



MINFILE Detail Report
BC Geological Survey
Ministry of Energy, Mines and Petroleum Resources

Location/Identification

MINFILE Number:	103P 188	National Mineral Inventory Number:	103P12 Ag13
Name(s):	<u>DOLLY VARDEN</u> DOLLY VARDEN NO. 1 (L. 3192), DOLLY VARDEN NO. 4 (L. 3195), DOLLY VARDEN NO. 2 (L. 3193), DOLLY VARDEN NO. 7 (L. 3198), DOLLY VARDEN (L. 3194)		
Status:	Past Producer	Mining Division:	Skeena
Mining Method	Underground, Open Pit	Electoral District:	Skeena
Regions:	British Columbia	Resource District:	Coast Mountains Natural Resource District
BCGS Map:	103P063		
NTS Map:	103P12E	UTM Zone:	09 (NAD 83)
Latitude:	55 40 54 N	Northing:	6170769
Longitude:	129 30 38 W	Easting:	467897
Elevation:	549 metres		
Location Accuracy:	Within 500M		
Comments:	The number 1 glory hole, 300 metres west of the Kitsault River, 22.5 kilometres north of Alice Arm (Property File - Map of surface and underground workings).		

Mineral Occurrence

Commodities: Silver, Zinc, Lead, Copper, Gold

Minerals	Significant:	Sphalerite, Galena, Pyrite, Chalcopyrite, Tetrahedrite, Silver, Pyrargyrite, Argentite	
	Associated:	Quartz, Calcite, Siderite, Barite, Sericite	
	Alteration:	Sericite, Quartz, Chlorite, Epidote	
	Alteration Type:	Sericitic, Silicific'n, Propylitic	
	Mineralization Age:	Unknown	
Deposit	Character:	Stratiform, Massive, Disseminated	
	Classification:	Volcanogenic, Exhalative	
	Type:	G06: Noranda/Kuroko massive sulphide Cu-Pb-Zn, I05: Polymetallic veins Ag-Pb-Zn+/-Au	
	Shape:	Tabular	Modifier: Faulted
	Dimension:	790x650x9 metres	
	Comments:	Dolly Varden East orebody strikes east to northeast; Dolly Varden West orebody strikes west-northwest; dips vary from 40 to 60 degrees north. Dimensions of entire deposit.	

Host Rock

Dominant Host Rock: Volcanic

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Jurassic	Hazelton	Undefined Formation	-----

Isotopic Age	Dating Method	Material Dated
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Lithology: Andesitic Ash Tuff, Andesitic Crystal Vitric Tuff, Andesite

Geological Setting

Tectonic Belt:	Intermontane	Physiographic Area:	Boundary Ranges
Terrane:	Stikine		
Metamorphic Type:	Regional		
Grade:	Greenschist		

Inventory

Ore Zone: DOLLY VARDEN **Year:** 2019
Category: Indicated **Report On:** Y
Quantity: 156,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	414.2 grams per tonne

Comments: using a 150 grams per tonne silver cut-off grade

Reference: Turner, A.J. (2019-05-08): Technical Report and Mineral Resource Update for the Dolly Varden Property

Ore Zone: DOLLY VARDEN **Year:** 2019
Category: Inferred **Report On:** Y
Quantity: 86,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	271.5 grams per tonne

Comments: using a 150 grams per tonne silver cut-off grade

Reference: Turner, A.J. (2019-05-08): Technical Report and Mineral Resource Update for the Dolly Varden Property

Ore Zone: TOTAL **Year:** 2017
Category: Inferred **Report On:** Y
Quantity: 898,500 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	373.3 grams per tonne

Comments: Inferred resource.

Reference: Information Circular 2018-1, page 129.

Ore Zone: TOTAL **Year:** 2015
Category: Indicated **Report On:** Y
Quantity: 3,073,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	321.6 grams per tonne

Comments: Indicated resource; a maiden National Instrument 43-101 mineral resource estimate was announced in August, 2015, covering the four historical deposits on the property: Torbrit, Dolly Varden, Wolf and North Star.

Reference: Press Release - Dolly Varden Silver Corp., November 23, 2016; Information Circular 2018-1, page 129.

Ore Zone: DOLLY VARDEN **Year:** 1989
Category: Combined **Report On:** Y
Quantity: 42,633 tonnes **NI 43-101:** N

Commodity	Grade
Silver	754.1000 grams per tonne

Comments: Proven and probable reserves.

Summary Production

		Metric	Imperial
	Mined:	33,434 tonnes	36,854 tons
	Milled:	33,434 tonnes	36,854 tons
Recovery	Silver	42,450,837 grams	1,364,826 ounces
	Gold	31 grams	1 ounces
	Lead	929 kilograms	2,048 pounds
	Copper	191 kilograms	421 pounds

Capsule Geology

The Dolly Varden mine is located 300 metres west of the Kitsault River, 22.5 kilometres north of Alice Arm. The mine produced high grade silver ore periodically between 1919 and 1940.

The region is underlain by an assemblage of volcanics and sediments comprising the Upper Triassic Stuhini Group and the Lower-Upper Jurassic Hazelton Group. These are folded into a doubly plunging north-northwest trending syncline and have been regionally metamorphosed to greenschist facies.

The orebody consists of a stratiform volcanogenic silver-zinc-lead barite exhalative horizon which is underlain by andesitic crystal vitric (shard) tuff and overlain by andesitic ash tuff of the Hazelton Group. These units have undergone sericitization, silicification and propylitization due to regional metamorphism and hydrothermal alteration.

The deposit lies on the steeply dipping west limb of the Kitsault River syncline. The deposit has been segmented by a series of north to northeast striking reverse and normal faults into at least 13 minor blocks, 9 to 52 metres in length, which make up four major fault blocks. These faults dip 30 to 60 degrees west and horizontal displacements vary from 15 to 50 metres.

The deposit is divided into two main segments, the Dolly Varden East, containing the two eastern major blocks, and the Dolly Varden West, which contains the two major western blocks. The Dolly Varden East orebody strikes east to northeast for 200 metres and the Dolly Varden West orebody strikes west-northwest for 450 metres. The total strike length of the entire deposit is 650 metres. The deposit, 1 to 9 metres in width, dips 40 to 60 degrees north and extends downdip for at least 790 metres.

Mineralization in the Dolly Varden East deposit consists of disseminated to massive pyrite, minor chalcopyrite and traces of argentite, pyrrargyrite and native silver in a gangue of milky white quartz and minor sericite. This quartz-sulphide exhalite is commonly found interbedded with hangingwall tuffs. The mineralization is reported to average 865 grams per tonne silver (Devlin, 1987).

The Dolly Varden West orebody consists of layers, disseminations and stringers of sphalerite and galena and minor pyrite, chalcopyrite and tetrahedrite and trace of native silver in a gangue of calcite, quartz, siderite and barite. This carbonate-sulphate-sulphide exhalite is reported to average 15 grams per tonne silver (Devlin, 1987).

Combined (proven, probable) reserves at Dolly Varden are 42,633 tonnes grading 754.1 grams per tonne silver (George Cross News Letter May 25, 1989).

Between 1919 and 1940, 33,434 tonnes of ore with an average grade of 1269.69 grams per tonne silver, 0.09455 per cent copper and 0.4599 per cent lead were mined from the Dolly Varden East orebody. See Torbrit (103P 191) for more details.

In 1910, the first staking in the Dolly Varden area occurred with the location of the Red Point No. 1 mineral claim (103P 010, 196). In 1911, the first claims for silver in the Dolly Varden mine area were staked. The Sportsman and North Star (103P 189) 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 only other deposit in the area to see production was the Torbrit (103P 191). During production at the Torbrit, exploration and development continued on the North Star and Wolf (103P 198) prospects. Lesser amounts of exploration were conducted on the Moose-Lamb (103P 008), Tiger (103P 194) and Surprise (103P 185) 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. In 1989, Dolly Varden Minerals Inc. initiated a

comprehensive, multistaged surface exploration program that included 2256 metres of drilling on the Red Point and Red Point Extension showings (103P 010, 196) 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 (103P 189) consisting of 2397 metres in 6 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. In 1990, Dolly Varden Minerals Inc. conducted geological mapping and diamond drilling. The drill program was conducted on portions of the North Star, Dolly Varden and Torbrit deposits and the V zone (103P 010, 18, 196) and totalled 7096 metres in 18 holes.

In 2010, Dolly Silver Corporation conducted an exploration program on the Dolly Silver property which consisted predominantly of a detailed stream sediment sampling survey with associated geological mapping, prospecting, rock and soil sampling. A total of 81 rock samples, 19 soil samples and 150 stream sediment samples were collected. A concurrent helicopter-borne time domain electromagnetic (VTEM), magnetic and radiometric survey over both the Dolly Silver and Dolly Varden properties was also completed. Flight line spacing was 200 metres over the Dolly Silver property and 100 metres over the Dolly Varden property with a total of 941.7 line kilometres of data collected.

During 2011 through 2013, programs of diamond drilling, totalling 9404.6 metres, underground rehabilitation and channel sampling, geological mapping and rock sampling were performed on the area as apart of the Dolly Varden property. Diamond drilling yielded intercepts including 860 grams per tonne silver over 2.20 metres in hole DV12-2 and 536 grams per tonne silver over 5.30 metres in hole DV12-4 (Higgs, A.A. (2015-05-01): Amended 2015 Technical Report for the Dolly Varden Property).

In 2014, a program of geological mapping, prospecting, geochemical (silt, soil and heavy mineral) sampling, ground and borehole geophysical surveys and diamond drilling, totalling 5280 metres, on the Dolly Varden property. A chip sample taken from the eastern strike extension of the Dolly Varden vein and 100 metres east of the historic mine workings yielded 240 grams per tonne silver and 0.25 per cent lead over 2 metres (Higgs, A.A. (2015-05-01): Amended 2015 Technical Report for the Dolly Varden Property).

In 2015, Dolly Varden Silver Corporation delivered a maiden mineral resource estimate for the Dolly Varden silver project. The project area encompasses several past-producing mines and mineral occurrences which were explored in two phases of exploration during 2015. Phase one consisted of extensive groundwork and included geological mapping, prospecting, lithogeochemical rock sampling and soil sampling. Data acquired during phase one helped define drill targets for the second phase. Drilling totalled 2037 metres in ten diamond-drill holes. Three holes targeted the volcanogenic massive sulphide prospective Trout Horizon at the Ace-Galena showing (103P 208) located about 6 kilometres north of the Dolly Varden deposit.

Also in 2015, a mineral resource estimate for the Dolly Varden deposit was reported at 522,000 tonnes indicated grading 625.1 grams per tonne silver and 38,600 tonne inferred grading 434.2 grams per tonne silver, using a 150 grams per tonne silver cut-off grade (Higgs, A.A. (2015-09-30): 2015 Technical Report for the Dolly Varden Property). A total mineral resource estimate for the Dolly Varden property including the Dolly Varden deposit, the Wolf (MINFILE 103P 198) deposit, North Star (MINFILE 103P 189) deposit and the Torbrit (MINFILE 103P 191) deposit was reported at 3,073,000 tonnes indicated grading 321.6 grams per tonne silver and 898,500 tonnes inferred grading 373.3 grams per tonne silver, using a 150 grams per tonne silver cut-off grade (Higgs, A.A. (2015-09-30): 2015 Technical Report for the Dolly Varden Property).

In 2016, Dolly Varden Silver Corporation carried out surface mapping and sampling and completed 2311 metres of diamond drilling in 13 holes. Diamond drilling was carried out on the Torbrit deposit (103P 191) and in the Ace-Galena area (103P 208).

In 2017, Dolly Varden Silver Corporation announced plans for 12,000 metres of diamond drilling at the Dolly Varden silver project. The project consists of the Torbrit (103P 191), Dolly Varden, Wolf (103P 198), and North Star (103P 189) deposits. Drilling discovered an eastern fault offset of the Torbrit deposit (Torbrit East, 103P 190), with assays including 13.00 metres (9.96 metres true thickness) grading 244.8 grams per tonne silver, 0.14 per cent lead and 0.09 per cent zinc. Within this interval was 5.00 metres (3.83 metres true thickness) grading 481.9 grams per tonne silver, 0.21 per cent lead and 0.12 per cent zinc (Information Circular 2018-1, page 137).

In 2018, Dolly Varden Silver Corp. completed a program of geological mapping, lithogeochemical sampling and 84 diamond drill holes, totalling 29,134.2 metres, on the Dolly Varden property.

In 2019, an updated mineral resource estimate for the Dolly Varden deposit was reported at 156,000 tonnes indicated grading 414.2 grams per tonne silver and 86,000 tonnes inferred grading 271.5 grams per tonne silver, using a 150 grams per tonne silver cut-off grade (Turner, A.J. (2019-05-08): Technical Report and Mineral Resource Update for the Dolly Varden Property). A total mineral resource estimate for all deposits was reported at 3,417,000 tonne indicated grading 299.8 grams per tonne silver and 1,285,300 tonnes inferred grading 277.0 grams per tonne silver, using a 150 grams per tonne silver cut-off grade (Turner, A.J. (2019-05-08): Technical Report and Mineral Resource Update for the Dolly Varden Property).

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Date Coded:	1985/07/24	Coded By:	BC Geological Survey (BCGS)	Field Check:	N
Date Revised:	2020/08/04	Revised By:	Karl A. Flower (KAF)	Field Check:	N