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BC Geological Survey

Assessment Report
Title Page and Summary

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

TOTAL COST: 164,938.00

AUTHOR(S): Amber Henry

SIGNATURE(S): [signature]

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): n/a

YEAR OF WORK: 2011

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): Event number 5151690, Recorded 2011/DEC/08

PROPERTY NAME: Kaslo

CLAIM NAME(S) (on which the work was done): KASLO 001 through KASLO 016

COMMODITIES SOUGHT: Zn

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: Fort Steele

NTS/BCGS: 082F15, 082F16

LATITUDE: 49 ° 50 '00 " **LONGITUDE:** 116 ° 31 '30 " **(at centre of work)**

OWNER(S):

1) Teck Resources Limited

2)

MAILING ADDRESS:

3300 - 550 Burrard St.
Vancouver, BC, V6C 0B3

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

1) Teck Resources Limited

2)

MAILING ADDRESS:

3300 - 550 Burrard St.
Vancouver, BC, V6C 0B3

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
Purcell Supergroup, Creston Formation, Kitchener Formation, Dutch Creek Formation, Mount Nelson Formation, Neoproterozoic shallow marine siliciclastic and carbonate lithologies, Western Growth Fault, Fry Creek Batholith

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 25179

Next Page

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	1:10,000 scale, 8069.93 ha	KASLO 001 - KASLO 016	164,938.00
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	164,938.00

BC Geological Survey
Assessment Report
33003

Teck

Report on the 2011 Geological Mapping Program

for the

Kaslo Property

Fort Steele Mining Division, Southeastern B.C.

NTS Map Sheets
082F15, 082F16

Latitude 49° 50' 00" N, Longitude 116° 31' 30" W

Report prepared by Amber Henry
March 7, 2012

Teck Resources Limited
Suite 3300 – 550 Burrard St.
Vancouver, BC, V6C 0B3

SUMMARY

The Kaslo property is located in the Purcell Mountains in southeast British Columbia, east of Kootenay Lake and approximately 65 kilometres northwest of Cranbrook. The property comprises 16 contiguous claims, covering an area of 8069.93 hectares owned 100% by Teck Resources Ltd.

The property is underlain by Mesoproterozoic rocks of the Purcell Supergroup and is located on the western limb of the Purcell anticlinorium. Shallow water carbonate and siliciclastic lithologies of the Creston and Kitchener Formations are overlain by the phyllite-rich Dutch Creek Formation and lower three subunits of the Mount Nelson Formation.

Mapping and prospecting was completed during the 2011 summer program to identify areas of potential sedex-style mineralization, including possible feeder zones, signs of alteration, and favorable lithologic and/or structural settings.

No indications of sedex-style mineralization were found, therefore no further work on the Kaslo property is recommended at this time.

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1 Introduction

1.1 Location, Access, and Physiography

The Kaslo property is located in the Purcell Mountains in southeast British Columbia, east of Kootenay Lake and approximately 65 kilometres northwest of Cranbrook (Figure 1). The property is accessible by helicopter from Cranbrook (approximately 35 to 45 minutes flight time). The northeastern and southwestern edges of the property may be reached by logging roads, when stream levels are low, from the west of St. Mary's Lake.

Elevations on the property range from approximately 1300-2580 metres. The relief is moderate to steep. Outcrop exposure is typically widespread above tree line in alpine tundra areas, while extensive growth of pine, spruce, fir, larch, and forest undergrowth restricts outcrop exposure at lower elevations. The region is subject to moderate precipitation and in 2011 had patchy snow cover year round, mostly on north-facing slopes, with summer temperatures averaging 20-25°C.

1.2 Tenure

The Kaslo property comprises 16 contiguous claims, covering an area of 8069.93 hectares owned 100% by Teck Resources Ltd. A tenure map is included as Figure 2 and a list of all pertinent tenure details is found in Table 1 below.

Tenure Number	**CLAIM_NAME**	**Map Number**	**Good To Date***	**Area (ha)**
841408	KASLO 001	082F15	2016/Feb/20	500.71
841409	KASLO 002	082F15	2016/Feb/20	521.55
841410	KASLO 003	082F15	2016/Feb/20	458.80
841411	KASLO 004	082F15	2016/Feb/20	479.54
841412	KASLO 005	082F15	2016/Feb/20	521.09
841413	KASLO 006	082F15	2016/Feb/20	500.14
841414	KASLO 007	082F15	2016/Feb/20	499.99
841415	KASLO 008	082F16	2016/Feb/20	520.62
841416	KASLO 009	082F16	2016/Feb/20	514.21
841417	KASLO 010	082F15	2016/Feb/20	520.55
841418	KASLO 011	082F15	2016/Feb/20	499.91
841419	KASLO 012	082F15	2016/Feb/20	510.78
841420	KASLO 013	082F15	2016/Feb/20	500.03
841421	KASLO 014	082F15	2016/Feb/20	500.24
841422	KASLO 015	082F15	2016/Feb/20	500.41
841423	KASLO 016	082F15	2016/Feb/20	521.36
Total 16 claims				8069.93

Table 1. Summary of Kaslo claims. *Good To Date pending acceptance of assessment

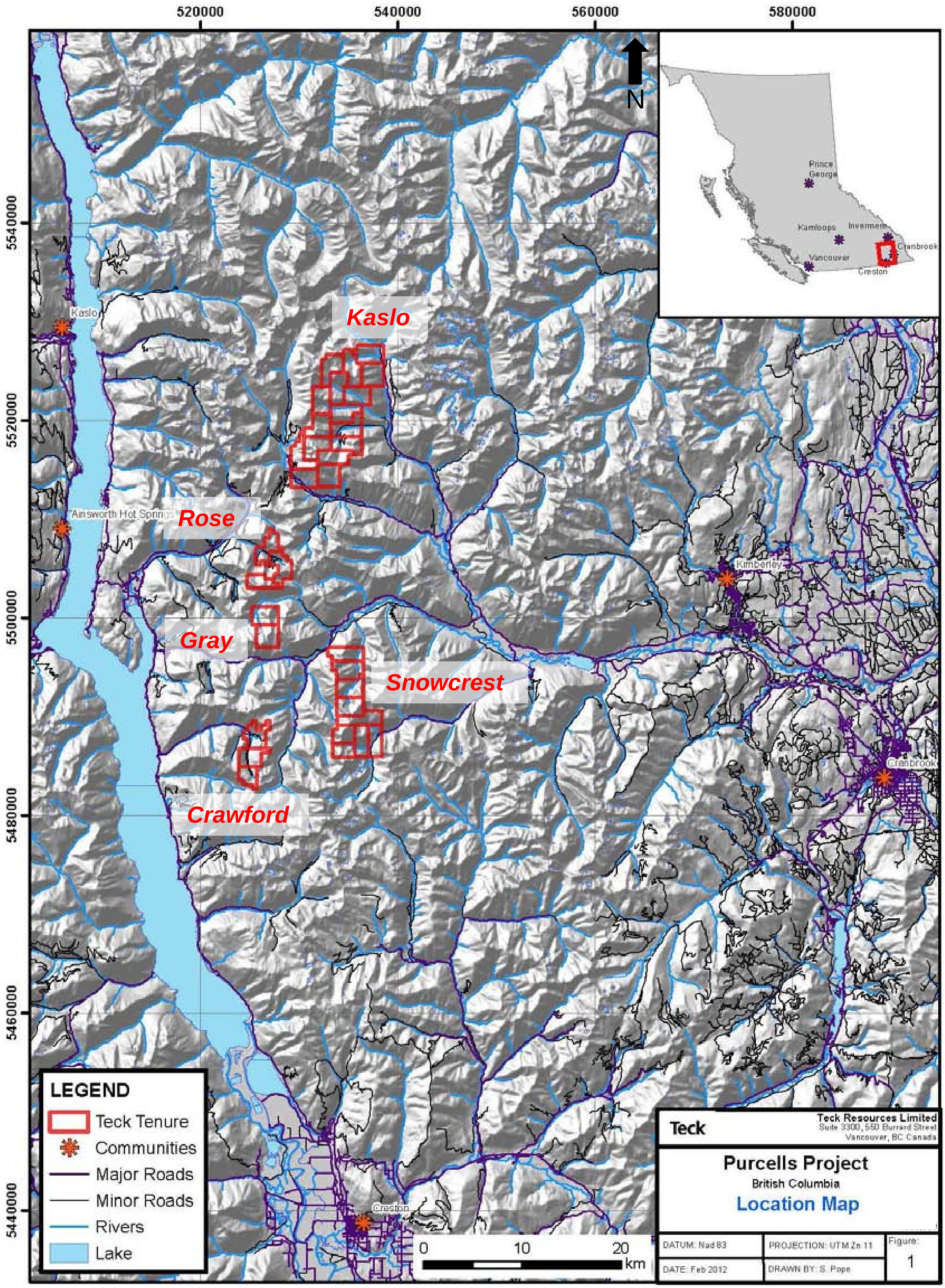
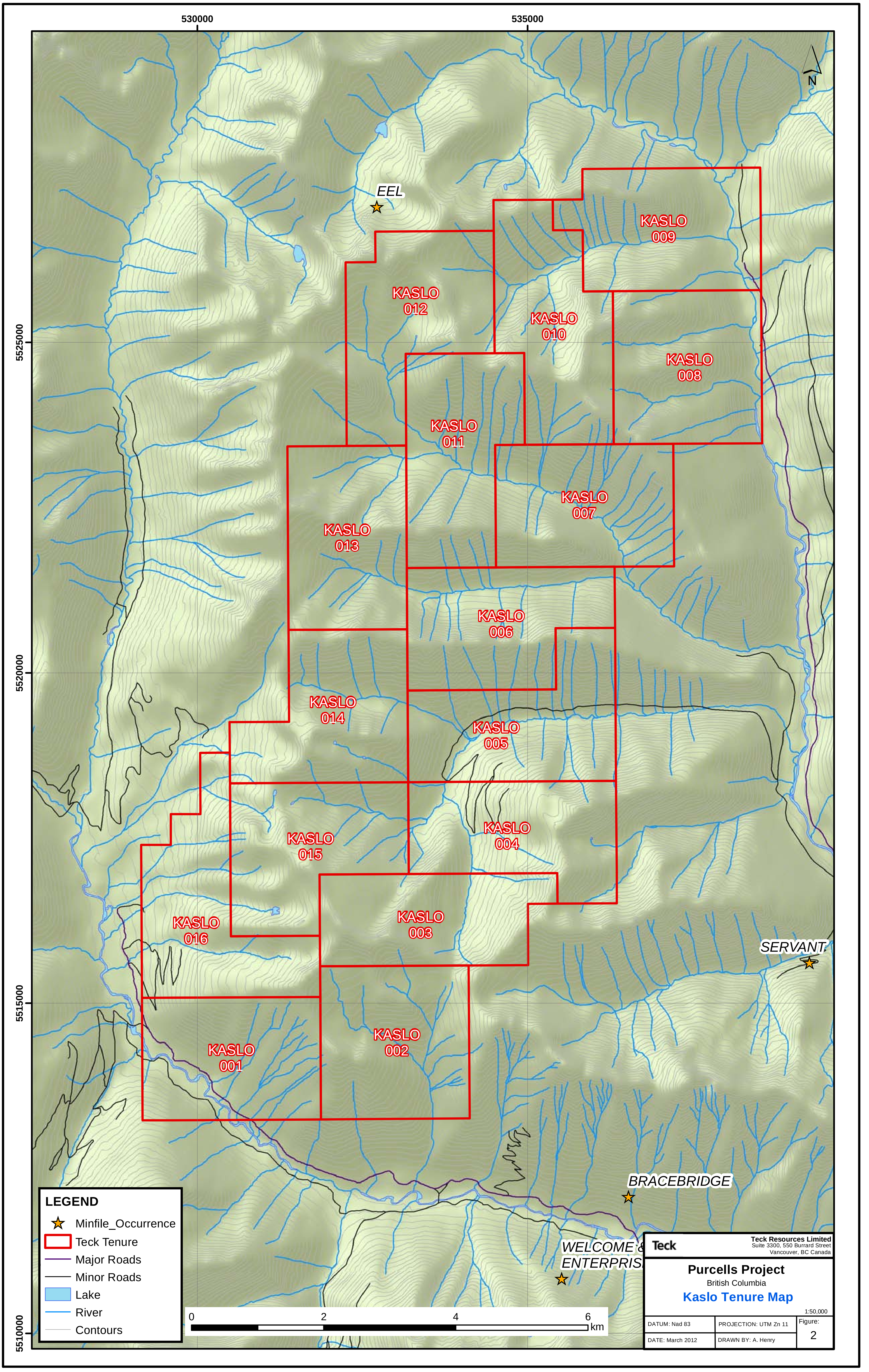


Figure 1. Location map for the Kaslo property.



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KASLO 005
KASLO 015
KASLO 004
KASLO 003
KASLO 016
SERVANT
KASLO 002
KASLO 001
BRACEBRIDGE
WELCOME & ENTERPRIS
N
LEGEND
Minfile_Occurrence
Teck Tenure
Major Roads
Minor Roads
Lake
River
Contours
0 2 4 6 km
Teck
Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada
Purcells Project
British Columbia
Kaslo Tenure Map
1:50,000
DATUM: Nad 83
PROJECTION: UTM Zn 11
Figure:
2
DATE: March 2012
DRAWN BY: A. Henry

1.3 History and Previous Work

There has been very little historical work completed on the Kaslo property, and there are no Minfile occurrences located within its boundaries. In 1997, Cominco Ltd. conducted a soil sampling program along the southern extents of the current Kaslo claim block, within a historic group of claims known as the Armour property (Ransom, 1997). The purpose of this work was to locate near surface base metal sulfide mineralization based on targeting from an airborne geophysical survey, but the result of the geochemical survey was only a few slightly anomalous clusters of samples not warranting further work (Ransom, 1997).

2 Geology

2.1 Regional Geology

The Middle Proterozoic Purcell Supergroup is considered to represent the infilling of an intracontinental rift within an Archean and Paleoproterozoic craton (Höy et al., 2000; Price and Sears, 2000). The basal part of the succession, the Aldridge Formation, records the early synrift fill and the overlying Creston, Kitchener, and younger formations represent the rift cover, or sag phase, succession (Figure 3). The Purcell Supergroup is unconformably overlain by rocks of the Windermere Supergroup, which includes a basal conglomerate deposited along a set of growth faults during the Late Proterozoic (T. Höy, pers. comm.). The entire rock package has undergone multiple cycles of orogeny and extension described briefly below. The Belt-Purcell basin rocks occur as a broad NNE-plunging anticlinal structure: the Purcell anticlinorium (Figure 4). The Kaslo property is located on the western limb of the anticlinorium (Figures 5 and 6, the northern and southern sections of the property, respectively). The west limb has seen significantly less exploration and historical work than either the eastern limb or the core of the anticlinorium, thus the descriptions of the stratigraphic succession are less detailed than those for the eastern limb. There are also lateral facies changes within stratigraphic horizons, which do not always correlate between the limbs (c.f. Reesor, 1983 and Höy, 1993).

2.1.1 Mesoproterozoic

Lower Purcell Supergroup

The Aldridge Formation, comprising the Lower Purcell Supergroup, is split into three units and represents the accumulation of ~10 kilometres of turbidites and intercalated mafic sills during Mesoproterozoic extension and the accompanying major episode of rifting at ~1470 Ma (Price and Sears, 2000). The Lower Aldridge comprises mainly thin to medium-bedded distal argillaceous turbidites, with a prominent quartzitic turbidite sequence of several hundred metres thickness. The Middle Aldridge is dominated by medium-bedded quartzitic turbidites with prominent intervals of laminated marker siltstones, and is up to 2.4 km thick (Höy et al., 2000). The Sullivan Pb-Zn-Ag sedex deposit is located at this Lower-Middle Aldridge transition, commonly called the Sullivan horizon. This horizon is marked by abundant sedimentary fragmentals (interpreted as mud volcanos) and by cross-cutting discordant fragmentals which appear to record movement along growth faults (Höy et al., 2004). The Upper Aldridge comprises 300 metres of bedded to laminated argillite and siltstone which were deposited on a shallowing basin plain. The Aldridge Formation is found in the core of the Purcell anticlinorium.

A large part of the Lower and Middle Aldridge sequence is made up of numerous mafic sills, the Moyie intrusions, which range from gabbroic to dioritic in composition, and have been at least partly intruded into wet, unconsolidated sediments (Höy et al., 2000). This records a magmatic event during the deposition of the Aldridge, which supports the view of a syn-rift model for the basal Purcell Supergroup, and is a potential driver of hydrothermal mineralization at Sullivan.

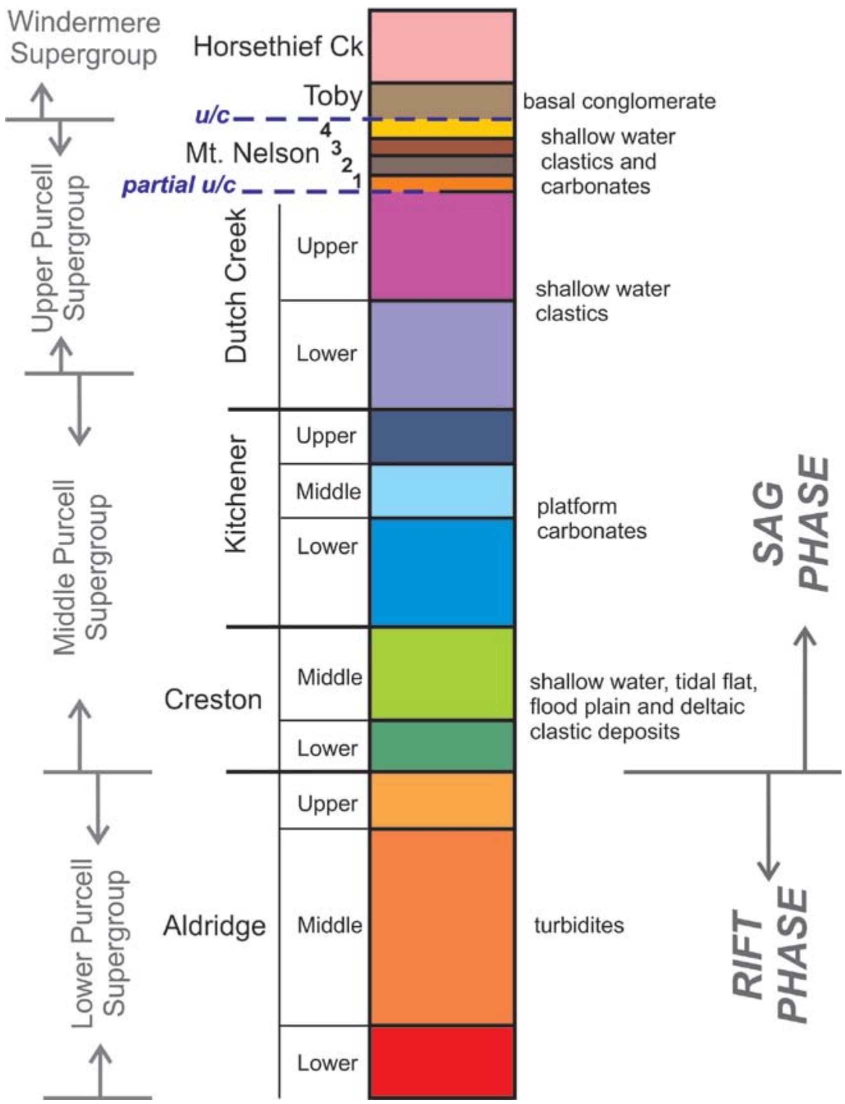


Figure 3. Schematic stratigraphic section of the Purcell Supergroup in the study area (on the western limb of the Purcell anticlinorium). N.B. not to scale.

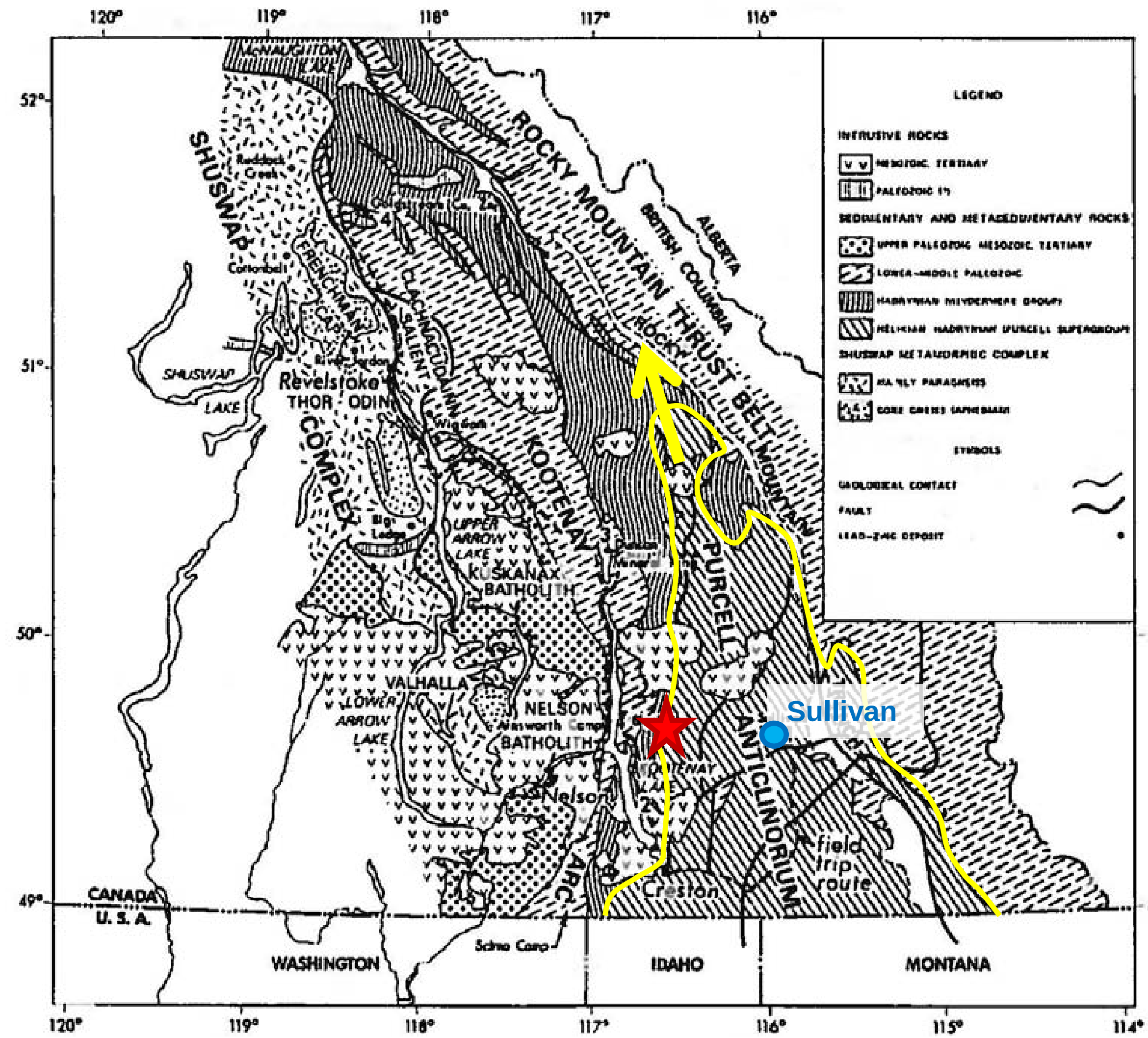


Figure 4. Purcell anticlinorium in SE B.C., dipping shallowly to the NNW (marked by yellow arrow). Teck properties are located on the western limb, approximate location shown by red star. Purcell Supergroup rocks outlined in yellow. (Höy et al., 1981)

Middle Purcell Supergroup

Following the main rifting episode and the deposition of the Aldridge Formation there was a period of thermal relaxation during which approximately 6 kilometres of shallow water sediments accumulated along the flanks of the rift zone (Price and Sears, 2000). The Middle Purcell Supergroup in the area includes the Creston and Kitchener Formations, which represent this shallow shelf environment. The Creston Formation conformably overlies Upper Aldridge rocks (Figure 3), and comprises green to grey siltstone, argillite, and quartzite, with abundant sedimentary structures along the eastern limb of the anticlinorium, indicative of shallow water deposition (Höy, 1993). On the western limb of the anticlinorium, however, the primary structures, mudcracks, and wavy bedding common in the east are seldom preserved (Reesor, 1983). The Lower Creston consists of thinly laminated grey and green phyllite/siltstone, commonly with thin carbonate-bearing layers. There is an abrupt transition to quartzites and dark grey to green siltstones in the overlying Middle Creston Formation, which is a much more resistant unit than the Lower Creston. The base of the Creston Formation is not exposed on any of the properties mapped during the 2011 program, which precludes an estimate of unit thickness; however, based on exposure in surrounding mapped areas the Creston Formation may range from 1000-1500 metres thick (Reesor, 1983). The Upper Creston does not extend laterally from the east into the western limb; in the west the Middle Creston continues conformably up into the overlying Kitchener Formation platformal carbonates.

The Lower Kitchener Formation has a wide range of lithologies, all thinly interbedded in different combinations (all beds are a few centimetres or less in thickness), consisting of grey to white dolomites, green to grey to black to silvery phyllites, brown weathering carbonates, and white quartzites. The Middle Kitchener consists of laminated black and grey phyllite and siltstone, and though it has been described as not containing any carbonate units along the western limb of the anticlinorium (Reesor, 1983), the 2011 mapping program identified some minor dolomite with interbedded limestone and micaceous laminations within the Middle Kitchener (Section 2.2.1). The Upper Kitchener consists of a succession of thinly bedded, locally carbonate-bearing, silvery to dark grey phyllites and dolomites which transition up into interbedded cream-colored dolomite (stromatolite mounds are locally preserved; Reesor, 1983) and fine-grained white quartzite. An estimated thickness for the entire Kitchener Formation is approximately 1800 metres, including a thickness of ~250 metres for each of the Middle and Upper Kitchener subdivisions (Reesor, 1983).

Upper Purcell Supergroup

The Upper Purcell Supergroup in the area consists of the Dutch Creek and Mount Nelson Formations. The Dutch Creek Formation occurs conformably and abruptly above the Kitchener Formation (Figure 3). The Lower Dutch Creek is dominated by thinly bedded black and grey phyllite and siltstone, with rare carbonate and quartz-rich sandstone interbeds. There is a gradual transition into the overlying rocks of the Upper Dutch Creek, which also comprise interbedded grey to black siltstone, black phyllite, with rare thin carbonate-bearing siltstone beds towards the top of the unit. Locally there exists a distinctive metre-scale thick quartzite bed at the lower portion of the Upper Dutch Creek. The contact with the overlying Mount Nelson Formation is marked by a section of more massive siltstone and quartzite in beds much thicker than seen elsewhere in the Dutch Creek (Reesor, 1983). The true thickness of the Dutch Creek Formation is virtually impossible to determine based on the intensity of folding and faulting that it exhibits in the area, however a maximum thickness of 2400 metres is proposed near La France Creek, although in reality the true thickness may be much less (Reesor, 1983).

The Mount Nelson Formation is subdivided into four distinctive units, the total thickness of which is approximately 1200 metres, with individual units ranging from 250 to 350 metres (Reesor, 1983). The lowermost unit, Mount Nelson 1, comprises thickly bedded white to grey to green quartzite with rare phyllitic laminations, and is found directly above a distinctive quartzitic section of the Upper Dutch Creek. The Mount Nelson 2 unit lies conformably and abruptly over the Mount Nelson 1, and comprises brown weathering carbonate with interbedded black and grey phyllite and siltstone, and local quartzite and sandstone interbeds. Mount Nelson 3 is a thin to medium-bedded unit of black to grey phyllite and siltstone which gradationally overlies the Mount Nelson 2 unit. The uppermost subdivision of this formation, the Mount Nelson 4, is dominated by a medium-bedded, cream to brown weathered, white dolomite, with local thin laminations of green to black phyllite, lying gradationally over Mount Nelson 3 (Reesor, 1983).

2.1.2 Neoproterozoic

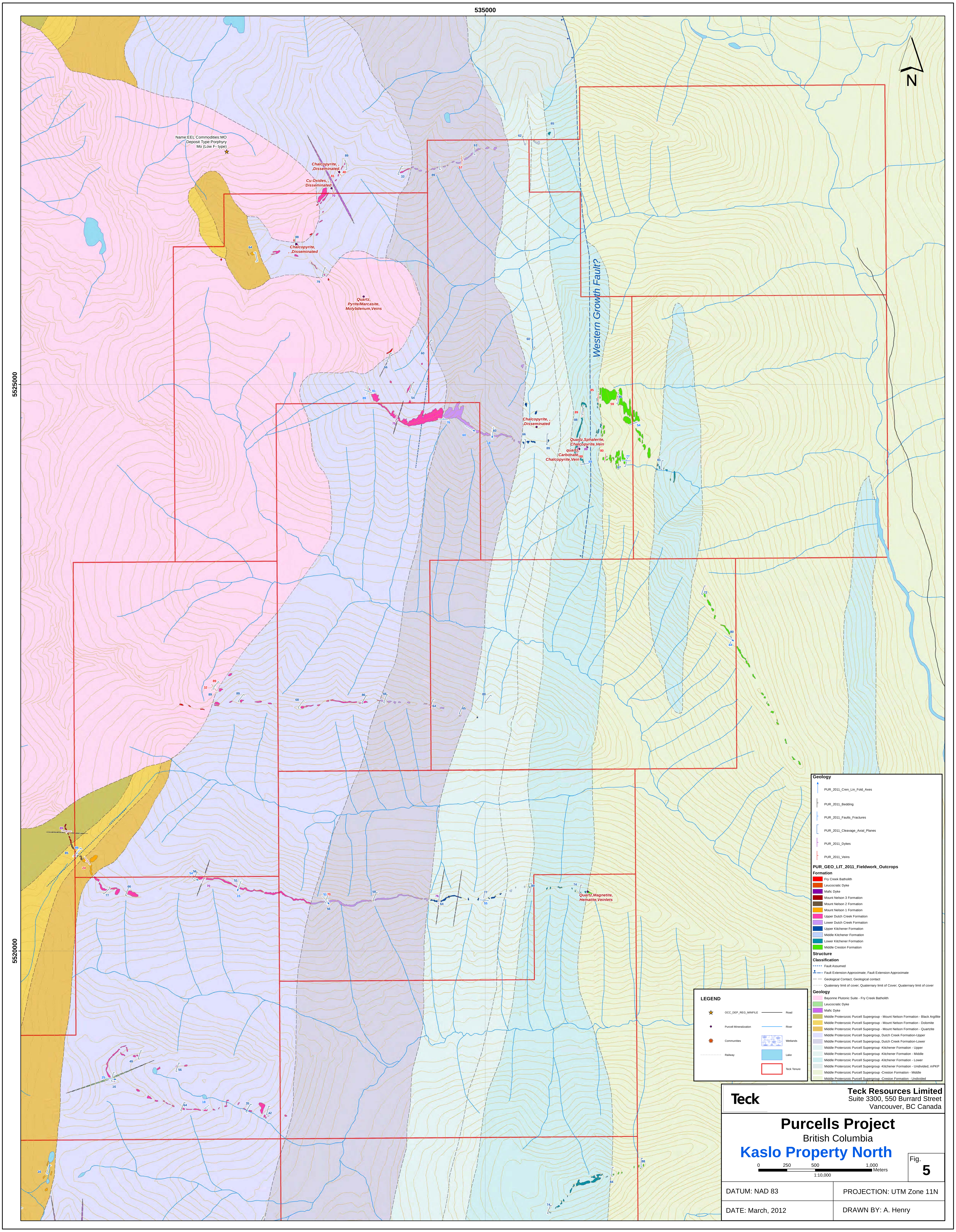
Windermere Supergroup

The onset of deposition of the Windermere Supergroup, which lies unconformably over the Upper Purcell Supergroup, is marked by the Goat River Orogeny in the Neoproterozoic (900-800 Ma; Lydon, 2007). The Toby Conglomerate of the Windermere Supergroup (Figure 3) is a polymictic basal conglomerate/tillite which developed to the north of the major NE-trending Moyie and St. Mary faults, indicating a time of major extension and movement along these growth faults. There was approximately 10-12 kilometres of movement along this fault system during the Proterozoic (T. Höy, pers. comm.). In different localities, the Mount Nelson 4 unit is variably preserved under the Toby Conglomerate; sometimes it only exists as a few thin beds, and in other areas it has been completely eroded away (Reesor, 1983). Clasts in the Toby Conglomerate consist mainly of quartzite and dolomite, within a matrix varying from quartzite to pelite to carbonate. Thickness of the unit varies from 10's of metres to as much as 700 metres, and both clast and matrix compositions are directly correlated to the lithologies found immediately below the basal unconformity. Overlying the conglomerate are the rocks of the Horsethief Creek Group, which vary in composition from phyllite to schist to quartzite to limestone/marble (Reesor, 1983).

2.1.3 Mesozoic

The Purcell anticlinorium was formed during Mesozoic contraction, when imbricate thrust faults carried up to 15 kilometres of Belt-Purcell and Paleozoic margin sedimentary rocks eastward on the basal decollement of the Rocky Mountain foreland thrust and fold belt (Cook and Van der Velden, 1995). The west flank of the Purcell anticlinorium is characterized by moderate to steeply dipping structures associated with the accretion of Quesnellia, a late Paleozoic-Jurassic terrane, to the western margin of North America during the Jurassic and Early Cretaceous (Cook and Van der Velden, 1995). This convergence resulted in the Late Jurassic-Cretaceous (Paleocene?) orogeny, 160-60 Ma, and involved a significant component of NW-SE shortening (Price and Sears, 2000). The Belt-Purcell basin underwent a tectonic inversion and was telescoped by these thrust faults, which young to the east (T. Höy, pers. comm.). At the Sullivan deposit, D1 and D2 structures potentially correlate with the regional development of the Purcell anticlinorium. The orientations of structural features suggest a similar stress field, so they may be closely associated in time (Höy et al., 1981).

There was widespread Mid Cretaceous granitic magmatism which intruded the rocks of the anticlinorium. The Fry Creek Batholith east of upper Kootenay Lake is one of these intrusions, and is a leucocratic granite consisting predominantly of equal parts feldspar, plagioclase, and quartz. It is equigranular, fine to medium grained, with less than 5% biotite on average (Reesor, 1983). Young mafic dykes, typically <2 metres wide (but ranging in width from <1 to ~10 metres), are recognized across the area. Dykes are dark grey to dark green, medium to finely crystalline, massive, equigranular, magnetic, commonly pervasively chloritized, basaltic in composition, and commonly display quartz+/-Cu oxide veins along their margins. They are found crosscutting the entire sequence of Purcell and Windermere Supergroup rocks.


535000
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Mo (Low F- type)
Chalcopyrite, ,Disseminated
Cu Oxides, ,Disseminated
Chalcopyrite, ,Disseminated
Quartz, Pyrite/Marcasite, Molybdenum,Veins
Western Growth Fault?
Chalcopyrite, ,Disseminated
Quartz,Sphalerite, Chalcopyrite,Vein
quartz, Carbonate, Chalcopyrite,Vein
Quartz,Magnetite, Hematite,Veinlets
Geology
PUR_2011_Cren_Lin_Fold_Axes
PUR_2011_Bedding
PUR_2011_Faults_Fractures
PUR_2011_Cleavage_Axial_Planes
PUR_2011_Dykes
PUR_2011_Veins
PUR_GEO_LIT_2011_Fieldwork_Outcrops
Formation
Fry Creek Batholith
Leucocratic Dyke
Mafic Dyke
Mount Nelson 3 Formation
Mount Nelson 2 Formation
Mount Nelson 1 Formation
Upper Dutch Creek Formation
Lower Dutch Creek Formation
Upper Kitchener Formation
Middle Kitchener Formation
Lower Kitchener Formation
Middle Creston Formation
Structure
Classification
Fault Assumed
Fault Extension Approximate; Fault Extension Approximate
Geological Contact; Geological contact
Quatenary limit of cover; Quaternary limit of Cover; Quaternary limit of cover
Geology
Bayonne Plutonic Suite - Fry Creek Batholith
Leucocratic Dyke
Mafic Dyke
Middle Proterozoic Purcell Supergroup - Mount Nelson Formation - Black Argillite
Middle Proterozoic Purcell Supergroup - Mount Nelson Formation - Dolomite
Middle Proterozoic Purcell Supergroup - Mount Nelson Formation - Quartzite
Middle Proterozoic Purcell Supergroup, Dutch Creek Formation-Upper
Middle Proterozoic Purcell Supergroup, Dutch Creek Formation-Lower
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Upper
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Middle
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Lower
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Undivided; mPKP
Middle Proterozoic Purcell Supergroup -Creston Formation - Middle
Middle Proterozoic Purcell Supergroup -Creston Formation - Undivided
LEGEND
OCC_DEP_REG_MINFILE
Purcell Mineralization
Communities
Railway
Road
River
Wetlands
Lake
Teck Tenure
Teck
Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada
Purcells Project
British Columbia
Kaslo Property North
Fig.
5
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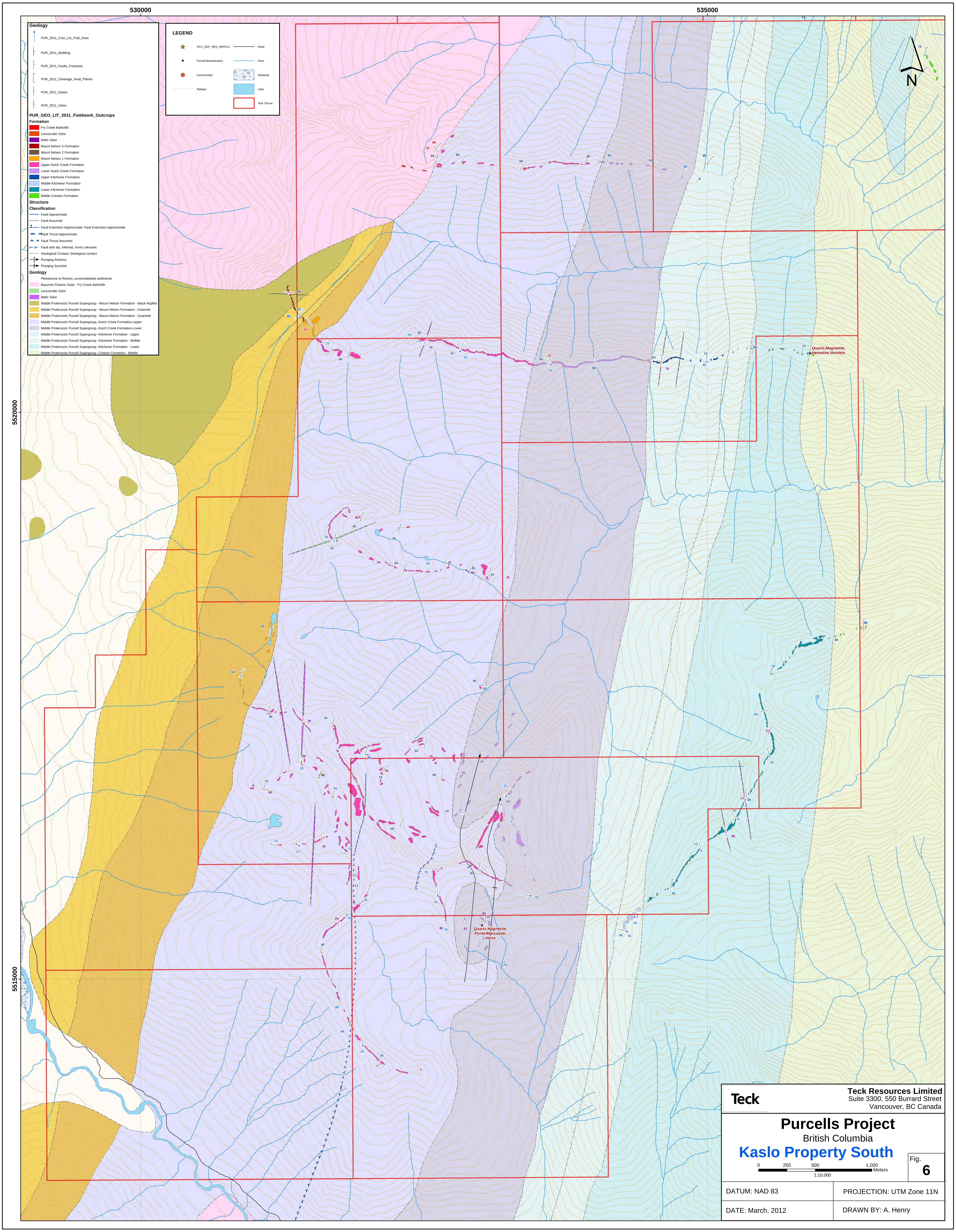
1:10,000
DATUM: NAD 83
PROJECTION: UTM Zone 11N
DATE: March, 2012
DRAWN BY: A. Henry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PUR_2011_Bedding
PUR_2011_Faults_Fractures
PUR_2011_Cleavage_Axial_Planes
PUR_2011_Dykes
PUR_2011_Veins
PUR_GEO_LIT_2011_Fieldwork_Outcrops
Formation
Fry Creek Batholith
Leucocratic Dyke
Mafic Dyke
Mount Nelson 3 Formation
Mount Nelson 2 Formation
Mount Nelson 1 Formation
Upper Dutch Creek Formation
Lower Dutch Creek Formation
Upper Kitchener Formation
Middle Kitchener Formation
Lower Kitchener Formation
Middle Creston Formation
Structure
Classification
Fault Approximate
Fault Assumed
Fault Extension Approximate; Fault Extension Approximate
Fault Thrust Approximate
Fault Thrust Assumed
Fault with dip, Inferred, mvmt unknown
Geological Contact; Geological contact
Plunging Anticline
Plunging Syncline
Geology
Pleistocene to Recent, unconsolidated sediments
Bayonne Plutonic Suite - Fry Creek Batholith
Leucocratic Dyke
Mafic Dyke
Middle Proterozoic Purcell Supergroup - Mount Nelson Formation - Black Argillite
Middle Proterozoic Purcell Supergroup - Mount Nelson Formation - Dolomite
Middle Proterozoic Purcell Supergroup - Mount Nelson Formation - Quartzite
Middle Proterozoic Purcell Supergroup, Dutch Creek Formation-Upper
Middle Proterozoic Purcell Supergroup, Dutch Creek Formation-Lower
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Upper
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Middle
Middle Proterozoic Purcell Supergroup -Kitchener Formation - Lower
Middle Proterozoic Purcell Supergroup -Creston Formation - Middle
LEGEND
OCC_DEP_REG_MINFILE
Road
Purcell Mineralization
River
Communities
Wetlands
Railway
Lake
Teck Tenure
N
Quartz,Magnetite,
Hematite,Veinlets
Quartz,Magnetite,
Pyrite/Marcasite,
Veins
Teck
Teck Resources Limited
Suite 3300, 550 Burrard Street
Vancouver, BC Canada
Purcells Project
British Columbia
Kaslo Property South
Fig.
6
0
250
500
1,000
Meters
1:10,000
DATUM: NAD 83
PROJECTION: UTM Zone 11N
DATE: March, 2012
DRAWN BY: A. Henry

The youngest deformational event to affect the Belt-Purcell rocks is prevalent extension in the Tertiary. The Purcell anticlinorium is cut by both NW- and NE-trending faults displaying evidence for normal-sense displacement (reactivation) late in the tectonic history (Cook and Van der Velden, 1995). Host rocks to the Sullivan deposit have been displaced approximately 10 kilometres southwestward relative to the North American craton by early Tertiary crustal extension (Price and Sears, 2000).

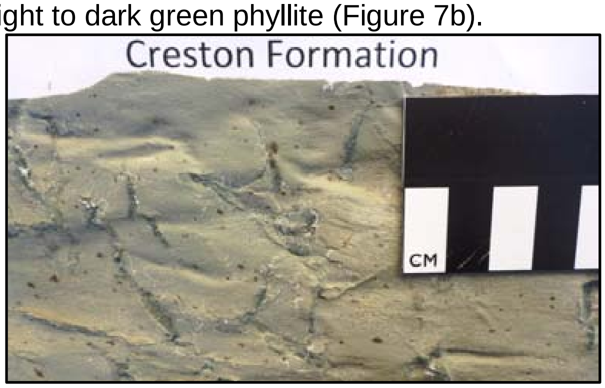
2.2 Property Geology

The Kaslo property is underlain by Upper and Middle Proterozoic clastic and carbonate units found along the western limb of the Purcell anticlinorium. The west limb has seen significantly less exploration and historical work than either the eastern limb or the core of the anticlinorium, thus the descriptions of the stratigraphic succession are less detailed than those for the eastern limb. There are also lateral facies changes within stratigraphic horizons, which do not always correlate between the limbs (c.f. Reesor, 1983 and Höy, 1993). Overall, the stratigraphy on the Kaslo property dips moderately to the west, is pervasively folded on mm- to m-scales, and comprises rocks from the Middle Creston Formation up through the Mount Nelson Formation. The stratigraphic sequence is cut by several inferred W-dipping faults, the northernmost one of which is likely the Western Growth fault (Figure 5), a major syn-sedimentary fault and potential feeder structure for Pb-Zn mineralization (i.e. “Dutch Creek syn-sedimentary fault” of Lydon, 2010). The Fry Creek batholith is a major Cretaceous intrusion in the northwestern corner of the property. The detailed lithologic descriptions and photos presented here are products of the 2011 mapping program.

2.2.1 Middle Purcell Supergroup

Creston Formation

The Creston Formation was deposited in a shallow-water to sub-aerial environment and has been described on the eastern limb of the anticlinorium by Höy (1993) as green, mauve, and grey siltstone, argillite, and quartzite; the siltstone locally exhibiting mud cracks (Figure 7a). This formation has three main subdivisions but only the Middle Creston was mapped on the Kaslo property (Table 2). It is composed of white to light grey and green quartzite +/- phyllite laminations (up to 40% of the total rock volume) with rare dolomite or siltstone beds, light grey to light green fine sandstone to siltstone, and light to dark green phyllite (Figure 7b).



7a. Light green Creston Formation: siltstone with mud cracks, taken from the eastern limb of the Purcell anticlinorium

7b. Green laminated Creston Formation: fine to very fine sandstone, siltstone, and phyllite

Figure 7. Photos of Creston Formation.

Middle Creston Fm	quartzite	white to light grey or light green, competent to cleaved, commonly containing ≤10% phyllitic laminations (frequently green), rare dolomitic or siltstone beds
	fine to very fine sandstone and siltstone	light to medium grey green, micaceous banding composing ≤20% of the rock
	phyllite	light green to dark green

Table 2. Lithologic descriptions of the Creston Formation.

Kitchener Formation

The Kitchener Formation is split into four subunits: Upper, Middle, Lower, and undivided (Table 3).

The Lower Kitchener is composed mostly of pale to dark grey, rarely green or buff, fine grained sandstone to siltstone interbedded with phyllite (Figure 8a). Also present are light green/grey to medium grey quartzite beds +/- phyllitic laminations or dolomite beds, and typically dark grey to black or green phyllite, with mm-scale quartz-rich laminations. Carbonate units in the Lower Kitchener Formation are commonly white to light grey/buff dolomite interbedded with maximum 50% limestone, 30% phyllite, or 20% fine sandstone.

The Middle Kitchener Formation is dominated by laminated light grey to black phyllite and fine sandstones (Figure 8b), with occasional pale quartzite beds (mm- to cm-scales) and minor dolomite with interbedded limestone and micaceous laminations.

Upper Kitchener siliciclastic lithologies are dominated by interbedded green/grey quartzite and phyllite (Figure 8c, similar to those described for the Lower Kitchener, c.f. laminated sample in Figure 8a); fine sandstone beds are less prevalent. Dolomite is common in the Upper Kitchener, often interbedded with quartzite (Figure 8d), and is more abundant than limestone.

The lithologies described above are also typical of the “undivided” Kitchener Formation subunit, with quartzite and phyllite as the most abundant lithologies mapped in the field. Along the western limb of the anticlinorium, certain exposures of the Kitchener Formation lie within the biotite zone of metamorphism.

8a. Dark grey and buff Lower Kitchener laminated phyllite and siltstone

8b. Middle Kitchener light grey phyllite

8c. Light and dark grey laminated Upper Kitchener quartzite and phyllite

8d. Upper Kitchener interbedded buff dolomite and quartzite (width of photo is ~3m)

Figure 8. Photos of Kitchener Formation.

Upper Kitchener Fm	quartzite	light grey green, medium bedded, with phyllitic (5-30%)>dolomitic>siltstone laminations (mm- to cm-scale), can appear similar to Creston Fm
	limestone	Light grey, laminated, interbedded on decametre-scale with a buff weathered dolomite conglomerate (gravel to cobble-sized clasts elongated parallel to bedding)
	dolomite	recessive weathering, massive to bedded, buff to white to light grey, +/- phyllitic or quartzite laminations, rarely occurring as clasts within 2m bed of conglomerate
	dolomitic quartzite	with phyllitic laminations, +/- mm- to dm-scale dolomitic beds
	fine sandstone	white to cream-coloured with phyllitic laminations
	phyllite	light grey green through to black phyllite, interbedded with mm- to dm-scale quartz-rich laminae (~15%)
Middle Kitchener Fm	quartzite	white to light grey or green to medium grey, pale grey weathering, mm- to cm-scale beds, commonly with phyllitic laminations, rarely massive, commonly bearing magnetite and/or biotite (up to 10%)
	phyllite	light grey to black +/- green tint, can be interbedded with quartzite (up to 40%), dolomite, or argillite, mm-scale laminae
	fine to very fine sandstone	light grey to dark grey +/- green tint, +/- phyllitic laminations
	dolomite	with limestone interbeds and micaceous laminations
	medium sandstone	dark grey
Lower Kitchener Fm	fine sandstone	mid grey to brown weathering, light grey to black +/- green tint, mm-scale laminations of phyllite and siltstone
	phyllite	light green to medium grey to black, +/- quartz-rich and/or green or black phyllitic mm-scale laminations, rare biotite crystals

	quartzite	light green grey to medium grey, commonly with phyllitic laminations, or interbedded with dolomite, grey quartzite or grey/black/green phyllite, quartzite commonly constitutes at least 50% of the rock, can also be massive
	dolomite	buff to white, fine to medium grained, massive or with quartz-rich layers, or light green phyllite (up to 40% of the rock in cm-scale beds)
	very fine sandstone	dolomitic with phyllitic laminations
	siltstone to mudstone	dark grey/green, with mm- to cm-scale phyllitic laminations, mudstone has slatey cleavage
	medium sandstone	green
	limestone	with phyllitic laminations and sandstone beds
Kitchener Fm – undivided	quartzite	white to medium grey, can be massive or interbedded with phyllitic laminations or dolomitic layers (dm- to m-scale beds) or have a dolomitic matrix
	fine and minor very fine sandstone	dark grey green, quartz-rich, phyllitic laminations (mm-scale), +/- white quartzite laminae (dm-scale)
	phyllite	light to dark grey, +/- green tint, pale buff weathering, units can be >3m thick, interbedded with phyllitic dolomite, and rare schistose patches
	dolomite	dark to medium grey, pale grey buff weathering, can be medium bedded, +/- interbedded with white fine sandstone and green phyllite
	dolomitic quartzite	medium bedded with phyllitic laminations
	coarse sandstone	massive, rare phyllitic laminations

Table 3. Lithologic descriptions of the Kitchener Formation.

2.2.2 Upper Purcell Supergroup

Dutch Creek Formation

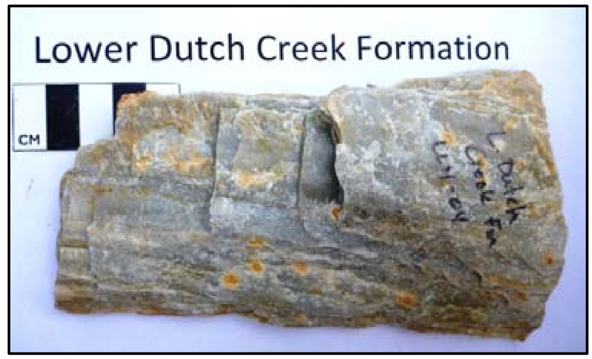
The Dutch Creek Formation is split into three subunits: Upper, Lower, and undivided. In contrast to the Kitchener Formation, Dutch Creek carbonate units are relatively rare. Light grey to black (less commonly green) phyllite composes the majority of mapped Lower Dutch Creek units (Figure 9a). It is typically laminated on mm- to cm-scale with quartz-rich or rare argillite or phyllite beds. Rusty weathering and Fe-oxide veinlets parallel to cleavage are common. Up to 50% phyllite laminations also occur in the typically grey/green fine to very fine sandstone and light grey/buff quartzite (Figure 9b).

There is a gradual transition into the overlying rocks of the Upper Dutch Creek Formation, which is also dominated by interbedded light grey to black phyllite with fine sandstone/siltstone interbeds (Figure 9c). Locally there exists a distinctive metre-scale thick quartzite bed at the lower portion of the Upper Dutch Creek.

Light grey to black and green phyllite and light to medium grey quartzite are the most common lithologies in the undivided Dutch Creek unit, with occasional fine sandstone interbeds (Figure 9d). These rock types are interbedded on mm- to cm-scale. Dolomite is less common, and is almost solely confined to the undivided Dutch Creek Formation (Table 4). These buff/light grey units can be quartz-rich +/- phyllitic laminations.

The Dutch Creek Formation is intensely deformed and lies partly within both the biotite and garnet zones of regional metamorphism (Figures 9e and f). Biotite and pink/red garnet porphyroblasts are commonly concentrated along planar cleavage.

9a. Lower Dutch Creek black and silvery phyllites displaying crenulation lineations on S2 cleavage face



9b. Light grey Lower Dutch Creek quartzite with light grey phyllitic partings (in the plane of the page)

9c. Light grey Upper Dutch Creek phyllite

9d. Laminated Dutch Creek (undiv) fine sandst.

9e. Small biotite porphyroblasts in light grey phyllite of Upper Dutch Creek

9f. Garnet porphyroblasts with biotite coronas in pale grey Lower Dutch Creek phyllite

Figure 9. Photos of Dutch Creek Formation.

Upper Dutch Creek Fm	quartzite	light grey/green to medium grey, can have mm- to rare dm-scale phyllitic laminations (up to 40% of the rock), or be schistose or massive, rare interbedded dolomitic beds, +/- magnetite, +/- secondary biotite, can show rusty weathering
	phyllite	light to dark grey/green with quartz-rich or biotite-rich laminations, mm- to dm-scale, can be overall biotite-rich with rare garnet porphyroblasts, can be pervasively altered to hematite
	fine to medium or very fine sandstone	white to light grey/green to medium grey, micaceous with phyllitic laminations (up to 40% of the rock), rarely displays up to 30% biotite?/garnet?/andalusite porphyroblasts
Lower Dutch Creek Fm	phyllite	light green/grey to dark grey, commonly with sandstone, quartzite +/- black argillite laminae (mm- to cm-scale) making up 10-40% of the rock, commonly biotite-rich with rare garnet porphyroblasts, rusty weathering common, can be pervasively replaced by hematite
	fine sandstone	with rare very fine or medium sandstone, light green/grey to dark grey, quartz-rich, typically with dark grey phyllite, argillite, or quartzite laminations (dark/pale laminations on mm-scale), rare porphyroblasts (biotite? garnet? up to 15% of the rock), pale grey to rusty weathering
	quartzite	white to buff to medium grey in colour, commonly green due to phyllite laminae which constitute 5-40% of the rock +/- up to 10% disseminated magnetite
Dutch Creek Fm - undivided	phyllite	light to dark grey +/- light green tint, pale grey weathering, can be interbedded with quartz-rich laminae (~ 10-20% of rock), +/- dolomite beds
	quartzite	60% quartzite, 40% pale grey/green +/- up to 40% phyllitic laminations
	fine sandstone/ very fine sandstone	quartz-rich, light to dark grey +/- light green tint, +/- dark and light mm-scale phyllitic laminations
	dolomite	buff to light grey, buff weathered, +/- minor phyllitic partings and laminations on mm-scale
	mudstone	dark grey with phyllitic laminations
	siltstone	light to dark grey/green micaceous, indurated, laminated on mm-scale

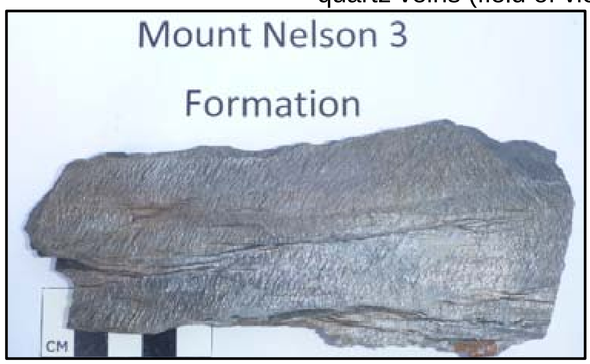
Table 4. Lithologic descriptions of the Dutch Creek Formation.

Mount Nelson Formation

This formation is sub-divided into four units, Mount Nelson Formations 1 to 4, each with fairly distinctive lithologies, but only Mount Nelson 1 through 3 were mapped on the Kaslo property (Table 5). Mount Nelson 1 is a massive white to light grey to light green quartzite which displays minor phyllite laminations (Figure 10a). Mount Nelson 2 has the widest range of lithologies, encompassing dark grey, thinly bedded phyllite, brown quartzite, dark green to mauve-brown, laminated fine sandstone, and buff dolomite (Figure 10b). Mount Nelson 3 is typically dark grey to black phyllite with quartz-rich laminations and rare dark grey dolomitic quartzite (Figure 10c).

10a. Medium grey Mount Nelson 1 quartzite

10b. Mount Nelson 2 buff colored dolomite with quartz veins (field of view ~1m)



10c. Dark grey Mount Nelson 3 phyllite

Figure 10. Photos of Mount Nelson Formation.

Mount Nelson 3 Fm	phyllite	dark grey to black, with pale/dark laminations of quartz-rich beds (up to 40% of the rock)
	dolomitic quartzite	dark grey, interbedded with grey fine sandstone
Mount Nelson 2 Fm	phyllite	dark grey, mm- to cm-scale compositional banding
	dolomite	buff, interbedded with fine sandstone
	quartzite	brown, interbedded with stromatolitic? dolomite on m-scale
	fine sandstone	dark green to mauve-brown, minor phyllitic laminations
Mount Nelson 1 Fm	quartzite	white to medium grey, +/- green tint, with minor phyllitic laminations, rare mafic mineral grains, commonly massive
	fine sandstone	light grey green, pale/dark laminations on a mm scale

Table 5. Lithologic descriptions of the Mount Nelson Formation.

2.2.4 Intrusive rocks (Cretaceous)

Mafic dykes

Several mafic dykes typically <2 metres wide (but ranging in width from <1 to ~10 metres) are recognized on the Kaslo property (Figures 5 and 6). Dykes are dark grey to dark green, medium to finely crystalline, massive, equigranular, magnetic, commonly pervasively chloritized, basaltic in composition, and commonly display quartz+/-Cu oxide veins along their margins. Dykes are predominantly found along bedding planes and/or parallel to the regional cleavage (Section 4).

Fry Creek Batholith

There was widespread Mid Cretaceous granitic magmatism which intruded the rocks of the Purcell anticlinorium. The Fry Creek Batholith east of upper Kootenay Lake is one of these intrusions, and is a leucocratic granite consisting predominantly of equal parts feldspar, plagioclase, and quartz. It is equigranular, fine to medium grained, with less than 5% biotite on average (Reesor, 1983). The Fry Creek Batholith covers the northwestern corner of the Kaslo property; however, intrusive rocks were not a focus of the 2011 program and were mapped only in respect to their influence on the host rock.

2.3 Structural Geology

Table 6 provides a correlation of different ductile deformational events and structures predominantly for the western limb of the Purcell anticlinorium described within several internal Cominco reports (Callan, 1990; Hawkins, 1991; Ransom and Anderson, 1993) and mapping done for the government in the early 80's (Reesor, 1983). These observations are compared to some general observations for the eastern limb (Höy et al., 1981). Movement along faults in the area has not been assigned here to specific deformational episodes; there have been multiple episodes of reactivation along N-S, NE- and NW-trending faults (starting with the initial Paleoproterozoic rifting event) which complicate the deformational history and preclude assigning deformational stages to fault sets at this point. In addition to the historic work, observations from the 2011 field program (including mapping done on four nearby Teck claims: Rose, Gray, Crawford, and Snowcrest) have been included and correlated with the most likely deformational stage (Table 6, purple highlighted column). These are discussed in Section 4.

The Purcell Supergroup rocks on the western limb of the Purcell anticlinorium generally dip to the west, with many repetitions and omissions due to isoclinal folding and faulting oriented sub-parallel to the strike of the formations. Faulting in the region is dominated by a set of west-dipping, roughly N-S trending reverse faults. All formations exhibit open to isoclinal folding on cm-scale to several 10's of metres, which are parasitic on doubly plunging, NNW-SSE trending, km-scale folds that control the overall geometry of the Purcell anticlinorium. The geometry of folding is largely dependent on rock type, with open folds developing in thickly bedded and/or coarse clastic units and tighter folds developing in thinly bedded, finer grained clastic and carbonate units. Examples of inhomogeneous strain across sedimentary contacts between units with markedly different competencies are common, and folding typically becomes more complex adjacent to sedimentary-intrusive contacts (Hawkins, 1991).

These N- to NNW-trending, doubly plunging folds are observed at all scales, and are assigned to the D1 and D2 deformational episodes (Table 6). D1 and D2 are here correlated to two separate deformational events during the Jurassic-Cretaceous orogeny (160-60 Ma age; e.g. Cook and Van der Velden, 1995). Folds commonly verge westward, with steep to overturned east limbs, and moderate to steeply dipping west limbs; this is opposite to the east-vergent folds observed at the Sullivan deposit on the eastern limb of Purcell anticlinorium (e.g. Höy et al., 1981; Table 6). Cleavage is very well developed in the area across most lithologies, ranges from N- to NW-trending, with moderate to steep eastward and westward dips, and is referred to as S1 and S2 in internal Cominco reports depending on local overprinting relationships (Hawkins, 1991; Ransom and Anderson, 1993). The timing of this cleavage development likely corresponds with the development of W-dipping axial planar cleavage and N-trending fold axes on the eastern limb of the Purcell anticlinorium (e.g. Höy et al., 1981; Table 6).

Locally, a W- to WNW-trending “cross folding” has been observed on a smaller scale than the regional S2 cleavage (Reesor, 1983; Ransom and Anderson, 1993), which is attributed here to a younger deformational event (D3), potentially the Cretaceous-Paleogene orogeny (Table 6). At Sullivan, F3 fold axes plunge variably to the NW or SE and the “cross folds” on the western limb of the anticlinorium are described as oriented W to WNW, which may be slightly different variations of the same regional deformation. The dominant N-S trending reverse faults in the area appear to be truncated by Mid Cretaceous intrusions such as the Bayonne Batholith (e.g. Reesor, 1983), indicating that, at least to the west of the Moyie Fault, thrusting and folding within the Belt-Purcell rocks had ended by this time (Price and Sears, 2000). On the eastern limb of the anticlinorium at Sullivan, D3 folds associated with low angle, E-dipping thrusts are found to offset early Cretaceous dykes, which suggests that the D3 deformational event occurred regionally sometime between these two early and Mid Cretaceous intrusive events.

D4 is represented by a second set of crenulation lineations mentioned briefly in the internal Cominco 1992 Recce report (Ransom and Anderson, 1993) but not referred to in any other reports to the author’s knowledge.

The youngest deformational event to affect the Belt-Purcell rocks is prevalent extension in the Tertiary. The Purcell anticlinorium is cut by both NW- and NE-trending faults displaying evidence for normal-sense displacement (reactivation) late in the tectonic history (Cook and Van der Velden, 1995). Host rocks to the Sullivan deposit have been displaced approximately 10km southwestward relative to the North American craton by early Tertiary crustal extension (Price and Sears, 2000).

2.4 Mineralization

There are no Minfile occurrences on the Kaslo property and to the best of the author’s knowledge there are no documented mineralized showings. Section 4 describes observations from the 2011 mapping program.

Deformational episode	2011 Teck Mapping Program (west limb)	Akokli Creek (southern area, west limb)	Baker Creek (central area, west limb)	Sawyer Creek (northern area, west limb)	West limb	Wall-Dave showing (west limb)	West limb	Sullivan (east limb)
	this report	Ransom and Anderson, 1993	Ransom and Anderson, 1993	Ransom and Anderson, 1993	Hawkins, 1991	Callan, 1990	Reesor, 1983	Hoy et al., 1981
D0	*S0*		*S0*	*S0*		*S0*		
	average NNE and SW striking bedding, moderate to steeply dipping (two limbs of regional D2 folds)		N-S trending, steep dips to E or W	W-dipping		NNW to NNE striking stratigraphy		
D1 Jurassic-Cretaceous orogeny	*S1*	*S1*	*S1*	*S1*	*S1*	*S1*	*S1*	*S1*
	average orientation 017/79, dm-scale cleavage	N-S trending continuous cleavage, 0.1mm scale, moderate to steep E-dipping, and steep W-dipping	N-S trending continuous cleavage, steep dips to E or W	pervasive	shear zones, N to NW trending, steeply dipping, folded by F2 and truncated by later, steep E-dipping brittle/ductile faults	axial surface concordant with general stratigraphy, axial planar cleavage also concordant with, and probably related to, bedding parallel cleavage	cleavage well-developed, moderately E-dipping	axial planes parallel to bedding on isoclinal folds (potentially Mesozoic contraction, during formation of anticlinorium, closely associated with D2 structures?)
			F1	*F1*		*F1*		*F1*
			Average 350-20	N-trending fold axes, isoclinal folds, limbs are approx. parallel to strike of formations		early, close to tight, cm- to m-scale folds, steep N and S plunging axes		isoclinal folds with N-trending fold axes, E-vergent folds (on the east limb of anticlinorium)
D2 Jurassic-Cretaceous orogeny	*S2*	*S2*	*S2*		*S2*	*S2*	*S2*	*S2*
	the dominant regional cleavage, trends NNW through NNE and dips steeply to both the E and W	N-S trending continuous or spaced cleavage, 5mm scale, moderate to steep E-dipping, and steep W-dipping	N-S trending continuous to spaced cleavage, steep dips to E or W		the only pervasive event, cleavage is regionally dominant, strikes N to NW and dips steeply to the W (locally rotated by subsequent deformation)	axial surfaces and closely spaced cleavage trend NW and dip moderately to E (commonly refolding bedding parallel S1 cleavage)	cleavage well-developed, moderately E-dipping	moderately W-dipping axial planes (potentially Mesozoic contraction, during formation of anticlinorium, closely associated with D1 structures?)
	F2		*F2*	*F2*	*F2*	*F2*		*F2*
	doubly plunging folds, fold axes display shallow plunges to both the NNW and SSW, average orientations are 357-16 and 185-24		Average 350-20	shallow plunge to the SW	folds earlier (D1) shear zones, usually upright or NEsterly overturned, open folds in thickly bedded and/or coarse clastics, tight folds in thinly bedded and fine-grained units	ubiquitous F2 folds, mm- to 100m-scale, open to tight folds, shallow to moderate NW to NNW plunges		open folds with gentle N or S plunges, E-vergent folds (on the east limb of anticlinorium)

Table 6. Comparison of ductile deformational episodes for the western and eastern limbs of the Purcell anticlinorium. Work completed in 2011 highlighted in purple. Continued on next page.

Deformational episode	2011 Teck Mapping Program (west limb)	Akokli Creek (southern area, west limb)	Baker Creek (central area, west limb)	Sawyer Creek (northern area, west limb)	West limb	Wall-Dave showing (west limb)	West limb	Sullivan (east limb)
	this report	Ransom and Anderson, 1993	Ransom and Anderson, 1993	Ransom and Anderson, 1993	Hawkins, 1991	Callan, 1990	Reesor, 1983	Hoy et al., 1981
D3 Cretaceous-Paleogene orogeny	***S3***							***S3***
	crenulation cleavage, average orientation 061/87							steep axial planes
	F3?	***F3***		***F3***			***F3***	***F3***
	crenulations on S2 cleavage surfaces, fold axes plunge steeply to the W, average orientation is 280-70	crenulations		smaller scale "cross-folding" (?), axes (?) plunge W to NW			"cross folding, oriented commonly W to WNW", axes and axial planes?	fold axes plunge variably to NW or SE, folds associated with low angle, E-dipping thrust faults (which offset early Cretaceous dykes)
D4	***F4?***	***F4***						
	crenulations on S2 cleavage surfaces, fold axes plunge steeply to the ESE, average orientation is 112-56	crenulations						

Table 6 cont. Comparison of ductile deformational episodes for the western and eastern limbs of the Purcell anticlinorium. Work completed in 2011 highlighted in purple.

3 2011 Exploration Program

Geological fieldwork in 2011 included geological traverses and visits to several nearby Minfile occurrences. In addition to the mapping there were rock and stream sediment samples collected on or around the Kaslo property. However, for assessment purposes, only the geological mapping is discussed in this report. The goal of mapping and prospecting was to identify areas of potential sedex-style mineralization, including looking for possible feeder zones/structures allowing fluid flow, signs of alteration, and favorable lithologic and/or structural settings.

Late snow melt in the Purcell Mountains delayed the start of the field season until mid-July, although initial property visits were done over the course of a week in mid-June. Field work continued until September 18, 2011. Prospecting and mapping was completed at 1:10,000 scale using multiple mylar overlays on satellite images. All structural measurements were recorded using the 360° Right Hand Rule, and location coordinates recorded in UTM Zone 11, NAD 83.

4 2011 Exploration Results

Geological Mapping

Figures 5 and 6 are outcrop maps based on mapping during the 2011 program, including measured and inferred structural features. All lithological descriptions recorded during the mapping program are summarized in Section 2.2. Structural observations made by previous workers in the area were confirmed during the 2011 program, with slight local variations. A summary of the 2011 observations is found in the first column of Table 6, and these have been broadly correlated to the regional tectonic deformational events described in the literature (Section 2.3). The results presented in this report also include observations and measurements taken on four nearby Teck claims during the field season: the Rose, Gray, Crawford, and Snowcrest claims (Figure 1).

As described in Section 2.3, rocks on the western limb of the Purcell anticlinorium generally dip to the west, with many repetitions and omissions due to folding and faulting oriented sub-parallel to the strike of the formations. On all five Teck properties, the rock units exhibit open to isoclinal folding on cm-scale to several 10's of metres, which are parasitic on regional doubly plunging, NNW-SSE trending folds. These folds are assigned to the D1 and D2 deformational episodes which have historically been attributed to a similar regional stress regime (Table 6). Only one crosscutting example was observed which distinguished S1 from S2 cleavage; S1 averages 017/79 E and displays dm-scale spacing. S2 cleavage is the dominant structural element regionally and trends NNW through NNE with steep dips to both the E and W (Figure 11a). The doubly plunging nature of these D2 folds is evident in Figure 11b as two populations of shallowly plunging fold axes (F2): a shallow N-plunging population averaging 357-16 N and a shallow S-plunging population averaging 185-24 S. Younger events in the geological evolution of the area have taken advantage of the pre-existing planes of weakness (S1 and S2) in the rock package. Figures 11c and 11d display Cretaceous mafic dyke and vein orientations (both barren and Cu-bearing veins) taken across all five properties. Both dyke and veins are developed sub-parallel to the regional, pervasive cleavage, having exploited these pre-existing planes of weakness as fluid pathways. This highlights a potential regional structural control on mineralized systems.

Two different sets of crenulations are developed on S2 cleavage on all five properties, most commonly observed in fine-grained phyllitic clastic units (e.g. dark Lower Dutch Creek phyllites in Figure 9a, and Mount Nelson 3 phyllite in Figure 10c). A steep set of W-plunging crenulations was recorded during the 2011 program (F3 in Figure 11b) which averages 280-70 W and is attributed to the D3 deformational event (Table 6). These crenulations potentially correlate to the small scale "cross folds" reported by previous workers (Reesor, 1983; Ransom and Anderson, 1993). The second set of crenulations developed on S2 cleavage planes, and locally overprinting F3 lineations, plunge moderately to steeply to the east, with an average orientation of 112-56 E (F4 in Figure 11b). An internal Cominco report (Ransom and Anderson, 1993) mentions this crenulation set briefly, but does not provide any orientations (Table 6).

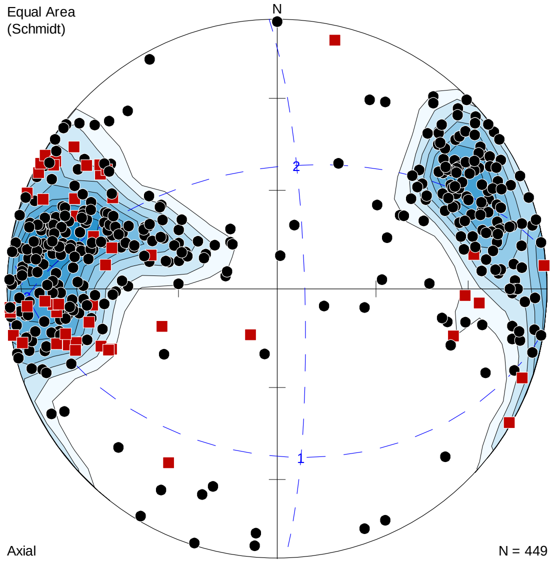
Large-scale N-S trending, W-dipping thrust faults are found throughout the area, which record a period of compression that brittlely offset, and which locally caused repetitions of, the previously folded stratigraphic sequence. These thrust faults have themselves been affected by prevalent extension in the Tertiary; the youngest deformational event to affect the Belt-Purcell rocks. The Purcell anticlinorium is cut by both NW- and NE-trending faults displaying evidence for normal-sense displacement (reactivation) late in the tectonic history (Cook and Van der Velden, 1995).

Small-scale, young, brittle faults and fracture sets were observed on all five of the properties during the 2011 program. There are three main populations of these steeply dipping brittle structures: an E-W-trending set, a NW-trending set, and a NE-trending set (Figure 11e).

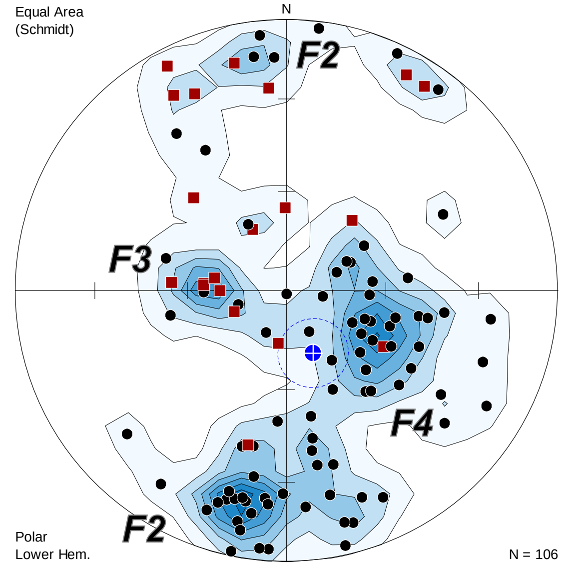
The stratigraphic sequence is cut by several inferred W-dipping faults, the northernmost one of which is likely the Western Growth fault (Figure 5), a major syn-sedimentary fault and potential feeder structure for Pb-Zn mineralization (i.e. "Dutch Creek syn-sedimentary fault" of Lydon, 2010). There was no indication for any major mineralizing events associated with this structure found during the 2011 mapping.

On the Kaslo property, Cu-bearing veins are commonly observed associated with mafic dykes crosscutting the Purcell Supergroup stratigraphy from the Middle Creston up through the shallow water clastics of the Dutch Creek Formation (Figures 5 and 6). These veins appear to correspond to the Cu vein sets described by Höy (1993) associated with Mesozoic intrusions; they do not appear economically significant. Veins comprise varying abundances of quartz-calcite-py-chpy-hem-mag-Cu oxides. They often display chloritized margins and are commonly spatially associated with the margins of medium crystalline, magnetic, chloritized basaltic dykes.

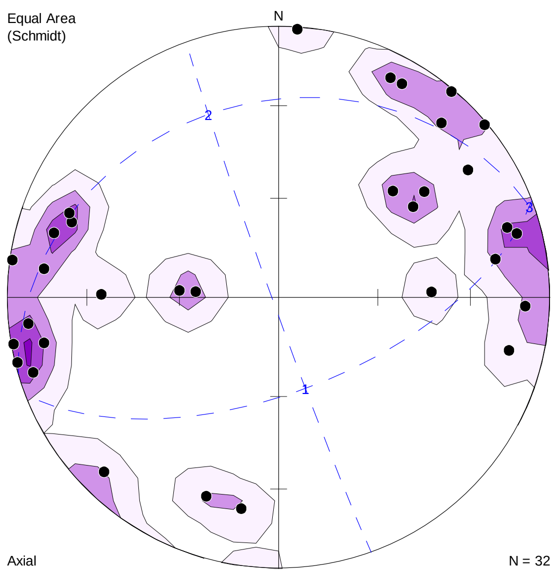
The Eel showing is a documented intrusion-related Mo occurrence situated approximately 500m to the northwest of the Kaslo property within the Cretaceous Fry Creek batholith (Figure 5). It was not located during the 2011 field season; however, a float sample of a quartz-py-moly vein was collected along a scree slope of the Fry Creek intrusive in the northwest corner of the Kaslo property.



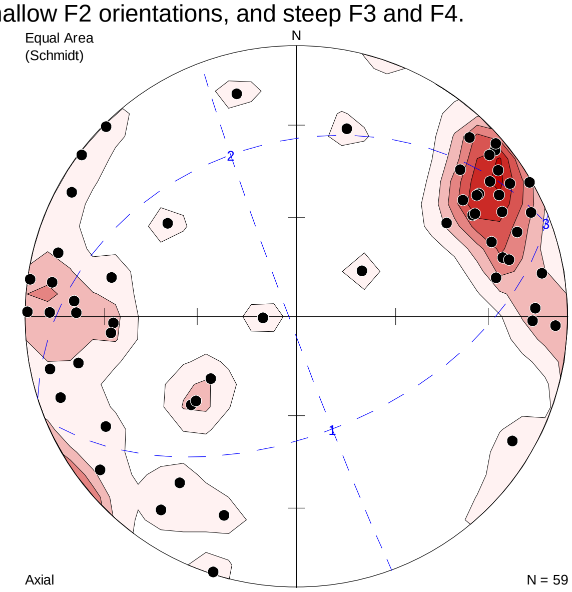
11a. Cleavage (black circles) and axial planar cleavage (red squares) across all five properties. (poles to planes)



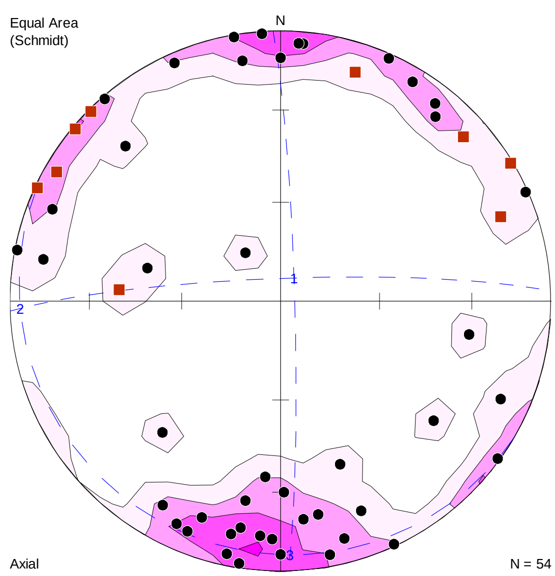
11b. Crenulation lineations (black circles) and fold axes (red squares). Four different populations: two shallow F2 orientations, and steep F3 and F4.



11c. Mafic dyke margins, observed on all properties except Crawford, are sub-parallel to regional cleavage (pre-existing planes of weakness). (poles to planes)



11d. Vein orientations, observed on all five properties, are sub-parallel to regional cleavage (pre-existing planes of weakness). (poles to planes)



11e. Brittle faults (red squares) and fracture planes (black circles) across all five properties. (poles to planes)

Figure 11. Stereonets of structural data collected during 2011 mapping program.

5 Conclusions and Recommendations

During the 2011 mapping and prospecting program on the Kaslo property, no indications of sedex-style mineralization were observed. Copper-bearing veins are found across the property associated with young mafic dykes, but they do not appear economically significant. No further work on the Kaslo property is recommended at this time.

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Appendix I – Statement of Qualifications

Amber Henry, M.Sc., B.Sc. Honours

I, Amber Henry, M.Sc., B.Sc. Honours, do hereby certify that:

- I am a Project Geologist currently employed by Teck Resources Ltd., 3300-550 Burrard Street, Vancouver, B.C., V6C 0B3 (business phone 604-699-4448)

- I am a graduate of the University of British Columbia, Canada, with a research based Masters of Science, completed in 2008.

- I am a graduate of the University of Alberta, Canada, with a Bachelor of Science with Honours in Geology, completed in 2002.

- I have been practicing my profession since graduation in 2002 as a geologist in Canada, the U.S., and Mexico.

- I was the project geologist at the Kaslo property in 2011, and that data contained in this report, and interpretations drawn from it, are true and accurate to the best of my knowledge.

Amber Henry, M.Sc., B.Sc. (Hon)

dated at Vancouver, British Columbia, Canada this 7 day of March, 2012

Appendix II – Statement of Costs

Kaslo 2011 Expenditures					
Exploration Work type	**Comment**	**Days**			**Totals**
Personnel	**Field Days**	**Days**	**Rate**	**Subtotal**	
Project Geologist	June 16 - Sept 18, 2012	40	$454.29	$18,171.60	
Geologist 1	June 16 - Sept 18, 2012	33	$415.43	$13,709.19	
Geologist 2	June 16 - Sept 18, 2012	44	$306.98	$13,507.12	
Geologist 3	June 16 - Sept 18, 2012	38	$295.22	$11,218.36	
Principal Geologist	June 16 - Sept 18, 2012	5	$724.38	$3,621.90	
				$60,228.17	**$60,228.17**
Office Studies	**List Personnel (Office only)**				
Literature search	Principal Geologist	1	$724.38	$724.38	
Database compilation	GIS Support	21	$356.83	$7,493.43	
General research	Project Geologist	10	$454.29	$4,542.90	
Report preparation	Project Geologist	4	$454.29	$1,817.16	
				$14,577.87	**$14,577.87**
Ground Exploration Surveys	**Area in Hectares/List Personnel**				
Geological mapping	8069.93 ha/4 geologists				
Regional		*note: expenditures here*			
Reconnaissance		*are captured in Personnel*			
Prospect		*field expenditures above*			
				$0.00	**$0.00**
Transportation		**No.**	**Rate**	**Subtotal**	
Airfare				$2,563.73	
Taxi				$1,181.16	
truck rental		36.33	$125.00	$4,540.86	
fuel				$661.64	
Helicopter (hours)		33.57	$1,634.81	$54,880.57	
Fuel (litres/hour)		33.57	$242.12	$8,127.97	
				$71,955.93	**$71,955.93**
Accommodation & Food	**Rates per day**				
Hotel and Rental House	actual costs			$4,973.54	
Meals	actual costs			$3,431.98	
				$8,405.52	**$8,405.52**
Miscellaneous					
Telecommunications				$1,423.77	
Office Supplies and Maps	Maps, prints, drafting, office supplies			$1,961.24	
				$3,385.01	**$3,385.01**
Equipment Rentals					
Field Gear (Specify)	Safety, mapping, prospecting, and first aid gear			$6,385.50	
				$6,385.50	**$6,385.50**
Field cost subtotal					**$90,131.95**
HST on field costs				HST (12%)	**$10,815.83**
Salary cost subtotal					**$74,806.04**
TOTAL Expenditures					**$175,753.83**