DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

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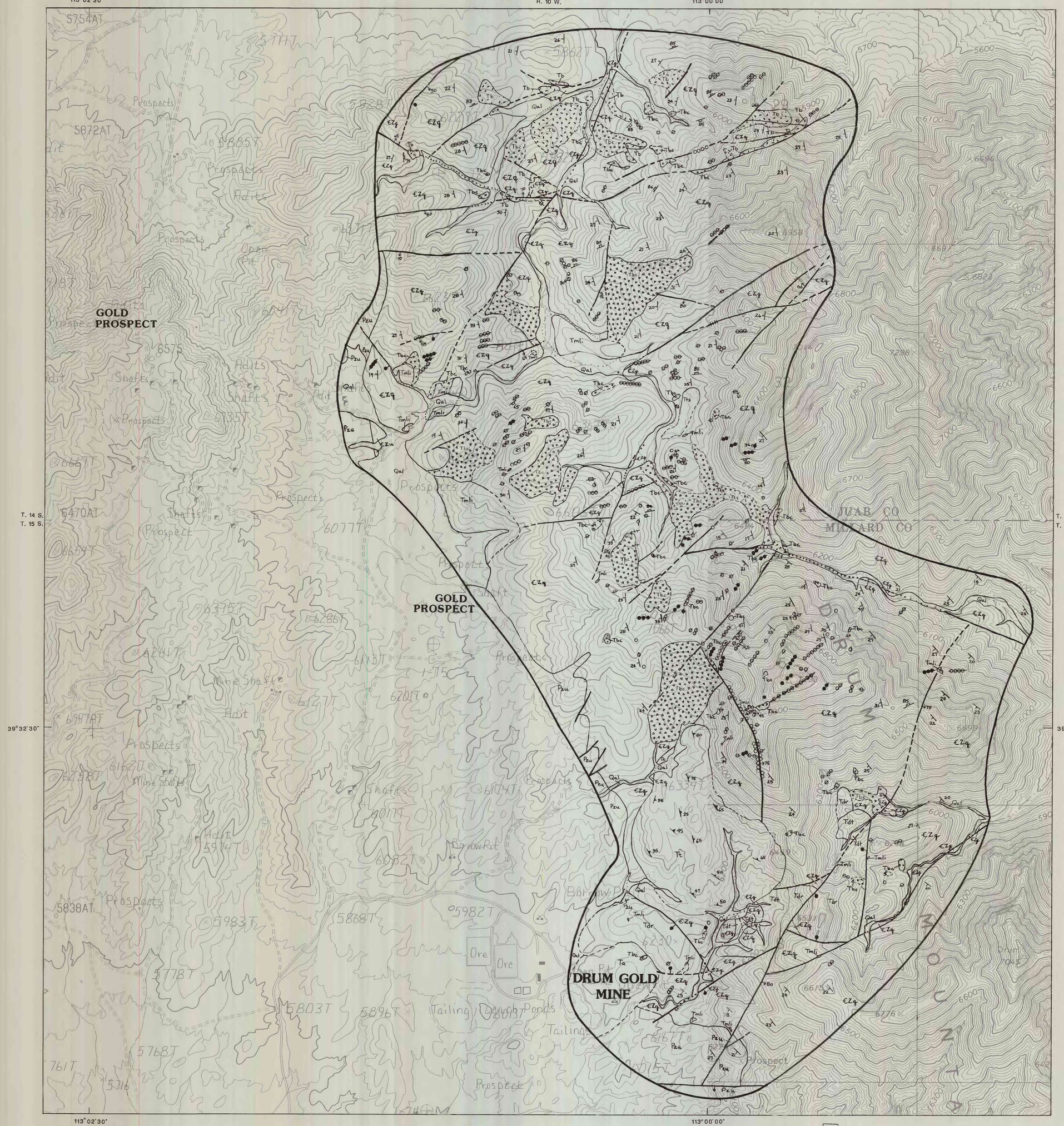
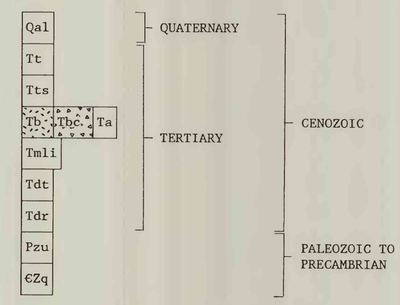


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qal **Alluvium and Colluvium**--Unconsolidated and poorly sorted gravel, sand, and clay.

Tt **Tuff**--Gray to gray-green tuff containing abundant crystals of plagioclase, quartz, hornblende, pyroxene, and biotite set in welded devitrified matrix of glass and pumice. Chlorite partially replaced some hornblende and biotite crystals. Tuff contains fragments of diorite (Tdt), intrusive porphyry (Tmli), and Drum Mountains Rhyodacite (Tdr). Crops out in southeastern part of mapped area, north of Drum Mine, and in one place west of mapped area. In outcrop north of mine, foliations measured from aligned fragments vary from steep to moderate. Similar tuff, referred to Needles Range(?) Formation, mapped west of the Drum Mountains by Lindsey (1979) and in the Little Drum Mountains by Leedom (1974) and Pierce (1974). Tentatively correlated with Tuff of Red Knolls of Morris (1987).

Tts **Tuffaceous siltstone and shale**--Light green tuffaceous siltstone and thin-bedded shale. Siltstone contains angular quartz grains, chlorite ± calcite pseudomorphs after mafic minerals, biotite, volcanic fragments, quartzite fragments, and carbonate fragments. Poorly exposed on grass covered slopes. Crops out in valley in the center of map area.

Tb **Breccia**--Shatter breccia and fractured quartzite containing rare rounded fragments. Includes poorly developed Tbc and breccia related to Tertiary or older faults. Restricted to northern part of zone of breccias.

Tbc **Breccia complex**--Area of shattered, fractured, and brecciated quartzite. Typically contains ≤5 percent pebble dikes, ≤5 percent porphyritic dikes (Tmli), ≤1 percent fragments of silicified porphyry (Tmli). Quartzite fragments, mostly 1 to 36 inches in length, are poorly sorted and angular (70-90 percent) to rounded (10-30 percent). Siliceous matrix makes up 5-50 percent of rock. In some areas, poorly exposed Tmli may make up 15-25 percent of complex; in these complexes Tmli is typically at the bottom of the complex and is overlain by shattered quartzites. Both strata-bound and crosscutting breccia complexes are present.

Ta **Altered rock**--Altered rock, as mapped by Dommer (1980), that was removed or covered during mining. The map from Bailey (1975) shows altered carbonate rock, quartzite, and volcanic rock (Tdr) in the area.

Tmli **Intrusive porphyry**--Porphyry, mapped as quartz monzonite porphyry by Crittenden and others (1961) and Lindsey (1979), crops out as small stock and numerous dikes. Conspicuous plagioclase, hornblende, and biotite, and less commonly quartz, are set in fine-grained potassium-feldspar-rich matrix. Porphyry is commonly clay-altered or silicified. Mapped by Lindsey (1979) as intrusive phase of Mt. Laird tuff, exposed at northern end of Drum Mountains.

Tdt **Diorite**--Dark-gray, fine-grained diorite crops out in southeastern part of mapped area and in central part of Drum Mountains. Rock is composed predominantly of feldspar and hornblende, typically ragged and partially replaced by biotite. Includes hornblende-rich porphyritic phase.

Tdr **Drum Mountains Rhyodacite**--Black porphyritic rhyodacite [andesite to trachyandesite using IUGS classification of Le Bas and others (1986)] with plagioclase and pyroxene phenocrysts in a fine-grained matrix. Exposed only in southeastern part of mapped area, but crops out in valley to the west and extensively to the west of the Drum Mountains.

Pzu **Undifferentiated Paleozoic rocks**--Limestone, dolomite, and shale.

€Zq **Quartzite**--Undifferentiated; predominantly pink to tan, well sorted, well indurated quartzite of the Cambrian Prospect Mountain Formation. Also includes micaceous quartzite of lower member of Cambrian Pioche Formation and Precambrian Z quartzite as mapped by Dommer (1980).

CONTACT--Dashed where approximately located, dotted where covered by alluvium

FAULT--Dashed where approximately located, dotted where covered by alluvium. Ball and bar on downthrown side; arrow and number indicate dip of fault plane.

STRIKE AND DIP OF BEDDING

STRIKE AND DIP OF FOLIATION IN TUFF

STRIKE AND DIP OF DOMINANT JOINT

PEBBLE DIKE--Filled circle indicates igneous fragments are in the pebble dike. Strike shown where measured, dip shown where less than 70 degrees.

DIKE--Porphyritic dike (Tmli)

DRUM GOLD MINE--Low-grade, high-tonnage sediment-hosted Au deposit

GOLD PROSPECT--Area being actively explored for low-grade, high tonnage Au deposit

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Base from U.S. Geological Survey; Drum Mts. Well, 1:24,000, 1971; preliminary Topaz Mtn. SE, 1:24,000

SCALE 1:12 000
0 1/2 1 MILE

UTAH

Geology mapped by C.J. Nutt and R.A. Yambrick, 1988. Contact separating Pzu and €Zq and faults offsetting contact are from Bailey (1975) and Dommer (1980).

PRELIMINARY GEOLOGIC MAP SHOWING IGNEOUS-RELATED BRECCIAS IN CAMBRIAN AND OLDER QUARTZITES, DRUM MOUNTAINS, UTAH

By

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1989