

MINERAL TITLES BRANCH  
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VANCOUVER, B.C.

ASSESSMENT REPORT

on

GEOLOGICAL MAPPING

DA VENT PROPERTY

Negro Creek Area

FORT STEELE MINING DIVISION

NTS 82 G/5W  
TRIM 82G.041

Latitude 49° 26' N  
Longitude 115° 56' W

UTM 5476000 N 578000 E

By

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February, 2001

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

26,480

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## 1.00 INTRODUCTION

This report describes the results of a geological mapping program completed on the DA Vent property near the confluence of Palmer Bar Creek and the Moyie River, SW of Cranbrook, B.C. during 2000.

### 1.10 Location and Access

The DA Vent property is located approximately 15 kilometers southwest of Cranbrook, B.C. in the Fort Steele Mining Division (Fig. 1). The claims are centered near 49° 26' N Latitude and 115° 56' W Longitude (UTM 5,476,000 N, 579,000 E), on NTS reference map 82 G/5 W / TRIM map 82G.041 (Fig. 2).

Access to the property is via the Lumberton logging road which leaves Highway 3/95 approximately 10 kilometers south of Cranbrook. Other logging roads in the Negro Creek area provide local access.

### 1.20 Property

The DA Vent property includes the Plum and Vent claims, a contiguous group of 104 claim units in 22 two-post claims and 6 four-post claims (Fig. 2). Three 2-post claims within the Plum claim block are held by another party and are not part of the DA Vent property.

### 1.30 Physiography

The DA Vent property is west of the Rocky Mountain Trench, within the Moyie Range of the Purcell Mountains. The claims cover the lower portion of Palmer Bar Creek; topography consists of gentle to moderate mountain slopes ranging in elevation from about 990 to 1650 meters.

Forest cover consists of a mixture of mainly pine, fir and larch in various stages of maturity. Parts of the claim block have been clear-cut logged.

### 1.40 History of Previous Exploration

The area of the DA Vent property was previously held by Cominco Ltd. who have conducted a long-standing search for zinc-lead-silver deposits in the general vicinity of Kimberley where the Sullivan orebody has been mined for most of the past 100 years. Specific details of Cominco's exploration work near the DA Vent property are unknown.

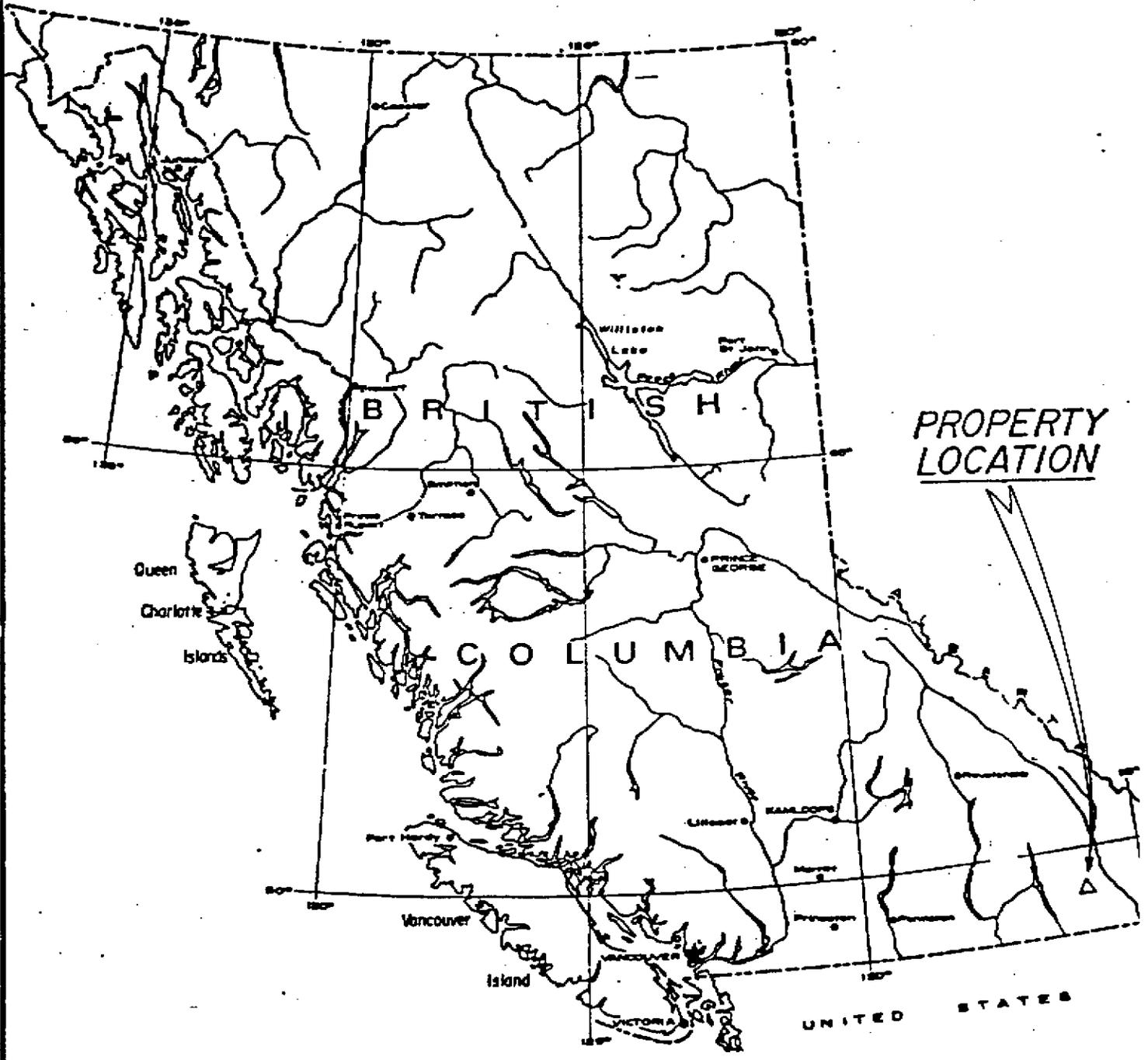
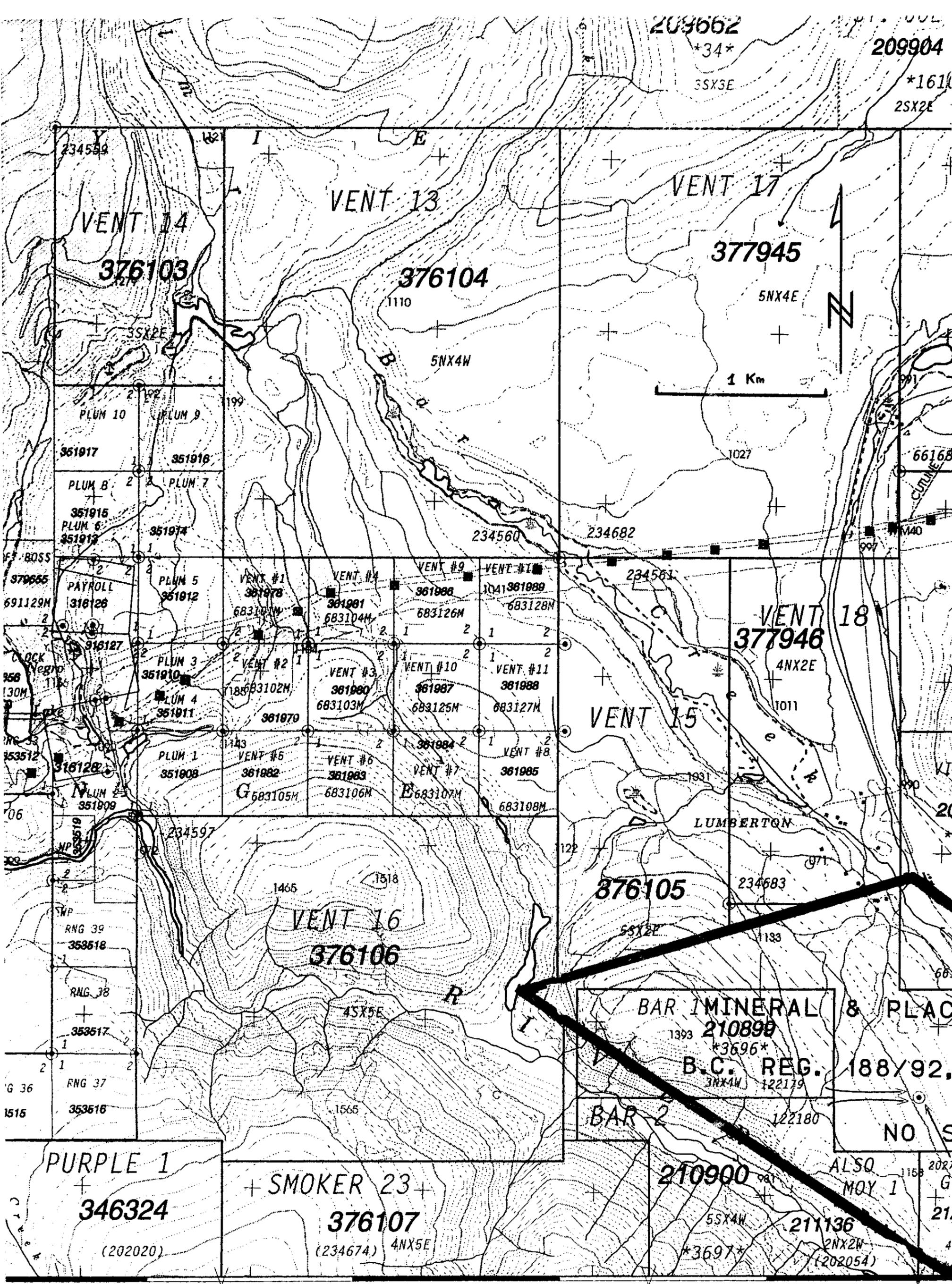


Figure 1  
DA VENT PROPERTY  
LOCATION MAP





**GOLD COMMISSIONER OFFICES**

**LOW STREET**  
 251  
 (250) 992-4301  
 392-4314  
 Cariboo

**COAST / LIARD**  
 302 865 Hornby Street  
 Vancouver BC V6Z 2G3  
 Public Query: (604) 660-2672  
 FAX: (604) 660-2653  
 Mining Divisions: Atlin, Clinton,  
 Liard, Lillooet, Skeena, New  
 Westminster, and Vancouver

**EAST KOOTENAY**  
 100 Cranbrook Street North  
 Cranbrook BC V1C 3P9  
 Public Query: (250) 426 1211  
 FAX: (250) 426-1259  
 Mining Divisions: Fort Steele  
 and Golden

**FRASER ISLAND**  
 3150 Main Street

**KOOTENAY**

**Figure 2**  
**DA VENT PROPERTY**  
**CLAIM MAP**  
 TRIM 82G.041 Scale 1:20,000

**GUIDE TO THE NTS AND BC**

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FIGURE 2  
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 N O

Southeast flowing tributaries of the Moyie River have historically been worked for placer gold. Negro and Palmer Bar Creeks which drain the DA Vent property both carry placer gold. A number of adits and other workings within the Plum claim block (but on the three 2-post claims which are not part of the property) tested a series of gold-bearing quartz veins.

In 1998 a small program of localized geological mapping and VLF-EM geophysical surveying was completed over a fragmental which occurs on the Vent 3 claim (AR 25,783), and in 1999 further geologic mapping evaluated surface bedrock for indicators of economic base metal mineralization (AR 26,131).

#### 1.50 Purpose of Survey

During 2000 geological mapping on the DA Vent property focused on locating and identifying stratigraphic markers, to define the specific middle Aldridge stratigraphy of the property and thus establish a probable depth to Sullivan orebody-equivalent strata on the property.

### 2.00 GEOLOGY

#### 2.10 Regional Geology

The area of the DA Vent property has been recently mapped by Hoy and Diakow (1982): the property is underlain by the Mesoproterozoic Purcell Supergroup, a thick succession of *fine-grained terrigenous clastic, carbonate, and very minor volcanic rocks* exposed in the core of the Purcell Anticlinorium in southeastern British Columbia. The Purcell basin was formed by block faulting in an intracratonic setting on the western margin of the ancient North American Craton.

The basal member of the Purcell Supergroup is the Aldridge Formation, a thick sequence (~4000 meters) of fine-grained siliciclastic rocks deposited largely by turbidity currents. Reesor (1958) has divided the Aldridge Formation in the Purcell Mountains into three informal units: *rusty weathering siltstone, quartzitic wacke and argillite* of the lower Aldridge Formation; *grey weathering quartz wacke and siltstone* of the middle Aldridge Formation; and *laminated argillite* of the upper Aldridge Formation.

The base of the lower Aldridge Formation is not exposed; within southeastern British Columbia this unit is about 1500 meters thick; the middle Aldridge is about 2500 meters thick and includes *periodic inter-turbidite intervals of thin bedded, rusty-weathering argillites* some of which form finely laminated marker beds that are time stratigraphic units and which can be correlated over great distances within the Aldridge basin and equivalent stratigraphy in the United States. The upper Aldridge Formation is about 300 meters thick. The lower and middle units of the Aldridge Formation are host to a proliferation of gabbroic to dioritic composition Moyie Intrusions, predominantly as sills. These intrusions are interpreted to be penecontemporaneous with deposition of their host sediments (Hoy, 1989).

The Aldridge Formation is gradationally overlain by shallower-water deltaic clastics of the Creston Formation. The Creston Formation is in turn overlain by predominantly dolomitic siltstones of the Kitchener Formation.

The Purcell Anticlinorium is transected by a number of steep transverse and longitudinal faults. The transverse faults appear to have been syndepositional (Lis and Price, 1976) and Hoy (1982) suggests a possible genetic link between mineralization and syndepositional faulting.

Longitudinal faults which more closely parallel the direction of basin growth faults may have played a similar role. The Sullivan orebody, which occurs at the upper contact of the lower Aldridge Formation, is part of a NNE oriented structural corridor that hosts extensive evidence of disturbed sedimentation, hydrothermal vent products and the base metal sulfides themselves. This corridor is parallel to longitudinal basin growth faults and is probably related to such a structure.

The Sullivan orebody has associated with it a number of features that are considered an integral part of the genetic process by which it formed and are thus important indicators for discovery of a similar deposit. These include bedded and fracture zinc-lead-silver mineralization (the distal mineralized apron of the Sullivan extends at least 7 km to the southeast of the deposit), massive tourmalinite, tourmalinized and/or sulfide-bearing fragmentals, and albite-chlorite-pyrite alteration. A huge cone-shaped zone of massive tourmalinite underlies the western and central portions of the Sullivan orebody and an extensive zone of strong, brecciated albite-chlorite-pyrite alteration overlies the deposit. Within the sulfide deposit, a central tin enriched zone may be part of the original vent.

Cretaceous felsic intrusives of quartz monzonite to diorite composition have intruded Precambrian metasedimentary rocks and are typically controlled by large faults. The Kiakho stock occurs 3 to 4 kilometers north of the DA Vent property, within the Cranbrook Fault. The Cranbrook Fault is a major east-west striking transform fault, dipping to the north with north side down, an attitude similar to the Kimberley Fault located on the immediate north side of the Sullivan orebody.

## 2.20 Property Geology

Field work on the DA Vent property in 2000 was confined to good exposures along the steep-sided valleys of the Moyie River and Deep Lake (Fig. 3). Bedrock is entirely of the middle Aldridge Formation with quite uniform northwest striking, gently to moderately northeast dipping beds.

The middle informal member of the Aldridge Formation is host to a suite of finely laminated marker beds that are time stratigraphic units and which can be correlated over great distances within the Aldridge basin and equivalent stratigraphy in the United States. This marker stratigraphy was originally developed by Cominco Ltd. and has been propagated by a select group of former Cominco Ltd. employees who continue to be involved in the search for Sullivan style SEDEX deposits within the Aldridge basin.

Seventeen marker bed localities were identified on the DA Vent property in 2000. Representative specimens were collected and cut with a diamond saw to provide a true cross section of the marker stratigraphy for matching purposes. The marker bed samples were compared with an extensive reference library of marker bed core at the Vine property, located off Hidden Valley road northeast of Moyie Lake. Thirteen of the seventeen specimens were matched; four were deemed unmatchable for reasons such as poor definition of lines and lack of a suitably distinctive pattern.

The matched markers from the 2000 field program establish that the stratigraphy north of Deep Lake hosts the highest / youngest markers collected and the marker beds furthest to the southwest are the lowest / oldest. Furthermore the marker data establishes an unfaulted conformable sequence of middle Aldridge stratigraphy ranging from about 1000 meters above the lower-middle Aldridge contact (LMC) to less than 450 meters above the LMC.

During the course of locating marker beds, minor base metal mineralization was noted in association with a lamprophyre dike on the southwest corner of the Plum 1 claim and disseminated tourmaline needles were observed in siltstones east of the Moyie River near the west edge of the Vent 16 claim (Figs. 2 & 3).

A further description of the geology of the central and western part of the property is provided in the 1999 field program report (Klewchuk, 1999; AR 26,131).

### 3.00 CONCLUSIONS

Geologic mapping of part of the DA Vent property in 2000 located a series of stratigraphic marker beds which clearly define the exact middle Aldridge Formation stratigraphy of the Moyie River and Deep Lake valleys on the Vent 16 claim. The lowest / oldest marker beds occur in the west central part of the Vent 16 claim and are about 430 meters above the lower-middle Aldridge Formation contact (Sullivan orebody-equivalent strata). The highest / youngest marker beds are north of Deep Lake and establish this stratigraphy at about 1000 meters above the lower-middle Aldridge formation contact.

### 4.00 REFERENCES

- Hoy, T., 1982, The Purcell Supergroup in southeastern British Columbia: Sedimentation, tectonics, and stratiform lead-zinc deposits, in *Precambrian Sulfide Deposits*, H.S. Robinson Memorial Volume, R.W. Hutchinson, C.D. Spence, and J.M. Franklin, eds., Geological Association of Canada, Special Paper 25, p. 127-147.
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- Lis, M.G. and Price, R.A., 1976, Large scale block faulting during deposition of the Windermere Supergroup (Hadrynian) in southeastern British Columbia: *Geol. Surv. Can. Paper 76-1A*, p 135-136.
- Reesor, J.E., 1958, Dewar Creek Map-area with special emphasis on the White Creek batholith, British Columbia: Geological Survey of Canada, Memoir 292, 78p.

## 5.00 STATEMENT OF EXPENDITURES

M. Kennedy, T. Kennedy	6 days fieldwork plus cutting and matching markers @ \$220/day	\$1320.00
P. Klewchuk	2 days matching markers, report @ \$330.00/day	660.00
4X4 truck	3 days @ \$80/day	240.00
TOTAL EXPENDITURE		<u>\$2220.00</u>

## 6.00 AUTHOR'S QUALIFICATIONS

As author of this report I, Peter Klewchuk, certify that:

- I am an independent consulting geologist with offices at 246 Moyie Street, Kimberley, B.C.
- I am a graduate geologist with a B.Sc. degree (1969) from the University of British Columbia and an M.Sc. degree (1972) from the University of Calgary.
- I am a Fellow of the Geological Association of Canada and a member of the Association of Professional Engineers and Geoscientists of British Columbia.
- I have been actively involved in mining and exploration geology, primarily in the province of British Columbia, for the past 25 years.
- I have been employed by major mining companies and provincial government geological departments.

Dated at Kimberley, British Columbia, this 7<sup>th</sup> day of February, 2001.

\_\_\_\_\_  
Peter Klewchuk  
P. Geo.



