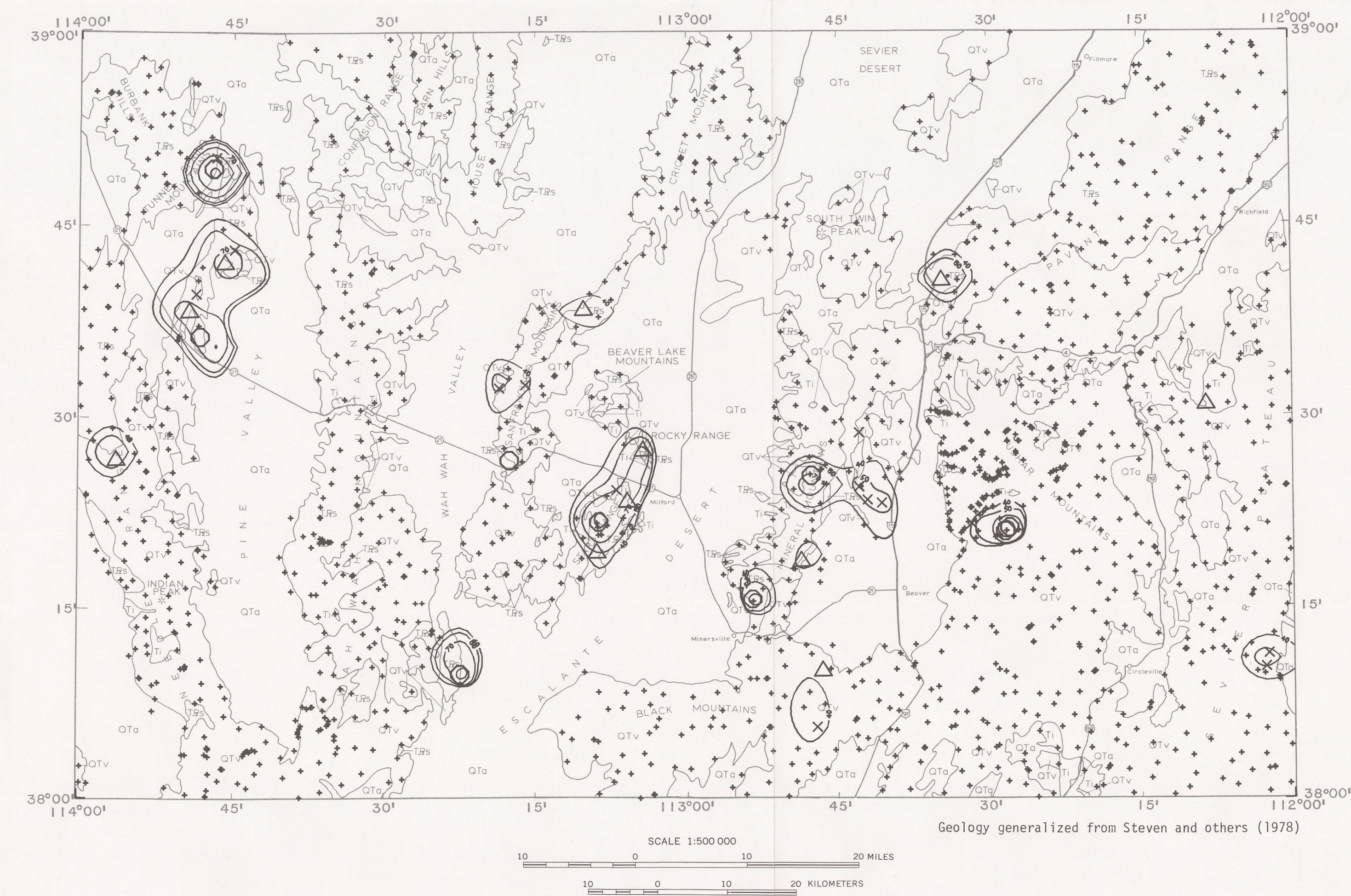




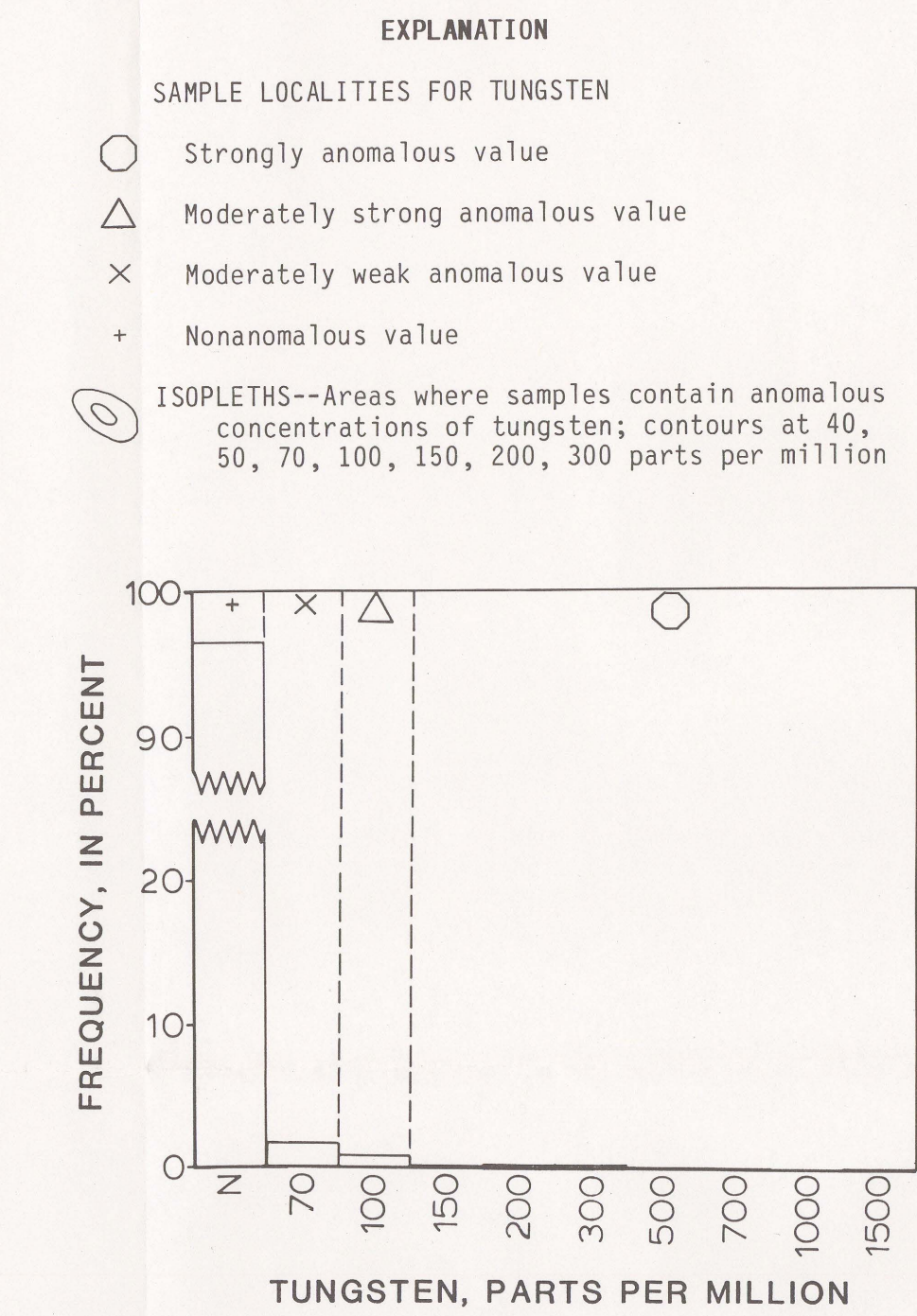
MAP A. TUNGSTEN IN THE NONMAGNETIC FRACTION OF HEAVY-MINERAL CONCENTRATES



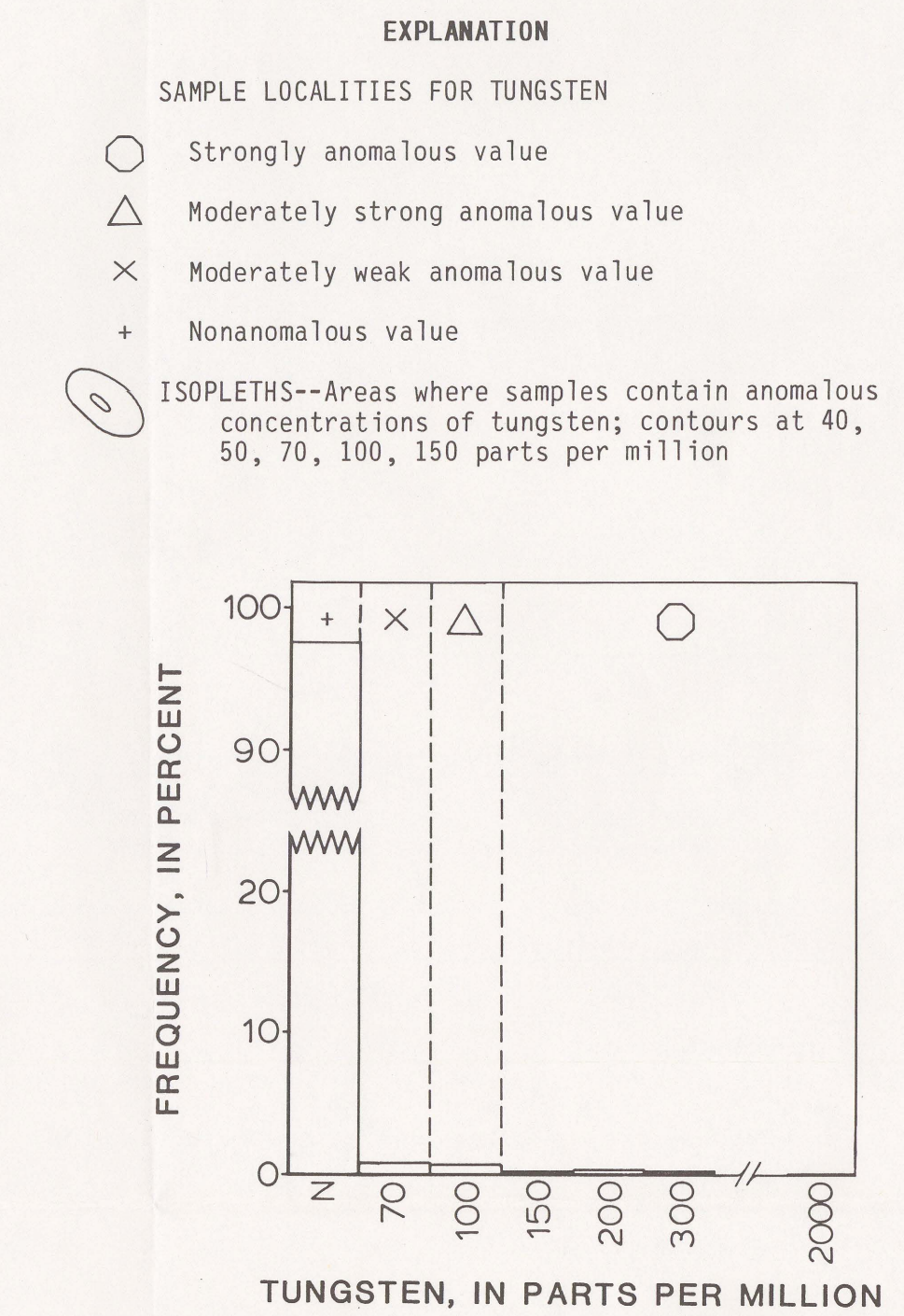
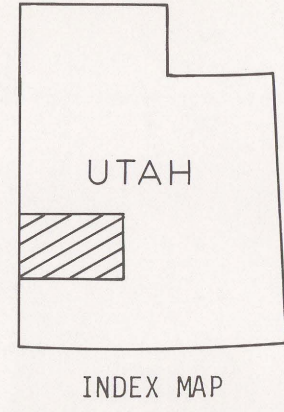
MAP B. TUNGSTEN IN THE MAGNETIC FRACTION OF HEAVY-MINERAL CONCENTRATES

MAPS SHOWING DISTRIBUTION OF TUNGSTEN IN HEAVY-MINERAL CONCENTRATES,
RICHFIELD 1° X 2° QUADRANGLE, UTAH

By
William R. Miller, Jerry M. Motooka,
and John B. McHugh
1985



- LIST OF MAP UNITS
- QTa SURFICIAL DEPOSITS, UNDIVIDED (QUATERNARY AND TERTIARY)
QTV VOLCANIC ROCKS, UNDIVIDED (QUATERNARY AND TERTIARY)
Ti IGNEOUS ROCKS, UNDIVIDED (TERTIARY)
TPzs SEDIMENTARY ROCKS, UNDIVIDED (TERTIARY TO PALEOZOIC)
— CONTACT



INTRODUCTION

These maps are part of a folio of maps of the Richfield 1° x 2° quadrangle, Utah, prepared under the Continuous United States Mineral Assessment Program. Other publications in this folio are listed in the selected references.

Located in west-central Utah, the Richfield quadrangle covers the eastern part of the Plioche-Marysville igneous and mineral belt, which extends from the vicinity of Plioche in southeastern Nevada east-northeastward for 250 km (155 mi) into central Utah. The western two-thirds of the Richfield quadrangle is in the Basin and Range province and the eastern third is in the High Plateaus of Utah, a subprovince of the Colorado Plateau.

Bedrock in the northern part of the Richfield quadrangle consists predominantly of latest Precambrian and Paleozoic sedimentary strata that were thrust eastward during the Sevier orogeny in Cretaceous time onto an autochthon of Mesozoic sedimentary rocks in the eastern part of the quadrangle. The southern part of the quadrangle is largely underlain by Oligocene and younger volcanic rocks and related intrusions. Extensional tectonism in late Cenozoic time broke the bedrock terrane into a series of north-trending fault blocks; the uplifted mountain areas were deeply eroded and the resulting debris deposited in the adjacent basins. Most of the mineral deposits in the Plioche-Marysville mineral belt were formed during igneous activity in middle and late Cenozoic time.

The regional sampling program was designed to define broad geochemical patterns and trends which can be utilized along with geologic and geophysical data to assess the mineral resource potential for this quadrangle. These maps of the Richfield 1° x 2° quadrangle show the regional distributions of tungsten in two fractions of heavy-mineral concentrates of drainage sediments.

Reconnaissance geochemical surveys are valuable tools in mineral exploration, but they should be used in conjunction with data from other earth science disciplines. In particular, outlining exploration targets generally involves considerable additional, more detailed investigations.

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1985, Maps showing distribution of arsenic in heavy-mineral concentrates, Richfield 1° x 2° quadrangle, Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1246-B, scale 1:500,000.

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VanTrump, G., and Miesch, A. T., 1977, The U.S. Geological Survey RASS-STATPAC system for management and statistical reduction of geochemical data: Computers and Geosciences, v. 3, p. 475-488.

GENERATION OF MAPS

Computer-generated contour maps and point-plot maps for each fraction of heavy-mineral concentrates were prepared using the computer mapping programs within the U.S. Geological Survey's STATPAC system (VanTrump and Miesch, 1977). The contour mapping program STAMP calculates an average value within a square cell to generate the contours. For these plots, the Richfield quadrangle was divided into 35 square cells (5 km on a side) in the east-west or X-direction and 22 square cells in the north-south or Y-direction. The value of a particular cell is the average value of tungsten of all samples contained within that cell. The cells are then contoured. The contours show regional distributions, but do not show exact locations of anomalous values. In places, the use of an average value of a cell gives misleading information. However, the accompanying point-plots indicate the location and magnitude of anomalous values, in addition to the location of all the sample sites, which facilitates more detailed evaluation of the anomalies. For the point-plot maps, approximately 3 percent of the total number of samples for each fraction which represent all the samples with detectable tungsten are classified as anomalous. These anomalous samples were divided into three classes for both fractions: moderately weak, moderately strong, and strongly anomalous.

¹Use of brand names in this report is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey.

