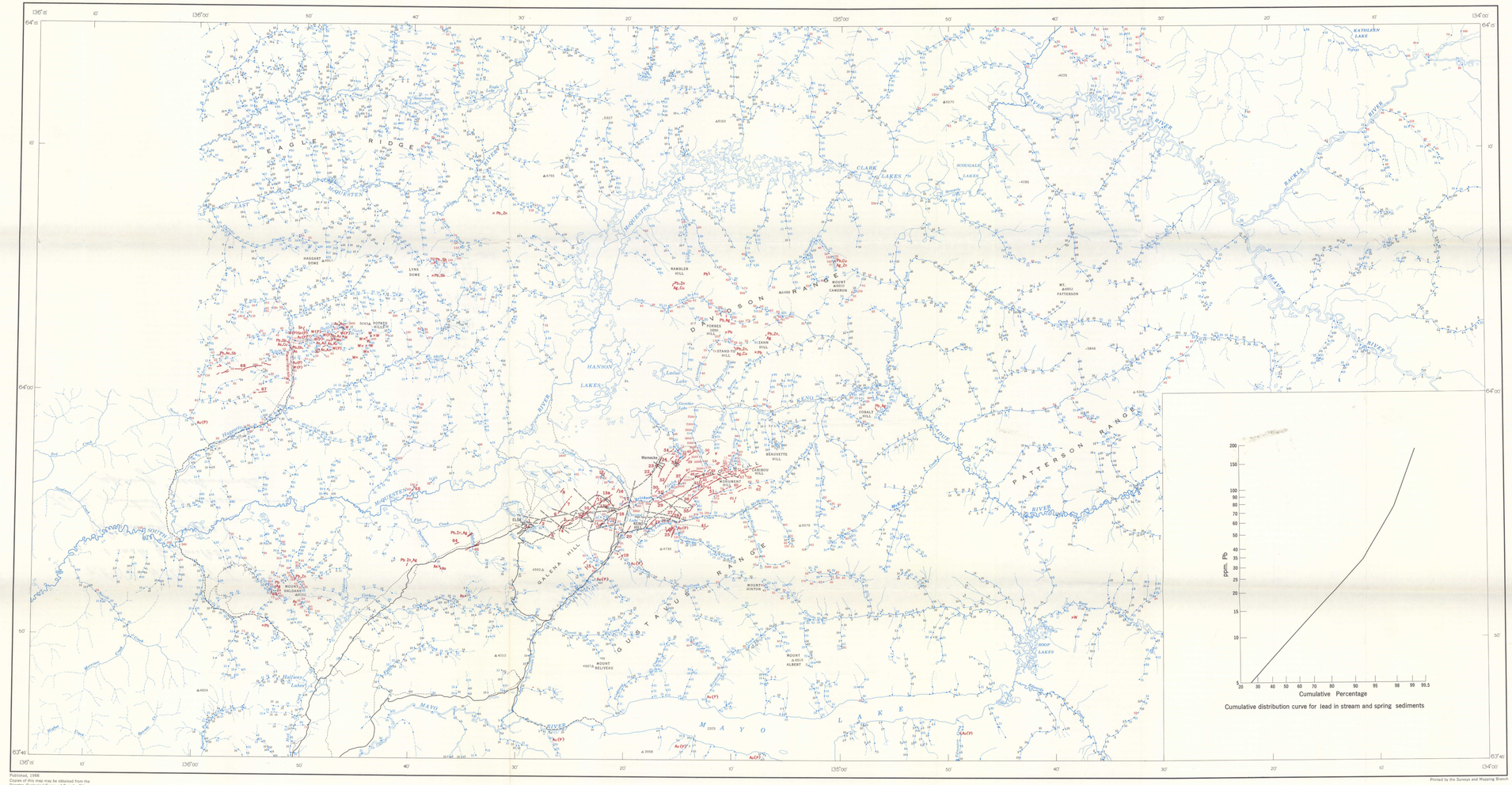
GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PRELIMINARY SERIES



Cumulative distribution curve for lead in stream and spring sediments

LEGEND

Concentration of lead, 35 or greater ppm
in stream sediments . . . . . ,in spring sediments . . . . . ↓

Concentration of lead, 15 to 30 ppm
in stream sediments . . . . . ,in spring sediments . . . . . ↓

Concentration of lead, 5 to 10 ppm
in stream sediments . . . . . ,in spring sediments . . . . . ↓

Concentration of lead less than 5 ppm
in stream sediments . . . . . ,in spring sediments . . . . . ↓

Location of known veins . . . . . ——

Mineral occurrence . . . . . Au

Mineral deposit 3

Mineral Symbols

Arsenic	As	Silver	Ag
Antimony	Sb	Tungsten lode	W
Copper	Cu	Tungsten (placer)	W(P)
Gold (lode)	Au	Tin (lode)	Sn
Gold (placer)	Au(P)	Tin (placer)	Sn(P)
Lead	Pb	Zinc	Zn
Molybdenum	Mo		

INDEX TO MINES AND PROSPECTS

1. Elsa
2. Dixie
3. Coral and Wigwam
4. Arctic and Mastiff
5. Ruby
6. No Cash
7. Betty
8. Cream
9. Hector
10. Calumet
11. Dragon (UN)
12. Furmo
13a. Galkeno (McLeod vein)
13b. Galkeno (Kress and Sugiyama veins)
14. Eagle
15. Fisher Creek
16. Blueshird
17. Tin Can
18. Rico
19. Duncan Creek
20. Moth
21. Onek
22. Klondyke-Keno
23. Sadie-Friendship
24. Ladue
25. Belleketo
26. Mount Keno (Hogan vein)
27. Askeno
28. Mount Keno (Runer vein)
29. Dorothy
30. Klio
31. Croesus No. 1
32. Black Cap and Shepherd
33. Lucky Queen
34. Lake
35. Vanguard
36. Apex
37. Shamrock
38. Highlander
39. Cub and Benny
40. Stone
41. Homestake
42. No. 6
43. Porcupine-Klinman
44. Comstock
45. No. 9
46. No. 1
47. Gambler
48. Main fault and Nabob
49. Lake View
50. Nabob No. 2
51. Helen Fraction
52. Gold Hill No. 2
53. Ladue Fraction
54. Fox
55. Silver Basin
56. Gold Queen
57. Duncan
58. Alice
59. Caribou
60. Divide
61. Devon
62. Faith
63. Silver King
64. Gorilleky
65. Shanghai
66. Lookout
67. Bex
68. Peso Silver

Field work by C. F. Gleeson, W. M. Tupper, A. Superman, K. Domai, M. Shafiqullah, J. A. Colwell, J. R. Deighton, C. H. Yurchak, J. K. Worth, H. R. James, A. G. Troup, G. Wind, L. Hogg, and F. R. Campbell

Analyses by J. J. Lynch, G. Mihailov, D. Church, and J. Robinson

Compilation and test by C. F. Gleeson

Geological cartography by the Geological Survey of Canada, 1966

Roads, all weather . . . . . ——

Other roads . . . . . – – – – –

Trail . . . . . ·····

Intermittent lake and stream . . . . . ~~~

Horizontal control point . . . . . △

Elevation in feet above mean sea-level 2095

Base-map cartography by the Geological Survey of Canada, 1966
from maps published by the Surveys and Mapping Branch and by
the Army Survey Establishment, R. C. E.

Approximate magnetic declination, 34°45' East, decreasing 4.2' annually

Published, 1966
Copies of this map may be obtained from the
Director, Geological Survey of Canada, Ottawa

Printed by the Surveys and Mapping Branch

MAP 45-1965

LEAD CONTENT OF STREAM AND SPRING SEDIMENTS

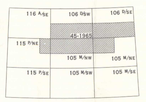
KENO HILL AREA

YUKON TERRITORY

Scale 1:126,720
1 inch to 2 miles

Miles 2 0 2 4 6 Miles
Kilometres 3 0 3 6 9 Kilometres

INDEX MAP



N T S REFERENCE
KENO HILL AREA
YUKON TERRITORY

DESCRIPTIVE NOTES

Introduction

The reconnaissance geochemical survey of Keno Hill area, Yukon Territory was started and completed in the summer of 1964. The creeks not accessible by roads were reached by helicopter. An attempt was made to maintain a sample interval of 1,500 feet along all rivers, creeks, and their tributaries.

The data on this map are based on 5,900 samples of stream sediment collected from the channels of the streams and on the sediments and precipitates in the vicinity of springs from an area of approximately 1,500 square miles. Where possible the active channel was sampled; however as work progressed it was found that moss on the creek banks below the water line had trapped considerable amounts of fine sediment suitable for sampling. The wet sediments and waters were analyzed at the sample site for cold citrate-soluble heavy metals. The results of this work have been published in a series of 14 preliminary maps (Gleeson, et al., 1965). Field observations on the character of the stream, composition of the sediment, pH and temperature of the water, and rock types in the vicinity of the sample station were entered in code on special geochemical field cards. Subsequently, this information was punched on cards for electronic data processing.

The wet sediment was dried in the field at a temperature of about 60° C and sieved through an 80 mesh stainless steel screen. The sieved samples were shipped to Ottawa where they were ground to minus 100 mesh in a ceramic ball mill.

Analysis

The ground sediments were analyzed for lead by fusion with potassium bisulphate followed by colorimetric determination with dithizone using the technique described by Gilbert (1959).

General Geology

The regional geology has been described by Bostock (1947, 1964), and Green and Roddick (1962). More detailed geological studies have been made by Kindle (1952), McTaggart (1960), Poole (1965), and Green (1957, 1958). The geology, geochemistry, and origin of the mineral deposits in Keno Hill and Dublin Gulch areas have been described by Boyle (1965). Reports by Ahn (1964) and Cockfield (1923) provide further information on mineral deposits of the area.

The map-area is underlain by a series of metamorphosed sedimentary rocks, mainly quartzites, phyllites, slates, chlorite, sericite and graphite schists, also grits and minor limestone. The age of these rocks is uncertain and appears to range from Precambrian to Mesozoic (Poole, 1965; Tempelman-Kluit, 1966).

A dolomite and limestone unit outcrops in the northeast part of the area. Fossils from these rocks range in age from late Cambrian to late Silurian or early Devonian (Green and Roddick, 1962).

Mafic igneous sills and lenses now altered to greenstones are interlayered with the metamorphosed sediments. Quartz-feldspar porphyry sills and lamprophyre dykes are present locally. Granitic stocks cut the metamorphosed sediments east and north of Mayo Lake, northwest of Hanson Lake, south of Dublin Gulch and in the vicinity of Mount Haldane.

Seam zones containing scheelite occur in the vicinity of some of the granitic masses particularly around Dublin Gulch, Mount Haldane, and east of Mayo Lake.

Most of the lead-silver ore deposits in the Keno - Galena Hills area occur along northeasterly striking vein faults in thick-bedded quartzite and occasionally in greenstone (Boyle, 1965). In the Dublin Gulch area quartz arsenopyrite-gold veins with a general northeast strike are present near the contacts of the granitic stocks. Also easterly striking vein faults are mineralized with siderite, jamesonite, boulangerite, pyrite, arsenopyrite, galena, tetrahedrite, and chalcopyrite. Two cassiterite-tourmaline veins occur on the right limit of Dublin Gulch near its mouth (Boyle, 1965; Poole, 1965). Also northerly striking lead-zinc-silver veins are present in Davidson Range (Cockfield, 1922; Aho, 1964). Placer gold has been recovered from Dublin Gulch, Haggart Creek, and Duncan Creek since 1898.

The area has undergone several stages of glaciation. Thick glacial deposits occupy the major valleys and hill slopes below an elevation of 3,000 feet. Permafrost is present throughout the area.

Results

Adequate assessment of the results of the sediment survey is difficult until planned statistical work requiring electronic data processing and detailed follow up field work is completed. However, cumulative distribution curves have been constructed from information supplied from the computer. The curve for lead best fits a straight line and suggests that lead is distributed approximately lognormally in the stream sediments. There are distinct changes in slope indicating that two or more populations may be present. However, the real significance of these breaks can be determined only by more complete statistical studies. On this map the values for lead have been grouped into high (greater than 35 ppm), medium (15 to 30 ppm), and low values (10 ppm or less).

Most of the creeks draining known mineral deposits give anomalous values in the stream sediments. Some of these creeks are extremely high in lead due to contamination from mine workings.

In the map-area there are a number of anomalous creeks draining areas that have been little explored. Further detailed investigations are warranted in these areas. Some of these include the Mount Haldane area, Davidson Range, Mount Hinton area, tributaries of upper Lynx Creek and upper Haggart Creek, and several areas in the Patterson Range. Some of the most interesting lead anomalies occur in creeks draining a dolomite-limestone unit north of Beaver River and in the vicinity of Kathleen Lakes. The anomalous tributaries on the south side of Rackla River merit further investigation in order to evaluate their economic significance.

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51.11
Yk Geol

Yukon Territory, Keno Hill Area
1 inch to 2 miles
Map 45-1965