



MINFILE NTS 104J – DEASE LAKE

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The Dease Lake map area lies in the northwestern part of the province and contains 62 documented occurrences. The map sheet covers the Taku Plateau in the west and the Tanzilla Plateau in the east; the Teslin and Glenora trenches bisect the map sheet in an approximate north-south direction. The topography in the plateau region is subdued but is flanked to the northeast by the moderately rugged Cassiar Mountains and to the southwest by the extremely rugged Coast Mountains. Many of the major streams have cut deep gorges in the lower-lying parts of the plateau.

The map area is bordered to the east by Dease Lake, to the west by the Sheslay River, to the south by the Stikine River, and to the north by Tuya Lake. The Stewart-Cassiar highway (Highway 37) on the eastern border of the map area and the Telegraph Creek - Dease Lake road in the southeast provides the main access corridor. The Golden Bear Mine Road provides access in the southwest.

The map sheet is almost entirely within the Intermontane Belt; the Omineca Belt is in the extreme northeast corner. From south to north, the map area is underlain by rocks of the Stikine, Cache Creek and Quesnel terranes. Ancestral North America rocks occur in the northeast corner and Overlap Assemblages are scattered throughout the entire map area.

The westerly trending King Salmon and Nahlin thrust faults bisect the map area and are the predominant structural features. In general, the stratified rocks have northwesterly and westerly structural trends. To the south of the faults, Triassic Stuhini Group arc volcanics comprise calcalkaline, locally subaerial, augite and feldspar porphyritic andesite and basaltic andesite flows, breccia and tuff. Intrusive and/or coeval plutonic rocks comprise Late Triassic subalkaline, calcalkaline, foliated, older biotite-hornblende diorite, and younger, more extensive, foliated white to mottled pink hornblende quartz monzodiorite, granodiorite and quartz monzonite. Several prospects exhibit characteristics of alkalic porphyry copper-gold deposits and are clustered in and near these intrusive bodies. They are the **Pet** (104J 025), **Star** (104J 035), **GO** (104J 018), **Wolverine** (104J 059) and **HU** (104J 013).

The Level Mountain Range is a major physiographic feature near the centre of the map sheet, and is underlain by Tertiary alkali olivine basalt. Lower Jurassic Inklin Formation arc clastics above the Cache Creek Terrane, and Lower Jurassic Takwahoni Formation Stikinia arc-derived clastics are bounded by the King Salmon and Nahlin thrust faults. The Inklin Formation consists of penetratively cleaved phyllitic slate, greywacke and minor pebble and cobble conglomerate derived from Cache Creek and Quesnel terranes. The Takwahoni Formation comprises interbedded conglomerate, greywacke, siltstone and shale derived from Triassic volcanics and granites in Stikinia.

The Tuya River Tertiary coal basin (see **Tuya River**, 104J 043) straddles the drainage of Tuya River and its tributaries Little Tuya River and Mansfield Creek. It is estimated that the basin covers approximately 150 square kilometres and contains over 600 million tonnes of high-volatile B bituminous coal; a sizable coalbed methane resource up to 0.04 Tcf (trillion cubic feet) may also exist.

The Thibert Fault in the northeast corner of the map area is the northern boundary of the Mississippian-Triassic Cache Creek Complex, while to the south the Nahlin Fault forms the southern boundary. The Cache Creek rocks comprise oceanic volcanics and sediments consisting of basalt, tuff, agglomerate, chert, cherty argillite, greywacke, slate, siltstone, volcanic sandstone, massive limestone, gabbro and serpentinized peridotite and dunite with local pods of nephrite jade and small bodies of listwanite.

Minor amounts of chrysotile asbestos have been observed in many of the ultramafic bodies (see **Dease Lake**, 104J 029). Millerite (nickel sulphide) and low concentrations of gold are associated with a significant zone of listwanitic-ankeritic alteration at the **Opal Lake** (104J 001) occurrence. In 1965, about 1.8 tonnes of nephrite jade from large boulders at the **Seywerd** occurrence (104J 057) were sold in West Germany and about 3.1 tonnes in Japan.

Placer gold has been recovered in substantial quantities from Peace and Thibert creeks and their tributaries. Most of the placer occurrences are located near and along the Thibert and Nahlin faults within Cache Creek Complex rocks. In 1873, gold was discovered on a low bench on the north side of **Thibert Creek** (104J 007), about 4.8 kilometres above its

mouth. Recorded production from 1874 to 1935 amounted to 1,570,083 grams of gold. Gold in **Dease Creek** (104J 008) was discovered in the summer of 1873, and recorded production from 1874 to 1945 totalled 3,923,576 grams of gold. In 1986, proven, probable and possible reserves at **Boulder Creek** (104J 054) were 841,060 cubic metres grading 1.3 grams per tonne gold.

North of the Thibert Fault, arc clastics and volcanics of the Quesnel Terrane comprise greywacke, conglomerate, shale, slate and siltstone of the Lower Jurassic Nazcha Formation, and augite porphyry, feldspar porphyry, tuff and agglomerate of the Upper Triassic Shonoktaw Formation. The Klinkit Fault in the northeast corner of the map area separates Quesnellia from Ancestral North America rocks which comprise undivided pyritic, hornfelsic slate, argillite, siltstone, quartzite, micaceous quartzite, schist and limestone of the Lower Cambrian Boya Formation (Atan Group).

SELECTED REGIONAL REFERENCES (NTS 104J – DEASE LAKE)

- Gabrielse, H. (1998): Geology of Dease Lake (104J) and Cry Lake (104I) Map Areas, North-central British Columbia; Geological Survey of Canada, Bulletin 504, 147 pages, 12 maps.
- Gabrielse, H. (1994): Geology of Dease Lake (104J/E) and Cry Lake (104I) map areas, north-central British Columbia; Geological Survey of Canada, Open File 2779, Scale 1:50,000.
- Gabrielse, H. et.al. (1980): Geology of Dease Lake (104J) map area, British Columbia; Geological Survey of Canada, Open File 707, Scale 1:125,000.
- Geology, Dease Lake (104J), British Columbia; Geological Survey of Canada, Map 21-1962, Scale 1:253,440.
- Geology, Dease Lake (Northwest Quarter), British Columbia; Geological Survey of Canada, Map 15-1968, Scale 1:125,000.
- Geology, Stikine River Area, Cassiar District, British Columbia; Geological Survey of Canada, Map 9-1957, Scale 1:253,440.
- Johnston, W.A. (1925): Gold Placers of Dease Lake Area, Cassiar District, B.C.; Geological Survey of Canada, Summary Report 1925 Part A, pp. 33A-74A.
- Kerr, F.A. (1925): Dease Lake Area, Cassiar District, B.C.; Geological Survey of Canada, Summary Report 1925 Part A, pp. 75A-99A.
- Souther, J.G., Brew, D.A. and Okulitch, A.V. (1979): Geology Map, Iskut River, British Columbia-Alaska; Geological Survey of Canada, Map 1418A, Scale 1:1,000,000.
- Wheeler, J.O., Brookfield, A.J., Gabrielse, H., Monger, J.W.H., Tipper, H.W. and Woodsworth, G.J. (1991): Terrane Map of the Canadian Cordillera; Geological Survey of Canada, Map 1713A, Scale 1:2,000,000.
- Wheeler, J.O. and McFeely, P. (1991): Tectonic Assemblage Map of the Cordillera and adjacent parts of the United States of America; Geological Survey of Canada, Map 1712A, Scale 1:2,000,000.