

**VMS POTENTIAL IN THE UPPER TRIASSIC NICOLA GROUP
SOUTHERN BRITISH COLUMBIA
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January 31, 2001**

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Feb. 13/01*

SUMMARY

The Upper Triassic Nicola Group between Princeton and Kamloops comprises mafic to felsic pyroclastics and flows, clastic sediments and carbonate deposited in a volcanic arc setting. The belt is very well known for its copper and gold deposits, due to prolific production from copper skarn in (e.g. Craigmont), gold skarn (e.g. Nickel Plate) and porphyry deposits, the latter of which occur in igneous rocks not related to the Nicola Group (e.g. Afton Cu-Au, Copper Mountain Cu-Au, and Highland Valley Cu-Mo-Au-Ag).

The recent discovery of the Fox Zn-Cu-Pb-Ag-Bi prospect (owned by Glenora Exploration Inc.) in the Western volcanic facies of the Nicola near Merritt suggests there may be unrecognized potential for volcanogenic massive sulfide deposits in the belt. The growing recognition in the potential is shown by the nearly 1400 claim units that were staked between July and December, 2000, although other massive sulfide prospects in the Nicola have been known about for years (e.g. Redstar), little exploration for this target-type has taken place in the past.

At the Blacktop prospect on the Fox property, discovered in July 2000 by prospectors Michael Moore, a 1.8 m x 1.3 m massive sulfide layer has been traced for 90 meters in a west-south-west direction. Grab samples run up to 33.26% Zn, 3.22% Cu, 0.96% Pb, 144.7 g/t Ag and 1.06 g/t Au and a chip sample from the base of one trench returned 1.1 meters grading 17% Zn, 1.6% Cu, 0.47% Pb, 76 g/t Ag and 0.49 g/t Au. The massive sulfide horizon is hosted by altered and sericitized (?) and brecciated and is overlain by chert and barite. Mafic to intermediate volcanic breccias, red sandstones and polytictic conglomerate occur nearby. Glenora conducted surface EM and magnetic, ground EM and in-stream sediment sampling, prospecting and mapping in the fall, and drilling is planned for March 2001.

Other VMS prospects are known in the belt which extends from at least the US border to Ashcroft. Perhaps the best known is the Redstar mine near Princeton where a small lens of massive sulfide graded 40% zinc, 3.72% copper, 0.6% gold and 38.4 g/t silver over a 1.1 m channel sample. Cu-Zn prospects have also been interpreted to be of VMS origin in the Rabbit Mountain area (e.g. Cowan Jack, Law's Camp, Whistler Creek and Lake Mountain (e.g. Leadville, Comstock and LD projects)). In the Vancouver valley near Ashcroft, the Red Hill prospect has also been interpreted as a VMS deposit and is currently being explored by Teck Corp. The host rocks at Red Hill include felsic volcanic and are shown on most maps as Western volcanic facies of the Nicola Group, however they have recently been re-dated as Early Triassic and correlated with the Ketchikan Assemblage in northern B.C.

So far, the VMS prospects discovered in the belt appear small in size, however, the high grades and lack of previous systematic exploration for this target makes them attractive. In addition, the strong regional history and excellent infrastructure in the area mean that development of new discoveries will be easier.

Other Zn-Pb-Cu-Bi prospects in the belt should be re-evaluated with a VMS model in mind. Special attention should be paid to areas with tectonic alteration and mapped felsic volcanic facies, particularly in the Western volcanic belt. In addition, grassroots prospecting should follow up regional stream sediment anomalies for zinc, lead, barium and manganese. Of course, the Nicola Group and equivalent rocks occur elsewhere in B.C. and their potential for VMS deposits should be evaluated.

**POSSIBLE VMS PROSPECTS
IN NICOLA GROUP**

minfile_no	minfile_name	status_description	commodity_code1	commodity_code2	commodity_code3	commodity_code4	commodity_code5	commodity_code6	commodity_code7	deposit_type_desc1	deposit_type_desc2
020H019	HILTOP	Showing	Cu	Zn	Pb					Besshi massive sulfide Cu-Zn	
020H020	RED BIRD	Prospect	Cu	Ag	Au	Zn	Pb			Besshi massive sulfide Cu-Zn	
020H044	ST. GEORGE (L.259)	Past Producer	Au	Ag	Cu	Zn	Pb			Besshi massive sulfide Cu-Zn	
020H095	ST. LAWRENCE (L.259)	Prospect	Zn	Cu	Pb	Au	Ag			Besshi massive sulfide Cu-Zn	
020H098	LIVERPOOL (L.1188)	Prospect	Cu	Au	Pb	Zn		LS		Besshi massive sulfide Cu-Zn	
020H122	SOUTH COPPER	Prospect	Cu	Ag						Besshi massive sulfide Cu-Zn	
020H123	MID COPPER	Prospect	Cu							Besshi massive sulfide Cu-Zn	
020H077	RED STAR	Past Producer	Zn	Cu	Ag	Au	Pb	MO		Noranda/Kuroko massive sulfide Cu-Pb	Polytictic veins Ag-Pb-Zn-Au
020H088	PASAYTEN	Prospect	Cu	Au	Ag	Pb				Noranda/Kuroko massive sulfide Cu-Pb	Polytictic veins Ag-Pb-Zn-Au
020H099	KNOX HILL (709)	Prospect	Cu	Ag						Noranda/Kuroko massive sulfide Cu-Pb	Polytictic veins Ag-Pb-Zn-Au
020H072	KNIGHT AND DAY	Prospect	Zn	Pb	Au	Ag		CU		Polytictic veins Ag-Pb-Zn-Au	Besshi massive sulfide Cu-Zn
020H073	S AND M	Past Producer	Pb	Zn	Cu	Ag	Au			Polytictic veins Ag-Pb-Zn-Au	Besshi massive sulfide Cu-Zn
020H074	MARIAN	Prospect	Zn	Cu	Cu	Ag	Pb	MO		Noranda/Kuroko massive sulfide Cu-Pb	Besshi massive sulfide Cu-Zn
020H081	MAZE	Prospect	Pb	Ag						Noranda/Kuroko massive sulfide Cu-Pb	Besshi massive sulfide Cu-Zn
020H097	METESTOFFER	Prospect	Zn	Au	Ag	Cu	Pb			Polytictic veins Ag-Pb-Zn-Au	Besshi massive sulfide Cu-Zn
020H098	FIVE FIBURES	Prospect	Pb	Zn	Au	Ag				Polytictic veins Ag-Pb-Zn-Au	Besshi massive sulfide Cu-Zn
020H119	JOTA	Past Producer	Ag	Pb	Zn	Au	CU			Subvolcanic hot spring Ag-Au	Besshi massive sulfide Cu-Zn
020H124	GOLD DRO	Past Producer	Zn	Cu	Pb	Au	Ag			Noranda/Kuroko massive sulfide Cu-Pb	Besshi massive sulfide Cu-Zn
020H191	GOLDEN CROWN	Showing	Cu	Au	Ag					Subvolcanic Cu-Ag-Au (A-B)	Noranda/Kuroko massive sulfide Cu-Pb
020H192	Y	Showing	Cu							Subvolcanic Cu-Ag-Au (A-B)	Besshi massive sulfide Cu-Zn
020H193	Y 46	Showing	Cu							Subvolcanic Cu-Ag-Au (A-B)	Besshi massive sulfide Cu-Zn
020H209	T.O.S	Showing	Zn							Besshi massive sulfide Cu-Zn	
020H237	SE	Prospect	Zn	Cu	Ag	Au		PB		Besshi massive sulfide Cu-Zn	
020N009	CORNWALL CREEK	Showing	Cu							Noranda/Kuroko massive sulfide Cu-Pb	
020N042	RED HILL	Prospect	Cu	Zn	Au	Ag				Noranda/Kuroko massive sulfide Cu-Pb	
020N054	SPATSUM	Prospect	Cu	Zn	Pb		GY			Noranda/Kuroko massive sulfide Cu-Pb	
020N067	SILICA	Prospect	Cu	Zn	Ag	Au				Noranda/Kuroko massive sulfide Cu-Pb	
020N077	GENESIS	Showing	Cu	Zn	Pb					Noranda/Kuroko massive sulfide Cu-Pb	
020E158	LD	Showing	Cu	Pb	Zn	Ag	Au	BA		Polytictic veins Ag-Pb-Zn-Au	Noranda/Kuroko massive sulfide Cu-Pb
020E252	LEADVILLE	Past Producer	Pb	Zn	Au	Ag	CU	BA		Polytictic veins Ag-Pb-Zn-Au	Noranda/Kuroko massive sulfide Cu-Pb
020E191	FOX	Showing	Zn	Cu	Ag	Au	PB	BA		Noranda/Kuroko massive sulfide Cu-Pb	

LEGEND

UPPER TRIASSIC NICOLA GROUP

- Western volcanic facies; felsic to intermediate pyroclastics, argillite, sandstone, local carbonate
- Central volcanic facies; intermediate feldspar and feldspar-augite porphyry, pyroclastics and flows
- Eastern volcanic facies; mafic augite and hornblende porphyry pyroclastics and flows
- Sedimentary facies; argillite, sandstone, tuff, carbonate and conglomerate
- Amphibolite, foliated diorite, mylonite, schist, minor marble
- Volcanics; mafic to felsic, undifferentiated

LOWER TRIASSIC ("VENABLES VALLEY UNIT")

- Felsic volcanic and intrusive rocks (Childe et al., 1996)

CARBONIFEROUS TO TRIASSIC NICOLA AND/OR HARPER RANCH GROUPS

- Meta-augite porphyry, chlorite schist, argillite, phyllite, volcanic sandstone, semischist, local carbonate

DEVONIAN TO PERMIAN HARPER RANCH GROUP

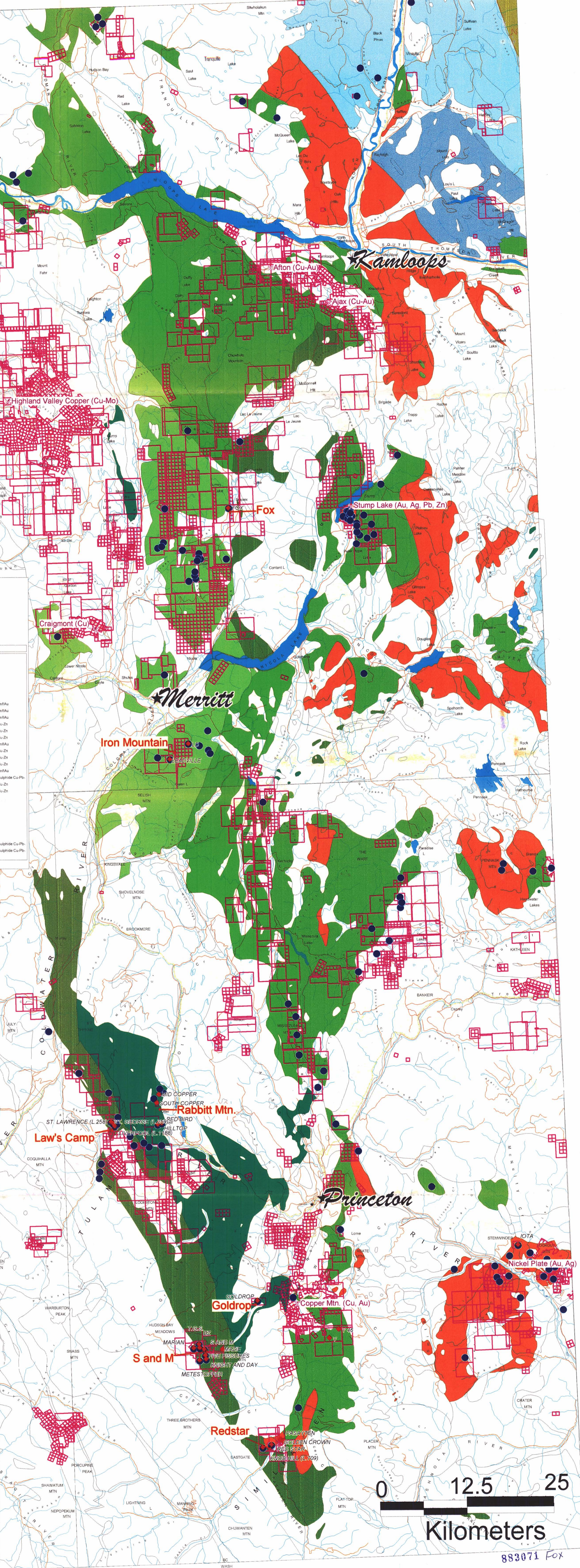
- Argillite, cherty argillite, siltstone, volcanic and chert grain sandstone, chert pebble conglomerate

Minfile occurrence with zinc (any deposit type)

◆ Noranda/Kuroko or Besshi VMS prospect

✕ Other mine or district

Mineral tenure (as of January 1, 2001)



0 12.5 25
Kilometers
883071 Fox