

Yukon Silver Potential

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Vera Deposit



Polymetallic Ag-Pb-Zn Veins

KENO HILL DISTRICT

The Keno Hill district has produced about 200 million ounces of silver & is Canada's second largest producer of silver. At least 65 Ag-Pb-rich polymetallic fault-related quartz-carbonate veins & breccia zones up to 30 m wide occur within Mississippian Keno Hill Quartzite. Examples: Bellekeno, Silver King. Intrusive rocks do not outcrop in the district but the age of mineralisation (ca. 90 Ma) is similar to that of granitic intrusions (mKS) which occur on the periphery & the two may be related.

CONNAUGHT (115N 040)

Multi-stage quartz-carbonate-sulphide veins are hosted by mid-Paleozoic Yukon-Tanana Terrane rocks (Nasina Assemblage) cut by Late Cretaceous monzonitic to granodioritic intrusions (LKP). Results include 781.7 g/t Ag, 19.9% Pb, 1.1 g/t Au over 1.2 m & 997.7 g/t Ag, 26.5% Pb, 2.74 g/t Au over 0.7 m.

BOMBER (115J 027)

Late Cretaceous Ag-bearing polymetallic quartz-barite veins are hosted by the mid-Cretaceous Dawson Range batholith (mKW). The average grade of a 371 tonne ore shipment was 3,689 g/t Ag, 17.1 g/t Au, 48.3% Pb, 5% Zn, 1.5% Cu & 0.02% Bi. The veins occur proximal to the large Late Cretaceous Casino Cu-Au-Mo deposit.

RUSTY SPRINGS (116K 003)

Vein (& stratabound) Ag-Pb-Cu-Zn mineralisation occurs in pyrobitumen-bearing, brecciated Devonian dolostone (DG). Results from drilling include 2,023 g/t Ag over 1.5 m & 518 g/t Ag over 15.3 m. The mineralisation is in a domed area & may be related to intrusive activity.

PESO-REX (106D 021)

Ag-Pb-Sb ± Au fault-related quartz-carbonate veins up to 4.3 m wide are hosted by quartzite & schist of the Neoproterozoic-Early Cambrian Hyland Group (PCH) peripheral to mid-Cretaceous biotite granodiorite (mKS).

VERA (106C 083)

A Ag-rich quartz vein up to 1.8 m wide occurs within Neoproterozoic-Early Cambrian dolostone (PCH).

PLATA (105N 003)

At least 14 Ag-rich quartz-carbonate veins occur in Early Paleozoic sedimentary rocks. 1,360 tonnes of material mined from vein #2 had an average grade of 5656 g/t Ag & 70% Pb. The mineralisation is likely related to mid-Cretaceous intrusive activity as feldspar porphyry dykes of this age outcrop locally on the property.

LOGAN (105B 099)

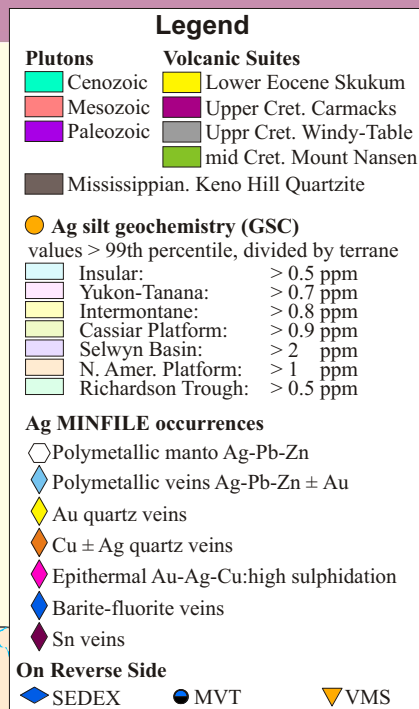
Ag-bearing quartz & quartz-carbonate veins, stockworks & breccia are associated with a fault zone that cuts graphic granite & pegmatitic phases of the mid-Cretaceous Marker Lake batholith (mKC).

MONTANA MOUNTAIN AREA

Ag-Au-rich mineralisation occurs in fissure vein systems hosted by a mid-Cretaceous intrusive-volcanic complex, i.e. Montana Mountain Pluton (mKW) & Mount Nansen volcanics (mKN). E.g. Venus, Big Thing/Arctic Cariboo (Table 1).



Plata Deposit



Introduction

Abundant silver mineralisation occurs throughout the Yukon. The territory has a resource of approximately 350 million ounces of contained Ag with a current market value of about 2.6 billion dollars (@US\$7.31/ounce; see Table 1 on reverse side). A large percentage of the silver is associated with Cretaceous & Tertiary igneous & volcanic complexes & occurs as vein-style mineralisation. The remainder is in Ag-rich VMS, MVT & SEDEX deposits (see reverse side).



McMillan Deposit

Polymetallic Ag-Pb-Zn Manto

KETZA RIVER AREA

Ag-Pb ± Au bearing carbonate ± quartz veins, breccia & mantos occurs in Cambrian to Mississippian strata of the Cassiar Platform on the perimeter of the Ketzia Uplift, a domed feature likely underlain by mid-Cretaceous intrusive rocks. Examples: Stump, Kibb, Groundhog; similar mineralisation occurs at the nearby Tintina Deposit (Table 1).

MCMILLAN (095D 006)

Zn-Pb-Ag mineralisation occurs within carbonate as a manto up to 30-m thick in the upper part of the Late Proterozoic-Early Cambrian Hyland Group (PCH).

SA DENA HES (105A 012)

Zn-Pb-Ag mineralisation occurs in replacement zones at the contact between Lower Cambrian limestone and phyllite (?Hyland Group) & is likely related to a buried ?Tertiary intrusion.

CLARK (106D 011)

Ag-bearing veins/mantos occur as replacements of carbonaceous horizons within limestone in the Upper Proterozoic-Cambrian Hyland Group (PCH).

Geology of Deposits

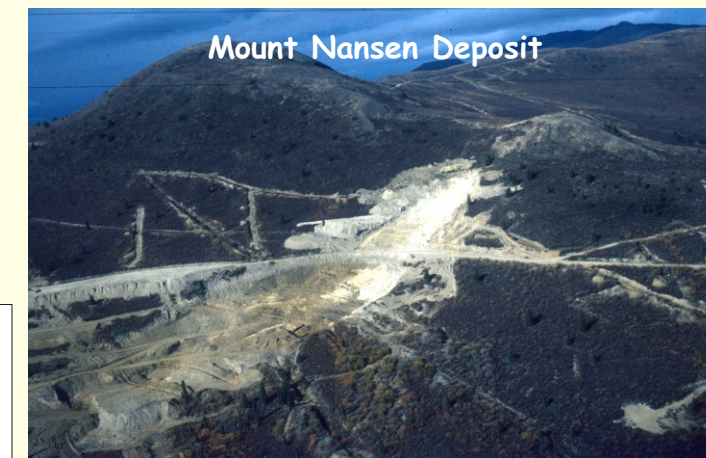
Significant silver mineralisation occurs in numerous vein- & manto-style deposits related to Mesozoic & Cenozoic intrusions & volcanic complexes:-

- Ag-rich polymetallic vein & manto mineralisation is mainly associated with mid-Cretaceous intrusions of the Whitehorse, Selwyn & Cassiar suites (mKW, mKS, mKC), the mid-Cretaceous Mount Nansen volcanic complex (mKN) & the Late Cretaceous Prospector Mountain suite (LKP). E.g. Keno Hill district, Venus, Ketzia River area.
- Epithermal Au-Ag-Cu (high sulphidation) veins & Au-quartz veins are associated with mid-Cretaceous (mKN) & Early Tertiary volcanic complexes (ITR, IES). E.g. Skukum Creek, Mount Nansen.
- Sn-Ag mineralisation is associated with mid-Cretaceous syenite of the Tombstone suite (mKT). E.g. Zeta.
- Cu-Ag veins & stockworks are associated with the Jurassic Aishihik suite (EJgA). E.g. Minto.

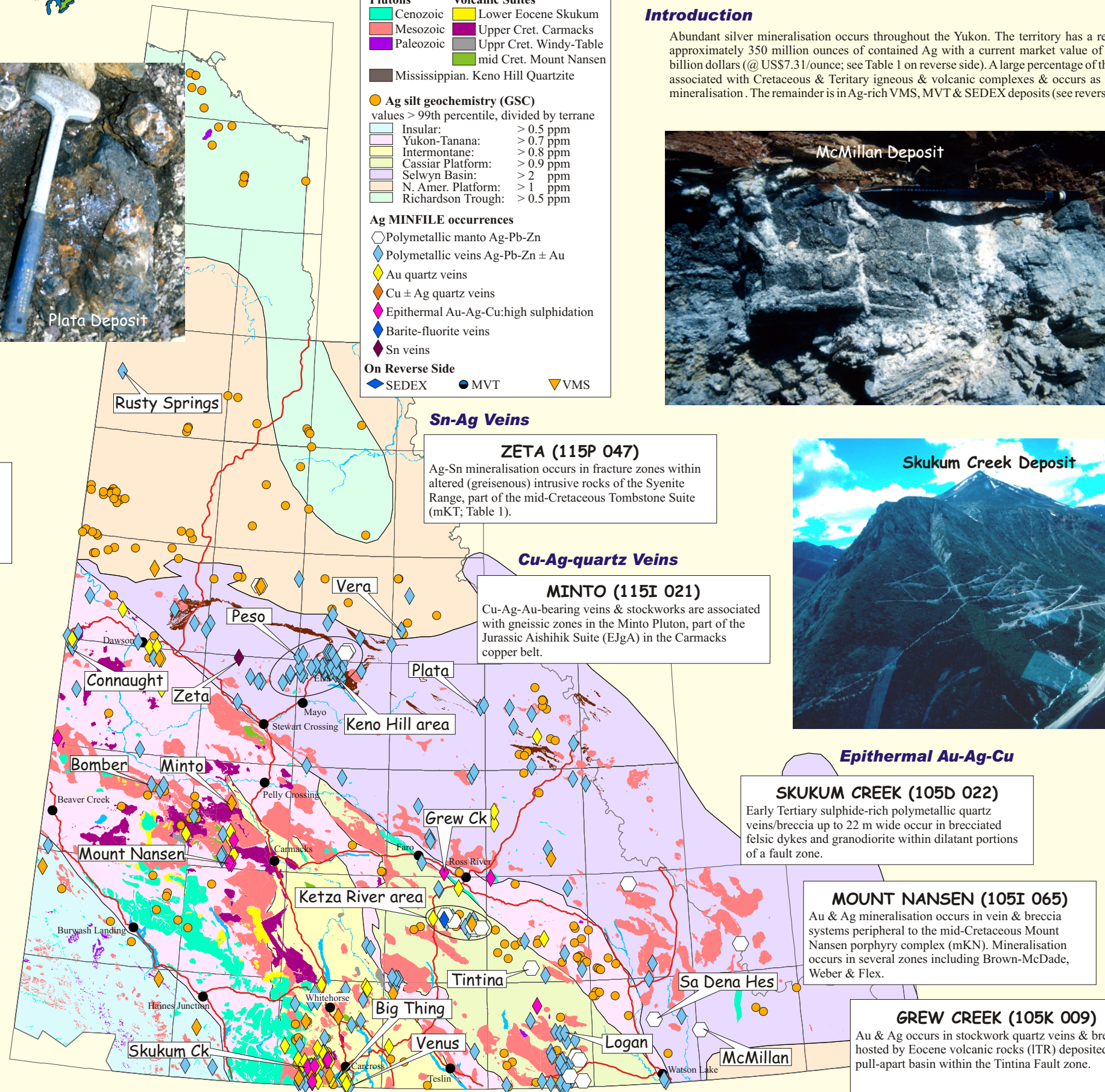
Considerable Ag mineralisation also occurs in VMS deposits in Devonian-Mississippian strata of the Yukon-Tanana Terrane (e.g. Wolverine, Kudz Ze Kayah) & Cassiar & North American Platforms (e.g. Wolf, Marg). Ag-rich MVT deposits occur in Paleo- & Neoproterozoic dolostone (e.g. Blende, Craig). Ag-bearing SEDEX deposits are hosted by early & middle Paleozoic strata (e.g. Faro, Clear Lake, Tom, Jason).



Skukum Creek Deposit



Mount Nansen Deposit



ZETA (115P 047)

Ag-Sn mineralisation occurs in fracture zones within altered (greisenous) intrusive rocks of the Syenite Range, part of the mid-Cretaceous Tombstone Suite (mKT; Table 1).

Cu-Ag-quartz Veins

MINTO (115I 021)

Cu-Ag-Au-bearing veins & stockworks are associated with gneissic zones in the Minto Pluton, part of the Jurassic Aishihik Suite (EJgA) in the Carmacks copper belt.

Epithermal Au-Ag-Cu

SKUKUM CREEK (105D 022)

Early Tertiary sulphide-rich polymetallic quartz veins/breccia up to 22 m wide occur in brecciated felsic dykes and granodiorite within dilatant portions of a fault zone.

MOUNT NANSEN (105I 065)

Au & Ag mineralisation occurs in vein & breccia systems peripheral to the mid-Cretaceous Mount Nansen porphyry complex (mKN). Mineralisation occurs in several zones including Brown-McDade, Weber & Flex.

GREW CREEK (105K 009)

Au & Ag occurs in stockwork quartz veins & breccia hosted by Eocene volcanic rocks (ITR) deposited in a pull-apart basin within the Tintina Fault zone.

More Yukon Silver

VMS Mineralisation

WOLVERINE & KUDZ ZE KAYAH (105G 072 & 117)

Precious metal-rich polymetallic VMS mineralisation occurs in Carboniferous felsic metavolcanic & metasedimentary rocks of the Yukon-Tanana Terrane (DMN).

WOLF (106G 008)

Ag-rich VMS mineralisation is hosted by Devonian-Mississippian felsic metavolcanic rocks (DMEC) in the Pelly Mountains volcanic belt.

MARG (106D 009)

Ag-rich polymetallic VMS mineralisation is hosted by Devonian-Mississippian felsic metavolcanic rocks (DME) in the Selwyn Basin.

MATT BERRY (105H 021)

Ag-bearing, Cu-rich massive sulphide mineralisation & quartz-sulphide veins are hosted by poly-deformed black shales (?Ordovician) underlain by felsic metavolcanic rocks.

MVT Mineralisation

BLENDE (106D 064)

Zn-Pb-Ag mineralisation occurs within Paleoproterozoic Gillespie Lake Group dolostone (IPG) in breccia zones located along a 6 km long, up to 200 m wide, shear zone.

CRAIG (106C 073)

Pb-Zn-Ag mineralisation occurs in brecciated, silicified Neoproterozoic dolostone (PCH).

SEDEX Mineralisation

FARO AREA

Stratiform SEDEX Pb-Zn-Ag mineralisation occurs in strata transitional between Lower Cambrian non-calcareous phyllite (Mt Mye Fmtn) & overlying Cambrian to Ordovician calcareous phyllite (Vangorda Fmtn), e.g. Swim, Dy/Grizzly.

TOM & JASON (105O 001 & 019)

Stratiform SEDEX Pb-Zn-Ag mineralisation occurs in Earn Group (DME) strata proximal to the contact between conglomeratic units & overlying carbonaceous mudstone & chert that were deposited in narrow grabens during Devonian rifting.

CLEAR LAKE (105L 045)

Exhalative Zn-Pb-Ag massive sulphide mineralisation is hosted by Devonian-Mississippian Earn Group sedimentary & volcanic rocks (DME).

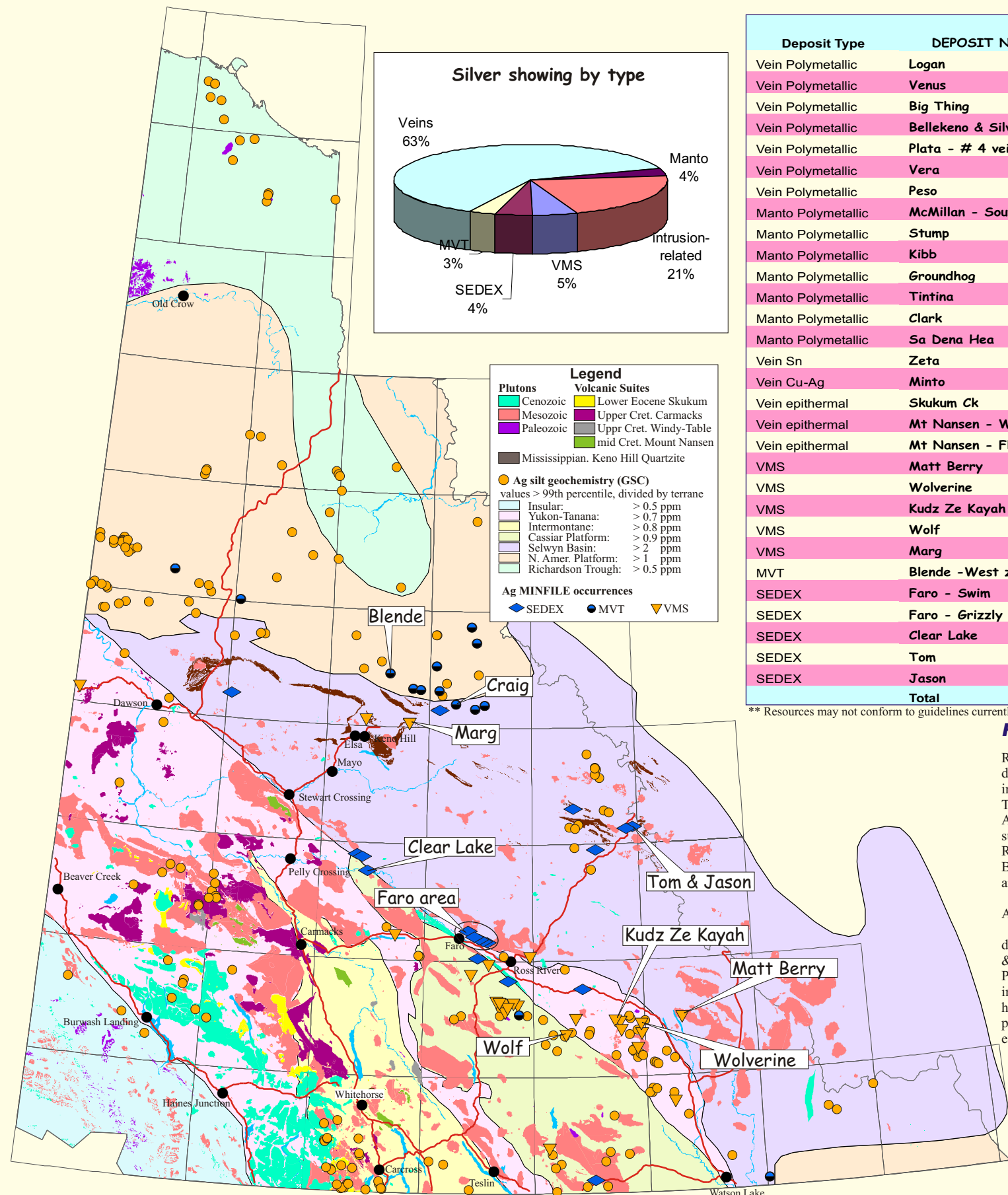


Table 1: Tonnes & Grade

Deposit Type	DEPOSIT NAME	Tonnes	g/t Ag	g/t Au	% Pb	% Zn	% Cu	Contained Ag (Ounces)	Value @ \$7.31 US/oz
Vein Polymetallic	Logan	12,300,000	26.4	-	-	6.2	-	10,441,158	\$76,324,862
Vein Polymetallic	Venus	61,689	305.1	11.0	2.5	1.5	-	605,266	\$4,424,497
Vein Polymetallic	Big Thing	231,262	675.4	23.3	-	-	-	5,022,475	\$36,714,294
Vein Polymetallic	Bellekeno & Silver King	856,302	1026.0	-	4.8	3.9	-	28,250,532	\$206,511,388
Vein Polymetallic	Plata - # 4 vein	453,592	376.7	3.8	10% combined	-	-	5,494,297	\$40,163,312
Vein Polymetallic	Vera	628,978	303.1	-	1.9	1.8	-	6,129,603	\$44,807,398
Vein Polymetallic	Peso	139,371	716.0	-	3.7	-	-	3,208,670	\$23,455,377
Manto Polymetallic	McMillan - South	400,000	214.0	-	9.3	1.7	-	2,752,412	\$20,120,129
Manto Polymetallic	Stump	49,800	719.0	-	20.0	-	-	1,151,325	\$8,416,184
Manto Polymetallic	Kibb	400,000	214.0	-	14.4	-	-	2,752,412	\$20,120,129
Manto Polymetallic	Groundhog	134,180	67.9	0.2	2.3	4.3	-	292,909	\$2,141,167
Manto Polymetallic	Tintina	90,719	685.7	-	6.0	10.0	-	2,000,194	\$14,621,415
Manto Polymetallic	Clark	327,373	254.8	-	5.6	4.6	-	2,682,038	\$19,605,694
Manto Polymetallic	Sa Dena Hea	1,400,000	44.0	-	2.5	10.2	-	1,980,707	\$14,478,971
Vein Sn	Zeta	98,248	557.8	-	-	-	-	1,762,146	\$12,881,286
Vein Cu-Ag	Minto	8,818,000	7.5	0.5	-	-	1.7	2,126,527	\$15,544,915
Vein epithermal	Skukum Ck	867,890	275.0	7.6	-	-	-	7,674,268	\$56,098,903
Vein epithermal	Mt Nansen - Webber	58,524	611.0	10.9	-	-	-	1,149,780	\$8,404,893
Vein epithermal	Mt Nansen - Flex	114,851	200.0	7.5	-	-	-	738,592	\$5,399,105
VMS	Matt Berry	533,434	102.9	-	6.1	4.6	-	1,764,963	\$12,901,882
VMS	Wolverine	3,740,000	336.6	1.6	1.4	12.4	1.37	40,478,585	\$295,898,458
VMS	Kudz Ze Kayah	13,720,000	139.2	1.4	1.6	6.0	0.9	61,409,132	\$448,900,754
VMS	Wolf	4,100,000	84.0	-	1.8	6.2	-	11,073,955	\$80,950,611
VMS	Marg	5,270,000	62.7	1.0	2.5	4.6	1.76	10,624,727	\$77,666,752
MVT	Blende - West zone	15,300,000	67.5	-	3.2	3.0	-	33,207,395	\$242,746,061
SEDEX	Faro - Swim	4,300,000	42.0	-	3.8	4.7	-	5,807,074	\$42,449,711
SEDEX	Faro - Grizzly (By)	17,241,000	71.6	0.8	4.8	6.4	-	39,693,106	\$290,156,606
SEDEX	Clear Lake	5,570,114	38.0	-	2.0	11.4	-	6,805,927	\$49,751,327
SEDEX	Tom	15,722,500	49.1	-	4.6	7.0	-	24,822,339	\$181,451,300
SEDEX	Jason	14,100,000	79.9	-	7.1	6.6	-	36,224,759	\$264,802,987
Total								358,127,273	\$2,617,910,365

** Resources may not conform to guidelines currently in use (NI43-101)

Regional Geochemistry

Regional silt sample data (GSC) for Ag is displayed with respect to underlying terrane in the Yukon map to the left (& on the front). There is a reasonable correlation between Ag values in the regional geochemical survey and some silver districts, e.g. Ketzeta River area, Skukum Creek-Venus area, Bomber-Mount Nansen area, Wolverine area.

Silver values in silt samples from the Ag-rich Keno Hill district are not elevated.

Silt samples collected from creeks draining areas underlain by Paleozoic clastic & carbonate strata in the North American Platform & Richardson Trough are enriched in Ag (up to 5 ppm & 1.4 ppm respectively) however they are not associated with known prospects & represent potential new exploration targets.

Further Reading

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- Jennings DS & Jilson GA (1986) Geology & sulphide deposits of Anvil Range, Yukon. In: Morin JA (ed.) Mineral Deposits of Northern Cordillera, CIMM Special Volume 37, pp. 319-381.
- Lynch JVG (1989) Large-scale hydrothermal zoning reflected in tetrahedrite-freibergite solid solution, Keno Hill Ag-Pb-Zn district, Yukon. Canadian Mineralogist, 27, pp. 384-400.
- Walton L (1987) Geology & geochemistry of the Venus Au-Ag-Pb-Zn vein deposit, Yukon Territory. MSc Thesis, University of Alberta.
- Yukon MINFILE (2004) Database of Yukon Mineral Occurrences. Exploration and Geological Services Division, Yukon Region, Indian & Northern Affairs, CD-ROM.

Exploration Models

- Deposit models useful for Ag exploration in the Yukon include:
- 1) Polymetallic Ag-Pb-Zn veins & mantos associated with mid- & Late Cretaceous intrusive & volcanic suites. E.g. Keno Hill district, Montana Mountain area
 - 2) Epithermal Au-Ag-Cu veins associated with mid-Cretaceous & Early Tertiary intrusive & volcanic complexes. E.g. Skukum Creek, Mount Nansen
 - 3) Sn-Ag mineralisation in altered (greisenous) zones in & above mid-Cretaceous Tombstone suite intrusions. E.g. Zeta
 - 4) Cu-Ag mineralisation associated with gneissic zones in Jurassic Aishihik suite plutons. E.g. Minto
 - 5) Ag-rich VMS mineralisation developed in Carboniferous felsic volcanic rocks in the Yukon-Tanana Terrane. E.g. Wolverine, Kudz Ze Kayah
 - 6) Ag-rich VMS mineralisation associated with Devonian-Mississippian volcanic rocks in the Selwyn Basin & Cassiar Platform. E.g. Marg, Wolf
 - 7) Ag-rich MVT mineralisation hosted by Proterozoic dolostone. E.g. Blende, Craig
 - 8) Ag-bearing SEDEX mineralisation hosted within Cambrian to Ordovician strata of the Selwyn Basin. E.g. Faro
 - 9) Ag-bearing SEDEX mineralisation associated with Devonian-Mississippian Selwyn Basin & Cassiar Platform strata. E.g. Tom, Jason, Clear Lake.