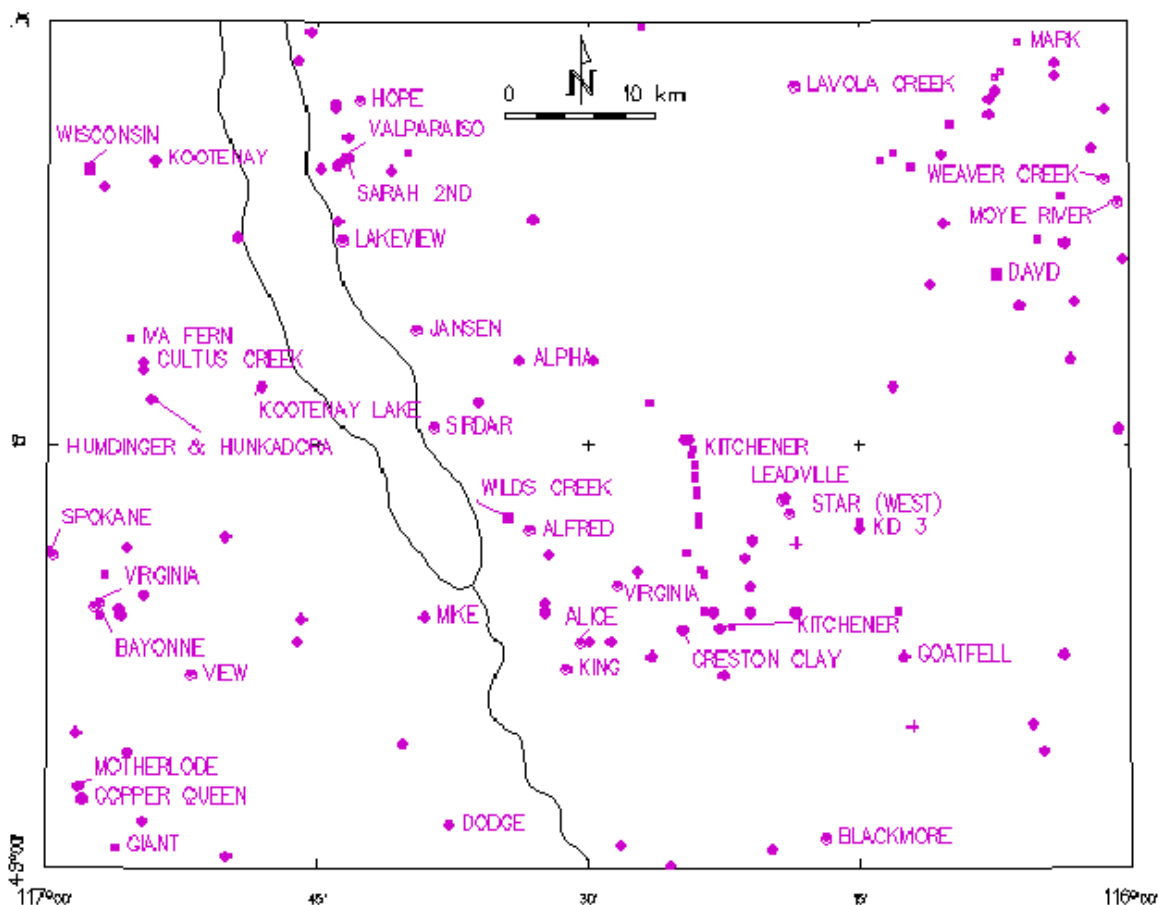




## MINFILE NTS 082FSE - CRESTON

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The Creston map area lies in the southeastern part of the province and contains 140 documented occurrences. The Creston map area lies immediately west of the Rocky Mountain Trench. The eastern two-thirds of the map sheet lies within the Purcell Mountains physiographic domain of the Foreland Belt, up to Kootenay Lake, which defines the Purcell Trench physiographic domain; the western portion of the map area lies within the Selkirk Mountains domain and is part of the Omineca Belt. Creston, the largest community, lies in the southeast corner of the map area.



The oldest rocks in the area belong to Ancestral North America which comprises metamorphosed Proterozoic assemblages exposed in the eastern and central portion of the map within the Purcell anticlinorium. The western part of the map area is underlain by Proterozoic to Paleozoic strata immediately east of the Kootenay Arc.

The Purcell anticlinorium consists of a series of broad, northwest trending open folds that are generally upright. The dominant regional schistosity is axial planar to the folds; locally developed shear zones are parallel to the foliation. Several northeast-trending structures of Proterozoic age cut the Purcell anticlinorium; these are important factors in localizing mineralization, especially where they intersect near-vertical, north trending normal faults. Rocks of the Purcell anticlinorium have undergone regional metamorphism to middle greenschist facies. The

anticlinorium is underlain by Proterozoic strata of the Purcell and Windermere supergroups and Cretaceous intrusive rocks.

The Lower Proterozoic Purcell Supergroup, represented by the Aldridge, Creston, Kitchener, Dutch Creek and Mount Nelson formations, is a thick sequence of shallowing-upwards, marine-deposited strata which are unconformably overlain by continental deposits of the Horsethief Creek Group and the Toby Formation of the Windermere Supergroup. Lower and Middle Aldridge Formation strata are cut by diorite and quartz diorite of the Middle Proterozoic Moyie intrusions.

The Kootenay Arc is a curving belt of highly deformed metasedimentary and metavolcanic rocks that adjoins the Creston map sheet on the west. The Kootenay Arc is dominated by intense and complex deformation. Large amplitude (10-kilometre scale) west-verging recumbent folds are deformed by at least two phases of upright, tight to isoclinal folds which overturn much of the stratigraphic sequence. Rocks adjacent to the Kootenay Arc in the Creston map area are somewhat less deformed, but have undergone regional metamorphism to middle or upper amphibolite (kyanite-sillimanite) facies. Rocks on the Creston sheet to the east of the Kootenay Arc include parts of the Upper Proterozoic Horsethief Creek Group, the Proterozoic to Cambrian Hamill Group, the Cambrian Cranbrook and Eager formations, and the upper Mississippian Milford Group. This volcano-sedimentary sequence is intruded by Mesozoic and Tertiary granitoid plutons, including stocks related to the Middle Jurassic Nelson batholith, the middle Cretaceous Bayonne batholith and the Middle Eocene Coryell intrusions.

The first recorded exploration work in the area dates back to the late 1800s when prospectors discovered placer gold in the Moyie River (082FSE102) and in Perry Creek. Production from these streams was minimal, but recently further production occurred from the Moyie River placer. More recently in the Perry Creek drainage, gold-bearing veins have been discovered (David (082FSE108), with reserves of 96,000 tonnes grading 13.08 grams per tonne gold) and old showings have been re-explored (e.g. Mark, 082FSE087).

In the early 1900s, exploration activity focused on gold-silver bearing quartz veins, with the discovery of the Bayonne (082FSE030), Spokane (082FSE032), Wisconsin (082FSE036), Iva Fern (082FSE037) and the Valparaiso-Government (082FSE038) deposits in the western part of the map area, most of which are past producers hosted in or adjacent to the Bayonne batholith or stocks related to the Nelson batholith. The Wisconsin deposit is estimated to contain about 136,000 tonnes grading 12 grams per tonne gold and 171 grams per tonne silver. About this time, the Kitchener hematitic iron deposits (082FSE016, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28) were discovered and explored on Iron Range Mountain northeast of Creston, but no significant production was recorded.

Since then, exploration has been concentrated on high grade, polymetallic base metal vein and replacement deposits after the discovery of the Wilds Creek (082FSE005), a lead-zinc-barite, possibly stratabound deposit on the Creston sheet, and the Sullivan (082FNE052) deposit on the Kaslo sheet to the north. Of the 138 documented occurrences on the map sheet, 40 are silver-lead-zinc deposits, of which 9 are past producers. Most of these deposits were small, structurally controlled replacement vein-type deposits which produced less than 200 tonnes of ore, but the Alice (082FSE007) produced nearly 7000 tonnes. The deposits are located within argillaceous quartzite of the Aldridge and Creston formations, or limestone of the Dutch Creek Formation, of the Purcell Supergroup.

Recent exploration activity in the eastern half of the area for stratabound sedimentary exhalative (Sedex) lead-zinc-silver deposits of the Sullivan type has focused on indicators such as tourmalinite pipes, albitite and fragmental rocks. Important occurrences of this type include the Goatfell (082FSE107), Star (082FSE002), Kid 3 (082FSE013) and Dodge or Sullivan 2 (082FSE136) showings. Most of these occurrences are associated with Proterozoic igneous activity in the form of Moyie intrusions diorite to gabbro sills and dikes, as at the Sullivan deposit. Minor copper-silver occurrences are also associated with these sills and dikes where they cut Middle Proterozoic rocks throughout the area, but none have recorded production or are of significant size. The area appears to have good potential for hosting Sedex-type mineralization within the Lower Aldridge Formation in the southeastern part of the map area, but has so far been extensively explored without significant discoveries.

Stratabound copper-silver mineralization with minor lead-zinc occurs in and associated with limy Upper Proterozoic rocks of the Windermere Supergroup over a 30 kilometre strike length from the Iva Fern (082FSE037) deposit in the north through the Humdinger-Hunkadora and Cultus Creek (082FSE082, 56) occurrences to the Copper Queen, Motherlode and Giant (082FSE053, 80, 11) occurrences near the international boundary in the south.

Granite and granodiorite were quarried for crushed, dimension and building stone from the Bayonne batholith at the Sirdar (082FE072) deposit, and clay deposits suitable for brick production are known at the Creston (082FSE088, 98) occurrences. There are several occurrences of industrial minerals including kyanite, sillimanite, andalusite and associated garnet (Mike, 082FSE071; Kootenay, 082FSE099; Kootenay Lake, 082FSE103) in high grade metamorphic rocks developed from Proterozoic sediments intruded by Mesozoic plutons. Relatively low-grade talc has been mined periodically from the View (082FSE070) occurrence, located in the Dutch Creek Formation of the Purcell Supergroup.

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