



## MINFILE NTS 082LSW – VERNON

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Researched and compiled by: Discovery Consultants*

**The Vernon map area, located in south-central British Columbia, contains 160 documented mineral occurrences, of which 48 are industrial and 109 are precious and base metal.** The map is published at a 1:100,000 scale.

The area straddles several important physiographic-tectonic domains. The western portion lies within the Intermontane Belt on the Thompson Plateau. The southeast portion lies within the Okanagan Highlands and the northeast portion lies within the Shuswap Highlands, both of the Omineca Belt. The Okanagan Valley and Louis Creek faults form the principle boundaries between the belts.

The oldest rocks in the area belong to the Kootenay Terrane. The Kootenay Terrane, comprised of metamorphosed Proterozoic to Paleozoic rocks, forms part of the western extremity of the North American craton. Lower Paleozoic rocks (Silver Creek, Tsalkom, Sicamous and Eagle Bay formations) structurally overlie the Proterozoic rocks and may have been deposited near the rifted margin of North America.

The Quesnel Terrane includes Upper Triassic to Lower Jurassic island-arc rocks of the Nicola Group, which unconformably overlie Devonian to Triassic arc-related rocks of the Harper Ranch Group and Permian and older oceanic rocks of the Chapperon Group. These assemblages are inferred to have been tectonically emplaced eastward over the Kootenay Terrane in the early Middle Jurassic. Possible ophiolitic ultramafic bodies occur in the Chapperon Group.

Numerous foliated and unfoliated calc-alkalic and alkalic intrusions of Early Jurassic to Cretaceous age cut Proterozoic through Mesozoic bedded assemblages. Eocene sedimentary and volcanic rocks (Kamloops and Penticton groups) are present in grabens and as extensive gently tilted or flat-lying sheets. The Eocene Coryell Intrusions intrude the oldest Tertiary rocks. Plateau and valley basalts of the Miocene and Pliocene Chilcotin Group are the youngest rocks.

The first recorded mineral exploration in the Vernon area was in the 1870s when placer gold was discovered in Whiteman Creek (082LSW086) and Bouleau Creek. There is currently no major production in the area. The most significant past producer is the Kalamalka mine (082LSW050) which produced 90,137 grams of gold, 108,052 grams of silver, 208 kilograms of copper, 420 kilograms of lead and 172 kilograms of zinc from a mesothermal vein. The White Elephant (082LSW042) mesothermal vein deposit produced 63,170 grams of gold and 9,549 grams of silver from 5,146 tonnes mined in the period from 1922 to 1935.

Upper Paleozoic mineralization includes chromite (Chrome-Vanadium 082LSW056) and massive sulphide (Ophir 082LSW029) occurrences. Regional metamorphism (Paleozoic?) produced kyanite at the Armstrong Kyanite deposit (082LSW108). Both Lower and Upper Paleozoic limestones and marble have been quarried (Vernon Limestone 082LSW097, Mason 082LSW098, Kendry Creek 082LSW099 and Westwold 082LSW049). The Bald Range deposit (082LSW112) contains reserves of 198,800 tonnes of marble. The Sweetsbridge (082LSW074) gypsum deposit may have formed in the Triassic.

A Jurassic mineralizing event is represented by porphyry deposits such as the Alfy (082LSW005), Tadpole (082LSW009), Kenallan (082LSW045), Esperon 1 (082LSW054) and Jewel (082LSW065) and skarn deposits such as the Goodenough Central (082LSW004) copper-gold skarn. Mesothermal base metal veins (Black Hawk 082LSW007, Mount Vernon 082LSW008, Silver Queen 082LSW010, Skookum 082LSW013, Octagon 082LSW015 and Royal and Peerless 082LSW030) may be related to this event. The Zumar prospect (082LSW111) is a gold-silver vein and the AB 9 prospect (082LSW067) consists of disseminated chalcopyrite hosted in schist.

Metamorphic and hydrothermal events produced a wollastonite skarn (Fintry Point 082LSW014), a mica prospect (Brett-Bird 82LSW064), an asbestos showing (Lone Star 082LSW057) and a fluorite showing (Green Gables Main 082LSW001).

Jurassic through Eocene granitic rocks have been quarried for industrial use (Okanagan Sunset 082LSW068, Lumsden 082LSW077, Vernon Granite 082LSW087, Lefroy 082LSW088, Oyama Shale 082LSW113 and Pink 082LSW121). A large quartz vein in quartz diorite at the Mount Rose (082LSW066) deposit has been mined for industrial use.

Eocene sediments contain coal (Shorts Creek 082LSW062) and Eocene volcanic rocks and older rocks contain epithermal gold-silver deposits such as the Brett Main prospect (082LSW110). Agates (Monte Lake 082LSW100), jasper (Rubinca Mine 082LSW144) and opal (Klinker 082LSW125) are also present in the Tertiary rocks.

Miocene to Recent gravels host placer gold deposits (Siwash Creek 082LSW080, Harris Creek 082LSW091 and Winfield 082LSW093). Quaternary glaciolacustrine beds host clay deposits (Westwold Clay 082LSW070, Ebring 082LSW083 and Lakeside 082LSW089). A Recent peat bog (Bald 082LSW082) and paleo-channel (Oyama 082LSW154) host minor uranium mineralization.

### **SELECTED REGIONAL REFERENCES (082LSW – VERNON)**

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