



## MINFILE NTS 092HSE – PRINCETON

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**The Princeton map area lies in the south-central part of the province, adjacent to the Canada-United States border, and contains 244 documented occurrences.** Most of the map sheet covers a region of the Thompson Plateau, which is drained by the Similkameen River. This area is bordered to the south and west by the Cascade Mountains.

The map sheet covers the south end of the Intermontane Belt and the adjoining eastern margin of the Coast Belt. The southern Intermontane Belt is dominated by volcanic rocks and sediments of the Upper Triassic Nicola Group, comprising the Quesnel Terrane. These rocks are intruded by comagmatic plutons of the Late Triassic and Early Jurassic Copper Mountain and Hedley intrusions, and comprise a west-facing magmatic arc. The island arc assemblage is cut by post-accretionary intrusions of the Late Jurassic and Cretaceous Eagle Plutonic Complex and Osprey Lake batholith, and is unconformably overlain by volcanic rocks and clastic sediments of the Cretaceous and Tertiary Spences Bridge and Princeton groups. This post-accretionary vulcanism and sedimentation is in part controlled by a system of northerly-striking strike-slip faults

The Methow Terrane lies across the Pasayten fault to the west, and occupies the eastern margin of the Coast Belt in the Princeton map area. This terrane comprises a wedge of clastic sediments derived in part from Quesnellia rocks to the east. The sequence consists of fine-grained sediments and mafic volcanics of the Lower to Middle Jurassic Ladner Group, overlain by a thin section of sandstone and conglomerate of the Upper Jurassic "Thunder Lake sequence", which is in turn followed by a thick section of coarse clastics of the partly coeval Cretaceous Jackass Mountain and Pasayten groups.

The Princeton area is noted for its long history of metal, coal and placer mining. Prospecting and exploration for such deposits began in the late 1800's. Copper deposits are particularly abundant in the north-central part of the map area, in the immediate vicinity of Copper Mountain and the town of Princeton. These porphyry copper deposits are hosted in Nicola Group volcanic rocks, and have been exploited since the early 1900's. Similco Mines Ltd. currently mines about 7 million tonnes of ore annually grading approximately 0.5 per cent copper from its **Copper Mountain** mine (092HSE001). Reserves for Pits 1 and 2 and the **Virginia** deposit (092HSE242) are 39.4 million tonnes grading 0.44 per cent copper.

Numerous gold occurrences are found in the Hedley area in the northeastern part of the map sheet. Most of these deposits are hosted in skarns, developed in Nicola Group sediments. One such deposit is being mined by International Corona Corporation at its **Nickel Plate** mine (092HSE038), 4 kilometres northeast of Hedley. Remaining mineable reserves are estimated at 1.762 million tonnes grading 2.6 grams per tonne gold. Also present in the Hedley camp, are precious metal-bearing veins, breccias and shears, lying mostly west and southwest of the town. The **Banbury** occurrence (092HSE046) is the most developed and contains 215,221 tonnes grading 9.50 grams per tonne gold in two veins.

Iron and copper showings occur in the Tulameen Ultramafic Complex, a zoned Alaskan-type intrusive complex. The southern two-thirds of the complex lies in the northwestern part of the map sheet, about 20 kilometres west of Princeton. This portion of the complex hosts two significant magnetite deposits of magmatic origin, in addition to a number of copper showings. The **Lodestone Mountain** deposit (092HSE034), the larger of the two, contains 89,497,800 tonnes in proven reserves and an additional 116,468,300 tonnes of probable reserves grading 15.54 per cent and 13.91 per cent soluble iron, respectively. The **Tanglewood Hill** occurrence (092HSE035) contains 2,848,000 tonnes grading 16.4 per cent soluble iron.

Thermal coal was mined at several locations in the Princeton and Tulameen basins between 1909 and 1961. Approximately 4.25 million tonnes were produced during this time. Significant reserves remain in two deposits. The

**Bethlehem Coal** (092HSE227) and **Coalmont Colliery** (Blakeburn Strip mine, 092HSE157) deposits contain 90,000,000 tonnes and 27,890,510 tonnes of high-volatile bituminous thermal coal, respectively. The coal-bearing strata also contain important bentonite (**Princeton Bentonite**, 092HSE151) and zeolite (**Bromely Vale Zeolite**, 092HSE166) occurrences.

### SELECTED REGIONAL REFERENCES (092HSE – PRINCETON)

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