

**1990 GEOLOGICAL REPORT ON THE
DOLLY VARDEN PROPERTY
DOLLY AND VARDEN GROUP CLAIMS**

**Skeena Mining Division
55° 42' North, 129° 30' East
103P/11, 12, 13**

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**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

April, 1991

21,562

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A. INTRODUCTION

A.1 Scope

Results from the 1989 exploration program on the Dolly Varden property confirmed the presence of a volcanogenic massive sulphide environment. As a result, a comprehensive compilation of all available geological and survey data was undertaken for the entire Dolly Varden property during the winter of 1989/90.

Data was replotted using Computer-Aided Drafting (CAD) techniques and a reinterpretation was made of the geology and mineralized occurrences. The compilation and reinterpretation of historic data identified an extensive volcanic exhalative horizon extending for over 3.5 km on surface and to depths exceeding 350 m below surface. The volcanic exhalative horizon lies within rocks of the Lower to Middle Jurassic Hazelton Group. Known occurrences of sulphide enrichment lying within this horizon are the Dolly Varden, North Star and Torbrit deposits, all of which were previously considered silver-vein deposits.

In the Eskay Creek area, 120 km northwest of the Dolly Varden property, a geological mineral reserve of 5,023,000 tonnes grading 15.6 g Au/tonne and 441 g Ag/tonne with significant Zn, Pb and Cu values (ore grade) has been outlined in the #21 zone. This reserve lies within a complex package of andesite, rhyolite and mudstone, all within Toarcian to Bajocian rocks of Betty Creek, Mt. Dilworth and Salmon River Fms. The Eskay Creek deposits occur in a geological setting similar to that at the Dolly Varden Property.

Based on apparent geological similarities with Eskay Creek, a comprehensive geological mapping program was undertaken on the Dolly Varden property.

STEWART - ISKUT BELT

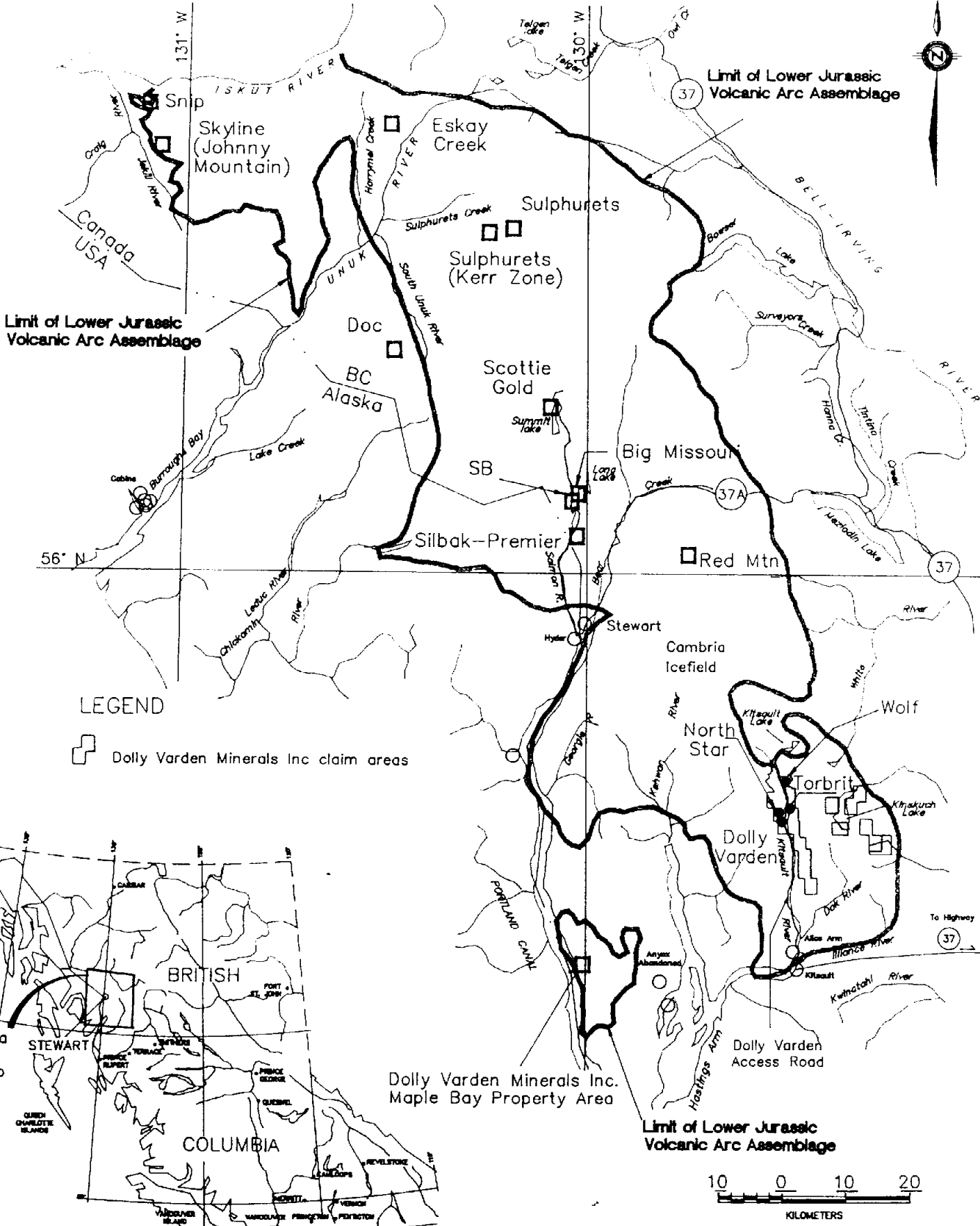


FIGURE 1

Pre-field compilation, interpretation and management of the exploration program itself was conducted by Cambria Geological Ltd. of Vancouver, B.C. Personnel of Golden Dolly Minerals Inc. provided all labour and support services.

A.2 Location and Access

The Dolly Varden property is located 40 km southeast of Stewart, in west-central British Columbia, in the Skeena Mining Division in the 103P/11, 12 and 13 map sheets. Work was centred at approximately 55° 42'N latitude and 129°30'E longitude (Fig. 1). The property straddles the Kitsault River in an area of moderately rugged terrain with elevations ranging from 300 to 1200 m.

The area is typically coastal with a thick forest cover of coastal hemlock, balsam and fir trees with alder, blueberry, huckleberry and devils club underbrush.

The Alice Arm area is accessed by an all weather road from provincial highway 37 to the mining town and port of Kitsault, which is located 25 km south of the property. In 1990, barge service was instituted to transport men and equipment from Kitsault to Alice Arm. A 5 km road north along the Kitsault River linked Alice Arm with a temporary trailer-tent field camp. Workers and equipment were then flown by helicopter to the property 12 km to the north. Supplies for the program were expedited out of Smithers, utilizing a 3/4 ton pick-up truck on a twice per week basis.

A.3 Land Status

The Dolly Varden property consists of 41 crown granted mineral claims, 68 two-post mineral claims, 24 four-post (Modified Grid System) mineral claims, 7 mining leases, and 4 reverted crown granted mineral claims (see Map 1). A list of these claims and crown grants with their respective record numbers and expiry dates can be found in Appendix A.

All claims constituting the "Dolly Varden property" are owned by Dolly Varden Minerals Inc., 6th Floor - 45 Charles Street, East, Toronto, Ontario, M4Y 1S2 (Appendix A).

Maps 1 and 2 illustrate the DOLLY and VARDEN groups configuration and Tables 1 and 2 list the claims contained within the groups with related claim definition and expiry dates.

A.4 History

The first staking in the Dolly Varden area occurred in 1910 with location of the Red Point No. 1 mineral claim. The first claims for silver in the Dolly Varden mine area were staked in 1911. The Sportsman and North Star were staked in 1912 and 1914 respectively.

Extensive prospecting, test pitting and drifting was carried out over the next seven years to develop the Dolly Varden silver deposit and bring it to production in 1919. The Dolly Varden mine produced 1,315,678 ounces silver per ton. Mineral reserves in the Dolly Varden deposit have been estimated at 47,000 tons grading 22 ounces silver per ton.

The only other deposit in the area to see production was the Torbrit. From 1949 to 1959 Torbrit Silver Mines Limited produced 18,706,847 ounces of silver and 5,386 tons of lead from 1,377,832 tons of ore. The average grade was 13.6 ounces silver per ton and 0.39 percent lead. Present mineral reserves range from 294,500 tons to 867,000 tons grading 9.5 ounces and 9.1 ounces silver per ton respectively, depending on the source of the calculation.

Although never in production, the North Star deposit has a mineral reserve of 141,577 tons (diluted) grading 11.7 ounces silver per tonne above the 1025

ft level. Although not considered in the ore-reserve calculation, zinc is sufficiently abundant to make it more valuable than the silver in many mineralized intersections.

During production at the Torbrit, exploration and development continued on the North Star and Wolf prospects. Lesser amounts of exploration were conducted on the Moose-Lamb, Tiger and Surprise showings. From 1969 to 1973 Dolly Varden Mines Ltd. conducted surface exploration and diamond drilling on other quartz-barite prospects in the area.

From 1979 to 1981 Dolly Varden Minerals Inc. commissioned consultants Derry, Michener and Booth to conduct diamond drill exploration and ore reserve calculations of the silver deposits.

In 1986, B. Devlin, working on behalf of Derry, Michener, Booth and Wahl, and Dolly Varden Minerals Inc., recognized the probable volcanogenic origin of the Dolly Varden-North Star-Torbrit silver deposits.

TABLE 1
DOLLY GROUP

<u>NAME</u>	<u>LEASE #/ REC. #</u>	<u>UNITS</u>	<u>ANNIVERSARY DATE</u>
STEEP 1	8910	1	05/24/96
STEEP 2	8911	1	05/24/96
STEEP 3	8912	1	05/24/96
STEEP 4	8913	1	05/24/96
CHIP 1	9030	1	05/24/95
CHIP 2	9031	1	05/24/95
CHIP 3	9032	1	05/24/95
CHIP 4	9033	1	05/24/95
CHIP 5	9034	1	05/24/95
CHIP 6	9035	1	05/24/95
CHIP FR.	8909	1	05/24/96
DV #1	2379	1	05/21/93
DV #2	2380	1	05/21/93
DV #3	2381	1	05/21/93
DV #4	2382	1	05/21/93
DANA NO. 5	35414	1	06/04/95
DANA NO. 3	35412	1	06/04/95
DANA NO. 1	35410	1	06/04/95
NANCY HANKS	L3826	1	
DAN PATCH	L3825	1	
LUE DILLON	L3827	1	
SABLE FR.	28828	1	04/18/94
ROAN ANTELOPE	15347	1	08/17/94
RED POINT EXTEN.	L3810	1	
RED POINT NO. 1	L3809	1	
MAUD MCPHEE	L3817	1	
SPORTSMAN	L3816	1	
ARM FR.	19605	1	03/29/95
SILVER TIP NO. 2	8561	1	03/22/95
SILVER TIP NO. 1	8562	1	03/22/95
DOLLY VARDEN NO. 1	L3192	1	
DOLLY VARDEN NO. 2	L3193	1	
DOLLY VARDEN NO. 3	L3194	1	
BIG STRIKE	6206	1	06/16/95
ROYAL NO. 1	L1080	1	
ROYAL NO. 2	L1081	1	
ROYAL NO. 3	L1082	1	
ROYAL NO. 4	L1083	1	
DV #5	2383	1	05/21/95
DV #6	2384	1	05/21/95
DV #7	2385	1	05/21/95
DV #8	2386	1	05/21/95
SILVER BELL FR.	2275	1	
DAVID COPPERFIELD NO. 1	8564	1	03/22/95
DOLLY VARDEN NO. 4	L3195	1	
DOLLY VARDEN NO. 5	L3196	1	
DOLLY VARDEN NO. 6	L3197	1	
ANGLO	L934	1	
TORIC	L935	1	
MOOSE	L936	1	
LAMB	L937	1	
TIGER	L3614	1	
LION	L3613	1	

* OPTIONED FROM STIKINE RESOURCES LTD.

TABLE 2
VARDEN GROUP

<u>NAME</u>	<u>LEASE #/ REC. #</u>	<u>UNITS</u>	<u>ANNIVERSARY DATE</u>
ICE 1	8915	15	
ICE 2	8916	12	05/29/96
ICE 3	8917	4	05/29/96
ICE 4	8918	5	05/29/96
SNOW 1	8840	1	05/29/96
SNOW 2	8841	1	05/19/95
MINK	28821	1	05/19/95
MARTEN	28822	1	04/18/95
RIVER 1	8837	1	04/18/95
RIVER 2	8838	1	05/19/95
RIVER 4	8839	1	05/19/95
RIVER FR.	8997	1	05/19/95
BLUE JAY FR.	28823	1	05/24/97
WOLF NO. 6	21161	1	04/18/95
WOLF NO. 7	21162	1	11/29/95
COPPER CLIFF NO. 5	15807	1	11/29/95
COPPER CLIFF NO. 6	15808	1	06/11/95
COPPER CLIFF NO. 7	15809	1	06/11/95
COPPER CLIFF	L3806	1	06/11/95
COPPER CLIFF NO. 1.	L3807	1	
COPPER CLIFF NO. 2	L3808	1	
COPPER CLIFF NO. 3	L3798	1	
WOLF 9	368	1	
DANA NO. 6	35415	1	03/30/95
DANA NO. 4	35413	1	06/04/95
DANA NO. 2	35411	1	06/04/95
BEAR FR.	28826	1	06/04/95
POLLY FR.	28827	1	04/18/95
SURPPRISE	14218	1	
MAUD 5	L3828	1	09/20/99
SURPRISE NO. 1 FR.	18311	1	
ROAN ANTELOPE #1	15348	1	10/16/99
KITSOL NO. 2	L3814	1	08/17/94
KITSOL NO. 1	L3815	1	
WOLF NO. 3	L3796	1	
WOLVERINE	L3797	1	
HILL BILLY	L4263	1	
HILL BILLY NO. 2	5865	1	
SILVERADO FRACTION	L4266	1	03/09/95
MUTT & JEFF FR.	L4265	1	
WOLF	L3795	1	
WOLF NO. 2	L3794	1	
SILVER HORDE NO. 3	L3802	1	
SILVER HORDE FR.	L3803	1	
SILVER HORDE	L3804	1	
CLIMAX	L941	1	
CLIMAX NO. 2	L942	1	
TORUT 1	8995	1	
TROUT 2	8996	1	05/24/96
TROUT FR.	8914	1	05/24/97
SILVER HORDE NO. 2	L3805	1	05/24/97

In 1989, Dolly Varden Minerals Inc. initiated a comprehensive, multistaged surface exploration program that included 2257 m of drilling on the Red Point and Red Point Extension showings along with detailed geologic mapping and geochemical sampling of a limited area of the Gold Belt alteration. In conjunction with this work, Dolly Varden Minerals conducted a surface diamond drilling program on the North Star deposit consisting of 2396 m in six holes, to verify drilling done by Torbrit Silver Mines Limited in 1957. The program confirmed the previous results and indicated the presence of an extensive volcanic exhalative horizon.

A.5 1990 Exploration Work

During the period June 1 to August 31, 1990, exploration activity on the Dolly Varden property consisted of geological mapping and diamond drilling. A drilling assessment report entitled "1990 Diamond Drilling Report on the Dolly Varden Property" by P. McGuigan and W. Melnyk discusses the drilling program. Geological mapping, subject of this report, was undertaken by two geologists who spent 70 mandays mapping approximately 18 square kms at a scale of 1:5000. Airphotos, orthophotos and Thommen altimeters were used for control. Costs have been apportioned to reflect expenses incurred from traverses conducted on the DOLLY and VARDEN GROUP claims only, however, for purposes of completeness, all geological data is submitted with this report.

B. GEOLOGY OF THE STEWART-ISKUT BELT

B.1 Jurassic Calc-Alkaline Volcanic Arc Assemblages

The major focus of precious and base metal exploration programs in the Stewart-Iskut Belt is on island arc rocks of Jurassic age. The Jurassic rocks are part of the Triassic-Jurassic age Stikinia, which formed as an independent arc terrane, separated from the North American craton. Table 3 shows the major rock formations of the Stewart-Iskut Belt.

TABLE 3

MAJOR VOLCANIC AND SEDIMENTARY FORMATIONS OF THE STEWART-ISKUT BELT

AGE	GROUPS	FORMATIONS	LITHOLOGIES	
Middle Jurassic	Bathonian	Bowser Lake	Ashman	Turbidites, wackes, intra formational conglomerates, basal chert pebble conglomerates.
Middle to Lower Jurassic	Bajocian to Toarcian	Spatsizi (?)	Salmon River	Pyjama beds: thinly bedded, alternating siltstone and argillite. Basal fossiliferous limestone or fossiliferous wacke. Locally contains pillowed basalt flows.
Lower Jurassic	Toarcian	Not Named (Formerly Hazelton)	M t Dilworth B e t t y Creek	Dacitic ash and lapilli tuff, some welded ash Flow. Hematitic volcanic sediments, turbidites; Dacitic and andesitic tuffs, lapilli tuffs and flows. Rests unconformably on Hazelton Group rocks.
Lower Jurassic	Pliensbachian to Sinemurian or Hettangian (?)	Hazelton	Unuk River	Two feldspar and hornblende porphyritic tuffs and flows. Massive tuffs and lapilli tuffs with local volcanic sediments. Locally intercalated with turbidites and minor limestones.
Upper Triassic	Norian to Karnian	Stuhini		Pyroxene porphyry flows and tuffs. Turbidites, limestone and conglomerate.

Upper Triassic **Stuhini Group** rocks form the base of the island arc terrane. Lower Jurassic **Hazelton Group** consists mostly of large volumes of calc-alkaline volcanics of the **Unuk River Fm.**, and their co-eval alkaline and calc-alkaline intrusions. The base of the **Hazelton Group** is Sinemurian age or locally as old as Hettangian.

Pliensbachian time was marked by a hiatus in volcanism over most of Stikinia and the start of back-arc rifting. **Betty Creek Fm.** was deposited in late Pliensbachian to Toarcian time. The **Betty Creek Fm.** rocks were deposited in irregularly distributed basins that were linear and structurally-controlled. Stratigraphic thicknesses vary markedly over short distances. **Mt. Dilworth Fm.** was deposited in Toarcian time and consists of distinctive pyritic felsic volcanics. Locally, the **Mt. Dilworth Fm.** rocks may interfinger with **Betty Creek Fm.**

Spatsizi Group rocks were deposited in a Toarcian to Bajocian age back-arc basin. The basin was probably the precursor of the **Bowser Basin**. In the **Stewart-Iskut belt** area, the **Salmon River Fm.** formed in Toarcian time. The basal unit is a distinct fossiliferous and pyritic wacke. The basal wacke of the **Salmon River Fm.** rests on an erosional unconformity in much of the **Stewart-Iskut Belt**, although locally it appears conformable to **Mt. Dilworth Fm.**

B.2 Setting of Precious and Base Metal Deposits

B.2.a. Deposits Associated with Early Jurassic Intrusions

Two important classes of mineral deposits are co-genetic with the Early Jurassic calc-alkaline volcanic arc assemblages. The most important are described in Table 4. The first class of deposits are closely associated with Early Jurassic, alkaline and calc-alkaline sub-volcanic intrusions. Epithermal and mesothermal gold-silver vein and copper-gold porphyry deposits are genetically linked by:

TABLE 4 - GOLD-SILVER DEPOSITS OF THE STEWART - ISKUT BELT

GOLD-SILVER DEPOSITS OF THE STEWART GOLD CAMP

DEPOSIT (OWNERS)	STATUS	PAST PRODUCTION/ RESERVES	SUMMARY GEOLOGY
Snip. (Cominco, Prime)	Underground exploration; Pre-feasibility.	Reserves (indicated & Inferred): 1.43 million T; .62 oz/ton Au.	Mesothermal vein in shear zone within Hazelton Group greywacke and siltstone.
Johnny Mtn. (Skyline)	Production on hold.	Reserves: re-evaluation.	Mesothermal stockworks and veins in Hazelton volcanics and sediments.
Eskay Creek. (Prime, Stikine Silver)	Underground exploration.	Drill indicated 55.4 million tons reserve: 2.09 million tons; 0.45 oz/ton Au, 12.9 oz/ton Ag.	Volcanic-exhalative Au-Ag-Zn-Pb deposit in Mt. Dilworth Fm. and Salmon River Fm. dacite and argillite. Mineralization extends along a narrow horizon near the volcanic sediment contact. Open.
Sulphurets - Brucejack and West Zones. (Newhawk, Granduc)	Underground exploration; Pre-feasibility.	Reserves (proven, indicated, inferred): 1.42 million T; .34 oz/ton Au, 20.17 oz/ton Ag.	Mesothermal to epithermal stockworks and veins in Hazelton volcanics and sediments. Recent discoveries of very high grade Au-Ag.
Sulphurets - Snowfield Zone. (Newhawk, Granduc)	Exploration; On hold.	Reserves (inferred): 25 million T; .08 oz/ton Au.	Disseminated (porphyry-style) gold in an Early Jurassic stock.
Sulphurets - Kerr Zone. (Placer Dome)	Exploration;	Reserves (inferred): 60 million T; .86% Cu, .01 oz/ton Au, .06 oz/ton Ag.	Alkalic copper-gold porphyry within Hazelton volcanics. Associated with an Early Jurassic stock. Large tonnage increase is possible.
Doc. (Silver Princess, Magna.)	Underground exploration.	Reserves (Proven): 207,000 tons; .32 oz/ton Au, 1.38 oz/ton Ag. Reserves (Possible): 263,000 tons; .23 oz/ton Au, 1.35 oz/ton Ag.	Mesothermal vein of Jurassic (?) age in Upper Triassic volcanic basement rocks.
SB. (Tenajon)	Underground exploration.	Reserves (Indicated): 308,000 tons; .505 oz/ton Au, 1.07 oz/ton Ag.	Mesothermal to epithermal stockworks within Hazelton volcanics. Acquisition by Westmin under negotiation.
Premier Gold - Silbak Premier, Big Missouri. (Westmin, Pioneer Metals)	Open pit production. 2000 tpd. Capital cost \$90 million.	Silbak Premier past production (underground): 4.6 million tons; 1.8 million oz Au, 41 million oz. Ag. Big Missouri past production (underground): 847,000 tons; 58,400 oz Au, 52,700 oz Ag.	Stockworks and volcanic-exhalative mineralization within Hazelton volcanics. Big Missouri ore to be trucked to Silbak-Premier.
Red Mountain. (Bond Gold)	Exploration.	Significant new discovery in Sept. 1989. Drill Hole 216 ft. of .28 oz./t Au, 1.4 oz/ton Ag.	Hosted by Betty Creek Fm. volcanics.
North Star. (Dolly Varden)	Exploration.	Reserves (Proven and probable): 141,577 tons; 11.71 oz/ton Ag, plus Zn and Pb.	Hosted by interfingering Mt. Dilworth and Betty Creek volcanic rocks. Extensive sheets of volcanic- exhalative Ag-Zn-Pb (Cu, Au) in siliceous-baritic exhalite.
Wolf. (Dolly Varden)	Exploration.	Reserves (Proven and probable), 326,773 tons; 9.17 oz/ton Ag. Reserves (Possible): 110,556 tons; 8.15 oz/ton Ag.	Hosted by interfingering Mt. Dilworth and Betty Creek volcanic rocks. Extensive sheets of volcanic exhalative Ag-Pb(-Zn) in siliceous baritic exhalite at the volcanic sediment contact.
Dolly Varden. (Dolly Varden)	Exploration; past producer.	Past production: 36,600 tons; 1.3 million oz. Ag. Reserves (Proven and probable), 47,000 tons; 22.00 oz/ton Ag.	Hosted by interfingering Mt. Dilworth and Betty Creek volcanic rocks. Extensive sheets of volcanic-exhalative Ag-Zn-Pb (Cu, Au) in siliceous-baritic exhalite.
Torbrit. (Dolly Varden)	Exploration; past producer.	Past production: 1.4 million tons; 19 million oz Ag, 11 million lb. Pb. Reserves (Possible): 777,000 tons 9.8 oz/ton Ag.	.

- * close spacial and temporal association with Early Jurassic intrusive rocks, especially two feldspar porphyries with distinctive K-feldspar megacrysts.
- * strong structural control by syn-volcanic faults
- * similar lead-isotope signatures
- * potassic alteration, as pervasive sericite and or K-feldspar

Host rocks are most commonly Unuk River Fm. or Betty Creek Fm. rocks, but some Early Jurassic vein deposits are hosted by late Triassic Stuhini Group rocks. Alkalic copper-gold porphyry deposits of Early Jurassic age are economically important in British Columbia. Within the Stewart-Iskut Belt, the Kerr deposit is the largest.

B.2.b. Volcanic-Exhalative Deposits

The second important class of deposits in the Stewart-Iskut Belt is co-genetic with Middle Jurassic volcanic arc assemblages. They consist of volcanogenic massive sulphides and exhalative mineralization within the sub-aqueous facies of the Betty Creek, Mt. Dilworth and Salmon River Fms. Until 1989, the silver-zinc deposits of the Dolly Varden and Kitsault Lake properties were the only known examples. The recent significant discovery of volcanogenic gold-silver-zinc mineralization at Eskay Creek has now strongly shifted the exploration focus in the Stewart-Iskut Belt towards the sub-aqueous facies of Mt. Dilworth Fm. and the base of the Salmon River Fm. The Eskay Creek deposit is currently being explored underground, and contains a geological mineral reserve of 5,023,000 tonnes grading 15.6 g Au/tonne and 441 g Ag/tonne with significant base-metal values. The deposit is hosted by intercalated dacite and rhyolite of the Mt. Dilworth Fm. and mudstone of the Salmon River Fm.

Rocks of the Betty Creek, Mt. Dilworth and Salmon River Fms. are not well understood in the Stewart-Iskut Belt. However, in general Toarcian-Bajocian time marked the cessation of Hazelton volcanism and the start of back-arc basin formation. The volcanogenic deposits were probably deposited in linear, structurally-controlled basins that are characterized by alternating volcanism and quiescent sedimentation. The geological setting and chemistry of the Stewart-Iskut volcanic exhalative deposits show a strong similarity to the Kuroko District (Japan) and the Buchans District (Newfoundland). However, should the Eskay Creek discovery prove to be a member of this deposit class, it would represent a very rich precious metal variety. The close and well documented similarity of the Dolly Varden deposits to the volcanogenic deposit class has led to a strong incentive for continuing exploration of the property.

C. GEOLOGY OF THE DOLLY VARDEN PROPERTY

C.1 Introduction

The Dolly Varden property was geologically mapped at a scale of 1:5,000 from June 15 to August 10, 1990. The authors mapped approximately 18 square km centred on the Dolly Varden - North Star - Torbrit Mine area. Airphotos, orthophotos and Thommen altimeters were used for control. The objective of the 1990 mapping program was to resolve the complex stratigraphy, determine the time-stratigraphic setting of the Dolly Varden exhalative mineralization with the expectation of discovering extensions to the DVT horizon. Aspects of structure, mineralogy and alteration were also examined.

C.2 Lithologies

C.2.a. Upper Triassic Volcanics and Sediments - Stuhini Group

Stuhini Group rocks crop-out on the eastern and western fringes of the Dolly Varden property. The rocks consist of an assemblage of heterolithic pebble and cobble conglomerate, siltstone, argillite and wacke. The unit is distributed as shown on geology maps 3a and 3b and is labelled 1a and 1b.

C.2.b. Lower Jurassic Volcanics - Hazelton Group

The distribution of Hazelton Group rocks, represented by Sinemurian age Unuk River Fm., is not clearly understood on the Dolly Varden property. The rocks are mapped as occurring in a broad arcuate band from the headwaters of Black Bear Creek to the west, straddling Homestead Creek to the southwest, and trending easterly across Kitsault River.

A narrow band of Unuk River Fm. rocks occurs near the Moose-Lamb prospect and trends northerly beyond Tiger Creek. Near the Moose-Lamb prospect, these rocks are truncated by the Moose-Lamb Fault. The Unuk River Fm. is represented by units 2a to 2d on Maps 3a and 3b. These rocks consist of a distinct basal unit consisting of black feldspar phyric andesite to basalt rocks (Unit 2a), with minor argillite, wacke, and siltstone. A minor brick-red feldspar phyric epiclastic unit (Unit 2b) overlies or is intercalated with the black unit near the Moose-Lamb prospect. Two additional units in this formation consist of green and/or maroon feldspar phyric andesite to dacite pyroclastic rocks and flows (Unit 2c), and green feldspar, amphibole andesite porphyry with minor lenses of chert and argillite (Unit 2d). The contact relationships with the younger Toarcian Betty Creek Fm. are not well understood.

C.2.c Lower Jurassic - Mt. Dilworth Fm. and Betty Creek Fm.

The rocks of the Toarcian **Mt. Dilworth** and **Betty Creek Fm.** on the Dolly Varden property are mapped as Unit 3. They consist of a sequence of dacitic and andesitic pyroclastics, flows, and intercalated maroon and green andesite and basalt-andesite ash tuff, lapilli tuff, and their derived epiclastic sediments. The rocks were deposited in a shallow marine basin with strong local relief and are characterized by rapid changes in facies and thickness.

The rocks of these formations host the volcanic exhalative silver-zinc-lead showings and deposits of the Dolly Varden, North Star, Torbrit, Torbrit East and Moose-Lamb. The equivalent stratigraphic horizon is the focus of exploration near the northern fringe of the property, at the Homestake (Noranda) and Kitsault Lake properties. Betty Creek Fm. rocks are host for the significant new gold discovery by Bond Gold near Red Mountain, located 25 km north of the Dolly Varden property. The sub-units within Unit 3 are significantly revised from the interpretation of Devlin (1987) and Alldrick (1986). The exhalite facies mapped by Devlin remain in the revised stratigraphic interpretation.

Footwall rocks of the Betty Creek Fm. (Unit 3a) are mapped in the south central map area (Maps 3a and 3b) straddling the Kitsault River and encompassing the David Copperfield - Surprise exhalite zone. Unit 3a adjoins the DVT exhalite horizon to the north. Marker horizons have not been identified during this season's work within the footwall rocks. This unit consists of dark green and/or maroon andesite to basalt pyroclastic rocks (ash tuff, lapilli tuff, and tuff breccia) with lesser flows, flow breccia and sub-volcanic sills and dykes. Pyroclastic rocks are poorly sorted and mainly monolithic. Epidote-calcite-chlorite alteration is locally developed.

Three closely spaced exhalite horizons are developed within flows of unit 3a, stratigraphically below the DVT exhalite horizon. An upper horizon within the interflow exhalite contains the David Copperfield and Surprise prospects. The exhalative horizon consists of silica-barite-sulphides and calcite.

Volcanic exhalative deposits on the Dolly Varden property are mapped as Unit 3b. Unit 3b is comprised of stratiform volcanic exhalative sulphides, sulphates, carbonates, oxides and native silver. The variable facies within the exhalite

horizons have not been mapped in detail in this phase of surface geological mapping, but they consist of the following principle exhalite facies as determined from 1989 and 1990 diamond drilling and underground mapping:

- * **oxide-rich facies:** silica-carbonate-sulphate-oxide-(sulphide) facies containing quartz, chalcedony, jasper, calcite, barite, hematite, sulphides, magnetite and native silver. Sulphide minerals comprise less than 10% of the unit and include sphalerite, galena, pyrite, chalcopyrite, pyrargyrite and tetrahedrite.

- * **sulphide-rich facies:** Silica-carbonate-sulphate-sulphide facies contain quartz, chalcedony, calcite, barite, sulphides, magnetite, hematite, and native silver. Sulphides range from 5 to 50% and consist of pyrite, sphalerite, galena, chalcopyrite, pyrargyrite and tetrahedrite.

- * **carbonate-rich facies:** carbonate-silica-(sulphate-sulphide) facies contain mostly calcite, quartz and chalcedony, with very minor barite, pyrite, sphalerite, galena and chalcopyrite.

The zone of exhalite and polyolithic exhalative breccia extends almost continuously from the Silver Tip prospect, eastward through Dolly Varden West, the Dolly Varden Mine, North Star Mine, Torbrit Mine, Torbrit East and Moose-Lamb deposits. Collectively, these exhalite deposits comprise the "DVT Exhalite Zone". The "DVT Exhalite Zone" is the principle exhalite/mineralized zone on the property.

Polyolithic exhalitic breccia (Unit 3c) is closely associated with the exhalite facies. Most commonly, the breccia lies in the hanging wall of the exhalite. Polyolithic exhalitic breccia consist of fragments of all exhalite facies, mixed with

altered and unaltered volcanic fragments. Usually, the breccia is interpreted to be a debris flow facies which formed when semi-consolidated exhalite deposits slumped during formation.

The debris flow facies recognized on the Dolly Varden property mostly contain fragments of oxide-rich and carbonate-rich exhalite. "Transported ore" facies of sulphide-rich exhalite have not been recognized, except as minor proportions of accidental fragments in other breccias. All sulphide-rich exhalite seen to date is in-situ.

The hanging wall volcanic rocks to the main DVT Exhalite horizon are mapped as Unit 3d. This unit consists of maroon and/or green dacite to andesite \pm feldspar phyric, pyroclastic rocks including ash tuff, crystal tuff, lapilli tuff, flows and occasional rare lenses of argillite and limestone. The unit is generally heterolithic with rare fiamme and may represent the sub-aqueous equivalent of Unit 3e. Locally, the base of the unit is a distinctive, fine laminated chloritic ash tuff.

Unit 3e consists of brick-red and maroon feldspar phyric dacite and welded pyroclastic rocks including dust tuff, ash tuff, crystal tuff, lapilli tuff and tuff breccia. The unit is massive to thickly bedded with local horizons of fiamme (ignimbrite), accretionary lapilli and bombs. Lapilli tuff and tuff breccia clasts are heterolithic and often feldspar phyric. This unit interfingers with Unit 3d.

C.2.d. Lower to Middle Jurassic - Salmon River Fm.

Rocks of the Toarcian to Bajocian age Salmon River Fm. on the Dolly Varden property are mapped as Unit 4. They consist of a sequence of thinly bedded, alternating siltstone and argillite (Unit 4b) with a basal member of fossiliferous limestone or fossiliferous wacke (Unit 4a).

On the Dolly Varden property, Salmon River Fm. rocks outcrop in the Kitsault River valley, north of Evindsen Creek. The rocks occupy the core of the gently, northwesterly plunging Kitsault Valley syncline.

C.2.e Late Intrusion

Eocene and younger lamprophyre and basaltic dykes in the Dolly Varden map area are mapped as Unit 5. These dykes occupy northeast trending, steeply dipping faults. Lamprophyre dykes occur frequently in swarms with 4 to 5 occurring over widths of 15 to 45 m, as seen in the Torbrit Mine workings and North Star drill core.

C.3 Structure

C.3.a. Deformation

Mapping by the authors (1990), Alldrick (1986), and Devlin (1987) indicates the strata in the upper Kitsault Valley are deformed into a gently, northwesterly plunging syncline. The syncline is termed the Kitsault Valley Syncline in this report.

Mapping indicates that the axial plane of the early phase of deformation strikes northwest to north-northwest and dips steeply to moderately to the west.

Mapping indicates the presence of several important, minor scale, fold structures within the broad keel of the Kitsault Valley Syncline. Using the DVT exhalite, and the footwall volcanics as marker horizons, three structures are identified. the Torbrit syncline lies on the eastern flank of the Kitsault Valley Syncline. The keel of the Torbrit syncline passes near the Torbrit deposit and might be responsible for a significant structural thickening. The axis of the syncline plunges 30° to 40° to the northwest. A minor anticline passes through the North Star Mine. Fold axis measured in the North Star, 1025 level, plunge 30° to 55° towards the northwest. The Dolly Varden Syncline passes

through the Dolly Varden Mine (Dolly Varden East Zone). The Dolly Varden Syncline lies on the western flank of the broad Kitsault Valley Syncline.

C.3.b. Faulting

Direct evidence of major faulting was not measured during the 1990 surface mapping program. Abundant circumstantial evidence was gathered to confidently identify the Mitchell, North Star and Moose-Lamb faults as well as several structures of lesser magnitude. Diamond drilling in 1989 identified the North Star Fault as a major structure separating the North Star Mine mineralization from the Dolly Varden Mine. Drilling determined the North Star Fault attitude at 160° azimuth and dipping 45° southwest. The North Star fault is identified on surface by a curvilinear topographic trace off-setting surface mineralization of the Dolly Varden and North Star zones. Normal dip-slip displacement is left-lateral and is estimated to be 140 m.

The Mitchell fault is a major post-mineral structure trending northerly and dipping steeply westerly. The Mitchell fault off-sets the Dolly Varden West zone from the Silver Tip, however, the displacement appears to be minimal. Six hundred (600) m north of the confluence of Kitsault River and Evindsen Creek, the Mitchell fault off-sets Salmon River Fm. sediments but absolute movement is uncertain. The North Star fault may terminate against the Mitchell fault near Evindsen Creek.

The Moose-Lamb fault is located near the Moose-Lamb prospect and trends approximately 305°/60° southwest. An apparent off-set of 700 m is indicated by the Stuhini-Hazelton Group contact. The Moose-Lamb fault closely parallels the Kitsault valley synclinal axis and may terminate at the Mitchell fault near the Kitsault River.

C.4 Mineralization and Alteration Suites

C.4.a. Sericite-Pyrite-Quartz (S, SQ)

A large area of moderate pervasive sericite-pyrite-quartz alteration occurs in the Red Point-Combination Lake area. A narrow band of alteration 0 to 50 m wide, parallels the Betty Creek/Mt. Dilworth and Salmon River Fm. contact northerly to the vicinity of Gash Creek where the alteration zone widens to 220 m. Beyond Gash Creek, the alteration zone attains widths of 600 m approaching West Kitsault River.

A second broad zone, 600 m wide, of sericite-pyrite-quartz alteration occurs in Evindsen Creek, west of the Silver Tip prospect, and trends southerly toward Homestead Creek.

This alteration assemblage occurs as felted masses of sericite with fine-grained pyrite and numerous 1 mm to 10 cm wide quartz \pm barite veinlets and stringers. Alteration has partially or completely destroyed original rock textures.

The Dolly Varden exhalite is bounded above and below by sericite-pyrite alteration in the vicinity of the Dolly Varden mine workings. The North Star exhalite is bounded by sericite-pyrite alteration up to 90 feet wide in underground workings.

C.4.b. Potassium Feldspar (Kfp)

The Red Point mineralized zones are characterized by an earlier stage of potassic alteration in the form of K-feldspar which has pervasively altered the rocks along several northwest trending fault zones as determined from 1989 diamond drilling. The alteration has transformed the sericite-pyrite altered rock

into hard, dense and glassy rock with little or no original texture visible. Potassium staining techniques are required to identify the presence and extent of this alteration.

Although not directly associated with the precious metal values at Red Point, the potassic alteration is associated with the mineralizing event.

C.4.c. Hydrothermal Breccia (ChBx)

Diamond drilling in 1989 intersected a black hydrothermal crackle breccia with breccia clasts of the previously altered rock in the Red Point mineralized zones. Frequent drill core samples from the Red Point zones contain potassic altered breccia clasts surrounded by black chlorite and pyrite. Although this phase of alteration is barren of precious metals it is very significant in its type and nature.

C.4.d. Quartz-Copper-Gold-Silver Stockworks (Qst)

Copper-gold-silver mineralization occurs sporadically in the Red Point showings.

Red Point style precious metal mineralization occurs within quartz and chalcedony filled stockworks, breccias and veins. It is intimately associated with chalcopyrite, galena and sphalerite usually in a gangue consisting of 55% quartz (chalcedony), 20% carbonate (calcite/ankerite), 15% chlorite (black-dark green) and 5 to 8% sulphides. These siliceous zones are frequently vein-like and can be described as silicified crackle breccia or stockwork zones.

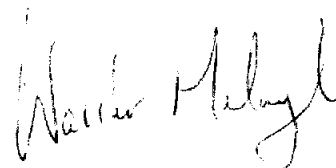
Similar mineralization occurs in several other showings along the Gold Belt, namely the Medallion, Starlight, Copper Cliff, and Dan Patch.

C.4.e Volcanic Exhalative Deposits (Unit 3b, 3c)

Volcanic exhalative mineralization is the prime economic target in the Kitsault Valley. Since this style of mineralization forms stratiform rock units, it is described in Section C.1 Lithologies.

C.4.f. Chloritic Stringer Zones (Chst)

Chlorite alteration is well developed in the Red Point Extension North area. Dark green and black chlorite occurs as matrix replacement and with calcite-sulphide stringers. Gold values were found to be highest where chalcopyrite and dark green chlorite occur. Drilling on the North Star deposit in 1989 encountered chlorite-sulphide stockwork zones in four drill holes beneath the exhalative horizon. This alteration style is similar to a volcanic massive sulphide stringer zone and is indicative of a volcanogenic massive sulphide environment.



D. REFERENCES

- ALLDRICK, D.J., 1989. Volcanic Centers in the Stewart Complex. B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork 1988, Paper 1989-1, pages 233-240.
- DAWSON, G.L. and ALLDRICK, D.J., 1986. Geology and Mineral Deposits of the Kitsault Valley. B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork 1985, Paper 1986-1, pages 219-224.
- DROWN, T., MCGUIGAN, P., and MELNYK, W., 1989. 1989 North Star Exploration Program, Skeena Mining Division, Assessment Report. Prepared for Dolly Varden Minerals Inc.
- MCGUIGAN, P., and MELNYK, W., 1991. 1990 Diamond Drilling Report on the Dolly Varden Property, Skeena Mining Division, Assessment Report. Prepared for Dolly Varden Minerals Inc.
- DROWN, T., MCGUIGAN, P., and MELNYK, W., 1989. Geological, Geochemical and Diamond Drilling Report on the Dolly Varden Property (Gold Belt), Skeena Mining Division, Assessment Report. Prepared for Dolly Varden Minerals Inc.
- KIRKHAM, R.V., Editor, 1987. Buchans Geology, Newfoundland Geological Survey of Canada, Paper 86-24.
- OHMOTO, H. and SKINNER, B.J., Editors, 1983. The Kuroko and Related Volcanogenic Massive Sulphide Deposits, Economic Geology, Monograph 5.
- PEARSON, W.N., and WAHL, D.G., 1986. Private company report titled: Report on the Dolly Varden Property, Kitsault River Area, British Columbia, prepared for Dolly Varden Minerals Inc.

APPENDIX A
LIST OF CLAIMS AND CROWN GRANTS

LIST OF CLAIMS AND CROWN GRANTS

<u>CLAIMNAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>EXPIRY DATE</u>
Silver Dream 1	5313	20	04/11/95
Silver Dream 2	5314	8	04/11/95
Silver Dream 3	5315	12	04/11/95
Arm Fr	19605	1	03/29/95
D.V.#3	33523	1	11/07/96
D.V.#4	33524	1	11/07/96
D.V.#5	33525	1	11/07/96
D.V.#6	33526	1	11/07/95
D.V.#8	33528	1	11/07/95
Silver Bell Fr.	2275	1	05/20/95
Big Strike	6206	1	06/16/95
Silver Tip No. 1	8562	1	03/22/95
Silver Tip No. 2	8561	1	03/22/95
Southern Gold	5480	20	08/12/94
Arm No. 1 Fr	19606	1	03/29/95
Arm No. 2 Fr	19607	1	03/29/95
Regal No. 2	5870	1	03/09/95
HillBilly No. 2	5865	1	03/09/95
David Copperfield No. 1	8564	1	03/22/95
Silver Dream	5869	1	03/09/95
Barite Snow #1	5316	12	04/11/95
Barite Snow #2	5317	12	04/11/95
Southern Gold 2	5519	10	09/03/94
Kit 1	7510	16	04/29/95
Kit 2	7511	16	04/29/95
Kit 3	7512	20	04/29/95
Bear Fr.	28826	1	04/18/95
Blue Jay Fractional	28823	1	04/18/95
Bosun Fr.	28825	1	04/18/95
Copper CliffNo. 4	15806	1	06/11/95
Copper CliffNo. 5	15807	1	06/11/95
Copper CliffNo. 6	15808	1	06/11/95
Copper CliffNo. 7	15809	1	06/11/95
Marten	28822	1	04/18/95
Dana No. 1	35410	1	06/04/95
Dana No. 2	35411	1	06/04/95
Dana No. 3	35412	1	06/04/95
Dana No. 4	35413	1	06/04/95
Dana No. 5	35414	1	06/04/95
Dana No. 6	35415	1	06/04/95

<u>CLAIMNAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>EXPIRYDATE</u>
Midget Fr.	28824	1	04/18/95
Mink	28821	1	04/18/95
Missing Link Fr.	15604	1	09/14/99
Polly Fr.	28827	1	04/18/95
Red Point Fraction	7768	1	08/04/94
Roan Antelope	15347	1	08/17/94
Roan Antelope #1	15348	1	08/17/94
Sable Fr.	28828	1	04/18/94
Surprise	14218	1	09/20/99
Surprise No. 1 Fr.	18311	1	10/16/99
Wolf No. 4	21159	1	11/29/95
Wolf No. 5	21160	1	11/29/95
Wolf No. 6	21161	1	11/29/95
Wolf No. 7	21162	1	11/29/95
Wolf No. 10	21735	1	06/01/95
Snow 1	8840	1	05/19/95
Snow 2	8841	1	05/19/95
Snow 3	8842	1	05/19/95
River 1	8837	1	05/19/95
River 2	8838	1	05/19/95
River 4	8839	1	05/19/95
Wolf 8	367	1	03/30/95
Wolf 9	368	1	03/30/95
*Ice Bear 1	8156	15	11/13/95
*Ice Bear 2	8157	12	11/13/95
*Valdor 1	8158	5	11/13/95
*Valdor 2	8159	4	11/13/95
*Ice 1	8915	15	05/29/96
*Ice 2	8916	12	05/29/96
*Ice 3	8917	4	05/29/96
*Ice 4	8918	5	05/29/96
***Chip Fr.	8909	1	05/24/96
***Chip 1	9030	1	05/24/95
***Chip 2	9031	1	05/24/95
***Chip 3	9032	1	05/24/95
***Chip 4	9033	1	05/24/95
***Chip 5	9034	1	05/24/95
***Chip 6	9035	1	05/24/95
***Steep 1	8910	1	05/24/96
***Steep 2	8911	1	05/24/96

* An "Application for Inclusion of claims" was approved by the Gold Commissioner of the Skeena Mining Division on October 1, 1990, whereby Mineral claims Ice Bear 1, 2, and Valdor 1 and 2 were included within claims ICE 1-4.

<u>CLAIMNAME</u>	<u>RECORD #</u>	<u>UNITS</u>	<u>EXPIRYDATE</u>
*** Steep 3	8912	1	05/24/96
*** Steep 4	8913	1	05/24/96
*** Trout 1	8995	1	05/24/96
*** Trout 2	8996	1	05/24/96
*** Trout Fr.	8914	1	05/24/96
*** River Fr.	8997	1	05/24/96
** DV #1	2379	1	05/21/93
** DV #2	2380	1	05/21/93
** DV #3	2381	1	05/21/93
** DV #4	2382	1	05/21/93
** DV #5	2383	1	05/21/95
** DV #6	2384	1	05/21/95
** DV #7	2385	1	05/21/95
** DV #8	2386	1	05/21/95
Right On 2	8907	12	05/29/91
Right On 4	8908	20	05/29/91
Kit 4	7513	20	05/29/92
Wanim 1	7769	20	08/05/91
Claim 1	7640	20	06/04/92
Claim 2	7641	20	06/04/92
Claim 3	7642	20	06/04/92
Claim 4	7643	20	06/04/92
Claim 5	7644	20	06/04/92
WK 1	7509	20	04/29/94

** 2-post claims optioned from Stikine Resources Ltd.

*** subject to B.C. Ministry of Mines "Section 35" ruling.

CROWN GRANTS

Alice Fraction	L3515	1
Copper Cliff	L3806	1
Copper CliffNo. 1	L3807	1
Copper CliffNo. 2	L3808	1
Copper CliffNo. 3	L3798	1
Dan Patch	L3825	1
Dolly Varden No. 1	L3192	1
Dolly Varden No. 2	L3193	1
Dolly Varden No. 3	L3194	1
Dolly Varden No. 4	L3195	1
Dolly Varden No. 5	L3196	1
Dolly Varden No. 6	L3197	1
Dolly Varden No. 7	L3198	1
Ferro. Fraction	L3822	1

CROWN GRANTS (CONTINUED)

Lion	L3613	1
Lue Dillon	L3827	1
Maud McPhee	L3817	1
Mutt and Jeff Fraction	L4265	1
Nancy Hanks	L3826	1
North Star	L3634	1
Plutus Fraction	L3615	1
Sunset No. 1	L3818	1
Sunset No. 2	L3819	1
Surprise	L4335	1
Swiftwater	L4336	1
Tiger	L3614	1
Uist	L4337	1
Wolf	L3795	1
Wolf No. 2	L3794	1
Wolf No. 3	L3796	1
Wolverine	L3797	1
Anglo	L934	1
Toric	L935	1
Moose	L936	1
Lamb	L937	1
Blueberry	L4217	1
Kitsol No. 1	L3815	1
Kitsol No. 2	L3814	1
Red Point No. 1	L3809	1
Red Point Extension	L3810	1
Sportsman	L3816	1

CROWN GRANTS OPTIONED FROM STIKINE RESOURCES LTD.

Royal No. 1	L1080	1
Royal No. 2	L1081	1
Royal No. 3	L1082	1
Royal No. 4	L1083	1
Royal No. 5	L1084	1
Royal No. 7	L1085	1
Royal No. 8	L1086	1

REVERTED CROWN GRANTS

Beach	5208	1	06/17/91
Caribou	5993	1	04/06/92
Rivermouth Fr.	5210	1	03/17/92
Waterfront			
Waterfront Fr.	5209	1	03/17/91

MININGLEASES

<u>LEASE NAME</u>	<u>LEASE NO.</u>	<u>REC. #</u>	<u>EXPIRYDATE</u>
Silver Horde No. 2	354	L3805	07/06/91
Climax	354	L941	07/06/91
Climax No. 2	354	L942	07/06/91
Nome Fraction	355	L3519	02/04/92
Gray Copper	356	L4214	04/05/92
Big Lode	356	L4215	04/05/92
Yellow Cedar	356	L4213	04/05/92
Maud S	357	L3828	04/05/92
HillBilly	358	L4263	04/05/92
Silver Horde No. 3	362	L3802	07/08/91
Silver Horde Fraction	362	L3803	07/08/91
Silver Horde	362	L3804	07/08/91
Silverado Fraction	400	L4266	10/15/91

APPENDIX B

1990 COST STATEMENT

1990 COST STATEMENT

GEOLOGICAL MAPPING

Senior Geologist	- 27 days x \$450/day	\$ 12,150.00
Intermediate Geologist (period June 19 to Aug. 7)	- 32 days x \$400/day	12,800.00

LOGISTICS

Transportation	- 2 men Vancouver to Smithers return	980.38
Room and Board	- 59 mandays x \$45 per man per day	2,655.00

HELICOPTER SUPPORT

Hours flown	10.5 hrs. x \$513/hr. (average cost)	5,386.50
Fuel used	104L/hr. x \$0.779/L	850.69

REPORTING

Senior Geologist	- 15 days x \$450/day	6,750.00
Drafting	- 2 days x \$450/day	900.00
Secretary	- 2 days x \$176/day	<u>352.00</u>

GRAND TOTAL **\$ 42,824.57**

Walter Melnyk

APPENDIX C
STATEMENT OF QUALIFICATIONS

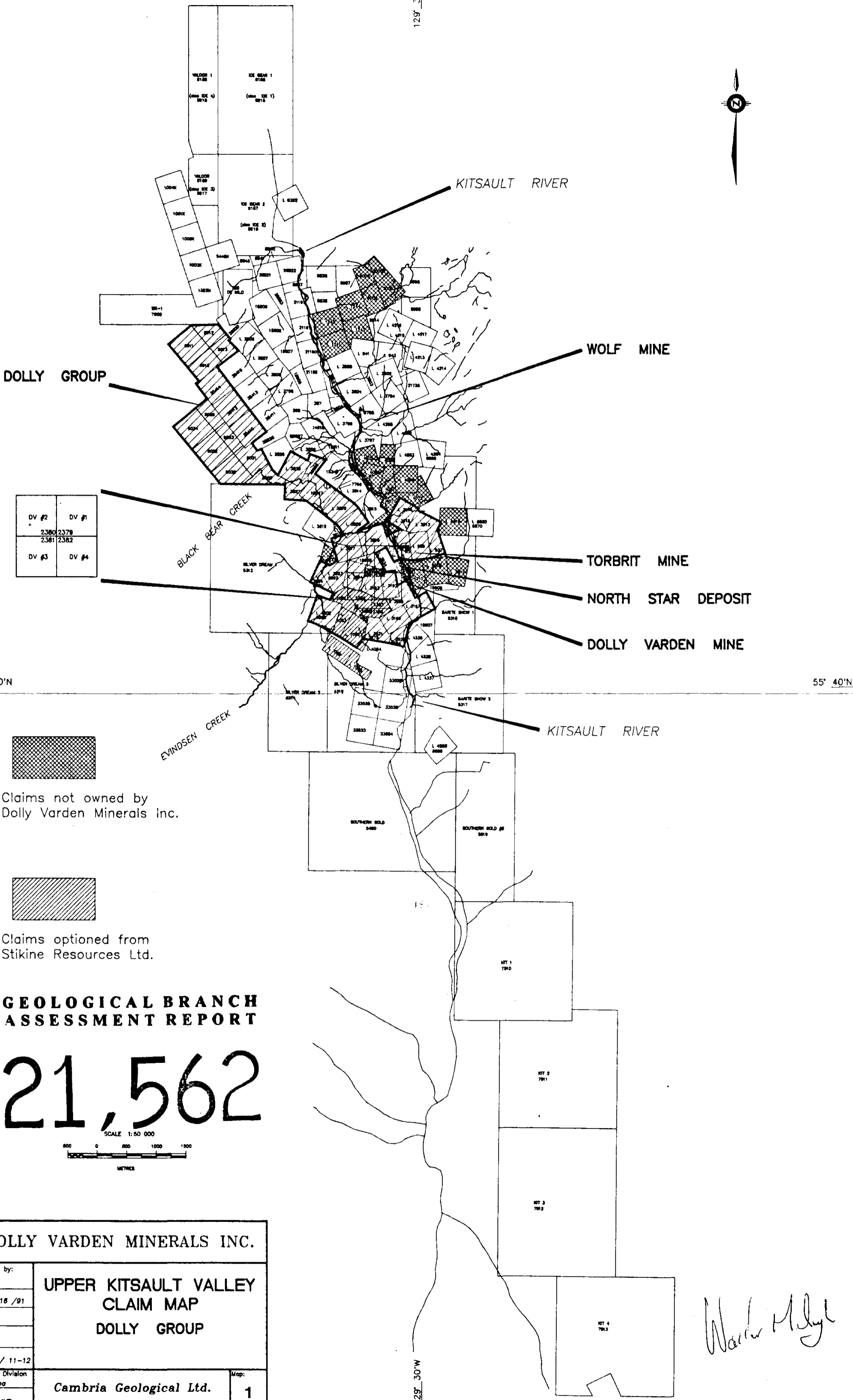
STATEMENT OF QUALIFICATIONS

I, Walter D. Melnyk, of 2185 Badger Road, North Vancouver, B.C., do hereby certify that:

- I graduated from the University of Saskatchewan, Saskatoon, with a degree of B. Ap. Sc. in 1972.
- I am a member of the Association of Professional Engineers of British Columbia and Ontario.
- I am a consulting exploration geologist.
- I have been practising my profession since graduation.
- I have not received, nor do I expect to receive any interest directly or indirectly in Dolly Varden Minerals Inc.
- This report and the conclusions are based on personal examination of the property and direct supervision of the work reported herein.

Walter D. Melnyk, P.Eng.
Vancouver, B.C.
April, 1991

129° 30'W



DOLLY GROUP

KITSAULT RIVER

WOLF MINE

TORBRIT MINE

NORTH STAR DEPOSIT

DOLLY VARDEN MINE

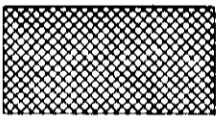
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2380	2379
2381	2382
DV #3	DV #4

55° 40'N

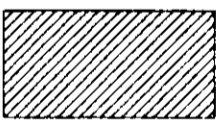
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EVINDSEN CREEK

KITSAULT RIVER



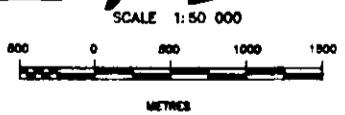
Claims not owned by Dolly Varden Minerals Inc.



Claims optioned from Stikine Resources Ltd.

GEOLOGICAL BRANCH ASSESSMENT REPORT

21,562



DOLLY VARDEN MINERALS INC.

Report by:
WM

Date:
May 18 /91

NTS:
103P/ 11-12

Mining Division
Skeena

Ref. #
B0024V0

**UPPER KITSAULT VALLEY CLAIM MAP
DOLLY GROUP**

Cambria Geological Ltd.

Map:
1

Walter H. Dyer

129° 30'W

129° 30' W

VARDEN GROUP



KITSAULT RIVER

WOLF MINE

TORBRIT MINE

NORTH STAR DEPOSIT

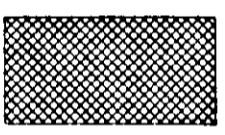
DOLLY VARDEN MINE

KITSAULT RIVER

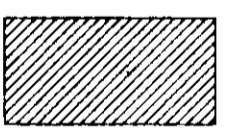
55° 40' N

55° 40' N

DV #2	DV #1
2380	2378
2381	2382
DV #3	DV #4



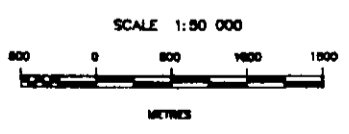
Claims not owned by Dolly Varden Minerals Inc.



Claims optioned from Stikine Resources Ltd.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

21,562

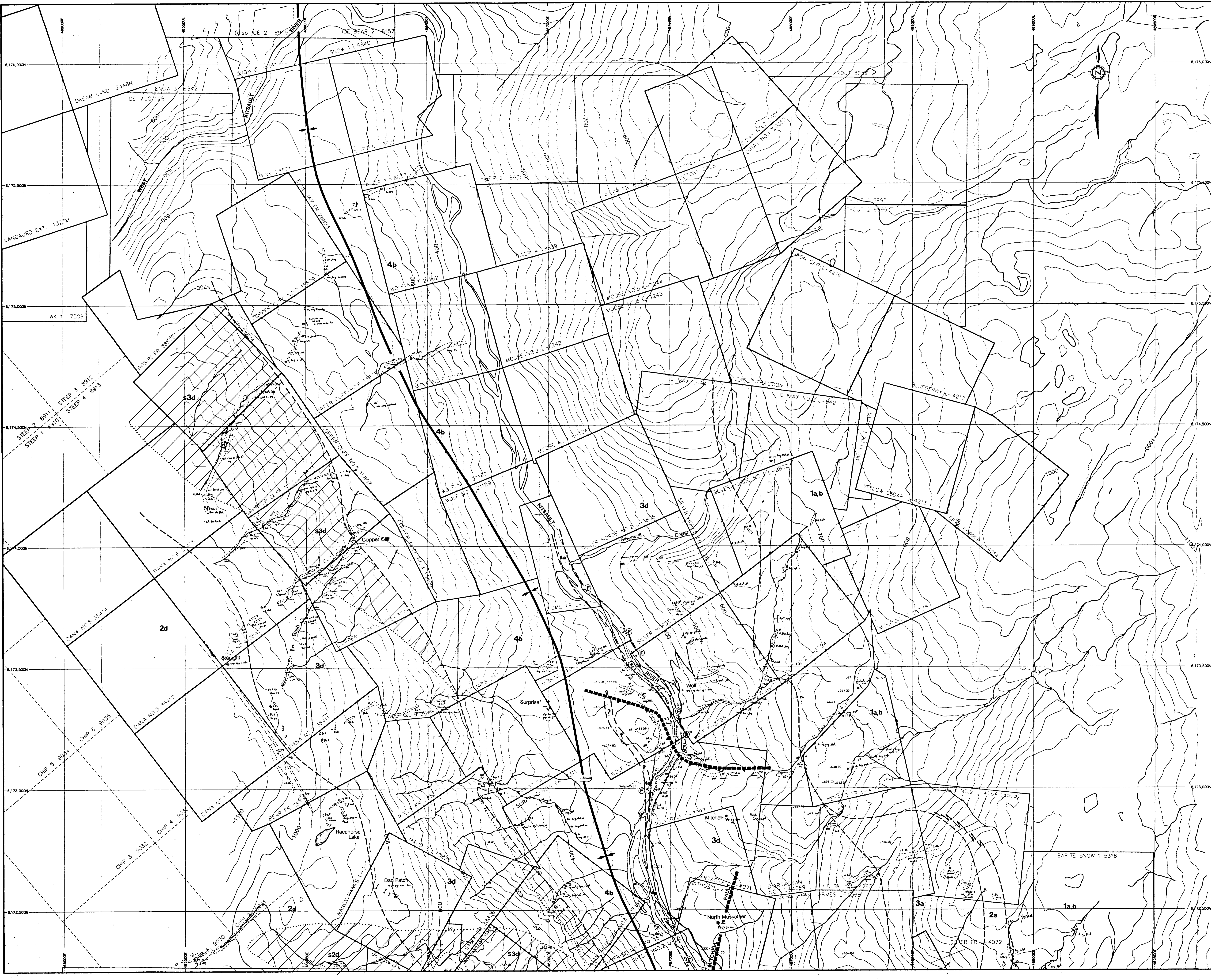


DOLLY VARDEN MINERALS INC.

Report by: WM	UPPER KITSAULT VALLEY CLAIM MAP
Date: May 16 /91	
NTS: 103P/ 11-12	VARDEN GROUP
Mining Division Skeena Ref. # 80024VD	Cambria Geological Ltd.
	Map: 2

Walter Meloy

129° 30' W



LEGEND

INTRUSIVE ROCKS
 TERTIARY
 Eocene and younger
 [Symbol] Lamprophyre, mafic dike

VOLCANIC AND SEDIMENTARY ROCKS

LOWER TO MIDDLE JURASSIC
 TOADSIAN TO BAUDOUIN : SALMON RIVER FORMATION
 [Symbol] Argillite, siltstone, sandstone, gneiss, and public conglomerate
 [Symbol] Sandstone, often fossiliferous

TOADSIAN : PARTIAL EQUIVALENTS OF MT DILWORTH / BETTY CREEK FORMATIONS

[Symbol] Dark red and brown foliated phyllite, dark to medium pyroxenite rocks (dark buff, tan buff, crystal buff, light buff, and buff breccia). Interbedded with heavily siliceous siltstone, sandstone, and argillite (pyroxenite), argillite, and breccia. Light buff and buff breccia units are heterolithic and often foliated phyllite. Interfingers with unit 3a.

[Symbol] Brown and/or green dikes to siltstone (1-1/2' foliated phyllite), pyroxenite rocks (tan buff, crystal buff, light buff, and buff breccia). Interbedded with argillite and siltstone. The unit is generally heterolithic with rare laminae and in part represents the subsequence equivalent of unit 3a.

[Symbol] Pyritic siltstone breccia, a matrix fine scale containing fragments of siltstone, sand, paper, siltstone, argillite, and siltstone in a siltstone matrix of siltstone matrix.

[Symbol] Lenticular siltstone, siltstone, siltstone, carbonaceous siltstone, and siltstone. Includes some siltstone siltstone fine scale with an siltstone matrix.

[Symbol] Dark green and/or brown dikes to siltstone (1-1/2' foliated phyllite), pyroxenite rocks (tan buff, crystal buff, light buff, and buff breccia). Interbedded with argillite and siltstone. Pyroxenite rocks are poorly sorted and matrix is argillite. Lenticular siltstone - siltstone - siltstone - siltstone is heavily developed. 3d) Lenticular siltstone - siltstone - siltstone - siltstone. Thin, evenly spaced siltstone laminae developed within face of unit 3a. The upper horizon contains the David Copperfield and Surprise pyroxenite.

STN-VOLCANIC AND EXHALATIVE ALTERATION FACIES

[Symbol] Quartz-phyllite-quartz-carbonate, most commonly a siltstone matrix with an siltstone matrix.

[Symbol] Quartz-siltstone-carbonate-carbonate-phyllite-siltstone matrix - siltstone matrix (Contact Zone)

[Symbol] Pyroxenite breccia - siltstone rock fragments in a matrix of siltstone and phyllite (Contact Zone)

[Symbol] Pyroxenite breccia, pyroxenite (Contact Zone)

[Symbol] Siltstone-phyllite pyroxenite alteration, with abundant quartz-phyllite, pyroxenite. Occurs in Contact Zone and in hangwall and footwall of siltstone breccia.

SHENKUAN TO PLEISTOCENE(?) : UNUK RIVER FORMATION

[Symbol] Green, foliated siltstone siltstone siltstone with minor laminae of siltstone, argillite, and siltstone. Subsequence 4b - the siltstone breccia along northeast trending structures. Contains an often fossiliferous and siltstone.

[Symbol] Green and/or brown matrix green foliated phyllite siltstone to dark pyroxenite rocks (tan buff, crystal buff, light buff, and buff breccia) and siltstone.

[Symbol] Brown and dark red foliated phyllite siltstone, siltstone, sandstone, gneiss, and public conglomerate.

[Symbol] Dark foliated phyllite siltstone to siltstone pyroxenite rocks (tan buff, crystal buff, light buff, and buff breccia) and siltstone.

UPPER TRIASSIC

[Symbol] Siltstone brecciated siltstone siltstone and siltstone conglomerate, siltstone, argillite, and siltstone.

[Symbol] Siltstone argillite, siltstone, sandstone, and breccia.

NOTE
 THIS MINERAL COMPILATION DERIVED FROM: OLD SURVEY MAPS, GEOLOGICAL RESEARCH, FIELD MAPS, AND VISUAL CLAIM APPLICATIONS.

UTM GRID - Zone 9
 CONTOUR INTERVAL 25 Metres
 Grid North is 0.5' West of True North

SCALE 1:5000

100 0 200 400 METRES
 200 0 1000 FEET

DOLLY VARDEN MINERALS INC.

Report by: G.D.W.M.
 Date: April, 1991

DOLLY VARDEN PROJECT
GEOLOGY
 (North sheet)

NIS: 103P/11-12
 Mining Division Skeena
 Ref # N PLATE DWG

Cambria Geological Ltd. 3a

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