BC Tungsten Deposits

The British Columbia Ministry of Energy, Mines and Petroleum Resources' MINFILE database lists 366 tungsten-bearing occurrences in the province. This includes past producers (82), developed prospects (28), prospects (63) and showings (192). Total tungsten production (1900 to 1982) from 12 mines is approximately 8 552 000 kilograms. Total existing in-ground resources in 9 deposits are estimated at 34 572 100 kilograms tungsten.

Prior to the early 1940s, exploration and development of tungsten deposits in the province was pretty well limited to small quantities from either primary producers, or as byproducts. However, the expanded need for Canada's most strategic metal leading up to the Second World War led to increased exploration and discovery of tungsten deposits. Tungsten deposits in the province were well documented in Bulletin No. 10 (see "References"), but almost no comprehensive update has been published since the Second World War.

Regional geochemical surveys and mapping programs by the Geological Survey Branch, since the 1970s in particular, have provided much valuable knowledge in tungsten bearing deposits in the province. With the discovery of numerous porphyry molybdenum (± tungsten) deposits, particularly in the 1970s and 1980s, this type of deposit represents a potential new significant source of by-product tungsten (e.g. Davidson, Logtung)

Recent exploration on more traditional tungsten-bearing sources such as skarn or replacement types, has led to significant advancements (e.g. Emerald/Dodger). Further exploration and developments are expected.

Tungsten **skarns [K05]*** are mainly Mesozoic in age. Over 70% of the tungsten skarns in BC are related to Cretaceous intrusions. Scheelite-dominant mineralization is genetically associated with a skarn gangue. Deposits vary from 0.1 to > 30 Mt; grades range between 0.4 and 2% WO_3 (typically 0.7%).

Polymetallic vein [I05]* types are mainly Cretaceous to Tertiary in BC. Scheelite occurs in quartz veins with pyrite, with or without galena, sphalerite and chalcopyrite. Many occur peripheral to molybdenite-rich intrusive-hosted deposits (e.g. Trout Lake area).

Tungsten **veins [I12]*** occur as epithermal, mesothermal and hypothermal types; each type has different characteristics. Scheelite-bearing quartz veins occur in the Red Rose, Black Diamond and Valparaiso deposits.

Gold-quartz veins [I01]* are mainly Middle Jurassic and Late Cretaceous in age. Scheelite-bearing veins occur in Bridge River Group and Snowshoe Group rocks.

Porphyry molybdenum ± tungsten [L08]* deposits are Cretaceous to Tertiary in age. Stockwork of Mo ± W - bearing quartz veinlets and fractures occur in felsic intrusive rocks. Deposits are low grade but in large tonnages can be amenable to bulk mining methods either surface or underground (e.g. Logtung, Davidson).

***Note:** BCMEMPR Mineral Deposit Type

RED ROSE

- Mining: 1942 - 1954
- Produced 977 500 kg of W, plus 19.3 kg of Au and 26.8 kg of Ag from 110 800 tonnes milled
- Indicated resources: 13 600 t grading 1.18% W
- Host rocks are hornfelsed sediments that have been intruded by the Rocher Deboule granodiorite batholith
- 1.2 to 2.8 m vein has been traced 60 to 120 m along strike and at least 335 m down dip

EMERALD/DODGER

- Production began in 1906 as a lead-zinc mine
- Tungsten-bearing, garnet-diopside skarn
- Scheelite with pyrrhotite, molybdenite and/or powellite.
- Dodger mine operated 1951 to 1958, and also 1970 to 1973.
- New Emerald resources in 2006

For more Information (selected references):

www.em.gov.bc.ca/Mining/Geolsurv (604) 660-2812

Selected British Columbia Mineral Deposit Profiles (1995): Volume 1-Metallics and Coal. BC Ministry of Energy, Mines and Petroleum Resources, Open File 1995-20.

Stevenson, J.S. (1943): Tungsten Deposits of British Columbia. BC Ministry of Energy, Mines and Petroleum Resources, Bulletin No. 10, 174 pages.

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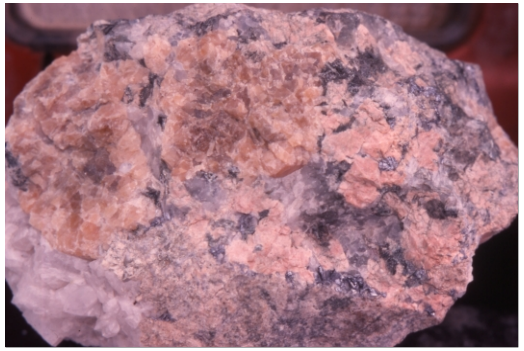
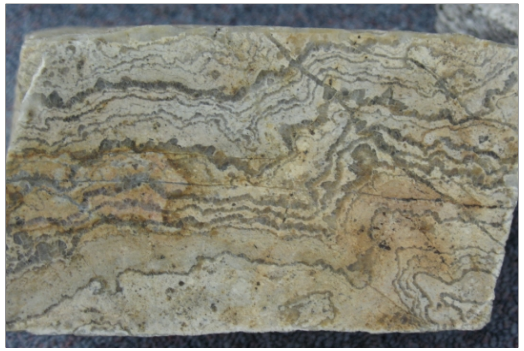
Tungsten
In
British Columbia



(Coarse-grained scheelite, Davidson)



(Brain rock, Davidson)

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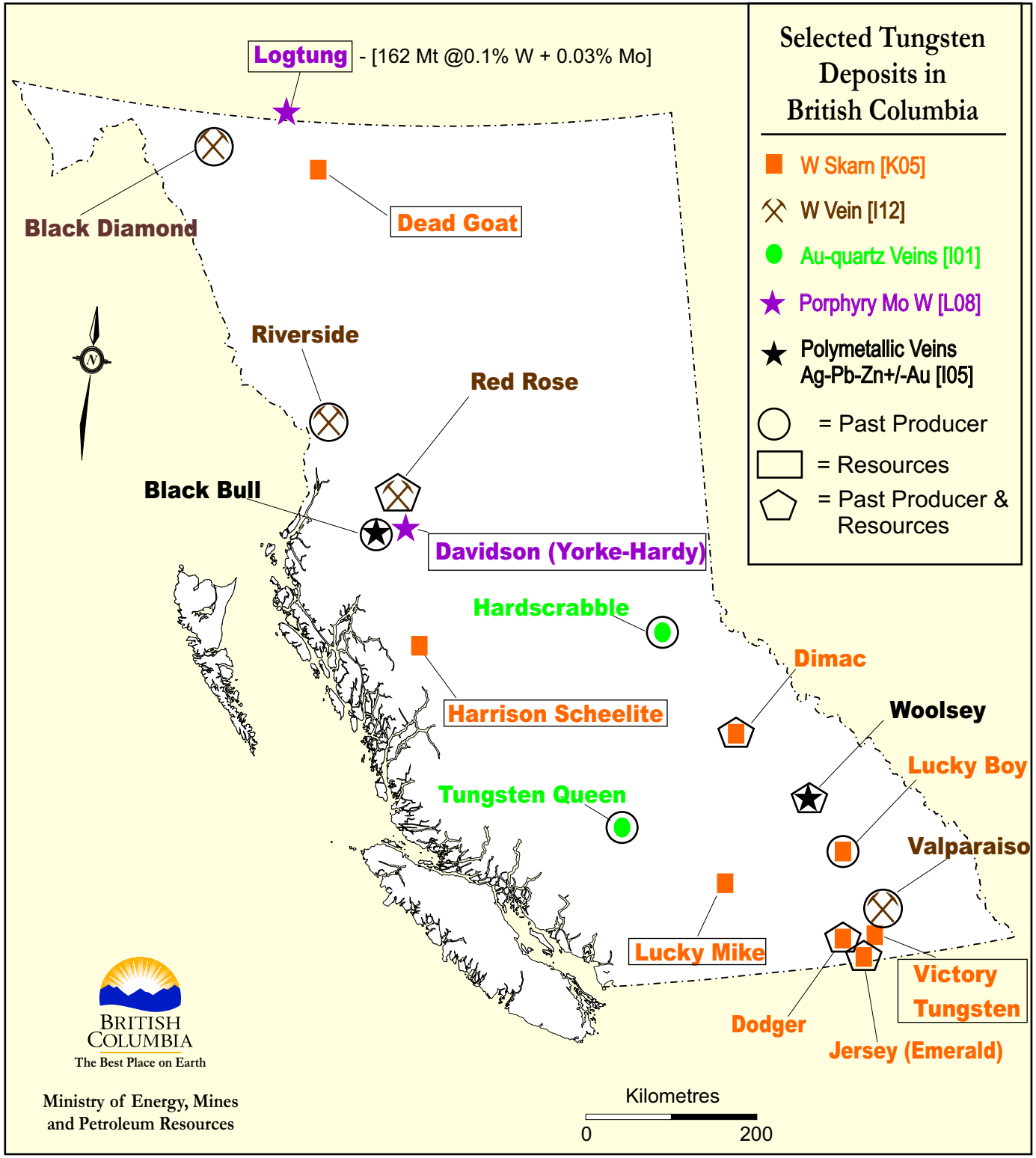

Past Tungsten Production, By Rank

MINE	YEARS	MILLED t (x10³)	Tungsten kg (x10³)	Gold (kg)	Silver (kg)
JERSEY (EMERALD)	1944-1970	8 128.8	6 232.3		21 483
DODGER	1971-1972	336.2	1 183.8		
RED ROSE	1942-1954	110.8	977.4	19.3	26.8
DIMAC	1982	18.3	104.7		
RIVERSIDE	1927-1950	25.1	28.8	81.9	2 975.8
HARDSCRABBLE	1939-1941	1.1	9.9		
TUNGSTEN QUEEN	1953	0.055	7.8		
VALPARAISO	1900-1955	0.5	5.0	3.7	37.8
BLACK DIAMOND	1943	0.001	0.8		
WOOLSEY	1930-1967	5.5	0.7	0.062	347.6
LUCKY BOY	1902-1976	0.473	0.2	0.031	3 097.4
BLACK BULL	1940-1942	0.003	0.009	0.031	0.062

Selected BC Tungsten Deposits Ranked by Contained Tungsten

Mine		Estimated Tonnage t (x10³)	Grades % W	% Mo	g/t Ag
*DAVIDSON (YORKE-HARDY)	M + I	75 300	0.03	0.177	
*JERSEY (EMERALD)		3 374	0.3		
LUCKY MIKE	I	317.4	0.23		20.5
DEAD GOAT	I	100.9	0.38		
VICTORY TUNGSTEN	I	74.3	0.42		
RED ROSE	I	13.6	1.18		
WOOLSEY	I	590.7	0.015		71.6
DIMAC	I	9.07	0.95		
HARRISON SCHEELITE	I	21.1	0.27		

*43-101 Compliant M = Measured, I = Indicated, Inf. = Inferred