

DISCUSSION

This map shows the distribution and abundance of lead in stream sediments in the Nabesna quadrangle, Alaska. The geochemical data are plotted on a basement showing the topography, generalized geology, and sample sites. Stream sediment samples were collected from active stream, then air dried and sieved. The -80 mesh (-177 microns) fractions were analyzed for lead and other elements by semiquantitative emission spectrographic methods. A few analyses for lead were done by atomic absorption methods. Complete analytical data for geochemical samples collected by the U.S. Geological Survey in the Nabesna quadrangle are available on a computer tape (O'Leary, Van Trump, and others, 1975) that can be obtained from National Technical Information Service, Department of Commerce, Springfield, Va. 22151.

The map was prepared on a DEC 10 computer at the U. S. Geological Survey Computer Center in Denver, Colorado. Metal values, expressed on the map in parts per million (ppm), were obtained in the following manner: The raw (analytical) data were plotted on a rectangular coordinate system with intersections (mesh points) 1.6 km (1 mile) apart on the map and 6.4 km (4 miles) apart on the perspective diagram. The original data points were projected to grid intersections by drawing 3.2 km-diameter (map) and 12.8 km-diameter (diagram) circles centered on the intersections, then shifting the coordinates of data points within each circle to the coordinates of the intersection. With the shift of coordinates, each point was weighted according to its distance from the mesh point; as a result, nearby data points influenced the final value at the mesh point more than outlying data points. After the data were weighted and projected to a mesh point, the values at that point were averaged. An N following a value on the map indicates that lead was not detected within the grid area, and either does not occur, or occurs below that value. A value followed by an L indicates that lead was detected, but in amounts below that value, which is the smallest amount of lead that can be measured by semiquantitative spectrographic methods. Where the average value at a mesh point is greater than the highest N or L value within the circle, the N or L is dropped and the average value printed.

The computer-generated perspective diagram shows the distribution and abundance of lead in stream sediments in the quadrangle in easy-to-visualize, 3-dimensional perspective. The angle of perspective is 30° from the horizontal (H.A. = 30.0) and 30° from the vertical (V.A. = 30.0). The range of lead values is 5 to about 310 ppm and each contour interval is equal to one-sixth of this range or approximately 51 parts per million. The range in lead values on the perspective diagram is less than the range in values on the map because the original data are averaged over a larger area (12.8 km vs 3.2-km diameter circles).

The average value of lead in stream sediments collected and analyzed in the Nabesna quadrangle is 35 ppm. Values of 200 ppm and greater are deemed to be anomalous based mainly on analysis of the statistical data shown on the accompanying histogram. Areas where lead occurs in anomalous amounts are shaded on the map.

Stream sediment lead anomalies in the Nabesna quadrangle occur mainly in two areas, both of which are associated with middle Cretaceous plutons and their contact zones (Richter, 1975). One area, in the western part of the Klein Creek pluton (T. 3 & 4 N., R. 21 & 22 E.), includes the Carl Creek porphyry copper deposit (Richter and others, 1975), and the other, extending from the Nabesna pluton south to a small unnamed pluton (T. 4 & 5 N., R. 14 & 15 E.), includes the Bond Creek porphyry copper deposit, a vein stockwork deposit, and a number of conspicuous altered areas.

REFERENCES CITED

O'Leary, R. M., Van Trump, George, and others, 1975, Spectrographic and chemical analyses of rock and stream-sediment samples from the Nabesna quadrangle, Alaska: Nat. Tech. Inf. Service (U.S. Dept. Commerce) Magnetic Tape No. PB240-488.
Richter, D. H., 1975, Geologic map of the Nabesna quadrangle, Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-655A, 1 sheet, scale 1:250,000.
Richter, D. H., Slinger, D. A., and Cox, D. P., 1975, Mineral resources map of the Nabesna quadrangle, Alaska: U.S. Geol. Survey Misc. Field Studies Map MF-655B, 1 sheet, scale 1:250,000.

EXPLANATION FOR GENERALIZED GEOLOGIC MAP

[Geology generalized from Richter (1975)]

CORRELATION OF MAP UNITS

SURFICIAL DEPOSITS

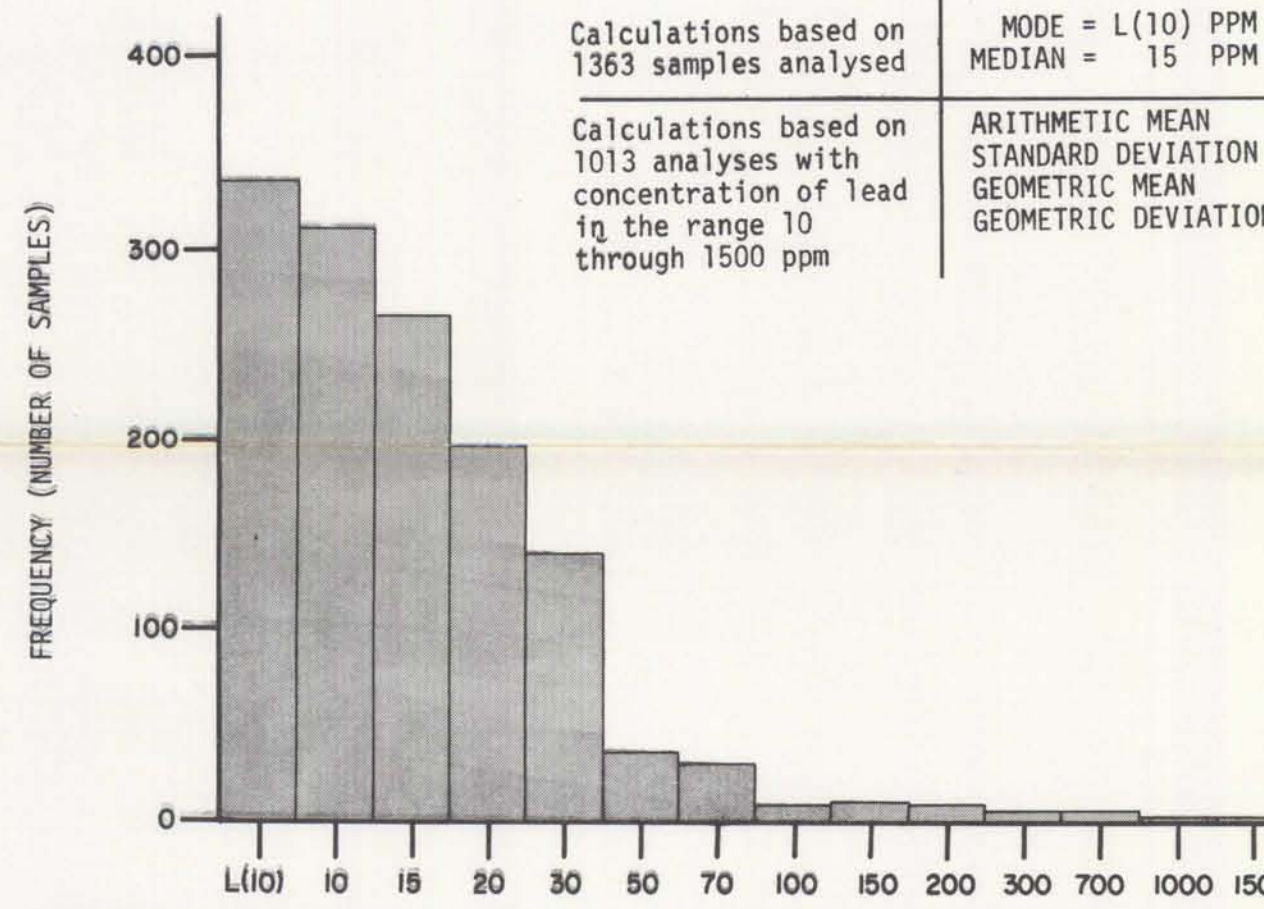
SEDIMENTARY AND VOLCANIC ROCKS		INTRUSIVE, METAMORPHIC, AND ULTRAMAFIC ROCKS	
Qtw	QUATERNARY AND TERTIARY	Tp	TERTIARY
Ks	CRETACEOUS	Tg	CRETACEOUS
Kc		Kg	
Rn	TRIASSIC	Ju	JURASSIC AND TRIASSIC
MePsv		Me	MESOZOIC
	MESOZOIC AND PALEOZOIC	MePms	MESOZOIC AND PALEOZOIC
		MePun	
		Pv	PALEOZOIC

DESCRIPTION OF MAP UNITS

Qs	UNCONSOLIDATED SEDIMENTARY DEPOSITS (Quaternary)
Qtw	SEDIMENTARY AND VOLCANIC ROCKS
Ks	WRANGELL LAVAS (Quaternary and Tertiary)
Kc	CONTINENTAL SEDIMENTARY ROCKS (Upper? Cretaceous)
Rn	CHISANA FORMATION (Lower Cretaceous) Marine and subaerial volcanic rocks
MePsv	NIKOLAI GREENSTONE (Upper and/or Middle Triassic)
	UNDIVIDED SEDIMENTARY AND VOLCANIC ROCKS (Mesozoic and Paleozoic)
	INTRUSIVE, METAMORPHIC, AND ULTRAMAFIC ROCKS
Tp	PORPHYRY (Tertiary) Porphyritic andesite to rhyolite
Tg	UNDIVIDED GRANITIC ROCKS (Tertiary) Chiefly quartz monzonite
Kg	UNDIVIDED GRANITIC ROCKS (Cretaceous) Chiefly granodiorite and quartz monzonite
Ju	DIOIRITE COMPLEX (Jurassic and Triassic)
Me	ANORTOSITE (Mesozoic)
MePms	UNDIVIDED METAMORPHOSSED SEDIMENTARY ROCKS (Mesozoic and Paleozoic)
MePun	UNDIVIDED ULTRAMAFIC ROCKS (Mesozoic and Paleozoic)
Pv	UNDIVIDED METAMORPHOSSED MAFIC VOLCANIC AND INTRUSIVE ROCKS (Paleozoic)

—	Contact. Dotted where concealed
---	Fault. Dotted where concealed
*	Geochemical sample locality
■	Area that contains anomalous amounts of metal
130	Mean value of samples in parts per million within grid area
—	All samples northwest of this boundary were analyzed by atomic absorption methods

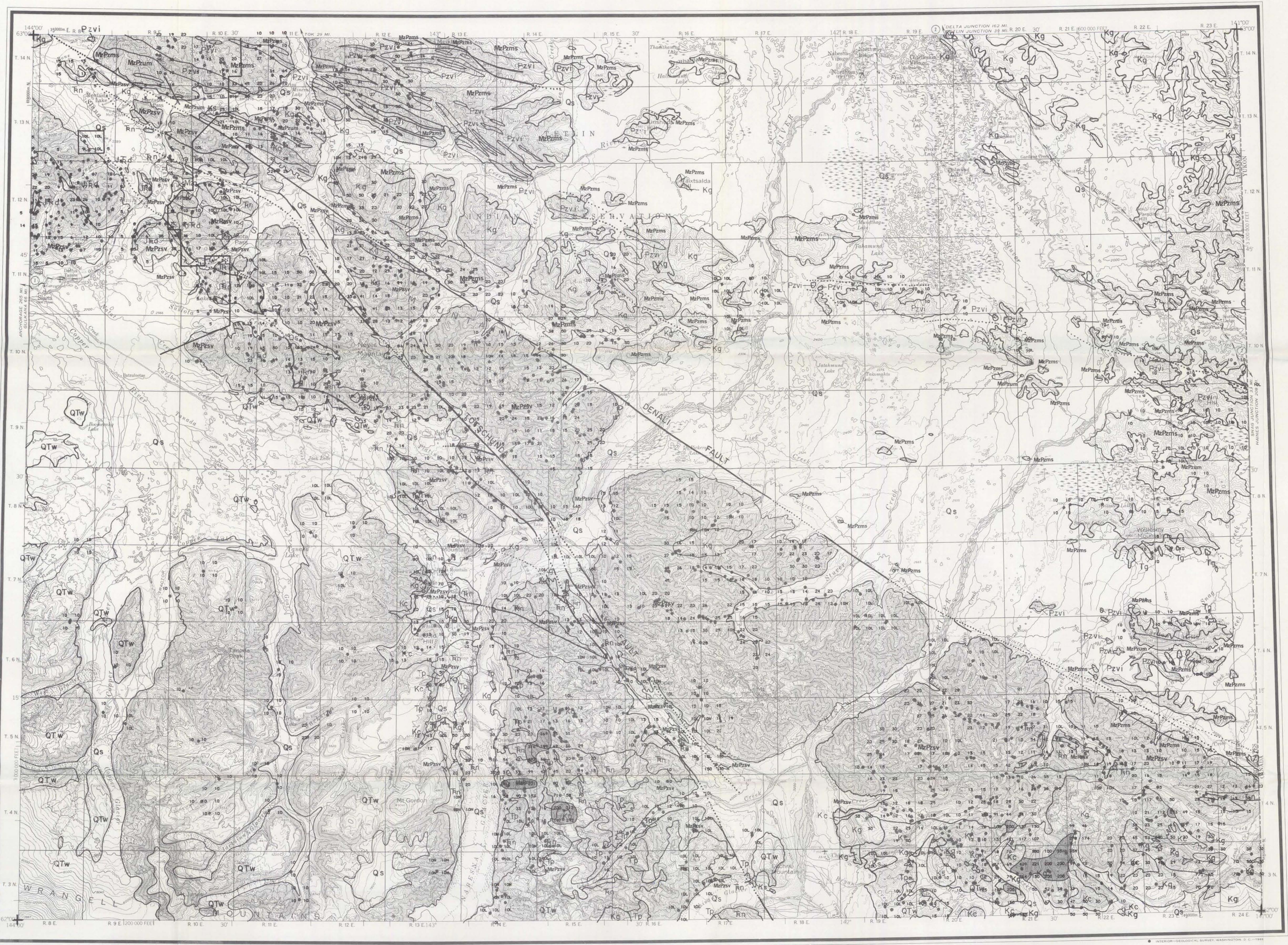
LEAD



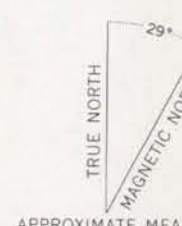
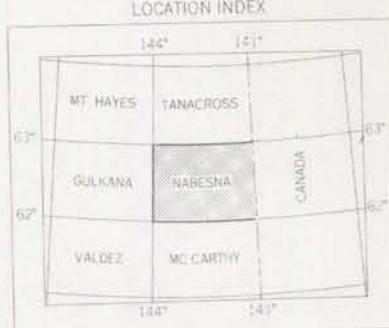
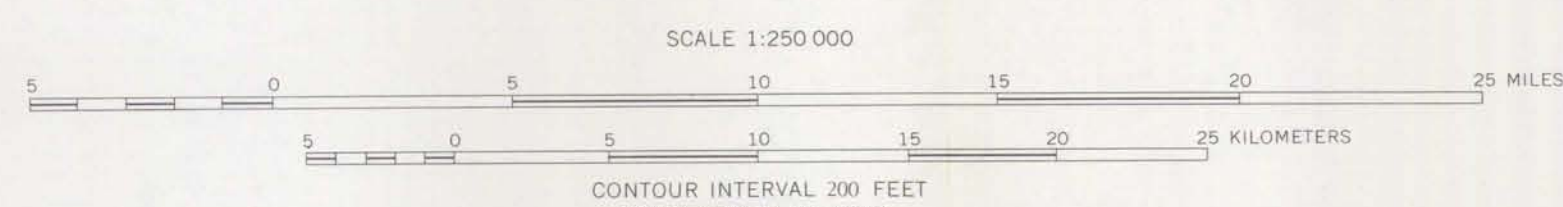
HISTOGRAM SHOWING STATISTICAL DATA FOR LEAD

Background information for this folio is published as U.S. Geological Survey Circular 718, available free of charge from the U.S. Geological Survey, Reston, Va. 22092.

For sale by U. S. Geological Survey, price \$5.00



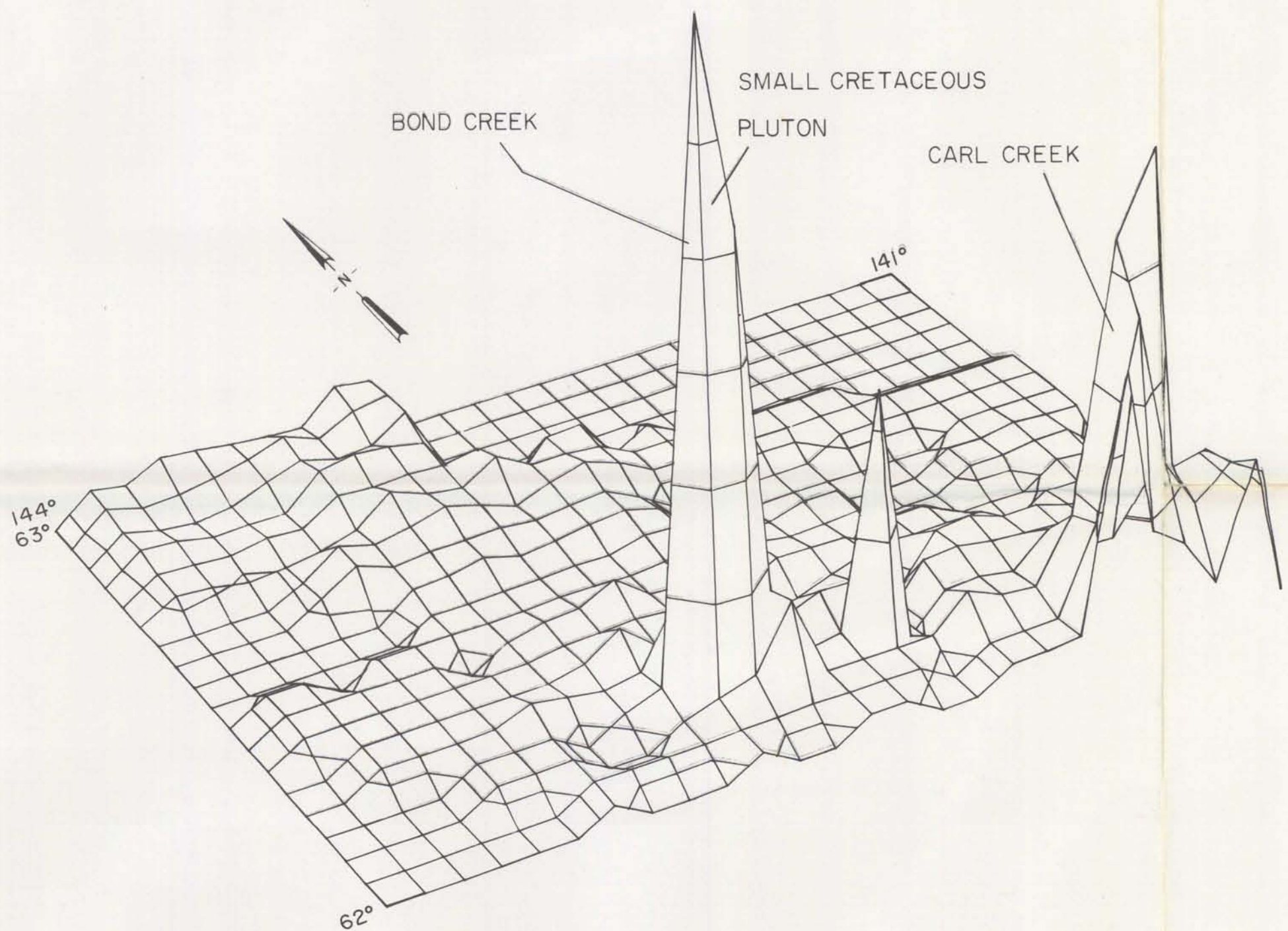
BASE BY U. S. GEOLOGICAL SURVEY, 1965



V.A. = 30.0
H.A. = 30.0

RANGE: 5.0000 — 310.7926

LEAD



GEOCHEMICAL AND GENERALIZED GEOLOGIC MAP SHOWING DISTRIBUTION AND ABUNDANCE
OF LEAD IN THE NABESNA QUADRANGLE, ALASKA

BY SHERMAN P. MARSH

1975