DESCRIPTION AND XRF RESULTS ON KV37-38

Sample ID	Outcrop Type	Sample Type	Lithology	V2O5_pct	Easting_ UTM8	Northing_ UTM8	Elev_ m	Datum	Mo_ppm	Zn_ppm	Ni_ppm	Ca_ppm
C001	Subcrop	Rock	Black shale	0.034	441274	7408409	607 m	NAD83 UTM8	21.79	< LOD	< LOD	< LOD
C002	Subcrop	Rock	Black shale	0.027	441280	7408398	610 m	NAD83 UTM8	28.77	< LOD	68.59	< LOD
C003	Subcrop	Rock	Black shale	0.031	441287	7408378	615 m	NAD83 UTM8	15.14	< LOD	< LOD	< LOD
C004	Subcrop	Rock	Black shale	0.113	441306	7408360	616 m	NAD83 UTM8	20.49	< LOD	133.61	261.78
C005	Subcrop	Rock	Black shale	0.069	441316	7408350	617 m	NAD83 UTM8	21.74	< LOD	116.06	< LOD
C006	Float	Rock	Black shale	0.106	441329	7408330	617 m	NAD83 UTM8	15.39	93.38	80.4	1665.87
C007	Float	Rock	Black shale	0.189	441356	7408293	618 m	NAD83 UTM8	43.21	58.82	< LOD	1021.16
C008	Subcrop	Rock	Black shale	0.452	441376	7408267	623 m	NAD83 UTM8	117.61	118.61	< LOD	< LOD
C009	Subcrop	Rock	Black shale	0.239	441389	7408244	626 m	NAD83 UTM8	43.68	17.91	< LOD	< LOD
C010	Subcrop	Rock	Black shale	0.294	441395	7408230	628 m	NAD83 UTM8	92.92	179.76	122.16	452.54
C011	Subcrop	Rock	Black shale	0.254	441406	7408218	631 m	NAD83 UTM8	13.01	28.33	< LOD	< LOD
C012	Subcrop	Rock	Black shale	0.142	441424	7408199	633 m	NAD83 UTM8	55.22	< LOD	< LOD	< LOD
C013	Subcrop	Rock	Black shale	0.314	441433	7408178	638 m	NAD83 UTM8	97.36	259.98	132.33	< LOD
C014	Subcrop	Rock	Black shale	0.317	441440	7408158	640 m	NAD83 UTM8	17.57	435.5	158.07	< LOD
C015	Subcrop	Rock	Black shale	0.416	441457	7408132	642 m	NAD83 UTM8	47.85	207.6	< LOD	< LOD
C016	Subcrop	Rock	Black shale	0.327	441481	7408109	646 m	NAD83 UTM8	18.87	178.91	< LOD	< LOD
C017	Subcrop	Rock	Black shale	0.630	441498	7408084	648 m	NAD83 UTM8	65.1	267.9	100.38	< LOD
C018	Subcrop	Rock	Black shale	0.410	441521	7408067	648 m	NAD83 UTM8	10.02	< LOD	< LOD	< LOD
C019	Subcrop	Rock	Black shale	0.651	441542	7408057	648 m	NAD83 UTM8	90.35	1400.2	211.9	3929.85
C020	Subcrop	Rock	Black shale	0.660	441561	7408050	648 m	NAD83 UTM8	48.52	1334.27	117.83	5072.46
C021	Subcrop	Rock	Black shale	0.393	441570	7408046	647 m	NAD83 UTM8	23.4	179.03	< LOD	775.21
C022	Subcrop	Rock	Black shale	0.347	441575	7408047	646 m	NAD83 UTM8	34.56	315.51	< LOD	< LOD
C023	Subcrop	Rock	Black shale	0.261	441583	7408043	643 m	NAD83 UTM8	126.54	297.9	111.36	579.25
C024	Subcrop	Rock	Black shale	0.350	441601	7408046	637 m	NAD83 UTM8	11.91	< LOD	< LOD	< LOD
C025	Subcrop	Rock	Black shale	0.469	441607	7408044	636 m	NAD83 UTM8	61.2	319.41	97.53	557.52
C026	Subcrop	Rock	Black shale	0.145	441626	7408043	633 m	NAD83 UTM8	8.03	218.26	128.61	1159.94
C027	Subcrop	Rock	Black shale	0.290	441648	7408065	626 m	NAD83 UTM8	105.85	288.02	109.41	1259.05
C028	Subcrop	Rock	Black shale	0.218	441637	7408090	628 m	NAD83 UTM8	38.68	755.41	127.6	3176.09
C029	Subcrop	Rock	Black shale	0.523	441616	7408099	630 m	NAD83 UTM8	26.69	682.76	197.72	1997.73
C030	Subcrop	Rock	Black shale	0.222	441607	7408104	633 m	NAD83 UTM8	22.32	492.32	113.08	3504.16
C031	Subcrop	Rock	Black shale	0.198	441595	7408112	634 m	NAD83 UTM8	28.62	159.79	89.54	< LOD
C032	Subcrop	Rock	Black shale	0.147	441581	7408111	638 m	NAD83 UTM8	31.28	443.73	< LOD	381.95

C033	Subcrop	Rock	Black shale	0.399	441564	7408117	640 m	NAD83 UTM8	40.04	1716.55	120.3	1052.6
C034	Subcrop	Rock	Black shale	0.345	441542	7408121	642 m	NAD83 UTM8	23.28	1277.08	127.55	501.63
C035	Subcrop	Rock	Black shale	0.353	441554	7408147	636 m	NAD83 UTM8	130.65	262.28	< LOD	< LOD
C036	Subcrop	Rock	Black shale	0.498	441553	7408173	633 m	NAD83 UTM8	44.91	400.81	122.23	< LOD
C037	Subcrop	Rock	Black shale	0.343	441552	7408216	625 m	NAD83 UTM8	19.87	422.67	113.67	495.42
C038	Subcrop	Rock	Black shale	0.131	441546	7408252	620 m	NAD83 UTM8	12.33	40.4	< LOD	< LOD
C039	Subcrop	Rock	Black shale	0.366	441528	7408274	619 m	NAD83 UTM8	56.33	630.17	113	775.1
C040	Subcrop	Rock	Black shale	0.250	441518	7408308	615 m	NAD83 UTM8	42.46	533.34	125.06	3382.45
C041	Subcrop	Rock	Black shale	0.390	441505	7408331	612 m	NAD83 UTM8	74.92	782.81	138.21	7780.18
C042	Subcrop	Rock	Black shale	0.325	441490	7408347	612 m	NAD83 UTM8	74.55	1054.16	133.54	2865.58
C043	Subcrop	Rock	Black shale	0.494	441468	7408362	611 m	NAD83 UTM8	56.48	430.71	148.03	415.31
C044	Float	Rock	Black shale	0.318	441437	7408382	609 m	NAD83 UTM8	45.77	291.27	88.68	< LOD
C045	Float	Rock	Black shale	0.379	441422	7408402	608 m	NAD83 UTM8	46.51	525.27	99.54	5830.68

APPENDIX V - MINERALOGY REPORT BY BUREAU VERITAS

BV Minerals - Metallurgical Division
Bureau Veritas Commodities Canada Ltd.
11620 Horseshoe Way,
Richmond, BC V7A 4V5 Canada
Tel: +1(604) 272-8110 Fax: +1(604) 272-0851
Email: wendy.ma@ca.bureauveritas.com

November 22, 2019

Mr. Tao Song
#1901-1188 West Pender Street,
Vancouver BC, Canada
V6E 0A2

Re: Mineralogical Assessment of the Two Test Samples
Project No. MM1900410

Dear Mr. Song,

We have completed the mineralogical assessment on the two test samples that you provided. These two test samples were representative the feeds of the metallurgical tests at BV Minerals – Metallurgical Division.

The principal objective of this study was to identify and quantify the mineral abundances of the provided test samples. To achieve the program, the standard chemical analysis and QEMSCAN Bulk Mineral Analysis (BMA) protocols were conducted on each of the unsized test samples as received. All the information produced by this study are shown in two appendices attached at the end of this letter:

Appendix I – Sample Origin and Methodology;
Appendix II – QEMSCAN Particle Mineral Analysis (PMA) Data.

The data, in terms of the mineral composition and vanadium deportments* by the bearing minerals, of the two test samples are summarized in Table 1 and Figure 1 on the following page of this letter.

* The concentrations of vanadium in goethite and muscovite was based on the spectra data generated from EDS detectors. To achieve the accurate vanadium concentrations in these minerals, the microprobe analysis will be required.

Thank you for inviting BV Minerals – Metallurgical Division to participate in this mineralogical testing program. If you have any questions regarding this study or our assessment of the data, please do not hesitate to contact us.

Kind regards,

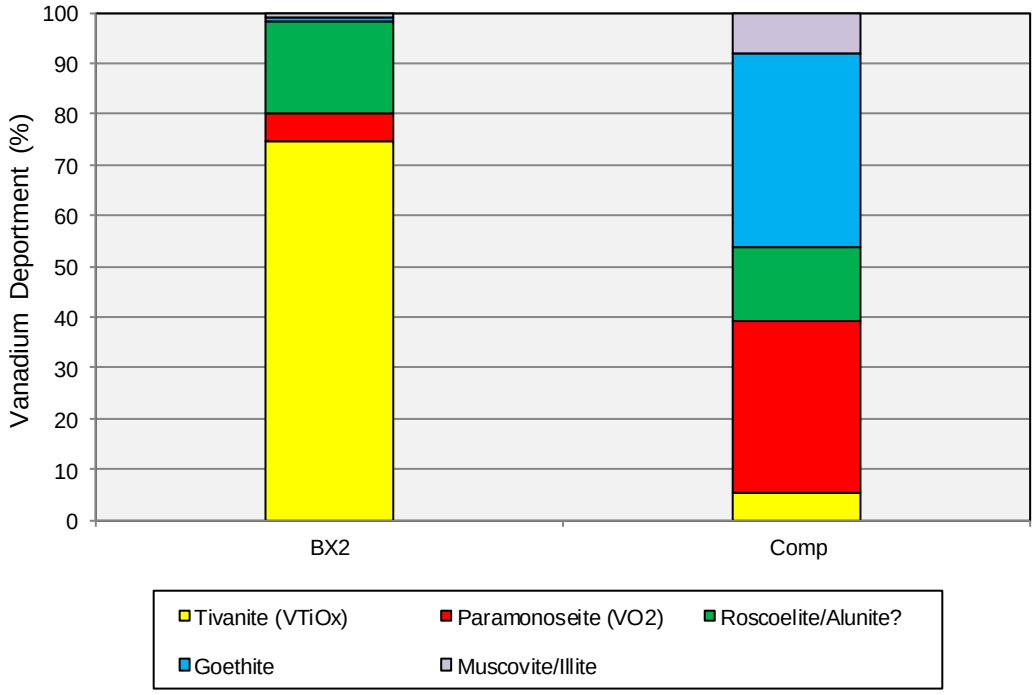
Wendy Ma, M.Sc. P. Geo.
Mineralogy Manager

TABLE 1
CHEMICAL AND MINERAL COMPOSITIONS OF THE TWO TEST SAMPLES

Minerals	BX2	Composite	Minerals	BX2	Composite
Cu Sulphides	<0.1	<0.1	Quartz	79.4	83.6
Galena	<0.1	<0.1	K-Feldspar	4.93	7.05
Sphalerite	1.05	<0.1	Wollastonite	2.88	0.26
Pyrite	0.27	<0.1	Plagioclase Feldspar	0.47	0.99
Tivanite (VTiOx)	0.41	<0.1	Muscovite/Illite	0.44	1.11
Paramonoseite (VO2)	<0.1	<0.1	Calcite	1.44	1.35
Roscoelite/Alunite?	0.22	0.09	Pyroxene/Amphibole	0.26	0.09
Iron Oxides/Iron Metal	0.14	1.59	Apatite	0.20	0.13
			Organic Carbon/Graphite	7.36	3.32
			Others	0.51	0.41
Total	2.09	1.67	Total	97.9	98.3

Notes: 1) Iron Oxides include Geothite, Limonite, Ilmentite, Magnetite and Iron Metal.
2) Feldspar Group includes Plagioclase, Albite, Anorthite, Orthoclase and Sanidine/Obsidian.
3) Others include trace amounts of Amphibole/Pyroxene, Apatite, Rutile, Epidote, Sphene, and unresolved mineral species. See Appendix II for details.

FIGURE 1
VANADIUM DEPORTMENTS OF THE TWO TEST SAMPLES



MINERALOGICAL ASSESSMENTS OF TWO TEST SAMPLES

APPENDIX I

SAMPLE ORIGIN AND METHDOLOGY

NOVEMBER 22, 2019

1. Sample Origin and Methodology:

Two test samples, labeled as BX2 and Composite, were submitted for the mineralogical assessment at the BV Minerals - Metallurgical Division in Canada on October 10, 2019. These two test samples will represent the feed of the metallurgical tests at BV minerals-metallurgical Division.

Upon receipt of the samples, the representative cuts were taken from each of the two test sample for the chemical analysis and mineralogical studies. The standard chemical analysis protocols were performed on each of the test samples as received, to assist the calibrations of QEMSCAN analysis.

Each of the unsized samples as received was mounted into the 30mm blocks using epoxy. During the mounting, graphite was also added into each sample block in order to decrease the particle touching and the settlement of mineral particles with relatively high specific gravity. The mounted sample blocks were ground, polished and carbon coated using the standard QEMSCAN sample preparation procedures.

Following the sample preparation, the QEMSCAN Bulk Mineral Analysis (BMA) was conducted on each of the unsized samples. The SIP (Specific Identification Protocols) was particularly developed for these two samples, to identify and quantify the mineral compositions of these two test samples. The data generated using QEMSCAN Particle Mineral Analysis (PMA) can be located in Appendix II.

MINERALOGICAL ASSESSMENTS OF TWO TEST SAMPLES

APPENDIX II

QEMSCAN BULK MINERAL ANALYSIS (BMA) DATA

NOVEMBER 22, 2019

TABLE 1A
MINERAL COMPOSITION OF THE TWO COMPOSITE SAMPLES
MM1900410

Minerals	BX2	Composite
Cu Sulphides	<0.1	<0.1
Galena	<0.1	<0.1
Sphalerite	1.1	<0.1
Pyrite	0.3	<0.1
Tivanite (VTiOx)	0.4	<0.1
Paramonoseite (VO2)	<0.1	<0.1
Roscoelite/Alunite?	0.2	0.1
Goethite	0.1	1.5
Iron Metal	0.1	0.1
Quartz	79.4	83.6
K-Feldspar	4.9	7.0
Wollastonite	2.9	0.3
Plagioclase Feldspar	0.5	1.0
Muscovite/Illite	0.4	1.1
Calcite	1.4	1.4
Pyroxene/Amphibole	0.3	0.1
Apatite	0.2	0.1
Rutile/Anatase	0.1	0.1
Edingtonite Ba(AlSi)Ox	0.1	0.1
Zircon	<0.1	<0.1
Barite	<0.1	<0.1
Organic Carbon/Graphite	7.4	3.3
Others	0.2	0.1
Total	100	100

Note: 1) Copper Sulphides include Chalcopyrite and Tetrahedrite.
2) Iron Oxides include Geothite, Hematite and limonite.
3) Muscovite/Illite includes trace amounts of Kaolinite and Chlorite.
4) THe mineral contents were measured in mass%.

TABLE 1B
DISTRIBUTION OF VANADIUM BEARING MINERALS
MM1900410

Mineral	BX2	Composite
Tivanite (VTiOx)	74.5	5.5
Paramonoseite (VO2)	5.6	33.7
Roscoelite/Alunite?	18.3	14.4
Goethite	0.8	38.5
Muscovite/Illite	0.8	7.9
Total	100.00	100.00

APPENDIX VI - ACID LEACHING TEST REPORT

LEACH RESULTS SUMMARY

Client: Song Tao
Test: L1
Sample: Composite

Date: 6-Nov-19
Project: 1902410

Objective: Sulphuric acid leach of vanadium from composite sample

Test	Sample	Leach Temp.	Leach		Extraction	
id	id	°C	Sulphuric acid	% solids	V,%	Fe,%
L1	Composite	90-95	1:3	23	86.4	93.7

ACID LEACH TEST REPORT

Client: Song Tao
Test: L 1
Sample: Composite

Date: 6-Nov-19
Project: 1902410

Objective: Sulphuric acid leach of vanadium from composite sample

TEST CONDITIONS

Solids weight:	129.8	g
12N H2SO4:	431	g
Slurry:	561	g
Wt.% Solid:	23	%
Temperature:	90-95	°C
Test Duration:	2	hours

TEST DESCRIPTION

-composite sample pulverized to 80% passing 42µm
-adjusted to 23% solids with 12N sulphuric acid
-agitated leach on magnetic stirrer for 120 minutes at 90-95 °C
-slurry sample taken at 30, 60, 90 minutes and at the end of leaching
-slurry filtered, volume and weight of PLS recorded and assayed
-cake washed three times with water
-dried residue weighed and asssayed

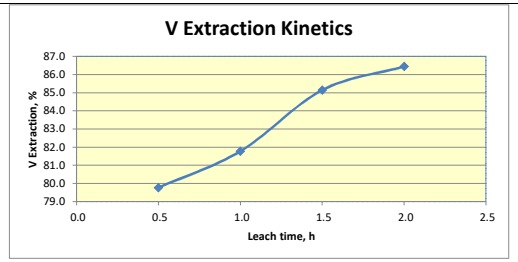
HEAD GRADE

	V
Calculated :	0.17 %
Measured:	0.18 %

LEACH TEST DATA

Time		Slurry	Solution			Assay										Recovery				
	Temp.	Weight	Solution	Vol.	Assay Vol.	V		Fe		Al		K		Mg		V	Fe	Al	K	Mg
hours	°C	(g)	SG, g/ml	(mL)	(mL)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(%)	(%)	(%)	(%)	(%)
0	90																			
0.5	103	561	1.350	337	15	516.2	174	3,042	1026	2,888	974	767	259	578	195	79.8	97.1	39.2	30.0	73.3
1.0	85	535	1.333	322	15	539.3	179	3,021	1014	3,051	1026	843	283	587	198	81.8	96.0	41.3	32.8	74.2
1.5	95	510	1.338	302	17	580.4	186	3,040	1001	3,269	1077	933	306	618	204	85.1	94.8	43.3	35.5	76.7
2.0	97	481	1.360	276		618.9	189	3,118	990	3,528	1117	994	314	645	206	86.4	93.7	44.9	36.4	77.3
Total in solution							**189**		**990**		**1117**		**314**		**206**	**86.4**	**93.7**	**44.9**	**36.4**	**77.3**
Residue		105.6				*0.028*	**29.6**	*0.063*	**66.5**	*1.297*	**1,369**	*0.52*	**549**	*0.06*	**61**	**13.6**	**6.3**	**55.1**	**63.6**	**22.7**
Head						*0.18*		*0.83*		*2.11*		*0.74*		*0.22*						
Total																**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Leach solutions dark green color



LEACH SOLUTION ASSAY REPORT

Client: Song Tao
Sample: L1 PLS as per ID

Date: 6-Nov-19
Project: 1902410

Analyte	Unit	Sample ID				LDL	Method
		L1 30` Pls	L1 60` Pls	L1 90` Pls	L1 Final PLS		
Al	mg/L	2888.0	3051.0	3269.0	3528.0	0.08	ICPH2O
As	mg/L	9.4	10.3	9.8	10.2	0.2	ICPH2O
B	mg/L	7.73	11.81	9.05	9.57	0.06	ICPH2O
Ba	mg/L	0.007	0.019	0.014	0.025	0.003	ICPH2O
Ca	mg/L	64.10	86.93	79.77	78.17	0.05	ICPH2O
Cd	mg/L	5.31	5.82	5.88	6.03	0.01	ICPH2O
Co	mg/L	<0.03	0.20	0.13	0.17	0.03	ICPH2O
Cr	mg/L	35.11	35.19	36.54	38.48	0.03	ICPH2O
Cu	mg/L	25.54	24.49	24.56	24.89	0.04	ICPH2O
Fe	**mg/L**	**3057.0**	**3021.0**	**3040.0**	**3118.0**	0.02	ICPH2O
K	mg/L	767.0	843.0	933.0	994.0	0.4	ICPH2O
Li	mg/L	0.09	0.90	0.70	0.99	0.02	ICPH2O
Mg	mg/L	578.10	586.70	617.80	644.60	0.05	ICPH2O
Mn	mg/L	23.40	23.60	22.66	23.05	0.01	ICPH2O
Mo	mg/L	10.22	10.85	10.92	11.16	0.05	ICPH2O
Na	mg/L	23.0	51.0	25.0	24.0	0.1	ICPH2O
Ni	mg/L	21.45	23.46	23.25	23.70	0.06	ICPH2O
P	mg/L	126.5	137.1	137.8	140.6	0.2	ICPH2O
Pb	mg/L	<0.2	<0.2	<0.2	<0.2	0.2	ICPH2O
S	mg/L	186900	179400	180400	186800.0	0.3	ICPH2O
Sb	mg/L	<0.2	<0.2	<0.2	<0.2	0.2	ICPH2O
Se	mg/L	<0.4	0.4	<0.4	<0.4	0.4	ICPH2O
Si	mg/L	0.3	2.8	1.3	2.1	0.2	ICPH2O
Sr	mg/L	1.321	1.548	1.398	1.444	0.002	ICPH2O
Tl	mg/L	<2	<2	<2	<2	2	ICPH2O
V	**mg/L**	**520.40**	**539.30**	**580.40**	**618.90**	0.06	ICPH2O
Zn	mg/L	193.80	196.30	192.10	175.80	0.02	ICPH2O

RESIDUE ASSAY REPORT

Client: Song Tao
Sample: L1 Solids as per ID

Date: 6-Nov-19
Project: 1902410

Analyte	Unit	Sample ID				LDL	Method
		L1 0.5h Solids	L1 1h Solids	L1 1.5h Solids	L1 Final Residue		
LOI	%	5	5.4	5.2	6.1		XF701
Al2O3	%	2.77	2.68	2.6	2.45	0.01	XF701
BaO	%	0.42	0.42	0.42	0.42	0.01	XF701
CaO	%	0.08	0.25	0.16	0.87	0.01	XF701
Cr2O3	%	0.008	0.007	0.014	0.008	0.004	XF701
Fe2O3	%	0.12	0.1	0.1	0.09	0.01	XF701
K2O	%	0.68	0.66	0.65	0.63	0.01	XF701
MgO	%	0.13	0.11	0.1	0.10	0.01	XF701
MnO	%	<0.01	<0.01	<0.01	<0.01	0.01	XF701
Na2O	%	0.12	0.11	0.11	0.115	0.01	XF701
P2O5	%	0.005	0.005	0.005	0.006	0.001	XF701
SO3	%	0.56	0.79	0.6	1.59	0.01	XF701
SiO2	%	88.71	88.62	88.64	88.20	0.01	XF701
TiO2	%	0.17	0.16	0.17	0.17	0.01	XF701
V2O5	**%**	**0.096**	**0.081**	**0.067**	**0.050**	**0.002**	**XF701**
ZnO	%	0.003	0.003	0.003	0.004	0.002	XF701
ZrO2	%	<0.01	<0.01	<0.01	<0.01	0.01	XF701

LEACH RESULTS SUMMARY

Client: Song Tao
Test: L2, L3
Sample: Composite

Date: 11-Dec-19
Project: 1902410

Objective: Temperature effect on V leach at the sulphuric acid dosage of 100kg/t and leach at 23% w/w solids

Test	Sample	Leach Temp.	Leach conditions		Extraction	
id	id	°C	Sulphuric acid dosage	% solids	V,%	Fe,%
L2	Composite	60	100kg/t	23	7.6	28.6
L3	Composite	90	100kg/t	23	11.9	50.8

ACID LEACH TEST REPORT

Client: Song Tao
Test: L2
Sample: Composite

Date: 11-Dec-19
Project: 1902410

Objective: Dosage of 100kg/t sulphuric acid and leach at 60 °C at 23% w/w solids

TEST CONDITIONS

Solids weight:	332.0	g
H2SO4:	100	kg/t
Slurry:	1,414	g
Wt.% Solid:	23	%
Temperature:	60	°C
Test Duration:	6	hours
Initial pH:	0.99	

TEST DESCRIPTION

-composite sample ground to 80% passing 43µm
-adjusted to 23% solids in glass reactor
-agitated leach in heating mantel for 6 hours at 60 °C
-slurry sample taken at 0.5; 1;2;3;4;5 and 6h of leaching
-slurry filtered, volume and weight of PLS recorded and assayed
-cake washed three times with water
-dried residue weighed and asssayed

Pic 1: Overhead agitation leach

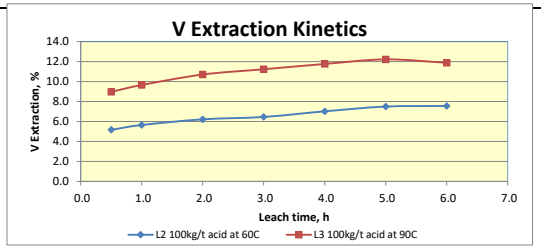
HEAD GRADE

	V
Calculated :	0.18 %
Measured:	0.18 %

LEACH TEST DATA

Time		Slurry	Solution			Assay										Recovery				
	Temp.	Weight	Solution	Vol.	Assay Vol.	V		Fe		Al		K		Mg		V	Fe	Al	K	Mg
hours	°C	(g)	SG, g/ml	(mL)	(mL)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(%)	(%)	(%)	(%)	(%)
0	58																			
0.5	62	1,414	1.010	1,082	7	28.3	31	455	493	467	505	49	53	253	273	5.2	16.1	7.3	2.6	38.5
1.0	60	1,393	1.015	1,055	7	31.5	33	542	575	480	510	46	49	247	262	5.6	18.8	7.3	2.4	37.0
2.0	59	1,397	1.015	1,059	7	34.3	37	619	663	496	533	49	53	247	265	6.2	21.7	7.7	2.6	37.3
3.0	59	1,407	1.016	1,068	7.5	35.8	38	668	714	494	527	52	56	241	260	6.5	23.4	7.6	2.7	36.7
4.0	60	1,427	1.016	1,088	7.5	37.7	42	717	790	519	572	58	62	245	262	7.0	25.9	8.2	3.0	37.0
5.0	60	1,441	1.016	1,102	7.5	39.2	44	757	845	523	584	61	65	245	263	7.5	27.6	8.4	3.2	37.1
6.0	60	1,430	1.016	1,090		40.4	45	791	873	502	557	65	72	236	262	7.6	28.6	8.0	3.5	37.0
Total in solution							**45**		**873**		**557**		**72**		**262**	**7.6**	**28.6**	**8.0**	**3.5**	**37.0**
Residue		321.8				*0.17*	**547.0**	*0.68*	**2,181**	*1.99*	**6,403**	*0.62*	**1,985**	*0.14*	**447**	**92.4**	**71.4**	**92.0**	**96.5**	**63.0**
Head						*0.18*		*0.83*		*2.11*		*0.74*		*0.22*						
Total																**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note:Leach solutions light brown color



ACID LEACH TEST REPORT

Client: Song Tao
Test: L3
Sample: Composite

Date: 11-Dec-19
Project: 1902410

Objective: Dosage of 100kg/t sulphuric acid and leach at 90 °C at 23% w/w solids

TEST CONDITIONS

Solids weight:	332.0	g
H2SO4:	100	kg/t
Slurry:	1,413	g
Wt.% Solid:	23	%
Temperature:	90	°C
Test Duration:	6	hours
Initial pH:	0.99	

TEST DESCRIPTION

-composite sample ground to 80% passing 43µm
-adjusted to 23% solids in glass reactor
-agitated leach in heating mantel for 6 hours at 60 °C
-slurry sample taken at 0.5; 1;2;3;4;5 and 6h of leaching
-slurry filtered, volume and weight of PLS recorded and assayed
-cake washed three times with water
-dried residue weighed and asssayed

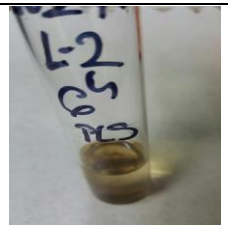
HEAD GRADE

	V
Calculated :	0.17 %
Measured:	0.18 %

LEACH TEST DATA

Time		Slurry	Solution			Assay										Recovery				
	Temp.	Weight	Solution SG, g/ml	Vol.	Assay Vol.	V		Fe		Al		K		Mg		V	Fe	Al	K	Mg
hours	°C	(g)		(mL)	(mL)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(%)	(%)	(%)	(%)	(%)
0	88																			
0.5	90	1,413	1.015	1,078	7	48.1	52	953	1027	580	625	60	65	266	287	9.0	34.5	9.0	3.2	39.9
1.0	91	1,380	1.016	1,045	7	53.2	56	1097	1152	600	631	68	71	261	274	9.7	38.7	9.1	3.5	38.1
2.0	89	1,370	1.016	1,035	7	59.2	62	1264	1322	675	707	71	74	273	286	10.7	44.4	10.2	3.7	39.7
3.0	89	1,349	1.018	1,012	7	64.2	65	1411	1428	705	713	73	79	279	301	11.2	47.9	10.3	3.9	41.8
4.0	90	1,365	1.020	1,026	7	65.5	68	1450	1506	728	756	76	80	277	293	11.8	50.6	10.9	4.0	40.7
5.0	88	1,380	1.020	1,041	7	66.0	71	1459	1538	725	764	81	85	273	287	12.2	51.6	11.0	4.2	39.8
6.0	91	1,378	1.020	1,038		65.1	69	1435	1513	692	731	81	85	262	277	11.9	50.8	10.5	4.2	38.5
Total in solution							**69**		**1513**		**731**		**85**		**277**	**11.9**	**50.8**	**10.5**	**4.2**	**38.5**
Residue		318.7				*0.16*	**510**	*0.46*	**1,466**	*1.95*	**6,214**	*0.61*	**1,944**	*0.14*	**443**	**88.1**	**49.2**	**89.5**	**95.8**	**61.5**
Head						*0.18*		*0.83*		*2.11*		*0.74*		*0.22*						
Total																**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note:Leach solutions light brown color; slightly darker from L2 leach solutions



Pic 2: L2 and L3 solutions color

LEACH SOLUTION ASSAY REPORT

Client: Song Tao
Sample: L2 PLS as per ID

Date: 11-Dec-19
Project: 1902410

Analyte	Unit	Sample ID							LDL	Method
		L2 0.5h Pls	L2 1h Pls	L2 2h Pls	L2 3h Pls	L2 4h Pls	L2 5h Pls	L2 6h Pls		
Al	mg/L	467.00	480.00	496.40	493.60	518.70	523.00	501.90	0.08	ICPH2O
As	mg/L	2.3	2.4	2.4	2.4	2.7	2.8	2.8	0.2	ICPH2O
B	mg/L	2.61	2.29	2.35	2.57	2.54	2.68	2.29	0.06	ICPH2O
Ba	mg/L	0.062	0.054	0.044	0.049	0.050	0.046	0.050	0.003	ICPH2O
Ca	mg/L	888.90	917.40	867.80	900.30	894.10	881.80	858.70	0.05	ICPH2O
Cd	mg/L	6.24	5.67	5.56	4.80	5.31	5.30	5.25	0.01	ICPH2O
Co	mg/L	0.57	0.57	0.57	0.52	0.58	0.58	0.59	0.03	ICPH2O
Cr	mg/L	5.84	6.06	6.52	6.79	7.17	7.42	7.70	0.03	ICPH2O
Cu	mg/L	11.70	10.29	10.46	10.35	10.83	10.85	11.06	0.04	ICPH2O
Fe	**mg/L**	**455.40**	**541.80**	**619.00**	**668.40**	**717.20**	**757.10**	**790.80**	**0.02**	**ICPH2O**
K	mg/L	49.0	46.0	49.0	52.0	58.0	61.0	65.0	0.4	ICPH2O
Li	mg/L	0.06	0.06	0.07	0.09	0.08	0.08	0.09	0.02	ICPH2O
Mg	mg/L	252.80	247.00	246.80	240.50	245.40	244.70	235.80	0.05	ICPH2O
Mn	mg/L	18.36	16.59	16.61	16.02	16.07	15.92	15.75	0.01	ICPH2O
Mo	mg/L	0.25	0.26	0.30	0.35	0.44	0.49	0.56	0.05	ICPH2O
Na	mg/L	12.0	9.0	9.0	9.0	10.0	10.0	10.0	0.1	ICPH2O
Ni	mg/L	9.23	10.23	11.08	11.39	12.16	12.51	13.03	0.06	ICPH2O
P	mg/L	80.7	79.6	78.8	75.3	74.8	72.7	72.6	0.2	ICPH2O
Pb	mg/L	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	ICPH2O
S	mg/L	8082.0	7824.0	7668.0	7455.0	7322.0	7170.0	7105.0	0.3	ICPH2O
Sb	mg/L	<0.2	<0.2	<0.2	<0.2	0.2	0.3	0.2	0.2	ICPH2O
Se	mg/L	0.6	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	ICPH2O
Si	mg/L	112.1	129.3	140.4	147.9	155.6	161.1	166.4	0.2	ICPH2O
Sr	mg/L	4.623	3.803	3.522	3.389	3.402	3.223	3.149	0.002	ICPH2O
Tl	mg/L	<2	<2	<2	<2	<2	<2	<2	2	ICPH2O
V	**mg/L**	**28.25**	**31.49**	**34.32**	**35.75**	**37.69**	**39.15**	**40.39**	**0.06**	**ICPH2O**
Zn	mg/L	96.90	100.20	103.70	103.90	106.30	106.90	108.90	0.02	ICPH2O

LEACH SOLUTION ASSAY REPORT

Client: Song Tao
Sample: L3 PLS as per ID

Date: 11-Dec-19
Project: 1902410

Analyte	Unit	Sample ID							LDL	Method
		L3 0.5h Pls	L3 1h Pls	L3 2h Pls	L3 3h Pls	L3 4h Pls	L3 5h Pls	L3 6h Pls		
Al	mg/L	579.70	600.10	675.30	704.80	727.50	725.00	691.70	0.08	ICPH2O
As	mg/L	3.6	2.6	4.5	5.0	2.1	5.4	5.4	0.2	ICPH2O
B	mg/L	3.11	3.25	2.99	3.14	3.26	3.64	3.40	0.06	ICPH2O
Ba	mg/L	0.049	0.050	0.055	0.050	0.038	0.049	0.054	0.003	ICPH2O
Ca	mg/L	1064.00	1129.00	1129.00	1060.00	1013.00	1072.00	1015.00	0.05	ICPH2O
Cd	mg/L	5.92	3.84	5.81	5.84	2.39	5.68	5.48	0.01	ICPH2O
Co	mg/L	0.68	0.48	0.74	0.77	0.33	0.79	0.77	0.03	ICPH2O
Cr	mg/L	8.81	9.51	10.30	11.09	11.38	11.56	11.33	0.03	ICPH2O
Cu	mg/L	12.41	12.88	13.08	13.25	13.28	13.66	13.26	0.04	ICPH2O
Fe	**mg/L**	**952.80**	**1097.00**	**1264.00**	**1411.00**	**1450.00**	**1459.00**	**1435.00**	**0.02**	**ICPH2O**
K	mg/L	60.0	68.0	71.0	73.0	76.0	81.0	81.0	0.4	ICPH2O
Li	mg/L	0.10	0.12	0.13	0.14	0.15	0.17	0.17	0.02	ICPH2O
Mg	mg/L	266.30	261.00	272.50	279.00	277.20	273.30	261.70	0.05	ICPH2O
Mn	mg/L	17.88	17.67	17.96	18.15	17.87	17.60	17.09	0.01	ICPH2O
Mo	mg/L	0.76	0.78	1.63	2.00	0.95	2.40	2.44	0.05	ICPH2O
Na	mg/L	11.0	12.0	11.0	12.0	12.0	14.0	13.0	0.1	ICPH2O
Ni	mg/L	15.74	17.88	20.59	22.42	22.78	23.00	22.93	0.06	ICPH2O
P	mg/L	80.9	78.7	80.4	81.8	79.7	77.0	74.1	0.2	ICPH2O
Pb	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	ICPH2O
S	mg/L	8039.0	7816.0	7855.0	7974.0	7711.0	7643.0	7379.0	0.3	ICPH2O
Sb	mg/L	0.3	<0.2	0.3	0.3	<0.2	0.4	0.3	0.2	ICPH2O
Se	mg/L	<0.4	0.4	0.9	1.0	0.5	1.2	1.3	0.4	ICPH2O
Si	mg/L	193.5	225.5	253.2	274.2	276.9	275.2	270.5	0.2	ICPH2O
Sr	mg/L	3.876	3.582	3.289	3.086	2.904	2.914	2.833	0.002	ICPH2O
Tl	mg/L	<2	<2	<2	<2	<2	<2	<2	2	ICPH2O
V	**mg/L**	**48.12**	**53.16**	**59.16**	**64.19**	**65.49**	**65.99**	**65.13**	**0.06**	**ICPH2O**
Zn	mg/L	126.70	134.50	146.40	155.20	155.40	154.90	151.80	0.02	ICPH2O

RESIDUE ASSAY REPORT

Client: Song Tao **Date:** 11-Dec-19
Sample: L2, L3 Final Solids as per ID **Project:** 1902410

Analyte	Unit	Sample ID		LDL	Method
		L2 6h Solids	L3 6h Solids		
LOI	%	6.6	6.2		XF701
Al2O3	%	3.76	3.68	0.01	XF701
BaO	%	0.41	0.4	0.01	XF701
CaO	%	0.91	0.64	0.01	XF701
Cr2O3	%	0.06	0.059	0.004	XF701
Fe2O3	%	0.97	0.66	0.01	XF701
K2O	%	0.87	0.86	0.01	XF701
MgO	%	0.23	0.23	0.01	XF701
MnO	%	<0.01	<0.01	0.01	XF701
Na2O	%	0.11	0.1	0.01	XF701
P2O5	%	0.033	0.033	0.001	XF701
SO3	%	1.67	1.28	0.01	XF701
SiO2	%	84.88	85.37	0.01	XF701
TiO2	%	0.18	0.18	0.01	XF701
V2O5	**%**	**0.304**	**0.288**	**0.002**	**XF701**
ZnO	%	0.022	0.008	0.002	XF701
ZrO2	%	<0.01	<0.01	0.01	XF701

LEACH RESULTS SUMMARY

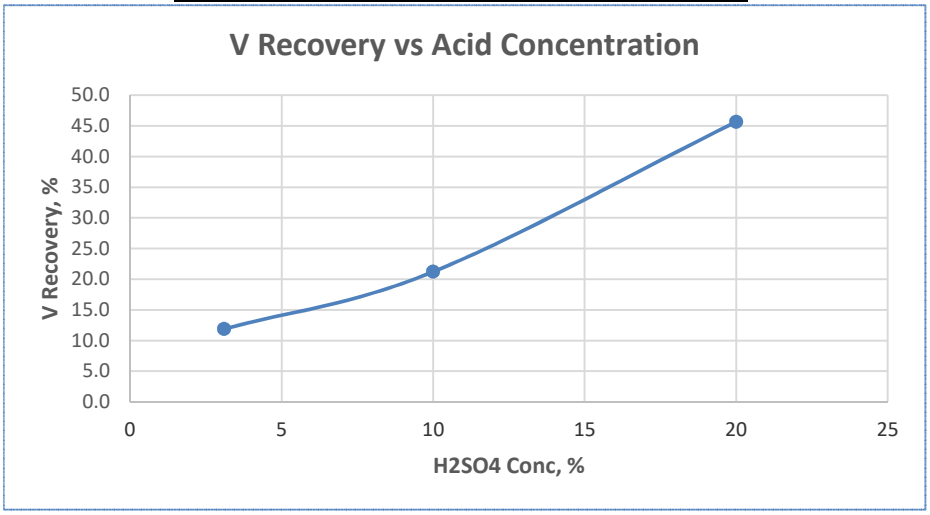
Client: Song Tao
Test: L4, L5
Sample: Composite

Date: 6-Feb-20
Project: 1902410

Objective: Sulphuric dosage effect on V leach at 40% w/w solids

Test id	Sample id	Leach Temp. °C	Leach conditions		Extraction	
			Sulphuric acid dosage	% solids	V,%	Fe,%
L4	Composite	90	150kg/t	40	21.2	73.0
L5	Composite	90	300kg/t	40	45.7	77.3

Leach at 90C	Acid concentration, %	V recovery,%
L3	3.1	11.9
L4	10	21.2
L5	20	45.7



ACID LEACH TEST REPORT

Client: Song Tao
Test: L4
Sample: Composite

Date: 5-Feb-20
Project: 1902410

Objective: Dosage of 150kg/t sulphuric acid and leach at 90 °C at 40% w/w solids

TEST CONDITIONS

Solids weight:	500.0 g
H2SO4:	150 kg/t
Slurry:	1,250 g
Wt.% Solid:	40 %
Temperature:	90 °C
Test Duration:	4 hours

TEST DESCRIPTION

-composite sample ground to 80% passing 43µm
-adjusted to 40% solids in glass reactor
-agitated leach in heating mantel for 4 hours at 90 °C
-slurry sample taken at 1;2;3 and 4h of leaching
-slurry filtered, volume and weight of PLS recorded and assayed
-cake washed three times with water
-dried residue weighed and asssayed

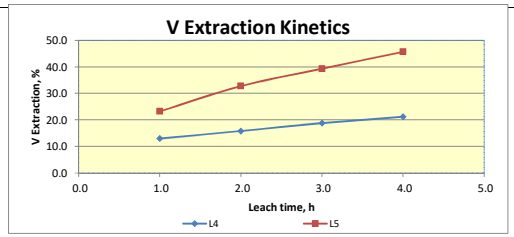
HEAD GRADE

	V
Calculated :	0.18 %
Measured:	0.18 %

LEACH TEST DATA

Time		Slurry	Solution			Assay										Recovery				
	Temp.	Weight	Solution SG, g/ml	Vol.	Assay Vol.	V		Fe		Al		K		Mg		V	Fe	Al	K	Mg
hours	°C	(g)		(mL)	(mL)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(%)	(%)	(%)	(%)	(%)
0	90																			
1.0	91	1,250		712	4.5	161.3	115	4947	3522	1,490	1061	221	157	611	435	13.0	71.2	10.2	4.4	40.8
2.0	90	1,237		700	7.1	198.9	140	5111	3599	1,654	1164	282	199	630	443	15.8	72.7	11.2	5.6	41.5
3.0	88	1,200		666	7.6	246.1	166	5360	3628	1,926	1301	324	229	678	482	18.8	73.3	12.5	6.4	45.1
4.0	90	1,183	1.086	650		282.2	187	5407	3613	2,062	1373	364	242	695	464	21.2	73.0	13.2	6.8	43.5
Total in solution							**187**		**3613**		**1373**		**242**		**464**	**21.2**	**73.0**	**13.2**	**6.8**	**43.5**
Residue		476.8				*0.15*	**696.2**	*0.28*	**1,334**	*1.90*	**9,036**	*0.70*	**3,323**	*0.13*	**604**	**78.8**	**27.0**	**86.8**	**93.2**	**56.5**
Head						*0.18*		*0.83*		*2.11*		*0.74*		*0.22*						
Total																**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note:Leach solutions brown color



ACID LEACH TEST REPORT

Client: Song Tao
Test: L5
Sample: Composite

Date: 6-Feb-20
Project: 1902410

Objective: Dosage of 300kg/t sulphuric acid and leach at 90 °C at 40% w/w solids

TEST CONDITIONS

Solids weight:	500.0	g
H2SO4:	300	kg/t
Slurry:	1,250	g
Wt.% Solid:	40	%
Temperature:	90	°C
Test Duration:	6	hours
Initial pH:	0.99	

TEST DESCRIPTION

-composite sample ground to 80% passing 43µm
-adjusted to 40% solids in glass reactor
-agitated leach in heating mantel for 4 hours at 90 °C
-slurry sample taken at 1;2;3 and 4h of leaching
-slurry filtered, volume and weight of PLS recorded and assayed
-cake washed three times with water
-dried residue weighed and asssayed

HEAD GRADE

	V
Calculated :	0.17 %
Measured:	0.18 %

LEACH TEST DATA

Time		Slurry	Solution			Assay										Recovery				
	Temp.	Weight	Solution SG, g/ml	Vol.	Assay Vol.	V		Fe		Al		K		Mg		V	Fe	Al	K	Mg
hours	°C	(g)		(mL)	(mL)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(mg/L, %)	(mg)	(%)	(%)	(%)	(%)	(%)
0	88																			
1.0	91	1,250		682	9	291.3	199	5273	3596	2,016	1375	364	248	659	449	23.2	75.2	13.4	7.0	43.6
2.0	89	1,225		660	9	420.6	280	5563	3719	2,501	1669	504	336	738	493	32.8	77.8	16.3	9.5	47.8
3.0	88	1,236		670	9	492.2	336	5253	3615	2,648	1814	580	390	737	499	39.3	75.6	17.7	11.0	48.4
4.0	91	1,259	1.142	690	9	550.0	390	5151	3699	2,921	2080	633	450	764	546	45.7	77.3	20.3	12.7	53.0
Total in solution							**390**		**3699**		**2080**		**450**		**546**	**45.7**	**77.3**	**20.3**	**12.7**	**53.0**
Residue		471.2				*0.10*	**465**	*0.23*	**1,084**	*1.73*	**8,152**	*0.66*	**3,091**	*0.10*	**485**	**54.3**	**22.7**	**79.7**	**87.3**	**47.0**
Head						*0.18*		*0.83*		*2.11*		*0.74*		*0.22*						
Total																**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note:Leach solutions green

LEACH SOLUTION ASSAY REPORT

Client: Song Tao
Sample: L4 PLS as per ID

Date: 5-Feb-20
Project: 1902410

Analyte	Unit	L4 1h Pls	L4 2h Pls	L4 3h Pls	L4 4h Pls	LDL	Method
Al	mg/L	1490.00	1654.00	1926.00	2062.00	0.08	ICPH2O
As	mg/L	19.3	19.5	19.2	19.7	0.2	ICPH2O
B	mg/L	4.80	4.78	4.94	5.36	0.06	ICPH2O
Ba	mg/L	0.059	0.091	0.088	0.098	0.003	ICPH2O
Ca	mg/L	632.50	620.90	613.40	634.30	0.05	ICPH2O
Cd	mg/L	12.97	13.06	12.81	12.96	0.01	ICPH2O
Co	mg/L	1.92	1.98	1.93	2.01	0.03	ICPH2O
Cr	mg/L	29.04	34.44	38.29	41.48	0.03	ICPH2O
Cu	mg/L	37.87	39.09	38.87	39.22	0.04	ICPH2O
Fe	**mg/L**	4947.00	5111.00	5360.00	5407.00	**0.02**	**ICPH2O**
K	mg/L	220.5	282.3	323.6	364.3	0.4	ICPH2O
Li	mg/L	0.40	0.53	0.71	0.78	0.02	ICPH2O
Mg	mg/L	611.20	629.60	678.10	694.80	0.05	ICPH2O
Mn	mg/L	43.06	42.86	43.67	44.32	0.01	ICPH2O
Mo	mg/L	14.52	15.08	14.55	14.77	0.05	ICPH2O
Na	mg/L	21.1	21.3	21.8	23.2	0.1	ICPH2O
Ni	mg/L	51.86	53.96	54.56	56.21	0.06	ICPH2O
P	mg/L	247.2	252.9	250.0	256.4	0.2	ICPH2O
Pb	mg/L	<0.2	<0.2	<0.2	<0.2	0.2	ICPH2O
S	mg/L	27300.0	27120.0	27790.0	27830.0	0.3	ICPH2O
Sb	mg/L	0.3	0.2	0.5	0.9	0.2	ICPH2O
Se	mg/L	5.6	6.3	6.4	5.9	0.4	ICPH2O
Si	mg/L	282.1	294.0	294.7	285.7	0.2	ICPH2O
Sr	mg/L	6.719	6.501	5.997	5.743	0.002	ICPH2O
Tl	mg/L	<2	<2	<2	<2	2	ICPH2O
V	**mg/L**	**161.10**	**198.90**	**246.10**	**282.20**	**0.06**	**ICPH2O**
Zn	mg/L	359.50	363.60	386.60	384.40	0.02	ICPH2O

LEACH SOLUTION ASSAY REPORT

Client: Song Tao
Sample: L5 PLS as per ID

Date: 5-Feb-20
Project: 1902410

Analyte	Unit	L5 1h Pls	L5 2h Pls	L5 3h Pls	L5 4h Pls	LDL	Method
Al	mg/L	2016.00	2501.00	2648.00	2921.00	0.08	ICPH2O
As	mg/L	18.3	19.4	18.6	17.9	0.2	ICPH2O
B	mg/L	5.71	6.36	7.04	7.82	0.06	ICPH2O
Ba	mg/L	0.148	0.128	0.119	0.145	0.003	ICPH2O
Ca	mg/L	523.50	484.80	492.60	495.20	0.05	ICPH2O
Cd	mg/L	11.69	12.26	11.74	11.23	0.01	ICPH2O
Co	mg/L	1.80	1.99	1.88	1.83	0.03	ICPH2O
Cr	mg/L	38.15	49.29	53.84	56.79	0.03	ICPH2O
Cu	mg/L	40.85	43.37	42.15	40.73	0.04	ICPH2O
Fe	**mg/L**	5273.00	5563.00	5253.00	5151.00	**0.02**	**ICPH2O**
K	mg/L	364.3	503.5	579.5	632.8	0.4	ICPH2O
Li	mg/L	0.71	0.98	1.08	1.25	0.02	ICPH2O
Mg	mg/L	659.10	737.50	737.10	764.10	0.05	ICPH2O
Mn	mg/L	39.62	41.79	40.22	38.96	0.01	ICPH2O
Mo	mg/L	16.87	17.61	16.49	15.94	0.05	ICPH2O
Na	mg/L	21.1	22.3	22.5	22.3	0.1	ICPH2O
Ni	mg/L	49.82	54.52	53.61	52.29	0.06	ICPH2O
P	mg/L	244.4	258.8	248.2	236.3	0.2	ICPH2O
Pb	mg/L	<0.2	<0.2	<0.2	<0.2	0.2	ICPH2O
S	mg/L	55980.0	59150.0	55030.0	54330.0	0.3	ICPH2O
Sb	mg/L	0.6	0.7	0.7	0.7	0.2	ICPH2O
Se	mg/L	6.1	6.3	5.9	5.9	0.4	ICPH2O
Si	mg/L	137.2	148.6	132.9	164.2	0.2	ICPH2O
Sr	mg/L	5.142	5.065	4.077	4.092	0.002	ICPH2O
Tl	mg/L	<2	<2	<2	<2	2	ICPH2O
V	**mg/L**	**291.30**	**420.60**	**492.20**	**550.00**	**0.06**	**ICPH2O**
Zn	mg/L	355.60	348.90	328.30	316.50	0.02	ICPH2O

RESIDUE ASSAY REPORT

Client: Song Tao **Date:** 6-Feb-20
Sample: L4, L5 Final Solids as per ID **Project:** 1902410

Analyte	Unit	Sample ID		LDL	Method
		L4 4h Solids	L5 4h Solids		
LOI	%	6.1	5.9		XF701
Al2O3	%	3.58	3.27	0.01	XF701
BaO	%	0.42	0.42	0.01	XF701
CaO	%	0.92	0.8	0.01	XF701
Cr2O3	%	0.061	0.057	0.004	XF701
Fe2O3	%	0.4	0.33	0.01	XF701
K2O	%	0.84	0.79	0.01	XF701
MgO	%	0.21	0.17	0.01	XF701
MnO	%	<0.01	<0.01	0.01	XF701
Na2O	%	0.13	0.12	0.01	XF701
P2O5	%	0.012	0.008	0.001	XF701
SO3	%	1.66	1.55	0.01	XF701
SiO2	%	86.21	86.99	0.01	XF701
TiO2	%	0.18	0.18	0.01	XF701
V2O5	**%**	**0.261**	**0.176**	**0.002**	**XF701**
ZnO	%	0.003	0.002	0.002	XF701
ZrO2	%	<0.01	<0.01	0.01	XF701

APPENDIX VII - REGIONAL GEOLOGY

Regional Geology

N

439000 440000 441000 442000

7408000 7407000 7406000 7405000 7404000

KV37 KV38 KV35 KV36 KV33 KV34 KV31 KV32 KV29 KV30 KV27 KV28 KV25 KV26 KV23 KV24 KV21 KV22 KV19 KV20

Imperial

Dempster Highway

Canol

Legend

Kiev Claims

Regional Geology

- uDI: IMPERIAL: dark grey shale and siltstone, lithic sandstone
- uDC: CANOL: dark grey to black non-calcareous shale
- CDR4: ROAD RIVER - RICHARDSON: shaly limestone and dolostone; minor black, calcareous shale
- CDR5: ROAD RIVER - RICHARDSON: graptolitic, black shale and shaly limestone
- River
- Road
- Contours_10m

0 500 1,000

Meters

1:12,500

NAD83 UTM Zone 8