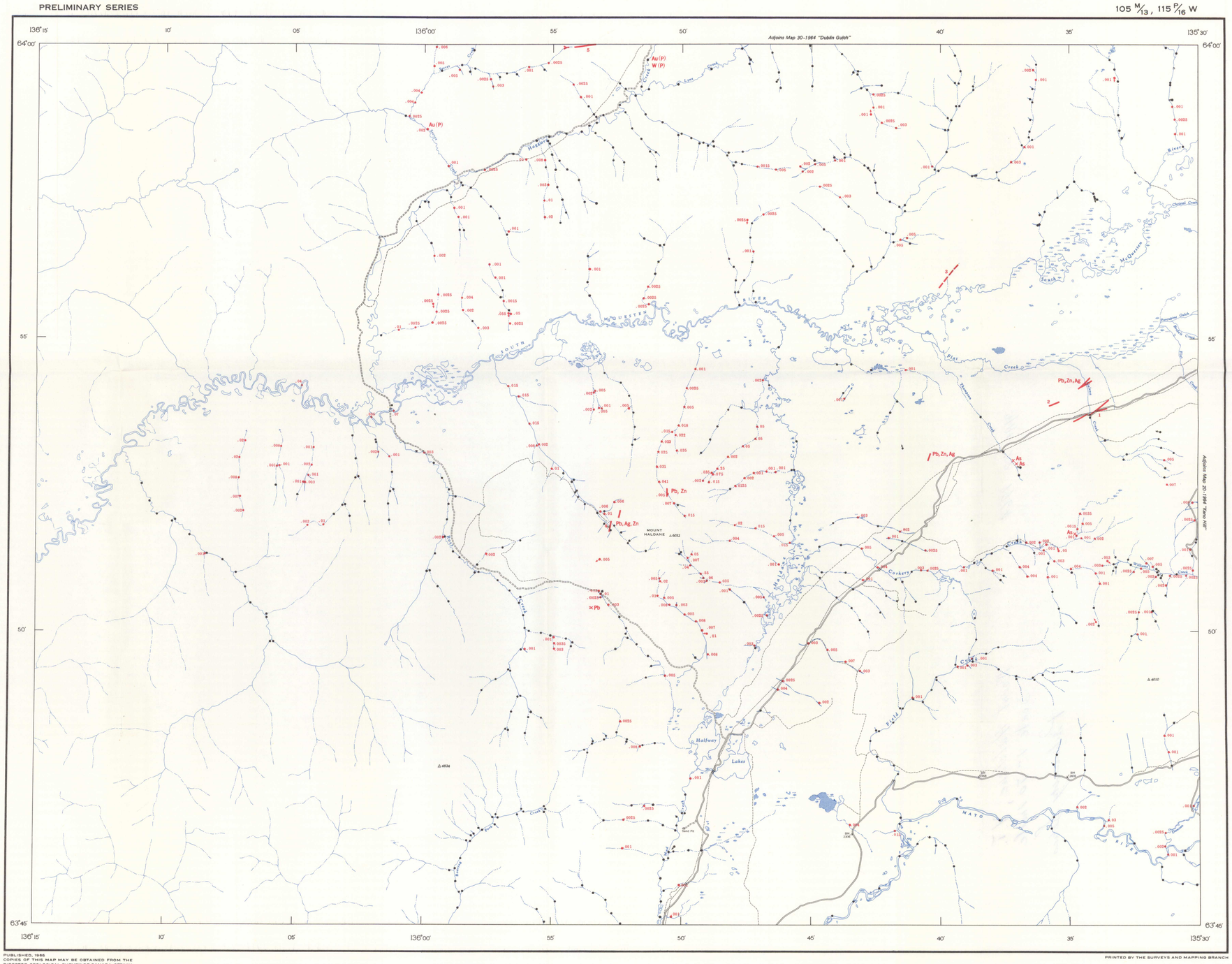
GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PRELIMINARY SERIES

105 M/13, 115 P/16 W



LEGEND

Concentration of heavy metal, 0.001 or greater ppm in stream waters ....005 in spring waters ....005‡

Concentration of heavy metal, 0.000 ppm in stream waters ....., in spring waters .....‡

Location of known veins

Mineral occurrence ....Pb×

Mineral deposit 3

Mineral Symbols

Arsenic.....As	Lead.....Pb
Antimony.....Sb	Silver.....Ag
Copper.....Cu	Tungsten (placer).W(P)
Cadmium.....Cd	Zinc.....Zn
Gold (placer)...Au(P)	

Index to Mineral Deposits

1. Silver King	(Ag, Pb, Zn, Cd)	4. Lookout	(Pb, Ag, Zn)
2. Gerlitsky	(Pb, Zn, Ag)	5. Rex	(Pb, Sb, Zn, Cu, Ag)
3. Shanghai	(Zn, Pb, Ag)		

Field work by C. F. Gleeson, W. M. Tupper, A. Suparman, K. Domal, 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

Geological cartography by the Geological Survey of Canada, 1965

Roads, all weather

Other roads

Intermittent lake and stream

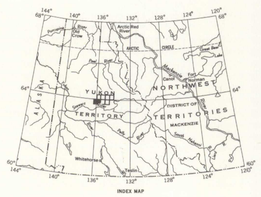
Marsh

Horizontal control point △

Elevation in feet above mean sea-level 4326

Base-map produced by the Surveys and Mapping Branch, 1956,61

Approximate magnetic declination, 33° 36' East, decreasing 4.1' annually



DESCRIPTIVE NOTES

Geological

The Mount Haldane area is underlain by a series of metamorphosed sedimentary rocks, mainly quartzites, phyllites, chlorite, sericite, and graphite schists, and minor limestone. Basic igneous sills and lenses, now altered to greenstones, are interlayered within these rocks. Quartz porphyry dykes and granitic stocks intrude the metamorphosed sedimentary rocks at several places.

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

Early vein fillings contain pyrite and/or arsenopyrite with or without silver and lead minerals. Later silver-lead-zinc veins occur in brecciated fault zones and contain essentially siderite, sphalerite, galena, and argentiferous tetrahedrite. The veins are best developed in competent quartzites or greenstone. Disseminated arsenopyrite is common in some of the quartz porphyry dykes that cut the rocks of the Mount Haldane area.

The near-surface parts of the veins have been deeply oxidized, with the formation of limonite, manganese oxides, cerussite, anglesite, malachite, azurite and scorodite.

Further details on the geology and mineralization of the area can be obtained from reports by Bostock (1947, 1964), McTaggart (1960), Aho (1964), Boyle (1965), and Poole (1965a, 1965b).

Geochemical

The data on the map are based on samples of stream and spring waters that were tested at the sample site using the method described by Boyle, Illsley, and Green (1955).

The values are expressed as total heavy metal (zinc, copper, lead) in parts per million. Most of the heavy metal in the water is zinc.

The pH of the waters varies from 4.6 to 8.2 and the temperature from 0° to 10° C.

The creeks not accessible by roads were reached by helicopter. An attempt was made to maintain a sample interval of 1,500 feet along the creeks.

The geochemical field results on the waters confirm the earlier results obtained by Boyle, Pekar, and Patterson (1956). Most of the anomalies are centered around Mount Haldane which is underlain in part by thick-bedded quartzites. The known lead-zinc lode occurrences on Mount Haldane produce geochemical water anomalies. Similarly, those on Secret Creek result in part from lead-arsenic-antimony-silver veins and from contamination arising from the camp and workings of Peso Silver Mines, Ltd. upstream from the anomalies. A group of anomalies at the head of Corkery Creek appear to be related to arsenopyrite mineralization in that area. There are several anomalous creeks on the north side of McQuesten River and scattered anomalies are present in many creeks elsewhere on the map-sheet.

No attempt was made to trace the water anomalies to their sources, and hence it is difficult to evaluate the significance of each anomalous creek. However, the results indicate that Mount Haldane, and the area west and east of the mountain which is in part underlain by massive quartzite, warrant further investigation. The merits of the anomalies in the rest of the area can be determined only by more detailed study.

The heavy metal content of the water shown on this map should be compared with the heavy metal content of stream and spring sediments and precipitates shown on Map 23-1964.

Aho, A. E.: Mineral potential of the Mayo district; Western Miner, vol. 37, No. 10, pp. 80-88 (1964).

Bostock, H.S.: Mayo, Yukon Territory; Geol. Surv. Can., Map 890A (1947).

Bostock, H.S.: McQuesten, Yukon Territory; Geol. Surv. Can., Map 1143A (1964).

Boyle, R.W., Illsley, C.T., and Green, R.N.: Geochemical investigation of the heavy metal content of stream and spring waters in the Keno Hill - Galena Hill area, Yukon Territory; Geol. Surv. Can., Bull. 32 (1955).

Boyle, R.W., Pekar, E.L., and Patterson, P.R.: Geochemical investigation of heavy metal content of streams and springs in the Galena Hill - Mount Haldane area, Yukon Territory; Geol. Surv. Can., Bull. 36 (1956).

Boyle, R.W.: Geology, geochemistry, and origin of the lead-zinc-silver deposits of the Keno Hill - Galena Hill area, Yukon Territory; Geol. Surv. Can., Bull. 111 (1965).

McTaggart, K.C.: The geology of Keno and Galena Hills, Yukon Territory; Geol. Surv. Can., Bull. 58 (1960).

Poole, W.H.: Reports of activities: field, 1964; Geol. Surv. Can., Paper 65-1 (1965a).

_____: Mount Haldane and Dublin Gulch map-areas, Yukon Territory; Geol. Surv. Can., Prelim. Map Sheets (in press) (1965b).

PUBLISHED, 1965
COPIES OF THIS MAP MAY BE OBTAINED FROM THE DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

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MAP 22-1964

HEAVY METAL CONTENT OF STREAM AND SPRING WATERS

MOUNT HALDANE

YUKON TERRITORY

Scale 1:63,360
1 inch to 1 mile

Miles 1 0 1 2 3 Miles

Kilometres 1 0 1 2 3 4 5 Kilometres

105 M/13, 115 P/16 W
MOUNT HALDANE
YUKON TERRITORY
MAP 22-1964

5.1.11 A, Geol
Mount Haldane map 22, 1964 scale 1" to 1 mile