



Occurrence Details

Occurrence Number: 117A 038
Occurrence Name: Big Fish
Occurrence Type: Hard-rock
Status: Anomaly
Date printed: 6/16/2025 8:04:56 AM

General Information

Secondary Commodities: iron
Deposit Type(s): Iron Formation
Location(s): 68°28'47" N - -136°28'21" W
NTS Mapsheet(s): 117A08
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

First noted by the GSC in 1971 and staked as Mac cl (56531) and Delta cl (YA82503) in May/74 by Welcome North ML and Bethlehem Copper, which performed sampling and evaluation later in the year. The phosphate minerals at this location were subsequently studied extensively by mineralogists and gem collectors. This area lies within a large area withdrawn from staking in Jul/78 pending creation of a National Wilderness Park, settlement of native land claims, and development of a management plan for the Porcupine Caribou Herd.

Capsule Geology

Thick deposits of siderite and phosphatic ironstone in shale occur in the Rapid Creek Formation, which overlies a thick sequence of turbidite sandstones deposited during the late Early Cretaceous. The Rapid Creek sequence consists of three units of cyclically interbedded siderite, mudstone and shale separated by two grey montmorillonite shale units. The phosphate minerals are thought to have been deposited by cold, northeast-flowing currents upwelling on the flank of a structural high which formed the eastern margin of the Blow Trough. In the Rapid Creek and Lower Big Fish River drainages, the Rapid Creek Formation forms an immense low-grade deposit containing an estimated 91 billion tonnes of Fe₂O₃ equivalent, and roughly 7 billion tonnes of P₂O₅ and over 1.162 billion tonnes of MnO in an ore which has an average grade of 33% Fe₂O₃, 14% P₂O₅ and 5% MnO. The Rapid Creek iron-manganese horizon is ranked by Laznicka as the world's fourth largest manganese deposit, with 6.5% of the world's total manganese reserves. The Rapid Creek Formation is the most northerly known phosphorite with a paleolatitude of 75° N. It varies from about 1000 m thick west of Rapid Creek to 60 m at Big Fish River. The phosphatic iron formation is composed of phosphate-siderite pellets and granules, detrital quartz and skeletal fragments in a matrix of sideritic mudstone. The phosphate-siderite pellets appear to have been redeposited and have an unusual chemistry which is more calcium deficient and more iron and magnesium rich than other marine phosphorites. Sampling in 1974 gave a grade of 16.7% total Fe across a thickness of 442 m. A direct reduction test gave 66.7% total Fe concentrate grade and a recovery of 72.5%. Sampling in this area gave a grade of 20.5% total Fe across a thickness of 182 m. A direct reduction test gave a 66.7% total Fe concentrate grade and a recovery of 72.5%. The Blow River Formation is best known for the secondary minerals, chiefly phosphates, which are found as veins and breccia fillings in the Rapid Creek (Minfile 117A 027) and Big Fish River areas. Phosphate mineralization at the Big Fish River location is largely confined to recrystallized spherulitic replacements of ammonites and pelecypods and oblate concretionary phosphate nodules. The main minerals are pyrite, wolfeite, satterlyite, maricite, vivianite-baricite and varulite.

Work History

Date	Work Type	Comment
12/31/1974	Geochemistry	
12/13/1974	Lab Work/Physical Studies	Phosphate minerals studied extensively.

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
090002	1975	Exploration Proposal Delta Iron Deposit	Rock - Geochemistry		
080340	1974	Delta Iron Deposit Mac 1-50 Mineral Claims, Mackenzie Mining District	Research/Summarize - Pre-existing Data		

Related References

Number	Title	Page(s)	Reference Type	Document Type
1992GeolV o13_02	Phosphorites, ironstones, and secondary phosphates in Mid-Cretaceous flysch of the blow trough, northern Yukon		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper