



Detailed geologic and geochemical studies of the four 7 1/2-minute quadrangles that make up the Edna Mountain 15-minute quadrangle in Humboldt County, Nevada, were begun during the 1969 summer field season. The objectives of the project are to map the geology of this structurally complex area and to determine the regional distribution and abundance of metals in the rocks of the area and the factors that control their distribution and abundance. Those metals tungsten-bearing hot-spring tufa, metalliferous black shale in Ordovician rocks, base-metal and barite deposits in Paleozoic sedimentary and volcanic rocks, and copper-molybdenum in granodiorite plutons of Cretaceous age occur in the Edna Mountain area. These deposits have been of little economic significance, although tungsten was mined from the hot-spring deposits during World War II.

The numerous occurrences of mineralized ground, however, along with the broad spectrum of type of mineralization, intensity of alteration, structural complexity, and abundance of intermediate to silicic igneous intrusive rocks suggest that concealed or heretofore unrecognized mineral deposits may exist in the area. Integrated geologic, geochemical, and geophysical studies on a district-wide scale are expected to improve our understanding of the factors that control the distribution, methods of emplacement, and spatial and genetic relationships (if any) of these different types of deposits. We hope that broad target areas or guidelines for mineral exploration in this area may be identified.

This series of maps shows the distribution and abundance of mercury, arsenic, antimony, tungsten, gold, copper, lead, silver, molybdenum, and zinc in rocks in the Goldrun Creek 7 1/2-minute quadrangle related to geologic and aeromagnetic base. Similar maps are published for the Goldrun Creek 7 1/2-minute quadrangles to the north and northeast (Erickson and Marsh, 1971, 1972). Most samples are from shear or fault zones, fractures, jasperoid, breccia reefs, and altered zones. All samples were prepared and analyzed in truck-mounted laboratories at Winnemucca, Nevada. Arsenic, tungsten, copper, lead, silver, molybdenum, and zinc were determined by semiquantitative spectrographic methods by D. F. Siems and E. F. Cooley and are reported in the series 1, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc. Mercury and gold were determined by a colorimetric method and antimony was determined by a colorimetric method by R. M. O'Leary, M. S. Erickson, and others.

