Occurrence Details

Occurrence Number: 105O 068
Occurrence Name: Mars NE
Occurrence Type: Hard-rock
Status: Showing
Date printed: 8/5/2025 8:27:20 AM

General Information

Primary Commodities: gold
Aliases: Einarson, Mars
Deposit Type(s): Unknown
Location(s): N - W
NTS Mapsheet(s): 105O14
Location Comments: location from 202 technical report
Hand Samples Available: No
Last Reviewed:

Capsule

The Einarson district is underlain by sedimentary rocks of the Selwyn Basin deposited in a marine environment along the margin of ancestral North America from Late Proterozoic into Paleozoic times, following the breakup of the Rodinia supercontinent. These rocks comprise siliciclastic units like argillites, shales, sandstones grading to quartz pebble conglomerates with varying degrees of carbonate content, interlayered with carbonate units like limestones and dolomites, with minor turbidite and debris flow units.
The oldest units in the area are the Yusezyu and Algae Lake formations, comprising mainly arenites and carbonates respectively. These are overlain by the Narchilla formation, which has its basal Senoah member, which are overlain by the distinctive maroon and green argillites and shales of the Arrowhead Lake member, and the clastic Gull Lake formation, which includes minor volcanic units. Instances of the overlying Old Cabin volcanic formation are also present in the project area.
Structurally, the Einarson district sits in a broad zone of tectonic flexure, wherein major east-west trending features like the Dawson thrust and the Kathleen Lakes fault west of the district give way to a network of northwest-southeast and north-south trending deep-seated faults at Einarson (Moynihan, 2014). South of Einarson, this tectonostratigraphic package wraps around further in a 10's-of-km wide synclinal feature attributed to motion along the Hess-Macmillan Fault system, the nose of which is intruded by members of the Cretaceous Emerald Lake plutonic suite south of Einarson. This deformation has resulted in a high degree of shortening, particularly in the upper Narchilla formation and above.
Steeply dipping faults cut stratigraphy that is relatively flat lying on a regional scale, but variably folded at smaller scales depending on formation. The Yusezyu and Algae Lake formations and the Senoah member of the Narchilla formation form broad anti- and synclinal features across the district, with large (multiple km-scale) faulted anticlines corresponding to three domal structural features that expose both Yuzesyu and Algae Lake formations. Within the Narchilla formation, between the Senoa and Arrowhead Lake members, is a detachment surface that sees heavy isoclinal folding and shortening of up to 80% in overlying units, including the Gull Lake and Old Cabin formations.
The geology of the Mars NE target is still poorly understood due to extensive overburden cover. Outcrops near mineralization and breccia clasts observed within mineralized specimens indicate the primary host unit appears to be siltstones of the Narchilla formation. The distinctive maroon and lesser green siltstones of the Narchilla formation's Arrowhead member are abundant in the target area, accompanied by grey, brown and black shales, and calcareous sandstones. Outcrops are variably folded and brittle faulted, marked in places by strong, tightly spaced jointing and elsewhere by pervasive clay and carbonate alteration across tens of metres. Overall, units appear to dip gently to moderately east. Carbonates of the Algae Lake formation are very likely to be present below surface.
Structurally, the Mars NE zone sits in the hanging wall of the West Fourteen thrust, a steeply east-dipping regional thrust with several hundred metres of vertical offset that also cuts through the Avalanche Creek zone. The detachment surface of the Rogue Decollement Complex—which separates tightly folded, heavily shortened members of the Narchilla formation's Arrowhead member above the detachment from regionally folded members of the Narchilla formation's lower Senoa member, strikes northwest through the mineralized area.

Work History

Date	Work Type	Comment
4/1/2016	Geochemistry	
4/1/2016	Geology	
4/1/2016	Geochemistry	
4/1/2016	Trenching	
4/1/2015	Ground Geophysics	
4/1/2015	Ground Geophysics	
4/1/2015	Ground Geophysics	
4/1/2015	Ground Geophysics	
4/1/2013	Geochemistry	
4/1/2013	Drilling	21 holes, 4,803.0 m
4/1/2013	Geology	
4/1/2013	Geochemistry	
4/1/2013	Geochemistry	
4/1/2013	Geochemistry	
4/1/2012	Drilling	10 holes, 1875.0 m
4/1/2012	Geochemistry	

4/1/2012	Geochemistry	
4/1/2012	Geology	
4/1/2011	Geochemistry	
4/1/2011	Geochemistry	

Related References

Number	Title	Page(s)	Reference Type	Document Type
2014-1	Geological map of NTS 106B/04, east-central Yukon		Yukon Geological Survey	Open File (Geological - Bedrock)
2016-046	Summary Report at Mars Northeast zones Einarson Project YMEP 2016		Yukon Government: Energy, Mines and Resources	YMEP Report
15-088	Summary Report at Mars North and Mars Northeast Zones		Yukon Government: Energy, Mines and Resources	YMEP Report