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Ministry of Energy, Mines & Petroleum Resources Mining & Minerals Division BC Geological Survey



Assessment Report **Title Page and Summary** 

TOTAL COST: \$12,262.89

	(Della alla P
UTHOR(S): Deirdre K. Hopkins	SIGNATURE(S):
IOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-5-653 2008,	August 15 to 2011, December 31 YEAR OF WORK: 201
STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):	SOW (4063537) 2006, January 12;
SOW (4105936) 2006, October 11; SOW (4187155) 2007, Dec	cember 31
PROPERTY NAME: SAWYER	
CLAIM NAME(S) (on which the work was done): Intrusive (501293), S	awyer West (520998)
COMMODITIES SOUGHT: Zinc, Lead	
MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:	
and the second se	NTS/BCGS: 082F/10E, 15E; 082F078
MINING DIVISION: Fort Steel	
ATITUDE: 49 ° 45 " LONGITUDE: 116	34 (at centre of work)
DWNER(S): 1) Jasper Mining Corporation	2)
Gordon F. Dixon, QC	
501, 888 Fourth Avenue SW	
Calgary, Alberta T2P 0V2	
DPERATOR(S) [who paid for the work]: ) Jasper Mining Corporation	2)
Gordon F. Dixon, QC	
501, 888 Fourth Avenue SW	
Calgary, Alberta T2P 0V2	
ROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure A segment of massive zinc, lead mineralization is found on top	
Toby Creek Formation. The Toby Creek - Mount Nelson Forma	tions occur as a fault bounded syncline, in a east dipping part
of Middle Proterozoic La France sediments comprised of think	handed argillites alternating with gray siltstones

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: Progress Report on Sawyer Claims by Bapty

and MacLachlan in 1996 (24,654); Sawyer Property Soil Sampling by Richard T. Walker in 2008 (29,704)

(number of samples analysed for) Soil	501293, 520998	
Photo Interpretation	501293, 520998	
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Road, local access (kilometres)/trail		
Trench (metres)		
Underground dev. (metres)		
Other		
	TOTAL COST:	\$12,262.89

BC Geological Survey Assessment Report 32643

Assessment Report for the

## **SAWYER Property**

## **Geological Mapping**

Fort Steele Mining Division N.T.S. 82 F/ 10E, 15E Latitude 49° 45' N, Longitude 116° 34' W

Mineral Claims: 501293, 520997, 520998, 509603 Owned and Operated By:

> Jasper Mining Corporation 501, 888 Fourth Avenue S.W. Calgary, Alberta T2P 0V2

> > Submitted by:

Deirdre K. Hopkins

of

Hopkins Geological 2111 2<sup>nd</sup> Ave Rossland, B.C. V0G 1Y0

Submitted: December 16th, 2011

#### SUMMARY

The Sawyer property is located in the Purcell Mountains, east of Kootenay Lake, approximately 65 kilometers northwest of Cranbrook, BC. The property can be reached via the St. Mary's River Forestry Service Road network west of Marysville. At present it is a poorly maintained forestry road that follows the St. Mary River to the property. Access to the eastern margin of the property is only available by ATV using the Sawyer Creek Forestry Road which branches to the south prior to where the main logging road crosses to the north side of the St. Mary River.

The property covers a mapped exposure of felsic intrusive material interpreted to be a part of the Bayonne Magmatic Belt, comprised of Cretaceous-aged felsic intrusions extending from the Baldy Batholith north of Kamloops to the International Boundary south of Creston, BC. Surrounding the batholiths are sedimentary rocks which predominantly belong to the middle Proterozoic Dutch Creek Formation of the Purcell Supergroup.

Mount Sawyer is the informal name for a mountain situated between the first and second major western tributaries of Sawyer Creek. The first major western tributary creek, i.e. the most northern major tributary of Sawyer Creek follows along the base of a cliff which defines the north face of Mount Sawyer. The 2011 program consisted of geological mapping conducted over an area of roughly 1.8 km<sup>2</sup> north and south of the first western tributary creek. The geological mapping was completed between September 21 and September 24, 2011 at a scale of 1:10,000.

Results of the mapping show that the first western tributary creek appears to laterally offset the extensive phyllite of the Horsethief Creek formation on Mount Sawyer from that found on the adjacent mountain to the north. As such the first major western tributary is thought to reflect an east-west fault. The fault block to the north of the first tributary is thought to be a continuation of Mount Sawyer rotated as much as  $45^{\circ}$  northward.

Two geophysical conductors identified previously on a UTEM survey and subsequent Aeroquest airborne geophysical survey lay between Mount Sawyer and the next mountain to the north. The two conductors extend from the first tributary creek a short distance to the north and could represent a continuation of the mineralization found in the cliff face of Mount Sawyer. The two geophysical conductors lie roughly on strike with high-grade mineralization exposed in the near vertical north face of Mount Sawyer.

It is speculated that the 10 m wide remnant of zinc and lead mineralization found by Focal Resources in 1996 on the face of Mount Sawyer could represent the tip of a much larger sedimentary-exhalative massive sulfide layer. Since the two conductors lying in the valley bottom are covered by overburden, a cursory mapping of rock exposure at higher elevations was undertaken along the top of Mount Sawyer and the next mountain lying immediately to the north. That work confirmed the local geology as mapped by J. E. Reesor to be a panel of east dipping sediments with the La France siltstone occurring everywhere west of the Redding Creek fault (Reesor, 1996). The mineralization found in the north face of Mount Sawyer is immediately adjacent to and west of the fault that creates the Number One Chute on the north face of Mount Sawyer. Recent mapping on Mount Sawyer shows the Redding Creek fault to be the next major

fault to the west of the Number One Chute where the phyllite comes into contact with the La France siltstone.

As plotted by the UTEM geophysical crew, the western UTEM conductor on the north side of the first tributary creek appears to lie west of the Redding Creek fault. As such it would lie in the La France formation. If true the western conductor is unlikely to represent the continuation of the high-grade zinc-lead mineralized pod seen in the Toby conglomerates on the cliff face of Mount Sawyer. As such, the short but stronger UTEM conductor located 500 meters to the east should be considered as the primary target for diamond drilling. It is noteworthy to mention that the UTEM grid was constructed in the early days of GPS usage when NAD 27 was the norm and the project manager, Mike Bapty did not use a GPS to determine the conductor locations (personal communication). Furthermore, the UTEM grid was laid out on the snow which has since disappeared leaving the exact placement of the conductors open to conjecture. It is felt the conductors would be easy to relocate using a simple VLF EM-16 receiver tuned to the NLK submarine transmitter located near Seattle, Washington. Both UTEM conductors were interpreted to dip shallowly to the east which conforms to bedding. As such, either conductor could represent bedded graphite or sulfides. The western conductor is interpreted to extend down dip 200 m and the eastern conductor to extend down dip 500 m. Both are expected to subcrop below the overburden (personal communication with Syd Vissar). If true, each of the two conductors should be easy to intercept by diamond drilling.

# TABLE OF CONTENTS

	Page
Summary	i
Table of Contents	ii
List of Figures	iii
List of Appendices	iii
Introduction	1
Location and Access	4
Physiography and Climate	4
Claim Status	6
History	6
Regional Geology	8
Stratigraphy	8
Proterozoic	8
Belt-Purcell Supergroup	8
Sheppard Creek Formation	8
Gateway Formation	8
Dutch Creek Formation	10
Mount Nelson Formation	10
Middle Carbonate Division	11
Upper Division	11
Van Creek Formation	12
Lower Gateway Formation	12
Dutch Creek Formation	13
Mount Nelson Formation	14
Windermere Supergroup	15
Toby Formation	15
Horsethief Creek Group	16
Mesozoic	17
Granitic Intrusions	17
Structure	18
Local Geology	19
Stratigraphy	19
Structure	19
2011 Program	20
Results	20
Discussion	22
Conclusions	23
Recommendations	24
References	25

# **LIST OF FIGURES**

	Page
Figure 1 - Regional Location Map	2
Figure 2 - Property Location Map	3
Figure 3 – Claim Location Map	5
Figure 4 – Regional Geology Map (1:50,000)	9
Figure 5 – Geology – First Tributary Creek (1:10,000)	21

# LIST OF TABLE

	TIPEE	
		Page
Table 1 – Au Assay Results		20

# LIST OF APPENDICES

Appendix A -	- Statement o	of Qualifications
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Appendix B – Statement of Expenditures Appendix C – Bighorn Helicopters Invoice

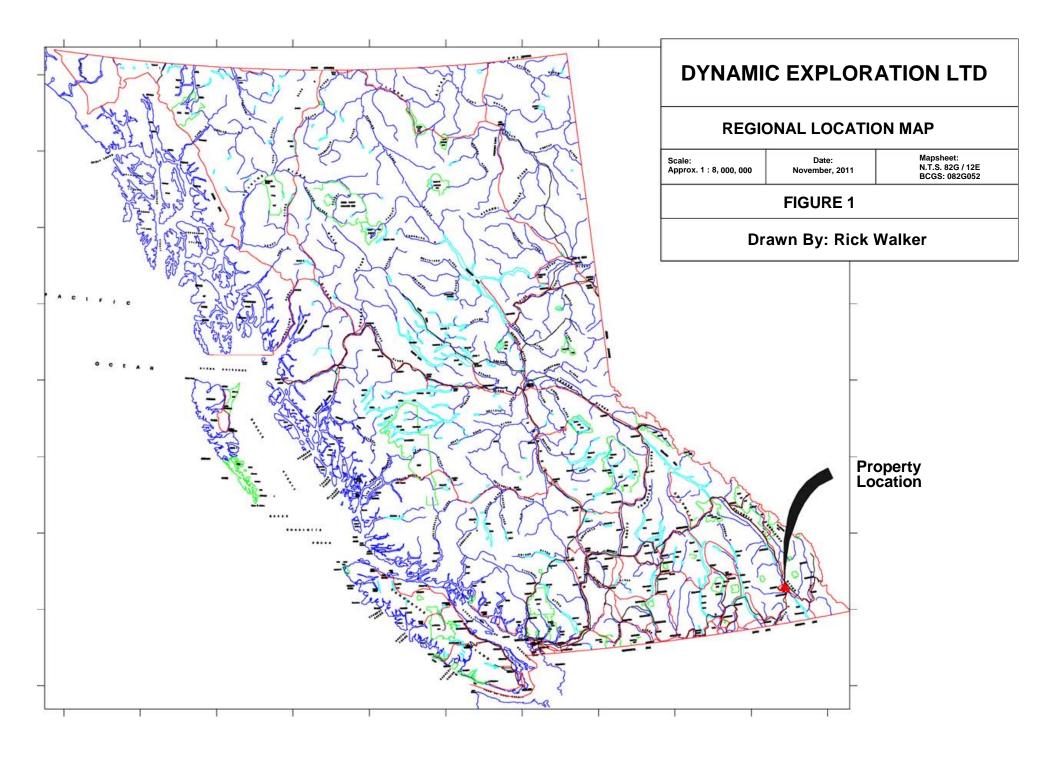
#### **INTRODUCTION**

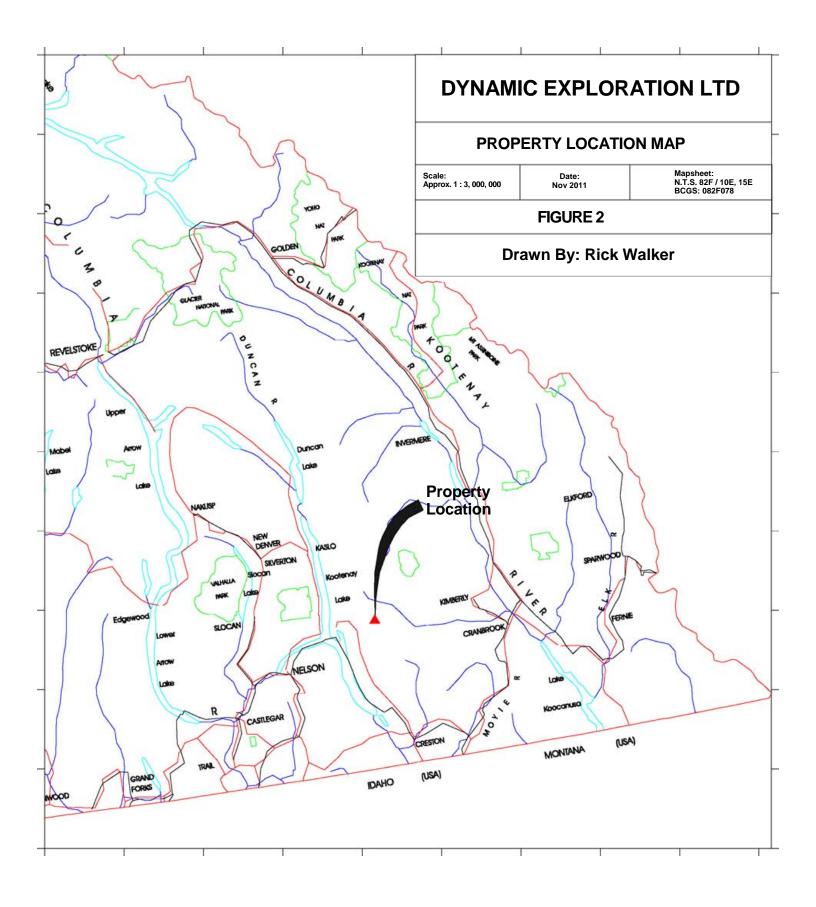
The Sawyer property is located approximately 65 kilometres northwest of Cranbrook, east of Kootenay Lake in the Purcell Mountains (Figs. 1 and 2). The property can be reached by utilizing the St. Mary's River Forestry Service Road network west of Marysville. A reasonably well maintained forestry road follows the St. Mary's River to the northeastern corner of the property, with access to the eastern margin of the property available along the Sawyer Creek Forestry Road.

The Sawyer Property mineral claims were acquired by Jasper Mining Corporation in 2005 and 2006 through the Mineral Tenure On-line system. Previously, mineral claims in the area had been held by Focal Resources, but these claims were subsequently allowed to lapse. Bedrock underlying the claims predominantly consists of an assortment of sedimentary rocks belonging to the Middle Proterozoic Dutch Creek Formation of the Purcell Supergroup. A 1.5 km wide body of monzogranite interpreted to be a part of the Bayonne Magmatic Belt occurs in the northwest corner of the property, and is thought to correlate with Cretaceous-aged felsic intrusions extending from the Baldy Batholith north of Kamloops to the International Boundary south of Creston, BC. A narrow band of coarse clastic sedimentary rock of the Upper Proterozoic Horsethief Creek Group extends northward through the middle of the property. The diamictite sediments and polymictic conglomerate of the Toby Formation is gradational into the overlying Horsethief Creek sedimentary rocks and it is in this package that the massive sulphide mineralization is found on the northern face of Mt Sawyer. Sulphide mineralization occurs in the form of sphalerite, pyrite and galena.

During the fall of 2011 while laying out diamond drilling stations on the ground, as laid out in a previous drilling program, it was noted the down dip drilling angle would be parallel to that of the bedding of the bedrock. Focal Resources had previously mapped the cliff face of Mount Sawyer in detail, but they produced no map of the surrounding geology (Bapty and McLachlan 1996). The drilling program was halted and three days of bedrock mapping were undertaken. Because of near continuous bedrock exposure on the next mountain top to the north of Mount Sawyer and the mountain ridge of Mount Sawyer itself, both localities were mapped in September 2011. Mapping was conducted on claims 501293, 520997 and 520998 at a scale of 1:10,000 and covered a 1.8 km<sup>2</sup> area (see Fig. 5).

Later thrust faults are evident in the hanging wall of the St. Mary / Hall Lake fault. The Redding Creek fault is locally significant fault. It is a west dipping, east verging thrust fault that juxtaposes middle Creston strata against the lower member of the Coppery Creek group. A number of smaller, normal faults are indicated in the hanging wall of the Redding Creek Fault, all of which appear to have minor dip (and probably strike-slip) movement. All of the faults in the hanging wall of the St. Mary / Hall Lake fault are interpreted to be older than the Cretaceous Mount Skelly Pluton (Bayonne Magmatic Belt) as all are truncated at the contact of the pluton.





## LOCATION AND ACCESS

The Sawyer property is located in the western Purcell Mountains (Latitude 49° 45' N, Longitude 116° 34' W), approximately 65 kilometres northwest of Cranbrook, B.C. on N.T.S. mapsheet 82 F/10E, 15E (Figs. 1 and 2). The property consists of four Mineral Tenures acquired through Mineral Tenures Online (Fig. 3).

The property can be accessed by gravel Forest Service Roads (FSR) from Cranbrook or Kimberley along the St. Mary's Road. The road is well maintained west of St. Mary's Lake to Km 42. To access the property, continue north past km 45 along the St. Mary's FSR for approximately 12 km to a fork in the road. Take the left fork and cross over the bridge, then the left fork again crossing over another bridge. Approximately 3 km further along, the road crosses another bridge to the south side of the St. Mary's River. Approximately 6 km further along the road, there is an overgrown road branching to the south side of the main road which once provided vehicle access to the east side of the Sawyer property. Continuing along the main logging road a short distance past the junction one crosses another bridge to the north side of the St. Mary's River giving access to the northeastern portion of the property. Only the main St. Mary's Road is accessible and only with a 4WD vehicle.

Helicopter access is recommended for the western and central portions of the property.

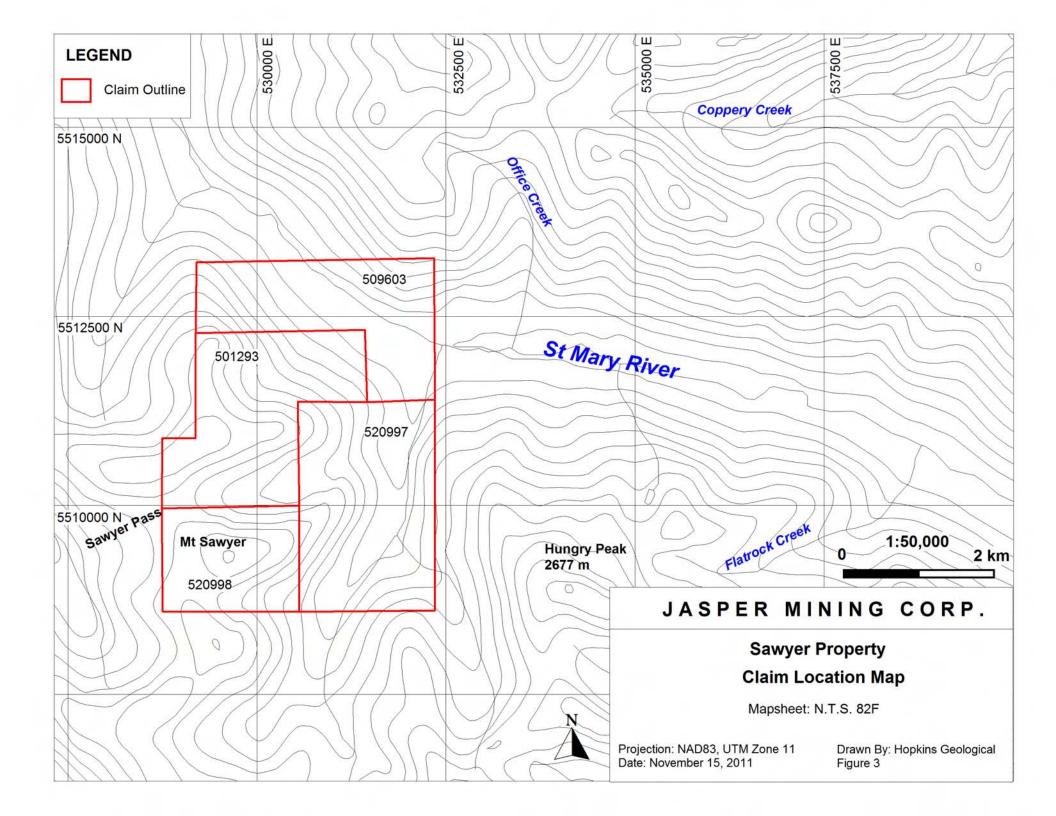
# PHYSIOGRAPHY AND CLIMATE

The Sawyer property is located east of Rose Pass (Fig. 2), approximately 65 km northwest of Cranbrook, on the east side of Kootenay Lake (Fig. 1). Relief in the area varies from 1200 m (3,930 feet) along the St. Mary's River to approximately 2320 m (7,611 feet) on an unnamed peak in the centre of the property.

The claims are generally characterized by moderate to very steep topography, with generally north and south facing slopes along east-west oriented valleys. Sawyer Creek, which extends along the eastern edge of the property is oriented roughly north-south.

Vegetation in the area consists predominantly of coniferous trees, with deciduous trees preferentially located along the valley bottoms. Undergrowth consists largely of small deciduous shrubs, with Devil's Club along watercourses and in wet areas.

The claims are located east of Kootenay Lake along a regional topographic high, comprising the local drainage divide, and are therefore subject to relatively heavy precipitation. As a result, the region is characterized by abundant snowfall during the winter months. The property is available for vehicle based, geological exploration from June to late October.



#### **CLAIM STATUS**

The property consists of 4 Mineral Tenure On-line (MTO) mineral tenures (Fig. 3), acquired in accordance with existing government claim location regulations. Significant tenure information is summarized below:

<b>Tenure Name</b>	Area (ha)	Tenure #	Expiry Date*
Sawyer East	501.055	520997	Dec. 31, 2011
Sawyer North	375.644	509603	Dec. 31, 2011
Sawyer West	250.551	520998	Dec. 31, 2011
Intrusive	438.339	501293	Dec. 31, 2011
Total:	1,565.589		

\*not including 2011 assessment credit applied evenly to all four claims.

### HISTORY

- 1990 Geological Development Report on the Lapointe Creek Property, M.B. Bapty, 50 pp. (unpub.)
- 1993 Nelson (East Half) mapsheet, Geological Survey of Canada Open File 2721, Scale 1:100,000
- 1994 Report on Sawyer Property, M.B. Bapty and Walker, R.T., 19 pp. (unpub.)
- 1994 to 1996 Limited exploration undertaken on Sawyer property by Focal Resources under the direction of M.B. Bapty
- 1996 Geology, Kootenay Lake, British Columbia. Geological Survey of Canada, Map 1864A, scale 1: 100 000
- 1996- Progress Report on the Sawyer Property by Focal Resources Ltd. which commented on an exploration program limited to the cliff face and containing 2 BQ drill holes. (The claims comprising the Sawyer property were allowed to lapse).
- 1997 UTEM-3 Electromagnetic Survey on Sawyer Claims by S.J. Geophysics Ltd.

- 2005 Initial Sawyer claims acquired through Mineral Tenure Online.
- 2006 AeroTEM II Electromagnetic and Magnetic Survey by Aeroquest Ltd.
- 2006 Two additional Mineral tenures acquired
- 2008 Assessment Report for the Sawyer Property Soil Sampling by Richard T. Walker.

# **REGIONAL GEOLOGY**

The only previous work undertaken pertaining to the general area of the Sawyer claims was that of Reesor (1996, 1993) for the east side of Kootenay Lake. The stratigraphy of the Purcell Supergroup (Fig. 4) strata has been well described to the east by Höy (1993) and the Purcell and Windermere Supergroup to the north by Pope (1990).

## Stratigraphy

#### Proterozoic

## **Belt-Purcell Supergroup**

The following has been modified from Höy (1993).

## **Sheppard Creek Formation (Lower Dutch Creek Formation)**

The Sheppard Formation includes up to several hundred metres of stromatolitic dolomite, quartz aretrite, siltstone and argillite lying above the Nicol Creek Formation. A dramatic increase in thickness in the Skookumchuk area is accompanied by prominent facies changes in the Sheppard Formation and in the overlying Gateway and Phillips formations.

The Sheppard Formation is characterized by an assemblage of green siltite, sandy dolomite, quartz wacke, distinctive stromatolitic dolomite and oolitic dolomite layers.

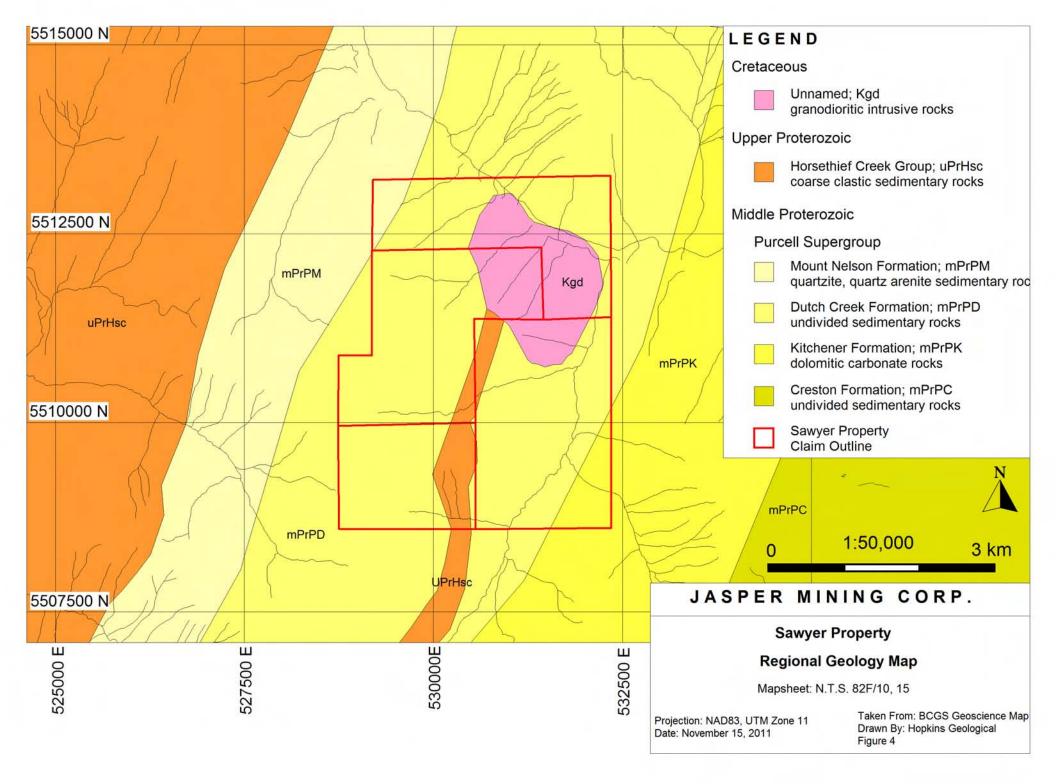
West of Skookumchuk, the formation is still recognizable but is referred to as the lower Dutch Creek Formation. It comprises green siltstone and argillite with minor dolomitic siltstone and, near the top, stromatolitic dolomite. This stromatolitic sequence can be traced north of Bradford Creek and marks the contact between the lower and upper Dutch Creek. It comprises cycles of rounded and gritty quartz wackestone, overlain by oolitic, stromatolitic or massive dolomite. These cycles may contain a few thin purple argillite beds with mud cracks and locally, rip-up clasts. They are overlain by and interbedded with light green siltstone-argillite couplets, usually lenticular, laminated and graded.

## **Gateway Formation (Upper Dutch Creek Formation)**

The Gateway Formation is defined to include siltite, argillite, arenite and dolomite between the Sheppard Formation and red and maroon siltstone and argillite of the overlying Phillips Formation. It correlates with the lower part of the upper Dutch Creek Formation northwest of Skookumchuk.

The Gateway Formation comprises dominantly pale green siltstone and minor dolomitic or argillaceous siltstone.

... Salt casts and symmetrical ripples throughout the Gateway Formation suggest deposition in shallow water; dessication cracks, mud-chip breccias and oxidized facies indicate periods of



subaerial exposure. ... The formation thickens rapidly to the north in the Skookumchuk area primarily as the result of an increase in the pale green siltstone component. The absence of the overlying Phillips Formation, sparse outcrop and the similarity between lithologies in the upper Gateway and lower Roosville formations make it difficult to determine the thickness and extent of the Gateway Formation to the north and west. ...

# **Dutch Creek Formation**

The Dutch Creek Formation is defined as a group of rocks between the Purcell lavas (Nicol Creek Formation) and the Mount Nelson Formation. The lavas are not exposed in the Lardeau and Nelson east- half map areas and hence it is difficult to determine the exact thickness and extent of the Dutch Creek Formation there. It is estimated to be between 1200 and 1500 metres thick in the Windermere area and a 1300~metre section has been measured east of Kootenay Lake at Rose Pass.

In the Fernie west-half map area, the Dutch Creek Formation is only exposed northwest of Skookumchuck. The lower part of the formation is described in the section on the Sheppard Formation. The upper part includes the Gateway Formation the Roosville Formation and overlying rocks beneath the Mount Nelson Formation. The maximum thickness of the Dutch Creek Formation in the Bradford Creek area is estimated to be 4800 metres, including approximately 3300 metres of upper Dutch Creek.

The upper Dutch Creek is discontinuously exposed north of Skookumchuck. A carbonate marker bed approximately 200 metres thick occurs within the formation some 3000 metres above the Nicol Creek lavas. It is a massive, cream to tan-weathering, thick to medium-bedded dolomite and limestone unit. Crypto-algal features are present locally. The top and the base of the unit consist mainly of argillaceous silty dolomite. It is included within the Dutch Creek rather than the Mount Nelson Formation as the basal quartzite typical of the Mount Nelson is not exposed below it. Furthermore, green siltstone, black argillite and thin oolitic dolomite interbeds higher in the section probably correlate with similar facies in the Roosville Formation at Larchwood Lake.

## **Mount Nelson Formation**

The Mount Nelson Formation comprises a thick sequence of quartzite, dolomitic argillite and siltstone that conformably overlies the Dutch Creek Formation. It was restricted to include only the lower part of the formation. The upper part, informally named the Frances Creek Formation, is separated from the Mount Nelson Formation (new) by a disconformity.

The lower Mount Nelson Formation is divisible into three members in the Mount Forster map: a basal white orthoquartzite 100 to 200 metres thick, 100 to 300 metres of buff and grey dolomites and an upper unit, to 370 metres thick, of purple and red shale with buff dolomite interbeds. The overlying Frances Creek Formation comprises thick-bedded orthoquartzite, grey dolomite and interbedded sandstone and shale.

The total thickness of the Mount Nelson Formation (new) in the Mount Forster area varies from 500 metres to 1950 metres, due partly to erosion prior to deposition of the Frances Creek Formation or Windermere Supergroup and partly to syndepositional tectonics. The Frances Creek Formation varies in thickness from 750 metres to 1020 metres. At Rose Pass east of Kootenay Lake, the entire Mount Nelson Formation is approximately 750 metres thick.

In Fernie west-half map area, the Mount Nelson Formation is only exposed at Lookout Mountain along the northern edge of the map area. It has a gradational contact with the underlying Dutch Creek Formation; phyllitic black argillite-siltstone rocks become increasingly more quartzitic and the interbeds of quartz wacke become cleaner up-section. The basal quartzite of the Mount Nelson is a clean, well-rounded and well-sorted, medium-bedded orthoquartzite containing a few thin beds of sandy dolomite. The basal quartzite is overlain by a mixture of white, green and purple quartz arenite and dolomitic sandstone, locally gritty, as well as some purplish dolomite and argillite. Locally, the diagenetic character of these maroon beds is clearly demonstrated as the colouring crosscuts bedding planes and leaves spotty remnants of light green argillite. A buff weathering sequence of dolomite overlies these quartzwacke, siltstone and argillaceous dolomite beds. This package is overlain by more green siltstone and minor purple siltstone and argillite. The total exposed thickness of the Mount Nelson Formation is approximately 400 metres.

The following has been summarized from Aitken and McMechan (1991).

# Middle carbonate division

A distinctive carbonate unit comprises the middle division of the Purcell (Belt) Supergroup. To the east, in the Rocky and eastern Purcell mountains, the middle division consists of the well known Kitchener Formation In the west the middle carbonate division consists of the more basinal facies of the thick, lower subdivision of the Coppery Creek Group. The thick (1400 m) lower unit consists of dolomite interbedded with green, grey or black phyllite which grades upward to silvery and green phyllite, siltite and some carbonate.

# Upper division

The strata comprising the Van Creek Sheppard, Gateway and Roosville formations of the Rocky and eastern Purcell Mountains pass laterally into a succession of grey and green siltite, argillite and phyllite, quartzite, argillaceous dolomite and dolomite. The volcanic (Nicol Creek) and red quartzite marker (Phillips) units thin and disappear to the west, making subdivision of the upper division impractical. Therefore, the upper two units of the 'Coppery Creek' and 'La France Creek' groups are interpreted to comprise the upper division along the western Purcell Mountains.

The upper two divisions of the Coppery Creek group consists of a middle unit approximately 200 m thick comprised of thinly laminated black phyllite and grey siltite. The upper unit consists of silvery phyllite, calcareous dark grey phyllite and dolomite, with a sequence of interbedded dolomite and quartzite at the top and is approximately 300 metres thick.

The 'La France Creek group' of the western Purcell is approximately 1000 m thick, comprised of intensely deformed and metamorphosed sediments dominated by siltite, quartzite and phyllite. The group has been subdivided into a lower unit consisting of thinly interbedded, black phyllite and grey siltite and an upper unit of grey siltite and quartzite with black phyllite and carbonate-bearing siltite and phyllite near the top. The 'La France Creek group' gradationally overlies the upper unit of the 'Coppery Creek group'. In most areas, strata of the 'La France Creek group' grade into thicker-bedded quartzite at the base of the Mount Nelson Formation.

The Mount Nelson Formation consists of a cliff-forming, basal unit of white, grey or green orthoquartzite with rare argillaceous laminae and partings, overlain by brownish red to grey-weathering impure carbonate interbedded with black, purple or red argillite and grey siltite. Stromatolites and lenses or nodules of chert occur locally within the carbonate unit. The basal orthoquartzite, up to 70 m thick, thins gradually to the south. Interbeds of green, black or red argillite are common within the upper quartzite unit and green and black argillite and siltite form the top of the preserved formation. The carbonate unit is thicker in western exposures, where it is overlain by interbedded black phyllite and grey siltite. Cream-weathering dark-coloured dolomite and brown-weathering, white dolomite, locally interbedded with black phyllite, occur at the top of the formation as preserved. Mud cracks in argillite, ripple marks in quartzite and solution-breccias in dolomite are locally common in both area.

The Mount Nelson Formation, whose maximum preserved thickness is about 1000 m is unconformably overlain by conglomerate of the Toby Formation of the Upper Proterozoic Windermere Supergroup. Evidence for small-scale, pre-Toby block faulting is found locally. Regionally, the unconformity cuts out progressively older Purcell strata southward along the western Purcell Mountains ".

The following has been modified from Pope (1990):

# Van Creek Formation

The Van Creek Formation consists of coarse to medium-grained, light-grey or green to darkgreen quartzites, siltstones and silty argillites. The beds have consistent thicknesses of between 20 to 50 centimetres with slightly undulose bases and truncated tops, together with internal cross and planar lamination and grading. Van Creek quartzites grade upward into thinly bedded pale green quartzites and then into thinly interbedded 2 to 20 centimetre pale green quartzites, silts and buff weathering dolomitic silts of the Lower Gateway Formation, Hg 1 member.

# Lower Gateway Formation

The Lower Gateway Formation is subdivided into two members Hgl and Hg2.

**Hg 1**: The contact between the Van Creek and Lower Gateway formations is gradational and in the absence of the Nicol Creek Formation can only be roughly estimated. The lowermost units

of the Lower Gateway Formation are identified as where carbonate first occurs in the succession. The thin bedded quartzites in this transitional sequence are characterized by weathered pyrite, which imparts a distinctive red spotted appearance.

The Hgl member is estimated ... to be well in excess of 1000 metres thick. It consists of interbedded packages of quartzite, green siltstone and buff dolomitic siltstone and dolomite. Sedimentary structures such as cross lamination, grading, channelling and dewatering structures, are well preserved and compositional differences frequently enhance exposures. Siltstones in the dolomitic packages usually show an upwards gradation from dolomite free, finely cross-laminated silt and sand to dolomitic cross-laminated siltstone and cryptalgal to stromatolitic-laminated micritic dolomite. Bed thicknesses vary from generally 2 to 10 centimetres in the fine grained quartzite dominated lower part, to 10t o 50 centimetres in the upper dolomite dominated part of the Hg 1 member.

**Hg2**: The dolomite dominated upper part of the Hgl member passes into a 90-metres thick, cream to buffweathering dolomite unit. The dolomite displays cryptalgal and stromatolitic laminations, cream chert intercalations, rare halite casts and silty and sandy cross lamination. Bed thickness varies between 50 centimetres to 2 metres, and grain size varies from micrite, which is typically blue-grey, to coarse sucrose-textured, light coloured recrystallized dolomite.

# **Dutch Creek Formation**

The boundary between the Lower Gateway Formation and the Dutch Creek Formation is characterized by a narrow zone of rusty weathering. The contact is interpreted as a parallel unconformity and the rusty weathering zone marking a hiatus.

Within the Dutch Creek Formation there is not a clearly defined stratigraphy, but four basic lithofacies (A to D) have been distinguished. Beds are usually between 2 to 20 centimetres thick and consist of fine grained quartzite and argillite in graded couplets. Sedimentary structures include fine herringbone ripple and channel cross-laminations. The Dutch Creek Formation has a marked lack of carbonate.

- Lithofacies A Finely interlaminated green and dark grey to black graded siltstoneargillite couplets. Beds 1 - 10 cm thick.
- **Lithofacies B** Drab green to grey silt to fine sand quartzite and grey green to black silty argillite interbeds 5 20 cm thick.
- Lithofacies C Grey black argillite and siltstone with buff dolomitic siltstones.
- **Lithofacies D** Dark grey limestone and limey siltstone interbedded with argillite beds 10 cm to 1 m thick.

There is a great variation in thickness of the Dutch Creek Formation from an estimated 1000 metres to less than 300 metres over a lateral distance of 5 kilometres. Although the observed contact with

the overlying Mount Nelson Formation is always paraconformable, the contact is very sharp and represents a major change in facies, hydrodynamic energy and sedimentary processes, and is therefore interpreted as an unconformity.

## **Mount Nelson Formation**

The Mount Nelson Formation has been subdivided into the:

- a) lower quartzite, a useful 50 to 150 metre thick marker horizon consisting of white, wellsorted, fine- to medium-grained pure quartz arenites,
- b) lower main dolomite an approximately 400 metre thick sequence which conformably overlies and is gradational with the lower quartzite, comprised of cryptalgal to stromatolitic laminated, pale grey weathering dolomites with interbedded carbonaceous argillites capped by a cream-coloured stromatolitic, crystalline cherty-dolomite unit approximately 20 metres thick overlain in sharp contact by,
- c) the middle quartzite an apple green coloured sequence consisting of massive, fine- to coarse-grained quartz arenites, impure sandstones and argillites having A-B to A-E Bouma sequences evident,
- d) orange dolomite sequence approximately 180 metres thick consisting of varicoloured buff weathering dolomitic siltstones, argillites and impure sandstones underlying bright orange-buff weathering silty and sandy crystalline dolomites with abundant cryptalgal and stromatolitic laminations and intercalated chert.
- e) white markers conformably overlie the orange dolomite and are up to 70 metres thick. The white markers consist of cream, buff and silver-grey dolomites with purple, green and buff dolomitic mudstones and local interbeds of pure white magnesite up to 1 metre thick,
- f) purple sequence gradationally overlies the white markers, consisting of purple weathering dolomitic sandstones and siltstones which grade upward into purple weathering argillite. Mudchip breccias and monomict pebble conglomerates are interbedded with siltstones and argillites and the sequence is overlain by a pebble to boulder conglomerate with a purple weathering sandy argillitic matrix in sharp contact with the purple shales. The pebble to boulder conglomerate is the interpreted locus of an intraformational unconformity with a thickness between 2 and 10 metres thick,
- g) upper middle dolomite approximately 80 metres thick and similar to the lower main dolomite. It is distinguished by abundant algal allochems which are typically replaced by black chert,
- h) upper quartzite a distinctive cliff-forming unit consisting of white quartzites more than 260 metres thick (equivalent to the upper Mount Nelson Quartzite (Atkinson 1975)). The upper quartzite consists of well sorted medium- to coarse-grained, essentially pure arenites. They

are distinguished from the lower quartzite on the basis of massive bedding and poorly preserved sedimentary structures.

 i) upper dolomite - the uppermost unit in the Belt-Purcell exposed below the Windermere unconformity. The upper dolomite is gradational with the underlying quartzite over 10 metres consisting of interbedded purple argillite, quartzite and dolomite. The upper dolomite is comprised of pale to dark grey dolomite interbedded with quartz and dolomite pebble conglomerates with dolomitic quartz sands.

# Windermere Supergroup

The Windermere Supergroup varies in thickness in the Toby Creek area, from 80 metres to over 3 kilometres and is in sharp contact with the underlying Belt-Purcell Supergroup across an unconformity with considerable topography, interpreted as a result of a local basement high, the "Windermere High" (Reesor 1973). The Windermere Supergroup was deposited above this unconformity and consists of a basal conglomeratic unit, the Toby Formation, and the overlying argillite and pebble conglomerate dominated Horsethief Creek Formation.

# **Toby Formation**

The Toby Formation is the basal unit of the Windermere Supergroup and overlies different levels of the Belt-Purcell stratigraphy in the separate fault panels, interpreted to indicate active faulting during sedimentation (Pope 1990). Four distinct facies have been identified in the Toby Creek area but their stratigraphic position relative to one another is uncertain due to rapid lateral facies changes.

The Toby Formation consists of:

- a) a basal boulder breccia lithofacies consisting of monomict clast-supported boulder breccias.
- b) a diamictite lithofacies the most commonly developed facies consisting of rounded quartzite and subangular dolomite boulders (derived from the immediately underlying Mount Nelson Formation) in a sandy argillite matrix.
- c) a sparse clast diamictite lithofacies consisting of graded fine to coarse-grained, poorly sorted arenites and argillites with a minor component of rounded quartzite pebbles or cobbles.
- d) a siltstone-argillite lithofacies which comprises the bulk of, and is the dominant lithology in, the upper portion of the Toby Formation, consisting of well-sorted and graded fine quartz arenites and argillites which typically exhibit complete Bouma sequences.

The Toby volcanics are the oldest igneous rocks identified in the Toby Creek area and are believed to be altered submarine basalts related to regional Hadrynian extension. The flows are holocrystalline and glomeroporphyritic basaltic andesites, having plagioclase phenocrysts in a fine-grained plagioclase groundmass. Green metadiabase dykes have also been identified and have been interpreted as the metamorphic equivalent to the Toby volcanics. They are the most common igneous rocks and are always intruded at a high angle to bedding. They are typically altered, consisting of anhedral masses of chlorite, anhedral to euhedral carbonate and sericite and skeletal opaques. Chlorite pseudomorphs after pyroxene and amphibole have been identified. Bulk mineralogical proportions indicate these dykes were most probably originally basaltic in composition and have been subsequently hydrated.

# **Horsethief Creek Group**

The Toby Formation is gradational into the overlying Horsethief Creek Formation, in which five lithofacies have been identified. These lithofacies define a rudimentary stratigraphy of facies within the Horsethief Creek Formation as individual lithological units are inconsistent due to rapid lateral thickness and facies variations.

The lithofacies identified in the Horsethief Creek Formation are as follows:

- a) siltstone-argillite dominant in the lower half of the Horsethief Creek Formation and separate the remaining lithofacies throughout the formation. This lithofacies consists of thick sequences of thin bedded (1 to 10 cm), graded siltstone and argillite and finely laminated (1 to 5 mm), black, green and grey argillite.
- b) black carbonate an easily traced marker used to identify and map the base of the Horsethief Creek Formation consisting of thin bedded (5 to 20 cm), dark grey to black limestone, with variable quartz sand and silt in a calcitic matrix, and thin calcareous quartz-arenite beds.
- c) dolomite buff weathering dolomite, up to 30 metres thick, dolomite pebble-conglomerate beds and dolomite supported quartzite occur throughout the Horsethief Creek Formation.
- d) quartz feldspar arenites and pebble conglomerates consist of pebble conglomerates comprised of grain-supported, moderately sorted crystalline quartz and quartz feldspar clasts with variable red jasper, green to grey argillite, quartzite and dolomite clasts in a quartz, feldspar, carbonate, sericite and chlorite matrix. Clasts are generally 1 to 2 centimetres in diameter but may exceed 10 centimetres in length. Coarse arenite beds are similar to the pebble conglomerates but have a greater proportion of matrix and are generally poorly sorted.
- e) red and varicoloured argillites are present at the top of the Horsethief Creek Formation and consist of variably coloured argillites with interbedded pink carbonate, and varicoloured impure arenites.

#### Mesozoic

## **Granitic Intrusions**

Cretaceous intrusives of broadly "granitic" composition are present in a belt extending from the westernmost Rocky Mountains to Kootenay Lake, northward to the Baldy Batholith. Intrusions range from small dykes and sills to larger intrusive complexes such as the Mt. Skelly Batholith and are collectively referred to as the Bayonne Magmatic Belt (or Suite).

"Intrusive rocks ... include a number of small post kinematic mesozonal quartz monzonite, monzonite and syenitic plutons, numerous small quartz monzonite to syenite dikes and sills probably related to these stocks, and late mafic dikes. The Kiakho and Reade Lake stocks, two of the larger of the mesozonal plutons, cut across and apparently seal two prominent east-trending faults that transect the eastern flank of the Purcell anticlinorium, and hence place constraints on the timing of latest movement on these faults.

The Kiakho stock is exposed on the heavily wooded slopes of Kiakho Creek approximately 10 kilometres (west-southwest) ... of Cranbrook ... Exposures consist mainly of large, fresh angular boulders of boulder fields. Although contacts with country rock were not observed, regional mapping indicates that it intrudes clastic rocks of the Aldridge and Creston formations. The distribution of outcrops and a pronounced aeromagnetic anomaly indicate that it cuts the east-trending Cranbrook normal fault with no apparent offset. ...

The Kiakho stock is similar to the Reade Lake stock with the dominant phase being a light grey, medium-grained quartz monzonite. It is generally equigranular but grades into a hypidiomorphic granular porphyritic phase with prominent plagioclase and light grey to flesh-coloured potassic feldspar phenocrysts; both are up to several centimetres in diameter in a granular groundmass of white subhedral plagioclase, light grey potassic feldspar, quartz and black hornblende" (Höy 1993).

The Bayonne Granitic Suite is a composite batholith comprised of a number of smaller Jurassic to Cretaceous age granitoid stocks and plutons which extends from near the International Boundary across Kootenay Lake. On the east side of the Kootenay Lake, the Bayonne Granitic Suite locally includes the Mount Skelly Pluton, a biotite (hornblende) monzogranite with megacrysts of potassium feldspar (Reesor 1996). Rice (1941) grouped these granitoids under the broad heading of the Bayonne Batholith, as described below.

"The Bayonne batholith varies in composition from a granite to a calcic granodiorite; the average composition is that of a fairly alkaline granodiorite. ... Much of the rock has an equigranular texture, but a porphyritic phase occurs in many places, at some of which phenocrysts of potash feldspar 2 or 3 inches long are present. The potash feldspar may be orthoclase or microcline and in some specimens both occur. The plagioclase is oligoclase, generally well twinned and frequently in zoned crystals. Dark brown biotite is the only ferromagnesian mineral abundant, but grains of hornblende

occur in rare instances. The usual accessories are present. Sericite and epidote are the commonest secondary minerals, but neither occur in significant amounts except where the rock has been altered.

A marked feature of the Bayonne batholith is its highly variable nature. This is observable not only in the range of composition but in the appearance of the rock. Coarse-grained and fine-grained, porphyritic and non-porphyritic, pink and light or dark grey phases may occur in a single exposure, in some places in streaks and patches. Masses of pegmatite and dykes of pegmatite and aplite occur everywhere. Some of the pegmatite dykes are over 100 feet wide. A few large crystals of blue-green beryl, pink garnet, magnetite, and a little black tournaline were seen in these pegmatites.

Large inclusions of granitized sediments are locally abundant. ... These inclusions vary in size from a foot to some hundreds of feet. Alteration is severe, but the sedimentary nature of the original rock is, in most cases, still recognizable and the boundary between the granite and the inclusion is generally fairly sharp. Other inclusions or zenoliths (sic.) from a few inches to a foot long also occur, which can readily be distinguished from the first type mentioned. They parallel one another, are darker coloured, their original texture and composition has been more or less completely altered, they are fairly uniform in size, and they usually grade imperceptibly into the granite. They are more widely distributed, indeed very few exposures of any size were examined that did not contain some of these zenoliths (sic.), and in places they are extremely abundant. The zenoliths (sic.) are often most common in the porphyritic phases and scarcer in the non-porphyritic phases of the granite ...".

## Structure

Four major phases of deformation have been identified in the Toby Creek area, Helikian-Devonian extension (D1), Jurassic-Paleocene contraction (D2-D3) and Eocene extension (D4).

The first phase of deformation resulted in unconformities at the base of the Dutch Creek and Mount Nelson Formations (D1a) and the unconformity at the base of the Windermere Supergroup (D1b). Thinning of Paleozoic strata onto the Windermere High is interpreted to reflect the effects of D1c deformation together with the development of small fault-bounded sub-basins.

Contraction during the Columbian (D2) and Laramide (D3) orogenies resulted in a series of northeast vergent thrust faults and the development of a regional foliation (S1). Three major thrust sheets are evident in the Toby Creek area with one, the Mount Nelson thrust sheet, comprised of four smaller fault panels. The three major thrust sheets represent out-of-sequence faults, having propagated toward the hinterland, carried in the hanging wall of the Purcell Thrust.

Contraction during D2 and D3 produced east-vergent imbricate thrust faults and west vergent backthrusts. Many of these faults were subsequently reactivated during the fourth phase (D4) of deformation. High angle brittle faults are also a result of D4.

# LOCAL GEOLOGY

#### Stratigraphy

The Sawyer property is underlain by south striking, moderately steeply west dipping panel of overturned Late Proterozoic age strata (Fig. 4) correlated to the uppermost Purcell Supergroup and lower Windermere Supergroup on the western limb of the Purcell Anticlinorium (Lydon, 2010). Correlations interpret the strata as belonging to the Dutch Creek and Mount Nelson formations, overlain by the Horsethief Creek Group, overthrust onto a continuous panel extending from the Creston Formation to the Horsethief Creek Group (Massey et al. 2005). In detail, displacement along the fault separating the two panels diminishes to the north, dying out into the Dutch Creek Formation.

Given the presence of the large Fry Creek Batholith approximately 8 km to the northwest, the Sawyer Creek Stock (Logan 2002) may be a small related satellite intrusion of apophyse. Alternatively, it may be a small unrelated Cretaceous intrusion, having been intruded during a regional Mesozoic intrusive event.

#### Structure

The structure of the Sawyer area is dominated by its position on the western flank of the Purcell Anticlinorium, a north plunging fold of regional significance. The Purcell Anticlinorium is allochthonous with respect to North American cratonic basement, having been transported northeastward in the hanging wall of the Purcell Thrust. This major structure has been complicated slightly by a number of regional and local faults, discussed below with reference to the Kootenay Lake mapsheet of Reesor (1996). An early folding event has been proposed for early structures interpreted to have developed in the Late Proterozoic during the Goat River Orogeny (Höy 1993).

The prominent faults in the Sawyer area are interpreted to be predominantly the result of the Laramide orogeny, characterized by east-verging, west-dipping thrust faults. The major fault system of the area is the St. Mary / Hall Lake fault system, interpreted to be a long lived fault initiated in the Late Proterozoic as a growth fault and periodically active at least into the Laramide orogeny. Eastward directed movement across the St. Mary / Hall Lake fault resulted in steeply dipping strata on the western limb of the Purcell Anticlinorium being juxtaposed against relatively shallowly to moderately dipping strata closer to the hinge axis.

Significant dip displacement is indicated across the fault east of Sanca Creek where Proterozoic lower Creston strata has been juxtaposed against early Paleozoic Cambrian Eager Formation strata.

Later thrust faults are evident in the hanging wall of the St. Mary / Hall Lake fault. The Redding Creek fault is locally significant fault. It is a west dipping, east verging thrust fault that juxtaposes middle Creston strata against the lower member of the Coppery Creek group. A number of smaller, normal faults are indicated in the hanging wall of the Redding Creek Fault, all of which appear to have minor dip (and probably strike-slip) movement. All of the faults in the hanging wall of the St. Mary / Hall Lake fault are interpreted to be older than the Cretaceous Mount Skelly Pluton (Bayonne Magmatic Belt) as all are truncated at the contact of the pluton.

# 2011 PROGRAM

Work conducted on the Sawyer Property during the 2011 field season consisted of a short geological mapping program. This work was undertaken in order to provide a more complete geological map of the property to enable the delineation of successful diamond drill targets. In particular, it defined the location of the Redding Creek fault-contact between the Horsethief Creek phyllite and the La France siltstone along the mountain ridge of Mount Sawyer further west than previously believed, and because of that the two UTM conductors at the base of Mount Sawyer to be right laterally shifted.

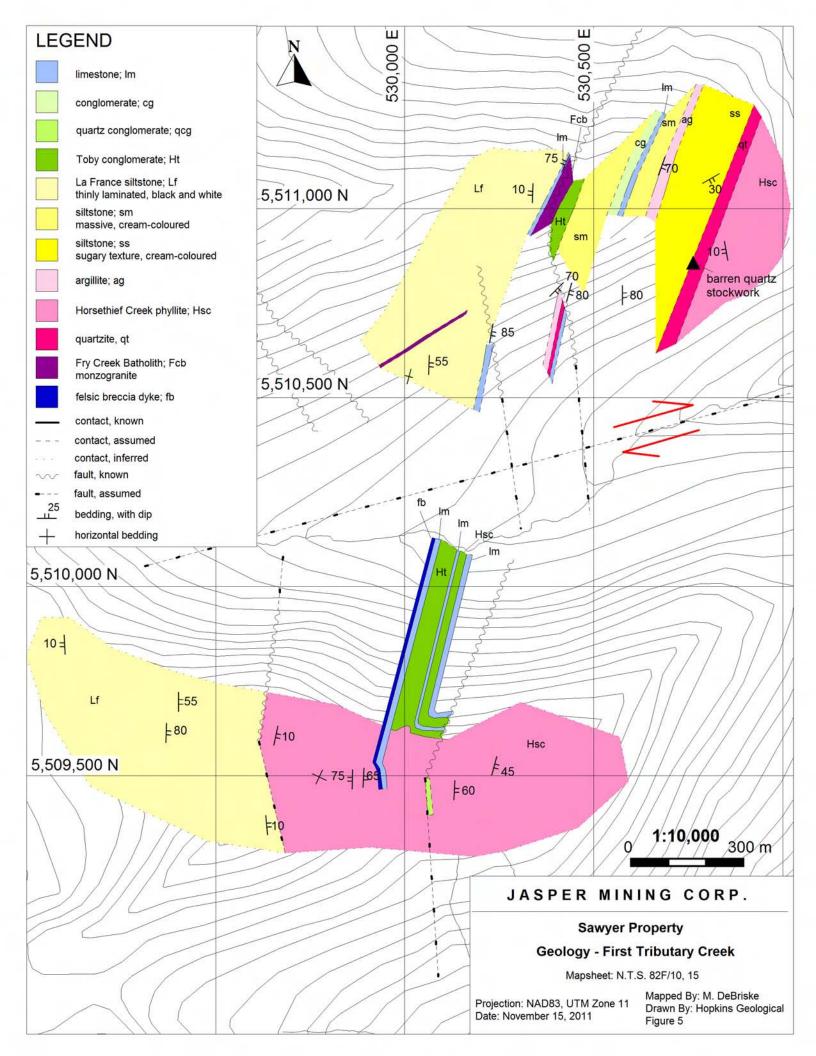
Geological mapping was conducted on a portion of the mountain top above a vestige of massive sulfide exposed in the cliff face of Mount Sawyer. Mapping was also conducted on the next mountain top to the north of Mount Sawyer. These localities were chosen because of near-continuous bedrock exposure. Mapping at a scale of 1:10,000 was conducted between September 21<sup>st</sup> and 24<sup>th</sup>, 2011 on mineral claims 501293, 520997 and 520998 over an area of roughly 1.8 km<sup>2</sup>.

# RESULTS

The results of geological mapping conducted on the Sawyer Property in September, 2011 are presented in Figure 5 at a scale of 1:10,000. One rock sample of quartz stockwork was collected at 5510857 N/530763 E but this sample did not return any anomalous assay results (Table 1).

Sample #	Au (g/t)
192202	< 0.005

Table 1. Au assay results.



#### DISCUSSION

Mapping on Mount Sawyer shows the Redding Creek fault-contact between the Horsethief Creek phyllite and the La France siltstone to be further west than that shown on J. E. Reesors large-scale geologic map of the Kootenay Lake (Map 1864 A). As such the geology north of the first tributary creek at the base of Mount Sawyer must be significantly right lateral shifted to the east to match the Redding Creek fault-contact as observed on the spine of the unnamed mountain to the north. This dextral offset would be explained by a strike-slip fault occurring along the first tributary creek, as shown in Figure 5.

Mount Sawyer is situated atop a narrow syncline striking 010° in a reverse dipping panel in a regionally westerly dipping succession of sediments. A small monzogranite plug is situated immediately to the north and is surrounded by a magnetic halo. The magnetic halo indicates there was remobilization of metal outward from the granitic stock. On the outer southern edge of that halo an airborne Aerotem geophysical survey located four small conductors. Two of the conductors lay immediately to the north of the first tributary creek. A third conductor lies south of the junction of the tributary with Sawyer Creek. The fourth conductor is found on the lower south slope of Mount Sawyer. The two strong conductors immediately north of the first tributary creek were previously located by a UTEM survey. They were interpreted to be shallow easterly dipping structures with the down dip lengths of 200 m and 500 m respectfully (S. J. V. Consultants Ltd. 1997). The third conductor nearest the confluence of the tributary with the Sawyer Creek expresses a weak conductance, a short decay constant and a short disjointed strike length. The fourth conductor on the south side of Mount Sawyer is of the same strength as the two UTEM conductors and roughly on strike with the exposed remnant of high-grade zinc-lead mineralization. The fourth conductor appears to occupy the Mount Nelson formation, or the western limb of the Toby conglomerates, whereas the exposed mineralization is thought to be in the eastern limb of the same Toby formation.

The geological offset evident from this year's mapping indicates that of the two UTEM conductors found in the valley at the base of Mount Sawyer, only the eastern downstream conductor could be matched to rock hosting the massive sulfide found in the cliff face of Mount Sawyer prior to fault movement.

## CONCLUSIONS

It remains to be determined if the UTEM conductors found on the Sawyer Property are bedded structures or replacement veins. Any of the four small conductors indicated by the AeroTEM-II electromagnetic survey could represent a base metal deposit of consequence which could be related to, or be independent of the known mineralization. The two UTEM conductors immediately north of the first tributary creek and the fourth conductor at the second tributary creek should be considered for immediate testing by diamond drilling. The weaker third conductor near the junction of the first tributary creek and Sawyer Creek should only be drill tested if results from the other three similar, but slightly stronger conductors are encouraging.

Also to be considered are two large, regional conductors passing down the east and west boundaries of the Sawyer block of claims. The eastern conductor passes well beyond the boundaries of the property. The eastern conductor should be soil sampled in the northeast corner and the southeast corner of the claim block where the low topography of the St. Mary River Valley has exposed the sedimentary beds hosting the conductive horizons. The northeast corner is of greatest interest at present, because significant zinc and lead soil values were recorded at the base of that mountain slope (Walker, 2008). By comparison the western conductor following down the western boundary of the property expresses a low conductance, a short decay constant and a structure that fades into and out of prominence along strike. The best segment of the western conductor lies in the southwest corner, and it should be considered for soil sampling. No visual expression of any feature to account for this conductor was noted during the traverse down the northwest ridge of Mount Sawyer during this year's program of geological mapping.

Further evaluation of the Sawyer property is recommended.

#### RECOMMENDATIONS

- 1. The two UTEM conductors immediately north of the first tributary creek and the fourth conductor at the second tributary creek should be considered for immediate testing by diamond drilling.
- 2. The regional conductors; one in the in the northeast corner and one in the southwest corner of the property should be considered for soil sampling.
- 3. The placement of the small monogranite intrusive stock into the northern terminus of the syncline hosting the outcropping of massive sulphide; along with its being surrounded by an obvious magnetic halo make the intrusive a good candidate for hosting disseminated sulphide mineralization. As such, a limited Induced Polarization Survey would complement the earlier, existing (narrow veins seeking) AeroTEM-II electromagnetic survey by checking for a widespread disseminated sulphide mineralization occurrence at the granite-sedimentary contact.
- 4. The weaker electromagnetic conductors 1, 2 and 4 can be drilled in 2012. Alternately they can be grouped with drilling expected to result from the completion of a induced polarization survey and soil geochemistry survey as outlined in this report.

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Appendix A

STATEMENT OF QUALIFICATIONS

# STATEMENT OF QUALIFICATIONS

I, Deirdre K. Hopkins, of 2111 2nd Avenue, Rossland, B.C., hereby certify that:

- 1) I am a graduate of the University of British Columbia, having obtained a Bachelor's of Science (Honours) in Geological Sciences in 2005,
- 2) I obtained a Master's of Geological Sciences in Structural Geology at the University of British Columbia in 2008;
- 3) I have been active in the Canadian Mineral Exploration Industry since 2002;
- 4) I am the author of this report, which I have prepared on behalf of the Jasper Mining Corporation under the capable supervision of Melvin DeBriske, P.Geo.
- 5) I have not independently verified the accuracy of the information and data contained within this report which form the basis for my conclusions and recommendations. In preparing this report, I have relied on the information provided to me by the Jasper Mining Corporation and on the materials listed as Reference in this report.

Dated at Rossland, British Columbia this 16<sup>th</sup> day of December, 2011.

Hopkins

Deirdre Hopkins, M.Sc.

Appendix B

STATEMENT OF EXPENDITURES

# STATEMENT OF EXPENDITURES

The following expenditure were incurred on behalf of Jasper Mining Corporation for work conducted on the Sawyer Property between September 21<sup>st</sup> and December 16<sup>th</sup>, 2011.

PERSONNEL		\$	1 500 00
Mapping – Melvin DeBriske, 3 days @ \$500/day		Φ	1,500.00
EQUIPMENT RENTAL			
4WD Truck – 3 days @ \$75/day		\$	225.00
Helicopter (see attached invoice) for 3 days		\$	8,234.89
Communication (radios, satellite and telephone)		<u>\$</u> \$	50.00
	Sub-Total	\$	8,509.89
FIELD EXPENDITURES			
Motel - 3 nights @ \$56/night		\$	168.00
Food – 3 days @ \$60/day		\$	180.00
	Sub-Total	\$	348.00
DISBURSEMENTS			
Au Assay – 1 rock sample @ \$25 / sample		\$	25.00
	Sub-Total	\$	25.00
REPORT/DRAUGHTING			
Report writing - Melvin DeBriske, 2 days @ \$500/da	У	\$	1,000.00
Map Draughting – Hopkins Geological, 2 days @ \$44	40/day	<u>\$</u> \$	880.00
	Sub-Total	\$	1,880.00
	Total	\$	12,262.89

Appendix C

**BIGHORN HELICOPTERS INVOICE** 

CRANBROOK (MAIN): 1817 Theatre Road Box 220 Cranbrook, BC V1C 4H7

FERNIE: 401 Burma Road, Fernie, BC **V0B 1M1** (Cranbrook mailing address)

Customer No.

JASP01 BILL TO:



CALGARY: 402A Otterbay, Springbank Airport, AB. T3Z 3S6

BLAIRMORE: 10510 - 20th Ave. Blairmore, AB. TOK OE0 (Cranbrook mailing address)

BIGHORN HELICOPTERS INC

....

INVOICE	INVOICE NUMBER: IN324	44
	DATE: 10/4/201	1
CHARTERER:	PAGE:	1

Jasper Mining Suite 501 888 4 Avenue SW Calgary, AB T2P 0V2

Reference - P.O. #

M DEBRISKE

Suite 501 888 4 Avenue SW Calgary, AB T2P 0V2

FLIGHT REPORT	OTY. AIRCRAFT	DESCRIPTION	GST CODE	PRICE	AMOUNT
					\$
7185	1.90	Tariff B206 B (CGTRE) - BC		1,090.00	2,071.00
7185	209.00	Fuel B206 B (CGTRE) - 110 Litres/Hr		1.42	296.78
7186	2.20	Tariff B206 B (CGTRE) - BC		1,090.00	2,398.00
7186	242.00	Fuel B206 B (CGTRE) - 110 Litres/Hr		1.42	343.64
7187	1.80	Tariff B206 B (CGTRE) - BC		1,090.00	1,962.00
7187	198.00	Fuel B206 B (CGTRE) - 110 Litres/Hr		1.42	281.16



Sawyer Creek support Sep 21,22,24/11

# THANK YOU FOR FLYING WITH BIGHORN HELICOPTERS INC.

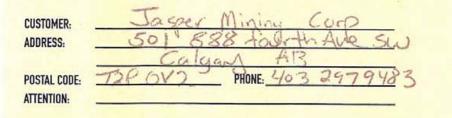
Terms: NET30 E 2.0% INTEREST PER MONTH CH/	Balance due 30 days from invoice date. ARGED ON OVERDUE ACCOUNTS					
HST/GST# 131614265	BIGHORN HELICOPTERS INC. PO Box 220 1817 Theatre Road Cranbrook, BC V1C 4H7 Canada	HST	882.31	Subtotal before taxes Total taxes Total amount Payment received Discount taken Amount due	TOTAL	7,352.58 882.31 8,234.89 0.00 0.00 8,234.89

BIGHORN HELICOPTERS INC

11000000

BASES: FERNIE **KAMLOOPS** BLAIRMORE SPRINGBANK AIRPORT

# **AIRCRAFT DAILY FLIGHT REPORT**



DATE:	Sent 21/11
IRCRAFT REG'N:	* CETRE
PILOT:	Christianson
BASE:	Cranbruok
RER REFERENCE:	

CHARTER

PASSENGER MANIFEST:

CRANBROOK (MAIN):

1817 Theatre Road Box 220 Cranbrook, BC

FAX: 1.250.489.6139

V1C 4H7 1.250.489.2517

Melin Debriske

ITINERARY – REMARKS – DESCRIPTION OF JOB	TIME UP	TIME DOWN	HOUF	RS
Srupp Creek	0827	1652	1	9
0				
		TOTAL HOURS	1	9

DANGEROUS GOODS:	YES NO		FOR OFFICE USE ONLY
LANDING FEES:	YES LOCATION:		TARIFF:
FUEL SUPPLIED BY:	BIGHORN - NUMBER OF LITERS: LOCATION:		TARIFF:
	CUSTOMER - NUMBER OF LITERS: LOCATION:		FUEL:
		-	CREW:
CREW FEES:	PILOT EXPENSE FORM:	N/A	OTHER:
	ENGINEER EXPENSE FORM:	🛄 N/A	G.S.T.:
AUTHORIZED CHARTER	ER SIGNATURE: M. De Briston		TOTAL:
PILOT SIGNATURE:			BN GST/HST#131614265

\*THE CARRIAGE OF PASSENGERS, BAGGAGE, AND GOODS INCLUDING EXTERNAL LOADS BY BIGHORN IS SUBJECT OT THE TERMS. CONDITIONS, AND LIMITATIONS OF LIABILITY SET FORTH IN ITS TARIFF, AN EXTRACT OF WHICH IS AVAILABLE FOR EXAMINATION AT THE HEAD OFFICE OF BIGHORN HELICOPTERS INC.

SERVICE CHARGE ON OVERDUE ACCOUNTS 2% PER MONTH (24% PER ANNUM) ON PAST DUE BALANCE.

WHITE COPY: HEAD OFFICE YELLOW COPY: INVOICING PINK COPY: CUSTOMER

CRANBROOK (MAIN): 1817 Theatre Road Box 220 Cranbrook, BC V1C 4H7 1.250.489.2517		REPORT NUMBER, 7.186
FAX: 1.250.489.6139	BIGHORN HELICOPTERS INC	BASES: FERNIE KAMLOOPS BLAIRMORE SPRINGBANK AIRPORT
	AIRCRAFT DAILY FLIGHT REPORT	

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18

CUSTOMER: Address:	Jasper Mining Corp 501 888 444 Ave	DATE: Spt 22/11 AIRCRAFT REG'N: CC-TRE
POSTAL CODE: Attention:	T2POV2 PHONE: 403 2979483	PILOT: <u>Christianson</u> BASE: <u>Cranbrook</u> CHARTERER REFERENCE:
ATENTION		

PASSENGER MANIFEST: Melvin Dehuske

ITINERARY – REMARKS – DESCRIPTION OF JOB	TIME UP	TIME DOWN	HOUF	S
Sawyon Creek	0806	1640	2	2
0	/			
	d.			
		TOTAL HOURS	2	2
DANGEROUS GOODS: YES INO	FOR OFFICE U	SE ONLY	AL.	-

DANGEROUS GUUDS:	TES LINU	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	רטת ערדונב טסב טאנז
LANDING FEES:	YES LOCATION:	_ N/A	TARIFF:
FUEL SUPPLIED BY:	BIGHORN - NUMBER OF LITERS: LOCATION:		TARIFF:
	CUSTOMER - NUMBER OF LITERS: LOCATION:		FUEL:
		-	CREW:
CREW FEES:	PILOT EXPENSE FORM:	<b>N</b> /A	OTHER:
	ENGINEER EXPENSE FORM:	<b>N/A</b>	G.S.T.:
AUTHORIZED CHARTER	ER SIGNATURE: Man AVEDMSKE		TOTAL:
PILOT SIGNATURE:	Atta		BN GST/HST#131614265
	J J.		

\*THE CARRIAGE OF PASSENGERS, BAGGAGE, AND GOODS INCLUDING EXTERNAL LOADS BY BIGHORN IS SUBJECT OT THE TERMS. CONDITIONS, AND LIMITATIONS OF LIABILITY SET FORTH IN ITS TARIFF, AN EXTRACT OF WHICH IS AVAILABLE FOR EXAMINATION AT THE HEAD OFFICE OF BIGHORN HELICOPTERS INC.

SERVICE CHARGE ON OVERDUE ACCOUNTS 2% PER MONTH (24% PER ANNUM) ON PAST DUE BALANCE.

WHITE COPY: HEAD OFFICE YELLOW COPY: INVOICING PINK COPY: CUSTOMER

BIGHORN HELICOPTERS INC

CRANBROOK (MAIN): 1817 Theatre Road

Box 220 Cranbrook, BC

FAX: 1.250.489.6139

V1C 4H7 1.250.489.2517 REPORT NUMBER

BASES: FERNIE KAMLOOPS BLAIRMORE SPRINGBANK AIRPORT

# **AIRCRAFT DAILY FLIGHT REPORT**

CUSTOMER: Address:	Jasper Ressuras	DATE: Sat 24/11 AIRCRAFT REG'N: CCATRE PILOT: Clar WL
POSTAL CODE: Attention:	PHONE:	BASE:CHARTERER REFERENCE:
PASSENGER N		

ITINERARY – REMARKS – DESCRIPTION OF JOB	TIME UP	TIME DOWN	HOUR	S
DO SAWYER Cruck.	0755	0250	0	9
	1539,	1635	0	9
	7			
				-
	18,138	TOTAL HOURS	1.	8

DANGEROUS GOODS:	YES INO		FOR OFFICE USE ONLY
LANDING FEES:	U YES LOCATION:	N/A	TARIFF:
FUEL SUPPLIED BY:	BIGHORN - NUMBER OF LITERS: LOCATION:		TARIFF:
	CUSTOMER - NUMBER OF LITERS: LOCATION:		FUEL:
		_	CREW:
CREW FEES:	PILOT EXPENSE FORM:	🛄 N/A	OTHER:
	ENGINEER EXPENSE FORM:	N/A	6.S.I.:
	MIC PIL		
AUTHORIZED CHARTER	RER SIGNATURE: A MUL X R ID MARO		TOTAL:
PILOT SIGNATURE:	Char Wh		BN GST/HST#131614265

\*THE CARRIAGE OF PASSENGERS, BAGGAGE, AND GOODS INCLUDING EXTERNAL LOADS BY BIGHORN IS SUBJECT OT THE TERMS. CONDITIONS, AND LIMITATIONS OF LIABILITY SET FORTH IN ITS TARIFF, AN EXTRACT OF WHICH IS AVAILABLE FOR EXAMINATION AT THE HEAD OFFICE OF BIGHORN HELICOPTERS INC.

SERVICE CHARGE ON OVERDUE ACCOUNTS 2% PER MONTH (24% PER ANNUM) ON PAST DUE BALANCE.

WHITE COPY: HEAD OFFICE YELLOW COPY: INVOICING PINK COPY: CUSTOMER