MINFILE
NTS 093N – MANSON RIVER

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The Manson River map area, located in north-central British Columbia approximately 200 kilometres northwest of Prince George, contains 224 documented mineral occurrences. The east half of the map area (mainly east of the Hogem Intrusive Complex) has been recently mapped at 1:50,000 scale by the B.C. Geological Survey. This mapping has been continuous since 1987 through two projects: the Manson Creek Project (1987-1989) and the Nation Lakes Project (1990-1993). Physiographically, the majority of the map lies within the Omineca Mountains, the Manson Plateau and the Nechako Lowland. These physiographies account for a topographic change from low-lying, forest covered hills in the south to above-treeline mountains with broad forest covered valleys to the north. The northeast corner of the map area is bisected by the Northern Rocky Mountain Trench. Along the western margin of the map sheet lies the Takla Trench and a small portion of the Nechako Plateau in the southwest. Primary access is by all-season gravel roads from Fort St. James and Mackenzie. These roads connect to secondary roads constructed for logging and exploration.

Early exploration in the Manson River area was dominated by placer gold which was first discovered in this region in 1868. Placer mining was concentrated along the Manson and Germansen rivers, and their respective tributaries. Placer mining in this region has a long, intermittent history and is still continuing at the **Germansen Pits** property (093N 054). Hardrock prospecting was sporadic prior to the construction of the main road (often referred to as the Omineca Mining Road). The increased accessibility and the discovery of the **Pinchi Lake** mercury mine (093K 049) to the south, led to further exploration in this region. With the discovery of the **Mount Milligan** porphyry deposit (093N 194) in the 1980s, exploration activity in the map area once again accelerated.

The map area lies on the boundary between the Intermontane and Omineca belts. The Omineca Belt (bounded to the east by the Rocky Mountain Trench) is comprised of rocks representing the displaced North American margin, consisting of the autochthonous Cassiar Terrane and the pericratonic Kootenay Terrane. The Intermontane Belt is comprised of rocks belonging to the Intermontane Superterrane, consisting of the Slide Mountain, Quesnel, Harper Ranch and Cache Creek terranes.

In the map area, the autochthonous Cassiar Terrane is comprised of a Proterozoic to Mississippian carbonate and siliciclastic miogeoclinal wedge. These west-dipping, northwest-striking rocks belong to the Proterozoic Ingenika Group (Swannell, Tsaydiz, Espee, and Stelkuz formations), Lower Cambrian Atan Group (Mount Kison and Mount Brown formations), Cambrian to Ordovician Razorback Group, Lower Silurian to Lower Devonian Echo Lake Group, Middle Devonian Otter Lakes Group, Upper(?) Devonian to Lower Mississippian Big Creek Group and the Mississippian(?) to Early Permian Cooper Ridge Group. The Kootenay Terrane is composed of the Boulder Creek Group of uncertain age. To the east, parts of the Ingenika Group have been strongly metamorphosed (upper amphibolite) and polydeformed due to the Wolverine Metamorphic Complex. Quesnellia rocks comprise a volcanic and sedimentary assemblage assigned to the Middle Triassic to Lower Jurassic Takla Group. A poorly defined sedimentary and volcanic suite, belonging to the Upper Paleozoic Lay Range Assemblage, is believed to be part of the Harper Ranch subterrane. Cretaceous to Tertiary(?) uplift and extension of these rocks produced clastic rocks belonging to the Uslika Formation and contemporaneous tuffs and basalts. To the west of the Pinchi fault, the Cache Creek Terrane is composed of Carboniferous to Middle Jurassic sedimentary rocks of the Cache Creek Complex and Mississippian to Triassic oceanic ultramafites. The Cache Creek Complex is in structural contact with calc-alkaline volcanics and associated sedimentary strata of the undivided Upper Triassic Kutcho and Sinwa formations (Sitlika assemblage).

East of the Pinchi fault, the rocks have been intruded by the Cretaceous Germansen Batholith, the Early Jurassic Mount Milligan intrusive complex, the Late Triassic to Early Cretaceous Hogem Intrusive Complex, contemporaneous intrusions of the Hogem Intrusive Complex (predominantly of Early Jurassic age) and to the extreme east of the map area, the Cretaceous to Tertiary stocks of the Wolverine complex. West of the Pinchi fault zone, the layered rocks have been intruded by the Early Jurassic Topley Intrusions.

Major faults in the area trend north-northwest and consist of the Wolverine normal block fault, the right-lateral Manson Creek fault zone, the right-lateral Pinchi fault zone and the Vital fault. The Manson fault and the Pinchi fault are associated with numerous mineral occurrences.

The map area contains various mineral deposit types reflecting the complexity of the area. These deposit types include stratabound hosted base metals (**Biddy** - 093N 114), stratiform barite (**Omineca Queen** - 093N 087), mesothermal polymetallic (precious and base) quartz veins (**Motherlode** - 093N 024), stockwork base metals (**Osi** - 093N 170), silicified shear zones (**Nina** - 093N 011), carbonatites (**Lonnie** - 093N 012), disseminated precious metals (**QCM** - 093N 200), copper-gold porphyry deposits (**Mount Milligan** - 093N 194, **Lorraine** - 093N 002, **Tam** - 093N 093), molybdenum and copper porphyry deposits (**Blackjack East** - 093N 118), layered rare earths - alkalic gneissic (**Will** - 093N 201), ultramafic associated deposits (asbestos, gold, jade, nickel, chromite) and placer gold deposits (**Germansen Pits** - 093N 054).

SELECTED REGIONAL REFERENCES (NTS 093N – MANSON RIVER)

Plouffe, A.; Williams, Stephen, P. (2001): Quaternary geology data: Manson River (93N), Fort Fraser (93K) and Nechako River (93F), central British Columbia. Geological Survey of Canada, Open File D2270.