Technical Report: Voyageur Pharmaceuticals Ltd. Frances Creek Barite Early-Stage Exploration Project Radium, BC

WellDunn Consulting Inc.
2020-12-18

Certificate of Author

I, Craig Dunn, P. Geol., do hereby certify that:

1. I reside at 11 Sierra Morena Close SW, Calgary, AB, Canada, T3H3G3.
2. I graduated with a B.Sc. degree in Geology Honors from the University of Manitoba in 2002.
3. I am a Registered Member of:
   a. Engineers and Geoscientists British Columbia: License #37928.
   b. APEGA: Association of Professional Engineers and Geoscientists (Alberta) #77567.
4. I have worked as a geologist for 18 years since my graduation from university and have experience as a mining and geothermal exploration consultant throughout North America in diamond, oil and gas, mineral and high-temperature geothermal resource development.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that, by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
6. A brief summary of my relevant experience with respect to being qualified to author this report is as follows:
   - I have worked on resource exploration projects in Eastern British Columbia, specifically on geological settings within the Rocky Mountain Trench, which hosts this specific Voyageur Barium play.
   - I have worked on and led mineral exploration development projects throughout Western Canada, including gold and iron ore exploration zones in British Columbia, and previous precious metals programs in Yukon.
   - My extensive experience in geological exploration has focused on mineral and geothermal resources within fault structure-based environments and hydrothermal systems.
7. I am the primary author and am responsible for all, but chapter 14 of the report titled "Technical Report: Voyageur Pharmaceuticals Ltd. Frances Creek Barite Early-Stage Exploration Project, Radium, BC" which has an effective date of 18/12/2020. I have reviewed Chapter 14 to ensure that is it congruent with my research on the project, but this chapter was the responsibility of co-author Murray Lytle.
8. I visited the Voyageur Barium property in December 2020 with Bradley Willis Jr. of Voyageur Pharmaceuticals to review the property geology and field terrain.
9. I have not had prior involvement with the companies that are the subject of the Technical Report and neither own nor control a beneficial interest in the mineral properties that are the subject of this report nor any adjacent or nearby properties.
10. I am independent of the issuer applying all the tests in section 1.5 of NI 43-101; since I have no financial interest in Voyageur Pharmaceuticals Ltd., nor do I have an interest in the properties that are the subject of this report.
11. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report, the omission to disclose which makes the Technical Report misleading.
12. I have read NI 43-101 and Form 43-101F and the Technical Report has been prepared in compliance with that instrument and form.
13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
14. At the effective date of this report and to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 18th day of December 2020

Sincerely,

(signed) *"Craig Dunn"*

Craig Dunn, P.Geol.
Principal, WellDunn Consulting Ltd.
e: craig@welldunn.ca
p: +1 (403) 461-8802

Certificate of Author

I, Murray Lytle, Ph.D., P.Eng., do hereby certify that:

15. I reside at 208 Varsity Crescent NW, Calgary, Alberta T3B 2Z6.
16. I graduated with a B.A.Sc. degree in Mineral Engineering from the University of British Columbia in 1976.
17. I am a Registered Member of the Association of Professional Engineers and Geoscientists (# 31308).
18. I have worked as a mining engineer for 44 years since my graduation from university and have experience as a mining consultant throughout the North America, Latin America, Russia, Central Asia and Africa.
19. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that, by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
20. A brief summary of my relevant experience with respect to being qualified to author this report is as follows:
    - Authored the development of resource and reserve estimates for a wide variety of mineral deposits, mine development and mining operations.
    - Exploration and operating experience with multiple types of mineral deposits including barite exploration.
    - Founder and VP Development for a junior exploration company operating in Peru.
21. I am the secondary author and am responsible for chapter 14 of the technical report titled "Technical Report: Voyageur Pharmaceuticals Ltd. Frances Creek Barite Early-Stage Exploration Project, Radium, BC”, which has an effective date of 18/12/2020. .
22. I visited the Voyageur properties on December 4th, 2020 to review the property geology, field terrain and drill core.
23. I neither own nor control a beneficial interest in the mineral properties that are the subject of this report nor any adjacent or nearby properties.
24. I am independent of the issuer applying all the tests in section 1.5 of NI 43-101; since I have no financial interest in Voyageur Pharmaceuticals Ltd., nor do I have an interest in the properties that are the subject of this report.
25. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report, the omission to disclose which makes the Technical Report misleading.
26. I have read NI 43-101 and Form 43-101F and the Technical Report has been prepared in compliance with that instrument and form.
27. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
28. At the effective date of this report and to the best of my knowledge, information and belief, Chapter 14 of this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 18th day of December 2020

Sincerely,

(signed) *"Murray Lytle"*

Murray Lytle, Ph.D., P.Eng.

WellDunn

Voyageur Pharmaceuticals Ltd. NI-43-101 Report

Table of Contents

Voyageur Pharmaceuticals Ltd. NI-43-101 Report

FIGURES

Voyageur Pharmaceuticals Ltd. NI-43-101 Report

TABLES

1 Summary

The Voyageur Pharmaceuticals Ltd. (Voyageur) Frances Creek barite project area, composed of three mining claims covering 838.6369 Ha, is located in the country of Canada, in the Province of British Columbia, as shown on Figure 4.1. The property is located 41 km North West of the town of Radium Hot Springs, B.C. Radium Hot Springs is located 144 km (airline) SW of Calgary, AB. and 530 km (airline) NE of Vancouver, B.C.

The Frances Creek Project Area is comprised of three mineral claims; the Frances Creek, Frances Creek 2 and Frances Creek South claims. The claims are all joined together and comprise 838.6369 Ha in size, as shown on Figure 4.2. Individual areas of each property and the center points of the claim blocks using UTM coordinates: UTM Zone 11 – 540855E 5620317N.

A listing of the individual claims is shown in Table 4.1. All registration fees for the claims are current.

Voyageur "went public" as a junior mining explorer focusing on industrial minerals projects, on the TSXV exchange in Q4 2016 (TSX-V:VM). Voyageur owns the claims, having acquired them from the former operator, Tiger Ridge Resources Ltd. (Tiger Ridge), a private company. Two of the principals of Voyageur are also principals of Tiger Ridge. Tiger Ridge has retained a 3.5% net royalty on the milled barite sales price (includes a buy out clause), and a 3.5% net smelter return on any base or precious metals produced. In addition to the Tiger Ridge Royalty, the claims are also burdened by a previously existing royalty to the Estate of Arthur Louie of CD$2.00/tonne on finished barite and CD$2.00/tonne on metals concentrate production.

Mining claims in B.C. have no royalty to the government on production, nor are there any special mining taxes which must be paid.

Tiger Ridge explored the Frances Creek Property between 1998 and 2005. Consequently, the 2003 and 2005 series of drill hole data, as well as some of the baseline geologic data used in this report originated with Tiger Ridge during those years. The 2017 series of drill hole data was acquired during Q2 – Q3 of 2017 as the result of a 25 hole drill program financed and executed by Voyageur. During the summer of 2017 a NQ core drilling program was completed for a total of 25 holes and 1,231m by Voyageur.

Geological consultant Henkle and Associates was contracted to prepare two previous (February 2015 and December 2016) National Instrument 43 – 101 compliant reports on all three of Voyageur's Properties, (which included Frances Creek). William R Henkle, Jr., P. Geol., was the Senior Author and Lead QP for those reports. In mid – August 2014, Mr. Henkle visited all three of the properties, accompanied by Mr. Bradley Willis P.Eng., the VP of Exploration. Both geologists also visited Voyageur's core storage facility in Windemere, B.C. and spent four days examining and sampling cores from the 2003 - 2005 drilling programs at the Frances Creek and Jubilee Mountain Properties.

The sampled core was sent for assay at an independent lab in Calgary. At Voyageur's Calgary office, and at Henkle and Associates office in the US, Mr. Henkle reviewed the entire data package of the property. This included:

- Regional and property scale geologic maps
- Numerous Geochemical analyses from Frances Creek
- Geophysical survey results - Frances Creek Property
- Geologic report review – Frances Creek Property

On the basis of the work described above, Henkle and Associates concluded that Voyageur’s Frances Creek Property classified as an early-stage exploration project and a property of merit. A work program was proposed for the 2018 - 19 exploration season.

In the 2014 report, Voyageur contemplated exploring for and operating all three of their properties to produce drilling grade barite for the oil industry in the Western Canadian Basin. Since 2014, oil prices have declined significantly from ~ US $ 120/bbl to ~ US$ 43.50/bbl in mid-August 2016; this resulted in a decrease in the number of rigs drilling for oil and gas in Canada and the US and consequently, a decrease in the demand for drilling grade barite in Alberta.

The lab testing program undertaken for the 2014 Technical Report showed that the barite occurrences at the Frances Creek property were very high density and low in contaminants. The barite fraction of the breccia vein was nearly pure barite, very likely industrial grade. Industrial Grade barite (pharmaceutical grade, chemical grade and paint grade) has a much smaller market than drilling grade barite, but it also commands a significantly higher price.

Because of the relative purity of the Frances Creek barites, Voyageur evaluated the resource for industrial and pharmaceutical quality potential. In conjunction with the completion of the 2017 drilling campaign, Henkle and Associates was again contracted to prepare this technical resource report. This report is focused on the Frances Creek property, and included a resource estimate, as well as a proposal for further work at the property.

For this report, the author has reviewed the previous reporting from the work of Henkle and Associates which included assay reports from 57 drill holes and several outcrop samples from the property as well as specifications for industrial grade barite. Based on that review, the author is of the opinion that barite produced in the future from the Frances Creek property would meet the minimum industrial grade specifications.

The estimates of potential quantity and grade for Voyageur's Frances Creek Property are the responsibility of Murray Lytle, Ph.D., P.Eng. Details as to the basis on which these projections were made can be found in Section 14. A summation of the resource estimate can be found in Table 1.1, below.

The in – place resource estimate for the Frances Creek Barite Project follows:

Zone	Class	Inplace tonnes	Barite tonnes	Grade % $BaSO_4$
A	indicated	36,600	13,200	36.1%
B	indicated	129,600	49,500	38.2%
Total	indicated	166,200	62,700	37.7%
A	inferred	42,900	14,200	33.1%
B	inferred	152,700	55,100	36.1%
Total	inferred	195,600	69,300	35.4%

TABLE 1-1: IN-PLACE RESOURCE ESTIMATE – FRANCES CREEK BARITE PROSPECT

A 2 Phase work plan and cost estimate was prepared as part of this report, in order to move the Frances Creek Prospect towards production. Details of the work plan/cost estimate are discussed in Section 26. A synopsis of the work plan / budget proposed for the next phase of the project follows:

PROPOSED WORK – PHASE 1	ESTIMATED COST
Continued Exploration	
Gravity survey, UAV mapping	$ 50,000
Expand Soils Geochem Sampling Grid	$ 25,000
Geological Mapping	$ 10,000
Additional Drilling	$ 350,000
Subtotal	**$ 435,000**
Bulk Sampling and Pre-Feasibility Study	
30 Tonne Processed Barite Sample	$ 80,000
10,000 Tonne Bulk Sample	$ 400,000
Metallurgical Testing	$ 100,000
Pre-Feasibility Study and Lab Work	$ 500,000
Subtotal	**$ 1,080,000**
Total - PHASE 1 – Exploration and Pre-Feasibility	**$ 1,515,000**

PROPOSED WORK – PHASE 2	ESTIMATED COST
Product Development - Pharmaceutical	
Barium Contrast Formulation	$ 50,000
FDA and Health Canada	$1,500,000
Product Marketing	$ 75,000
Total – PHASE 2 – Product Development	**$ 1,625,000**

TABLE 1-2: WORK PLAN

The author acknowledges that the project is an early-stage exploration stage project, however the author believes with positive results from the Phase 1 exploration program, the Phase 2, would be an appropriate next stage for project development. **The total monies required for Phases 1 and 2 is CAD $3,140,000.**

2 Introduction and Terms of Reference

2.1 Purpose of the Report

This report was prepared for Voyageur Pharmaceuticals Ltd. (formerly Voyageur Minerals Ltd.). Voyageur Pharmaceuticals Ltd. (Voyageur) is a publicly listed exploration company on the TSX Venture Exchange. In 2017, Voyageur commenced a diamond core NQ drilling program on the Frances Creek Property to explore the known barite along the B zone and A zone. The purpose of the drilling was to delineate a resource of barite near surface. Operations began in late June and ended in mid-October of 2017. A total of 1229.8 m of core drilling was completed. The main focus of drilling was on the high grade barite zone named the B zone located between elev. 1480 m and 1600 m at the property.

During drilling, all of the core was logged onsite by Bradley Willis P.Eng. and Katelynne Brown consulting geologist. William R. Henkle, P. Geol., visited the Frances Creek project site approximately ½ way through the 2017 drilling program. During the visit, William R. Henkle reviewed mapping, drilling, and sampling protocols and also re-logged two drill holes. At that time, Mr. Henkle concluded that the project was being competently run and that drilling, and sampling protocols meet CIM standards for exploration projects. The author has dialogued with Mr. Henkle and reviewed the drilling and sampling protocols and agrees that the process meets CIM Standards for exploration projects.

This report presents the results of Voyageur's efforts and previous work by William R. Henkle and fulfills the Standards of Disclosure for Mineral Projects according to Canadian National Instrument 43-101 ("NI 43-101"). This report was prepared in accordance with the requirements and guidelines set forth in Companion Policy 43-101CP and Form 43-101F1, and the mineral resources and reserves presented herein are classified according to Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards - For Mineral Resources and Mineral Reserves, prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council on November 2019. The mineral resource estimates reported here are based on all available technical data and information as of December 9, 2020.

The author of this report is Craig Dunn, P.Geol. (BC # 37928). Mr. Dunn is the President/Chief Geologist of WellDunn Consulting Ltd., an independent geologic consulting firm for natural resources exploration. Mr. Dunn is an Independent Qualified Person as defined in Section 1.5 of National Instrument 43 - 101.

In the author's review of Mr. Henkle's previous exploration work and reporting for this project, it was determined that Mr. Henkle provided independent geologic consulting services to Voyageur, he was at arm's length to this client while producing much of the data captured in earlier reporting. However, upon the conclusion of his consulting work with Voyageur, Mr. Henkle became a Director as a member of the board of Voyageur in August 2019. As the 'arms length' conditions of his involvement changed, Voyageur contracted Craig Dunn of WellDunn Consulting Ltd. to do an independent, 3rd party review of the work to date.

2.2 Terminology

All technical terms of reference such as "resources", "reserves" or "mineralization", used in this report conform to standards of practice published by the Canadian Institute of Mining and Metallurgy. All geological terms used are in standard use within the geological consulting profession in Canada and the US.

It is emphasized that there is sufficient information upon which to determine a mineral resource but insufficient information upon which to determine reserves for this property and nothing in this report should be construed to suggest or imply otherwise. Unless otherwise stated all units are metric, and all coordinates are either expressed as degrees of Latitude and Longitude or as Universal Transverse Mercator (UTM) with a NAD 83 base. Also, all monetary figures are in Canadian Dollars, unless otherwise stated.

2.3 Sources of Information

The results shown in this report are based on numerous sources of data provided both by Voyageur, and its predecessor in title to the claims, Tiger Ridge. These include the logs and accompanying assay reports of 22 core holes drilled from 2003 and 2005 at the Frances Creek property, as well as assay results of production run samples taken at Tiger Ridge's mill between 1999 and 2003. This data was acquired between 1998 and 2005, by Tiger Ridge, the previous operator of the projects. The assay work for the 2003 and 2005 Frances Creek core holes however, was undertaken in August and September, 2014, as part of the baseline work for an earlier Technical Report. The assay work for this report was conducted at the same lab as for the earlier reports. The analyses were conducted at Loring Laboratories in Calgary, AB., an ISO 9001 certified laboratory.

Other archival data which originated with Tiger Ridge includes geologic and engineering maps, numerous rock and soils geochemical assays, etc. which cover the Project Area. **Section 27, References**, lists the data sources used in this report some of which were generated by either Voyageur or its predecessor in title, Tiger Ridge Resources Ltd..

2.4 Extent of Field and Office Involvement

As an independent geological consultant, Mr. Henkle accompanied Mr. Willis, to the project site from August 22 to August 25, 2017. Mr. Henkle and Mr. Willis jointly examined the drill core from 18 newly drilled core holes at Frances Creek. Mr. Henkle observed both the mineralized trends and the geology at the property. In addition, he also collected several hand samples of the barite mineralization at the property.

A total of 102 individual samples were collected from cores, surface trenching and grab samples where they penetrated barite mineralization. The samples were transported to Loring Labs, in Calgary, Alberta by Mr. Willis for assaying and Specific Gravity determination. The results of the drill core sampling will be discussed in more detail in **Sections 10.0, 11.0 and 12.0** of this report.

On December 10th, 2020, Craig Dunn of WellDunn Consulting Ltd, accompanied Mr. Bradley Willis Jr. to the project site. The previous drilling sites and samples locations were mapped into GPS/ArcGIS software, and with Mr. Willis on site, Mr. Dunn was able to locate key barite outcrops, primary structural features and previous drilling locations on the Frances Creek Project. Mr. Dunn documented key sites for correlation with historic data and gathered multiple samples for further verification of lithology and resource mapping.

3 Reliance on Other Experts

3.1 Technical Data

Craig Dunn, P.Geol. (author) has prepared this report strictly in the role of an independent qualified person and our staff was not consulted as to the design of the data collection and analysis program.

The author was contracted to review the project in 2020, years after the primary drilling program and did not witness the program execution; however, Voyageur representatives and previous geological consultant, Henkle and Associates, were open and forthcoming with documentation and datasets and at no time did the author suspect the withholding of information. The author is of the opinion that the data is sufficient and reasonable for an assessment of the project at this stage of exploration. None of the information provided has been specified as being confidential and not to be disclosed in this report.

This report is based on the information provided by Voyageur and previous exploration consultants (including Henkle and Associates), both verbal and documented, and on the writer's personal evaluation at Voyageur's project site. The author has reviewed and confirmed the accuracy and fair representation of all technical information provided by Voyageur including geological notes, surface maps, geophysical data etc., (Willis, B. P.C. and Voyageur, Exploration Files (various dates)). Data of note will be listed in **Section 27** of the report – References.

Based on what has been reviewed of the 2017 drilling and analytical records and discussions with those in attendance of the 2014 analytical work, the author is satisfied that the exploration programs conducted at the Frances Creek Property of Voyageur followed CIMM best practices for the exploration and evaluation of mineral occurrences.

3.2 Ownership and Permitting Data

Based on the fact that significant drilling programs took place as recently as Q2 – Q3, 2017, that the permits are both still active and have been expanded at the Frances Creek property and the recent site visit in 2020, the author believes there are no significant environmental liabilities attached to the Frances Creek Property. However, the author has not contacted British Columbia mine permitting authorities to determine if there are any known environmental liabilities associated with the properties; we take Mr. Willis at his word with respect to these issues (Willis, B, P.C.)

The author is aware (from review of online BC governmental data), that Voyageur owns the mining claims in good standing and assumes that Voyageur has obtained an independent, legal opinion as to the prior ownership of the concessions and their registration with the appropriate governmental authorities.

This limited disclaimer only applies to **Section 3.0** of this report.

4 Property Description and Location

4.1 Description and Location

The Voyageur Pharmaceuticals Ltd. Frances Creek Barite Property is composed of three contiguous mineral claims. The claims are located in the country of Canada, in the Canadian Rocky Mountains. The property area is located in the SE portion of the province of British Columbia, near the town of Radium Hot Springs. The company also owns two additional barite properties, as can be seen on the map (FIGURE 4.2).

FIGURE 4-1: LOCATION - VOYAGEUR'S PROPERTIES

The property is 838.64 hectares (composite) in size, as shown on Figure 4-2. Using degrees of Latitude and Longitude, the centre of the claim block which comprises the property is located at Frances Creek 50°44' 20" N and 116°25' 26" W. All registration fees for the claims are current.

Title Number	Claim Name	Owner	Issue Date	Good To Date	Status	Area (ha)
571267	FRANCES CREEK	278693 (100%)	2007/DEC/04	2027/NOV/15	GOOD	388.5473
1054177	FRANCES CREEK SOUTH	278693 (100%)	2017/AUG/21	2028/AUG/21	GOOD	286.4331
1031568	FRANCES CREEK2	278693 (100%)	2014/OCT/14	2027/NOV/15	GOOD	163.6565

TABLE 4-1: FRANCES CREEK CLAIMS

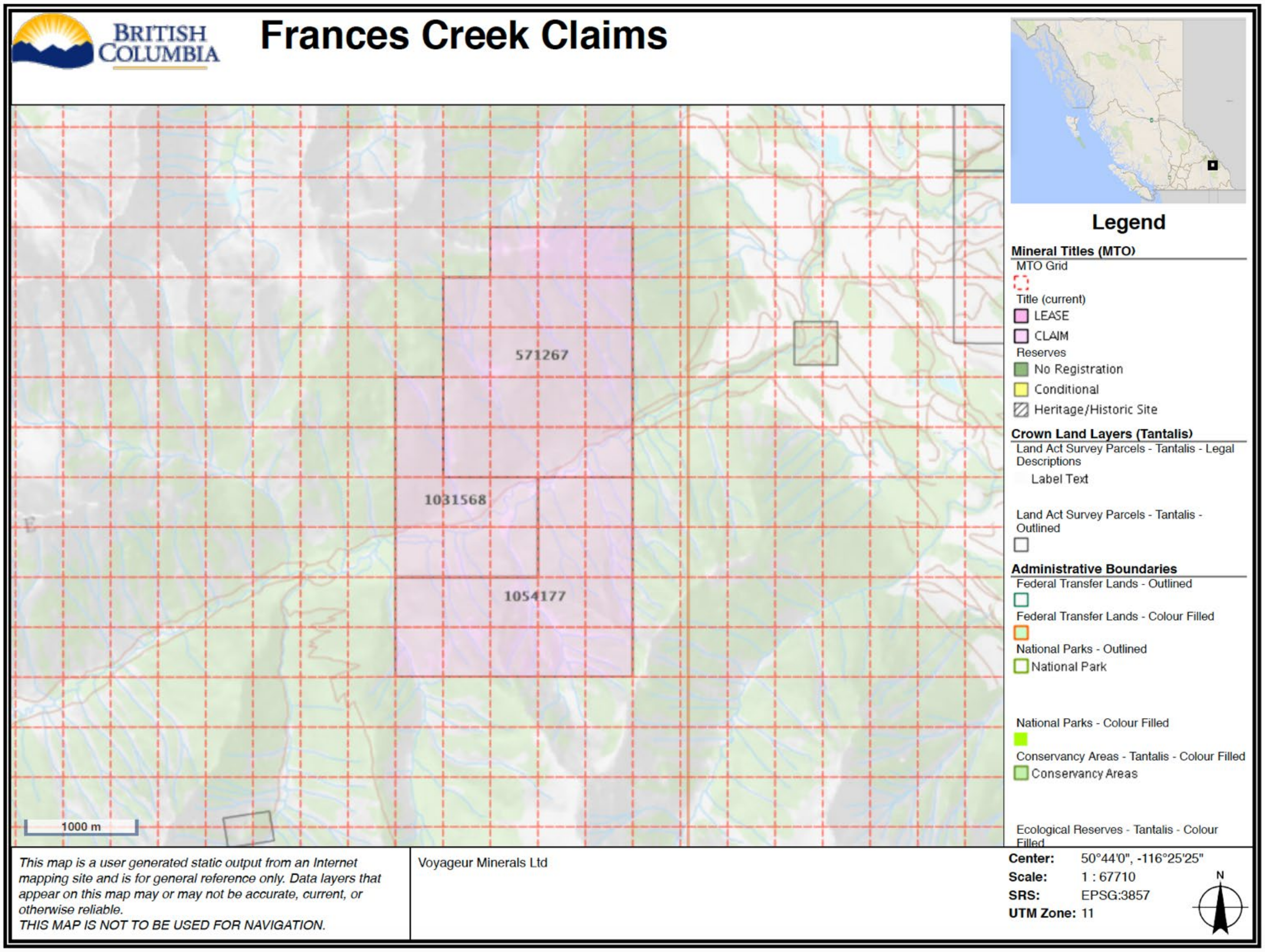


FIGURE 4-2: FRANCES CREEK CLAIMS

Claims are granted on a discovery priority basis, on government owned land, by the B.C. Ministry of Energy and Mines, for exploration, exploitation, beneficiation, auxiliary services and transportation. A mining claim grants its holder the right to explore and exploit minerals within its area and the key characteristics include:

- Claims are exclusive, freely transferable and mortgageable.
- Location is based on a UTM grid system of min 21 ha to max of 21000 ha.
- Granted on a first-come, first-served basis.
- Indefinite term but with restrictions with respect to annual payments or assessment work requirements to maintain title to the claim.

Section 8 of the B.C. *Mineral Tenure Act Regulation* describes registering exploration and development for a claim. The value of exploration and development required to maintain a *mineral claim* for one year is $5.00 per hectare during each of the first and second anniversary years, $10.00 per hectare for each of the third and fourth anniversary years, $15.00 per hectare for each of the fifth and sixth anniversary years and $20.00 per hectare for subsequent anniversary years. Payment Instead of Exploration and Development; the cost is double the work requirement, $40.00 per hectare. For mineral it is also double the work requirement, $10.00 per hectare for anniversary years 1 and 2, $20.00 per hectare for anniversary years 3 and 4, $30.00 per hectare for anniversary years 5 and 6; and $40.00 per hectare for subsequent anniversary years.

The author has restricted the review of the Mineral Rights held by Voyageur to checking the individual license boundaries on plans to those depicted on the Mining Claims. No legal review of the validity of the process Voyager went through to obtain the Mining Claims has been undertaken.

4.2 Ownership and Burdens

The claims listed above which make up the three property areas are 100% owned by Voyageur. Title to the claims was transferred from Tiger Ridge to Voyageur on September 16, 2013.

Tiger Ridge has retained a 3.5% net royalty on the milled barite sales price, and a 3.5% net smelter return on any base or precious metals produced from the properties. In addition to the Tiger Ridge Royalty, the claims are also burdened by a previously existing royalty to the Estate of Arthur Louie of CD$ 2.00/tonne on finished barite and CD$ 2.00/tonne on metals concentrate production.

Mining claims in B.C. have no royalty to the government on production, nor are there any special mining taxes which must be paid.

4.3 Permits and Environmental Considerations

At the time of this writing, exploration and mining permits are in place on the Frances Creek claims under the Permit MX-5-519 Mine# 1630108. The permit is currently in year four of a five-year Multi-Year Area-Based Permit (MYAB).

4.3.1 Multi-Year Area-Based Permitting

The BC Mines Act (section 10(3)) provides the Chief Inspector of Mines (and delegated inspectors) with the authority to set the length of term for permits issued under section 10. MYAB permitting is the practice of authorizing exploration activities, typically for up to five years within identified activity area(s) underlain by the mineral or coal tenure area of the project. Proponents have the flexibility to execute exploration programs over the entire area and through the life cycle of the authorization as field results and market conditions dictate.

Inspectors authorize annual activities on the site by reviewing and accepting a MYAB Work Program Annual Update that outlines planned activities for the coming year and an Annual Summary of Exploration Activities (ASEA) that outlines the activities conducted over the previous year.

The use of MYAB permitting remains at the discretion of the inspector based on the nature of the proposed work, including the geographic or geologic conditions of the work area, the inspectors experience with the proponent and wildlife or other values on the land base. Applicants should work closely with inspectors to determine whether MYAB permitting makes sense for their specific situation.

Initial permitting for the prospect is in the form of a 5 year multiyear permit, which allows for all exploration work. A bulk sample of up to 10,000 tonnes production can be applied for additionally as well as an exploration drift. These are additional applications that fall under the MYAB permit. Based on information from Voyageur, the conceptual production rate for this barite project is in the range of 2000 to 3000 tonnes per month, this will allow for to 2-3 years of production. Upon completion of the bulk sample a full mining permit can be applied for. This mining permit take approximately one year each to obtain and would require a second permitting campaign. Figure 4.3 is a map of the MYAB permit area at the prospect.

As of the finalization of this of this report, December 16, 2020, the author has not been informed of or aware of any environmental liabilities at either of the prospects that may either preclude or slow down the permitting process.

4.4 Other Significant Factors and Risks

To the best of the authors' knowledge, there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

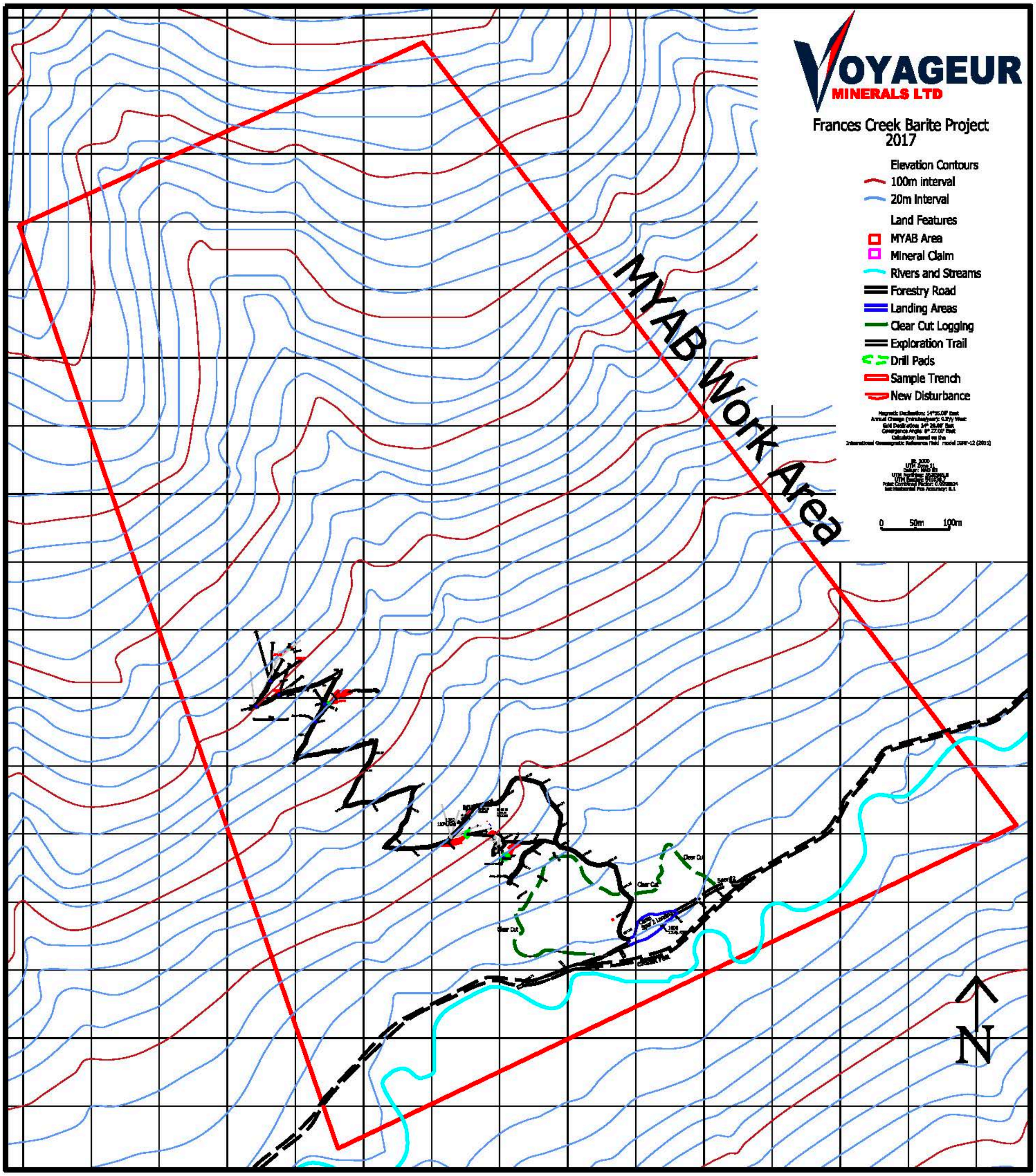


FIGURE 4-3: MYAB PERMIT AREA – FRANCES CREEK PROPERTY

5 Accessibility, Climate, Local Resources, Infrastructure, Physiography

5.1 Accessibility

Voyageur's Frances Creek barite property is in the Columbia Mountains physiographic province of British Columbia. The property is located within a 50 km radius of the town of Radium Hot Springs, B.C. Radium Hot Springs is located 144 km (airline) SW of Calgary, AB. and 530 km (airline) NE of Vancouver, B.C. (Figure 4.1).

Access from Calgary to Radium Hot Springs is 151 km westward on the Trans-Canada Highway to Hwy 93 turnoff, then southwards on Hwy 93 for 94 km to Radium Hot Springs. The entire distance to Radium Hot Springs is on paved all weather highways; accessible by 2-wheel drive vehicles except during winter storm conditions.

Elevations in the region surrounding the properties range from ~ 800 m at Radium Hot Springs, to + 3900 m, on the mountain tops. Elevations at the properties range from ~ 1270 m to ~ 2400 m. The Frances Creek barite deposit is accessible from the Frances creek logging road. The deposit is within 100m of the backcountry road and has ample area to set up mining and processing equipment. This road connects with the west side road and ore can be easily transported from the site.

Table 5.1 shows access information to the property in tabular format.

5.1.1 Frances Creek Property - Access

Access to the Frances Creek property from Radium Hot Springs is via unpaved logging roads. First, travel 9 km west on the "Horsethief Creek Road"; then 25 km north-northwest on the "Westside Road"; then, turn west-southwest for 1.8 km on the "Lead Queen - Frances Road"; then turn west on the Frances Creek Forestry road and travel 6 km to the site (travel time ~ 45 min.). To this point, the roads, which are traveled regularly by logging trucks, can be navigated by a 2-wheel drive vehicle during non-snow/non-mud conditions (4-wheel drive is recommended however).

The outcrop zone of the Frances Creek barite deposit is found from elevation 1332 m to 1600 m along an erosional spur which is located on the SE face of Horeb Mountain. Access to the outcrop zone is via a steep switchback road constructed by a backhoe. This road was upgraded in Q-2, 2017 to allow access for a drill rig and is now summer accessible either by a 4X4 pickup truck or preferably, by a quad off terrain vehicle. The lower elevations of this property can be accessed year-round when logging is operational. However, snow clearance is required in the winter months when there is no logging activity. The upper elevations of the property are inaccessible from November through mid - May.

Property	From	To	Dist.	Direc tion	Via	Time	Elev. m
Frances Creek	Radium HS	Lead Queen Rd	34 km	NW	gravel	25 min	800 - 1050
	LQ & Fr Ck Road	Fr Ck Access Rd	7.8 km	WSW	gravel	20 min	1050 - 1300

TABLE 5-1: PHYSICAL ACCESS DETAILS

5.2 Climate

Climatologists assign a continental climate (inland) to the Southern Canadian Cordillera, in which Voyageur's Frances Creek Property, (the Project Area) is located. The climate in the Project Area is classified under the Koppen climate classification system as "Dfc" or a "cold, snowy forest climate with no distinct dry season and short, cool summers" (Gadd, 2009).

Elevations within the Project Area range from ~ 900 m at Radium Hot Springs to + 1600 m. This is a mountainous region, so weather conditions are altitude dependent. Higher elevations experience cooler temperatures and more rain and snow, than do lower elevations.

Continental climates are marked by a wide range of temperature variation over the year, 36^{o} to 40^{o} C variation between summer highs and winter lows are normal. Data from Environment Canada show that Radium HS (elevation 899 m) receives 424 mm precipitation yearly with 111 cm as snow; while Wapata Lake (elevation 1646 m) receives 884 mm precipitation yearly with 479 cm as snow (Gadd, 2009). Snow accumulations of 3 - 6 m in the higher portions of the three properties should be expected.

Snow season is normally from early November to early May. Voyageur's properties will be seasonally available for exploration.

5.3 Local Resources

The project area is located in a timber harvesting area; a large lumber mill is located at Radium Hot Spring. An operating open pit magnesite mine is also located nearby. This means that ancillary services such as fuel stations, machine shops, tire shops, contract truck haulers, etc. are available. Excessive amounts of parts, tires, etc. will not have to be stocked at the mine warehouse; thus, inventory costs for these necessities will be reasonable. There is also a supply of semi-skilled labour available; the labourers already know how to operate many pieces of heavy equipment; staff training will be minimized.

5.4 Infrastructure

Over many years, the timber industry has constructed an existing network of well-maintained haul roads in the Project Area. Access roads to the property are already constructed, but they will require some delayed maintenance attention prior to initiation of drilling or mining activity. A large logging landing was recently constructed at the lower entrance to the property. The nearest barite mill is located in Lethbridge, AB, some 225-airline km SE of the Project Area.

Due to the large amounts of snow received each year, the Project Area has abundant water resources which can support drilling. Several large perennial streams drain the near vicinity of each of the three properties. In the lower elevations of each of the three properties, there is ample room available to construct mine site facilities such as tailings ponds, jig plants, etc. should an economic mineral occurrence be delineated by future drilling operations.

5.5 Physiography

The Project Area is located in the central region of the Western Cordillera physiographic province of North America. The Sub province in which the property is situated is the Purcell Range of the Columbia Mountains. The topography of the property can be characterized as steep, rugged, forest covered mountains, drained by a small intermittent stream.

Frances Creek, to which the property drains, is part of the Columbia River drainage basin. The Columbia eventually drains south into the US, and empties into the Pacific Ocean at Astoria, Oregon.

6 History

Barite has been produced in British Columbia since 1940. Prospectors and geologists have been searching for barite in British Columbia since at least the mid 1930's. This persistent prospecting activity has resulted in the discovery of numerous barite occurrences. By 1997, the BC Geological Survey had located and described 188 barite deposits of various size and types throughout the province (Butrenchuk and Hancock, 1997).

6.1 Recent Ownership and Operational History

Most of the barite occurrences/deposits in the province are associated with base metals occurrences, where the barite mineralization (typically 15% - 65% by volume) occurs with the base metals' mineralization in the same vein or bed. After WW II, intense oil and gas drilling in the Western Canadian Sedimentary Basin began. Prior to the war, barite was considered a gangue (waste) mineral that was associated with the base metal ores. After the war, barite production as a byproduct and often as a primary product started on a small to medium scale from several base metals mining properties. The American Petroleum Institute (API) created guidelines and specifications for barite in the 1980's. As a result of these new industry standards, barite could have only 1 ppm mercury (Hg) and only 3 ppm cadmium (Cd) associated with it. This new specification eliminated the majority of vein barite properties in North America.

6.1.1 Frances Creek Property

The Frances Creek Barite Property was discovered by prospector Arthur Louie in 1989. No previous base metals or barite occurrences had been reported from the property. Mr. Louie optioned his claims to Mountain Minerals, Ltd. from 1990 - 1992. A small adit (now caved) was driven into the vein at the 1335 m level and minor drilling (helicopter borne) was undertaken on the upper outcrop areas of the vein. Mountain Minerals dropped the option in 1992.

During 2003 Tiger Ridge optioned the property from Mr. Louie. Tiger Ridge drilled the property in 2003 and 2005. The option was fully paid out in 2005 and the claims were then owned 100% by Tiger Ridge. The claims were converted into a single claim in 2007.

In 2012 Tiger Ridge leased the claim to Voyageur, for a future royalty (see **Section 4.2).** The claim is currently owned 100% by Voyageur. Between 2005 and 2016, the only exploration activity which occurred at the property was limited channel sampling. In Q3 of 2016, a 17-tonne trench sample was excavated in the lower elevations of the property.

In 2Q and 3Q of 2017, a 1229.8m - 25-hole drilling program took place at the property and the results of both Voyageur's outcrop sampling and both the historic and the 2017 drilling programs at the Frances Creek Property will be discussed in greater detail in **Sections 9,10, 11, 12 and 14** of this report.

6.2 Historical Resources and Reserves

There have been no formal resource or reserve estimates filed for the Frances Creek Property, prior to this report.

6.3 Production

The Frances Creek Property has no past production history of any consequence.

7 Geological Setting and Mineralization

7.1 Regional Geology

Voyageur's Frances Creek barite property is located in the central region of the Western Cordillera physiographic province of North America. Specifically, in the Columbia Mountains physiographic province of British Columbia.

As can be seen in Figure 7.1, the Frances Creek Property is located within the Omineca Geologic Belt, of British Columbia. Each geologic belt (often synonymous with the term "Terrane") contains a separate suite of rocks with a separate geologic history than the adjacent belt. The property is located at the eastern margin of the Belt, adjacent to the boundary of the Omineca and the Foreland Belt.

The Belts are separated from each other by a physiographic feature known as the Rocky Mountain Trench. The Trench is not shown on Figure 7.1, but it is located at the boundary of the two belts. The Trench is tens of km in width by approximately 1500 km in length and most of its length is coincident with the boundary of the Foreland-Omineca Belts, thus it would be difficult to show in Figure 7.1.

Except for the Foreland Belt, the belts shown in Figure 7.1 were scraped off the subducting Pacific Plate and affixed to the overriding North American Plate at the western edge of the North American continent, by a process known as accretion. Each belt of rocks represents a separate period of accretion, the Omineca Belt having been accreted before the Intermontane Belt, and so on. This happened from about 220 - 140 million years ago.

The Foreland Belt formed by SW to NE compressive forces (also related to plate tectonic movement); it was not accreted on to the edge of the continent. This happened from about 100 - 50 million years ago and was accompanied by large scale over thrusting of the sediments above the basement crystalline rocks. The Rocky Mountain Trench was the youngest feature to form (about 60 - 50 million years ago). Modern earthquakes located along the trench may indicate that the orogenic forces that built the trench may be somewhat still active.

The depositional age of the Foreland Belt rocks is considerably younger than the depositional age of the Omineca Belt rocks. The Foreland Belt rocks are known as the "Middle Carbonate Unit"; predominately composed of limestone, dolostone and shale. The Middle Carbonate rocks are Middle Cambrian to Permian in age (513 to 250 million years), (Gad, 2009).

The Omineca Belt Rocks of the western Project Area (Frances Creek property) are known as the "Old Clastic Unit” These rocks are predominately composed of grit stone, slate, hardened till and quartzite, with minor limestone and dolostone. The limestones and dolostones were deposited towards the top (younger portion) of the sequence. The Old Clastic rocks are Neoproterozoic to Early Cambrian in age, from 458 to 513 million years (Gad, 2009).

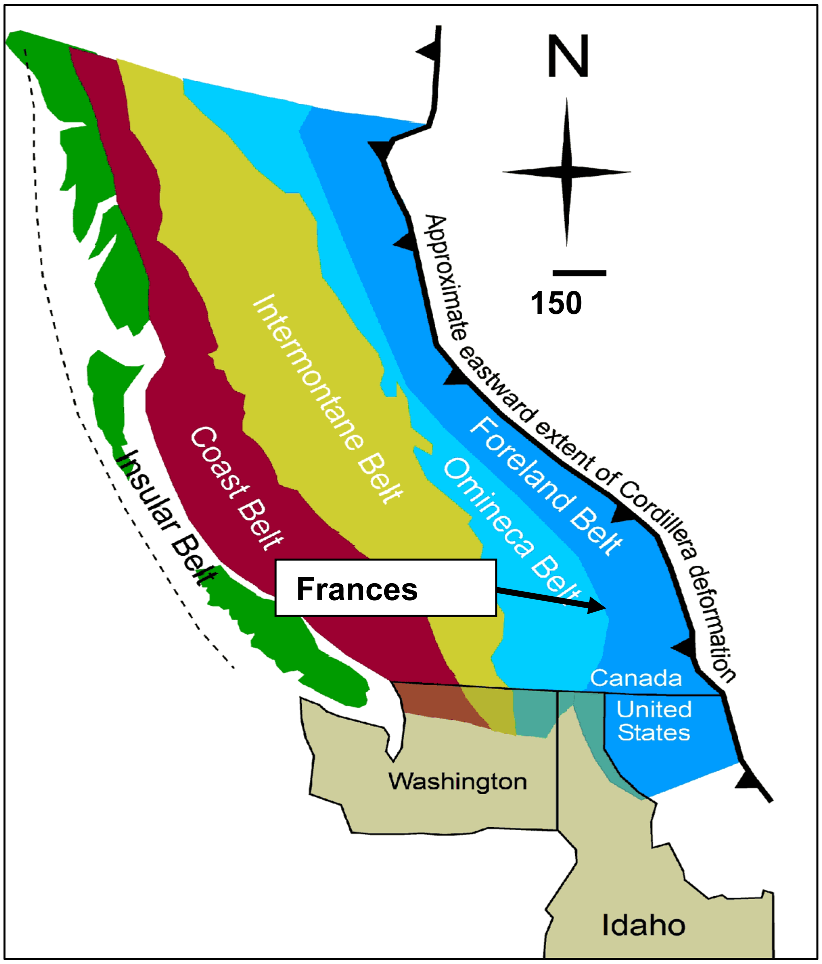


FIGURE 7-1: PROPERTY LOCATION (APPROX.) VS. GEOLOGIC BELTS

The above statements are generalized in nature as there is some mixing of the rock units along the boundary of the Omineca and Foreland Belts. For example, at the Jubilee Mountain Property, units that straddle the Cambrian - Ordovician boundary are found; likewise, the same Cambrian - Ordovician units are found near the Pedley Mountain property. The two properties are located on opposite sides of the Rocky Mountain Trench, the boundary of the two belts.

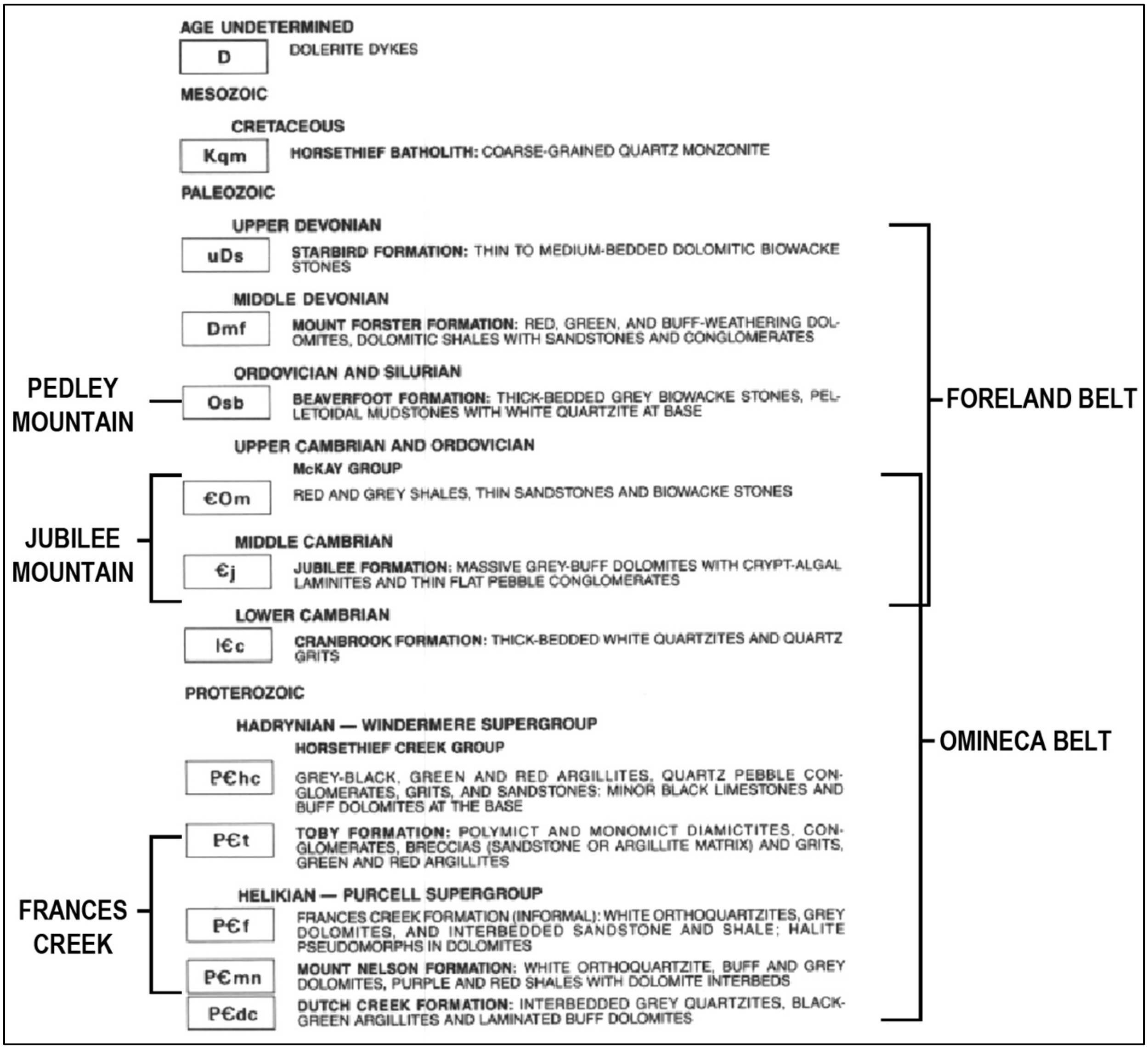


FIGURE 7-2: AGE RELATION OF FORMATIONS - VOYAGEUR PROJECT AREA (*MODIFIED FROM POPE, 1990*)

The dominant structural geologic feature in both the Foreland and the Omineca Belts are thrust faults. The thrusts in the Omineca Belt are somewhat steeper and do not displace the rock units to the east as far as the thrusts do in the Foreland Belt. Some thrust faults in the Foreland Belt have displaced strata in the hanging wall as much as 140 km. (Gadd, 2009).

7.2 Prospect Scale Geology

7.2.1 Frances Creek Property Geology

The Frances Creek Property is located along the eastern edge of the Omineca Geologic Belt, about 7 km east of the Rocky Mountain Trench Fault. Formations from two major

Systems of the Precambrian Eon are found at the property. Both Purcell (Helikian System) and Windemere (Hadrynian System) Supergroup formations outcrop. The Purcell Supergroup rocks range in age from 1600 my to 850 my; the Windermere Supergroup rocks range in age between 850 my - 542 my (Wikipedia, 2014).

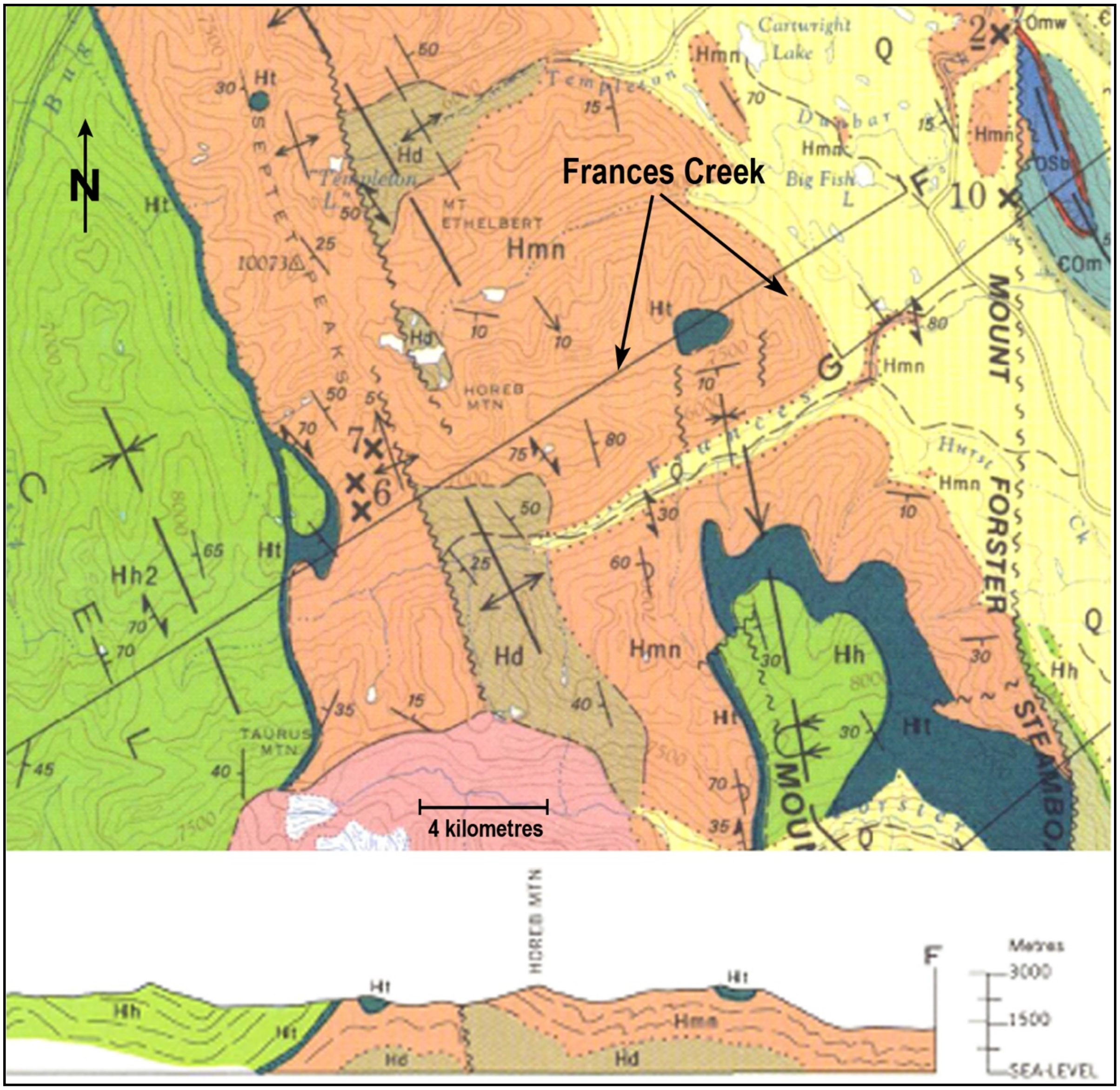


FIGURE 7-3: GEOLOGIC MAP AND SECTION - FRANCES CREEK PROPERTY (*AFTER REESOR, 1973*)

Rocks of the two systems are separated by an erosional unconformity. The amount of time represented by the unconformity is unknown; however, it is widespread and cuts markedly into the Mt. Nelson rock units in the Project Area (Pope, 1990).

7.2.1.1 Prospect Stratigraphy - Frances Creek

The Mt. Nelson Formation of the Purcell Supergroup of the Helikian System is the oldest rock unit found at the property. The Purcell Supergroup is the equivalent of the Belt Supergroup (American terminology) found to the nearby south. Purcell Supergroup rock units in the Project Area are thought to be + 9.8 km in thickness. The Mt. Nelson Formation which is the youngest formation of the Supergroup is estimated to be about 1.2 km thick, in the Project Area (Reesor, 1973). The Mt. Nelson is predominately dolostone in composition and is a platform carbonate. It is economically significant in that it is the main host rock for barite mineralization at the property.

The Mt. Nelson has been subdivided into six stratigraphic units in the area adjacent to the property (Pope, 1990). Pope measured and described 1520 m of section about 18 km to the south of the property, during the field work for his report. Voyageur's exploration department reports that the upper three units described by Pope (Figure 7.4) are recognizable in drill core (B. Willis, P.C., 2014). These units are: Hmn - 6 - Upper Mt. Nelson Quartzite, Hmn - 5 - Upper Mt. Nelson Dolomite and Hmn - 4 - Purple Sequence.

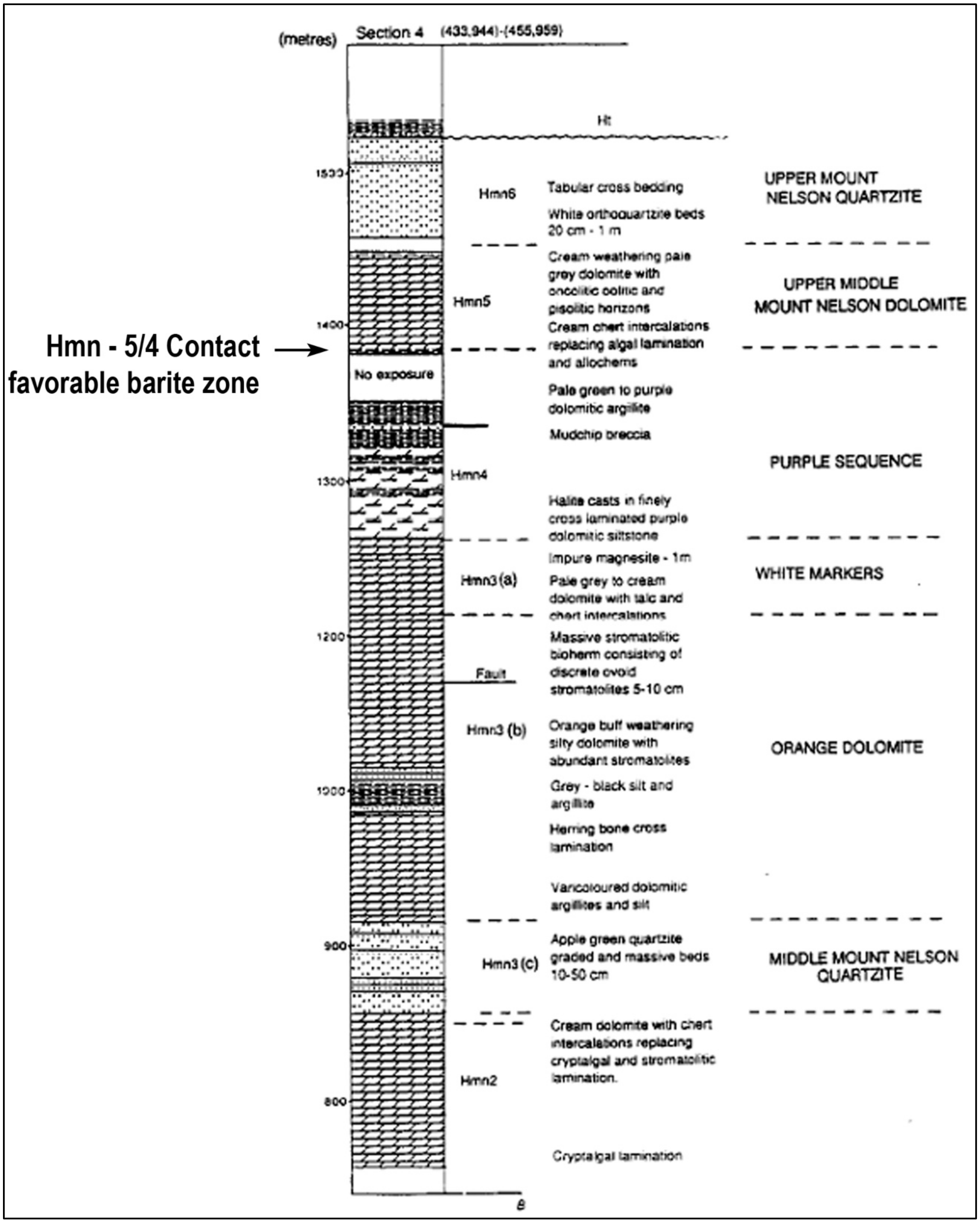


FIGURE 7-4: MT. NELSON FM. STRATIGRAPHY - FRANCES CREEK PROPERTY VICINITY (AFTER POPE, 1990)

The Upper Mt. Nelson Quartzite (Hmn - 6) outcrops at/near the upper drilling area (B – Zone), approx. elev. 1570 m. The Purple Sequence dolomitic argillites (Hmn - 4) outcrop at/near the lower drilling area (A – Zone), approximate elevation 1335 m. Prior to the 2017 drill season, the contact between units Hmn -5 and Hmn - 4 was thought to be a zone favorable for barite deposition (B. Willis, P.C., 2014).

Review of the 2017 drill program results resulted in a re-thinking of this concept. The control on mineralization is now thought to be a thrust fault that cuts through the property that strikes at 295 degrees. Along the lower A Zone, the fault is 8 – 10 m wide with large voids within the zone. The barite within the A Zone is hosted within the fault zone and is mostly concentrated along the foot wall contact. The hanging wall is made up of silicious grey to green argillaceous dolomite. The footwall is primarily soft green and brown argillaceous dolomite.

The strata exposed at the upper B Zone is primarily a purple / maroon argillaceous dolomite. There, the hanging wall of the fault is a brown weathered rubbly brecciated dolomite. A beige – brown dolomitic breccia is the dominate rock type in the lower elevations of the B – Zone.

The Toby Formation conglomerates were found in the uppermost elevations above and outside of the property by Reesor in 1973. Outcrops of Toby Formation sandstones were mapped by Mountain Minerals geologist Butrenchuk at much lower elevations (1463 m to 1710 m) and within the property boundaries, in 1990. Voyageur's geologists also mapped Toby outcrops at lower elevations within the property (Figure 7.5).

The Toby unconformably overlies the Mt. Nelson dolomites. Reesor's mapping shows a small outcrop of Toby about 1.5 km in a NE - SW orientation and about 1 km in width in a NW - SE direction. Thickness is shown to be ~ 100 m. Butrenchuk's mapping shows the Toby as being in fault contact with the Mt. Nelson Fm. in the SE portion of the property (Butrenchuk, 1990).

The fact that the Toby unconformably overlies the Mt. Nelson in the property area has economic significance. Unconformities are often favorable sites for mineral deposition. The Toby - Mt Nelson unconformity is a disconformity which means there was a period of uplift and erosion (time period unknown) after Mt. Nelson and before Toby depositional time. Karst topography may have formed on the Mt. Nelson surface; cavern systems are especially favorable loci for mineral deposition. The Toby - Mt. Nelson contact should be targeted for further prospecting, during the proposed exploration program.

7.2.1.2 Prospect Structural Geology - Frances Creek

<u>Faulting</u> - Reesor's 1973 regional scale (1:250,000) mapping shows two NNE striking but unnamed faults traversing northwards in the vicinity of the property near the southern boundary along Frances Creek (Figure 7.5). He does not show the faults crossing the creek or outcropping in the hillside to the south of the creek. Pope's 1990 more detailed mapping (1:25,000 scale) shows the Forster Creek Thrust Fault

outcropping on the hillside to the south of the creek, the alignment of the trace of the fault suggests that it is dipping steeply to the west.

Unfortunately, Pope's detailed map stops at the south side of Frances Creek; Reesor's regional scale mapping encompassed both sides of the creek. The location of the thrust mapped by Pope is more or less on strike with the easternmost fault mapped by Reesor. A valid assumption would be that the two faults are the same and that the Forster Creek Thrust traverses through the southwestern portion of the claim.

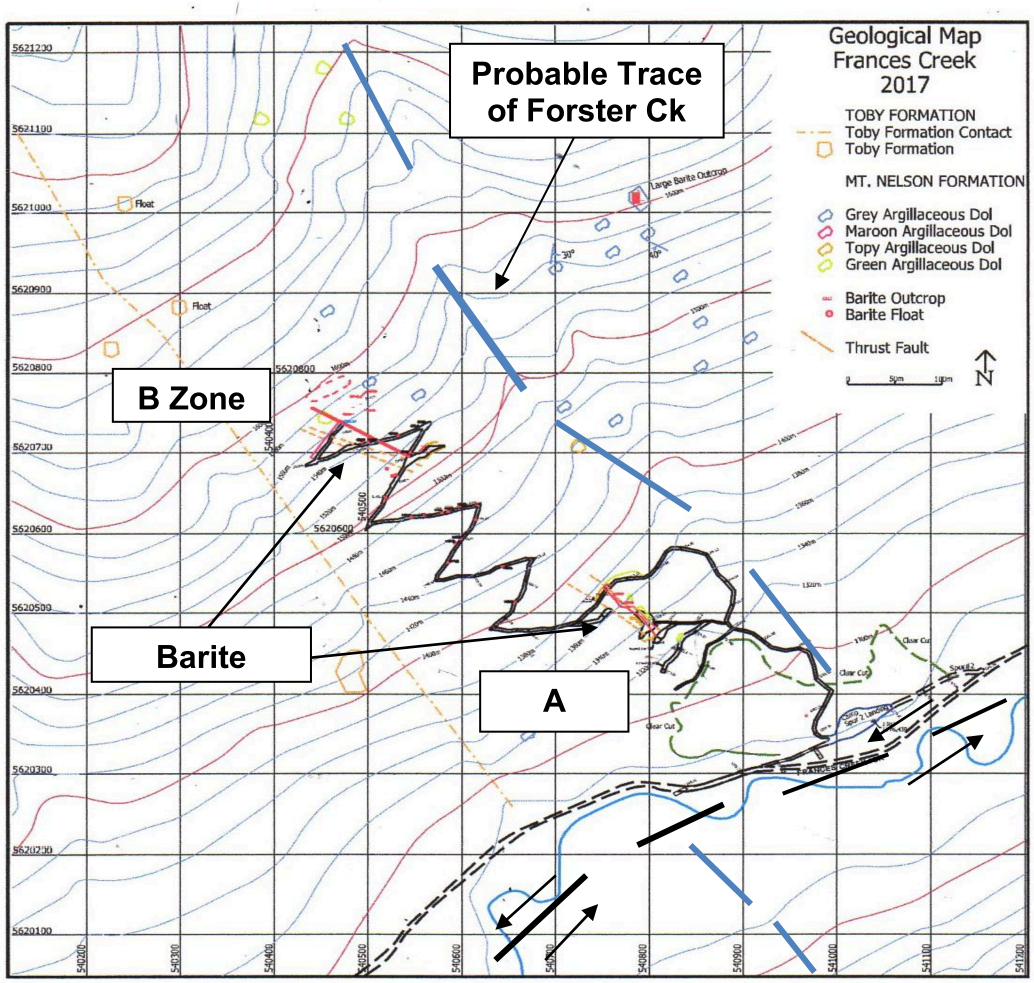


FIGURE 7-5: GEOLOGIC MAP - SE PORTION - FRANCES CREEK PROPERTY (WILLIS. 2017)

The trace of the thrust as interpreted by the author, coincides with a NW trending dry stream valley which is incised about 30 m into the SE face of Horeb Mountain in the SW portion of the Frances Creek Claim. This feature was also interpreted as a fault by

Butrenchuk in 1990. The dip of the thrust plane is to the SW at an unknown angle, but, based on topographic relationships, is probably steeper than 55 degrees.

The trace of the Forester Creek Thrust as mapped by Pope intercepts Frances Creek about 0.5 km SW of where the trace of the thrust as mapped by the author and by Voyageur does. This implies the presence of a buried right lateral fault located along the bed of Frances Creek (Figure 7-5).

Butrenchuk mapped a NNW striking fault which places the Toby in contact with the Mt. Nelson, about 350 m west of the Forster Creek Thrust, in 1990. This fault outcrops in the very SW portion of the claim. It was not mapped by Reesor during his regional scale mapping in 1973 (1:250,000) the 1990 mapping was much more detailed (1:5,000); hence its' discovery at that time.

The 2017 drilling program was supervised by Voyageur. Mr. Willis' field mapping and drill hole logging led to the discovery of yet another thrust fault at the property. This is named the Barite Thrust, because it appears to control the barite mineralization at the property. The Barite Thrust has been mapped where it crosses the A Zone from elevation 1300m to 1380m and where it crosses the B Zone from elevation 1500m to 1600m. It crops out along the drill road cuts and at the drill pad excavations in the two zones. No doubt, it is continuous between the two zones, but the drill road cuts between the two zones are not as deep – so the structure is difficult to discern there.

The Barite Thrust crops out in the A Zone. Outcrop data shows the thrust fault dipping at -60° SW and striking 295°. The barite mineralization is located within the fault zone and this probably indicates that the fault was a conduit for the barite mineralization. Most likely there are secondary zones along this fault where the fluids precipitated and filled secondary faults and open areas.

Where the Barite Thrust outcrops in the B zone, the main fault structure is striking 295° and is dipping steeply to the SW as indicated by drill hole data. The main barite zone appears to be an off-shoot breccia that is striking 305° and dipping between -70° to -65° S.

Folding - Reesor's mapping also shows the Forster Creek Syncline crossing Frances Creek and dying out to the NW, about half-way up the mountainside. Reesor's mapping shows the syncline crossing Frances Creek and outcropping in the mountain face, just to the west of the Forster Creek Thrust. It can be inferred from Reesor's mapping that the dip of the beds in the mineralized area of the property would be to the SW.

Reesor shows the syncline to be the dominant structural feature south of the creek, traversing about 40 km of territory. Interestingly, Pope who mapped the area to the south of Frances Creek in detail does show the presence of an overturned syncline in this area, but it is not a dominant structural feature as shown by Reesor.

Detailed mapping by Tiger Ridge and by Butrenchuk shows that the beds strike to the WNW and dip SW at about 15 degrees in the B Zone mineralized area of the property, as well as in the lower A Zone. No major folds are indicted by the drilling to date.

However, more detailed work will probably show that folding at the property is more complex than is presently known.

7.2.1.3 Prospect Mineralization - Frances Creek

Barite mineralization at the Frances Creek Property occurs as a complex breccia vein which strikes NW and dips SW at about 40 degrees at the lower A Zone and 60 degrees at the upper B Zone (Figure 7.5). At the B Zone, drilling has shown that the breccia vein has a strike continuity of 150m and an average dip continuity of 50m (indicated) to 75m (inferred) down the dip from outcrop. At the A Zone, drilling shows that the breccia has a strike continuity of 85m, and an average dip continuity of 35m (indicated) to 55m (inferred) down the dip from outcrop. The 300m zone between the A and B Zones has yet to be tested by drilling.

The breccia vein occurs in the upper plate of the Forster Creek Thrust Fault, in the SW portion of the Frances Creek Claim, and is sub parallel to the trace of the thrust which outcrops ~ 200 m to the NE. The breccia vein material fills a small fault which was probably caused by tensional forces related to thrust emplacement. The Barite Thrust (Figure 7.5) appears to act as an especially favorable host zone for barite mineralization emplacement Barite mineralization is also found as fracture fillings, in the other minor structures at the property, however.

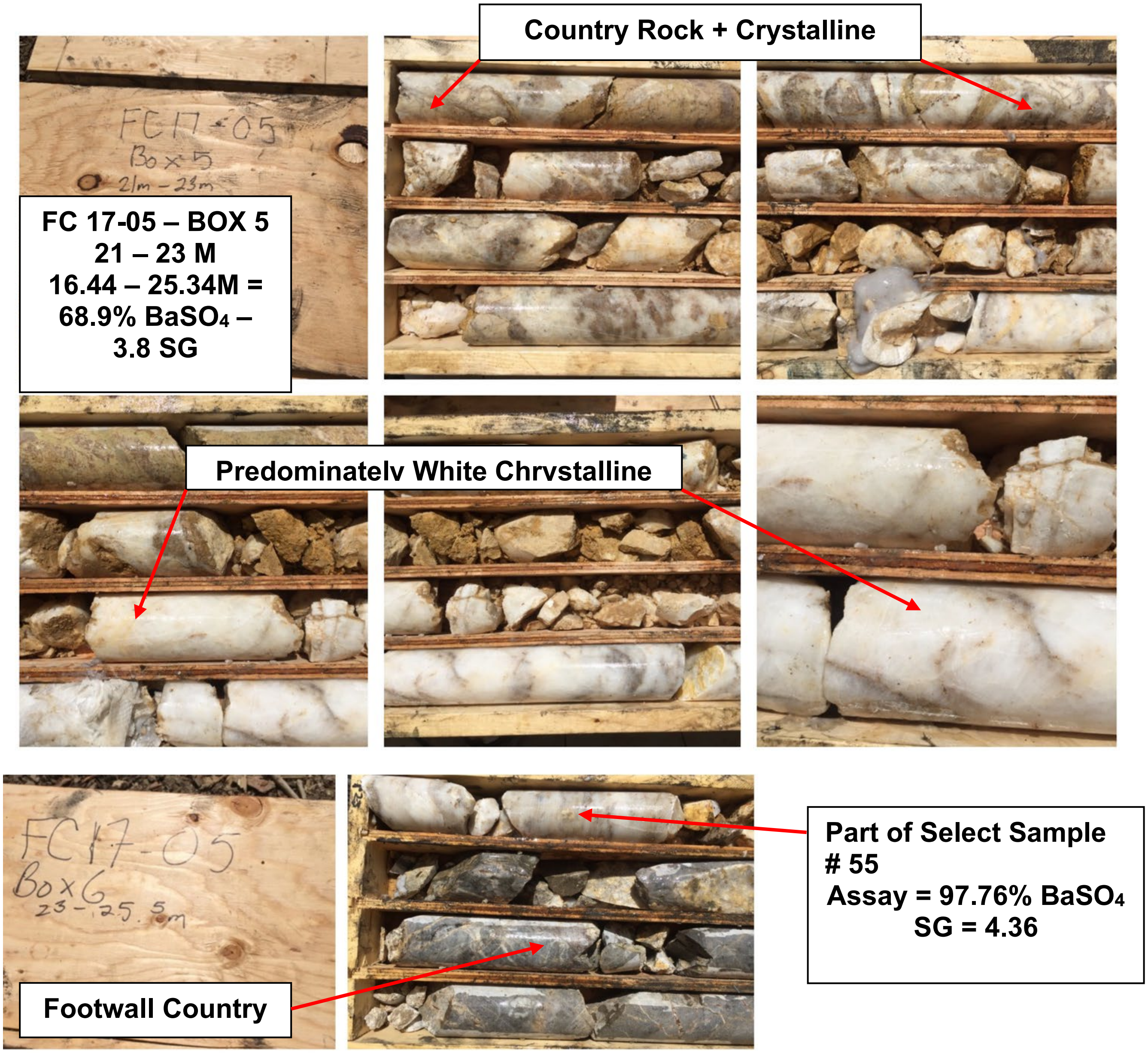


FIGURE 7-6: BARITE BRECCIA PHOTOS – DH – FC17-05

The breccia vein is composed of mixed percentages of country rock (argillaceous dolomite) and white crystalline barite, which was injected into the Frances Creek Fault Zone (Figure 7.6). Mineralized zones were encountered within the vein with as little as 8.9% $BaSO_4$ over 8.9m of core length and as high as 86.08% $BaSO_4$ over 5.25m of core which were recovered during the 2017 drill program. The weighted average of all drill intercepts (2003 – 05 – 17) for the B Zone is 7.95m @ 40.09% $BaSO_4$ / 3.31 SG. The weighted average for the A Zone drill intercepts is 2.71m @ 35.85% $BaSO_4$ / 3.29 SG.

7.2.1.4 Barite Mineralization Quality

Figure 7.6 shows core photos from drill hole FC17 – 05 and is intended to illustrate the non-homogeneous nature of the vein mineralization. The photos show that Crystalline barite in varying percentage concentrations is consistent throughout the breccia zone of the vein. In order to test the purity of the crystalline barite portion of the breccia, a select sampling program was initiated. Eight drill holes were selectively re-sampled. These samples were selected from previously assayed intersections of barite breccia. The pure barite zones within the breccia intercepts were then split from the vein to determine the nature of the purity of the barite.

The true widths and assay results from the sampled zones are as follows:

FC17-5 TW - 8.17m @ 68.88% $BaSO_4$
FC17-7 TW - 21.29m @ 28.57% $BaSO_4$
FC17-8 TW - 36.63m @ 24.83% $BaSO_4$
FC17-9 TW - 36.03m @ 19.47% $BaSO_4$
FC17-10 TW - 11.86m @ 60.32% $BaSO_4$
FC17-11 TW - 23.88m @ 27.05% $BaSO_4$
FC17-12 TW - 18.7m @ 37.39% $BaSO_4$
FC17-15 TW - 15.22m @ 37.64% $BaSO_4$

The highlights of the sampling are shown in Table 7.1, below:

Hole Number	Crystalline Barite Zone Sampled	% $BaSO_4$	Specific Gravity
FC17-5	23.7m-24.9m	97.76%	4.36
FC17-7	25.6m-25.8m	97.74%	4.46
FC17-7	32.4m-32.9m	99.12%	4.50
FC17-7	51.5m-53.4m	96.41%	4.44
FC17-8	24.5m-24.9m	97.02%	4.47
FC17-8	41.2m-43.8m	97.81%	4.39
FC17-9	16.9m-24.3m	97.58%	4.46
FC17-10	19.9m-33.5m	96.87%	4.36
FC17-11	33.0m-41.9m	97.26%	4.40
FC17-12	32.0m-48.6m	96.89%	4.40
FC17-15	29.7m-32.8m	95.32%	4.33

TABLE 7-1: RESULTS OF SELECT SAMPLING OF 2017 DRILL CORE

Crystalline barite in varying percentage concentrations is consistent though out the breccia zone of the vein. The sampling shows a very high grade for the crystalline barite. This select sampling of the crystalline barite to date indicates that it is exceptionally pure and is possibly pharmaceutical grade.

8 Deposit Type

Voyageur's Frances Creek Property can be loosely classified as "Carbonate Hosted Barite - replacement deposits'. This is a rather catch-all term meaning that they are barite deposits hosted in carbonate (in this case dolomite) rock units. They can be further sub classified as "Irish Type MVT (Mississippi Valley Type) Pb-Zn-Ag-Ba rich" replacement deposits. However, on Frances Creek there are no metals associated with the property.

These deposits are further described as "Irish Type carbonate-hosted deposits are strata bound, massive sphalerite, galena, iron sulfide and barite lenses with associated calcite, dolomite and quartz gangue in dolomitized platformal limestones." (Hoy, 1996). Interestingly, "normal" MVT deposits contain only minor barite, while Irish Type MVT deposits are barite rich, hence our interest in them.

Common features of "Irish Type" MVT deposit worldwide are:

- Epigenetic Origin - mineralization was after the host rock formed
- Unassociated with igneous activity
- Hosted by Dolostones and Limestones
- Dominant Minerals - sphalerite, galena, pyrite, marcasite, dolomite, barite, calcite
- Ore Fluids - basinal brines with 10 - 30 wt. percent salts
- Crustal sources for metals, barium, and sulfur
- Mineralization Deposition Temperatures - 75^{o} C - 200^{o} C
- Mineralization Controls - faults, fractures, dissolution collapse breccias, lithological boundaries
- Timing of mineralization - Coincident with mountain building

The B. C. Geological Survey has further sub-classified the Irish Type-MVT barite deposits of British Columbia as to the mineralization controls responsible for barite deposition. These are fracture controlled, replacement and manto type deposits. These deposits formed after consolidation of the host rock. They occupy voids formed along faults and fractures and replace the original minerals in favorable zones of rock by replacing the host rock molecule by molecule with barite molecules.

More specifically, Voyageur's Frances Creek Property is sub classified using the B.C. Geological Survey system as Fracture Controlled.

<u>Basis of Exploration Planning</u> - The basis for which past exploration was planned for the Frances Creek Property was to explore outlying barite outcrops using geochemical and geophysical means to obtain idea of development potential and to extend the known occurrences by drilling down dip for depth extensions and on strike for lateral extension of known barite bodies (2017 Program).

These are common exploration methods in mineralized terrain, where the explorationist attempts to extend known areas of mineralization. It is known in the trade as "Headframe Exploration". Chances of success are generally higher with this method as opposed to "Grassroots Exploration", which explores where no known mineralized areas exist.

9 Exploration

Voyageur became a public company in Q1 2017. Once funds were secured from the issue, Voyageur was able to initiate exploration work on the Frances Creek property. Prior to the 2017 drill program, almost, all exploration work undertaken on the property was by predecessor companies.

Prior to Voyageur's acquisition of the property, it was operated by Tiger Ridge, the immediate predecessor in title. Prior to that, the property was operated by Mountain Minerals, an industrial minerals exploration company (early 1990's). Since title to the properties is held by mining claims, the claimant is required by law to perform yearly "assessment work" on the claim block to maintain title. Usually, mining claimants choose to fulfill this requirement by performing some sort of exploration work on the claims.

Once the work is performed, the claimant must file an "assessment report" with the B.C. Ministry of Minerals. The reports are placed in a file at the Ministry and are available to interested parties. This results in a rather extensive geologic library for some properties; The Frances Creek Property being one of them. In this way, a current operator of the claim can review what was done in the past and incorporate that data into their geologic model of the property; thus, allowing for a more cost-effective exploration program going forward.

9.1 Pre-Tiger Ridge Exploration Campaign - Frances Creek

The Frances Creek Property was operated by Mountain Minerals, Inc. from 1990 - 1992. Work undertaken by Mountain Minerals on the property in 1990 consisted of:

- Geological Mapping - 1/5000 scale
- Soils Geochemical Survey - lines - 50 m, samples - 25 m, 184 samples
- Exploration Trenching & Sampling - 4 total
- Work undertaken in 1992 on the property consisted of 304 m of diamond drilling in 11 holes

Mountain Minerals work was reviewed by Tiger Ridge and was fundamental to their optioning the property. The knowledge base represented by Mountain Minerals work was instrumental in formulating Tiger Ridge's extensive drilling campaigns between 2000 and 2005. The soils geochemical survey was used to site several of Tiger Ridge's drill holes.

9.1.1 Mountain Minerals Geochemical Survey

The soils geochemical survey was completed using industry wide procedures and parameters (these are still in use today). A baseline (800 m) which transected the long axis of the deposit was surveyed and marked in the field. Cross lines were turned off at 80 m intervals. Soils samples were collected from the B horizon along lines that were spaced 50 m apart. Sample interval was 25 m; a total of 184 samples were collected. The samples were bagged and shipped to International Plasma Laboratory in Vancouver for analysis by ICP. Barium was the only element analyzed for.

It is standard practice to collect B horizon soils geochemical samples. B horizon soils samples are normally representative of the ion content of the soils, as they are free of organic debris. Organic debris is found in the A horizon, and the organic matter may have selectively concentrated various ions.

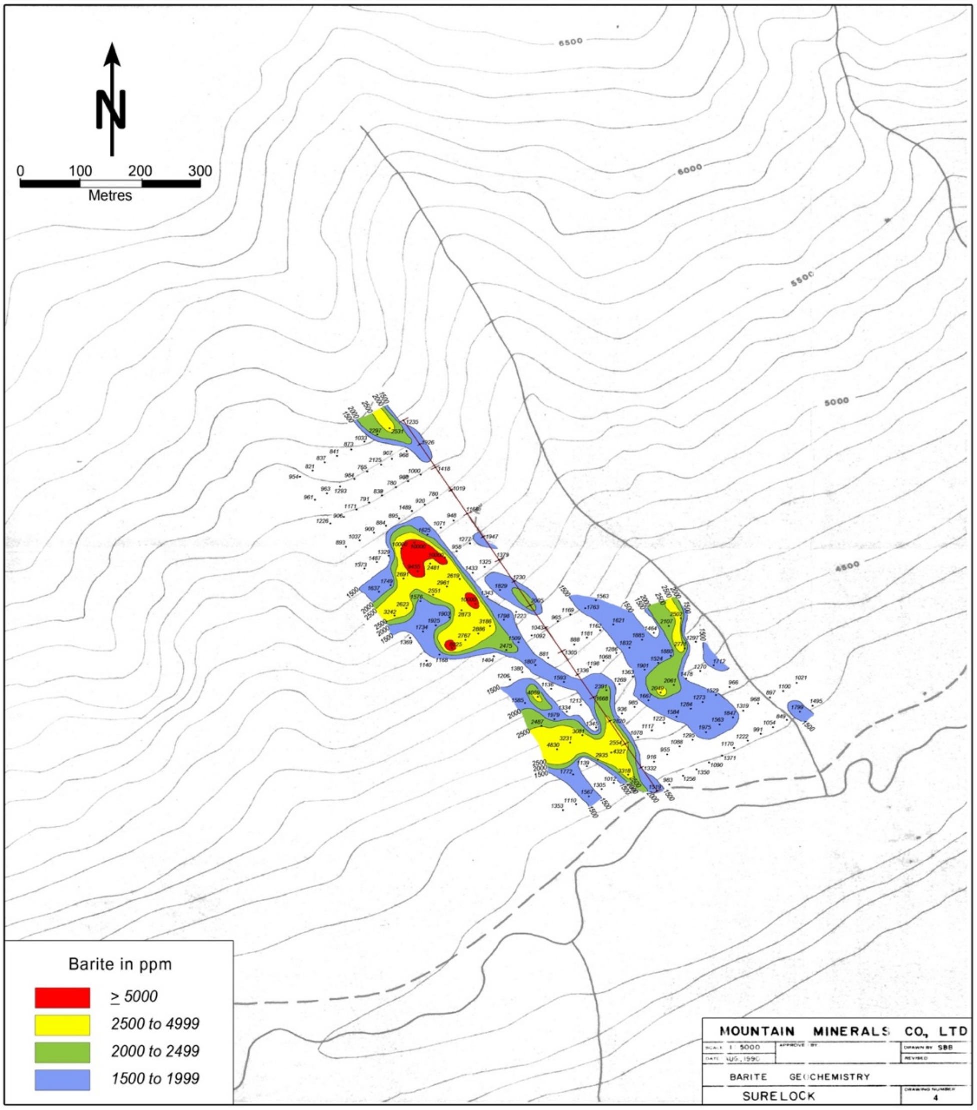


FIGURE 9-1: SOILS GEOCHEMISTRY - FRANCES CREEK PROPERTY

The barium values for the samples ranged from 765 to greater than 10,000 ppm. Anomalous values were considered to those greater than 1,500 ppm (Butrenchuk, 1990). Once the lab values were received, they were plotted to scale on a topo map base and a contour map was prepared (**Figure 9.1**).

9.2 Tiger Ridge Resources Exploration Campaigns

Tiger Ridge's 2002 - 2005 exploration work at the Frances Creek Property consisted of limited outcrop mapping and sampling, a geophysical survey, and drilling. Drilling parameters and results will be discussed in **Section 10**. The geophysical survey results are shown in **Figure 9.2.**

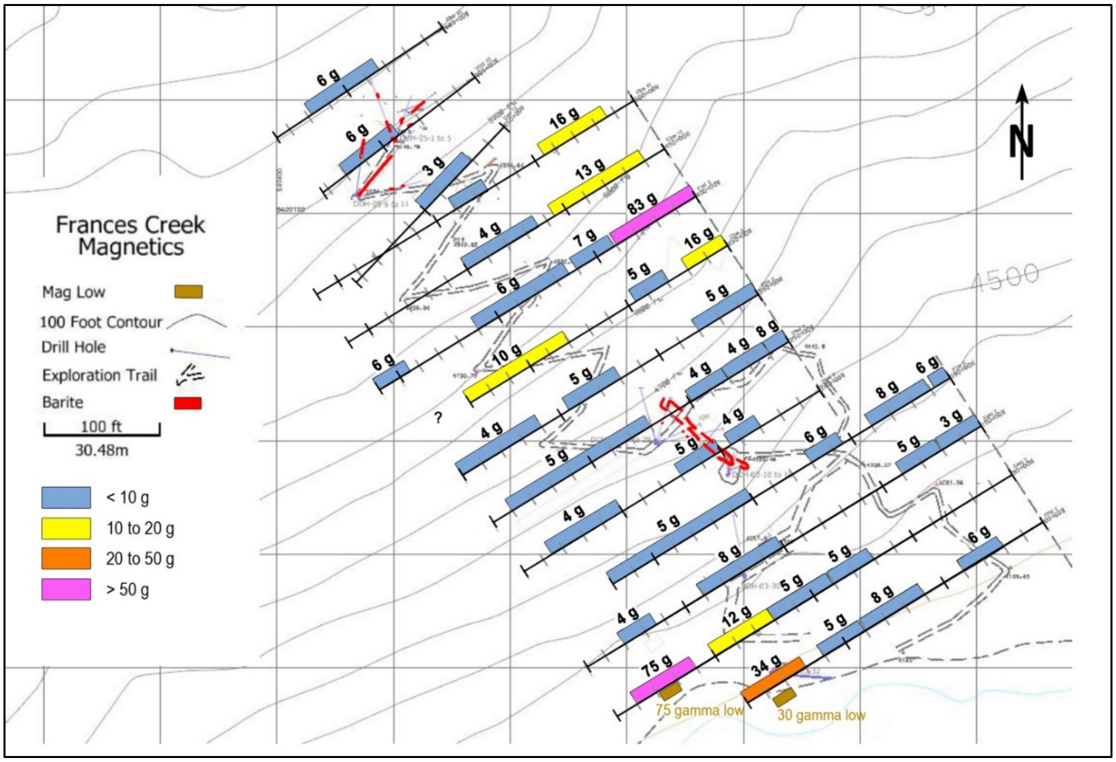


FIGURE 9-2: MAGNETIC SURVEY - FRANCES CREEK PROPERTY

In 2003, Tiger Ridge drilled the lower zone outcropping barite occurrences (**Section 10**). In 2004, a geophysical survey was conducted over the property to try and extend the known occurrences upslope. A ground-based magnetometer survey was conducted using a proton precession magnetometer; 14 lines were laid out in a SW - NE direction at 15 m intervals. Magnetic readings were acquired at 6 m spacing along each line.

The survey defined a broad magnetic low oriented NW - SE (blue areas) along the slope of the mountain. The known barite occurrences (lower zone) were located towards the center of the magnetic low. It was conjectured that the upslope extension of the barite would also be in the center of the magnetic low. The survey was useful in selection of drilling locations for the 2005 program. The 2005 drill program extended the barite occurrences up slope (**Section 10**).

Mr. Henkle resampled three of the lower zone outcrops during the 2014 field visit to the property. These sampling results were shown in **Table 9.1.** Mr. Henkle's sampling as well as the drilling results (**Section - 10**) indicates that the Frances Creek Barite Zone is apparently + 4.2 SG and is apparently API compliant with respect to heavy metals.

SAMPLE #	SG (4.1 - min)	% $BaSO_4$	Hg - ppm (1.0 max)	Cd - ppm (3.0 max)	SOLUABLE Ca - ppm (250 max)
8/12 - 1	4.12	91.78	.019	<1	94
8/12 - 2	4.05	86.18	.006	<1	155
8/13 - 1	3.62	70.02	.014	<1	139

TABLE 9-1: 2014 OUTCROP SAMPLE RESULTS – CHEMICAL TESTING - FRANCES CREEK PROPERTY

9.3 Voyageur Pharmaceuticals Ltd. Exploration Campaigns

As was mentioned in **Sections 7.2.1.3.1, 7.2.2.3.1, 7.2.3.3.1 and Section 9.3.4.,** Voyageur conducted outcrop sampling and sampling of previously drilled core at the Frances Creek property in 2014. In 2015, Voyageur conducted an outcrop sampling campaign at the Frances Creek property. In 2016, Voyageur collected and partially processed a trench sample from the Frances Creek property. A synoptic discussion of these exploration activities is discussed below.

9.3.1 2014 Sampling

The 2014 sampling program consisted of outcrop sampling at the property and sampling of archived previously drilled cores (2003 – 2005) at the core storage facility in Windemere, B.C. Both sampling exercises were supervised by Mr. Henkle, as part of the field portion of background research for preparation of the 2015 Technical Report on the three properties.

A total of three mineralized outcrop samples (**Table 9-1**) and 82 mineralized zones from 24 core holes were collected (**Tables 10.3, 10.4 – Section. 10**) and analyzed at Loring Labs in Calgary, an ISO 9001 certified laboratory. Details of the results of this sampling are shown in the report sections and tables referenced above. Voyageur's expenditure for the 2014 exploration campaign at Frances Creek was CAD $ 39,500.

9.3.2 2015 Sampling

The 2015 sampling program consisted of outcrop sampling from hand dug exposures of the Frances Vein at the property. This sampling exercise was undertaken by

Voyageur Geological Staff; a total of four channel samples were collected.

The four samples were analyzed for chemical composition **(Table 9-2),** and SG at Loring Labs in Calgary, AB. and for whiteness and brightness **(Table 9-3)** at SGS Mineral Services' lab in Lakefield, ON. Both labs are ISO 9001 certified and both labs enjoy a sterling reputation for accurate analyses throughout the Canadian mining industry.

The chemical testing showed positive results; high purity, high SG and acceptable levels of accessory and contaminate elements and compounds. The whiteness – brightness testing which was positive (+94.0 – Hunter L). Testing from both labs indicated that the Frances Vein barite is potentially filler (paint) grade. The filler market is an important segment of the industrial grade barite market.

Details of the results of this sampling are shown in the sections referenced above. Voyageur's expenditure for the 2015 exploration campaign at Frances Creek was CAD $ 8,796.44.

SAMPLE #	SAMPLE WIDTH	$BaSO_4$ %	SG	Ca ppm	Cd ppm	Hg ppb	Pb ppm	As ppm	Sr ppm	Al2O3 %	Fe2O3 %	SiO2 %
FC1 2015	1.41m	98.54	4.48	34	<1	7	6	2	8162	0.03	0.02	0.05
FC2 2015	1.25m	98.76	4.48	24	<1	6	4	1	5380	0.01	0.01	0.06
FC3 2015	0.92m	88.76	4.18	29	<1	7	4	<1	9023	0.27	0.53	0.54
FC4 2015	1.4m	97.86	4.47	24	<1	5	4	1	8864	0.06	0.03	0.10

TABLE 9-2: 2015 OUTCROP SAMPLE RESULTS – CHEMICAL TESTING - FRANCES CREEK PROPERTY

SAMPLE #	L*	u'	v'		L	a	b
FC1 2015	95.4	0.202	0.462		94.1	0.9	0.8
FC2 2015	95.8	0.202	0.460		94.6	1.4	-0.6
FC4 2015	95.6	0.203	0.462		94.4	1.4	1.1

TABLE 9-3: 2015 OUTCROP SAMPLE RESULTS – BRIGHTNESS TESTING - FRANCES CREEK PROPERTY

9.3.3 2016 Sampling

The 2016 sampling program was supervised by Voyageur's exploration team and consisted of collection of a bulk sample of 17 tonnes of barite breccia from the Frances Vein. The vein was sampled at the portal of a small underground adit into the vein.

The 17 tonne sample was trucked to an off-site location and washed and crushed, then trucked to a second off site location where it was ground to – 325 mesh. The powdered sample was drummed and was then shipped to ST Equipment and Technology in Needham, MA, USA, where it was tested in February 2017. ST has a dry separation machine that sorts ore from waste using electro-static techniques.

A total of 36 representative samples were collected from the 20-barrel shipment. Average barite purity of the bulk sample was 17.46% $BaSO_4$, Specific Gravity (SG) was not analyzed. Using the Barite Purity Curve **(Charts 10.1 & 11.1)**, the SG of the bulk sample can be estimated at ~ 2.95.

The sample was shipped to ST Equipment and Technology in Needham, MA, USA, where a 5-tonne sample was tested. ST Equipment has an electro-static separation machine that sorts mixed material by differing electrical properties. The objective of the test was to separate the powdered barite from the intermixed dolomite by using a dry method. Use of dry methods to clean the barite verses using a water-based jig method (proven technology) would eliminate the need for a tailings pond at the future mill, and hopefully improve recovery of barite.

The electrostatic separation testing showed that a low grade – low SG (~3.0) powdered sample, such as the one that was shipped could not be upgraded by dry methods to the desired SG (4.3 – 4.4) needed to penetrate the higher end barite markets. Consequently, Voyageur will use conventional water jigging and tabling, to produce a clean industrial grade, high SG product.

9.3.4 Barite Trench Samples

There were three trench samples taken from breccia vein with samples #1 & #2 taken from the A Zone barite and sample #3 taken from the lower B Zone barite zone (**Figure 9.3**). An excavator was used to clear the overburden and expose the outcrop followed by washing the face with high pressure water to ensure a clean sample.

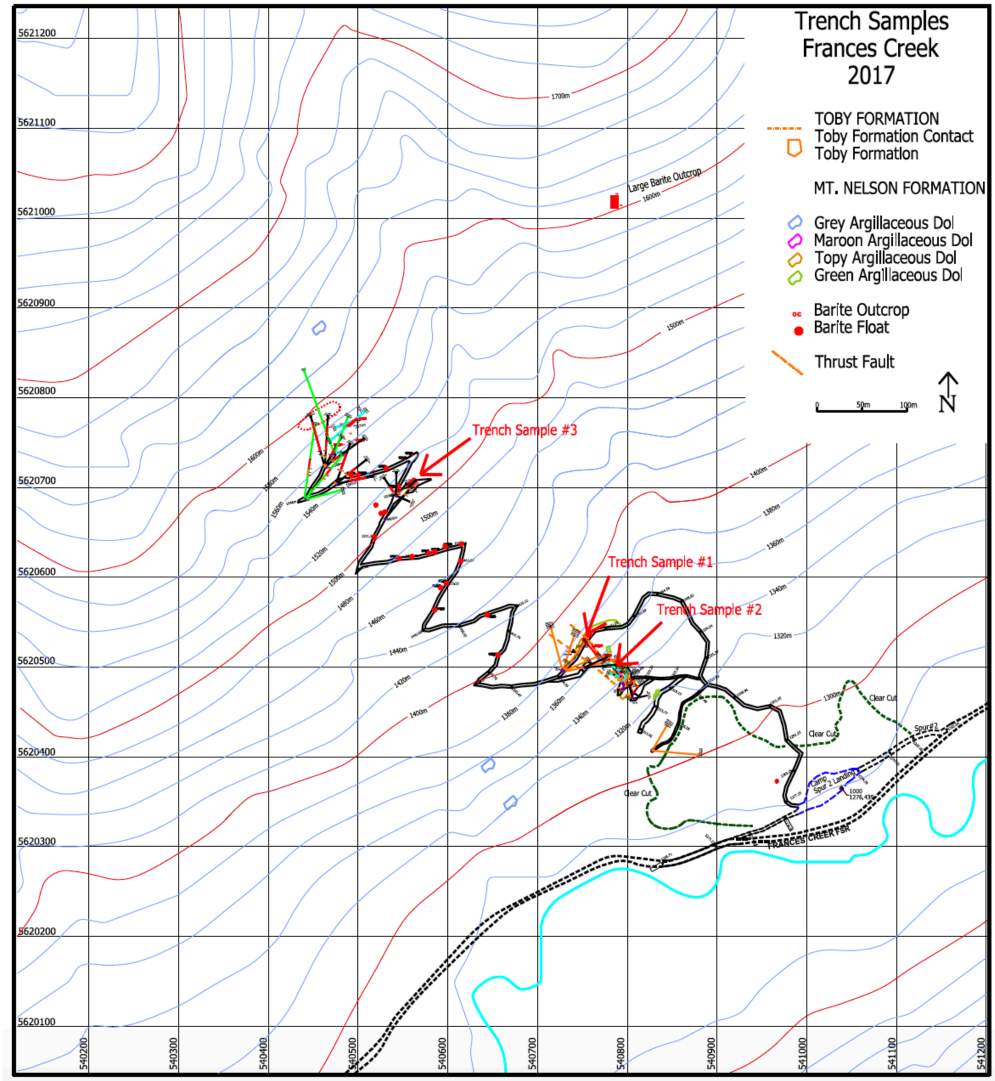


FIGURE 9-3: TRENCH SAMPLES

Sample #1 was taken from alongside the trail located at an elevation of 1361m and UTM coordinates of 5620518N 540764E. The channel sample consisted of 3 individual samples within the zone. Samples were chipped by rock hammer and collected and bagged. A line was measured and painted running perpendicular to the dip of the vein. The line was broken into 3 intervals of 0-1m, 1-2m and 2-2.5m for a combined 3 sample bags. The average grade across 2.5m of exposed barite vein was 46% $BaSO_4$.

Channel Samples Frances Creek					%Ba & m	%Ba & m	%Ba & m
Trench sample1. (true width)		Coordinate	Coordinate	Elevation	0-1m	1-2m	2-2.5m
Above portal on trail	Foot wall	**5620518.43**	**540763.99**	**1361.81**	**20.34**	**81.14**	**27.5**
Sample taken across true dip	Hanging wall	**5620517.38**	**540762.71**	**1362.6**	**wt avg**	**46**	

TABLE 9-4: TRENCH SAMPLE 1

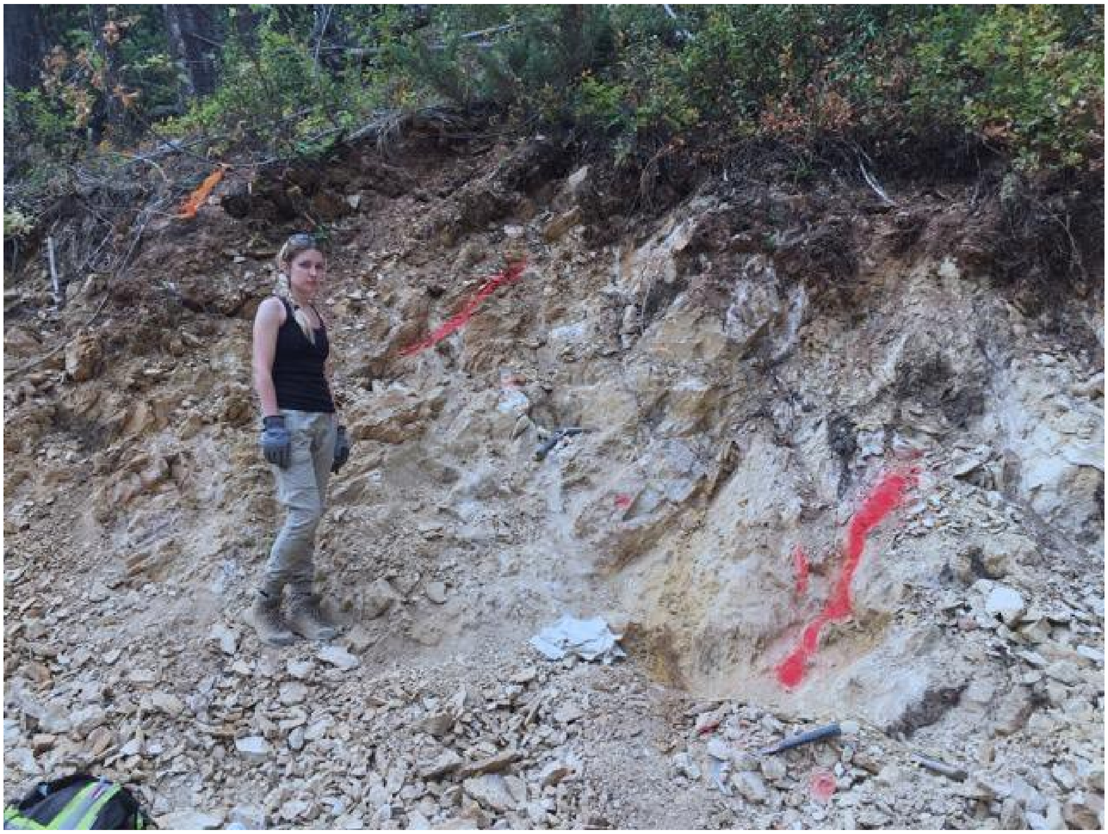


FIGURE 9-4: TRENCH SAMPLE #1

Channel Samples Frances Creek					%Ba & m	%Ba & m	%Ba & m	%Ba & m
Trench sample2 (true width)		Coordinate	Coordinate	Elevation	0-1m	1-2m	2-3m	3-4m
At portal area, excavated verti	Hanging wall	**5620500.16**	**540784.74**	**1342.37**	**65.34**	**48.38**	**58.41**	**0.41**
face, ba true width across dip	Foot wall	**5620503.21**	**540788.78**	**1339.61**	**3m wt avg**	**57.38**		

TABLE 9-5: TRENCH SAMPLE #2

Sample #2 was taken from the vein above the old (buried) Mountain Mineral Portal. This sample is located at an elevation of 1340m and UTM coordinates of 5620500N 540784E. The channel sample consisted of 4 individual samples within the zone. Samples were chipped by rock hammer and collected and bagged. A line was measured and painted running perpendicular to the dip of the vein. The line was broken into 4 intervals of 0-1m, 1-2m, 2-3m and 3-4m for a combined 4 sample bags. The average grade across 3m of breccia was 57.38% $BaSO_4$.

FIGURE 9-5: TRENCH SAMPLE #2

Sample #3 was taken from the large barite outcrop located near drill holes FC17-20, 21, 22.& 23. This sample is located at an elevation of 1507m and UTM coordinates of 5620700N 540556E. The channel sample consisted of 9 individual samples within the zone. Samples were chipped by rock hammer and collected and bagged. A line was measured and painted running flat across the contour of the outcrop and is the only channel sample that was not taken across the true dip of the breccia. The line was broken into 9 intervals of 0-1m, 1-2m, 2-3m, 3-4m, 4-5m, 5-6m, 6- 7m, 7-8m & 8-8.4m for a combined total of 9 sample bags. The results of the channel indicated a total width of 8.4m averaging 51.4% $BaSO_4$.

Channel Samples Frances Creek								
Trench sample 3 (across contour/not TW)		Coordinate	Coordinate	Elevation				
Trench below switch, in front of FC17-21	SW side	**5620700.23**	**540556.21**	**1507.88**				
	NE side	**5620708.35**	**540564.54**	**1507.33**				
%Ba & m	%Ba & m	%Ba & m	%Ba & m	%Ba & m	%Ba & m	%Ba & m	%Ba & m	%Ba & m
0-1m	1-2m	2-3m	3-4m	4-5m	5-6m	6-7m	7-8m	8-8.4m
38.57	**22.68**	**56.51**	**44.19**	**60.25**	**65.27**	**52.05**	**68.93**	**58.97**
8.4m wt avg	**51.43**							

TABLE 9-6: TRENCH SAMPLE #3

FIGURE 9-6: TRENCH SAMPLE #3

9.3.4.1 Trench Sample Data Usage

The trench sample surveyed coordinates as well as % $BaSO_4$ and SG lab results were entered into the project database and were used to help calculate the resource estimate. Additional details are discussed in **Section 14**.

10 Drilling

Previous drilling was undertaken by both Mountain Minerals (1992) and Tiger Ridge (2003 – 2005) at the Frances Creek Property. The Mountain Minerals drilling at Frances Creek was apparently drilled down the dip of the vein and is not representative (P.C., Brad Willis, 2014). In addition, assay results from the 1992 campaign cannot be verified by lab certificates. Consequently, the data from the 1992 program could not be used in the resource model and thus was not used for this report. Only the drilling programs conducted by Tiger Ridge and the 2017 Voyageur drilling will be discussed here.

10.1 Frances Creek – Tiger Ridge Drilling Campaigns

Tiger Ridge drilled this property in 2003 and 2005, a total of 29 core holes were drilled from four separate platforms. Holes were drilled with a Diamec 251 diesel powered hydraulic wireline core drilling rig; core size was BQ - Wireline. A total of 1950.25 meters of core was collected during the two campaigns. Holes were drilled as arrays of drill fans, from prepared stations situated along a switch backing access road located about 30M to the SW of the outcrop of the vein. The azimuth of the initial drill hole at each drill station was aimed to intersect the vein perpendicular to strike at an angle of ~ - 35 degrees to horizontal. A second hole was then drilled with the same azimuth at an angle of ~ -60 degrees to horizontal. This completed one leg of the fan. At least two, sometimes three other similar fan legs were then drilled at azimuths which were 30 to 50 degrees either side of the initial bore. The drill rig was then moved to a different station and this drill sequence was repeated (**Figure 10.1 & 10.2**).

The core from these holes was logged by Voyageur's Exploration Manager, who was Tiger Ridge's Exploration Manager at the time. The core was logged for lithologic and structural data, but it was not assayed for SG (specific gravity). Detailed core examination resulted in visual estimates of percentage barite for prospective mining horizons. Tiger Ridge was able to use this technique to mine successfully at the Tiger Ridge Mine at Jubilee Mountain for several years. The thinking at the time was that since that technique worked well at the mine, that it was sufficient for this property.

Since Tiger Ridge was a private company, it did not have stringent resource reporting requirements such as Voyageur has. Consequently, no lab analyses were performed on the drill core at the time.

During the field investigation for the 2014 and 2016 reports, core boxes from 22 of the 29 holes drilled during the 2003 and 2005 campaigns were retrieved. Mr. Henkle then examined the core in detail and a total of 82 samples were collected from barite mineralized zones. These samples were logged and photographed and then taken to Loring Labs in Calgary for analyses; results are presented in **Tables 10.3, 10.4.** See **Figures 10.1 and 10.2** for maps showing the locations and azimuths of the core holes. This data was used in the resource model for this report.

During the 2003 campaign, all the holes were collared in Zone A, the lower zone at the property. During the 2005 campaign, all the holes were collared in Zone B, the topographically higher zone at the property.

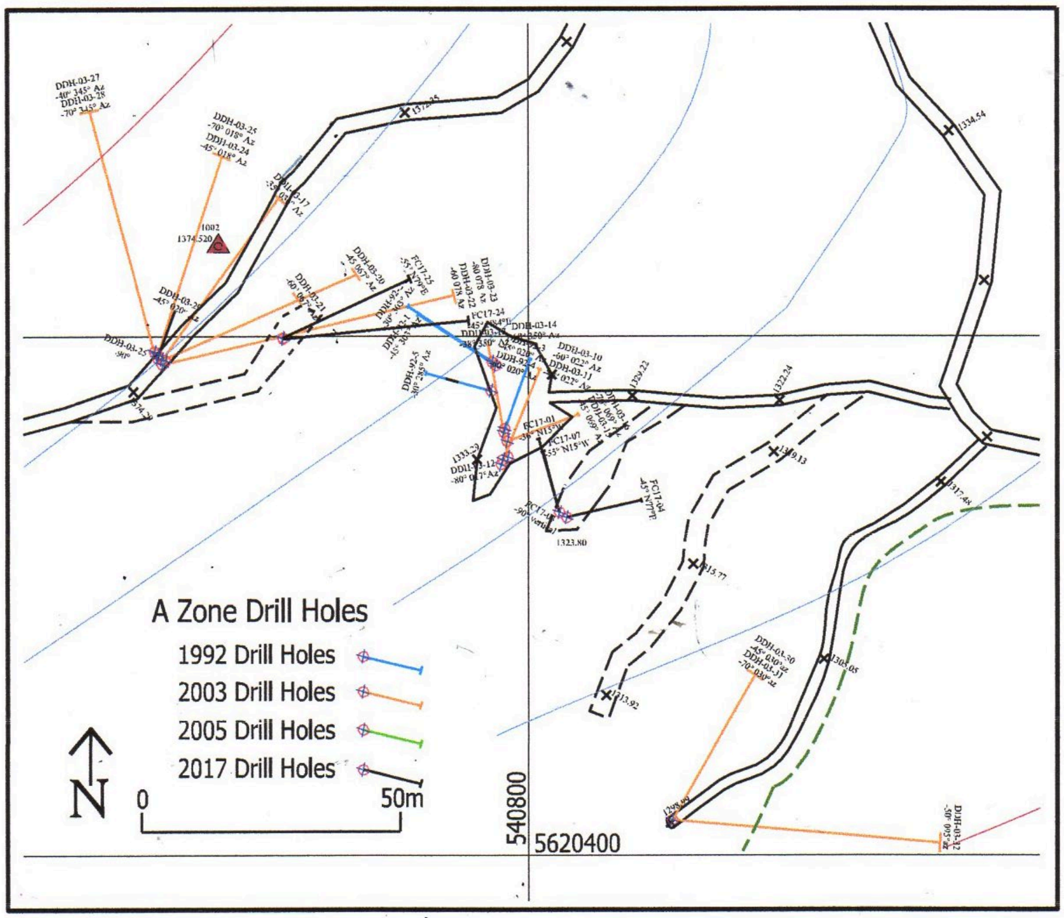


FIGURE 10-1: DRILL HOLE MAP – ZONE A

DDH	ELEVATION	EASTING	NORTHING	Bearing		Angle	Total Depth m.
FC03-10	1331.36	540786.50	5620470.50	N22E	22	-60	47.85
FC03-11	1331.36	540786.00	5620470.00	N22E	22	-40	27.4
FC03-12	1331.36	540786.00	5620469.50	N17E	17	-80	32.92
FC03-13	1331.00	540788.00	5620471.00	N10W	350	-38	28.04
FC03-14	1331.36	540788.40	5620470.00	N10W	350	-60	32.9
FC03-15	1331.36	540787.50	5620474.00	N69E	69	-45	25.9
FC03-16	1331.36	540786.00	5620473.70	N69E	69	-70	27.13
FC03-17	1375.25	540725.00	5620498.00	N36E	36	-35	46.9
FC03-18	1375.25	540725.00	5620498.00	N36E	36	-55	49.07
FC03-19	1375.25	540725.00	5620498.00	N36E	36	-69	55.78
FC03-20	1375.20	540725.00	5620498.00	N67E	67	-45	53.8
FC03-21	1375.20	540725.00	5620498.00	N67E	67	-60	56.7
FC03-22	1375.25	540725.00	5620498.00	N78E	78	-60	60.05
FC03-23	1375.25	540725.00	5620498.00	N78E	78	-80	61.87
FC03-24	1375.25	540725.00	5620498.00	N18E	18	-45	56.39
FC03-25	1375.25	540725.00	5620498.00	N18E	18	-80	57.3
FC03-27	1375.25	540725.50	5620498.00	N15W	345	-40	62.8
FC03-28	1375.25	540725.00	5620498.00	N15W	345	-70	63.4
FC03-30	1298.99	540846.86	5620417.93	N30E	30	-45	60.96
FC03-31	1298.99	540846.86	5620417.93	N30E	30	-70	57.6
FC03-32	1298.99	540846.86	5620417.93	N95E	95	-50	53.95

TABLE 10-1: 2003 DH SURVEY DATA

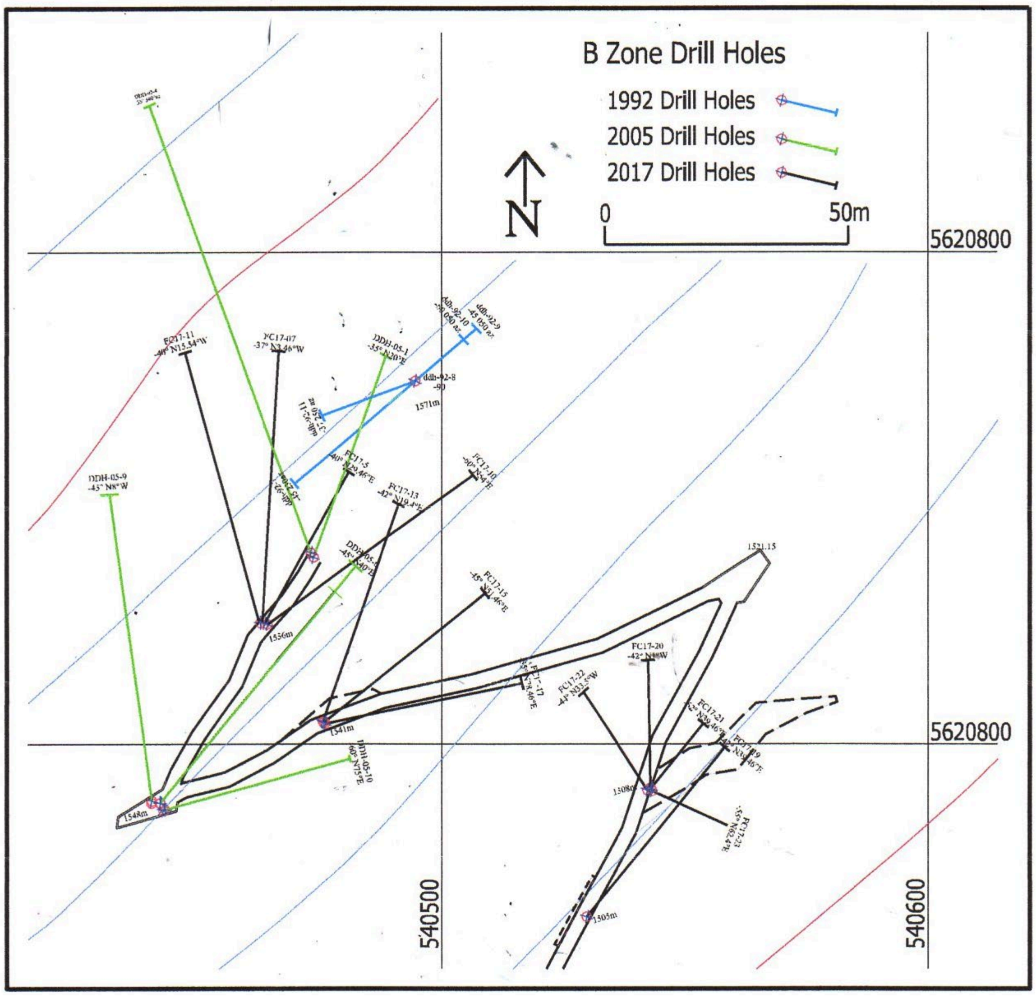


FIGURE 10-2: DRILL HOLE MAP – ZONE B

DDH	ELEVATION	EASTING	NORTHING	Bearing		Angle	Total Depth m.
FC05-01	1561.34	540473.31	5620739.12	N20E	20	-35	53.04
FC05-02	1561.34	540473.31	5620739.12	N20E	20	-60	54.55
FC05-03	1561.34	540473.31	5620739.12	N20E	20	-90	86.26
FC05-04	1561.34	540473.31	5620739.12	N20W	340	-35	118.26
FC05-05	1561.34	540473.31	5620739.12	N20W	340	-50	19.81
FC05-06	1548.00	540445.65	5620689.88	N40E	40	-40	78.03
FC05-07	1548.00	540445.65	5620689.88	N40E	40	-60	122.53
FC05-08	1548.00	540445.65	5620689.88	N40E	40	-80	75.6
FC05-09	1548.00	540445.65	5620689.88	N8E	8.00	-45	81
FC05-10	1548.00	540445.60	5620689.88	N75E	75	-60	78.64
FC05-11	1548.00	540445.00	5620689.00	VERTICAL	0	-90	74

TABLE 10-2: 2005 DH SURVEY DATA

FRANCES CREEK BARITE PROSPECT 2003 DRILL CAMPAIGN - SAMPLE RESULTS					
Hole #	from (M)	to (M)	width(M)	%BaSO4	SG
FC03 - 10	19.82	21.04	1.22	31.42	3.31
FC03-11	17.53	19.21	1.68	29.20	3.18
FCO3-12	21.80	25.99	4.19	11.82	3.08
FC03-13	0.00	28.04	28.04	0.00	2.89
FC03-14	18.75	20.79	2.04	37.08	3.21
FC03-15	17.32	21.34	4.02	24.53	3.18
FC03-16	17.07	22.59	5.52	39.75	3.37
FC03-17	37.80	41.92	4.12	32.02	3.23
FC03-18	44.82	46.04	1.22	65.44	3.74
FC03-19	51.74	54.57	2.84	45.61	3.58
FC03-20	42.23	43.90	1.67	27.42	2.95
FC03-20	46.59	48.17	1.59	18.53	3.12
FC03-22	51.52	55.49	3.96	41.06	3.16
FC03-23	57.93	59.45	1.52	40.66	3.65
FC03-24	39.94	43.05	3.11	19.48	2.96
FC03-24	49.09	53.05	3.96	20.74	2.93
FC03-25	48.93	51.52	2.59	50.86	3.73
FC03-27	0.00	62.80	62.80	0.00	2.89
FC03-28	54.27	56.22	1.95	48.38	3.37

TABLE 10-3: 2003 DRILL CAMPAIGN – BARITE ASSAY RESULTS

FRANCES CREEK BARITE PROSPECT 2005 DRILL CAMPAIGN - SAMPLE RESULTS						
Hole #	from (M)	to (M)	width(M)	%BaSO4		SG
FC05-01A	7.01	8.54	1.53	17.55		2.88
FC05-01B	37.20	39.94	2.74	16.50		3.17
FC05-02A	5.79	10.40	4.61	38.84		3.43
FC05-02B	30.18	32.30	2.12	65.47		3.99
FC05-02C	35.58	39.09	3.51	56.29		3.65
FC05-03A	5.95	12.20	6.25	52.15		3.60
FC05-03A	12.20	14.90	2.70	52.15		3.60
FC05-03A	14.09	19.05	4.96	52.15		3.60
FC05-03B	29.73	32.01	2.28	58.58		3.74
FC05-03C	38.41	41.16	2.75	53.30		3.60
FC05-03D	53.66	56.10	2.44	78.20		4.02
FC05-04A	7.47	8.50	1.03	33.59		3.35
FC05-04A	8.50	9.50	1.00	33.59		3.35
FC05-04A	9.50	20.27	10.77	33.59		3.35
FC05-04B	49.24	51.52	2.28	54.88		3.53
FC05-05	0.00	19.81	19.81	NO LAB DATA		
FC05-06	50.46	58.63	8.17	33.09		3.22
FC-05-07	0.00	122.53	122.53	NO LAB DATA		
FC-05-08	0.00	75.60	75.60	NO LAB DATA		
FC05-09A	46.52	49.39	2.87	42.28		3.45
FC05-09B	55.37	61.28	5.91	22.74		3.24
FC05-09B	67.07	69.51	2.44	17.47		3.16
FC05-10	0.00	78.64	78.64	NO LAB DATA - NO FAULTS		
FC05-11	29.88	32.32	2.44	48.44		3.49

TABLE 10-4: 2005 DRILL CAMPAIGN – BARITE ASSAY RESULTS

10.2 Frances Creek – Voyageur Pharmaceuticals Ltd. 2017 Drilling Campaign

Exploration activities on the Frances Creek property were started at the end of June. The area was prepared by Bradley Willis of Voyageur by clearing of the exploration trail and surveying the initial drill pad areas. Bertram Drilling was hired as the drilling contractor and they provided the excavator, drill and all equipment necessary to complete the drilling program. A Discovery II diamond core rig with NQ size core was used.

The drill was first located below the portal area to confirm the historical drilling and four shallow NQ drill holes were completed. Once the drill sites were prepared on the upper B Zone, the drill was moved and FC17-05 through FC17-23 were completed on the B Zone.

Operations were delayed by over one month due to forest fires in the area and the drilling operations were completed in late October.

The surface core holes were spaced and directed to intersect the zone perpendicular to the strike. The holes were drilled at angles from -40° to -55° with two holes per heading. Drill holes were spaced approximately with 10m distance between the barite hanging wall contact and fanned accordingly. The objective was to complete a resource study of the B Zone from surface down to a vertical depth of 50m.

All drilling was supervised by Bradley Willis and Katelynne Brown and logging of core and collection of core was done by both Mr. Willis and Ms. Brown. The core was placed in plywood core boxes; the boxes were then labeled with depth information, etc. Upon completion of logging on site, the core was then split with a rock splitter and 50% of the core was bagged by both Brad and Kate and stored temporarily onsite. The remaining core was then transported to a storage locker located in Invermere, BC for safe keeping.

The drill holes were surveyed by WSP Canada and Brad Willis applied all data of the survey, mapping, sections and drawings into MicroStation PC software. A drill log data base was created using Excel.

The drilling conditions were very tough due to the large fault zone on the footwall side of the barite zone. Drill bits were destroyed on a regular basis due to the ground conditions, in particular we drilled the soft maroon argillceous dolomite, entered the barite zone that consisted of soft pure barite and highly siliceous hard dolomite. The bits would be changed from a 5 series to an 11 series bit upon entering the zone. The holes would often create wedges within the barite zone of soft barite to hard dolomite creating high pressure squeeze on the bit. This would cause the teeth to disintegrate on many occasions. Drill hole FC17-10 was lost at 34m depth in the zone and FC17-12 was lost at 57m due to the hole diameter shrinking due to bit problems. Core recovery through the barite zone was also an issue in some holes due to washing out when not realizing the bit was deteriorating. Overall, core recovery in the barite was an acceptable + 85%.

The 2017 holes were mostly collared in Zone B, as the barite breccia vein is thicker there. However, six of the 25 holes were collared in Zone A. A total of 1157.79M of core was drilled during the campaign. The drilling pattern used was similar to what was used in the earlier Tiger Ridge campaigns. That is arrays of fans were drilled from prepared stations along the same road used earlier.

In addition to the 25 holes that were drilled, three channel samples, totaling 13.9M length were cut from backhoe trenches constructed across prominent zones where the barite breccia vein outcropped. Details of the drill hole survey data as well as the assays from the drill holes are shown in **Tables 10.5** below:

VOYAGEUR MINERALS LTD. FRANCES CREEK BARITE PROSPECT 2017 DRILL CAMPAIGN - SAMPLE RESULTS PREPARED BY: Henkle and Assoc. DRILL HOLE DATA - from Brad - 3/6/18							
DDH	ELEVATION	EASTING	NORTHING	Bearing	Azimuth	Angle	Total Depth m.
FC17-01	1323.80	540805.84	5620465.94	N13W	347°	-36	18.29
FC17-02	1323.80	540805.84	5620465.94	N13W	347°	-50	19.00
FC17-03	1323.74	540807.38	5620465.02	N77E	77°	-87	24.00
FC17-04	1323.74	540807.38	5620465.02	N77E	77°	-45	21.00
FC17-05	1556.80	540463.50	5620724.71	N29E	29°	-40	46.00
FC17-06	1556.80	540463.50	5620724.70	N29E	29°	-57	64.00
FC17-07	1556.92	540462.70	5620725.00	N03.46W	365.54°	-37	69.00
FC17-08	1556.90	540462.70	5620725.00	N03.46W	365.54°	-60	66.00
FC17-09	1556.50	540464.04	5620724.49	N54E	54°	-45	73.50
FC17-10	1556.50	540464.04	5620724.49	N54E	54°	-60	34.00
FC17-11	1556.50	540462.60	5620725.00	N15.54W	344.46°	-40	74.00
FC17-12	1556.50	540462.60	5620725.00	N15.54W	344.46°	-61	57.00
FC17-13	1542.00	540475.00	5620704.00	N19.4E	19.4°	-42	63.00
FC17-14	1542.01	540475.42	5620704.54	N14.5E	14.5°	-60	63.00
FC17-15	1542.00	540475.40	5620704.50	N51.46E	51.46°	-45	60.00
FC17-16	1542.00	540475.42	5620704.54	N51.46E	51.46°	-67	60 - NO SPLS !
FC17-17	1541.80	540475.94	5620704.19	N78.46E	78.46°	-55	72.00
FC17-18	1564.05	540475.65	5620704.36	N41E	41°	-75	60 - FAULT
FC17-19	1505.53	540529.74	5620664.98	N39.46E	39.46°	-42	59.00
FC17-20	1508.42	540542.86	5620691.27	N01W	359°	-42	35.00
FC17-21	1509.80	540542.62	5620689.71	N39.46E	39.46°	-62	36.00
FC17-22	1508.27	540542.11	5620690.48	N33.5E	33.5°	-44	33.00
FC17-23	1507.99	540542.31	5620689.50	N62.4E	62.4°	-55	30.00
FC17-24	1360.80	540752.30	5620499.73	N84E	84°	-45	51.00
FC17-25	1360.80	540752.43	5620499.73	N65E	65°	-55	42.00
FC17-CHAN#3	1507.88	540556.21	5620700.23	N45E	45°	0	8.4
FC17-CHAN#2	1342.37	540784.74	5620500.16	N52E	52°	0	3
FC17-CHAN#1	1362.60	540762.71	5620517.38	N52.5E	52.5°	0	2.5

TABLE 10-5: 2017 DH SURVEY DATA

10.3 Results of Drilling

10.3.1 Mineralization - Frances Creek

Barite mineralization at the Frances Creek property occurs as a complex breccia vein which strikes NW and dips SW at about 40-50 degrees at the bottom zone and 65 degrees at the upper zone. The breccia vein occurs in the upper plate of the Forster Creek Thrust Fault, in the SW portion of the Frances Creek Claim, and is sub parallel to the trace of the thrust which outcrops ~ 200 m to the NE. The breccia vein material fills a small fault which was probably caused by tensional forces related to thrust emplacement. The Barite Thrust appears to act as an especially favorable host zone for barite mineralization emplacement. Barite mineralization is also found as fracture fillings, in the other minor structures at the property, however. The breccia vein is composed of mixed percentages of country rock (argillaceous dolomite) and white crystalline barite, which was injected into the Frances Creek Fault Zone (**Figure 7.6**).

As a consequence, zones were encountered within the vein with as little as 8.9% $BaSO_4$ over 8.9m of core length and as high as 86.08% $BaSO_4$ over 5.25m of core which were recovered during the 2017 drill program. The weighted average of all drill intercepts (2003 – 05 – 17) for the B Zone is 7.95m @ 40.09% $BaSO_4$ / 3.31 SG. The weighted average for the A Zone drill intercepts is 2.71m @ 35.85% $BaSO_4$ / 3.29 SG.

The calculated true widths and assay results from the 2017 drill holes across the B Zone are as follows:

- FC17-5 TW - 8.17m @ 68.88% $BaSO_4$
- FC17-7 TW - 21.29m @ 28.57% $BaSO_4$
- FC17-8 TW - 36.63m @ 24.83% $BaSO_4$
- FC17-9 TW - 36.03m @ 19.47% $BaSO_4$
- FC17-10 TW - 11.86m @ 60.32% $BaSO_4$
- FC17-11 TW - 23.88m @ 27.05% $BaSO_4$
- FC17-12 TW - 18.70m @ 37.39% $BaSO_4$
- FC17-15 TW - 15.22m @ 37.64% $BaSO_4$

Figure 7.6 shows core photos from drill hole FC17 – 05 and is intended to illustrate the non- homogeneous nature of the vein mineralization. The photos show that Crystalline barite in varying percentage concentrations is consistent throughout the breccia zone of the vein. In order to test the purity of the crystalline barite portion of the breccia, a select sampling program was initiated. Eight drill holes were selectively re-sampled. These samples were selected from previously reported intersections of barite breccia. The pure barite zones within the breccia intercepts were then split from the vein to determine the nature of the purity of the barite.

Hole Number	Crystalline Barite Zone Sampled	%$BaSO_4$	Specific Gravity
FC17-5	23.7m-24.9m	97.76%	4.36
FC17-7	25.6m-25.8m	97.74%	4.46
FC17-7	32.4m-32.9m	99.12%	4.50
FC17-7	51.5m-53.4m	96.41%	4.44
FC17-8	24.5m-24.9m	97.02%	4.47

FC17-8	41.2m-43.8m	97.81%	4.39
FC17-9	16.9m-24.3m	97.58%	4.46
FC17-10	19.9m-33.5m	96.87%	4.36
FC17-11	33.0m-41.9m	97.26%	4.40
FC17-12	32.0m-48.6m	96.89%	4.40
FC17-15	29.7m-32.8m	95.32%	4.33

TABLE 10-6: RESULTS OF SELECT SAMPLING OF 2017 DRILL CORE

Crystalline barite in varying percentage concentrations is consistent throughout the breccia zone of the vein. The sampling shows a very high grade for the crystalline barite. This select sampling of the crystalline barite to date indicates that it is exceptionally pure and is possibly pharmaceutical grade.

10.3.2 Reliability of Data

To the best of the author's belief, there were no drilling, sampling or adverse recovery factors that could have materially impacted the accuracy or reliability of the assay results shown above. It should be noted that true thickness is not shown for drill intercepts in **Tables 10.6, 10.7 and 10.8**; these are the actual drill intercepts. True thickness was calculated for a press release issued by Voyageur in December 2017. However, the actual drill intercepts were entered into the Map Info program which was used to calculate the resource estimate for this report. The program adjusts for true thickness when the resource is calculated.

Chart 10.1, the Barite Purity Curve, shows a linear relation between barite purity and SG. This chart uses assay data from all 183 samples that were assayed during the program. The linear relation shows a continuous transition from low purity – low SG samples to high purity – high SG samples. Charts such as this are standard for barite deposits worldwide. The continuous transition from 0% $BaSO_4$ – SG ~ 2.5 to 100% $BaSO_4$ – SG ~ 4.5 is strong evidence, that the assay data is reliable. Similar charts with similar data relationships were published in both the 2014 and 2016 Technical Reports. This is strong evidence for data reliability.

10.3.3 Back Up Data

The actual drill logs, survey notes, assay reports, etc. from which the drill data presented in this section were derived is available from Voyageur.

VOYAGEUR MINERALS, INC.					2018-03-13
FRANCES CREEK BARITE PROSPECT					
2017 DRILL CAMPAIGN - SAMPLE RESULTS					1 OF 2
PREPARED BY: Henkle and Assoc.					
Hole #	**from**	**to**	**width**	**%BaSO4**	**SG**
FC17-01	12	14.9	2.9	77.65	4.02
FC17-02	9	10.2	1.2	68.92	3.87
FC17-04	18	18.94	0.94	52.30	3.52
FC17-05	16.44	25.34	8.9	68.88	3.80
FC17-06	20.3	37.5	17.2	66.40	3.70
FC17-07A	20.2	33.73	13.53	23.38	3.15
FC17-07B	43.2	54.17	10.97	35.80	3.29
FC17-08A	24	30.51	6.51	26.47	3.08
FC17-08B	39	44.25	5.25	86.08	4.06
FC17-08C	52.2	64.5	12.3	32.13	3.18
FC17-09A	15	24.7	9.7	40.29	3.27
FC17-09B	35.5	38.3	2.8	20.80	3.05
FC17-09C	42.5	55.5	13	24.85	3.09
FC17-09C	50.5	55.5	5	24.85	3.09
FC17-10	17.6	19	1.4	60.32	3.49
FC17-10	19	32.5	13.5	60.32	3.49
FC17-10	32.5	33.6	1.1	60.32	3.49
FC17-11A	22.2	24.5	2.3	26.37	3.13
FC17-11A	24.5	25.7	1.2	26.37	3.13
FC17-11A	25.7	26.7	1	26.37	3.13
FC17-11B	32.7	40.7	8	35.38	3.26
FC17-11B	40.7	41	0.3	35.38	3.26
FC17-11B	41	53.2	12.2	35.38	3.26
FC17-11C	61.3	63.3	2	71.08	3.71
FC17-11C	63.3	64.1	0.8	71.08	3.71

TABLE 10-7: 2017 DRILL CAMPAIGN – BARITE ASSAY RESULTS

VOYAGEUR MINERALS, INC. 2018-03-13
FRANCES CREEK BARITE PROSPECT
2017 DRILL CAMPAIGN - SAMPLE RESULTS 2 OF 2
PREPARED BY: Henkle and Assoc.

Hole #	from	to	width	%BaSO4	SG
FC17-12A	20.5	21.5	1	19.03	2.98
FC17-12B	25	32.7	7.7	41.46	3.29
FC17-12B	32.7	33.2	0.5	41.46	3.29
FC17-12B	33.2	57	23.8	41.46	3.29
FC17-13A	20.5	21.1	0.6	41.94	3.28
FC17-13A	21.1	30.8	9.7	41.94	3.28
FC17-13B	32.9	33.2	0.3	41.63	3.34
FC17-13C	41.4	42.2	0.8	34.38	3.38
FC17-13C	42.2	46.4	4.2	34.38	3.38
FC17-14A	27.9	29.4	1.5	55.11	3.38
FC17-14A	29.4	29.5	0.1	55.11	3.38
FC17-14A	29.5	33.3	3.8	55.11	3.38
FC17-14B	36.6	43.3	6.7	53.46	3.35
FC17-14C	45.9	47.5	1.6	57.92	3.40
FC17-15	21.5	24	2.5	37.79	3.27
FC17-15	24	38.4	14.4	37.79	3.27
FC17-16	35.7	44.6	8.9	8.91	2.91
FC17-17	26.6	56.7	30.1	28.83	3.15
FC17-20	5	8	3	22.73	3.02
FC17-20	8	10.5	2.5	22.73	3.02
FC17-21	7	13.3	6.3	61.16	3.78
FC17-22	6	9.1	3.1	27.09	3.16
FC17-22	9.1	16	6.9	27.09	3.16
FC17-24A	29	32	3	19.63	3.13
FC17-24B	45	48	3	52.54	3.48
FC17-25	32.7	36.9	4.2	30.06	3.17
FC17-CHN #3	0	8.4	8.4	51.29	3.47
FC17-CHN #2	0	3	3	57.38	
FC17-CHN #1	0	2.5	2.5	46.00	

TABLE 10-8: 2017 DRILL CAMPAIGN – BARITE ASSAY RESULTS

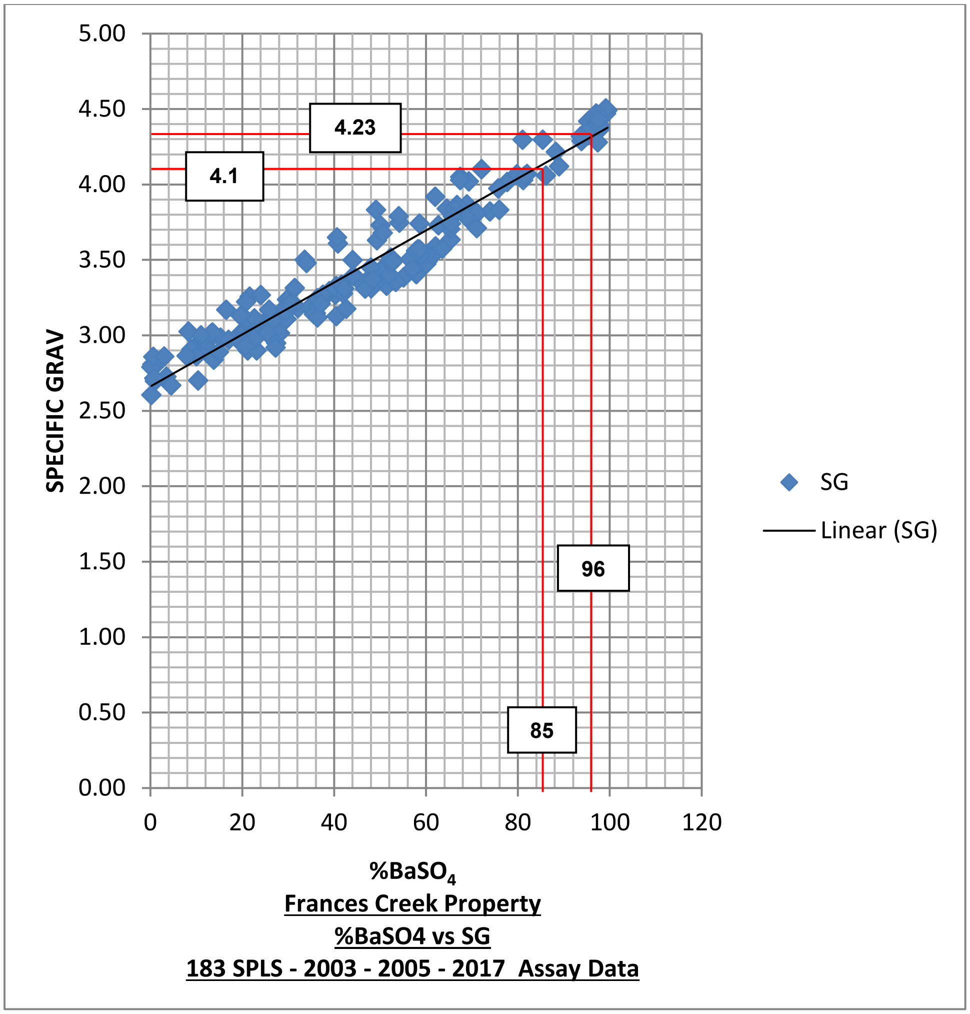


FIGURE 10-3: BARITE PURITY CURVE

11 Sample Preparation, Analysis and Security

11.1 Sample Collection and Preparation

Two types of hand samples were taken from outcrops to get barite quality data for this report. These were targeted grab samples and rock chip samples. The goal of both sample techniques is to attempt to take a representative sample of the outcrop. Of the two, the rock chip sample is the more representative sample, but it is also somewhat more time consuming.

Mr. Henkle took a total of four targeted grab samples during the field portion of this investigation, the number being primarily due to time constraints. From 4 to 8 pieces of barite were chipped off of the outcrop with a geologist's rock hammer and placed in a labeled sample bag. The specific locations where each rock chip was taken were chosen to obtain as representative a sample of the outcrop as possible.

Bradley Willis took four channel samples of nearly pure barite from the Frances Creek Vein during the 2015 exploration season and one large trench sample (17 tonnes) using an excavator during the 2016 exploration season at Frances Creek. During the 2017 drilling campaign, three channel samples were taken. For details of how these samples were taken, refer to **Section 9.3.4**.

During the three drilling campaigns discussed in **Section 10**, continuous core samples were collected from the drill holes. Drill core samples are recognized in the mining industry as the "gold standard" with respect to representative sampling of mineralized zones. This is because a cylinder of rock is collected which completely penetrates the mineralized body.

During the 2014 field portion of this investigation, Bradley Willis and Randy Henkle sampled core from 22 holes that had been drilled at Frances Creek during 2003 and 2005. Core boxes from each hole were examined and boxes containing intervals of interest, as per the geologist log, were examined in detail, and photographed. Barite rich sections of the core were taken from the core box and sealed in labeled zip lock bags. Notes were taken as to intervals sampled in each core box. Labeled sample bags were placed in containers labeled as to hole number and transported to Loring Laboratories (Alberta), Ltd., of Calgary, Alberta ("Loring Labs") for analysis. Bradley Willis transported the core to the lab from the field.

During the 2017 drill campaign, the drilling crew placed the cores in a wooden, portioned, core box. The cores were extruded from the core barrel in depth sequence and the intervals were marked (**Figure 7.6**), by the crew. The core box was then taken to the field office where the geologist described, logged, and photographed the core. The barite rich sections of the core were then taken from the box and split with a core splitter. One half of the split core was placed in a labeled plastic bag, the other half was returned to the core box. The labeled sample was then logged into the sample spread sheet and placed in temporary, secure storage.

Once a sufficient number of bagged and labeled samples were collected, the geologist transported the samples to Loring Labs in Calgary, where they were submitted to the laboratory. At the laboratory, the samples were catalogued on a “Chain of Custody” form which was signed by a lab technician as well as by the sample submitter. The samples were then taken into the lab for preparation and analysis.

11.2 Analysis

Loring Labs, an independent commercial analytical laboratory, was used as the laboratory for the samples taken for the 2014 and 2015 outcrop sampling campaigns, as well as for the samples taken during the 2017 drill campaign. Loring is an ISO 9001 certified lab. Three of the samples taken during the 2015 campaign were sent to SGS labs in Lakefield, ON, which is also an ISO 9001 certified lab.

Samples were analyzed for Specific Gravity by the Le Chatelier bottle method, the official API recognized method for determination of SG for Barite. Samples were analyzed for Barium by gravimetric analysis using a fusion platinum crucible. Once the ppm value for Ba was obtained, % $BaSO_4$ was determined by a mathematical calculation (it was assumed that all the available SO_4 combined with the Ba to form Barite). Mercury content was determined by ASTM method D - 6722, which is a total mercury by direct combustion analysis.

Cadmium, lead, copper, silver and calcium analyses, as well as 39 other elements were determined by multi acid digestion - ICP methods. Soluble calcium was determined by the standard API test method to dissolve calcium and then by ICP to determine the amount of calcium dissolved.

The brightness – whiteness testing was done at SGS labs in Lakefield, ON., which is one of the only labs in Canada that does this type of work. The testing is a photovoltaic color analysis technique which measures the reflectance of light coming off of a powdered barite specimen. Several different readings are taken for each sample. Of these, the Hunter L value is the main brightness / whiteness number relied upon by the filler manufacturing industry to determine if a particular barite product makes specification. A Hunter L value of 94.0 or higher is usually required to make specification. The three samples tested from Frances Creek were all above 94.0: averaging at 94.36.

11.2.1 Laboratory Sample Preparation

Each rock chip and core sample was prepared by:

- logging the sample into the Laboratory's tracking system (assigning the sample a unique bar code number)
- drying and weighing the sample
- fine crushing the sample to > 70% passing 2 mm
- splitting off a 250-gm subsample
- pulverizing the sub sample to > 85% passing 75 microns

The sub sample was then analysed by the methods discussed in **Section 11.2**.

11.2.2 Laboratory Quality Assurance/Quality Control

Loring Labs and SGS Labs are both certified laboratories. Loring is certified through the ISO 9001:2008 standard and SGS through the ISO/IEC standard. To obtain these certifications, a rigorous in-house system to prevent cross contamination between samples is in place. Elements of the system include the use of barren wash material between sample preparation batches and where necessary between highly mineralized samples, through cleaning of all glassware and the tracking of samples with high mineral values. To ensure quality control and quality assurance, the lab employs, on a routine basis, a program that uses blanks, duplicates, and standards.

Loring Lab's Quality Management System ISO certificate (Certificate # CERT - 0088592) issued by SAI Global, states that the lab has implemented and maintains a

Quality Management System that fulfills the requirements of the ISO 9001:2008 standard. The certificate was issued on June 08, 2015 and is valid until July 12, 2018. SGS Canada's – Mineral Services – Lakefield Labs were assessed by the Standards Council of Canada (SCC) and were found to conform with the requirements of ISO/IEC 17025:2005 (CAN-P4E) and was recognized as an Accredited Testing Laboratory. The accreditation certificate for Laboratory #184 was issued on 2013-05-07 and is valid until 2017-03-06.

11.2.3 Adequacy of sampling, sample prep, security and analyses

The author is of the opinion that the samples taken are adequate for the purpose of this report which is to provide an independent assessment of Voyageur's Frances Creek Property, as well as an indication of the possible industrial grade quality of the barite from the Frances Creek Property. Sampling, sample prep and analyses techniques meet or exceed CIM standards. Security precautions as to sample integrity meet the standards of the industry.

11.3 Sample Security

The samples taken by both Bradley Willis and Randy Henkle between 2014 and 2016 and the 2003, 2005 and 2017 core samples collected by them, were kept under the direction of Mr. Henkle and Voyageur - Tiger Ridge personnel from the time of taking the sample until delivery to the laboratory. Based on conversations with Randy Henkle and Voyageur, the author is not aware of any security or chain of custody issues with respect to sample security.

12 Data Verification

Loring Labs of Calgary, Alberta, Canada did the bulk of the assay work on the drill core samples from the Frances Creek Project. A total of 68 individual assays from 43 core holes were used to calculate the resource estimate presented in this report. The analytes tested for by Loring Labs were Specific Gravity (SG), %$BaSO_4$ and trace elements by the Inductively Coupled Plasma (ICP) technique.

ALS – Chemex Labs, of Reno, Nevada, USA was used as an umpire lab, to check Loring's work. A total of 14 samples (20.5%) were submitted to ALS for check testing. The samples submitted to ALS were pulps of the originals. This means that the crushing, splitting, grinding and other preparatory work prior to analysis was done at Loring Labs. Only the actual analysis work was done at the ALS umpire lab. It is the opinion of the author, that the sample preparatory work did not need to be duplicated.

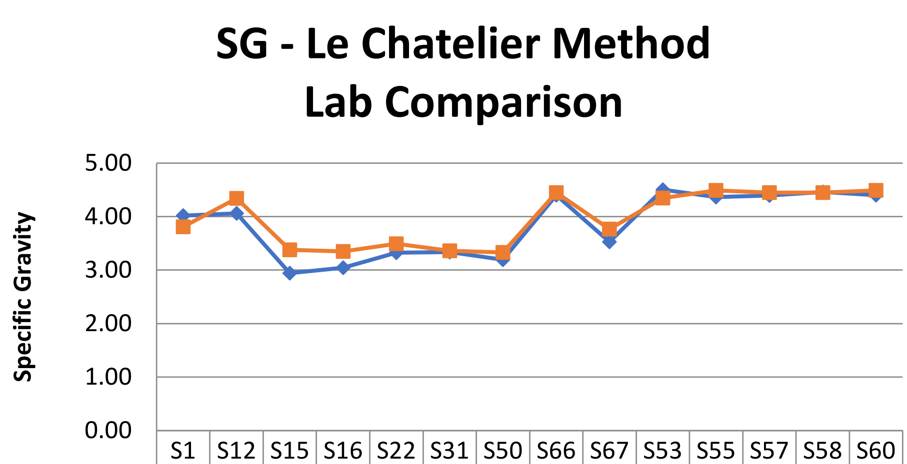
A listing of the check samples follows:

Check Sample #	Hole #	Intersection
1	FC17-01	12m-14.9m
12	FC17-08	39m-44.25m
15	FC17-09	28.8m-30.6m
16	FC17-09	35.5m-38.3m
22	FC17-11	45.3m-47.3m
31	FC17-13	32.9m-33.2m
50	FC17-17	39m-42m
66	HG FC17-17	48.7m-49m
67	FC17-17	56.3m-56.7m
53	HG FC17-07	32.4m-32.9m
55	HG FC17-05	23.7m-24.9m
57	HG FC17-08	41.2m-43.8m
58	HG FC17-09	16.9m-24.3m
60	HG FC17-11	33m-41.9m

TABLE 12-1: CHECK SAMPLES FOR LAB COMPARISON

12.1 Specific Gravity SG

Specific Gravity is the most important specification for drilling grade barite and is also an important specification for the higher-grade barites. The American Petroleum Institute (API) specifies that the Le Chatelier Flask method as the default method to measure SG. Both labs used this method to determine SG, the comparison results are shown in **Chart 12.1**, below.



	S1	S12	S15	S16	S22	S31	S50	S66	S67	S53	S55	S57	S58	S60
Loring	4.02	4.06	2.94	3.05	3.33	3.34	3.19	4.40	3.53	4.50	4.36	4.39	4.46	4.40
ALS	3.81	4.34	3.38	3.35	3.49	3.36	3.33	4.45	3.77	4.35	4.49	4.45	4.45	4.49

FIGURE 12-1: LAB COMPARISON – SG

Chart 12.1 shows that in 11 out of the 14 analyses, the SG determined by Loring was slightly lower than that determined by ALS. The differences between Loring and ALS ranged between 87.1% to 105.4% of the ALS reported value. The average Loring reported value was 97% of the reported ALS value. Upon review of the datasets, the authors accept this as good correlation between the two labs; the Loring data is acceptable to use for the resource estimate.

12.2 %$BaSO_4$

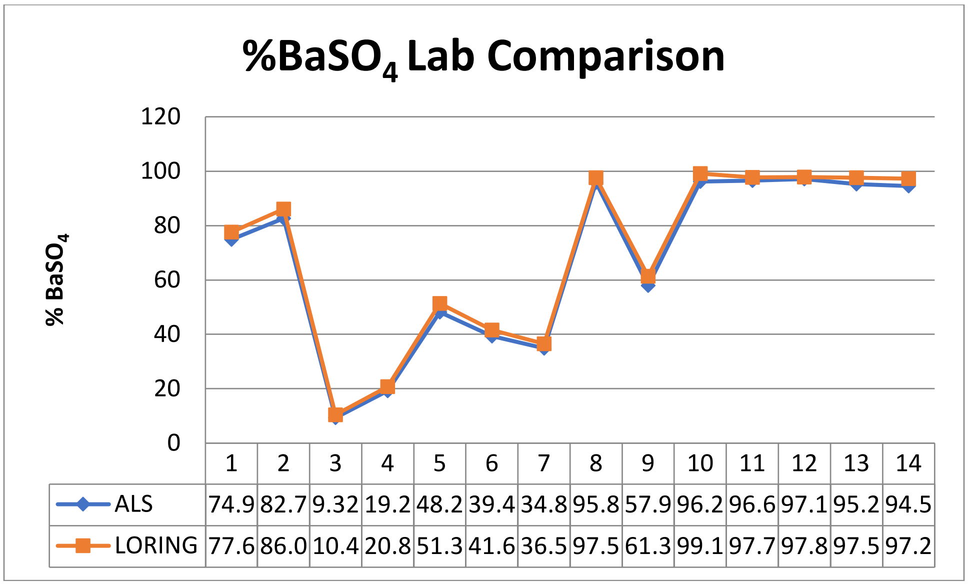
Both labs use gravimetric methods to determine % $BaSO_4$. Loring Labs uses a methodology first published in 1905. This method precipitates $BaSO_4$ as a final analyses product and the result is reported as % $BaSO_4$. ALS uses an in-house analytical method (Ba-GRA-81) which also precipitates BaSO4% as a final analyses product. The ALS result is reported as % Ba – stoichiometric equations must be used to convert to % $BaSO_4$. The comparison results are shown as **Chart 12.2.**

Chart 12.2 shows that in 14 out of the 14 analyses, the % $BaSO_4$ determined by Loring was slightly higher than that determined by ALS. The differences between Loring and ALS ranged between100.7% to 111.9% of the ALS reported value. The average Loring reported value was 104.5% of the reported ALS value.

Of the 14 samples selected for check analysis, 6 out of 14 analyzed + 94% $BaSO_4$. These were hand selected samples of nearly pure barite and are thought by the authors to be representative of the future finished barite products to be produced at the Frances Creek Property. These are samples 66-53-55-57-58-60; they are designated in **Table 12.1** by the initials HG.

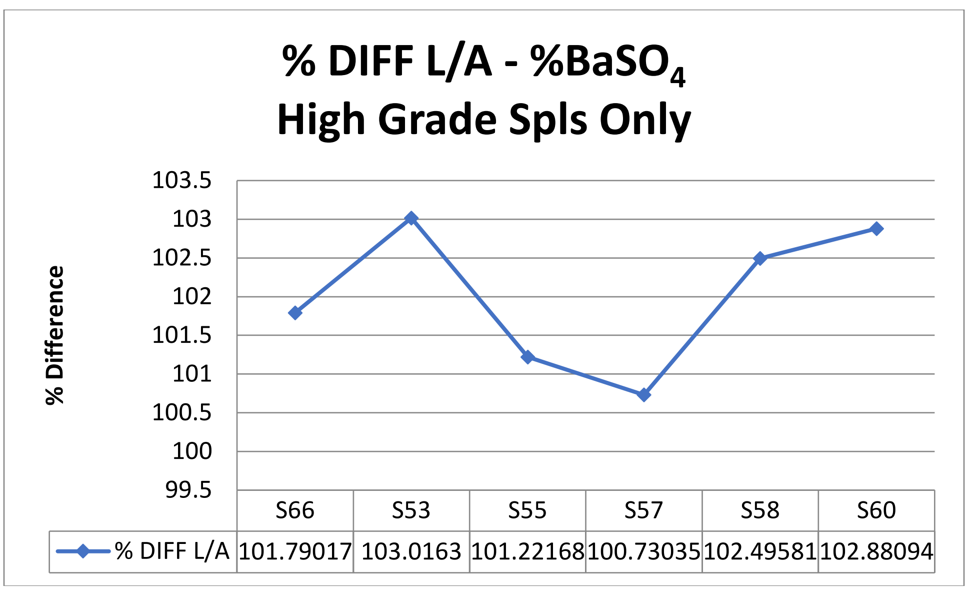
When one considers only the 6 higher grade samples, differences are of lesser magnitude.

Chart 12.3 shows that in 6 out of the 6 analyses, the % $BaSO_4$ determined by Loring was still slightly higher than that determined by ALS. The differences between Loring and ALS ranged between 100.7% to 103% of the ALS reported value. The average Loring reported value was 102% of the reported ALS value. The author accepts this as good correlation between the two labs when restricted to the + 94% $BaSO_4$ samples. The author believes that the Loring data is acceptable to use for the resource estimate.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ALS	74.9	82.7	9.32	19.2	48.2	39.4	34.8	95.8	57.9	96.2	96.6	97.1	95.2	94.5
LORING	77.6	86.0	10.4	20.8	51.3	41.6	36.5	97.5	61.3	99.1	97.7	97.8	97.5	97.2

FIGURE 12-2: LAB COMPARISON – % $BaSO_4$



	S66	S53	S55	S57	S58	S60
% DIFF L/A	101.79017	103.0163	101.22168	100.73035	102.49581	102.88094

FIGURE 12-3: LAB COMPARISON – % $BaSO_4$ – HIGH GRADE SAMPLES

12.3 ICP

The ICP analysis method is used to determine trace element specifications for the Barite industry. Both labs offer various ICP analysis packages to their clients. Loring used its standard 30 Element ICP analysis package for the Frances Creek program samples. This package uses 3 acids and aqua regia to dissolve the sample. Loring states on the analysis sheet, that the sample undergoes near total digestion. This means that near 100% of each analyte is available for the ICP analysis.

ALS offers its ME-ICP61 – 33 Element analysis, which we chose for the umpire analysis of the 14 submitted samples. Most, but not all of the 30 Elements analyzed for by Loring are also analyzed for in the ALS package; lower detection limits between the two packages are also considerably different. ALS uses an industry standard 4 acid digestion to prep the samples for analysis and does not use any other reagents to completely dissolve the sample.

Table 12.2 compares the analyses of 11 of the more important trace metals which determine the specifications for higher grades of barite products. The yellow shading indicates the 6 high grade samples discussed previously. The ALS results are shown in red font.

		As	Bi	Cd	Cu	Hg	Pb	Sb	Sn	Sr	Fe	Ca
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%
LORING	S1	1	3	1	7	na	3	4	na	3705	0.30	2.40
ALS	S1	<5	<2	<0.5	1	0.015	3	<5	na	3550	0.25	1.6
LORING	S12	2	<1	<1	3	na	1	4	na	1313	0.30	2.37
ALS	S12	<5	<2	<0.5	<1	0.013	<2	<5	na	2590	0.3	2.53
LORING	S15	2	<1	1	19	na	32	<1	na	748	0.73	13.41
ALS	S15	5	<2	<0.5	6	0.032	6	5	na	1340	0.83	15.3
LORING	S16	1	<1	<1	13	na	23	1	na	1449	0.63	12.22
ALS	S16	<5	2	<0.5	6	0.022	3	<5	na	2060	0.7	13.75
LORING	S22	<1	1	1	8	na	8	<1	na	1257	1.01	8.60
ALS	S22	<5	2	<0.5	1	0.018	3	<5	na	2650	1.05	9.11
LORING	S31	1	<1	1	5	na	12	1	na	2390	0.81	9.04
ALS	S31	<5	<2	0.5	1	0.018	4	<5	na	3230	0.84	9.63
LORING	S50	2	<1	1	1031	na	78	2	na	1778	1.20	8.19
ALS	S50	<5	<2	<0.5	3	0.026	4	<5	na	1915	1.23	8.7
LORING	S66	121	<1	<1	23	na	5	<1	na	820	0.77	7.01
ALS	S66	<5	<2	<0.5	1	<0.005	<2	<5	na	2460	0.86	7.67
LORING	S67	36	<1	<1	9	na	<1	<1	na	1759	0.05	0.36
ALS	S67	<5	<2	<0.5	<1	0.005	<2	<5	na	2910	0.04	0.35
LORING	S53	1	<1	<1	9	na	5	<1	na	1780	0.06	0.09
ALS	S53	<5	<2	<0.5	1	0.005	<2	<5	na	3040	0.06	0.08
LORING	S55	<1	2	<1	20	na	5	<1	na	1799	0.02	0.25
ALS	S55	<5	<2	<0.5	<1	<0.005	<2	<5	na	3330	0.02	0.12
LORING	S57	<1	<1	<1	9	na	4	<1	na	1937	0.01	0.31
ALS	S57	<5	<2	<0.5	1	<0.005	<2	<5	na	3080	0.01	0.03
LORING	S58	<1	<1	<1	10	na	2	<1	na	1460	0.04	0.32
ALS	S58	<5	<2	<0.5	<1	<0.005	<2	<5	na	2730	0.04	0.33
LORING	S60	<1	<1	<1	25	na	2	<1	na	1711	0.05	0.44
ALS	S60	<5	<2	<0.5	1	<0.005	<2	<5	na	3300	0.05	0.4

TABLE 12-2: LAB COMPARISON – TRACE ELEMENTS BY ICP

As – Arsenic – The lower detection limit (LDL) for As for Loring is 1 ppm; for ALS, it is 5 ppm. ALS reports all samples as < 5ppm. Loring reports 9 out of 14 as 1 or <1 ppm. Loring reports samples S66 and S67 as 121 and 36 ppm respectively. These are probably statistical outliers; S67 is a low-grade sample and the As probably resides in the gangue portion of the sample.

Bi – Bismuth – The LDL for Loring is 1 ppm while for ALS, it is 2 ppm. Both labs report very low concentrations for Bi in the samples tested.

Cd – Cadmium – ALS reports 1 sample out of 14 at LDL (0.5 ppm) and 13 out of 14 at below LDL. Loring reports 5 samples out of 14 at the LDL (1.0 ppm) and 9 out of 14 below LDL for this metal.

Cu – Copper – The LDL for Loring was not attained, while for ALS, it is 1.0 ppm. ALS reports S15 and S16 at 6 ppm, while Loring reports the same samples at 19 and 13 ppm. ALS reports S50 at 3 ppm, while Loring reports the same sample at 1031 ppm. The remaining 11 samples are reported at 1 or <1 by ALS and a range of 25 – 3 ppm by Loring.

This is the most glaring discrepancy between the two labs. The report by Loring of 1031 and ALS of 3 ppm can be explained away as a statistical outlier – also the sample only assayed at 36.5% $BaSO_4$ by Loring and 34.8% by ALS. Most likely, the anomalous Cu is with the gangue material and will drop out during milling. For the six high grade samples, ALS reports and average of ~ 1 ppm Cu, while Loring reports an average of 16 ppm Cu.

There is still a discrepancy between the two labs when reporting Cu, however. The reason for the wide difference between the two labs is probably due to incomplete digestion of the sample before analysis. Since Loring's sample preparation procedure results in complete sample digestion, Loring's analyses are probably more exact for copper.

Hg – Mercury – ALS uses ICP methodology to assay for mercury, Loring uses the Teledyne mercury analyzer method. As per **Table 12-2**, ALS reports values of 0.026 ppm (26 ppb) - < .005 ppm (5 ppb) for Hg; Loring did not assay these samples for mercury. Consequently, a direct cross check for this element is not possible.

Since 2014 however, Loring has assayed four core samples and 7 outcrop channel samples assaying at + 95% $BaSO_4$ for mercury. Of the outcrop samples, three were collected by the senior Mr.Henkle and 4 were collected by Bradley Willis. The core samples were from the 2005 drill program; these were selected by Mr. Henkle and sent for assay during the 2014 field investigation at the property. These results are shown in **Table 12.3** below:

ALS reported Hg values of 26 ppb to < 5 ppb for 14 samples. Loring reported Hg values of 19 ppb to 1 ppb for a different set of 11 samples taken from the Frances Creek Property. These results are very similar. Even though the mercury assays from the two labs cannot be compared directly, an indirect comparison suggests good correlation between the two labs for this heavy metal. It should be noted that the specification limit for mercury in commercial barite products is 1 ppm, several orders of magnitude higher than were found in any of these test samples.

Pb – Lead – Inspection of **Table 12.2** shows that Loring reported values of 78 ppm to 1 ppm vs. a max of 6 ppm - < 1 ppm for ALS for the 8 lower grade samples tested. For the + 94% $BaSO_4$ samples, Loring reported from 5 ppm to 2 ppm (average = 3.8 ppm) and ALS reported all 6 samples at < 2 ppm.

It is not possible to say, which lab is correct in this instance. We suspect that the reason for the wide difference between the two labs is probably due to incomplete digestion of the sample before analysis. Since Loring's sample preparation procedure results in complete sample digestion, Loring's analyses are probably more exact.

Sample #	Hole / Depth	% BaSO4	Hg – ppb	SG
BA – Dens 1	05-03/5.9-8.2m	98.58	2	4.48
BA – Dens 2	05-03/29.7-32m	95.86	3	4.42
BA – Dens 3	05-04/7.5-8.5m	99.26	1	4.48
BA – Dens 3	05-04/16.3-20.3m	97.86	2	4.47
FC 1 – 2015	CHAN – 1.41m	98.54	7	4.48
FC 2 – 2015	CHAN – 1.25m	98.76	6	4.48
FC 3 – 2015	CHAN – 0.92m	88.76	7	4.18
FC 4 – 2015	CHAN – 1.4m	97.86	5	4.47
8/12/14-1	Rock Chip – Nd	91.78	19	4.12
8/12/14-2	Rock Chip – Nd	86.18	6	4.05
8/13/14-1	Rock Chip – Nd	70.02	14	3.62

TABLE 12-3: HG ASSAYS – LORING LABS

Sb – Stibnite – The lower detection limit (LDL) for Sb for Loring is 1 ppm; for ALS, it is 5 ppm. ALS reports 13 out of 14 samples as < 5ppm, and one sample at 5 ppm. Loring reports 2 samples at 4ppm, 1 sample at 2 ppm, 2 samples at 1 ppm and 9 samples at <1 ppm. There is good correlation between the two labs for this trace metal.

Sn – Tin – Neither lab analyzed for this trace metal.

Sr – Strontium – Inspection of **Table 12-2** and **Chart 12.4**, reveals that there is very poor correlation between the two labs with respect to ICP analyses for this trace metal. Percent differences between the two labs for this analyte range from a low of + 4.18% to a high of – 199.85%. The reason for the wide difference between the two labs is probably due to incomplete digestion of the sample before analysis. Since Loring's sample preparation procedure results in complete sample digestion, Loring's analyses are probably more exact.

Fortunately, the maximum allowable $SrSO_4$ percentage allowed in various grades of finished barite products varies from 2.0% to 2.5%, or 20,000 to 25,000 ppm $SrSO_4$. This is an order of magnitude higher than the levels of Sr detected by either lab. The lowest Sr concentration detected was 748 ppm and the highest was 3705 (both detected by Loring). A stoichiometric calculation for $SrSO_4$ using these two numbers ranges from 1570.8 ppm to 7780.5 ppm, well below these limits.

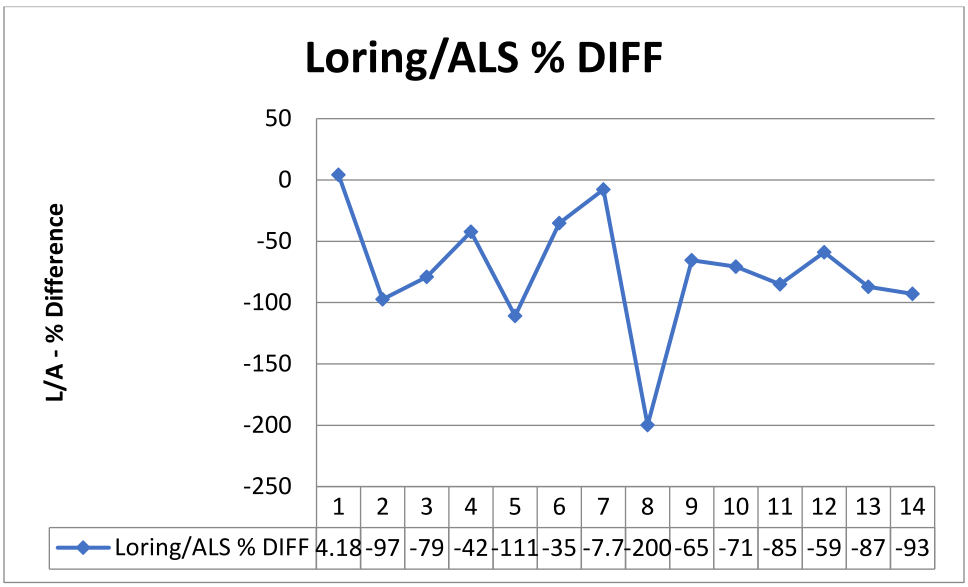


FIGURE 12-4: COMPARISON OF % DIFFERENCE LORING/ALS FOR SR

<u>Fe – Iron</u> – Inspection of **Table 12.2** shows that 5 out of 14 samples (36%) analyzed for this metal showed noticeable differences between the two labs, while 9 out of 14 (64%) showed no or minimal difference between the two labs.

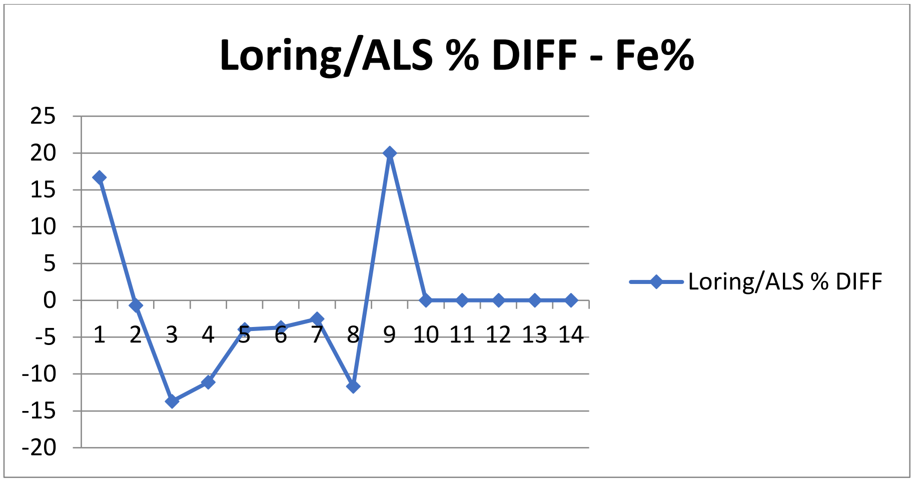


FIGURE 12-5: COMPARISON OF % DIFFERENCE LORING/ALS FOR FE

Inspection of **Chart 12.5** shows that for the 9 samples with good correlation, the difference was less than 5% for 4 of the samples and 0% for 5 of the samples. For the six +94% $BaSO_4$ samples, which according to dialogue Voyageur believes will be representative of the finished barite products, one had a difference of 11.7% and five had a difference of 0%.

Ca – Calcium – Inspection of **Table 12.2** shows that there is a wide variation between the two labs when analyzing for this metal. The divergence between the two labs was greater than 10% in 6 out of 14 samples analyzed (43%). For the +94% $BaSO_4$ samples, the differences varied from – 3.1 to + 90.3%. **Chart 12.6** shows this in graphical format.

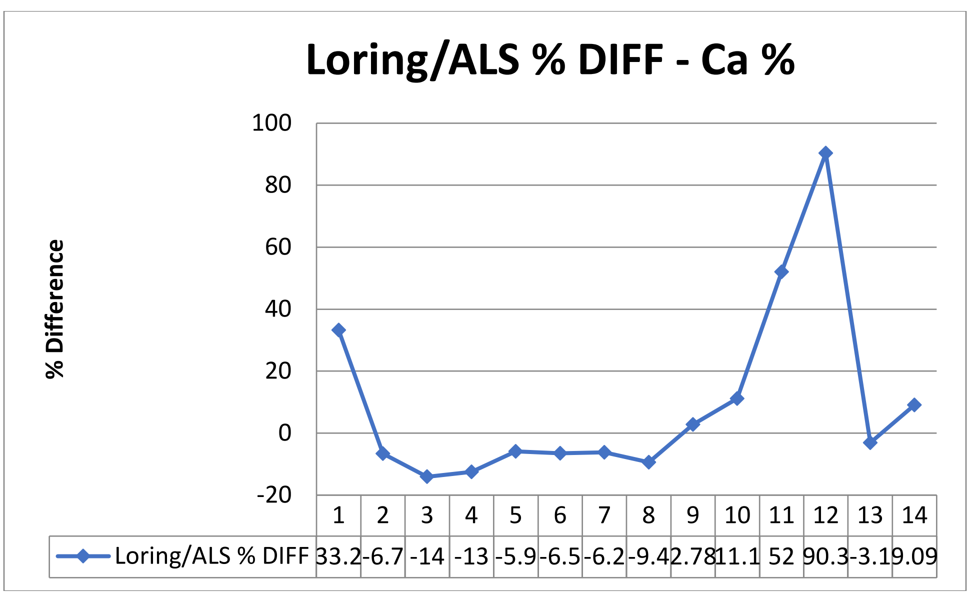


FIGURE 12-6: COMPARISON OF % DIFFERENCE LORING/ALS FOR CA

The reason for the wide difference between the two labs is probably due to incomplete digestion of the sample before analysis. Since Loring's sample preparation procedure results in complete sample digestion, Loring's analyses are probably more exact.

Lot	Strontium (≤ 2.5%)	Silica (≤ 1.0%)	% $BaSO_4$
Barite sample 1 200 mesh	0.59%	0.13%	97.80%
Barite sample 1 200 mesh 12% HCl	0.62%	0.18%	97.90%
Barite sample 2 >200 mesh	2.08%	0.17%	97.20%
Barite sample 2 >200 mesh 12% HCl	1.54%	0.15%	97.70%

TABLE 12-4: RESULTS FROM 12% HCL ACID TEST

SAMPLE #	SAMPLE WIDTH	$BaSO_4$ %	SG	Ca ppm	Cd ppm	Hg ppb	Pb ppm	As ppm	Sr ppm	Al2O3 %	Fe2O3 %	SiO2 %
FC1 2015	1.41m	98.54	4.48	34	<1	7	6	2	8162	0.03	0.02	0.05
FC2 2015	1.25m	98.76	4.48	24	<1	6	4	1	5380	0.01	0.01	0.06
FC3 2015	0.92m	88.76	4.18	29	<1	7	4	<1	9023	0.27	0.53	0.54
FC4 2015	1.4m	97.86	4.47	24	<1	5	4	1	8864	0.06	0.03	0.10

TABLE 12-5: 2015 OUTCROP SAMPLE RESULTS – CHEMICAL TESTING - FRANCES CREEK PROPERTY

SAMPLE #	SG (4.1 - min)	% $BaSO_4$	Hg - ppm (1.0 max)	Cd - ppm (3.0 max)	SOLUABLE Ca - ppm (250 max)
8/12 - 1	4.12	91.78	.019	<1	94
8/12 - 2	4.05	86.18	.006	<1	155
8/13 - 1	3.62	70.02	.014	<1	139

TABLE 12-6: 2014 OUTCROP SAMPLE RESULTS – CHEMICAL TESTING - FRANCES CREEK PROPERTY

12.4 QP's Opinion as to Data Adequacy

It is the Author's opinion, that the SG and % $BaSO_4$ laboratory data from both Loring Labs and ALS Labs is adequate for the purposes of this report and can be used for the resource calculation. Both labs were in reasonable agreement with respect to these two analyses.

As discussed in **Section 12.3**, the ICP analyses for the same sample often showed wide differences between the two labs. As mentioned earlier, we suspect that the reason for the wide difference between the two labs is probably due to incomplete digestion of the sample before analysis. Since Loring's sample preparation procedure results in complete sample digestion, Loring's analyses are probably more correct.

Due to incomplete sample digestion during the ALS analyses, there really is not a valid comparison between the two labs. Most commercial labs do not do a complete digestion of the sample for ICP analysis work. Consequently, it is difficult to find a check lab to validate the Loring ICP analyses.

Both authors are of the opinion, that the Loring ICP analyses are sufficient for use in this report. This is primarily because complete digestion is required to do a complete analysis.

13 Mineral Processing and Metallurgical Testing

13.1 Test Analysis

In June and July of 2018, Voyageur initiated a laboratory metallurgical testing program for the Frances Creek Prospect. The purpose of the test program was to simulate the acid wash process, to see if the mineralized Frances Creek barites could be upgraded by relatively low-cost acid wash techniques. Additional acid testing is planned for the near future. The additional testing will be used to determine the optimal acid types and treatments to produce the most beneficial metallurgical results.

Loring Labs recovered splits from 18 previously assayed core samples. The splits were pulverized and then prepared for assay. Prior to assay, the samples underwent a simulated acid wash. After the acid wash, the samples were assayed by ICP analysis for the Whole Rock and ICP 30 assays and by gravimetric analysis for the $BaSO_4$% assay. The techniques used are described below:

1. 10% HCl Leach – 20.0 of reserved sample from previous assays were submerged in 10% HCl solution and brought to a boil on hotplate for approx. 30 minutes. All samples were then filtered and washed out with hot distilled water to remove all remaining HCl and allowed to dry in low temp oven to remove moisture only.
2. Post-leach sample then underwent digestion via fusion digestion – 0.2 g sample mixed evenly with lithium metaborate and incinerated at 900 C (turning sample into a fused molten button), dissolved into solution in 5% nitric acid. Solution was then submitted to ICP-OES for Whole Rock and ICP 30 element packages. Silica % was characterized separately via a gravimetric method, and Loss on Ignition was done by burning off the solid sample at 900 C.
3. Fusion digestion method was used for post-leach samples since it allows for better recovery in strontium.
4. It is worth noting that near-total digestion method was used originally for pre-leach samples. This is done by digesting 0.5 g of the solid sample overnight in HF, and then working it up with Aqua Regia, and then submitted to ICP for ICP 30 Element.
5. $BaSO_4$ % was characterized by gravimetric method for both pre- and post-leach samples. There was no change in methodology used.

The 10% HCL leach was a reasonable lab scale test to simulate an industrial scale acid leach. The post leach assays give a reasonable picture of the effectiveness of the leach process when compared to the original assay results from the 2017 drill program testing as shown on Tables 13.1, 13.2, 13.3, 13.4.

The acid leach (simulated acid wash) testing was successful, in that it showed that $BaSo_4$ % increased (0.7% Avg) slightly, due to dissolution of Fe_2O_3, $CaCO_3$ and other acid soluble components. It also showed a marked decrease in Fe_2O_3 from an average of 0.31% to an average of 0.01%. Likewise, $CaCO_3$ % was reduced from an average of 2.3%, to less than 0.5% for all 18 samples.

It was impossible to compare before and after results for $SrSO_4$%, as the digestion method was not the same for the two assay runs. For the acid treated samples, $SrSO_4$% is below 3.5% with an average assayed value of 2.4% $SrSO_4$ for the 18 samples.

	BEFORE	AFTER	DIFF
	Reported	Reported	AFT - BEFORE
Sample #	% BaSO4	% BaSO4	% BaSO4
12	86.08	88.82	2.74
39	99.09	98.61	-0.48
41	95.27	96.69	1.42
53	99.12	97.72	-1.4
54	96.41	95.9	-0.51
55	97.76	96.96	-0.8
57	97.81	97.69	-0.12
58	97.58	97.29	-0.29
59	96.87	97.49	0.62
60	97.26	97.51	0.25
61	96.89	97.32	0.43
62	95.32	97.68	2.36
64	96.33	96.58	0.25
66	97.54	96.89	-0.65
69	97.34	97.88	0.54
73	88.23	92.43	4.2
74	93.83	95.56	1.73
76	94.88	97.23	2.35
	AVG % Diff = 0.70% - 18 samples		

TABLE 13-1: % DIFFERENCE AFTER LEACH – $BASO_4$%

ACID WASHING - REDUCTION IN Fe2O3					
	BEFORE			AFTER	
		Calculated	SPEC	Reported	
Sample #	ICP - Fe%	Fe2O3%	< 0.1%	Fe2O3%	Remarks
12	0.30	0.85228	Fail	<0.01	Spec
39	0.03	0.078078	Spec	<0.01	Spec
41	0.04	0.10439	Fail	<0.01	Spec
53	0.06	0.1716	Fail	<0.01	Spec
54	0.02	0.0572	Spec	<0.01	Spec
55	0.02	0.0572	Spec	<0.01	Spec
57	0.01	0.0286	Spec	<0.01	Spec
58	0.04	0.1144	Fail	<0.01	Spec
59	0.05	0.143	Fail	<0.01	Spec
60	0.05	0.143	Fail	<0.01	Spec
61	0.03	0.0858	Spec	<0.01	Spec
62	0.02	0.0572	Spec	<0.01	Spec
64	0.07	0.2002	Fail	<0.01	Spec
66	0.05	0.143	Fail	<0.01	Spec
69	0.61	1.7446	Fail	<0.01	Spec
73	0.29	0.8294	Fail	0.03	Spec
74	0.13	0.3718	Fail	0.01	Spec
76	0.12	0.3432	Fail	0.01	Spec
	NOTE: All Spls meet Paint, Glass & Filler Spec with Acid Wash				

TABLE 13-2: % Fe_2O_3 - AFTER LEACH

ACID WASHING - REDUCTION IN CaCO3							
	BEFORE			AFTER			
		Calculated	Calculated	Reported	Calculated	Paint Spec	
Sample #	ICP - Ca%	CaO%	CaCO3%	CaO%	CaCO3%	CaCO3	Remarks
12	2.37	3.318	5.91789	0.02	0.0356	< 0.50%	Spec
39	0.09	0.126	0.22473	0.03	0.0534	< 0.50%	Spec
41	0.8	1.12	1.9976	0.01	0.0178	< 0.50%	Spec
53	0.09	0.126	0.22473	0.01	0.0178	< 0.50%	Spec
54	0.56	0.784	1.39832	0.01	0.0178	< 0.50%	Spec
55	0.25	0.35	0.62425	0.01	0.0178	< 0.50%	Spec
57	0.31	0.434	0.77407	0.01	0.0178	< 0.50%	Spec
58	0.32	0.448	0.79904	0.01	0.0178	< 0.50%	Spec
59	0.36	0.504	0.89892	0.01	0.0178	< 0.50%	Spec
60	0.44	0.616	1.09868	0.01	0.0178	< 0.50%	Spec
61	0.33	0.462	0.82401	0.01	0.0178	< 0.50%	Spec
62	1.87	2.618	4.66939	0.03	0.0534	< 0.50%	Spec
64	0.37	0.518	0.92389	0.01	0.0178	< 0.50%	Spec
66	0.36	0.504	0.89892	0.01	0.0178	< 0.50%	Spec
69	5.96	8.344	14.88212	0	0	< 0.50%	Spec
73	0.97	1.358	2.42209	0.01	0.0178	< 0.50%	Spec
74	0.58	0.812	1.44826	0.01	0.0178	< 0.50%	Spec
76	0.75	1.05	1.87275	0.01	0.0178	< 0.50%	Spec
		NOTE: All Spls meet Paint/Chem Spec with Acid Wash					

TABLE 13-3: % DIFFERENCE AFTER LEACH – $CaCO_3$%

	ACID WASH		
	Reported	Fus - Digest	Calculated
Sample #	% BaSO4	Sr ppm	SrSO4%
12	88.82	10834	2.2708064
39	98.61	8878	1.8608288
41	96.69	7625	1.5982
53	97.72	10464	2.1932544
54	95.9	10909	2.2865264
55	96.96	12954	2.7151584
57	97.69	12942	2.7126432
58	97.29	10162	2.1299552
59	97.49	12712	2.6644352
60	97.51	12312	2.5805952
61	90.71	14799	3.1018704
62	97.68	10108	2.1186368
64	96.58	11152	2.3374592
66	96.89	12412	2.6015552
69	97.88	5271	1.1048016
73	92.43	13935	2.920776
74	95.56	14088	2.9528448
76	97.23	14200	2.97632
NOTE: All Spls meet Paint Spec (< 3.5%) with Acid Wash			

TABLE 13-4: % $SrSO_4$ - AFTER LEACH – YELLOW INDICATES TOO HIGH FOR PHARMA

Gravity separation testing (jigging and tabling) is planned for the next phase of the project evaluation. Strontium assaying of the concentrates produced by this testing should be part of the test. It is possible that the crystalline barite may lose strontium during the gravity concentration process. This is because the SG of pure $BaSO_4$ is 4.5, while the SG of pure $SrSO_4$ is 4.0 (11% lower).

It was impossible to compare before and after results for Heavy metals, as the digestion method was not the same for the two assay runs.

In conclusion, the lab scale metallurgical testing program indicated that conventional milling results in higher grade barite concentrates. This is also true of acid washing of the barite.

14 Mineral Resource Estimate

The Cross Section – Area method was used to calculate a resource estimate for the Frances Creek Barite Property. The Society of Economic Geologists Special Publication #3 – *Ore Reserve Estimates in the Real World*, states the following concerning Resource Estimates for vein type deposits: "*Estimation on cross-section has several advantages. The most important of these is that it should force the geologist or engineer to pay attention to both the geologic and engineering constraints that limit the estimate"* (p – 45).

Another advantage of this method is that it provides a cross sectional visual display of the relationships of the deposit geology and the distribution of metal grades and mineralization types. The Cross Section – Area method has been used for over 150 years to estimate resources and reserves in vein-type deposits and it remains a useful tool for early-stage resource definition in vein type deposits.

14.1 Database preparation

The first step in the formulation of the estimate was to enter the drill hole data into the project master computer. The datum and projection used for the drill hole collar locations and other spatial data is UTM NAD1983 zone 11 measured in meters. The computer program used for this project was MapInfo version 16.0.3, with the DISCOVER Drill Hole Module addition. The drill hole module addition allows for creation of cross-sectional views of the deposit in multiple azimuths and eventual 3D visualization of the data.

An Excel spreadsheet database was used to condition the drill hole and other sampling data and to ensure accuracy of the information. Each drill hole included thickness of non-mineralized and mineralized increments with associated % $BaSO_4$ and Specific Gravity. In most cases, weighted averages were used to obtain the %$BaSO_4$ and SG values for the mineralized zones. The information on the Excel database was then entered into MapInfo in order to generate different views of the data (FIGURES 14.1 and 14.2). The general strike of the mineralized zone was determined to be North 50^{o} West**.**

14.2 Topographic model

A topographic model of the project area was generated with the MapInfo program by combining the Canadian Government Digital Elevation Model (DEM) digital surface with surveyed elevation/location data points. The Canadian DEM data was acquired by synthetic aperture radar measurements from a satellite (NASA's Aster and Terra platforms). Digital elevations were generated on a nominal 10-meter interval. The surficial survey data was acquired towards the end of the 2017 drill program by a contract surveying company which was hired by Voyageur. The surface topographical profiles generated from the DEM data were adjusted to match the surface surveyed elevations where necessary.

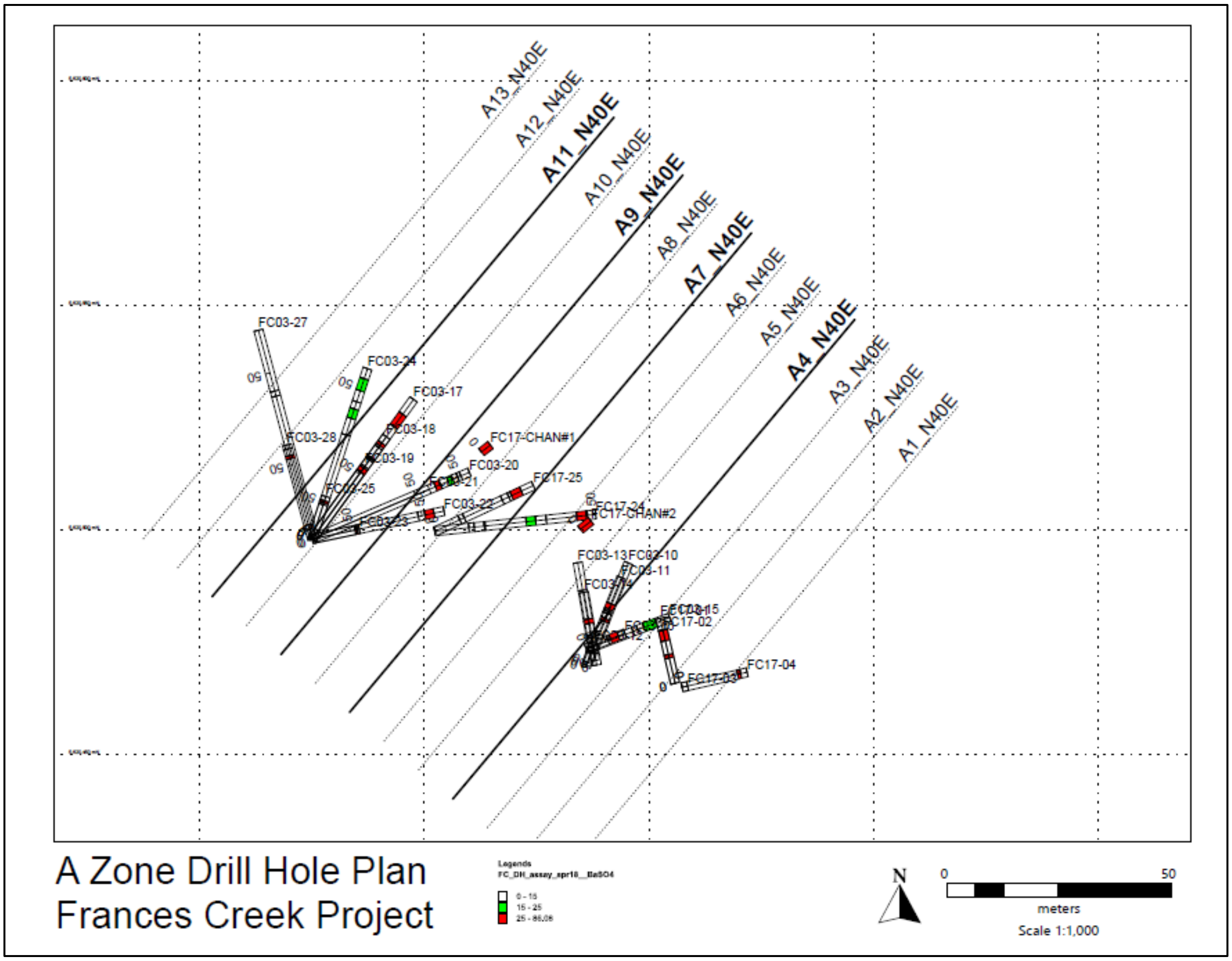


FIGURE 14-1: A – ZONE DRILL HOLE PLAN MAP

14.3 Estimation methodology

A series of 30 structural, geologic cross sections, drawn at right angles to the strike of the mineralized zone (N 40E), were generated by the computer at 10-meter intervals as shown on Figures 14.1 and 14.2**.** Drill data and channel sample data was posted on individual cross sections, to allow for correlation of mineralized zones. Drill data was geometrically projected into the plane of the cross section, from 5M either side of where the trace of the drill hole crossed the section line. This allowed a 10M wide "view" of the mineralization intercepted by drill holes which crossed the plane of the section.

The geology suggested by the plotted drillhole data was plotted on section and correlated across adjacent sections to create mineralized polygons by a competent geologist. The area of the resultant polygons was then determined by digitization and this was entered into a spreadsheet by section number. Each polygon was assigned a width of 5 M either side of the section (10 M total width), to arrive at a volume. The volume was then multiplied by the laboratory determined specific gravity (SG) for the relevant section of the drillholes to calculate tonnage for each polygon. Nine of the thirty cross sections used in the analysis are shown in this report (Figures 14.3 – 14.9).

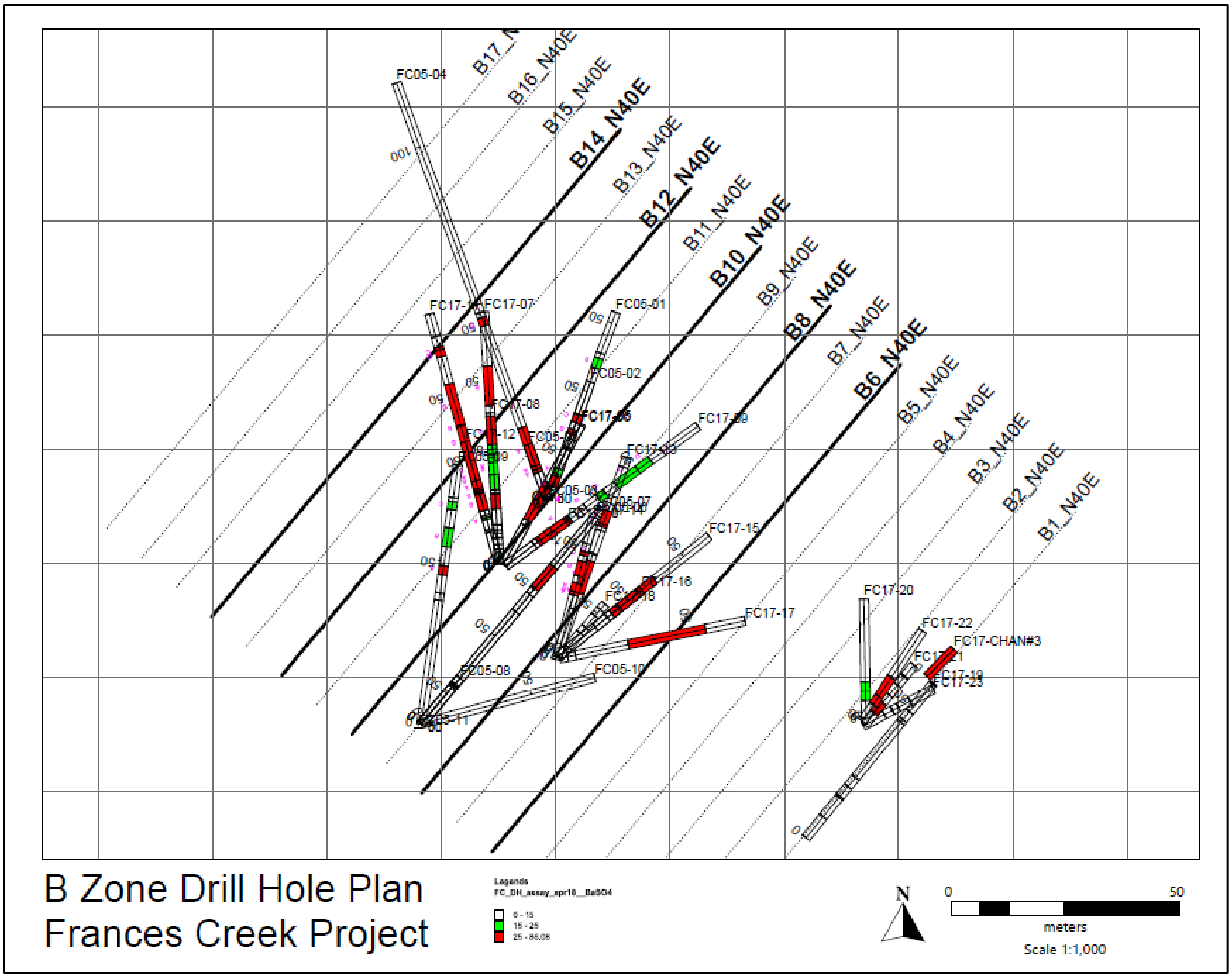


FIGURE 14-2: B – ZONE DRILL HOLE PLAN MAP

14.3.1 Specific gravity determination

The specific gravity of the barite varies according to the grade of the mineralize material as described in Chapter 11 of this report. A higher percentage of barite results in a higher specific gravity of the sample being evaluated. Specific gravities, using the Le Chatelier bottle method, were determined for all assayed samples. These results were then correlated with the grades assayed for those samples to generate the correlation curve shown on Figure 14-3 and 14-4. The difference in regression coefficients is due to the difference in numbers of samples taken from the B zone (87) than the A zone (49).

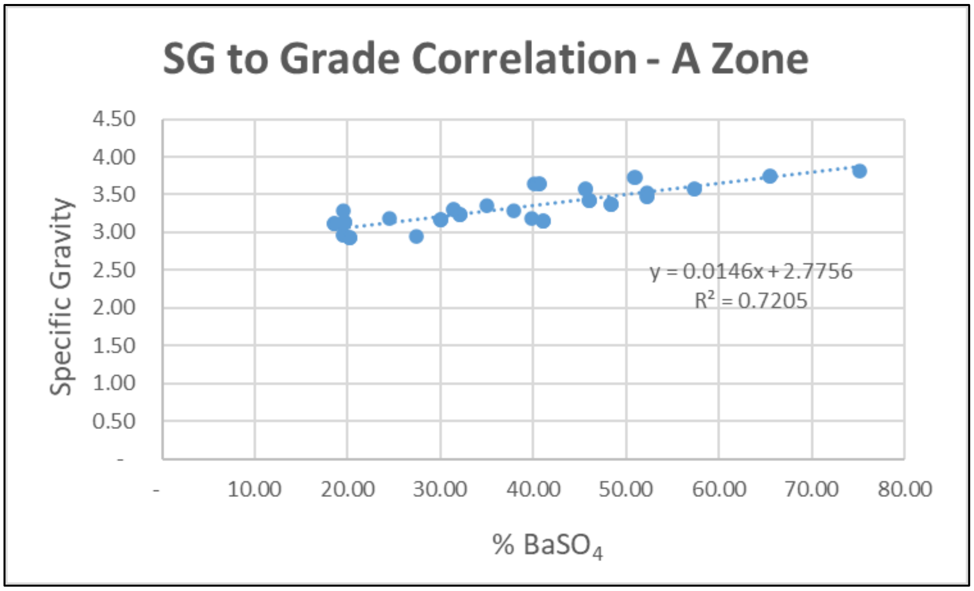


FIGURE 14-3: GRADE – SG CORRELATION FOR A ZONE

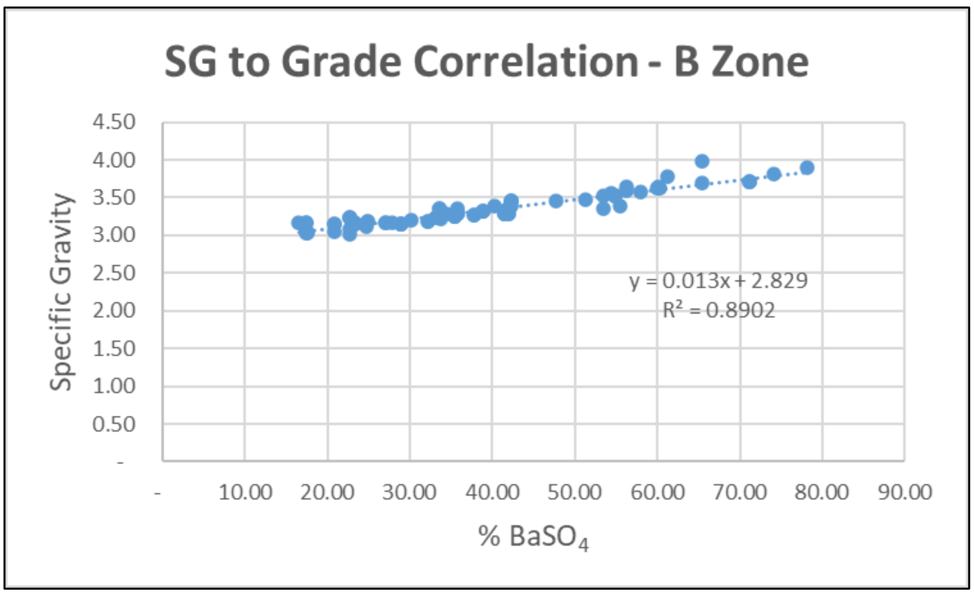


FIGURE 14-4: GRADE – SG CORRELATION FOR B ZONE

14.4 Resource Classifications

The Frances Creek Barite Breccia Vein stratigraphy is complex and is challenging to correlate, even with closely spaced drill hole data. The polygons on each section were assigned as either indicated or inferred mineral resource categories based on their distance from geological data (drill holes and surface sampling). Measured Resources were not assigned to any of the polygons of the Frances Creek Breccia Vein. Additional drilling, geologic and geostatistical work will have to be undertaken to provide the geologic information necessary to estimate measured mineral resources.

Following, are definitions of mineral resource categories taken from the 2014 CIM Manual.

Mineral Resource – "A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction."

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."

Measured Mineral Resource – "*A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit."*

"Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation."

"A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve."

Indicated Mineral Resource – *"An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit".*

"Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation."

"An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve"

Inferred Mineral Resource – *"*An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity".

"An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration".

The following criteria were used to categorize the resources contained within the Frances Creek Breccia Vein.

Category	Min. Dip Projection	Max. Dip Projection	Min Strike Projection	Max Strike Projection
Measured	NA	NA	NA	NA
Indicated	0 M	20.0 M	0 M	5.0 M
Inferred	20.0 M	40.0 M	5.0 M	15.0 M

TABLE 14-1: RESOURCE CATEGORIES – DISTANCE MINERALIZATION PROJECTED ALONG DIP AND STRIKE

14.5 Resource Estimate and verification

The cross-sectional polygon data was entered into an Excel spreadsheet with:

- the relevant specific gravity and $BaSO_4$ grade
- the resource classification
- the geographic location of the resource (A, B and C zones)

From this data and the intersection extrapolation of the data, a tonnage for each polygon was calculated and then summed to estimate the tonnes and grade of the resource by classification and by geographic zone. Based on this analysis, the resource estimate for the Frances Creek Breccia Vein deposit is shown on Table 14 – 2.

Zone	Class	Inplace	Barite	Grade
		tonnes	tonnes	% $BaSO_4$
A	indicated	36,600	13,200	36.1%
B	indicated	129,600	49,500	38.2%
Total	indicated	166,200	62,700	37.7%
A	inferred	42,900	14,200	33.1%
B	inferred	152,700	55,100	36.1%
Total	inferred	195,600	69,300	35.4%

TABLE 14-2: MINERAL RESOURCE ESTIMATE

14.5.1 Verification of resource estimate

The original mineral resource estimate for the Frances Creek project was completed in late 2018. For this reason, nine cross sections were reviewed to confirm the structure and geology as well as to confirm the areal extent of the mineralization by zone and classification.

14.6 Other Factors Which Might Affect The Frances Creek Resource

There are no other known factors which might adversely or beneficially affect the resource estimate.

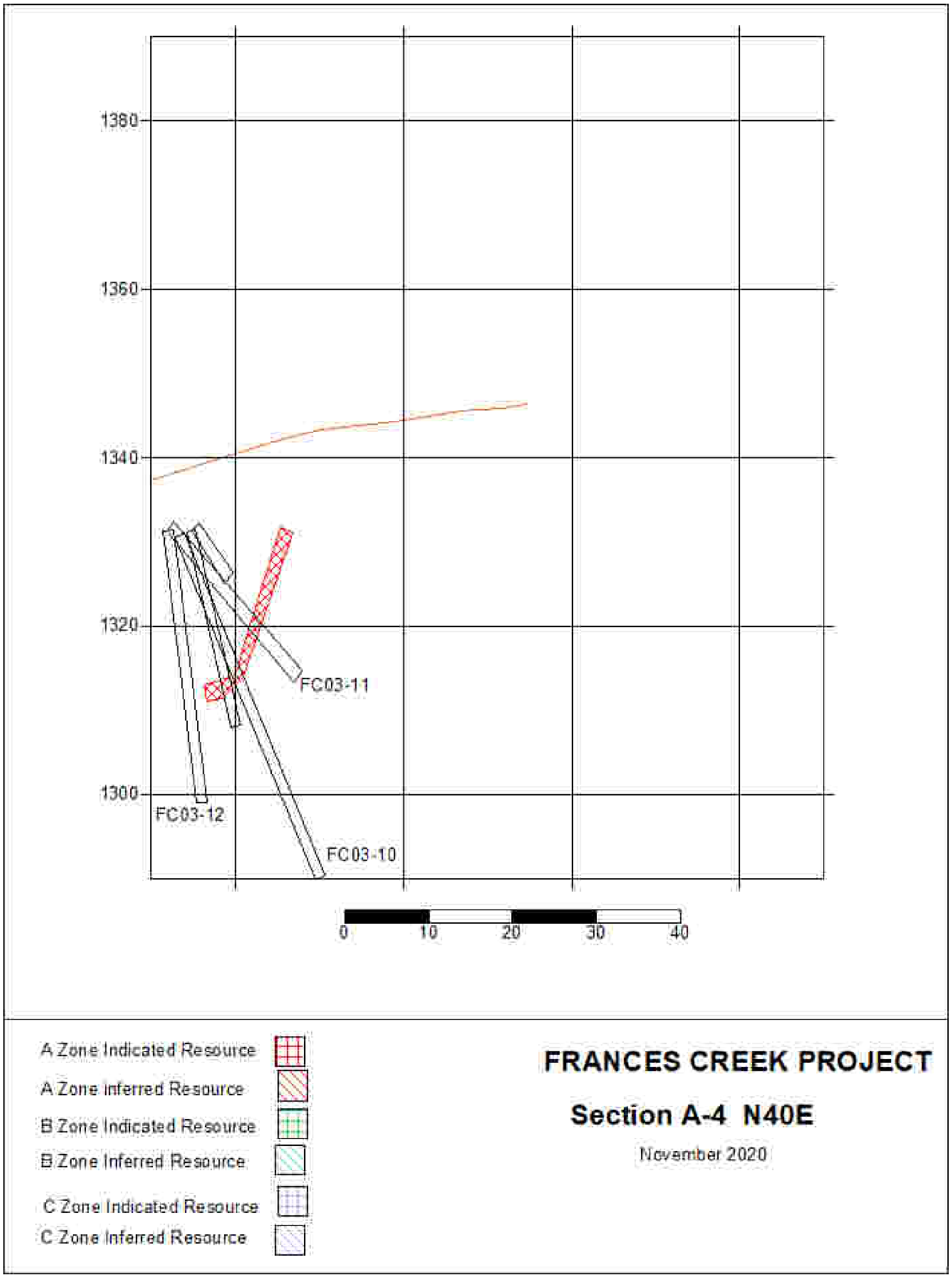


FIGURE 14-5: CROSS SECTION – A – 4

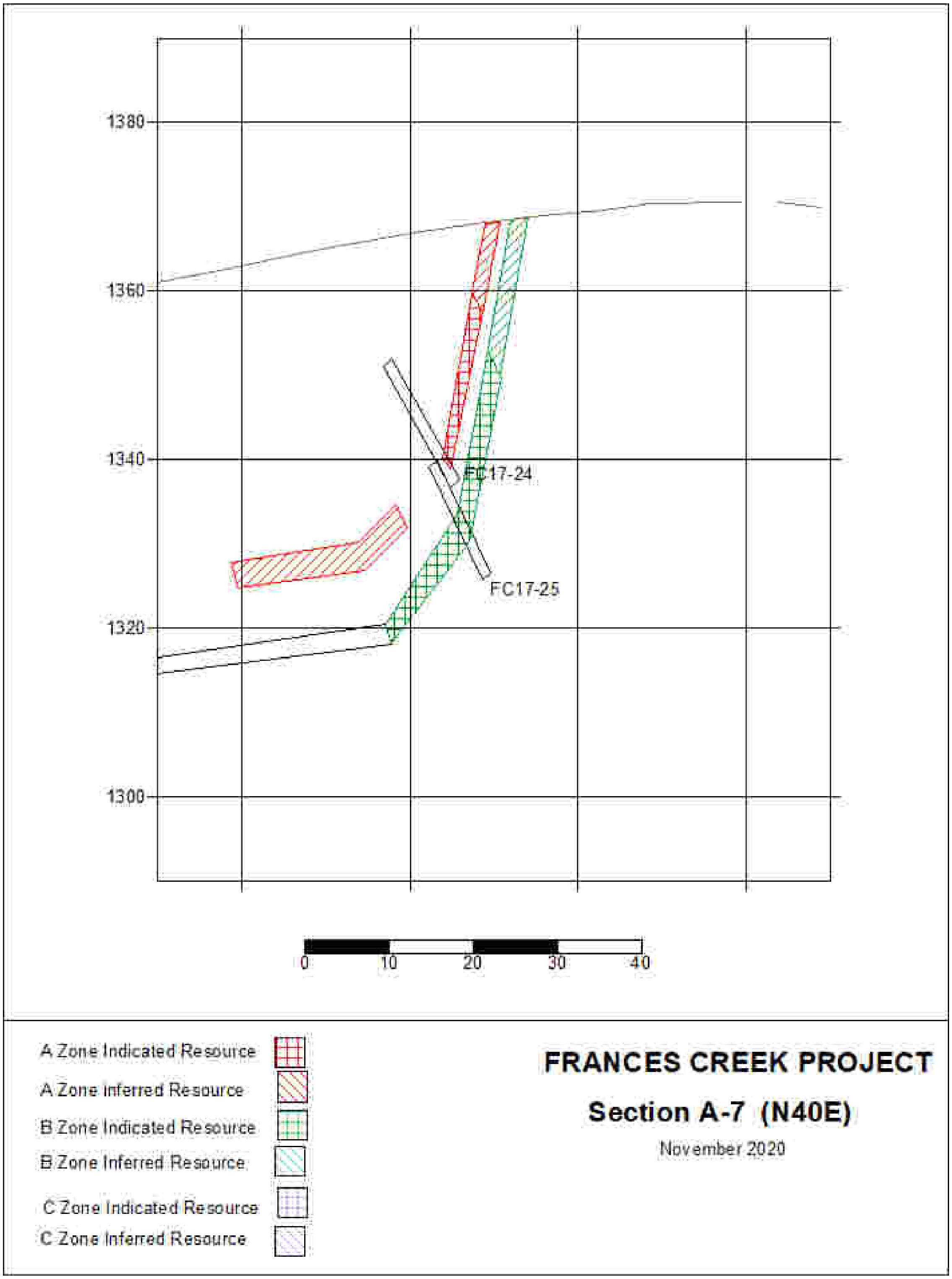


FIGURE 14-6: CROSS SECTION – A – 7

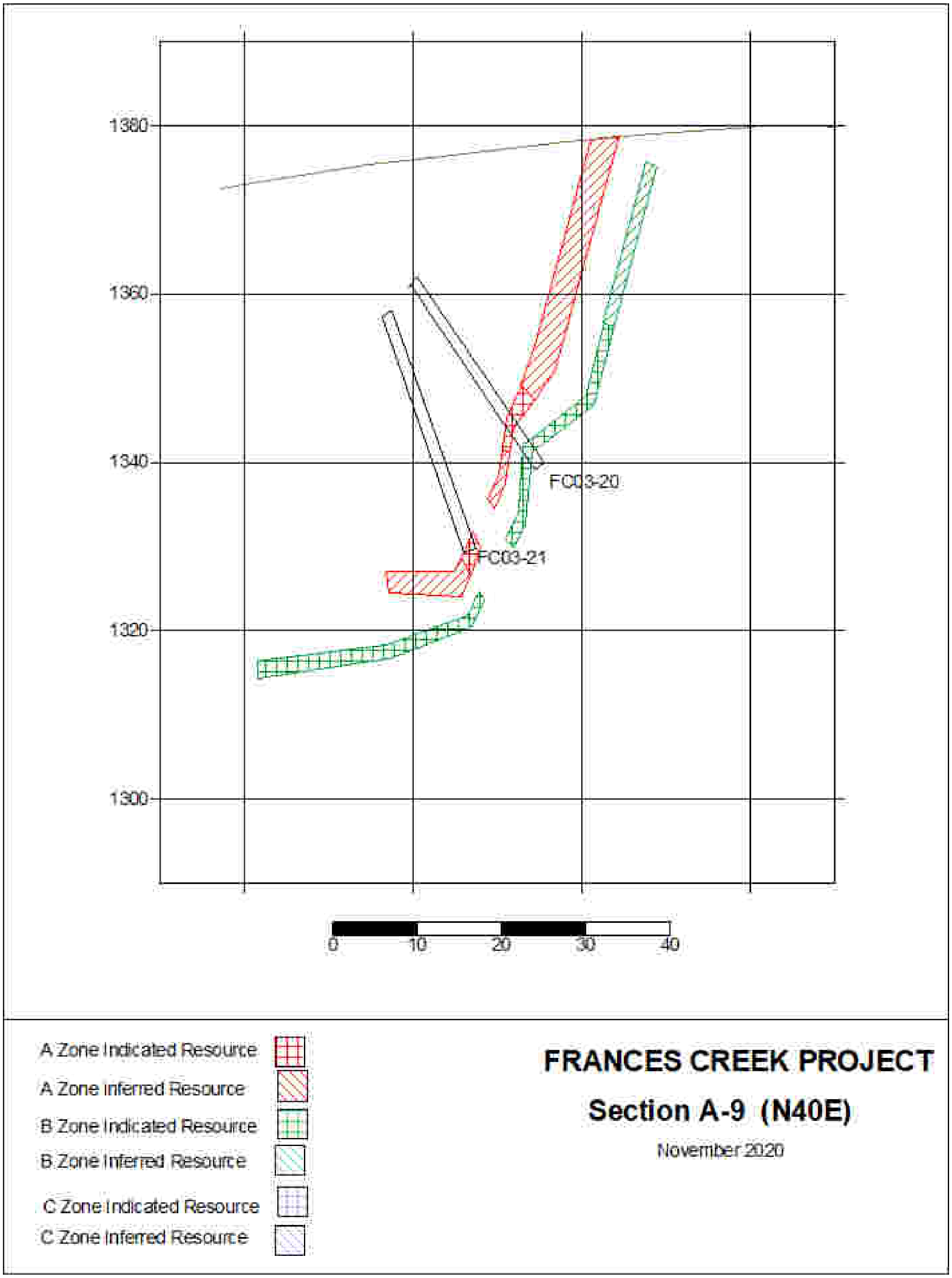


FIGURE 14-7: CROSS SECTION – A – 9

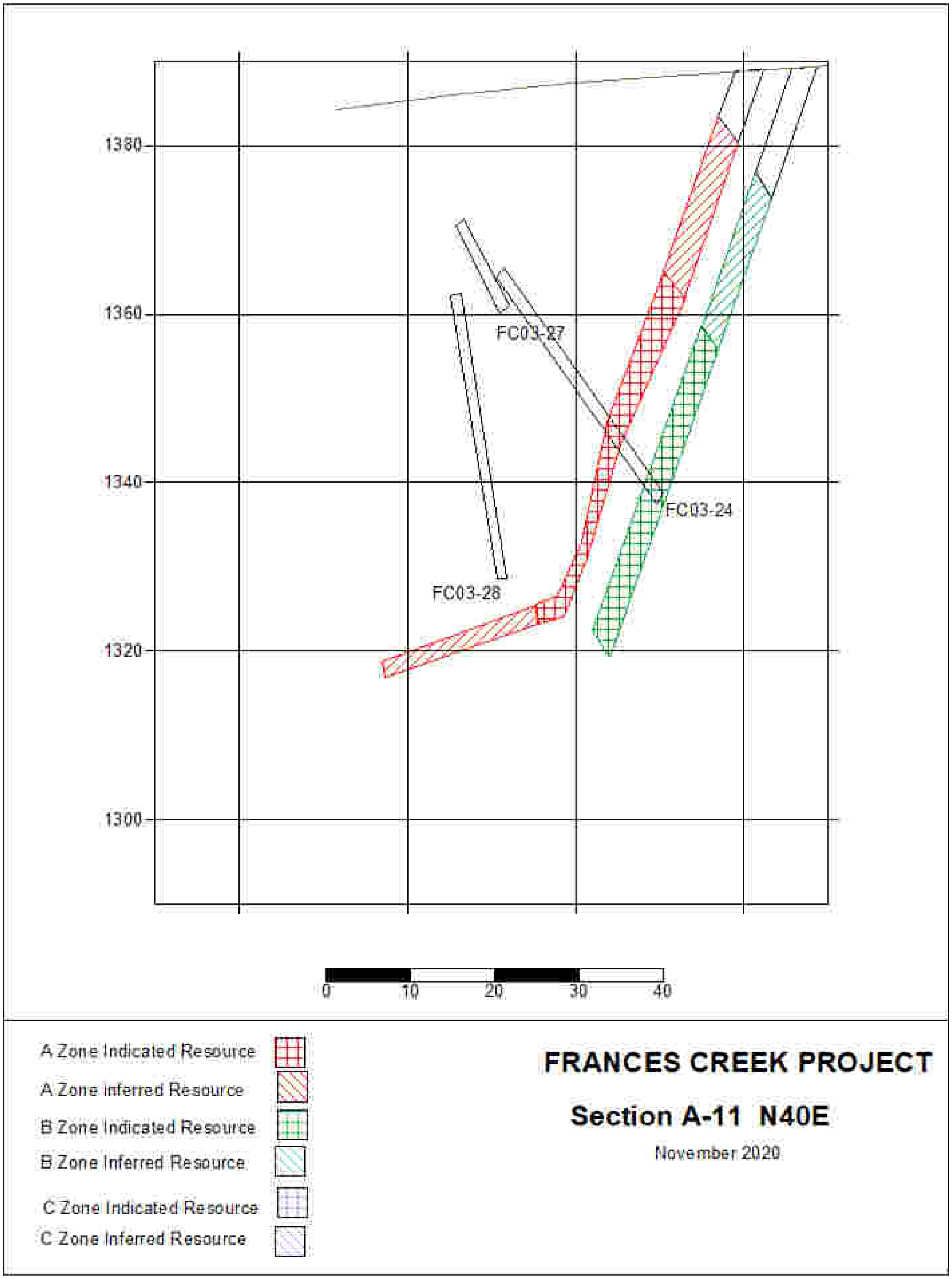


FIGURE 14-8: CROSS SECTION – A – 11

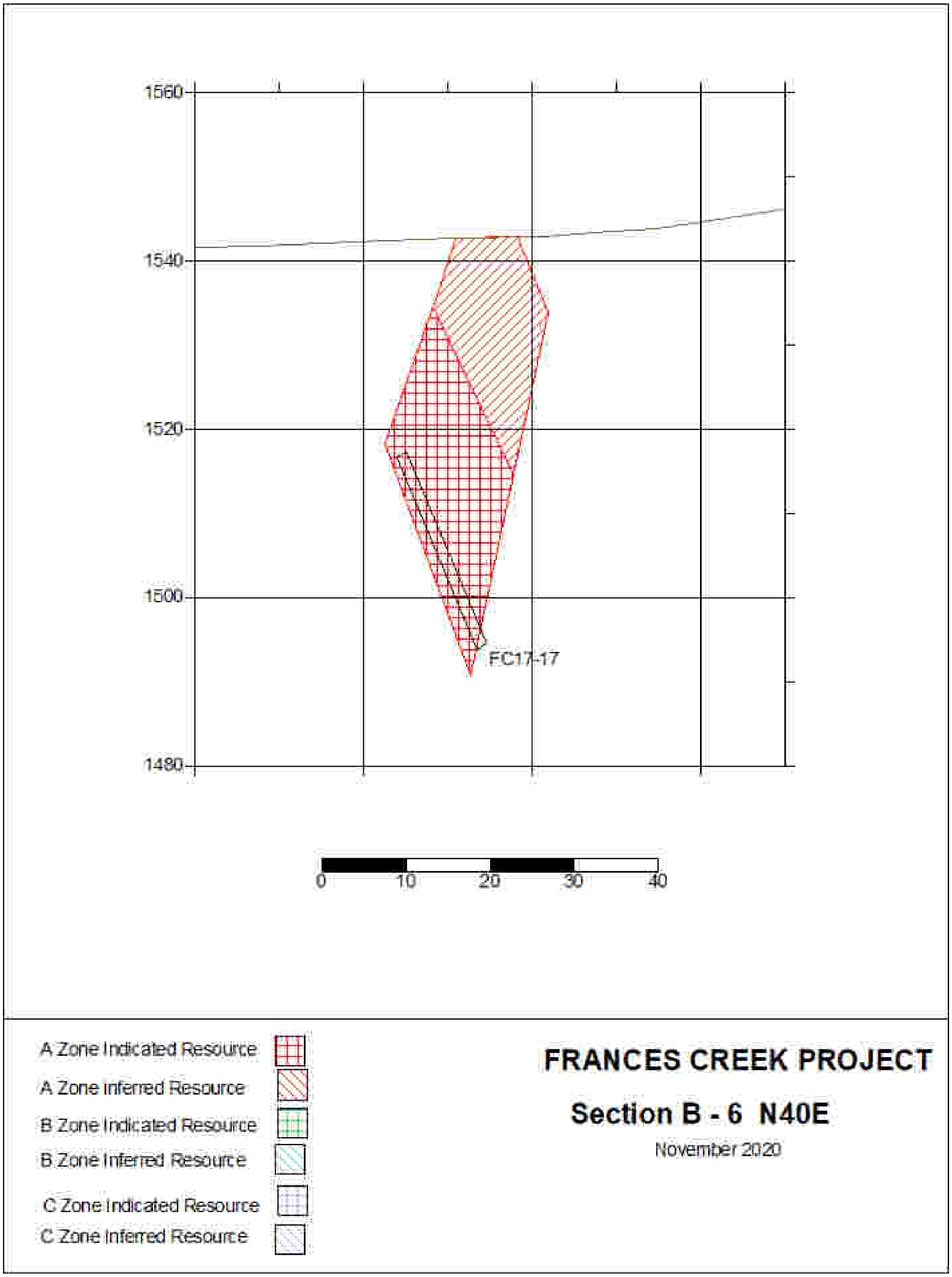


FIGURE 14-9: CROSS SECTION – B – 6

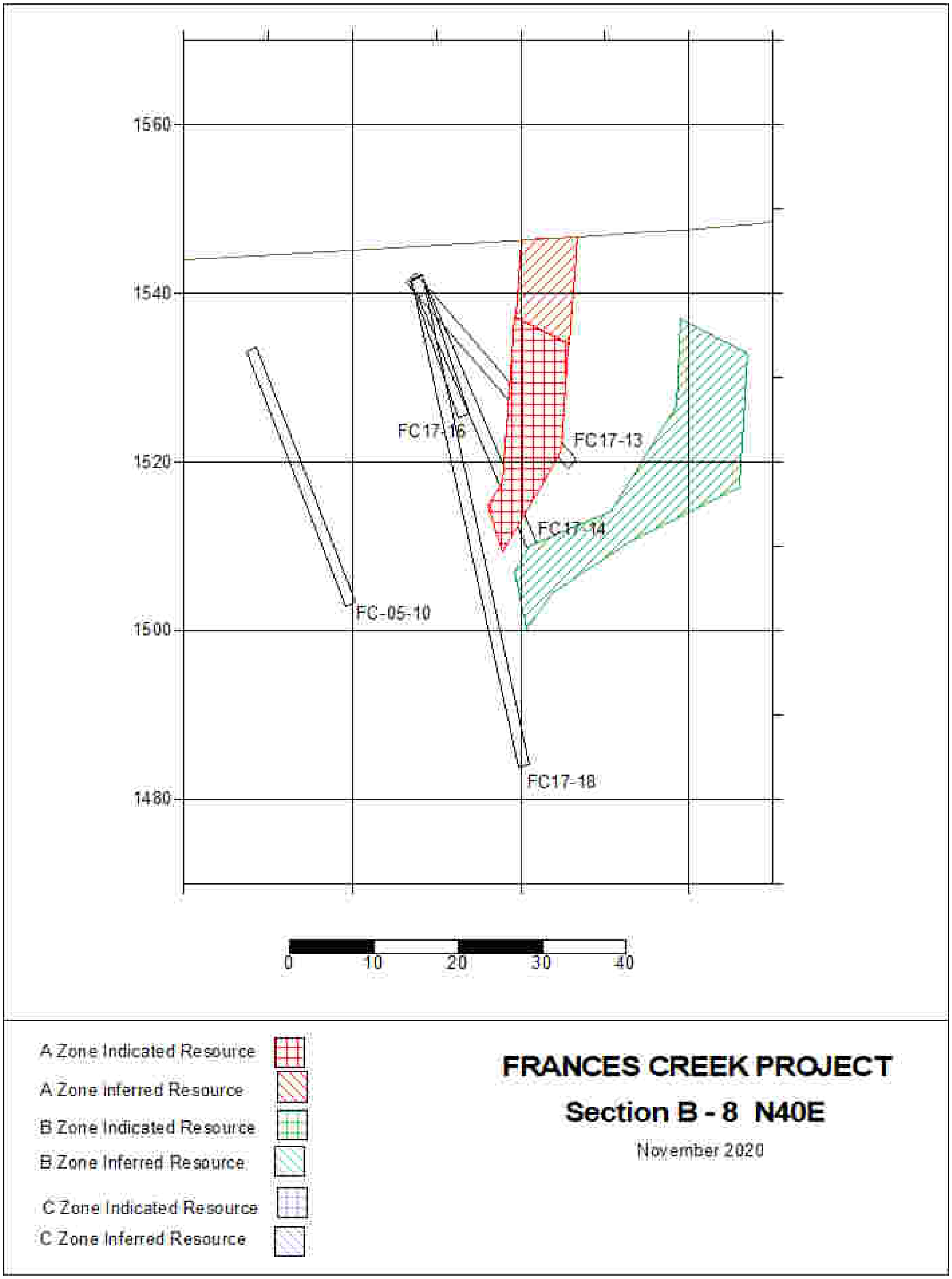


FIGURE 14-10: CROSS SECTION – B – 8

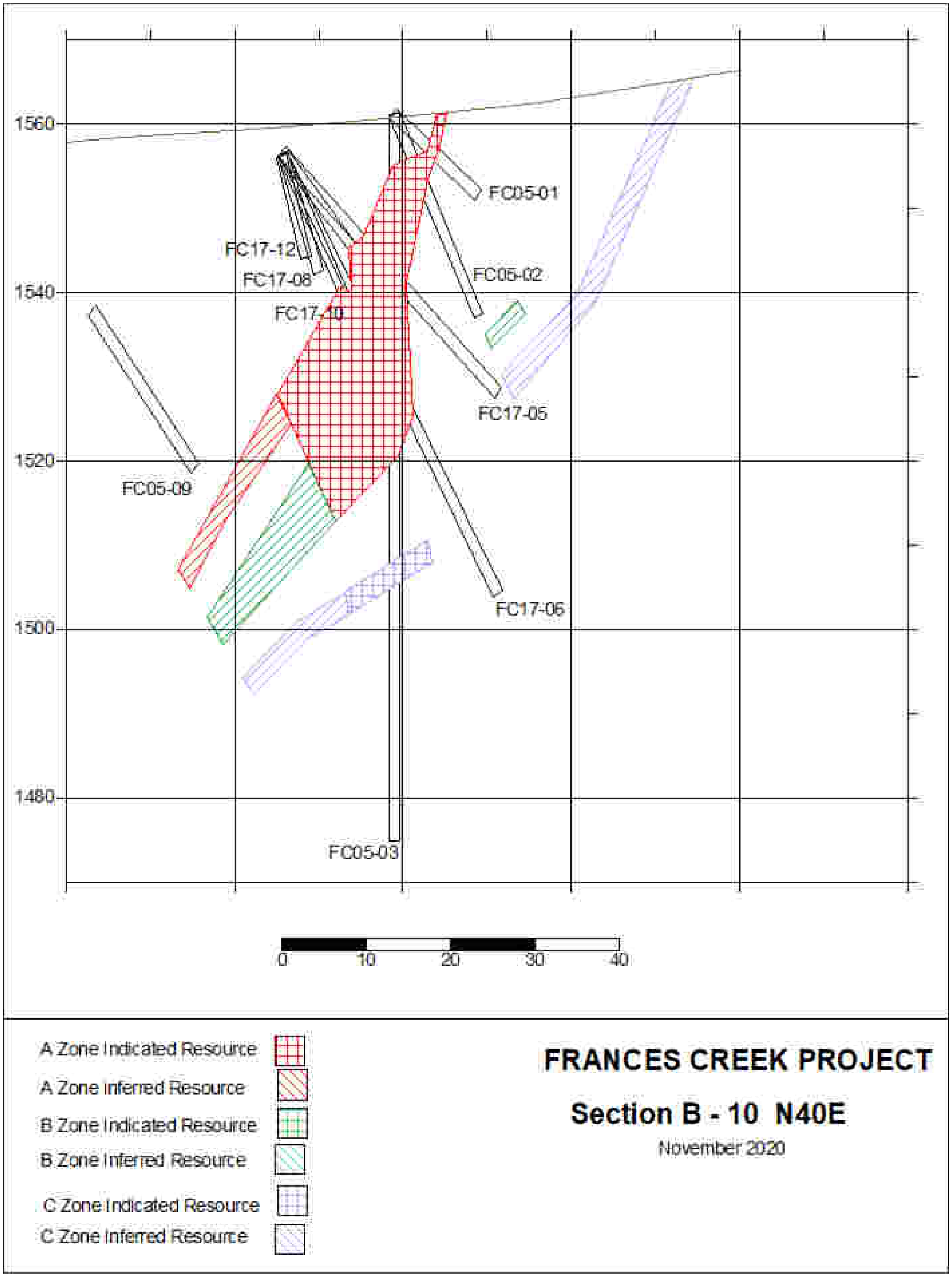


FIGURE 14-11: CROSS SECTION – B – 10

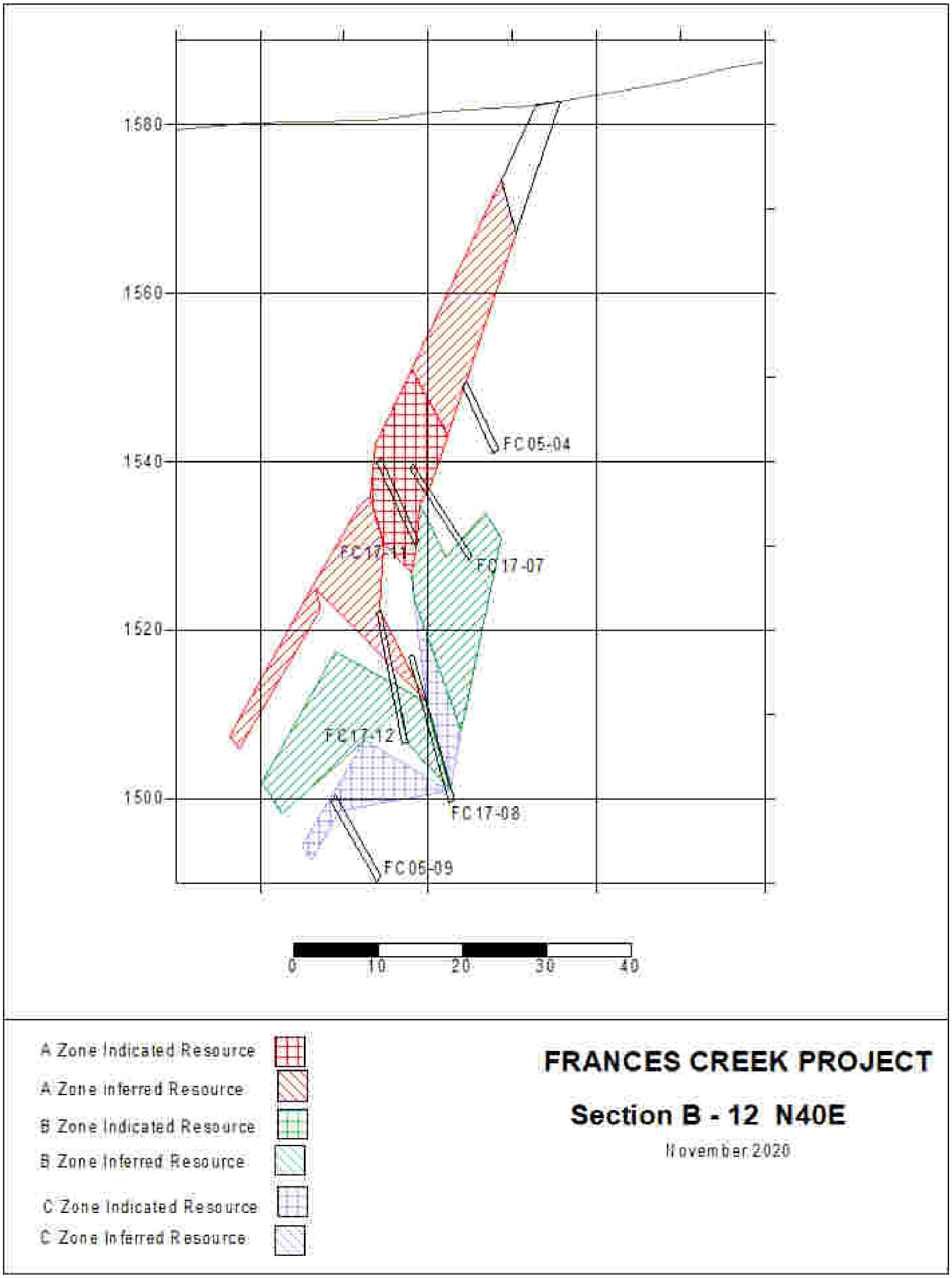


FIGURE 14-12: CROSS SECTION – B – 12

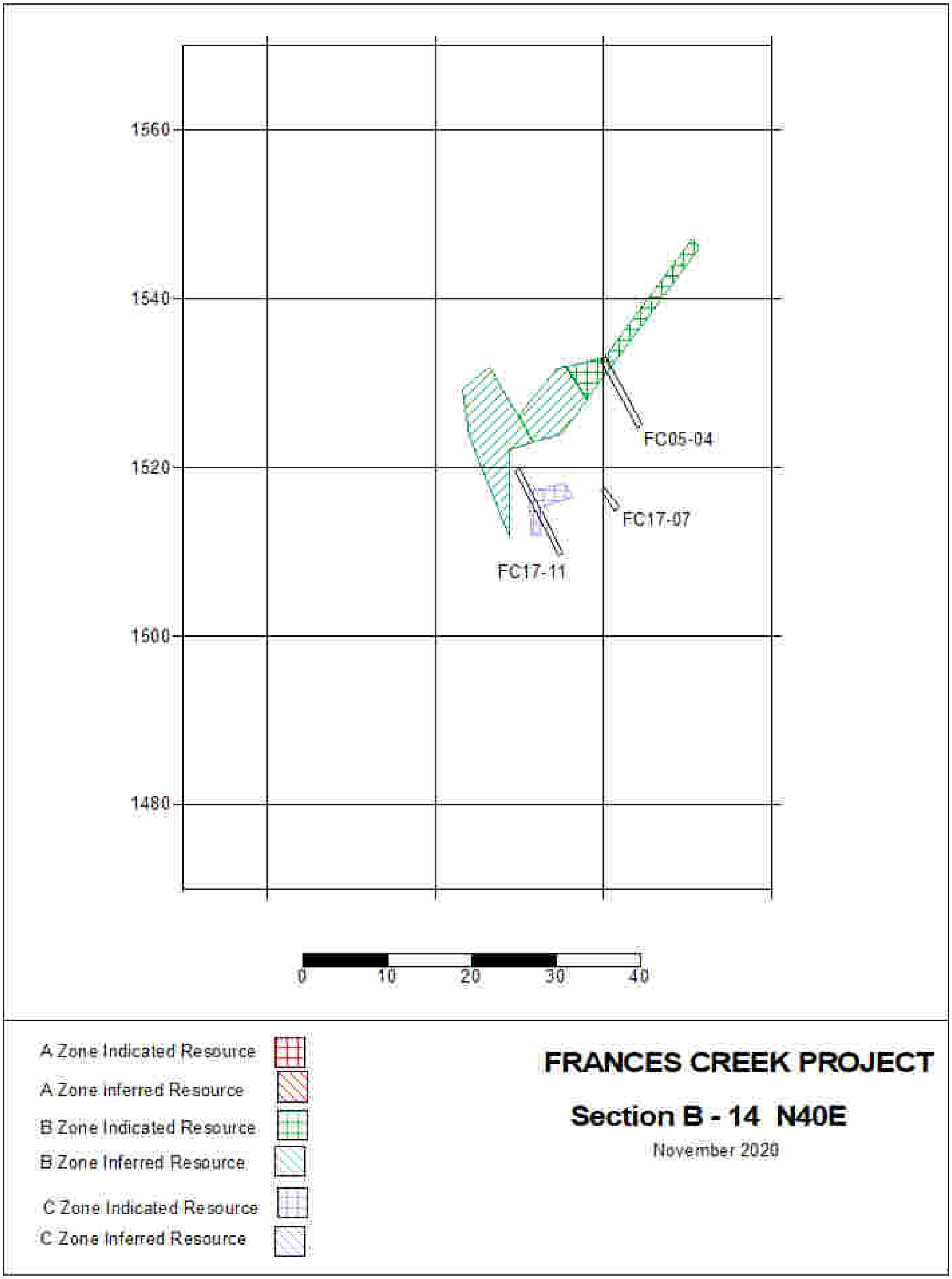


FIGURE 14-13: CROSS SECTION – B – 14

15 Mineral Reserve Estimates
Frances Creek Prospect is still classified as an early-stage exploration project and no engineering studies have been undertaken to calculate a mineral reserve.

16 Mining Methods
There have been no studies of potential mining methods.

17 Recovery Methods
There have been no studies undertaken to determine recovery methods.

18 Project Infrastructure
No studies were undertaken to estimate infrastructure requirements.

19 Market Studies and Contracts
No market studies were undertaken nor are there any marketing contracts in place.

20 Environmental Studies, Permitting and Social or Community Impact
No environmental, permitting or community impact studies were undertaken.

21 Capital and Operating Costs
No studies were undertaken to support capital and operating cost estimates.

22 Economic Analysis
No studies were undertaken to support an economic analysis.

23 Adjacent Properties
No data from adjacent properties was used in the preparation of this report.

24 Other Relevant Data and Information
No other relevant data or information was used in preparing this report.

25 Interpretation and Conclusions
25.1 Interpretations
Based on the work completed to-date, the Frances Creek Prospect contains the following resources

Zone	Class	Inplace tonnes	Barite tonnes	Grade % $BaSO_4$
A	indicated	36,600	13,200	36.1%
B	indicated	129,600	49,500	38.2%
Total	indicated	166,200	62,700	37.7%
A	inferred	42,900	14,200	33.1%
B	inferred	152,700	55,100	36.1%
Total	inferred	195,600	69,300	35.4%

TABLE 25-1: RESOURCE ESTIMATION

The resource base at the project is currently separated into an A – Zone (lower elevations) and a B – Zone (upper elevations), on the south facing slope of Horeb Mountain. Both zones of mineralization are controlled and (primarily hosted) by a minor thrust fault (the Barite Thrust) which is found in the upper plate of a major regional thrust fault (the Forester Creek Thrust). Each mineralized zone has been explored by drilling and trenching for 150 – 200 meters on strike, with the central 50 – 75 meters of each zone being more intensely explored.

Potentially economic mineralization within each zone is open both to the NW (upslope) and the SE (downslope). Additional resources can probably be discovered by exploring on strike to the NW of the B – Zone and to the SE of the A – Zone. Likewise, the poorly explored area which lies on strike between the two mineralized zones probably hosts potential mineralization.

The Frances Creek breccia vein, which hosts the barite mineralization is a two-component breccia vein. Drilling to date indicates that it the major component is a mix (~ 63%) of carbonate and argillaceous country rock, and crystalline barite (~ 37%). Representative sampling of cores which penetrate the mineralization indicate the above. Selective sampling of the barite mineralization within the vein indicates that the crystalline barite is of exceptional purity (94 to +98% $BaSO_4$). It is the interpretation of both authors, that the assays of the selective crystalline barite samples are representative of the grade of the crystalline barite throughout the entire breccia vein.

25.2 Conclusions

The Frances Creek Project is a "Project of Merit" and warrants further expenditure for continued exploration and project development. Conclusions based on this report include:

- The Frances Creek resource estimate is 166,200 tonnes indicated and 195,6000 tonnes inferred and validates further exploration and development with additional in-fill and step-out drilling.
- The geology of the mineral deposit may allow open pit bench quarry mining; however, a pre-feasibility study will be required to verify this tentative conclusion.

- Studies to date at Frances Creek Prospect suggest that conventionally milled barite concentrates, without further processing, produced from the Frances Creek Property may be marketed to the drilling mud market, the glass manufacturing market, the industrial filler market and the chemical industry.
- Based on lab certified chemical analysis of surface samples and drilling core, key areas of inferred and indicated resources have potential for production of pharmaceutical grade barium.

26 Recommendations

It is recommended that Voyageur take this project to the next stage of development by undertaking the 2-phase work program discussed below:

26.1 Continued Exploration

Gravity Survey and UAV Mapping – A detailed gravity survey is recommended for the project area. Because of the steep topography, complex structural geology and relatively small mineralization occurrences at Frances Creek, a multitude of closely spaced gravity survey stations will be required to define possible additional subsurface barite occurrences. A LIDAR and UAV mapping program to be conducted at the same time is also recommended. LIDAR allows for detailed topographic mapping through thick tree cover and the UAV mapping can help develop high resolution orthomosaic images.

MWH Geosurveys, Ltd., of Vernon, BC has been selected to conduct both surveys. In 2013 – 14, MWH conducted a regional, detailed gravity survey in North Central Nevada for the Baker Hughes – Argenta Barite Mine. Several new gravity anomalies were discovered by that work. At least one of the MWH anomalies was drilled out and will be put into production soon. This is an exploration methodology that has proven results.

Expanded Geochemical Sampling – Voyageur should significantly expand the existing soils geochemical grid at Frances Creek. Detailed soils geochemical sampling is a proven and cost-effective way to explore for shallow barite occurrences.

Geological Mapping – A structural geologist with experience in the Canadian Rockies should be retained to produce a large-scale structural geology map of the project area.

Additional Drilling – Additional drill holes that will test cross section lines B 13 – B 17 to the NW of the B – Zone and cross section lines B 3 – B 5 to the SE of the B – Zone should be completed. A – Zone cross section lines that need additional drill testing are A 11 – A 13 and A 5. Favorable targets defined by the gravity survey and the geochemical survey should also be tested.

26.2 Bulk Sampling

30 Tonne Processed Barite Sample – A 20 – 40 tonne hand-picked sample of primarily crystalline barite should be collected from outcrop occurrences at the project area. The author believes that this much barite could be collected with a small hydraulic excavator from existing trenches and cuts at the project. The sample should then be put through a bench scale metallurgical circuit. This should include crushing, screening, jigging, tabling and grinding. Extensive lab test at a USP certified lab should be part of the program, in order to monitor quality.

10,000 Bulk Sample – This sample should be collected as soon as permits allow. It should be put through the same metallurgical circuit as the 30 tonne sample was – though on larger scale equipment. Lab testing to support this activity should also be by a USP certified lab.

Metallurgical Testing – This part of the program can be designed to be supplemental to the two sampling projects mentioned above. The entire metallurgical circuit – crushing, screening, jigging, tabling and grinding, needs to be tested and thoroughly understood. The goal of this activity is to fully understand the metallurgy of the mineralization at the prospect.

26.3 Engineering

Pre – Feasibility Study and Lab Work – A competent consulting engineer should be engaged to take this project through the pre – feasibility study. This will involve integrating the new drill information discussed above into the geologic model prepared for this report. A new mineralization model and resource/reserve estimate will be prepared.

Decision Point - If the results of the Phase 1 work program are positive, then the company should initiate the Phase 2 program which is discussed below. Cost estimates for both Phases of the work are shown in Tables 26.1a and 26.2a.

26.4 Proposed Budget

The budget estimate for a 2 Phase work plan was prepared as part of this report, in order to move the Frances Creek Prospect towards production. Details of the work plan/cost estimate are discussed in **Section 26.** A synopsis of the work plan / budget proposed for the next phase of the project follows:

PROPOSED WORK – PHASE 1	ESTIMATED COST
Continued Exploration	
Gravity survey and UAV Mapping	$ 50,000
Expand Soils Geochem Sampling Grid	$ 25,000
Geological Mapping	$ 10,000
Additional Drilling	$ 350,000
Subtotal	**$ 435,000**
Bulk Sampling and Pre-Feasibility Study	
30 Tonne Processed Barite Sample	$ 80,000
10,000 Tonne Bulk Sample	$ 400,000

Metallurgical Testing	$ 100,000
Pre-Feasibility Study and Lab Work	$ 500,000
Subtotal	**$ 1,080,000**
Total - PHASE 1 – Exploration and Pre-Feasibility	**$ 1,515,000**

TABLE 26-1: PHASE 1 – WORK PLAN AND BUDGET

PROPOSED WORK – PHASE 2	**ESTIMATED COST**
Product Development - Pharmaceutical	
Barium Contrast Formulation	$ 50,000
FDA / Health Canada Application	$1,500,000
Product Marketing	$ 75,000
Total – PHASE 2 – Product Development	**$ 1,625,000**

TABLE 26-2: PHASE 2 – WORK PLAN AND BUDGET

Both Phase 1 and Phase 2 are proposed by the authors for the next stage of the project. Both authors of this report acknowledge that the project is an early exploration stage project. However, both authors believe that it is appropriate to move the project into the pre – feasibility and product development stage once funding is accomplished. **The total funds required for Phases 1 and 2 is CAD $ 3,140,000.**

27 References

Buckley, R.A., 1976, *Geochemical Survey - Jubilee Mountain Property - British Columbia,* B.C. Geological Branch Assessment Report # 5876

Butrenchuk, S. B., 1990, *Geological, Geochemical and Trenching Report on the Surelock # 1 - 12 Mineral Claims - Frances Creek, Golden M.D.*, B.C. Geological Branch Assessment Report # 20,360

Butrenchuk, S. B., 1992, *Diamond Drilling Report on the Surelock # 1 - 12 Mineral Claims - Frances Creek, Golden M.D.*, B.C. Geological Branch Assessment Report # 22,485

Butrenchuk, S.B. and Hancock, K.D., 1997, *Barite in British Columbia*, B.C. Geological Survey - Open File Report # 1997 - 16, Vancouver, B.C.

Dawson, K.R., 1985, Geology of Barium, Strontium and Florine Deposits in Canada, Geology Report # 34 - Geological Survey of Canada, Ottawa

Digital Geology of Idaho www. geology.isu.edu/

Gadd, Ben, 2009, *Handbook of the Canadian Rockies*, Corax Press, Jasper, AB

Henderson, G.G.L., 1954, *Geology of the Stanford Range of the Rocky Mountains, East Kootenay District, British Columbia*, B.C. Geological Survey - Bulletin # 35, Vancouver, B.C.

Hoy, T., 1996, *Irish - Type Carbonate - Hosted Zn - Pb*, B.C. Geological Survey Deposit Types, B.C. Mineral Deposit Profiles, B.C. Geological Survey, Victoria

Mason, G., 1981, Pedley Property Examination Report, Private Consultant's Report Prepared for Bar Well Resources, Ltd.

McRae, M.E., 2018, Barite; 2015 Minerals Yearbook, USGS – Dept. of Interior

OSCC Publication # (2011) 34 OSCB 7060, Part 6.2, Subsection 2(6) & Subsection 3

Pope, A, 1990, *The Geology and Mineral Deposits of the Toby - Horsethief Creek Map Area, Northern Purcell Mountains, SE British Columbia (82K),* Open File Report - 1990 - 26, British Columbia Geological Survey, Victoria, B.C.

Reesor, J.E., 1973, *Geology of the Lardeau Map Area - East Half, British Columbia*, Memoir 369, Geological Survey of Canada, Ottawa

CRC Handbook of Chemistry and Physics (85th ed.). CRC Press. 2004. pp. 4–45. ISBN 0-8493-0485-7.

Zumdahl, Steven S. (2009). Chemical Principles 6th Ed. Houghton Mifflin Company. ISBN 0-618-94690-X.

"NIOSH Pocket Guide to Chemical Hazards #0047". National Institute for Occupational Safety and Health (NIOSH).

Holleman, A. F. and Wiberg, E. (2001) Inorganic Chemistry, San Diego, CA : Academic Press, ISBN 0-12-352651-5

Robert Kresse, Ulrich Baudis, Paul Jäger, H. Hermann Riechers, Heinz Wagner, Jochen Winkler, Hans Uwe Wolf, "Barium and Barium Compounds" in Ullmann's Encyclopedia of Industrial Chemistry, 2007 Wiley-

VCH, Weinheim. doi:10.1002/14356007.a03_325.pub2

The Getty Conservation Institute, Silver Gelatin. The Atlas of Analytical Signatures of Photographic Processes. J. Paul Getty Trust, 2013.

Salvaggio, Nanette L. Basic Photographic Materials and Processes. Taylor & Francis US, Oct 27, 2008. p. 362.

Chu, Tieh-Chi; Wang, Jeng-Jong (2000). "Radioactive Disequilibrium of Uranium and Thorium Nuclide Series in Hot Spring and River Water from Peitou Hot Spring Basin in Taipei". Journal of Nuclear and Radiochemical Sciences. 1 (1): 5–10. doi:10.14494/jnrs2000.1.5.

"Barium Sulfate". NIOSH Pocket Guide to Chemical Hazards. Centers for Disease Control and Prevention. April 4, 2011. Retrieved November 18, 2013.

Tiger Ridge Resources - Archives

Willis, B., 2014, Personal Communication