



This map is part of a folio of maps of the Rolla 1° x 2° quadrangle, Missouri, prepared under the Continuous United States Mineral Appraisal Program.

DISCUSSION

This map was compiled as a source map for the evaluation of barite resources in residuum in the Rolla 1° x 2° quadrangle, Missouri (Pratt, 1981). The quadrangle has been a major producer of barite since the last century, with the ore occurring chiefly as barite fragments in clayey residuum derived from the weathering of vein and cavity fillings in carbonate rocks of Ordovician and Cambrian age, especially the Cambrian Eminence and Potosi Dolomites. Ore often concentrates at the interface of residuum and underlying bedrock. Production has been from the north-central part of the quadrangle in Washington County and parts of St. Francois, Jefferson, and Franklin Counties.

The drill holes used in this study are those used by Erickson and others (1978), except drill holes 87, 88, and 94, which were added to the above study in 1980. The samples analyzed are insoluble residues prepared by the Missouri Division of Geology and Land Survey as a routine part of their subsurface stratigraphic correlation studies. Each sample represents a split of a 10-foot interval of composite core chips, or cuttings when core was not available. All data were obtained by semiquantitative analysis by emission spectrography following the procedure of Grimes and Marranzino (1968).

The top 300 feet of each drill hole were analyzed, as this interval should contain any residuum (maximum residuum usually does not exceed 200 ft) as well as any underlying bedrock containing barite which could contribute to future residuum. The Cambrian Lamotte Sandstone and any Precambrian rocks intersected in the 300-foot interval were excluded from the study because of unfavorable lithology for hosting residual barite deposits (Pratt, 1981). Since the samples were originally collected to study the distribution of trace metals in bedrock, the upper portion of the drill hole was not always available for analysis. The actual interval samples is shown on the map adjacent to each drill hole.

EXPLANATION

- OUTCROP OF PRECAMBRIAN ROCKS
- APPROXIMATE OUTLINE OF BARITE DISTRICT--From Kisvarsanyi and Miller, fig. 5 in Pratt, 1981
- BARITE OR BARITE-LEAD OCCURRENCE--From Miller, 1982
- FAULT MAPPED AT SURFACE OR UNDERGROUND--Bar and ball on downthrown side. Arrows indicate direction of relative movement (Pratt, 1982).
- FAULT IN PALEOZOIC ROCKS--Inferred from drill hole data (Pratt, 1982)
- FAULT ZONE--From Pratt (1982)
- ANTICLINE MAPPED AT SURFACE--From Pratt (1982)

DRILL HOLE--Note, no samples average between 1000 and 3000 ppm

- Not sampled above 300 feet. No data available
- Average Ba 0-99 ppm
- Average Ba 100-399 ppm
- Average Ba 400-699 ppm
- Average Ba 700-1000 ppm
- Average Ba >3000 ppm

- Drill hole number
- GS-VB 154 154 Average barium content, ppm, of interval sampled
- GT 130 0-300 Interval sampled, in feet
- EM 180 Average barium content, ppm, in each lithologic unit
- Lithologic Abbreviations

LITHOLOGIC ABBREVIATIONS

- Quaternary
- RS, Residuum
- Ordovician
- JC, Jefferson City Dolomite
- VB, Van Buren Formation
- RB, Roubidoux Formation
- GS, Gasconade Dolomite
- GT, Gunter Sandstone Member of the Gasconade Dolomite
- Cambrian
- EM, Eminence Dolomite
- PT, Potosi Dolomite
- DD, Derby-Doerun Dolomite
- DV, Davis Formation
- BT, Bonnetterre Formation

REFERENCES

- Erickson, R. L., Mosier, E. L., and Viets, J. G., 1978, Generalized geologic and summary geochemical maps of the Rolla 1° x 2° quadrangle, Missouri: U.S. Geological Survey Miscellaneous Field Studies Map MF-1004-A, scale 1:250,000.
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BARIUM CONTENT IN DRILL HOLES IN THE ROLLA 1° X 2° QUADRANGLE, MISSOURI

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