



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

Location/Identification

MINFILE Number:	103P 191	National Mineral Inventory Number:	103P12 Ag11
Name(s):	TORBRIT TORIC (L. 935), ANGLO (L. 934)		
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 41 13 N	Northings:	6171355
Longitude:	129 30 27 W	Easting:	468093
Elevation:	319 metres		
Location Accuracy:	Within 500M		
Comments:	The mine is on the east bank of the Kitsault River, 23.5 kilometres north of the town of Alice Arm (Devlin, 1987).		

Mineral Occurrence

Commodities:	Silver, Lead, Zinc, Gold, Copper		
Minerals	Significant:	Pyrite, Sphalerite, Galena, Chalcopryrite, Pyrargyrite, Argentite, Tetrahedrite	
	Associated:	Quartz, Calcite, Barite, Hematite, Jasper, Siderite, Magnetite, Chlorite	
	Alteration:	Chlorite, Epidote, Quartz, Carbonate	
	Alteration Type:	Propylitic, Silicific'n, Carbonate	
	Mineralization Age:	Unknown	
Deposit	Character:	Stratiform, Massive	
	Classification:	Volcanogenic, Exhalative	
	Type:	G06: Noranda/Kuroko massive sulphide Cu-Pb-Zn, I05: Polymetallic veins Ag-Pb-Zn+/-Au	
	Shape:	Bladed	Modifier: Faulted
	Dimension:	490x24x0 metres	Strike/Dip: 050/45N
	Comments:	Attitude of exhalite horizon; dimension of pod-shaped ore shoot.	

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 Lapilli Ash Tuff, Andesitic Crystal Vitric Tuff, Andesite, Lamprophyre Dike

Geological Setting

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

Inventory

Ore Zone: TORBRIT **Year:** 2019
Category: Inferred **Report On:** Y
Quantity: 2,623,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	296.8 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: TORBRIT **Year:** 2019
Category: Inferred **Report On:** Y
Quantity: 1,185,000 tonnes **NI 43-101:** Y

Commodity	Grade
Silver	278.0 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: DRILLHOLE **Year:** 2016
Category: Assay/analysis **Report On:** N
NI 43-101: N

Sample Type: Drill Core

Commodity	Grade
Silver	2488.5 grams per tonne

Comments: Across 2.0 metres within a broader intersection of 19.4 metres grading 485 grams per tonne silver.

Reference: Information Circular 2017-1, page 167.

Ore Zone: TORBRIT **Year:** 1971
Category: Combined **Report On:** Y
Quantity: 786,285 tonnes **NI 43-101:** N

Commodity	Grade
Silver	311.9000 grams per tonne
Lead	0.4200 per cent
Zinc	0.5000 per cent

Comments: Proven, probable and possible reserves.

Reference: Dolly Varden Mining Ltd. Annual Report 1971.

Summary Production

	Metric	Imperial
Mined:	1,251,339 tonnes	1,379,365 tons
Milled:	1,251,387 tonnes	1,379,418 tons

Recovery	Silver	579,955,994 grams	18,646,018 ounces
	Gold	3,452 grams	111 ounces
	Lead	4,868,323 kilograms	10,732,815 pounds
	Zinc	283,037 kilograms	623,990 pounds

Capsule Geology

The Torbrit mine occurs on the east bank of the Kitsault River, 23.5 kilometres north of the town of Alice Arm. Between 1949 and 1959, Torbrit Silver Mines Ltd. produced 1,249,942 tonnes of ore containing silver, lead, zinc and gold.

The area is underlain by a sequence of volcanics and sediments of the Upper Triassic Stuhini Group and the Lower-Upper Jurassic Hazelton Group. The sequence is folded into the doubly plunging, north-northwest trending Kitsault River syncline. This sequence has been regionally metamorphosed to greenschist facies.

The Torbrit orebody is comprised of a stratiform volcanogenic silver-zinc-barite exhalative horizon developed in a section of Hazelton Group andesitic pyroclastics on the east limb of the Kitsault River syncline. This horizon is enclosed in an overlying plagioclase porphyritic andesitic lapilli-ash tuff and an underlying andesitic crystal vitric (shard) tuff that have been variably propylitized, silicified and carbonatized at least 30 metres outward from the horizon.

The exhalite horizon strikes approximately 050 degrees for at least 300 metres and dips 45 degrees northwest. The deposit is up to 60 metres thick. Within the east end of this horizon lies a pod-shaped ore shoot up to 24 metres thick that plunges 30 degrees for at least 490 metres towards 295 degrees.

Faulting occurs along the footwall of the deposit with dip slip movement. The deposit is also cut by a later set of faults, with right-hand displacement of up to 15 metres, that strikes northwards between 030 and 135 degrees and dips between 65 and 80 degrees. Later horizontal faults displace the deposit up to 43 metres. It is cut by a series of lamprophyre dikes from a few centimetres to 3 metres wide, striking north-northeast and dipping steeply northwest.

Mineralization consists of pyrite, sphalerite and galena with minor chalcopyrite and traces of pyrargyrite, argentite and tetrahedrite interlaminated with quartz, calcite, barite, hematite, jasper, siderite, magnetite and chlorite. This well layered exhalite horizon exhibits local brecciation.

Between 1928 and 1959, 1,251,339 tonnes grading 463.47 grams per tonne silver, 0.00538 gram per tonne gold, 0.389 per cent lead and 0.0441 per cent zinc were produced from the Torbrit mine.

Combined (proven, probable, possible) reserves are 786,285 tonnes grading 311.9 grams per tonne silver, 0.42 per cent lead and 0.50 per cent zinc (Dolly Varden Mining Ltd. Annual Report 1971). Refer to Dolly Varden (103P 188) for 2015 resource estimate.

A fluid inclusion study coupled with geological and geochemical data suggests that the silver-rich deposits (Dolly Varden, 103P 188; Torbrit; North Star, 103P 189; Sault, 103P 233) in the Kitsault River area be related to each other and that they may be silver-rich analogues to Eskay Creek (104B 008). The Kitsault River deposits all formed near or at surface or at shallow depth in the waning stages of Hazelton arc volcanism. Their mineralization varies from multiepisodic and irregularly laminated to bedded. Colloform, crustiform, and comb textures clearly indicate high level deposition of quartz that formed under low temperatures in low saline environments such as a hot spring setting.

In 1990, Dolly Varden Minerals Inc. conducted a surface diamond drilling program on portions of the North Star (103P 189) and Dolly Varden (103P 188) deposits, and also to test the V zone and the northwestern extension of the Torbrit mine mineralization. One hole was drilled on the Anglo claim (Lot 934) to a depth of 290 metres. Refer to Dolly Varden for a comprehensive work history of the area.

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 1458 grams per tonne silver over 3.20 metres in hole TB13-03, 620.5 grams per tonne silver over 7.7 metres in hole TB13-06 and 198 grams per tonne silver over 41.2 metres in hole TB13-06, while underground channel sampling yielded an average of 262.30 grams per tonne silver over 226 metres (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. In 2015, a program of geological mapping, prospecting, lithogeochemical rock sampling, soil sampling and ten diamond drill holes, totalling 2037 metres, were completed on the property.

Also at this time a mineral resource estimate for the Torbrit deposit was reported at 1,913,000 tonnes indicated grading 251.4 grams per tonne silver and 845,600 tonnes inferred grading 373.0 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 and in the Ace-Galena area (103P 208). Drilling at Torbrit intersected multiple mineralized zones including 2.0 metres of 2488.5 grams per tonne silver within a broader intersection of 19.4 metres grading 485 grams per tonne silver (Information Circular 2017-1, page 167).

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, Dolly Varden (103P 188), Wolf (103P 198), and North Star (103P 189) deposits. Drilling between the Torbrit and Wolf deposits resulted in a new discovery (Central zone), with results that included 16.10 metres (13.19 metres true thickness) grading 269.0 grams per tonne silver, 0.30 per cent lead, and 0.21 per cent zinc. Follow-up drilling confirmed this discovery, returning results of 7.15 metres (6.72 metres true thickness) grading 1180.7 grams per tonne silver, 1.83 per cent lead and 0.26 per cent zinc. Drilling also 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 Torbrit deposit was reported at 2,623,000 tonnes indicated grading 296.8 grams per tonne silver and 1,185,000 tonnes inferred grading 278.0 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