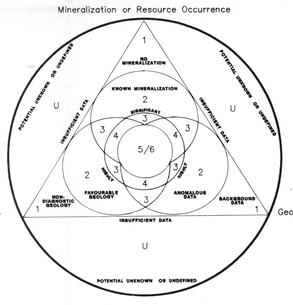
SUMMARY OF CRITERIA USED TO ASSESS MINERAL POTENTIAL (RELATED TO SPECIFIC MINERAL DEPOSIT MODELS)

CRITERIA FIELD	DESCRIPTION	RATING	AREA OF INFLUENCE
FAVOURABLE GEOLOGY	Stratigraphic rock unit, igneous intrusion, complex, etc	2G	outline of rock distribution
	Fault or fracture zone	2GF	outline of zone
	Stratigraphic contact, igneous contact, aureole	2GC	outline of zone
	Alteration zones	2GA	outline of alteration zones
	Coincidence of 2G, 2GF, 2GC, 2GA	3G	outline of overlap
ANOMALOUS GEOCHEMISTRY	RGS stream sediment samples with (metal assemblage):		
	Single element anomaly defined by value > 95th percentile	2A	outline of drainage basin
	Multi-element anomaly defined by values > 95th percentile	3A	outline of drainage basin
	Lithogeochemical samples with (metal assemblage):		
	Single element anomaly defined by anomalous value	2A	200 metres radius
	Multi-element anomaly defined by anomalous value	3A	200 metres radius
KNOWN MINERALIZATION-	Mineral showing; mineral prospect	2M to 5	500 metres radius
	Past producer	5	500 to 1000 metres radius
	Developed prospect	6	500 to 1000 metres radius
	Past producer with identified resources in the ground	6	500 to 1000 metres radius

ADDITION OF CRITERIA FIELDS

Any Criteria Field	Any Criteria Field	Any Criteria Field	Classification (Sum of Criteria Fields)
2	2		3
2	2	2	3+
2	3		3+
3	3		4
2	2	3	4

n. b. The designation of 3+ was only used in compiling individual deposit model layers and was dropped when the final mineral potential map was compiled.

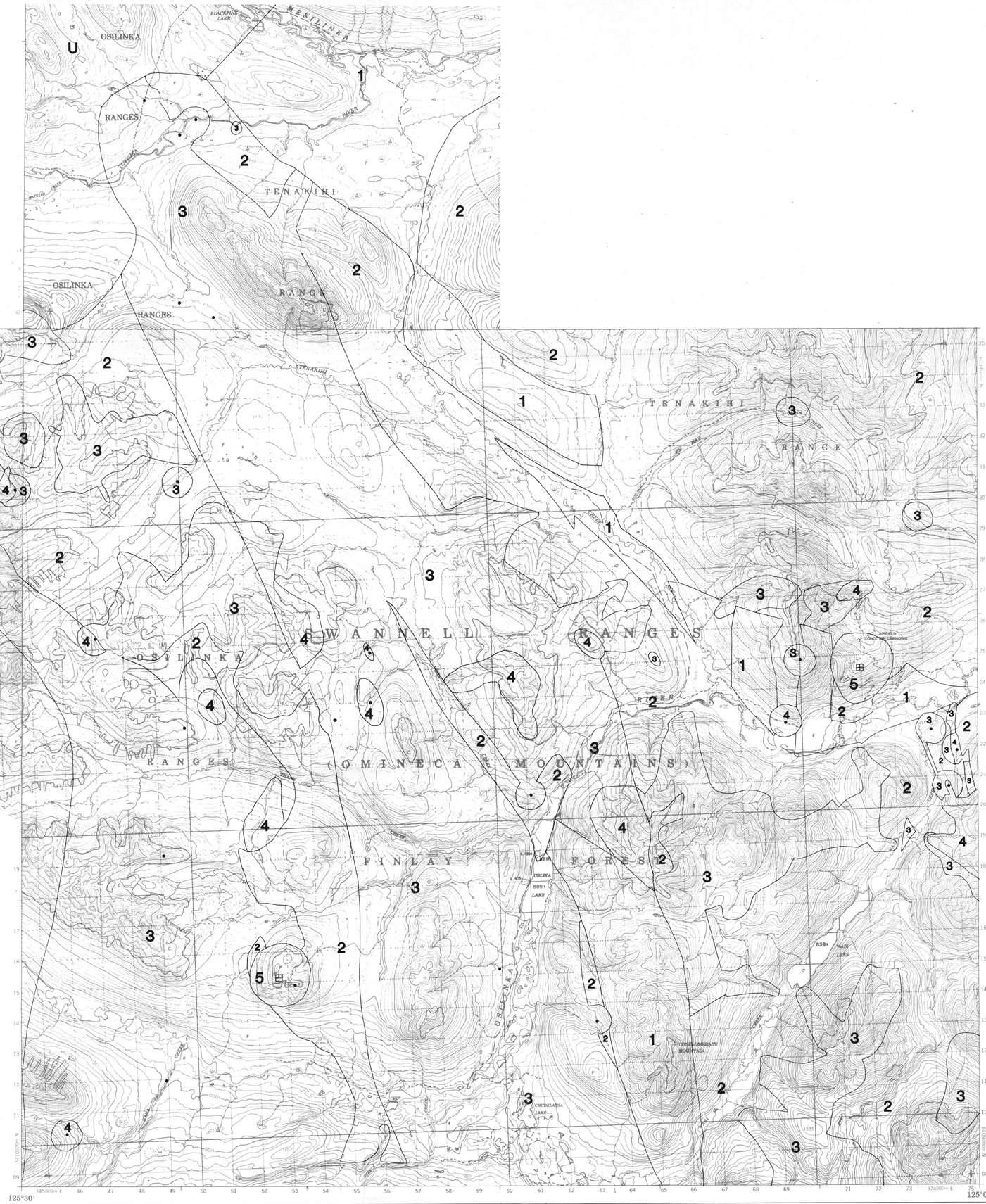


DIAGRAMATIC CLASSIFICATION SCHEME OF METALLIC MINERAL AND COAL RESOURCE POTENTIAL.*

*The geochemistry apex of the diagram is not used when dealing with coal but the overlap fields of the remaining two apices have the same values. (Modified from McLaren (1989) and Dyke (1992))

QUALITATIVE DESCRIPTIONS OF METALLIC MINERAL POTENTIAL CLASSIFICATIONS

Class	Mineral Potential	Description
6	Extremely High	Known deposits (developed prospects) with significant identified resources in the ground. Very favourable supporting data from all applicable areas; very high degree of confidence in designation. Continued exploration highly probable; potential for mine development is high.
5	Very High	Known prospects, developed prospects, past producing mines (with undefined resources in the ground) in highly favourable geological environment. Very good supporting data from all three criteria, high degree of confidence in designation. Future exploration expected.
4	High	Known or indicated resources in highly favourable geological environment. Very good supporting geological and geochemical data. Resources or deposits not necessarily identified; however, positive indications that deposit forming processes were active in the area. Moderate to high degree of confidence in designation. Future exploration expected.
3	Moderate	Favourable geological environment for resource occurrence. Very favourable geological data from one or more criteria; but significant occurrences lacking. Moderate degree of confidence in designation. Future exploration likely, particularly if near an area of higher designation. Good potential for upgrading classification.
2	Moderate	Moderately favourable environment for resource accumulation as indicated by one line of evidence (ie. favourable geology, mineralization or anomalous geochemistry with no other supporting data). Areas generally lack sufficient prospecting to identify resources. Moderate to low degree of confidence in designation. Future reconnaissance exploration to be expected. Good potential for upgrading classification.
1	Low	Current data indicates that the existence of resources is unlikely. Moderate to high degree of confidence in designation. Future exploration for deposit types considered is unlikely.
U	Unknown	Current data is either outdated or insufficiently detailed for a reasoned determination of mineral potential. High degree of confidence in designation. Future exploration could occur in parts of the area.



BC Ministry of Energy, Mines and Petroleum Resources

Geological Survey Branch

MINERAL POTENTIAL MAP 1992-14

METALLIC MINERAL POTENTIAL OF THE USLIKA LAKE AREA, BRITISH COLUMBIA

NTS 94C/3, 4, AND 6

BY S. DUDKA AND F. FERRI

Scale 1:50 000

0 1 2 3 4 5 kilometres

INTRODUCTION

The Uslika Lake map area is located approximately 200 kilometres north of Fort St. James, in the Omineca Mountains. Access to the area is by the gravel all-season Omineca Mining Access road, which originates in Fort St. James, or via a similar forestry access road which originates at the south end of Williston Lake. Topography in the area varies from flat river valley bottom, to subdued, rounded mountains, to extremely rugged mountainous terrane.

The Uslika Lake map area has demonstrated a high potential for mineral occurrences and future mineral exploration. Historically, the area has been actively explored since near the beginning of this century, for gold, copper, silver, lead, zinc and mercury.

Rocks of the Takla Group, which host the Mt Milligan deposit to the southeast, occupy about one-third of the surveyed area. Known Cu-Au porphyry mineralization, as found at Cat Mountain, is present in the Takla rocks within the map area. The Hogem Intrusive Complex occupies the entire western side of the surveyed area, and it itself has significant potential for porphyry-style mineralization, as was demonstrated during mapping.

The Beveley deposit is hosted in Early to Middle Paleozoic carbonates, which occupy a small area on the eastern margin of the map area. The recently discovered Pb-Zn-Ag mineralization within the PAR claims is also hosted in this same package of rocks. Other precious and base metal occurrences are also known within older Neo-Proterozoic carbonates of the Espee Formation.

Precious and base metal veins are found in almost every lithology within the map area. Thus, there exists potential for this kind of mineralization over the vast majority of the surveyed area.

Small coal seams exist within the younger Sustut Group conglomerates and sandstones. The seams mapped to date however, are of little significance in terms of fossil fuel resource potential.

Industrial mineral potential has not been considered in the compilation of this map.

EXPLANATION OF SYMBOLS

⊞ Deposit with reserves/mineral prospect

● Showing

TABLE 1: MINERAL DEPOSIT MODELS CONSIDERED IN MAP CONSTRUCTION

DEPOSIT TYPE	COMMODITIES/ INDICATORS	GEOLOGICAL INDICATORS	EXAMPLE
Cu-Au porphyry	Au, Cu, Mo	Calc-alkaline/alkaline porphyry intrusions; propylitic alteration	MT. MILLIGAN deposit MINFILE 093N 194 263 million tonnes 0.22% Cu, 0.5 g/t Au
Carbonate-hosted	Pb, Zn, Ag; Ba?	Limestone/dolomite horizons; barite horizons; faulting/brecciation	BEVELEY deposit MINFILE 094C 023 100 000 tonnes 1.42% Pb, 2.24% Zn, 36.3 g/t Ag
Sedimentary Exhalative	Pb, Zn, Ag; Ba	Stratiform barite/pyrite; Rifting and subsidence in basinal facies; Host rocks older than Mid-Paleozoic	OMINECA QUEEN showing No reserves
Volcanogenic massive sulphide	Cu, Pb, Zn, Ag; Fe, Ba	Host rocks generally Late Paleozoic or Mesozoic; volcanic arc or rifted basin facies; Deep water marine environment	CHU CHUA deposit MINFILE 092P 140 1.043 million tonnes 2.97% Cu, 0.4% Zn, 8.0 g/t Ag, 1.0 g/t Au
Polymetallic veins within Swanell Fm., Ingenika Group	Pb, Zn, Cu, Au, Ag, Hg, Mo; As, Sb, Fe	Silicification; Scorodite staining; Brecciated zones	RUBY showing MINFILE 094C 022 No reserves
Polymetallic veins related to Hogem Intrusion or the Manson fault zone	Au, Ag, Cu, Pb, Zn, Hg; Sb, As	High angle faults; Highly sheared zones; Carbonate alteration; Serpentine; Propylitic alteration	VEGA showing MINFILE 094C 021 PLUTO showing MINFILE 094C 019 No reserves
Coal	Coal seams	Younger, weakly metamophosed sediments; Black, carbonaceous coaly horizons	USLIKA COAL showing MINFILE 094C 061 No reserves

STREAM SEDIMENT GEOCHEMISTRY

Stream sediment geochemistry of the Uslika Lake mapsheet was evaluated using Regional Geochemical Survey data from the adjoining NTS 93N (Manson Creek) mapsheet. Samples from the study area were subdivided by rock type and rated as anomalous if values for Cu, Pb, Zn, Au, Ba, Mo, Ag, As, Sb, Fe, or Hg exceeded the 95th percentile of RGS data from corresponding lithologies within the NTS 93N map area. Samples without a corresponding lithology were rated using the 95th percentile for the entire 93N dataset.

Geochemical mineral potential was rated using element associations of mineral deposit types known or suspected to be found within the study area. The following deposit types were considered:

Deposit Type	Element Associations
Porphyry Copper-Gold	Cu, Au, Mo
Carbonate/Sediment hosted Lead-Zinc	Pb, Zn, Ba, Ag
Volcanogenic Massive Sulphide (VMS)	Cu, Fe, Ba, Pb, Zn
Sedimentary Exhalative (SEDEX)	Cu, Fe, Ba, Pb, Zn
Precious Metal Veins related to Manson Fault Zone	Au, Ag, Cu, As, Sb, Hg
Precious Metal Veins hosted in Swanell Formation, Ingenika Group	Au, Ag, Cu, As, Sb, Hg, Mo

Each sample was rated according to the presence of anomalous values in these element associations. For example, samples which were anomalous in each element of an element association (ie. Cu, Au and Mo) for a particular deposit type (ie. Porphyry Copper-Gold) were rated as having the highest geochemical mineral potential for that particular deposit type.

THRESHOLDS FOR USLIKA LAKE DATA

(based on RGS 11 / NTS 93N data)

	uTr	nPa	TrK	ODel	All
Ag	0.5	0.5	0.4	0.9	0.5
As	17.5	9.5	12	10	16
Au (ppb)	51	18	55	7	53
Ba	1700	1300	2000	3000	1900
Cu	117	37	127	74	104
Fe (%)	4.45	2.85	4.25	3.6	4.05
Hg (ppb)	260	190	220	900	230
Mo	4	2	7	4	5
Pb	7	15	7	437	10
Sb	1.4	1.2	1.1	2	1.4
Zn	95	980	83	110	113
n=	357	15	275	10	1030

Rock types represented by groupings

uTr = uTrJt, uTrp1, uTrp2, MPlr2

nPa = nPst, nPsw

TrK = TrJw, TrKh

ODel = ODet

All = COrb, DMbc, JTu, MPlr1a, MPlr1c, MPlr4, PPmhc, PPmhb

n= number of samples in corresponding rock type for RGS 11 (NTS 93N)

REFERENCES

Ferri, F., Dudka, S. and Rees, C. (1992): Geology of the Uslika Lake area, Northern Quesnel Trough, B. C. (94C/3, 4,6) in B. C. Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork 1991, Paper 1992-1, pp. 127-145.

Ferri, F., Dudka, S., Rees, C., Meldrum, D. G. and Wilson, M. J. (1992): Geology and Geochemistry of the Uslika Lake Area, B. C. (94C/3,4,6). B. C. Ministry of Energy, Mines and Petroleum Resources, Open File 1992-11.