DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

U.S. GEOLOGICAL SURVEY
OPEN FILE MAP
OF 77-166D

MAP SHOWING GEOCHEMICAL ANOMALIES IN THE BROOKS RANGE, ALASKA

Compiled by Donald Grybeck

1977

Albers Equal Area Projection

SCALE 1:1,000,000

10 0 20 40 60 80 100 MILES
10 0 50 100 150 KILOMETERS

AREA OF THIS REPORT

Base map from the National Atlas of the United States of America, U. S. Geological Survey, 1970

REFERENCES

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3. Quadrangle systematically sampled and data now being processed under Alaska Mineral Resource Assessment Program (AMRAP). Geochemical results are scheduled for release in the summer of 1977 and will be included on a revision of this map in late 1977.

4. Garland, R. E., Eakins, G. R., and Trible, T. C., 1975a, Geochemical analysis of stream-sediment samples from part of the Survey Pass A-2 quadrangle, Alaska: Alaska Div. of Geol. and Geophysical Surveys open-file rept. 61, 2 p.

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7. Brosgé, W. P., and Reiser, H. N., 1970, Chemical analyses of stream sediment samples from the Chandalar and eastern Wiseman quadrangles, Alaska: U.S. Geol. Survey open-file rept., 8 p.

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9-10. Quadrangle systematically sampled and data now being processed under Alaska Mineral Resource Assessment Program (AMRAP). Geochemical results are scheduled for release in the summer of 1977 and will be included on a revision of this map in late 1977.

11. Brosgé, W. P., and Reiser, H. N., 1970, Preliminary geologic and mineral resource maps (excluding petroleum), Arctic National Wildlife Range, Alaska: U.S. Geol. Survey open-file map 70-539, 4 sheets, scale 1:500,000.

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EXPLANATION

This map attempts to summarize the scattered geochemical sampling in the Brooks Range as a tool in the mineral resource assessment of the area. Only stream sediment samples are considered.

In this report, anomalous is considered to be an (infrequently) defined by the authors of the reports cited or is established at the following values:

Silver (Ag):	>	1 ppm
Gold (Au):	>	0.5 ppm
Copper (Cu):	>	100 ppm
Molybdenum (Mo):	>	20 ppm
Tin (Sn):	>	50 ppm
Tungsten (W):	>	100 ppm
Zinc (Zn):	>	300 ppm

These values have been somewhat arbitrarily set high enough to exclude most uncertainties due to the accuracy and precision of the analytical techniques and to the variability in geochemical background. However, substantial mineralization frequently occurs without producing anomalies in these levels under a variety of conditions. Conversely, some of the anomalies may only represent high "normal" geochemical background. Because of the variability in the composition of the stream sediment data, the anomalies are subjective and a compromise that is here complicated by suggesting uniformity over such diverse geology and large area. The original sources should be consulted if a more refined interpretation or one with different levels of anomality seem more reasonable.

EXPLANATION OF SYMBOLS

- Ag, Cu, Pb, Zn — Location of one or two closely-spaced, anomalous stream sediment samples. If more than one element is anomalous, the location of the sample is at the first elemental symbol.
- Areas with a number of samples generally taken less than 5 kms apart which are anomalous in one or more metals.
- (3) — Outline of area with systematic network of stream sediment samples generally taken less than 5 kms apart. The number refers to the reference(s) pertaining to that area. (Note that the geochemical data is yet to be released in areas 3, 9, and 10).
- (7) — Outline of area with an erratic network of stream sediment samples or a few isolated samples. The number refers to the reference(s) pertaining to that area. Because of the absence of deposits or area of influence of the anomalous sample(s) noted without consulting the original references. The number refers to the reference(s) pertaining to that area.
- Boundary of Brooks Range Regional Mineral Resource Assessment Program (AMRAP) as used in this study.
- Outline of area selected under sec. 17(d)(2) of the Alaska Native Claims Settlement Act. Areas recommended for withdrawal by the proposals of the Department of the Interior, Dec. 19, 1973. Compiled from maps prepared by the U.S. Bureau of Land Management, December 1973 and March 1974.
  1. Gates of the Arctic National Park
  2. Noatak Valley National Monument
  3. Cape Krusenstern National Monument
  15. Arctic National Wildlife Refuge Additions
  15. Selawik National Wildlife Refuge
  19. Noatak National Arctic Range
- Approximate route of Alyeska pipeline

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey standards and nomenclature.