Occurrence Details

Occurrence Number: 116C 029
Occurrence Name: Shell Creek
Occurrence Type: Hard-rock
Status: Prospect
Date printed: 6/14/2025 4:53:45 PM

General Information

Primary Commodities: iron
Secondary Commodities: copper, gold
Deposit Type(s): Iron Formation
Location(s): 64°34'57" N - -140°23'1" W
NTS Mapsheet(s): 116C09
Location Comments: .5 Kilometres
Hand Samples Available: No
Last Reviewed:

Capsule

Work History

Staked as Hans, Luck, Werner, Bill, and Put claims (78188) in Jan/57 by Hans and Werner Krause. Optioned in Oct/57 to Asbestos Corporation (Explorations) Ltd, which conducted geological mapping, dip needle survey and hand trenching, and later optioned in Dec/61 for a brief time to Peso Silver Mines Ltd.
Restaked as Shell cl 1-27 (Y15302) in Sep/67 by Selwyn Explorations Ltd, which explored by geological mapping and bulk sampling in 1968. A tote road was started to the property in the winter of 69-70 but was not completed.
Restaked as Simba cl 1-40 (YC21149) in Feb/2002 by S. Ryan who carried out limited soil and silt sampling programs followed by detailed ground magnetics surveys later in the year. In Oct /2002 Ryan added Simba cl 41-70 (YC21872).
In Jan/2003 Ryan optioned the claims to Logan Resources Ltd. The company added Simba cl 71-214 (YC30279) in Apr/2004, cl 215-432 (YC32891) in Jun/2004 and cl 433-488 (YC35058) in Sep/2004. The company carried out silt and soil sampling, geological mapping and excavator trenching in 2004.
Logan completed an aeromagnetic survey on the property in 2005. In addition to outlining the BIF, the survey detected major and minor breaks, offsets and inflections across the property. The company also conducted an IP/resistivity survey and silt sampling in 2005 and collected 55 gravity readings over the property.

Capsule Geology

The occurrence is located at the extreme northwest end of the Selwyn basin, northeast of the Tintina Trench and south of the Dawson thrust. The Selwyn basin is marked by deep-water offshelf sedimentation that persisted from late Precambrian to Middle Devonian time. Geological mapping shows that the occurrence area is underlain by basinal rocks assigned to the Precambrian to Cambrian Hyland Group. Preliminary mapping completed by Logan Resources shows that in the occurrence area the Hyland Group comprises recrystallized limestone at its base followed by siliceous argillite, siltstone and sandstone. A narrow banded iron formation composed of a black slaty magnetite facies interbanded with a thin banded grey chert containing pyrite and pyrrhotite occurs within the siliceous sediments. Minor chloritic schist of probable volcanic origin is also known to occur within the Hyland Group.
Above the Hyland Group Thompson mapped an undefined volcanic unit, Upper Proterozoic to Lower Cambrian in age (unit PEsch). C. Roots (pers. comm., 2005) describes this unit as a sheared chloritic schist of undetermined origin and based on its stratigraphic location must be younger than the Hyland Group. The same unit is described by Logan Resources as mixture of light green intermediate volcanics and siliciclastic rocks (unit PEv).
The sequence is topped by Lower Cambrian to Lower Ordovician volcanic rocks and occasional limestone pods assigned to the Marmot Formation. The volcanics consists of amygdaloidal basaltic flows and breccias formed mostly in a subaqueous environment. Paleozoic, probably Ordovician, mafic dike and sills interpreted to be subvolcanic to the flows and breccias also occur. The Coal Creek thrust fault thrusts this sequence to the north over younger black shales, argillite and cherts assigned to the Middle Ordovician to Middle Devonian Road River Group.
Both the Asbestos Corporation and Selwyn Explorations staked the area for its iron ore potential. In 1968 the GSC visited the area and reported that Algoma type iron-formation was observed along Shell Creek. The iron-formation is composed of two principal types of material, a black magnetite facies, and another facies of thin banded grey chert containing pyrite and pyrrhotite which occurs near the magnetite iron-formation. The iron-formation appears intimately associated with quartz-chlorite and quartz-mica schist which are most probably of volcanic origin and forms part of a tightly folded group of rocks composed of various schist, argillite, slate, buff-brown gritty quartzite, and black maroon and green shales all of Precambrian and/or Cambrian age.
The affinity of the volcanic rocks appears to be uncertain. Geological maps drawn by Thompson et al., appear to assign the quartz-chlorite and quartz-mica schist to the undefined unit lying above the Hyland Group. Geological maps available on Logan Resources' website appear to agree with Thompson but the geological summary appears to assign the rocks to the Hyland Group. Future geological mapping will hopefully solve this dilemma.
Studies undertaken by Gross shows that the geological environment of the Shell Creek iron-formation is similar in many respects to that of Algoma type iron-formations in Archean rocks of the Canadian Shield which contain stratiform sulphide deposits associated with the iron-formation.
The Asbestos Corporation carried out trenching at six different sites located across the length of their claim block, (the occurrence location marks the location of trench 5, site of the widest intersection). Geological mapping outlined two bands of iron formation 23 and 61 m wide, (true width) grading about 25% iron and separated by 91 m of phyllite. Airborne magnetic maps suggest the iron formation could have a strike length of 8 kms. Assays of a high grade sample containing 43% Fe returned 14.5% silica, 0.21% TiO_2, 0.09% phosphorus and 0.01% sulphur.
Selwyn Exploration's work program was geared toward evaluating the economics of mining the resource. The company carried out various metallurgical tests. Two samples collected from Trench 5 in Jun/69 by H.E. Neal were sent to Ontario Research Foundation for a Davis Tube Test, with the following results:

cherty magnetite: head assay 29.2% Fe; recovery 86.0%;
slaty hematite: head assay 28.8% Fe; recovery 31.9%.

The company also examined different options for transportation and power.
Although a formal reserve figure was never calculated, H.S. Atkins estimated that the area located on the east flank of Shell Creek hosted a maximum of 181.5 million tonnes grading ± 35% iron (assessment report 060662, p. 3, Shell Creek Iron Report) and that perhaps the area hosted 453.7 million tonnes grading from 20 to 30% iron. Although no reason was stated, the discovery of numerous large open pittable iron ore deposits in eastern Canada during the same time period, likely lead to the abandonment of the project.
In 1988, G.A. Gross reported, as part of a Canadian wide study of the gold content of iron-formations in Canada, that two samples of oxide facies iron-formation collected from the Shell Creek area both returned average assays of 38 ppb gold.
Ryan restaked the area for its gold potential. An initial regional silt sampling program outlined a six km long area of anomalous copper values containing numerous nickel, cobalt and gold spot anomalies. Ground magnetics surveys outline numerous magnetic anomalies centered over the length of the iron-formations. Reconnaissance soil sampling identified anomalous copper, zinc and gold values across the iron formations. Prospecting identified visible gold in quartz-carbonate veins formed in the hanging wall of the iron-formation. Grab samples from

the veins have returned values of up to 1.84% copper, 9.08 g/t gold and anomalous uranium. Preliminary geological mapping carried out by Logan Resources in 2004 suggests the quartz-carbonate veins formed in the noses of folds similar to saddle reef-type veins.

Work History

Date	Work Type	Comment
12/31/2002	Geochemistry	Reconnaissance
12/31/2002	Geochemistry	Reconnaissance
12/31/2002	Ground Geophysics	
12/31/1969	Development, Surface	
12/31/1968	Geochemistry	
12/31/1968	Geology	
12/31/1957	Geology	
12/31/1957	Ground Geophysics	Dip Needle survey.
12/31/1957	Trenching	
12/13/2005	Geochemistry	
12/13/2005	Ground Geophysics	Also IP survey and collected isolated gravity measurements.
12/13/2005	Airborne Geophysics	
12/13/2004	Geology	
12/13/2004	Geochemistry	Also silt sampling.
12/13/2004	Trenching	

Assessment Reports that overlap occurrence

Report Number	Year	Title	Worktypes	Holes Drilled	Meters Drilled
095583	2011	2011 Geological and Geochemical Report on the Shell Creek Project	Rock - Geochemistry, Rock - Geochemistry, Silt - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology, Detailed Bedrock Mapping - Geology, Prospecting - Other, Prospecting - Other		
095075	2008	2008 Geochemical Soil and Rock Sampling Report on the SHELL CREEK Property	Rock - Geochemistry, Soil - Geochemistry, Regional Bedrock Mapping - Geology, Bulk Sample - Lab Work/Physical Studies, Petrographic - Lab Work/Physical Studies, Prospecting - Other		
094930	2007	Helicopter Magnetic and Radiometric Survey for Logan Resources Ltd. on the Shell Creek Project Forty Mile Landing Area	Gamma-Ray Spectrometry - Airborne Geophysics, Magnetic - Airborne Geophysics		
094739	2007	Diamond Drilling, Geochemical, Geophysical, and Geological Surveys on the SHELL Property	Diamond - Drilling, Drill Core - Geochemistry, Rock - Geochemistry, Soil - Geochemistry, Bedrock Mapping - Geology, Detailed Bedrock Mapping - Geology, Magnetics - Ground Geophysics, Prospecting - Other	3	345.30
094630	2006	Assessment Report of the Simba Claims 489-536,551-578	Rock - Geochemistry, Soil - Geochemistry, Detailed Bedrock Mapping - Geology		
094665	2005	Geochemical and Geophysical Report on the SHELL CREEK Property	Magnetic - Airborne Geophysics, Soil - Geochemistry, IP - Ground Geophysics, Resistivity - Ground Geophysics, Line Cutting - Other		
094604	2005	Report of Aeromagnetic Geophysical Survey Conducted on the SHELL CREEK Property	Magnetic - Airborne Geophysics		
095283	2004	Geochemical Report on the SIMBA 41-214 Claims	Silt - Geochemistry, Bedrock Mapping - Geology, Prospecting - Other		
094418	2002	Geophysical and Geochemical Report-SIMBA 1-40 Claims	Rock - Geochemistry, Silt - Geochemistry, Soil - Geochemistry, Magnetics - Ground Geophysics, Prospecting - Other		
060622	1969	Report on Activities for the Period September 1968 to September 1969-SHELL CREEK Claims	Rock - Geochemistry, Tailings - Geochemistry, Metallurgical Tests - Lab Work/Physical Studies, Line Cutting - Other, Property Evaluation - Other, Data Compilation - Pre-existing Data, Research/Summarize - Pre-existing Data, Pre-feasibility - Studies, Resource Estimate - Studies		
019111	1968	Summary Report -SHELL CREEK Iron Deposit	Data Compilation - Pre-existing Data, Research/Summarize - Pre-existing Data, Pre-feasibility - Studies		
019112	1968	Shell Creek Iron and Coal Deposits	Cursory Property Visit - Other, Data Compilation - Pre-existing Data, Research/Summarize - Pre-existing Data		
019887	1967	Preliminary Report Shell Creek Iron Deposit	Property Evaluation - Other, Data Compilation - Pre-existing Data, Research/Summarize - Pre-existing Data		
017510	1958	Geological Report on the HANS, WERNER, BILL LUCK and PUT Claim Groups	Interpretation - Airphotography, Rock - Geochemistry, Bedrock Mapping - Geology, Magnetics - Ground Geophysics, Bulk Sample - Lab Work/Physical Studies, Property Evaluation - Other, Prospecting - Other, Surveying - Other, Hand - Trenching		

Related References

Number	Title	Page(s)	Reference Type	Document Type
1988GeolVol2_10	Cambro-Ordovician Volcanic Rocks in Eastern Dawson Map-Area, Ogilvie Mountains, Yukon		Indian & Northern Affairs Canada/Department of Indian & Northern Development: Exploration & Geological Services Division	Annual Report Paper

Resource/Reserve

Year	Zone	Type	Commodity	Grade	Tonnage	Amount	Reported Amount	43-101 Compliant	Cut-off
1969	SHELL CREEK - TOTAL RESERVE (OPEN PIT)	Historical Estimate	iron	25 %	453,700,000		No	No	Unknown
Reserve figure is ball park estimate, no engineering studies to back it up, i.e. rough estimate. Grade is mid-point between high and low i.e. 20 to 30%.									