

Ministry of Energy & Mines
Energy & Minerals Division
Geological Survey Branch

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)]
Air Photo Lineament Study on the Vamp Property

TOTAL COST
\$2,142.32

AUTHOR(S): B. K. Bowen, P. Eng.

SIGNATURE(S): 

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

YEAR OF WORK: 2009

STATEMENT OF WORK - CASH PAYMENT EVENT NUMBER(S)/DATE(S): 4432215 (2009/DEC/18)

PROPERTY NAME: Vamp

CLAIM NAME(S) (on which work was done): Vamp 1 & 6-10 (574815, 599577-580, 653983)

COMMODITIES SOUGHT: copper

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: none known

MINING DIVISION: Cariboo

NTS: 093C/08

LATITUDE 52° 26' 00" LONGITUDE 124° 08'
00" (at centre of work)

OWNER & OPERATOR [who paid for the work]:

1) B. K. Bowen 2)

MAILING ADDRESS:

1) 12470 99A Avenue 2)
Surrey, B.C.
V3V 2R5

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

The eastern half of the property is underlain by undivided Mesozoic volcano-sedimentary strata. Eocene age Ootsa Lake Group rocks unconformably overlie the Mesozoic strata and are present mainly in the western parts of the property. Neogene age Chilcotin Group basalt flows underlie a small area near the western boundary of the claim block. The Vampire copper showings occur within Mesozoic rocks near the unconformable contact with Eocene strata.

The Vampire copper showings occur in propylitically-altered intermediate volcanic rocks over a width of about 120 m. Mineralization consists of disseminated chalcopyrite and secondary malachite as disseminated patches and surface coatings. The highest copper value from a 2008 select grab sample was 3,807 ppm. Higher copper concentrations in both the 2007 B.C. Geological Survey samples and the 2008 samples are not accompanied by significant silver and gold values. The showings area remains open to the northwest, southwest and southeast.

An air photo lineament study completed over a 200 km² area in and adjacent to the Vamp property area failed to identify any lineaments/structures that might appear to directly control mineralization in the area. Generally poor bedrock exposures made air photo interpretation difficult. Dominant lineament directions definitely or likely related to bedrock features are northeast and northwest. The former are by far the most numerous.

Further prospecting to delineate the surface dimensions of the Vampire showing will be hampered by alluvial deposits along the north and south banks of the Chilcotin River and by younger cover rocks which have been mapped by the Survey a short distance to the west of the showings area.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

- AR # 30753 (B. Bowen, April 2009) - this report is the first assessment report written for the Vamp property. A reference to the Vampire copper showings can be found in Open File 2008-2.

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<u>GEOLOGICAL (scale, area):</u>			
Ground, mapping: Air photo interpretation (colour, 1:20,000)	200 km ²	Vamp 1 & 6-10 and adjacent areas	1,192.32
<u>GEOPHYSICAL (line-km):</u>			
Ground: Magnetic: Electromagnetic: Induced Polarization: Radiometric:			
<u>GEOCHEMICAL:</u> (number of samples analysed for ...)			
Soil: Silt: Rock: Other:			
<u>DRILLING:</u> (total metres; number of holes, size)			
Core: Non-core:			
<u>RELATED TECHNICAL:</u>			
Sampling/assaying: Petrographic: Metallurgic: Technical report:			950.00
<u>PROSPECTING (scale, area):</u>			
<u>PREPARATORY/PHYSICAL:</u>			
Line/grid (kilometres): Topographic/Photogrammetric: (scale, area) Legal surveys (scale, area): Road, local access (kilometres)/trail: Trench (metres): Underground dev. (metres): Other:			
TOTAL COST:			\$2,142.32

ASSESSMENT REPORT

**AIR PHOTO LINEAMENT STUDY
ON THE VAMP PROPERTY**

**CHEZACUT AREA
CENTRAL BRITISH COLUMBIA**

CARIBOO MINING DIVISION
LATITUDE 52° 26' N LONGITUDE 124° 08' W
NTS MAP SHEET 093C/08
MINERAL CLAIM SHEET 093C/050

MTO CLAIMS: VAMP 1 & 6-10: (574815, 599577, 599578
(on which work was done) 599579, 599580, 653983)

OWNER: B. K. (Barney) Bowen, Surrey, B.C.

OPERATOR: B. K. (Barney) Bowen, Surrey, B.C.

REPORT
AUTHOR: B. K. (Barney) Bowen, P. Eng., Consulting Geologist
12470 99A Avenue, Surrey, B.C., Canada, V3V 2R5

REPORT
DATE: April 7, 2010

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FIGURES

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FIGURE 3	VAMP PROPERTY CLAIM MAP Scale 1:25,000 <u>File Name: Figure 3.pdf</u>	Figures
FIGURE 4	CHEZACUT AREA GEOLOGY OPEN FILE 2008-2 Scale 1:50,000 <u>File Name: Figure 4.pdf</u>	Figures
FIGURE 5	VAMP PROPERTY AIR PHOTO LINEAMENTS Scale as shown <u>File Name: Figure 5.pdf</u>	Figures

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IN FOLDER NAME

TABLE 1	VAMP CLAIMS DATA <u>File Name: Table 1.xls</u>	Tables
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1.0

SUMMARY

The Vamp property is located in the Chezacut area of central British Columbia, about 140 km west of Williams Lake. It is accessible by road and is about 35 km north of paved Highway 20 and a B.C. Hydro power line running beside it. The property consists of two mineral claims which total 966 hectares. Both claims are 100%-owned by the writer.

The Chezacut area has seen minimal mining activity in the past. To stimulate exploration in the area, the B.C. Geological Survey completed a program of 1:50,000 mapping on NTS map sheet 93C/08 in 2007. Their work was successful in better characterizing the geological setting of the area and in addition, a number of new copper or copper-gold and/or silver occurrences were discovered. One of these, located on the north cut bank of the Chilcotin River about 8 km northwest of Chezacut, is the Vampire copper showing.

The writer staked the Vampire showing in January 2008, and in the fall of the same year, he examined the showings area and carried out preliminary prospecting in several parts of the property. The Vampire copper showing occurs within Mesozoic rocks near the unconformable contact with Eocene strata. Over a width of about 120 m, propylitically-altered intermediate volcanic rocks contain disseminated chalcopyrite and secondary malachite as disseminated patches and surface coatings. The highest copper value from a 2008 select grab sample was 3,807 ppm. The showings area remains open to the northwest, southwest and southeast. Further prospecting to delineate its surface dimensions will be hampered by alluvial deposits along the north and south banks of the Chilcotin River and by younger cover rocks which have been mapped by the Survey a short distance to the west of the showings area.

In December 2009, the writer carried out an air photo lineament study of the Vamp claims and adjacent areas. Cost of the work totaled \$2,142.32. Its purpose was threefold: (1) to provide a general structural framework for the Vamp claims and adjacent areas; (2) to examine which individual lineaments/structures might appear to directly control known mineralization in the claims area; and (3) to identify specific lineaments/structures or other features which would warrant follow-up prospecting in the 2010 field season.

2.0

CONCLUSIONS

Generally poor bedrock exposure in the 200 km² study area made air photo interpretation difficult. Dominant lineament directions definitely or likely related to bedrock features are northeast and northwest. The former are by far the most numerous. None that might directly control known mineralization in the claims area were identified.

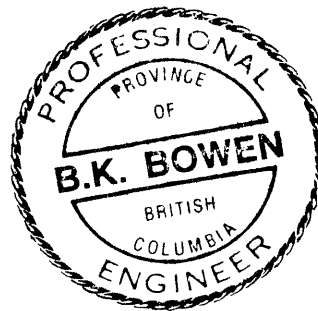
Air photo lineaments likely related to surficial features have been detected in several areas within the study area. Some are subtle, narrow drumlin-like features elongated in a northeasterly direction and probably indicate direction of ice-flow. Others are clearly caused by down-cutting of tributary streams through flatter plateau areas adjacent to the valley bottom of the Chilcotin River.

3.0

RECOMMENDATIONS

Geochemical and geophysical surveys might be better suited to delineate the extent of the Vampire copper showings and to locate copper mineralization elsewhere on the property. Geochemical methods to consider would be Mobile Metal Ion (MMI) and biogeochemical surveys. Geophysical methods that could be utilized would be induced polarization and ground magnetics. Grid surveys would be appropriate in the Vampire showings area and reconnaissance road or wide-spaced line surveys elsewhere.

Proposed 2010 field work includes orientation geochemical surveys over the known showings area.



B. K. Bowen
APRIL 07 / 10.

4.0

INTRODUCTION

4.1 Location and Access

The Vamp property is located in central British Columbia about 140 km west of Williams Lake (Figure 1). Specifically, the claims are located on NTS map sheet 93C/08E at coordinates 52°26' N and 124°08' W and are in the Cariboo Mining Division (Figure 2).

Access to the claims area is from Williams Lake via paved Highway 20 and then along the Clusko River Forest Service Road for a distance of about 45 km. The latter, which branches northwesterly from Highway 20 about 25 km east of Chilanko Forks, is a good quality all-weather gravel road. A network of local logging and ranching roads provides excellent access to many parts of the property.

A B.C. Hydro power line runs along Highway 20 and there is gas and diesel available at the Red Top general store located a few kilometers east of Chilanko Forks. Williams Lake is the main service and supply center for the region. It is home to the majority of the workforce of the Gibraltar copper-molybdenum mine operated by Taseko Mines Ltd.

Room and board is available at the Kokanee Bay Fishing Resort on Puntzi Lake. Travel time from the claims area to the resort is about 1¼ hours.

4.2 Claims

The Vamp property consists of the Vamp 1 and 10 mineral claims which together cover an area of 966 hectares (Figure 3 and Table 1). Both claims are 100%-owned by the writer. The Vamp 6-9 claims were allowed to lapse on March 1, 2010.

4.3 Topography, Vegetation and Climate

The terrain is relatively flat to moderate in relief, moderately to locally heavily drift-covered and vegetated with open stands of mainly pine, good portions of which display various stages of pine beetle infestation. The Chilcotin River bisects the property in a generally east-west direction. Associated with it are well-developed alluvial terraces at many locations along both its north and south banks. Several clear cuts are present on the property. Elevations on the claims range from about 1,000 to 1,300 m.

The climate is typical for central British Columbia, with long cold winters, relatively dry summers and moderate amounts of precipitation falling mainly as snow in the winter months.

4.4 History and Development

The Chezacut area has seen minimal mining activity in the past. To stimulate exploration in the area, the B.C. Geological Survey completed a program of 1:50,000 mapping on NTS map sheet 93C/08 in 2007. Their work was successful in better characterizing the

geological setting of the area and in addition, a number of new copper or copper-gold and/or silver occurrences were discovered. One of these, located on the north cut bank of the Chilcotin River about 8 km northwest of Chezacut, is the Vampire copper showing.

The writer staked the Vampire showing on January 28, 2008, the day of the release of Open File 2008-2 which details the results of the Survey's 2007 work. In the fall of 2008, the writer examined the showings area and carried out preliminary prospecting in several parts of the property.

4.5 Summary of Work Done

The writer completed an air photo lineament study of the Vamp claims and adjacent areas on December 16 and 17, 2009. The findings of this study are presented in Section 6.0. Cost of the work totaled \$2,142.32.

5.0 GEOLOGICAL SETTING

5.1 Regional Geology and Minfile Occurrences

The geology of the Vamp claims area is well-documented on the Chezacut area geology map which comprises part of Open File 2008-2 (see Figure 4). It shows the property to be underlain by the following lithologies:

- (a) Mzvs: Undivided Mesozoic volcano-sedimentary strata which is undated, but in part of presumed Jurassic age. These rocks are shown to underlie most of the eastern half of the property.
- (b) EO, EOdvb, EOdh and EOOb: These Eocene age Ootsa Lake Group rocks unconformably overlie the Mesozoic strata and are shown to be present in the western parts of the claims area. They are comprised of several lithologies, including vitreous black dacite (EOdvb), acicular hornblende dacite (EOdh) and peaty basalt (EOOb).
- (c) MiPICb: Neogene age Chilcotin Group basalt flows are shown to underlie a small area near the western boundary of the claim block. This unit unconformably overlies Ootsa Lake Group rocks.

Northerly to northwesterly-trending faults cutting Eocene and older rocks are shown to occur in the western half of the property. The Vampire copper showing (red dot on map) is shown to occur within Mesozoic rocks near the unconformable contact with Eocene strata. No intrusive lithologies were mapped by the Survey in the claims area.

The only minfile occurrences in the Chezacut area are the Chili gold-silver-copper showings located about 16 km southeast of the Vamp property and the Chilcotin River East and West copper showings located 19 km to the west-northwest. At Chili, mineralization is hosted in Hazelton Group volcanic rocks and consists of argentiferous and auriferous chalcopyrite in low temperature banded quartz veins and chaledonic stringers. Minor pyrite and chalcopyrite occur within porphyry dikes cutting the volcanic

rocks. At the Chilcotin River showings, copper mineralization occurs within Ootsa Lake Group intermediate to felsic volcanic rocks.

5.2 Vampire Copper Showing

The Vampire copper showing, exposed on the north cut bank of the Chilcotin River in the center of the Vamp property, occurs in propylitically-altered intermediate volcanic rocks over a width of about 120 m (see Figure 6 of Assessment Report 30753). Mineralization consists of disseminated chalcopyrite and secondary malachite as disseminated patches and surface coatings. The highest copper value from a 2008 select grab sample was 3,807 ppm. Higher copper concentrations in both the 2007 Survey samples and the 2008 samples are not accompanied by significant silver and gold values. The showings area remains open to the northwest, southwest and southeast. Further prospecting to delineate its surface dimensions will be hampered by alluvial deposits along the north and south banks of the Chilcotin River and by younger cover rocks which have been mapped by the Survey a short distance to the west of the showings area.

6.0 AIR PHOTO LINEAMENT STUDY

6.1 Introduction

In December 2009, the writer carried out an air photo lineament study of the Vamp claims and adjacent areas utilizing a mirrored “Geoscope” stereoscope. Twenty-nine colour air photos derived from 1:20,000 scale photography flown in August 2006 were reviewed. Air photo numbers include: 30BCC06099/ 059-065 and 141-147; 30BCC06100/ 064-071; and 30BCC06109/ 026-032. The study covered an area of about 200 km².

Objective of the work was: to provide a general structural framework for the Vamp claims and adjacent areas; to examine which individual lineaments/structures might appear to directly control known mineralization in the claims area; and to identify specific lineaments/structures or other features which would warrant follow-up prospecting in the 2010 field season.

6.2 Lineament Study - see Figure 5

The main observations of the study are summarized as follows:

- (a) Bedrock exposures in the Vamp claims area are limited to ridge tops and along some of the steeper banks along the Chilcotin River. Away from these physiographic features, the terrain is gently-rolling to fairly flat, making air photo lineament interpretation difficult.
- (b) Interpreted air photo lineaments definitely or likely related to bedrock features tend to be limited in their strike extension due to the constraint of lack of bedrock exposures in the study area. For those that are shown on Figure 5, the dominant lineament directions are northeast and northwest. The former are by far the most

numerous. Other lineament directions include east-west, east-southeast, east-northeast, north-northwest and north-south

- (c) On Figure 4, in the western part of the Vamp property, two faults (bold dashed lines) are shown to project through the area. The northwesterly-trending fault may have locally been detected at two locations in the current study: in one area about 1.2 km west of the northwest corner of the property; and in another area about 2.1 km south of the southern boundary of the property. The northerly-trending fault shown on Figure 4 was not detected in the current study.
- (d) In the immediate area of the Vamp copper showing, 2008 field work by the writer showed that the copper-mineralized area is cut by a bleached and iron-stained rock which is strongly fractured and pyritic (Assessment Report 30753). This type of rock may be related to faulting which appears to strike 340° and dip sub-vertically. In the current lineament study, this fault was not detected.
- (e) Air photo lineaments likely related to surficial features have been detected in several areas within the study area. Some are subtle, narrow drumlin-like features elongated in a northeasterly direction and probably indicate direction of ice-flow. Others are clearly caused by down-cutting of tributary streams through flatter plateau areas adjacent to the valley bottom of the Chilcotin River. Another marks the southwestern boundary of the valley bottom of a major drainage in the northeast part of the study area.

7.0

PROPOSED WORK

Geochemical and geophysical surveys might be better suited to delineate the extent of the Vampire copper showings area and to locate copper mineralization elsewhere on the property. Geochemical methods to consider would be Mobile Metal Ion (MMI) and biogeochemical surveys. Geophysical methods that could be utilized would be induced polarization and ground magnetics. Grid surveys would be appropriate in the Vampire showings area and reconnaissance road or wide-spaced line surveys elsewhere.

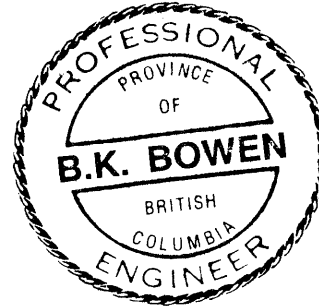
Proposed 2010 field work includes orientation geochemical surveys over the known showings area.

8.0

COST STATEMENT

The cost for the work summarized in Section 4.5 is as follows:

	<u>\$CDN</u>	<u>\$CDN</u>
1) <u>Air Photo Lineament Study:</u>		
- B. K. Bowen, P. Eng.		
- 1.5 days @ \$600/d (Dec. 16-17/09)	900.00	
- Air photo cost	<u>292.32</u>	
- sub-total:	1,192.32	1,192.32
2) <u>Report Cost:</u>		
- B. K. Bowen, P. Eng.		
- 1.5 days @ \$600/d	900.00	
- maps, copies, etc.	<u>50.00</u>	
- sub-total:	950.00	<u>950.00</u>
TOTAL COST:		\$2,142.32



B.K. Bowen
APRIL 7, 2010.

9.0

REFERENCES

- (1.) Bowen, B.K. Prospecting Survey on the Vamp 1-5 Claims, Cariboo Mining Division, B.C., April 2009, Assessment Report 30753.
- (2.) B.C. Ministry of Energy and Mines' website 'The Map Place': regional geology, minfile descriptions & topographic data.
- (3.) Mihalynuk, M. Chezacut Area Geology, B.C. Geological Survey Open File 2008-2, January 2008.

10.0

STATEMENT OF QUALIFICATION

I, Brian K. Bowen, of Surrey, in the Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Consulting Geological Engineer with an office at 12470 99A Avenue, Surrey, British Columbia, V3V 2R5, Telephone (604) 930-0177.
2. I am a graduate of the University of British Columbia with a degree of Bachelor of Applied Science in Geological Engineering, obtained in 1970. I have been practicing my profession continuously in Canada and elsewhere since graduation.
3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
4. This report is based upon: (1) my review and compilation of all available data relating to the Vamp property, including geological and analytical data available in Open File 2008-2; (2) my personal knowledge of the property gained from on-site prospecting work carried out in the claims area from September 30 to October 2, 2008; and (3) an air photo lineament study completed by me in December 2009.
5. I am the 100% owner of the Vamp 1 and 10 mineral claims, Cariboo Mining Division, upon which assessment work was done in December 2009.

Dated at Surrey, British Columbia, this seventh day of April, 2010.

April 7, 2010
Surrey, B.C.
BKB/bb

B. K. Bowen, P. Eng.
Consulting Geologist



B. K. Bowen
APRIL 7, 2010

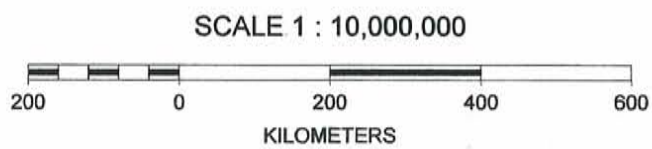
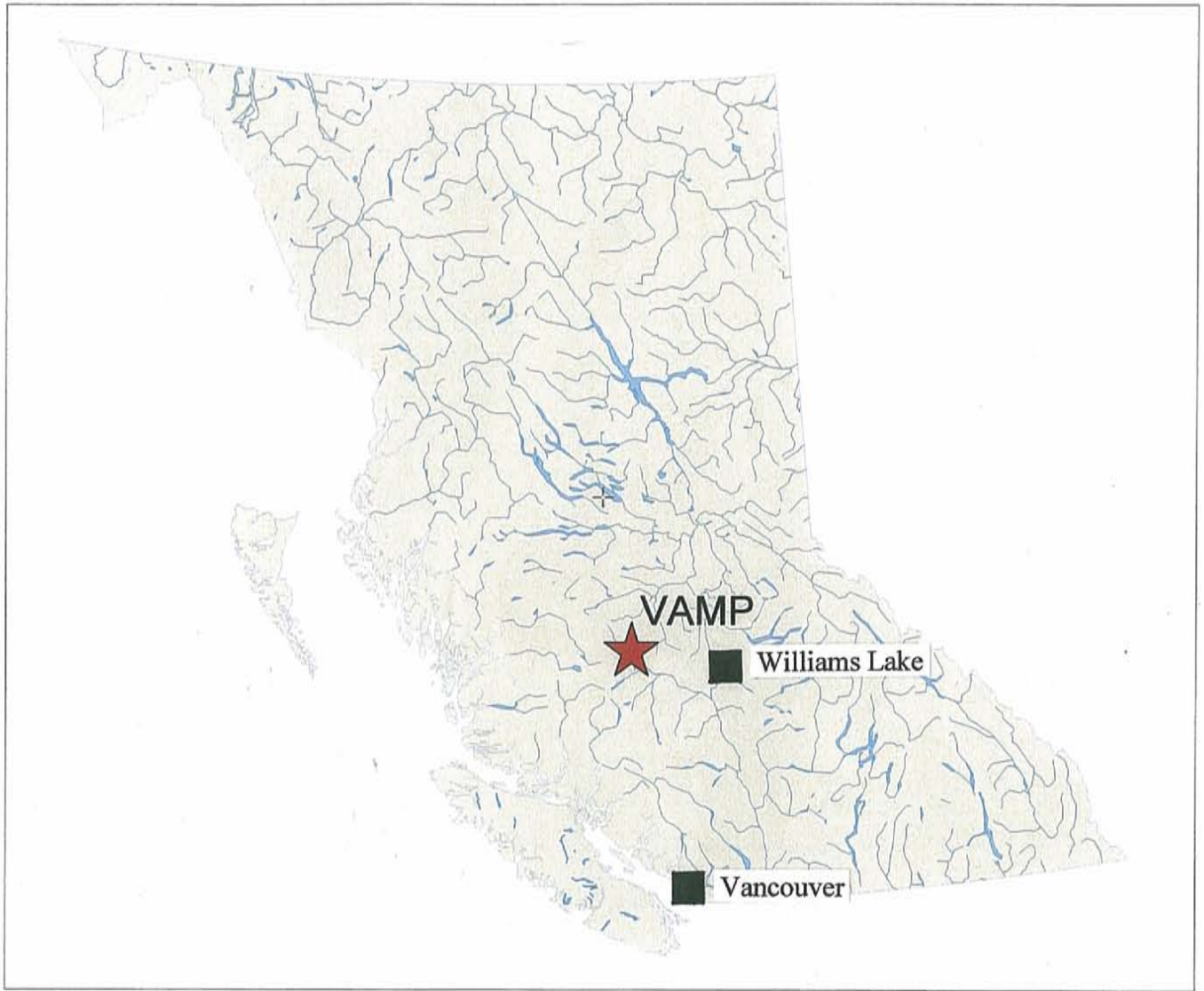
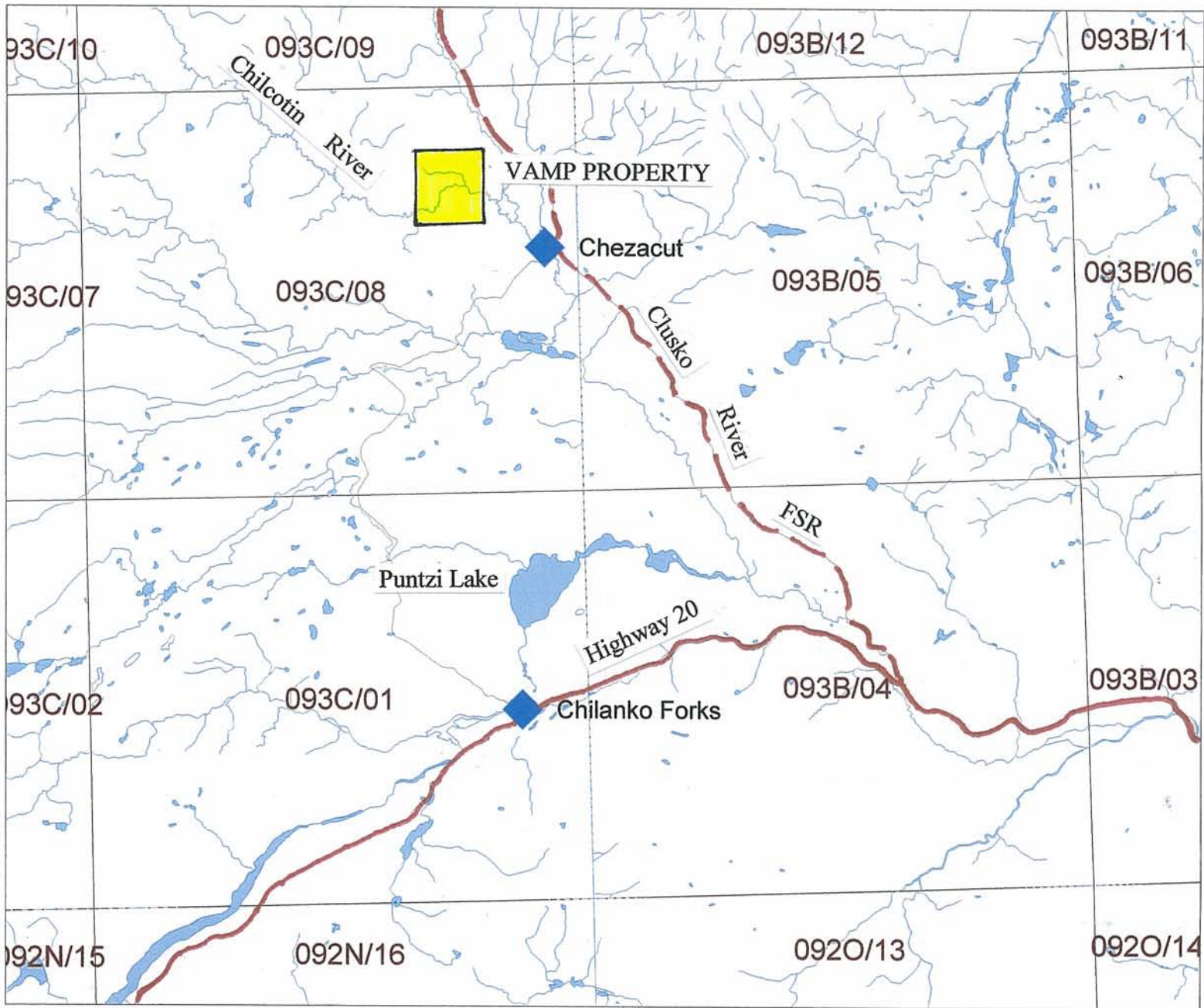


Figure 1
VAMP PROPERTY
INDEX MAP
Date: April 2009



SCALE 1 : 400,000

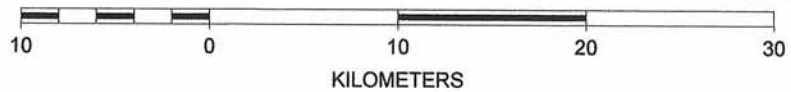
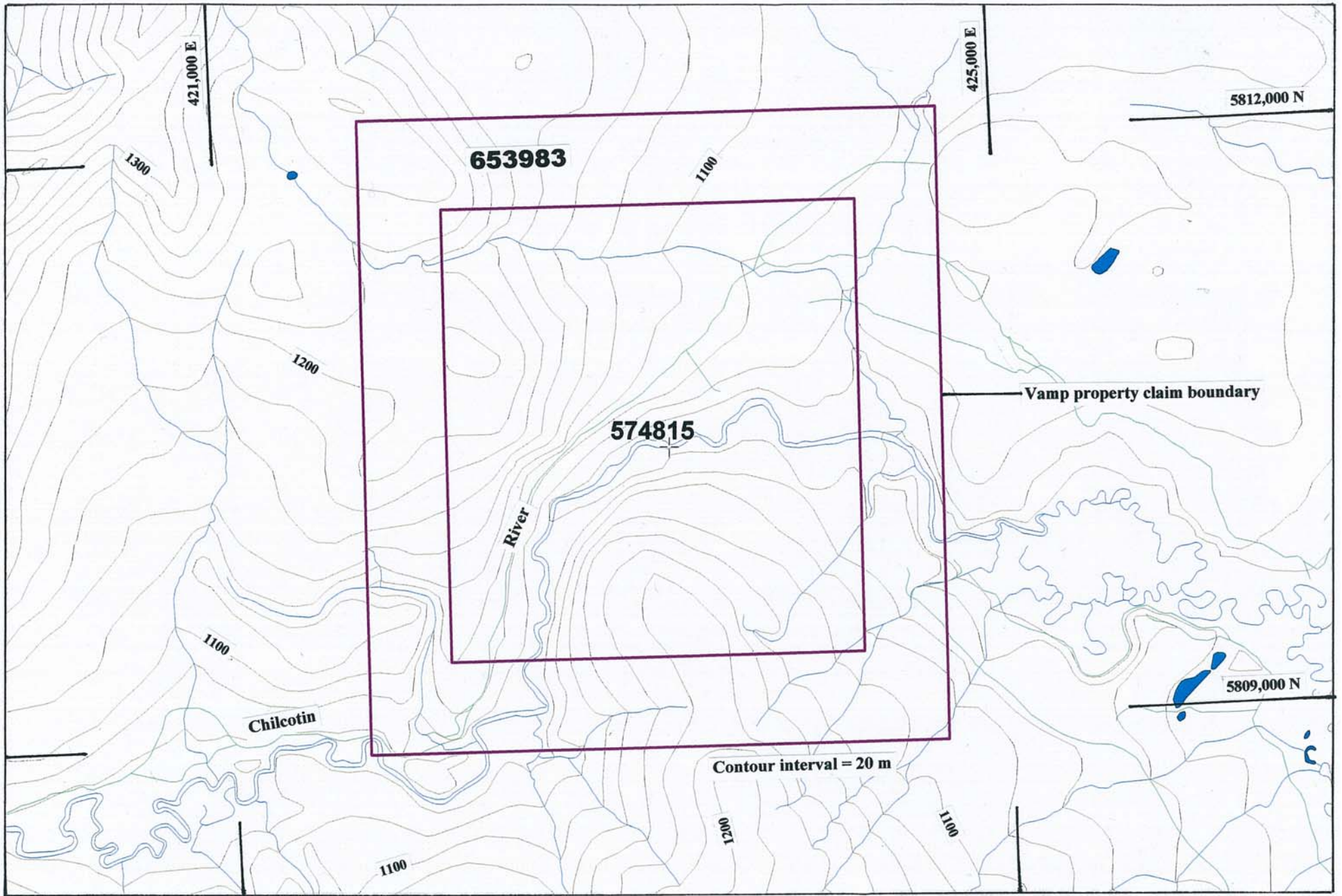


Figure 2

VAMP PROPERTY
LOCATION MAP

Date: April 2009





SCALE 1 : 25,000

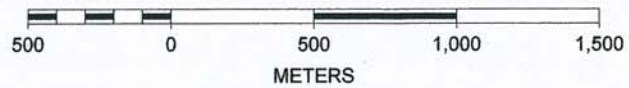


Figure 3

VAMP PROPERTY
CLAIM MAP

Date: April 2010



Chezacut Area Geology

NTS 93C/08
Mihalynuk, M.G., Peat, C.R., Orovan, E.A., Terhune, K.,
Ferby, T. and McKeown, M.A.

Scale 1:50 000

0 5
kilometres

LEGEND

LAYERED ROCKS

NEOGENE

- PIPIAv** Anahim Volcanic Belt: (<100m) Compositionally diverse alkaline basalts and peralkaline rhyolite to phonolite (Souther and Souther, 1994), in the Chezacut area, dominantly dark or pinkish grey, fine to medium-grained, crystalline trachybasalt flow.
- MIPICb** Chilcotein Group: (<60m) Basalt flows (2-15 m thick), flat-lying, dark brown to grey, massive or columnar-jointed, locally ropey. Locally with flow-parallel layers of vesicles, or vesicle pipes.

Eocene

- EO** Undivided Ootsa Lake Group: (>1500m) Eocene Ootsa Lake Group as mapped by Tipper (1969), equivalent to Chilcotein volcanics with isotopic ages ranging from adjacent areas yielding ca. 53.4 to 6 Ma to ca. 44.2 to 4 Ma, (Metcalf et al., 1997; Riddell et al., 2007).
- EOh** Maroon and Grey Banded Rhyolite: rhyolite with alternating maroon and grey flow bands; typically aphanitic, but feldspar phenocrysts locally up to 1%. Interbedded as coalescing, low-relief dacitic flow domes.
- EOdb** Vitreous Black Dacite: vitreous, black, sparse pyroxene porphyritic dacite flows and breccia with distinctive weathering to yellow-tan pelagolite rind. Phenocrysts <1% fine, bright green orthopyroxene < 2 mm, <1% plagioclase as transparent laths <4 mm. Flow tops are commonly vesicular (less than 5 mm thick, 30% irregularly shaped vesicles).
- EOd** Dacite Ash-Flow Tuff: white, blocky-weathering hornblende-biotite (15%) dacite forms a layer up to approximately 100m thick. Flattened boulders interpreted as collapsed pumice may display local weak welding and suggest an ash flow origin.
- EOvx** Ochre Breccia and Flow Lobes: ochre-weathering breccia with clasts of black or maroon, scoriaceous to nonvesicular, aphanitic to rare crowded tabular feldspar, and lesser pyroxene porphyry. Rare spatter breccia.
- EOv** Amygdaloidal Pyroxene-Phyric Basalt: brown-green, rubby weathering, highly vesicular, sparse pyroxene (~2 mm, <3%) and fine plagioclase porphyry as irregular layers and lenses. Green and amber amygdules of chalcedonic quartz (up to 30 cm) are characteristic.
- EOdh** Angular Hornblende Dacite: tan to pinkish, platy-weathering, flow banded, hornblende-phyric (4 mm < 3%) dacite flows. Resistant, but forming poker-chip scale. Vesicular flow-top facies (0.5 to 2 m) and autoclastic breccias are locally displayed with flows (2 to 10 m thick).
- EOb** Peaty Basalt: (10 to 70 m) brown-weathering flows and related breccias; dark grey fresh a coarse, blocky monomineralic olivine and sandstone(?), each up to 2%. Carbonate is very fine-grained within the matrix and as amygdules that are otherwise composed of green and amber, chalcedonic quartz.
- EOc** Basal Conglomerate: yellow to white weathering with green clasts, poorly indurated, feldspar and clast supported, subhedral biotite boulders (up to 0.5 cm, 10%) within the sandy matrix or as phenocrysts in dacitic clasts are characteristic.

MESOZOIC?

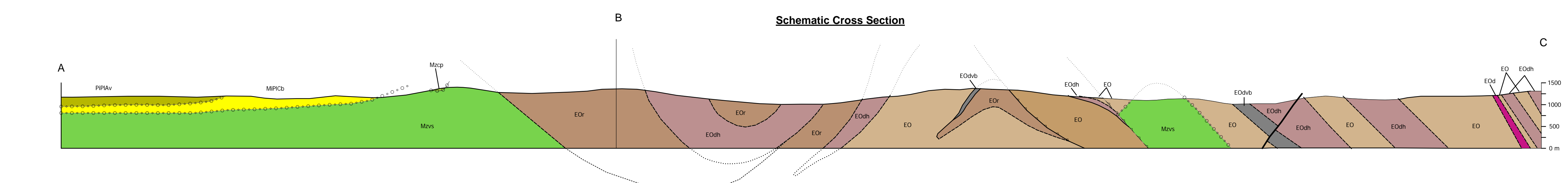
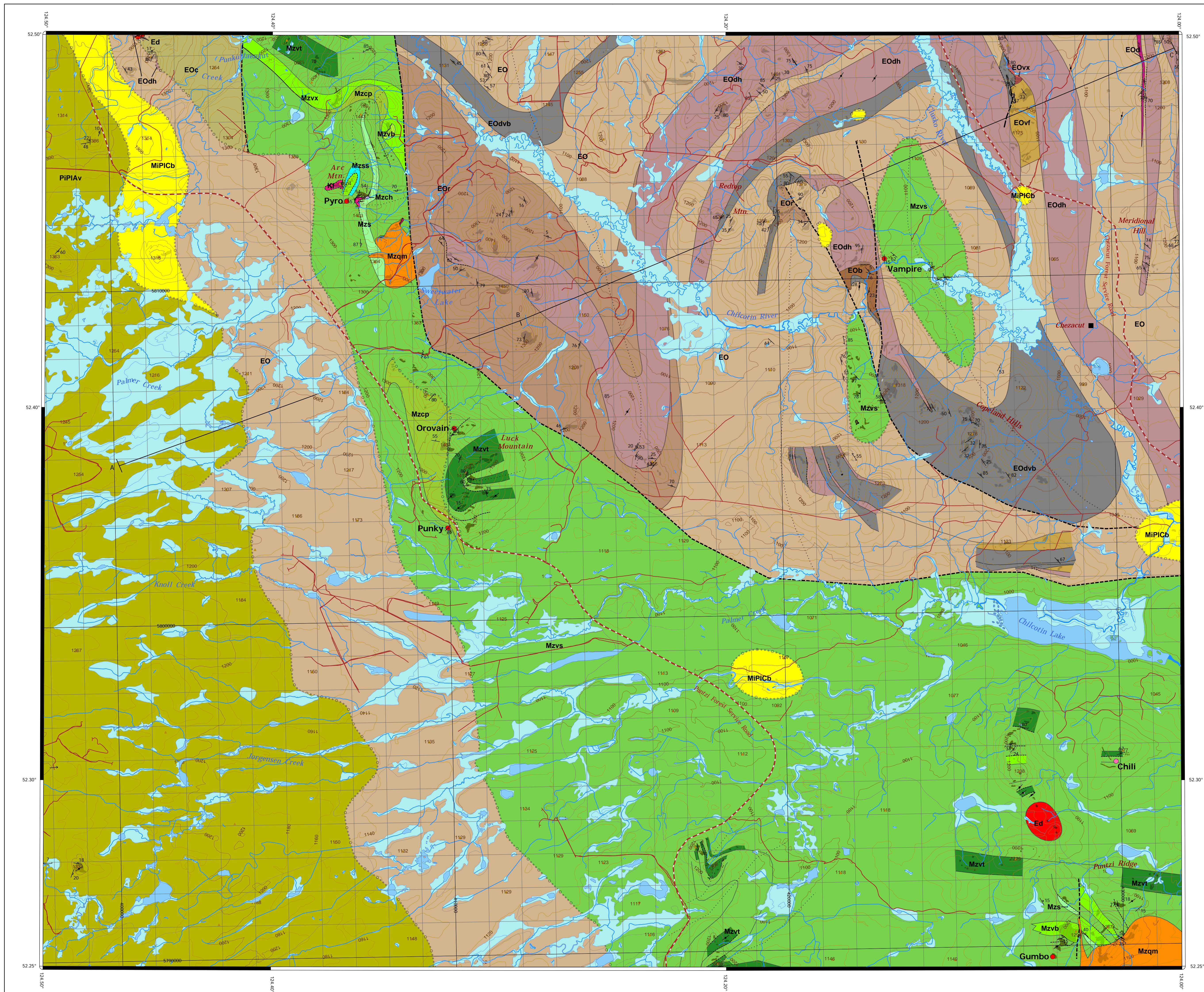
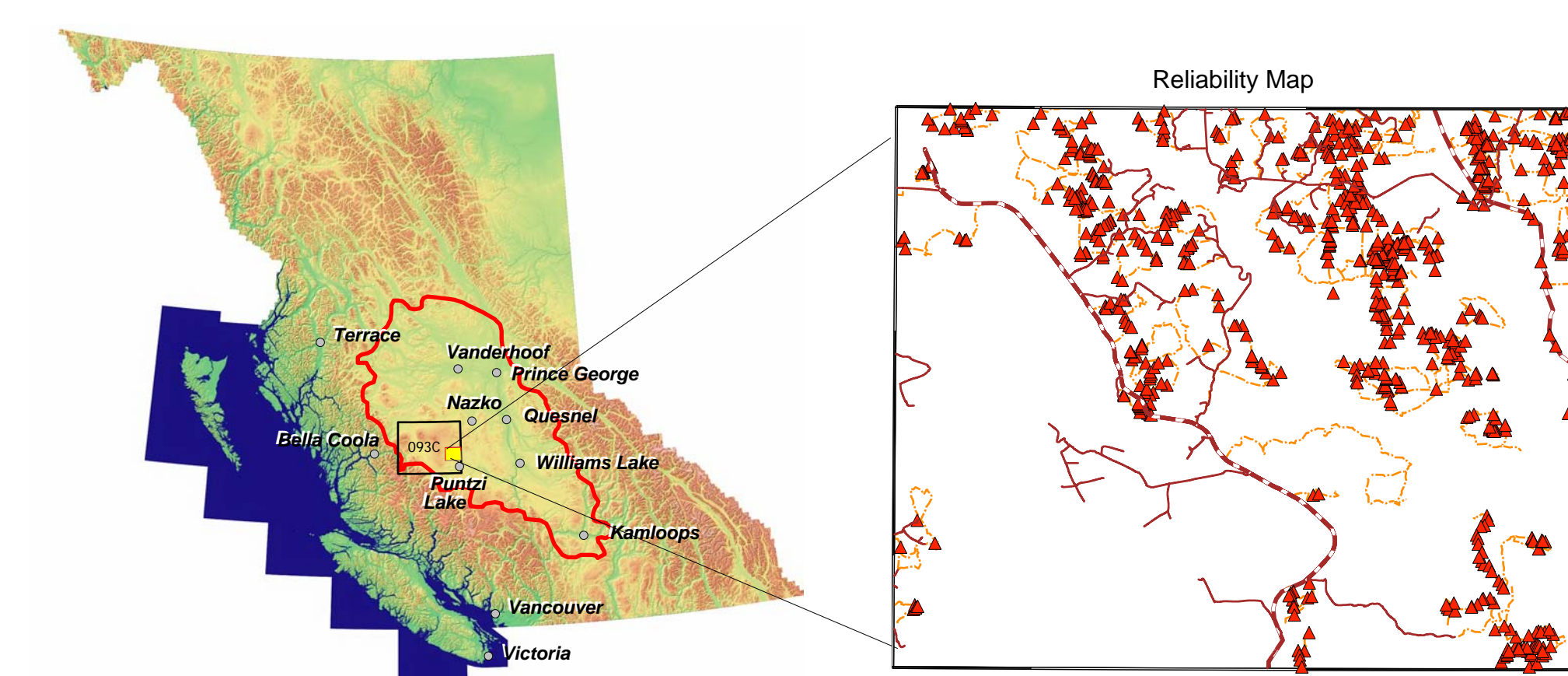
- Mzvs** Undivided Mesozoic volcano-sedimentary strata, undivided, but in part of presumed Jurassic age (Tipper, 1969).
- Mzvt** Variegated Lapilli Ash Tuff: (1000+ m) mainly basaltic andesite, typically weathers to green or orange angular blocks, with tabular feldspar phenocrysts <3 mm in size comprising 15% of the rock, or up to 25% of ash matrix, which supports angular to subrounded lapilli. Less commonly with subhedral pyroxenes (<3%, <3 mm), and quartz-calcite-chlorite amygdaloid.
- Mzcp** Polymictic Boulder Conglomerate: (<50m) rounded boulders can exceed 1.5 m diameter; include pink monzonite, feldspar porphyry and lapilli tuff, probably an intraformational conglomerate.
- Mzas** Calcareous Fossiliferous Sandstone: (<50m) tan to yellow and rusty-weathering, coarse-grained feldspathic and calcareous volcanic sandstone contains poorly preserved internal and external moulds of fossil belemnites (?) and corals.
- Mzch** Calcareous Chert Pebble Conglomerate: (25m) conglomerate is white and black well-bedded (1 to 30 cm thick beds), and clast-supported with well-rounded cobbles, pebbles and granules of white rhyolite with a recessive, sandy, carbonate-rich matrix. Interbeds include siltstone, siliceous volcanic mudstone and hyaloclastite.
- Mzs** Volcanic Siltstone/Sandstone: (80 m) green to brown or rust-coloured, commonly recessive, volcanic siltstone and mudstone. Typically laminated to thinly bedded (1 to 2 cm), with ripples, scours, flutes, and graded bedding locally preserved.
- Mzvb** Basalt: (100m) dark green, massive, blocky weathering pyroxene basalt a hyaloclastite. Carbonate-chlorite amygdaloid. Xenomorphic plagioclase ~15%, and subhedral pyroxene ~5%, secondary epidote and chlorite common.
- Mzvx** Hyaloclastite: (~200 m) bright green hyaloclastite consists of monomineralic aphanitic basalt fragments, but may contain fine-grained pyroxene phenocrysts. Clasts are most commonly lapilli and small blocks with a matrix of sparry calcite.

INTRUSIVE ROCKS

- Ed** Eocene (?) Dacite: white to grey-weathering and medium-grained, ~2% subhedral hornblende and ~15% biotite boulders, as well as equant white feldspar, possibly sandstone. Locally with quartz-freed micritic cavities (= 2 cm) abundant xenoliths.
- K** Cretaceous (?) Felsite: cream-coloured, slabby to blocky-weathered felsite with ghosted feldspar phenocrysts.
- Mzqm** Mesozoic (?) Quartz Monzonite: pink to grey, medium to coarse-grained quartz, diorite to monodiorite; hornblende subordinate to biotite. Late fractures may be annealed with K-feldspar, chlorite/epidote alteration and coatings on late joint surfaces are common.

SYMBOLS

- Geological contact (defined, approximate, inferred)
- Fold axis (inferred)
- Unconformity (defined, approximate, inferred)
- Fault (defined, approximate, inferred)
- Igneous flow banding; bedding (overturned, inclined, vertical)
- Joining: glacial strata; slaty cleavage or schistosity (inclined, vertical)
- Mineral occurrence (Minfile occurrence, new occurrence)
- Quaternary cover
- Topographic contour (20 metre intervals)
- Road (major gravel road, gravel road, logging road)
- Lakes; Wetlands (swamps and marshes)
- Outcrop



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Projection: BC Albers, North American Datum 1983

Digital cartography by Peat, C.R. and Mihalynuk, M.G.

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LEGEND



-  Air photo lineament (definitely or likely related to bedrock feature)
-  Air photo lineament (likely related to surficial feature)



Figure 5

**VAMP PROPERTY
AIR PHOTO LINEAMENTS**

Date: April 2010