DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS INVESTIGATIONS SERIES
MAP I-1093-I (SHEET 1 OF 2)

EXPLANATION

The values of cadmium and zinc in rocks are expressed as ratios (Cd/Zn) after the data were treated as follows: The data were gridded to a rectangular coordinate system with mesh points 1,000 feet (305 m) apart. The original data points were transposed to grid coordinates or mesh points by drawing a circle of radius 800 feet (244 m) around each mesh point, and shifting the coordinates of data points within each circle to the coordinates of the mesh point. Accompanying the shift of coordinates each point was weighed according to its distance from the mesh point; as a result, close-lying data points had more influence than outlying data points on the final value used at the mesh point. After data points were weighted and projected to a mesh point, the multiplicity of values created at the mesh point was removed by averaging

MINE WORKINGS

DISPERSION ISOPLETHS—Areas where the cadmium: zinc ratio is more than 0.01, 0.02, 0.03, 0.04, 0.05, or 0.1. Dashed where inferred. No isopleths less than 0.01 or more than 0.1 shown

Concentrations of cadmium and zinc were determined by atomic absorption analyses (Ward and others, 1969). Determinations were made by R. W. Leinz, R. B. Tripp, R. L. Turner, and E. P. Welsch

REFERENCES

Ward, F. N., Nakagawa, H. M., Harms, T. F., Van Sickle, G. H., 1969, Atomic-absorption methods of analysis useful in geochemical exploration: U.S. Geol. Survey Bull. 1289, 45 p.

Base from U.S. Geological Survey, 1:62,500, Kingston, Kellogg, Burke, St. Joe, Calder, and Wallace, 1957; Cooper Gulch and Saltese, 1956

SCALE 1:62 500

1 ½ 0 1 2 3 4 MILES

1 .5 0 1 2 3 4 KILOMETERS

APPROXIMATE MEAN DECLINATION, 1978

MONTANA IDAHO

Area of this report

EXPLANATION

- Qal — Alluvial deposits — Holocene — QUATERNARY
- Qg — Glacial and glaciofluvial deposits — Pleistocene — QUATERNARY
- QTog — Channel and terrace gravels — QUATERNARY AND TERTIARY
- Km — Monzonite and associated rocks — CRETACEOUS
- Yws — Wishards sill — PRECAMBRIAN Y(?)
- Ysp — Striped Peak Formation — Belt Supergroup — PRECAMBRIAN Y
- Yw — Wallace Formation — Belt Supergroup — PRECAMBRIAN Y
- Ys — St. Regis Formation — Belt Supergroup — PRECAMBRIAN Y
- Yr, Yrb — Revett and Burke Formations; Yr, Revett Formation; Yb, Burke Formation; Yrb, undifferentiated — Belt Supergroup — PRECAMBRIAN Y
- Yp — Prichard Formation — Belt Supergroup — PRECAMBRIAN Y

Contact

Fault

Dashed where approximately located; dotted where concealed

A. DISPERSION PATTERNS FORMED IN ROCKS BY THE RATIO OF CADMIUM : ZINC

EXPLANATION

The values of lead and zinc in rocks are expressed as ratios (Pb/Zn) after the data were treated as follows: The data were gridded to a rectangular coordinate system with mesh points 1,000 feet (305 m) apart. The original data points were transposed to grid coordinates or mesh points by drawing a circle of radius 800 feet (244 m) around each mesh point, and shifting the coordinates of data points within each circle to the coordinates of the mesh point. Accompanying the shift of coordinates each point was weighed according to its distance from the mesh point; as a result, close-lying data points had more influence than outlying data points on the final value used at the mesh point. After data points were weighted and projected to a mesh point, the multiplicity of values created at the mesh point was removed by averaging

MINE WORKINGS

ENRICHMENT ISOPLETHS—Areas where the lead: zinc ratio is more than 1, 5, 10, or 20. Dashed where inferred. No isopleths less than 1 or more than 20 shown

Concentrations of lead and zinc were determined by atomic absorption analyses (Ward and others, 1969). Determinations were made by R. W. Leinz, R. L. Turner, and R. B. Tripp

REFERENCES

Ward, F. N., Nakagawa, H. M., Harms, T. F., Van Sickle, G. H., 1969, Atomic-absorption methods of analysis useful in geochemical exploration: U.S. Geol. Survey Bull. 1289, 45 p.

Base from U.S. Geological Survey, 1:62,500, Kingston, Kellogg, Burke, St. Joe, Calder, and Wallace, 1957; Cooper Gulch and Saltese, 1956

SCALE 1:62 500

1 ½ 0 1 2 3 4 MILES

1 .5 0 1 2 3 4 KILOMETERS

APPROXIMATE MEAN DECLINATION, 1978

MONTANA IDAHO

Area of this report

EXPLANATION

Qal — Alluvial deposits — Holocene — QUATERNARY
Qg — Glacial and glaciofluvial deposits — Pleistocene — QUATERNARY
QTog — Channel and terrace gravels — QUATERNARY AND TERTIARY
Km — Monzonite and associated rocks — CRETACEOUS
Yws — Wishards sill — PRECAMBRIAN Y(?)
Ysp — Striped Peak Formation — Belt Supergroup — PRECAMBRIAN Y
Yw — Wallace Formation — Belt Supergroup — PRECAMBRIAN Y
Ys — St. Regis Formation — Belt Supergroup — PRECAMBRIAN Y
Yr, Yrb — Revett and Burke Formations; Yr, Revett Formation; Yb, Burke Formation; Yrb, undifferentiated — Belt Supergroup — PRECAMBRIAN Y
Yp — Prichard Formation — Belt Supergroup — PRECAMBRIAN Y

Contact

Fault

Dashed where approximately located; dotted where concealed

B. DISPERSION PATTERNS FORMED IN ROCKS BY THE RATIO OF LEAD : ZINC

DISPERSION PATTERNS IN ROCKS FORMED BY THE RATIO OF Cd/Zn, Pb/Zn, AND Cu/Pb IN THE COEUR D'ALENE DISTRICT, IDAHO AND MONTANA

By
Garland B. Gott and John B. Cathrall

1979

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA.—1979 07328

Geology west of 115°42'30" and mine workings modified from S. W. Hobbs and others, 1965; Geology east of 115°42'30" from R. E. Wallace and J. W. Hosterman, 1956

Data computation and program by Jack B. Fife
Data reduction by Theodore M. Billings

For sale by Branch of Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80225