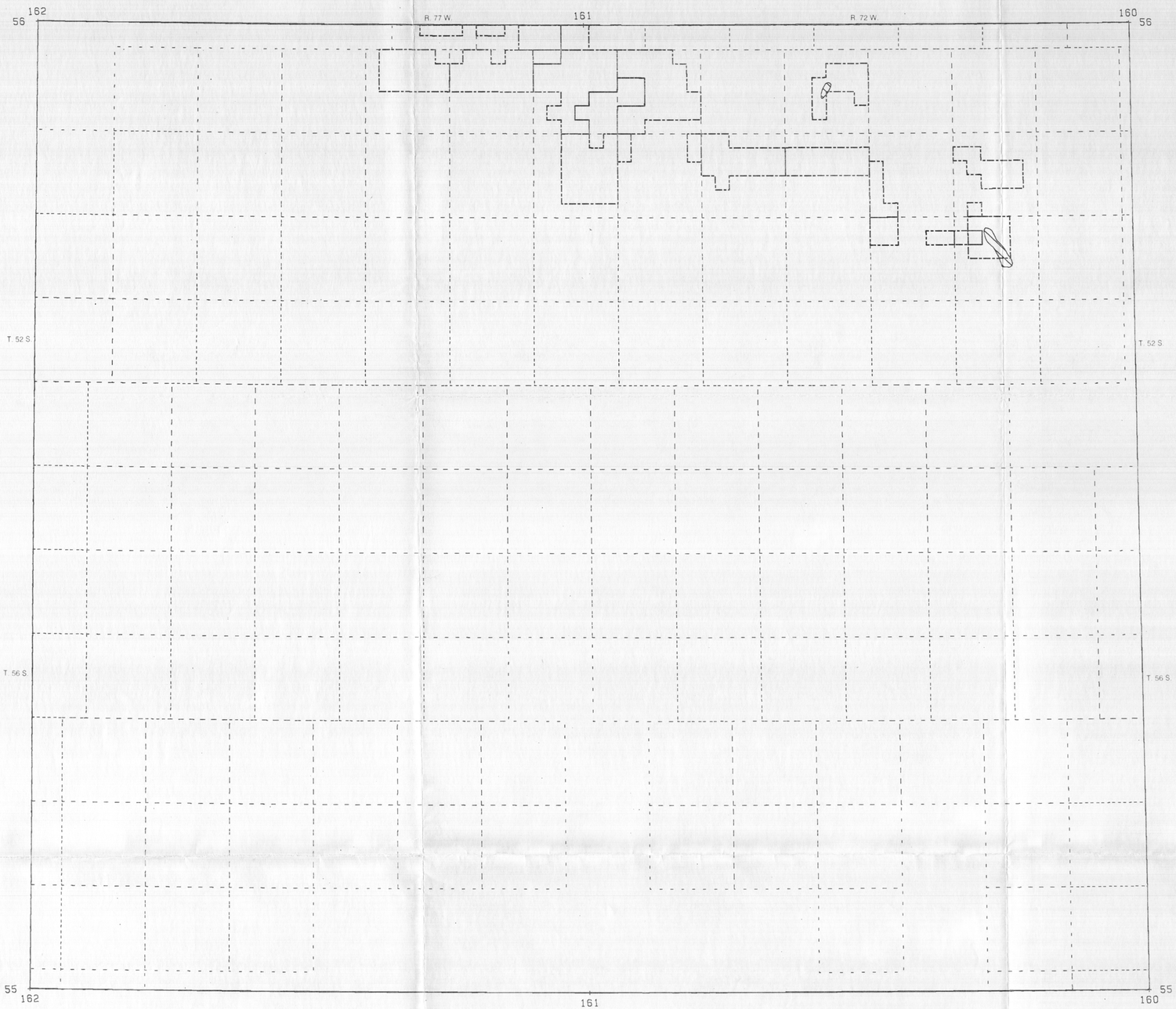
ALASKA DIVISION OF GEOLOGICAL &
GEOPHYSICAL SURVEYS



Data used in preparing this map were compiled and analyzed by T.K. Bundtzen, L.E. Burns, K.H. Clautice, W.G. Gilbert, G.D. March, M.S. Robinson, T.E. Smith, and M.A. Wiltse, G.H. Pessel, D.G.G.S. staff, and A.A. Bakke, October to December, 1987.

EXPLANATION

INTRODUCTION

This map shows mineral potential of specific areas and lists quality of geological information by township. It was prepared by the Minerals Section of DGGS as one component of a broader effort to synthesize various types of resource information on Mental Health Trust lands and Mental Health Replacement Pool lands.

Mineral potential and data quality were determined by compiling and analyzing a comprehensive data stack for each quadrangle. The stack includes most elements pertinent to mineral favorability, such as geology, mining claims, geochemistry, and mineral occurrences. The information included in the data stack was developed by a literature search; thus this map is based on existing information, not on new field work. Once the data stacks were compiled, two or three individual geologists analyzed each quadrangle data package on an area by area basis, carefully scrutinizing all elements of the data for specific indicator criteria showing the possible presence of one or more of 27 mineral deposit types. These indicator criteria are listed in the manual accompanying these maps. Areas analyzed vary in extent based on continuity of geology and metallogeny. A mineral potential score of 1 to 5 was determined for each area using the criteria listed below. Also, while analyzing the data, each township was scored for quality of information available, again by criteria listed below. 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.

In some Mental Health Trust or Replacement Pool lands there is virtually no minerals-related data available. Such lands have not been scored. No attempt was made to score the mineral potential of lands lying outside Mental Health Trust or selection pool lands except where immediately adjacent lands were contained within logical projections of classification boundaries.

Boundary of Mental Health Trust lands

Boundary of Replacement Pool lands

MINERAL POTENTIAL

1 – VERY LOW – Geologic environment generally unfavorable; little bedrock exposed, little possibility for placers or sandstone-hosted metals; no know; 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; may be distantly on trend with areas 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.

Unpatterned Mental Health Trust or Replacement Pool lands have no known data indicating mineral potential.

DATA QUALITY

1 – VERY POOR – Only available 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.

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

3 – 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.

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

5 – VERY GOOD – Detailed (1:63,360 scale or larger) geologic mapping, numerous units per area 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: Areas having moderate to very high mineral potential ratings are also annotated as to which deposit types are likely to be found there. For example, the areas below have a "high" and "very 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 Vein
(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 Caromium
(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
(27) Bulk Mineable Gold

ALASKA

QUADRANGLE LOCATION

DATA QUALITY FOR MENTAL HEALTH TRUST AND REPLACEMENT POOL LANDS

			DATA QUALITY
T. 48 S.	R.	77 W.	2
	R.	76 W.	2
	R.	75 W.	2
T. 49 S.	R.	78 W.	2
	R.	77 W.	2
	R.	76 W.	2
	R.	75 W.	2
	R.	73 W.	2
T. 50 S.	R.	76 W.	2
	R.	75 W.	2
	R.	74 W.	2
	R.	73 W.	2
	R.	72 W.	2
	R.	71 W.	2
T. 51 S.	R.	72 W.	2
	R.	71 W.	2

MINERAL POTENTIAL, MENTAL HEALTH TRUST & REPLACEMENT POOL LANDS, PORT MOLLER QUADRANGLE

ALASKA DGGS, GEOCHEMICAL DATA MODELING SYSTEM
FAIRBANKS, ALASKA
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