822624

GEOLOGICAL PROGNOSIS - UPDATE

BAR CLAIM GROUP

Fort Steele Mining Division

NTS 82 G5/W

by

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Geologist

November 15th,1986

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Summary and Conclusions

The objective of this project is to find another economic massive sulphide deposit in the Aldridge Formation which hosts the immense Sullivan Zn-Pb-Ag deposit. The Sullivan horizon exists at depths of 900 metres to 2000 metres within the Bar Claim Group.

The Bar property was staked by Leask and Associates between July 1983 and July 1984 to cover an area with favourable geology adjacent to deep drilling being carried out by Cominco Ltd.

In 1985 a single diamond drill hole was completed to a final depth of 1550.3 metres during the months of May, June, July, October and November under a joint venture between Noranda Exploration Company, Skylark Resources Limited, Canadian United Minerals Inc., and Laramide Resources Limited.

The drillhole (DDH Bar 85-1) was successful in penetrating the targetted Lower-Middle Aldridge contact (Sullivan Time Horizon) at a depth of approximately 1400 metres. The Lower-Middle Aldridge interval within the drill hole includes the Sullivan Mine hanging wall sequence underlain by a thick pyrrhotite rich, black mudstone which is in turn underlain by a massive bedded intraformational conglomerate containing abundant massive and banded pyrrhotite and chalcopyrite clasts. Stratigraphic evidence suggests that the upper hanging wall section is thickened by 300 metres over a normal section, indicating a local third order basin.

Additional drilling is warranted based upon anomalous Pb-Zn-Ag-Ba-Hg within the Lower-Middle Aldridge interval and a revised geologic model which includes a north-south graben

related third order basin linked to a penecontemporaneous growth fault. This graben is proposed to lie within the Sullivan Mine Corridor, a 150 km. long north-south trending zone, marked by tourmalinite (boron alteration), albitization, slumping, and gabbro feeder complexes. The corridor is believed to mark the ancient zone of high heat flow and extentional tectonics within the Precambrian Aldridge basin.

Introduction

Location, Access and Physiography

The Bar Group of mineral claims is located 10 kilometres west of the city of Cranbrook on the western flank of the Rocky Mountain Trench. These claims comprise a single 106 unit block lying immediately north of Lumberton Reservoir between Kiakho Creek and Wuho Creek.

Access to the claim area is by Highway 3-95 south from Cranbrook then west on the Moyie River Forest Road.

Steep sided valleys with abundant cliffs both east and west of Lumberton Lookout Mountain characterize the topography. In the areas of the claims elevations range between 870 metres A.S.L. and 1700 metres A.S.L. In general, the area is heavily wooded, but overburden usually forms only a thin veneer with outcrops numerous within the trees.

Climate is that of the Rocky Mountain Trench rain shadow with annual precipitation of approximately 40 centimetres. Snowpack in winter rarely exceeds 2 metres. Temperatures range from -40 C in winter to +40 C in summer.

i

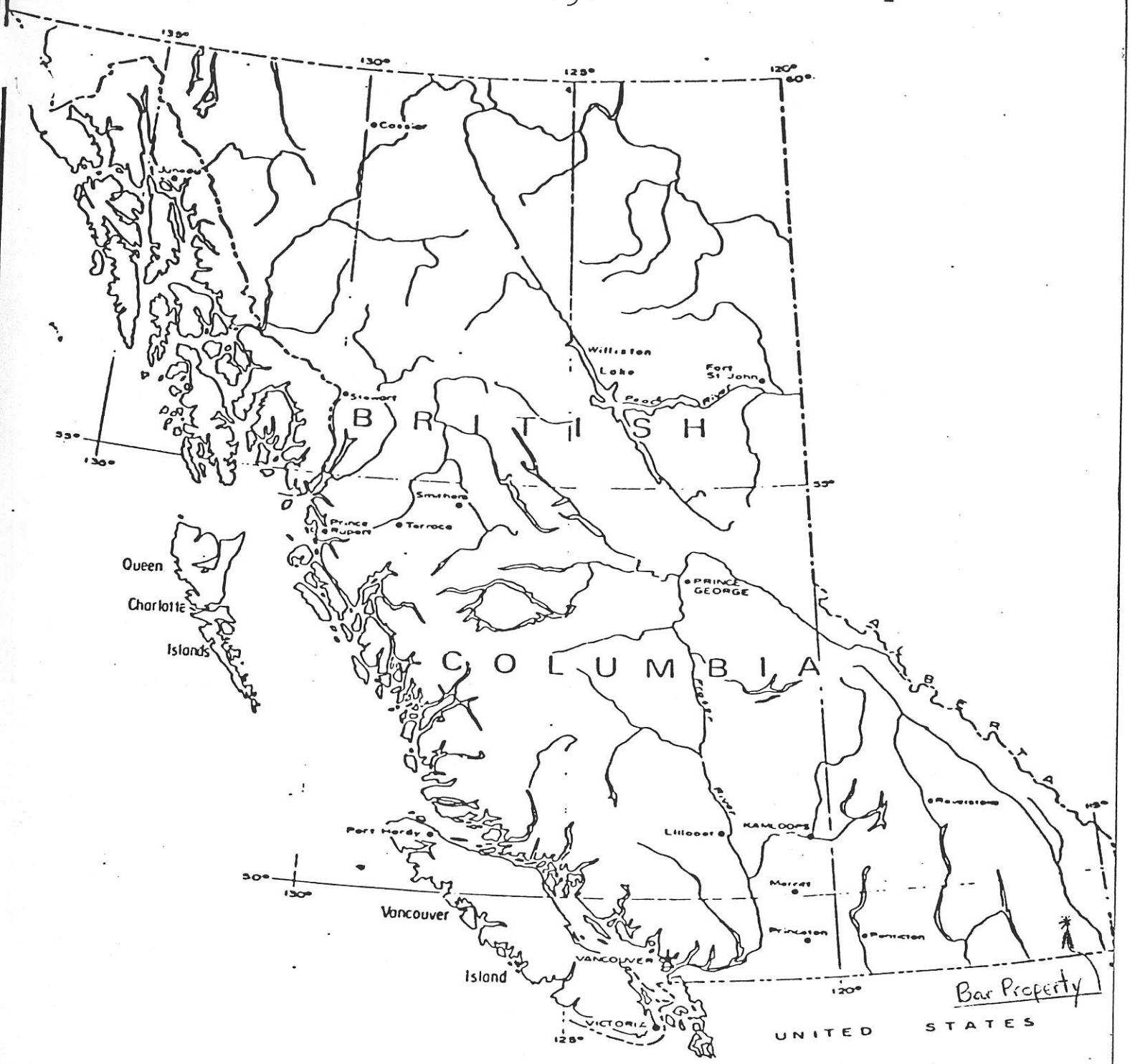


Fig.1

LEASK ASSOCIATES

LOCATION MAP

100 50 0 100 200

SCALE IN MILES

CLAIMS AND OWNERSHIP

All claims are located within the Fort Steele Mining Division and are owned by:

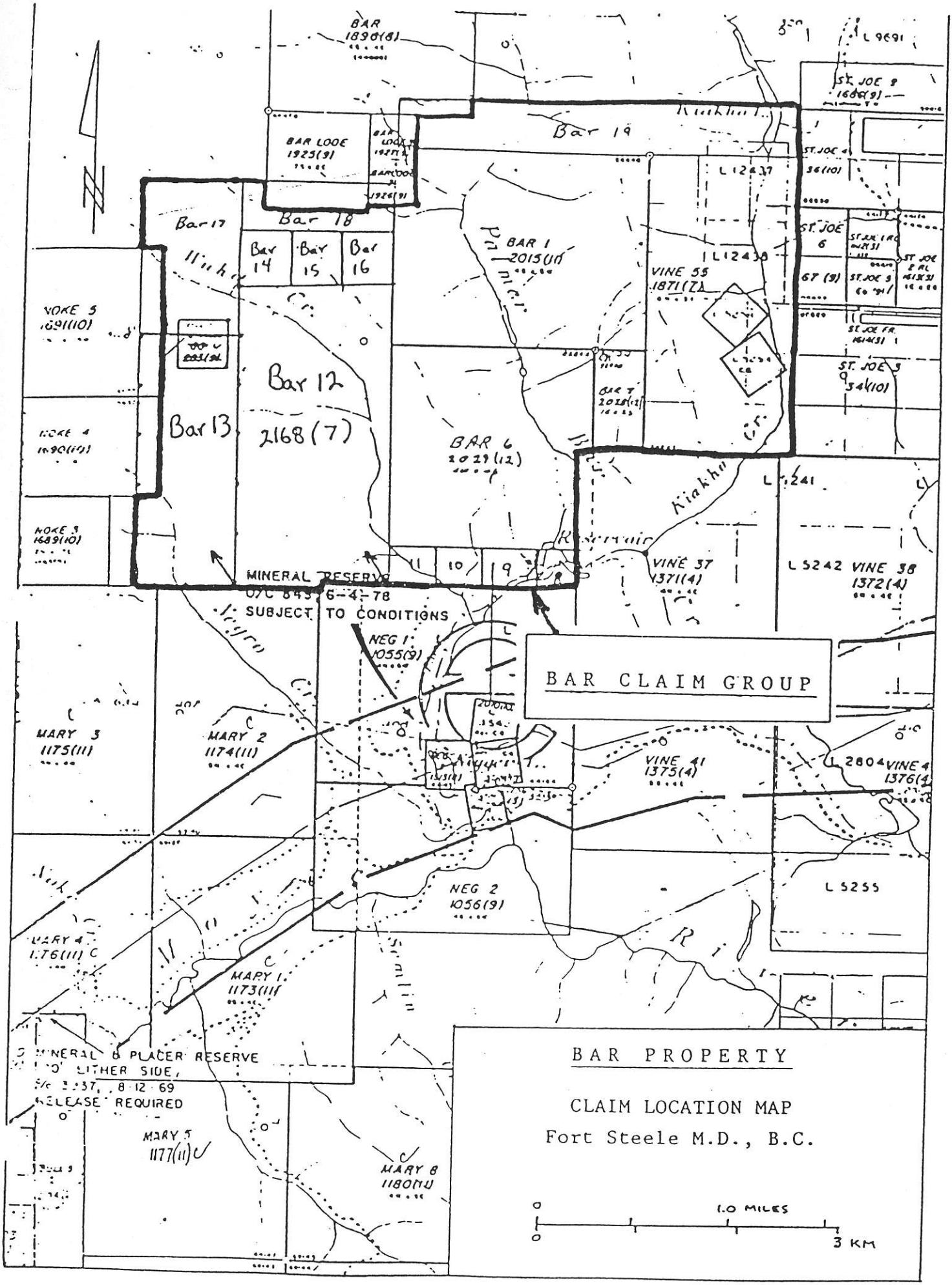
John M. Leask
843 W. 15th Ave
Vancouver, B. C.
V5Z 1R8

or

Gordon P. Leask
507-14th Ave. South
Cranbrook, B. C.
V1C 2X9

Claim Name	Units	Record No.	Record Date
Vine 55	18	1871	July 18th, 1983
Bar 1	20	2015	November 10th, 1983
Bar 6	16	2028	December 14th, 1983
Bar 7	6	2029	December 14th, 1983
Bar 8	1	2164	July 3rd, 1984
Bar 9	1	2165	July 3rd, 1984
Bar 10	1	2166	July 3rd, 1984
Bar 11	1	2167	July 3rd, 1984
Bar 12	18	2168	July 3rd, 1984
Bar 13	10	2169	July 3rd, 1984
Bar 14	1	2170	July 3rd, 1984
Bar 15	1	2171	July 3rd, 1984
Bar 16	1	2172	July 3rd, 1984
Bar 17	6	2354	February 20th, 1985
Bar 18	3	2355	February 20th, 1985
Belleville	Crown Grant		
Lookout	Crown Grant		
TOTAL	106 units		

The location of the claims is shown on Drawing 2 at a scale of 1:12,500.


BAR CLAIM GROUP
BAR PROPERTY
CLAIM LOCATION MAP
Fort Steele M.D., B.C.
1.0 MILES
3 KM
Bar 12
2168(7)
Bar 13
Bar 14
Bar 15
Bar 16
Bar 17
Bar 18
Bar 19
BAR 1
2015(11)
BAR 6
2029(12)
MINERAL RESERVE
O/C 845 6-4-78
SUBJECT TO CONDITIONS
NEG 1
1055(9)
NEG 2
1056(9)
VINE 37
1371(4)
VINE 38
1372(4)
VINE 41
1375(4)
L 5242
L 5255
MARY 1
1173(11)
MARY 2
1174(11)
MARY 3
1175(11)
MARY 4
1176(11)
MARY 5
1177(11)
MARY 8
1180(11)
BAR
1890(8)
BAR LODE
1925(9)
VOKE 3
1691(10)
VOKE 4
1690(10)
VOKE 5
1691(10)
ST. JOE 5
34(10)
ST. JOE 6
67(9)
ST. JOE 9
1686(9)
L 9691
L 12437
L 12438
L 5241
L 2804

HISTORY

Mining development of the district began with the discovery of a showing of Zn-Pb-Ag ore on the North Star hill in 1891, followed by the discovery of the HU zone of the Sullivan orebody in 1892 just 4 kilometres northeast of North Star hill. From the date of acquisition in 1909 by the Consolidated Mining and Smelting Company to the end of 1985, the Sullivan Mine produced 135,500,000 tons of ore containing 6.7 percent lead, 5.8 percent zinc, and 2.4 oz/ton silver. In total the Sullivan orebody approached 180,000,000 tons of ore grading 12 percent Pb-Zn and 2 oz/ton Ag.

The St. Eugene vein orebody was located in 1893 some 50 kilometres south of the Sullivan Camp and 20 kilometres south of the Bar claim group.

The Bar property to this date has been explored by approximately 300 metres of underground workings aimed at developing several Zn-Pb-Ag-Au veins high in the Middle Aldridge Section.

In recent years exploration of the area has been advanced by the following developments:

- Recognition in 1962 of varved markers, their potential use in stratigraphic control within the Middle Aldridge and subsequent potential for exploration.

- Discovery of lead-zinc mineralized strata of the Sullivan Time Horizon beneath deep overburden at the Polaris prospect in 1971. This property is 10 kilometres south of the Sullivan Mine.

- During Ocotober, 1976 D.L. Pighin, a Cominco employed geologist/prospector discovered massive sphalerite - galena - pyrrhotite boulders in a recently excavated road cut north of Moyie Lake. This discovery was protected as the Vine 1 claim consisting of 20 units. Further excavation in the immediate vicinity of the boulder occurence uncovered a very impressive vein with widths from 2 to 6 metres. As the Sullivan Time Horizon

was known to exist a hundred metres or so below this new showing, it was suggested that the sulphide vein was leakage from a bedded sulphide body below. Since 1976 seven drill holes have probed the Sullivan horizon and returned at least narrow intersections of bedded sulphide anomalous in lead, zinc, and mercury outling a large apron of sulphides to the south and east of the Bar Claim Group. This apron is believed by Cominco to be the equivalent of the Concentrator Hill horizon (distal extension of the Sullivan orebody). On the strength of this evidence and geological theory, Leask and Associates staked the Bar Claim Group.

REGIONAL GEOLOGY

Regionally the area is underlain by rocks of the Purcell Supergroup on the western flank of the Purcell Anticlinorium, a broad slightly north plunging arch-like structure in Helikian and Hadrinian aged rocks. The oldest rocks exposed in the Purcell Anticlinorium are greenish, rusty weathering, thin bedded siltites and quartzites of the Lower Aldridge formation. Overlying the Lower Aldridge is a monotonous section of Middle Aldridge quartz wackes, subwackes and argillites some 3000+ metres thick. Within the Middle Aldridge formation, fourteen varved marker horizons can be correlated varve for varve over hundreds of kilometres. These represent the only accurate stratigraphic control. A number of areally extensive diorite sills are present with the Lower and Middle Aldridge Formations. The Middle Aldridge is overlain by Upper Aldridge, 300 to 400m of thin fissile, rusty weathering argillite/siltite.

Conformably overlying the Aldridge Formatiom is the Creston formation, comprising approximately 1800 metres of grey, green and maroon, cross bedded and ripple marked platformal quartzites and mudstones. Kitchener-Siyeh Formation, which includes 1200 to 1600 metres of green/grey dolomitic mudstone and buff coloured mudstone are shallow water sediments overlying the Creston Formation and mark the end of the Lower Purcell time.

The upper portion of the Purcell Supergroup consists of the Dutch Creek and Mount Nelson formations. Dutch Creek formation consists of approximately 1200 metres of dark grey, calcareous dolomitic mudstones. Overlying the Dutch Creek formation is the Mount Nelson formation, 1000m of grey/green and maroon mudstone and calcareous mudstones. This marks the top of the Purcell Supergroup.

The Aldridge basin hosts the world class Sullivan Pb-Zn-Ag deposit. It is believed this basin evolved as a deep intercratonic trough, analogous to the Guamas Basin on the west

coast of Mexico, as a result of tectonic activity along an ancient crustal spreading center. It is proposed that the Sullivan deposit is situated at the junction of a major penecontemporaneous transform fault (ie. the Kimberly Fault) and the oceanic spreading centre (rift zone). Transform faults are generated to relieve stresses in the crust induced during spreading. Zones of spreading within the Aldridge are believed to be marked by albitization (sodium addition), gabbro feeder dykes, and tourmalinite, a mineral/rock type produced from replacement by boron-silica rich fluids of magmatic origin.

PROPERTY GEOLOGY

Surface Mapping

The overall structure determined from detailed mapping consists of a northerly plunging anticline which is attenuated to the north by the Cranbrook Fault, a major transverse structure with some 2000 metres of throw. This fault brings Middle Aldridge quartz wackes into contact with Creston platformal quartzite. Correlation with other units within the Purcell Anticlinourium serves to indicate stratigraphic tops.

Lithologies present within the claims include thin to thick bedded grey weathering quartz wacke with minor siltstone and argillite of the Middle Aldridge Formation. In the Bouma designations these correspond to AE turbidites and are indicative of a rapid depositional environment. Rare polymictic intraformational conglomerates are present within the Middle Aldridge and represent slump adjacent to growth faults active in Middle Aldridge time. One such unit is exposed adjacent to the NE corner of the Vine 55 claim on the B and V claim group.

Numerous Moyie metagabbro sills are present within the Middle Aldridge. A few of the major sills provide rough stratigraphic markers as they are largely concordant.

A Cretaceous granitic stock is exposed to the northeast of the property, adjacent to and south of the Cranbrook Fault. This rock is dominantly porphyritic with large plagioclase rhombs in a quartz-biotite groundmass. This stock is likely emplaced along the intersection of a graben margin and the Cranbrook fault. An area of intense albitization, tourmalinization and slumping occurs 2 kilometres south of DDH Bar 85-1 and marks activity centred on a gabbro arch intruded along the western margin of the Cranbrook graben.

Subsurface Geology as Indicated by Diamond Drill Holes.

DDH Bar 85-1 encountered a repetitive succession of turbidites typical of the Middle Aldridge Formation from 26 metres to 897 metres where the Lower-Middle Aldridge contact was projected from marker information. From 897 metres to 1058 metres a thick gabbro sill was encountered, beneath which Middle Aldridge type sediments were again prevalent. Included within the thick sill are several screens of silicified quartz wacke and chloritized mudstone. Also included is amphibolite and a distinctive interval of brecciated rock from 1035.27 to 1044.24 metres. This brecciated rock consists of roughly equal amounts of blotchy textured biotite, quartz, chlorite, and feldspar. It is commonly called 'leopard rock' or 'dalmationite'.

The rocks below the sill are drastically different than those above it with a much greater proportion of siltstones and mudstones with interbeds of quartz wacke and quartz arenite. This interval is intensely foliated throughout. Chloritization, albitization and Knottensheifer alteration are ubiquitous throughout this section. This section was noted from 1060.00 to 1309.00 metres and is tentatively correlated with the transition between Middle and Lower Aldridge.

Another change in the assemblage is noted from 1309.43 to 1435.10 metres, where a series of massive quartz wacke bases grade up into laminated siltstones and fine grained quartz wackes. This section is tentatively correlated with the Upper Quartzite series which marks the top of the Sullivan hanging wall section. From 1435.10 to 1482.35 metres the section is dominated by thinly laminated siltstone, laminated and non-laminated mudstone with interbeds of limey siltstone, silty limestone and thin beds of intraformational conglomerate. This siltstone - mudstone interval has abundant pyrrhotite disseminations, blebs, stringers and laminations up to 2 cm wide with a frequency of 2

to 3 per cm with overall sulphide content ranging from 2 to 20 percent. This section is believed to be the distal or up slope equivalent of the Sullivan Mud Zone which hosts the various massive sulphide bands in the mine area. This section is anomalous in Pb, Zn, Ag, Ba and Hg, supporting a distal location.

At 1482.35 metres a thick intraformational conglomerate consisting of rounded to angular clasts of mudstone, siltstone, massive and banded pyrrhotite with or without chalcopyrite was encountered. Clast sizes range from pebble to cobble size and make up as much as 60 percent of the unit's primarily siltstone matrix. Bedding to core angles are noticably steepened within the conglomerate indicative of a slope facies. At 1529.28 metres the conglomerate grades into thinly laminated siltstone with thin interbeds of Po rich calcareous siltstone. This unit predominates to the end of the drill hole at 1550.30 metres and is correlated with the top of the Lower Aldridge Formation.

The section encountered in DDH Bar 85-1 was in marked contrast to the section in DDH Vine 82-1 (located 1.7 kilometres east of DDH Bar 85-1) which did not encounter the gabbro sill and penetrated the Lower Aldridge at 900 metres depth. There was however an extremely disrupted and slumped mudstone interval enriched in sulphides near the base of the Middle Aldridge in DDH Vine 82-1. (These drill holes were collared at approximately the same stratigraphic level.)

Mineralization

Several lead-zinc-silver veins are present on the property, some of which have received considerable attention by previous owners in the form of numerous open cuts and two short adits. These veins strike at 135 Az and dip steeply, as do all important vein systems within the Aldridge Formation. These structures tend to be very persistent along strike with pinch and

swell characteristics resulting in tabular steeply dipping ore shoots. Occurences of this type with major economic importance include the St. Eugene from which approximately 1 million tons grading 7 oz/ton Ag and 20 percent combined zinc-lead was mined. The North Star-Stemwinder produced 180,000 tons grading 20 oz/ton Ag with 40 percent combined zinc-lead, and Estella Mine produced 250,000 tons grading 10 oz/ton Ag with 10 percent zinc-lead. The Vine deposit has reserves approaching the grade and tonnage mined at the St. Eugene, but has yet to be exploited.

Modelling

Recent studies have shown that massive sulphide deposits are now forming at the intersection of crustal spreading centres and major transform fault fractures. Some present day sites are the Juan de Fuca Strait, Gulf of Afar and the Guamas Basin.

The importance of these intersections between transform faults and spreading centres is three fold.

1) It causes down-faulting and graben development which forms the sub-basin necessary for thick accumulations of sulphides.

2) It halts the propagation of the spreading centre allowing the 'hot spot' to be focussed long enough for a convective cell to operate, leaching metals from the surrounding sediments, and precipitating the metal near the site of discharge on the sea floor. The effect of this focussed hydrothermal activity often results in the formation of a breccia pipe below the discharge site.

3) The Transverse Fault - Magma Chamber couplet are the heat sink- heat source necessary for convection with seawater recharge accomodated by the Transverse Fault-Fracture System.

Typically a spreading centre is not a single linear fracture, rather it is a zone one to several kilometres wide consisting of down dropped blocks. The marginal growth faults of

these blocks are the locus of hydrothermal activity and may be marked by sodium addition (albite alteration) and tourmalinization. Both alteration types support a close magmatic association for these deposits.

As early as 1962 Dr. Aaro Aho and others observed that sedimentary hosted deposits within single rifted basins have a spacing of from 20 to 30 kilometres. This has been a major, if somewhat empirical, predictive element of the model to date. These deposits are now seen as an integral product of a rifting environment with the spacing controlled by the physical parameters of the crust at that location.

Geophysics - Magnetotelluric (Deep Resistivity)

During the period July, 1983 to January, 1985 Duncan Oil Limited of Denver, Colorado completed extensive seismic and magnetotelluric surveys under the direction of Pheonix Geophysics of Vancouver, B.C. This work was done in search of a deep thrust which is hypothesized to transpose Pre-Cambrian rocks over Mesozoic to Paleozoic rocks.

During the course of this work it became apparent that the Lower-Middle Aldridge Interval could be successfully mapped and profiled using magnetotelluric surveys. Subsequent physical measurements by Phoenix Geophysics on core obtained in DDH Bar 85-1 confirmed a large difference in resistivity and I.P. effect between the Middle and Lower Aldridge Units.

An east-west magnetotelluric profile south of DDH Bar 85-1 across the Cranbrook Graben outlines the nature of the structure showing the relative amount of down drop and width of the graben related trough. (see Appendix 1)

ECONOMICS

The Sullivan deposit is most often quoted as containing reserves of 180,000,000 tons grading 6.7 percent lead, 6.5 percent zinc and 2 oz/ton silver and with recoverable gold, tin and REE. An important characteristic of these deposits, including the Sullivan, is the existence of a high grade core which may be exploited in times of low metal prices and during the initial payback of preproduction expenditures. The Sullivan deposit contained substantial tonnages (20,000,000 to 30,000,000 tons) grading greater than 30 percent combined Zn-Pb with 10 oz/ton Ag. This allows great latitude in the development and exploitation of these deposits and places them among the lowest cost producers of zinc, lead and silver.

A new discovery within reasonable distance of Kimberly would be well positioned to supplement and eventually replace the waning reserves of the Sullivan Mine. As the infrastructure and a skilled workforce already exist in the area, prepoduction cost could be kept to a minimum.

CONCLUSIONS AND RECOMMENDATIONS

The Aldridge Basin is the only major sedimentary rifted basin which hosts only a single known major deposit to date. All other similar basins, both those forming at present and those preserved in the geologic record, host from 2 to 6 large deposits. It is likely that several large deposits remain buried within the Aldridge formation as the most favourable section has very limited surface exposure.

DDH Bar 85-1 encountered a section correlatable with the hanging wall/footwall Sullivan Mine ore zone within a graben related third order basin. Chloritization and albitization are ubiquitous throughout the lower 400 metres of this hole.

The Lower-Middle Aldridge interval at this location is enriched with stratiform iron sulphide, anomalous in Pb-Zn-Ag-Hg and Ba. This interval may well represent the distal or up slope section of a Sullivan type ore body. As this current exploration play is in the advanced stages, with a focussed target being evident, the geological prognosis in this report supports a strong possibility for an important Zn-Pb-Ag massive sulphide discovery.

The next exploration step would be to attempt to define the margins of the third order basin using magnetotelluric, magnetic and gravity surveys.

Initially additional drilling targetted to intersect the centre of this basin 2 kilometres to the north of DDH Bar 85-1 is recommended. Two deep drill holes totalling 12,000 feet of drilling are warranted at a cost of $600,000.

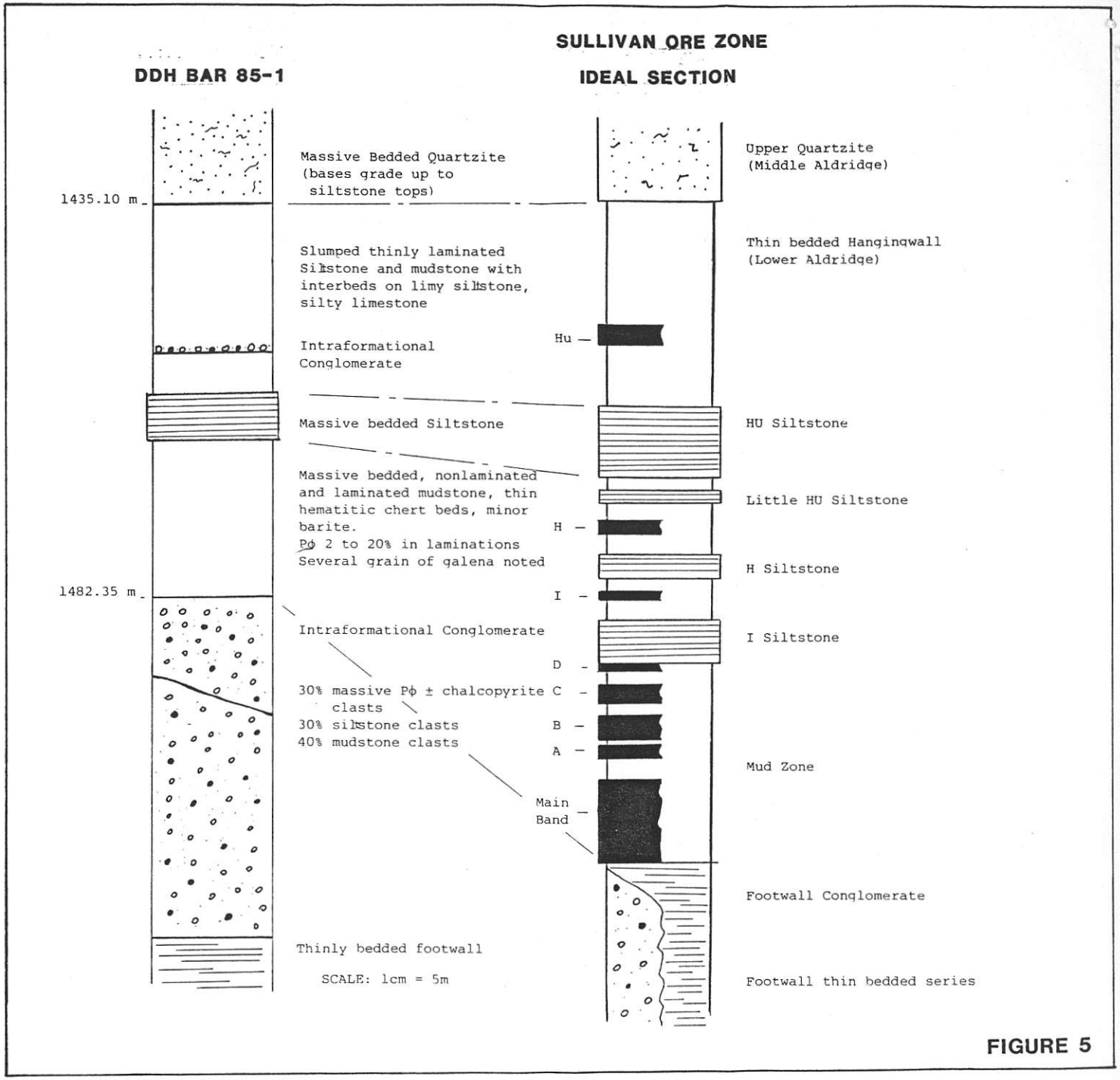

SULLIVAN ORE ZONE
IDEAL SECTION
DDH BAR 85-1
1435.10 m
1482.35 m
Massive Bedded Quartzite (bases grade up to siltstone tops)
Slumped thinly laminated Siltstone and mudstone with interbeds on limy siltstone, silty limestone
Intraformational Conglomerate
Massive bedded Siltstone
Massive bedded, nonlaminated and laminated mudstone, thin hematitic chert beds, minor barite.
Pφ 2 to 20% in laminations
Several grain of galena noted
Intraformational Conglomerate
30% massive Pφ ± chalcopyrite clasts
30% siltstone clasts
40% mudstone clasts
Thinly bedded footwall
SCALE: 1cm = 5m
Hu
H
I
D
C
B
A
Main Band
Upper Quartzite (Middle Aldridge)
Thin bedded Hangingwall (Lower Aldridge)
HU Siltstone
Little HU Siltstone
H Siltstone
I Siltstone
Mud Zone
Footwall Conglomerate
Footwall thin bedded series

FIGURE 5