MINFILE
NTS 082ENW - KELOWNA

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The Kelowna map area, located in south-central British Columbia, contains 110 documented mineral occurrences, of which 13 are industrial and 97 are precious and base metal. The map is published at a 1:100,000 scale.

The area straddles two important physiographic-tectonic domains. The western portion lies within the Intermontane Belt on the Thompson Plateau. The eastern portion, lying east of Okanagan Lake, forms the Okanagan Highland within the Omineca Belt. The Okanagan Valley and Mission Creek faults form the principle boundaries between the belts.

The Quesnel Terrane is a mixed assemblage of Upper Paleozoic and Lower Mesozoic volcanic and sedimentary strata of oceanic and island-arc origin. It is comprised of the 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 Subterrane and oceanic and marginal basin rocks of the Paleozoic Okanagan Subterrane. Within the map area, the Okanagan Subterrane is represented by the Permian and older Chapperon Group in the northwest and by the Carboniferous-Permian Anarchist Group in the southeast. The primary relationship between the Harper Ranch and Okanagan subterranes, which form the basement of Quesnellia, is unclear. The Harper Ranch Group and the Anarchist Group may have been facies of each other, or they may have been independent until overlain by Nicola Group rocks in the Triassic.

The accretion of Quesnellia, one component of the Intermontane Superterrane, onto the continental margin of North America took place in Early to Middle Jurassic time. The resulting compression, metamorphism, crustal thickening and plutonism formed the Omineca Belt. Extensive calc-alkaline plutonism within the Intermontane Belt began in the Early Jurassic and reached its peak by the Middle Jurassic. The result was a large, crudely-zoned plutonic complex, now located west of Okanagan Lake. The margin of this complex consists of granodiorite and quartz diorite which form the Early Jurassic Pennask Batholith to the north, the Early Jurassic Similkameen Intrusions to the west, and the Jurassic Okanagan Intrusions to the south. The core of the complex is formed by porphyritic granite and granodiorite of the Middle Jurassic Osprey Lake Intrusions. During the Cretaceous and continuing into the Tertiary, plutonism was active in the southern Omineca Belt resulting in the extensive Okanagan Batholith.

Mixed alkalic and calc-alkaline volcanism became active in the Okanagan area during the Eocene in response to extensional forces, possibly related to dextral movement on the Rocky Mountain Trench and Fraser River fault zones. The resulting Penticton Group volcanic and associated fluvial and lacustrine sedimentary rocks unconformably overlie Quesnellia strata and Jurassic intrusive rocks. The Eocene Coryell syenitic intrusions are high-level intrusive equivalents of the alkaline, rhomb porphyry lavas of the Penticton Group, Marron Formation.

The development of low-angle detachment surfaces during the Eocene and extensional movement on the Okanagan Valley fault redistributed Quesnellia strata and Penticton Group rocks, and exposed the Shuswap Metamorphic Complex east of Okanagan Lake. The Shuswap Metamorphic Complex, comprised of schist, gneiss and paragneiss, is that part of the Proterozoic Monashee Complex affected by a superimposed Eocene extensional strain. Plateau basalts of the Chilcotin Group covered much of the area in Miocene times. The Quaternary Lambly Creek basalts are the youngest rocks in the Penticton map area.

The earliest recorded mineral production in the Penticton-Kelowna area dates from the 1870s when placer gold was discovered in **Mission Creek** (082ENW105). Total recorded production was 20,558 grams of gold during the period 1876 to 1895. There is currently no mineral production in the Penticton map area. The most important past producer was the **Silver King** mine (082ENW018) which produced 15,116 grams of silver and 1,618 grams of gold from quartz veins between 1939 and 1941. Minor gold and silver production from veins is also recorded from the **Blue Hawk** (082ENW002), **Okanagan** (082ENW029) and **Rosemont** (082ENW046) mines. Silver, lead and zinc were produced from the **Kelly** (082ENW028) shear zone, and from the **Bathfield Silver Lode** (082ENW031) vein. A small amount of silver was produced from a vein in the **Lakevale** mine (082ENW040).

Upper Paleozoic mineralization includes the **Hall Creek** (082ENW033) asbestos showing and the **Roy** (082ENW056), a titaniferous magnetite showing. During the Mesozoic, contact metamorphic events produced a number of skarns. These include several gold skarns (**Iron Horse**-082ENW025, **Bolivar East**-082ENW099 and **Bolivar Road**-082ENW100), silver-rich polymetallic skarns (**Cap**-082ENW026 and **Camp Hewitt 12**-082ENW024) and a copper skarn (**Knob Hill**-082ENW047). A Triassic-Jurassic limestone has been quarried for lime production at the **Peachland Limestone** (082ENW016) deposit.

Jurassic porphyry copper-molybdenum mineralization is represented by the **Mac** (082ENW001), **North Brenda-Central** (082ENW003), **North Brenda-Jeff 43** (082ENW008), **Sid** (082ENW011), **Arnie** (082ENW014), **Trepanier Gorge** (082ENW054), **DAM** (082ENW055), and **PAN** (082ENW059) showings. Porphyry molybdenum mineralization is found on the **Maurice** (082ENW007) showing; and the **Carmi-Moly** deposit (082ENW036) has drill indicated, open pit reserves of 20.7 million tonnes of 0.106 per cent molybdenum.

Hydrothermal events associated with Jurassic intrusions produced a variety of vein occurrences including: gold veins (**Bolivar West**-082ENW098 and **Oka 8**-082ENW102), gold-silver veins (**Bolivar Creek**-082ENW101 and **Brae 1**-082ENW104), and silver-base metal veins (**Jass**-082ENW021). Shear zones in Jurassic intrusive rocks host precious and base metal mineralization (**Camp Hewitt 2**-082ENW019, **Camp Hewitt 3**-082ENW022, **Fap**-082ENW048, **Cache**-082ENW012, and **Glad**-082ENW013).

Industrial mineral occurrences include the Jurassic **Swan** (082ENW066) silica showing, the Cretaceous **Pacific Pearl** (082ENW083) granite dimension stone prospect, and the Tertiary diatomite **Hitchener Ranch** (082ENW032), **Kelowna** (082ENW058) clay, and **Westbank** (082ENW063) agate showings.

Eocene volcanics host the epithermal **Spod** (082ENW091) gold vein showing, the **Nipple Mountain Opal** (082ENW110) showing and the **Nipple Mountain Splitstone** (082ENW109) showing. An Eocene intrusion hosts the **Ferroux** (082ENW092) gold-silver vein showing.

Basal uranium deposits in Miocene paleochannels include **Haynes Lake** (082ENW051) with indicated reserves of 2 million tonnes of 0.017 per cent uranium, and **Hydraulic Lake** (082ENW053) with measured reserves of 2.06 million tonnes of 0.031 per cent uranium. Recent surficial uranium occurrences are common in closed basins and organic-rich pond sediments in the Summerland area. The **Prairie Flats** (082ENW073) deposit has measured reserves of 629,000 tonnes grading 0.033 per cent uranium.

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