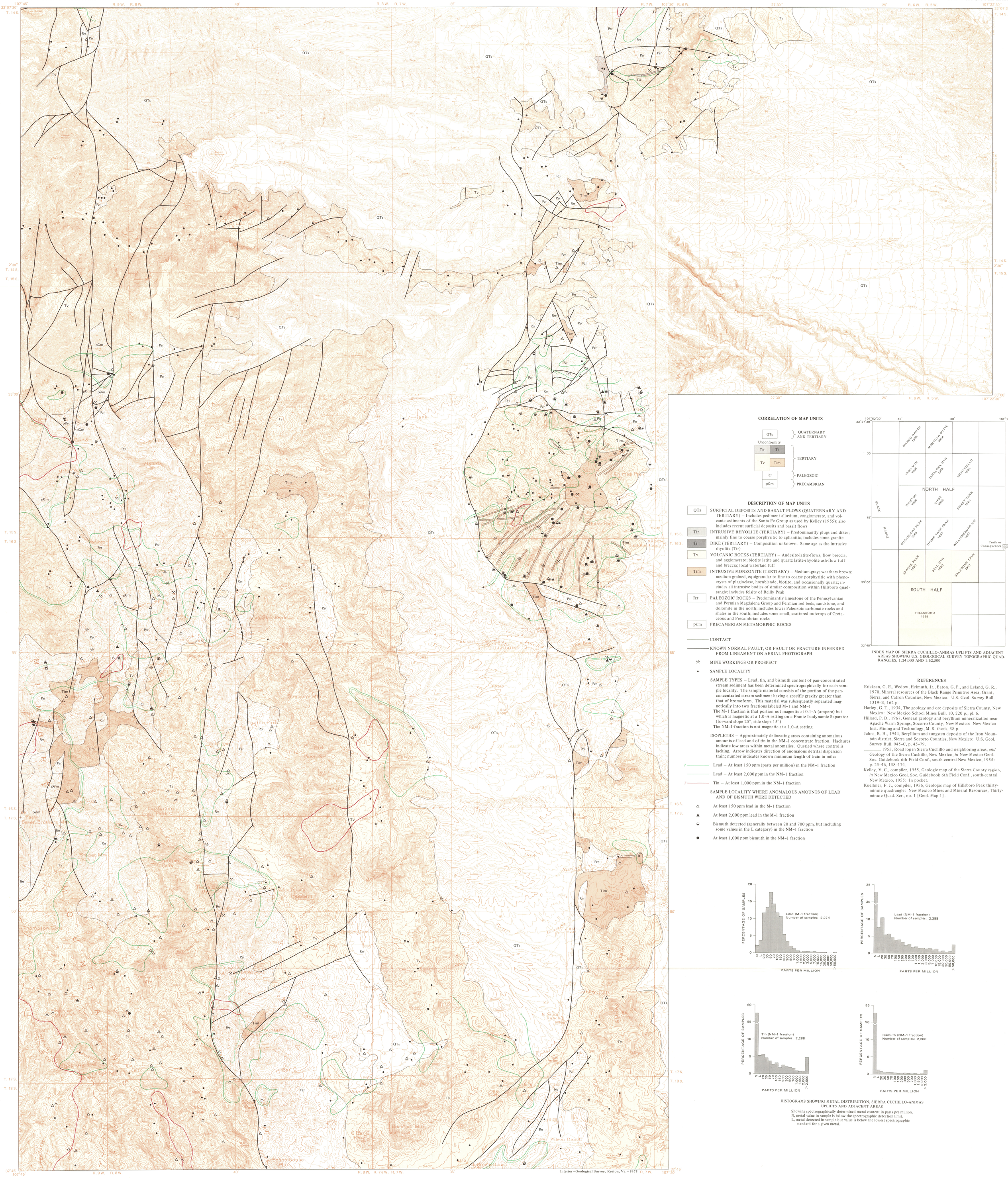
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS INVESTIGATIONS SERIES
MAP I-881 (SOUTH HALF)



CORRELATION OF MAP UNITS

QTs		QUATERNARY AND TERTIARY
Unconformity		
Tir	Ti	TERTIARY
Tv	Tim	
Pzr		PALEOZOIC
pCm		PRECAMBRIAN

DESCRIPTION OF MAP UNITS

QTs SURFICIAL DEPOSITS AND BASALT FLOWS (QUATERNARY AND TERTIARY) — Includes pediment alluvium, conglomerate, and volcanic sediments of the Santa Fe Group as used by Kelley (1955); also includes recent surficial deposits and basalt flows

Tir INTRUSIVE RHYOLITE (TERTIARY) — Predominantly plugs and dikes; mainly fine to coarse porphyritic to aphanitic; includes some granite

Ti DIKE (TERTIARY) — Composition unknown. Same age as the intrusive rhyolite (Tir)

Tv VOLCANIC ROCKS (TERTIARY) — Andesite-latite-flows, flow breccia, and agglomerate; biotite latite and quartz latite-rhyolite ash-flow tuff and breccia; local waterlaid tuff

Tim INTRUSIVE MONZONITE (TERTIARY) — Medium-gray; weathers brown; medium grained, equigranular to fine to coarse porphyritic with phenocrysts of plagioclase, hornblende, biotite, and occasionally quartz; includes all intrusive bodies of similar composition within Hillsboro quadrangle; includes felsite of Reilly Peak

Pzr PALEOZOIC ROCKS — Predominantly limestone of the Pennsylvanian and Permian Magdalena Group and Permian red beds, sandstone, and dolomite in the north; includes lower Paleozoic carbonate rocks and shales in the south; includes some small, scattered outcrops of Cretaceous and Precambrian rocks

pCm PRECAMBRIAN METAMORPHIC ROCKS

CONTACT

KNOWN NORMAL FAULT, OR FAULT OR FRACTURE INFERRED FROM LINEAMENT ON AERIAL PHOTOGRAPH

MINE WORKINGS OR PROSPECT

SAMPLE LOCALITY

SAMPLE TYPES — Lead, tin, and bismuth content of pan-concentrated stream sediment has been determined spectrographically for each sample locality. The sample material consists of the portion of the pan-concentrated stream sediment having a specific gravity greater than that of bromoform. This material was subsequently separated magnetically into two fractions labeled M-1 and NM-1
The M-1 fraction is that portion not magnetic at 0.1-A (ampere) but which is magnetic at a 1.0-A setting on a Frantz Isodynamic Separator (forward slope 25°, side slope 15°)
The NM-1 fraction is not magnetic at a 1.0-A setting

ISOPLETHS — Approximately delineating areas containing anomalous amounts of lead and of tin in the NM-1 concentrate fraction. Hachures indicate low areas within metal anomalies. Queried where control is lacking. Arrow indicates direction of anomalous detrital dispersion train; number indicates known minimum length of train in miles

Lead — At least 150 ppm (parts per million) in the NM-1 fraction

Lead — At least 2,000 ppm in the NM-1 fraction

Tin — At least 1,000 ppm in the NM-1 fraction

SAMPLE LOCALITY WHERE ANOMALOUS AMOUNTS OF LEAD AND OF BISMUTH WERE DETECTED

△ At least 150 ppm lead in the M-1 fraction

▲ At least 2,000 ppm lead in the M-1 fraction

◒ Bismuth detected (generally between 20 and 700 ppm, but including some values in the L category) in the NM-1 fraction

● At least 1,000 ppm bismuth in the NM-1 fraction

INDEX MAP OF SIERRA CUCHILLO-ANIMAS UPLIFTS AND ADJACENT AREAS SHOWING U.S. GEOLOGICAL SURVEY TOPOGRAPHIC QUADRANGLES, 1:24,000 AND 1:62,500

REFERENCES

Ericksen, G. E., Wedow, Helmuth, Jr., Eaton, G. P., and Leland, G. R., 1970, Mineral resources of the Black Range Primitive Area, Grant, Sierra, and Catron Counties, New Mexico: U.S. Geol. Survey Bull. 1319-E, 162 p.

Harley, G. T., 1934, The geology and ore deposits of Sierra County, New Mexico: New Mexico School Mines Bull. 10, 220 p., pl. 6.

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Jahns, R. H., 1944, Beryllium and tungsten deposits of the Iron Mountain district, Sierra and Socorro Counties, New Mexico: U.S. Geol. Survey Bull. 945-C, p. 45-79.

_____1955, Road log in Sierra Cuchillo and neighboring areas, *and* Geology of the Sierra Cuchillo, New Mexico, *in* New Mexico Geol. Soc. Guidebook 6th Field Conf., south-central New Mexico, 1955: p. 25-46, 158-174.

Kelley, V. C., compiler, 1955, Geologic map of the Sierra County region, *in* New Mexico Geol. Soc. Guidebook 6th Field Conf., south-central New Mexico, 1955: In pocket.

Kuellmer, F. J., compiler, 1956, Geologic map of Hillsboro Peak thirty-minute quadrangle: New Mexico Mines and Mineral Resources, Thirty-minute Quad. Ser., no. 1 [Geol. Map 1].

HISTOGRAMS SHOWING METAL DISTRIBUTION, SIERRA CUCHILLO-ANIMAS UPLIFTS AND ADJACENT AREAS

Showing spectrographically determined metal content in parts per million.
N, metal value in sample is below the spectrographic detection limit.
L, metal detected in sample but value is below the lowest spectrographic standard for a given metal.

Base from U.S. Geological Survey

SCALE 1:48,000
1 ½ 0 1 2 3 MILES
1 .5 0 1 2 3 KILOMETRES
CONTOUR INTERVALS 20 AND 40 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1975

NEW MEXICO
MAP LOCATION

Reconnaissance and photogeology by H. V. Alminas and K. C. Watts. Monticello Box area in part from Hillard (1967). General geologic framework of Sierra Cuchillo range in part from Jahns (1955) and Kelley (1955). Details of Iron Mountain from Jahns (1944). Hillsboro quadrangle entirely adapted from Kuellmer (1956) and supplemented by sample site observations in field. Some details of Copper Flat from Harley (1934, pl. 6). Aerial photographs utilized north of T. 15 S.

Interior—Geological Survey, Reston, Va.—1975

South Half

MAP SHOWING ANOMALOUS DISTRIBUTION OF LEAD, TIN, AND BISMUTH IN STREAM-SEDIMENT CONCENTRATES FROM THE SIERRA CUCHILLO-ANIMAS UPLIFTS AND ADJACENT AREAS, SOUTHWESTERN NEW MEXICO

By
H. V. Alminas, K. C. Watts, W. R. Griffitts,
D. L. Siems, V. E. Kraxberger, and K. J. Curry

1975

For sale by U. S. Geological Survey
Denver, Colo. 80225 and Reston, Va. 22092, price $ 1.50 per set.