Alaska Department of NATURAL RESOURCES

MINERAL POTENTIAL, KOTZEBUE QUADRANGLE, ALASKA

compiled by
D.G.G.S. Staff,
1985

SCALE 1:250,000

5 0 5 10 15 20 25 Miles

5 0 5 10 15 20 25 Kilometers

EXPLANATION

INTRODUCTION

This map shows mineral potential and quality of geological information by township. It was prepared by the geologic mapping and geochemistry sections of DGGS as one component of a broader effort to synthesize various types of resource information on 18 quadrangles in northwest Alaska prior to area planning.

Mineral potential and data quality were determined by compiling and analyzing a comprehensive data stack, which includes most elements pertinent to mineral favorability, eq. geology, mining claims, magnetic field strength, mineral occurrences, etc. The information included in the data stack was developed by a thorough literature search; thus this map is based on existing information, not on new field work. Once the data stacks were compiled, two or three separate geologists analyzed each quadrangle data package on a township-by-township basis - carefully scrutinizing all elements of the data for specific indicator criteria indicating the possible presence of one or more of 26 mineral deposit types. These indicator criteria are listed in the manual accompanying these maps. A mineral potential score of 1 to 5 was determined for each township using the criteria listed on this map legend. Also, while analyzing the data, each township was scored for quality of information available, again by criteria listed on the legend. Near the end of the scoring effort, pertinent mining industry groups were invited to review the maps and contribute new data as they desired. Needless to say, the mineral potential scores are heavily dependent on the level of information available; despite the best efforts of the analysts, a good forecast of mineral potential cannot be made in the absence of good background information. Thus mineral scores in areas of low data quality should be viewed as very uncertain.

MINERAL POTENTIAL

1 VERY LOW—Geologic environment generally unfavorable; little bedrock exposed, little possibility for placers or sandstone – hosted metals; no known mineral occurrences; unfavorable geochemistry or geophysics; off trend with more favorable areas; no mining claim activity; unfavorable metallogenic and tectonic terrane.

2 LOW—Some aspects of geologic environment may be favorable, generally not favorable; few if any known deposits; little or no mining claim activity; geochemical and geophysical structures generally negative; little bedrock exposed nearby ; generally unfavorable metallogenic and tectonic terrane.

3 MODERATE—Geologic environment favorable; significant deposits not known; low mining claim activity; geochemical and geophysical signatures may be favorable; cell may be distantly on trend with cells of higher favorability.

4 HIGH—Geologic environment very favorable; on trend or in some unit which hosts significant mineral occurrences nearby; significant deposits not known at present; some mining claim activity; geochemical and geophysical signatures favorable; favorable metallogenic and tectonic terrane.

5 VERY HIGH—Geologic environment very favorable; significant mineral deposits known; numerous active mining claims; geophysical and geochemical signatures favorable; very favorable metallogenic and tectonic terrane.

DATA QUALITY

VERY POOR—Only geologic mapping 1:1 million scale or similar grossly generalized maps; low density or no regional geophysical coverage; poor geochemical data base; general lack of information.

POOR—Lower quality 1:250,000 scale geologic mapping units generalized, pertinent units to mineral deposits not shown; regional low density geophysical coverage; low density geochemical coverage; few if any local deposit studies.

FAIR—Good, careful 1:250,000 or 1:125,000 scale geologic mapping with units pertinent to mineral deposits shown; regional low density geophysical coverage; low density geochemical data base; some deposit studies.

GOOD—Detailed (1:63,360 scale or larger) geologic mapping; ordinary geochemical coverage (1 sample per mile^2 to 1 sample per 5 miles^2 density); aeromagnetic coverage at 1/2 to 1 mile spacing; some prospect studies.

VERY GOOD—Detailed (1:63,360 scale or larger) geologic mapping, numerous units/cell broken out, alteration zones and gossans shown; comprehensive geochemical data base at 1/4 mile spacing, possibly soil and rock chip geochemistry also available; good aeromagnetic coverage at 1/2 to 1 mile spacing; other geophysical data available; detailed studies of mines or prospects; good surficial geology.

Note: Townships having high or very high mineral potential ratings (4 or 5) are also annotated as to which deposit types are likely to be found there e.g., the township example below has a high favorability for deposit types 2 (Volcanogenic Massive Sulfide) and 3 (Stratiform barite)

Deposit Types

(1) Sediment Hosted Lead-Zinc
(2) Volcanogenic Massive Sulfide
(3) Stratiform Barite
(4) Hot Spring Gold-Silver
(5) Gold-Silver Copper-Lead-Zinc Veins
(6) Polymetal Gold-Silver Veins
(7) Tungsten-Gold Veins
(8) Porphyry Copper-Molybdenum
(9) Porphyry Molybdenum-Tungsten
(10) Skarn Copper-Gold-Iron
(11) Skarn Tungsten-Copper
(12) Skarn Lead-Zinc
(13) Greisen-Stockwork-Skarn Tin
(14) Fluorite-Beryllium Veins
(15) Mafic-Ultramafic Copper-Nickel-Platinum Group Elements
(16) Mafic-Ultramafic Chromium
(17) Mafic-Ultramafic Asbestos
(18) Shale Hosted and Redbed Copper
(19) Iron Formation
(20) Sedimentary Ironstone
(21) Carbonate Hosted Lead-Zinc
(22) Carbonate Hosted Copper
(23) Sandstone Hosted Uranium
(24) Igneous Hosted Uranium
(25) Placer Gold
(26) Placer Tin

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Data used in preparing this map were compiled and analyzed by M.D. Albanese, A.A. Bakke, T.D. Balog K.H. Clautice, D.R. Hickmott, G.D. March, R.A. Meyers, G.H. Pessel, M.S. Robinson, T.E. Smith, R.H Weiler, and M.A. Wiltse; D.G.G.S. staff, November 1984 to June, 1985.