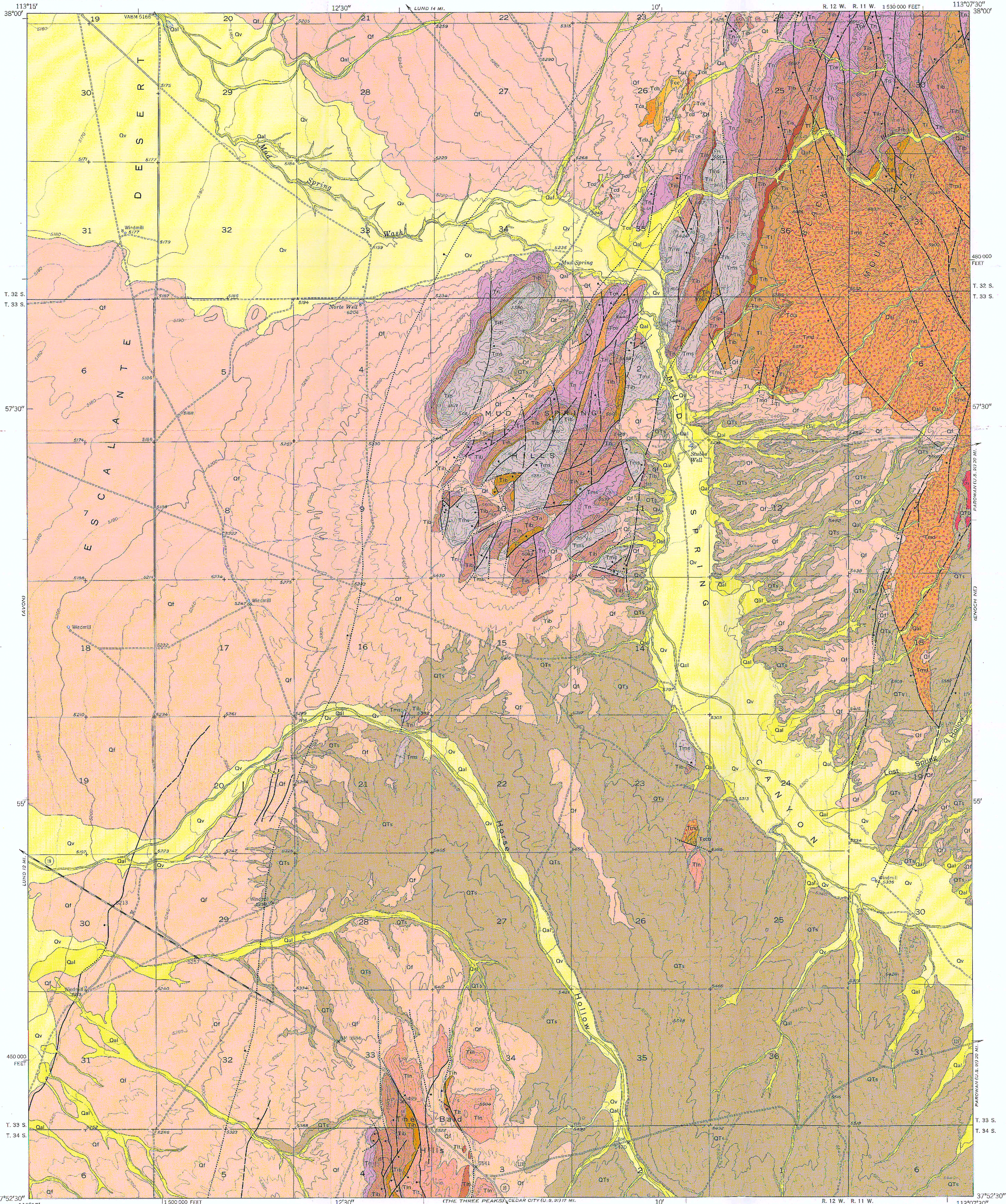


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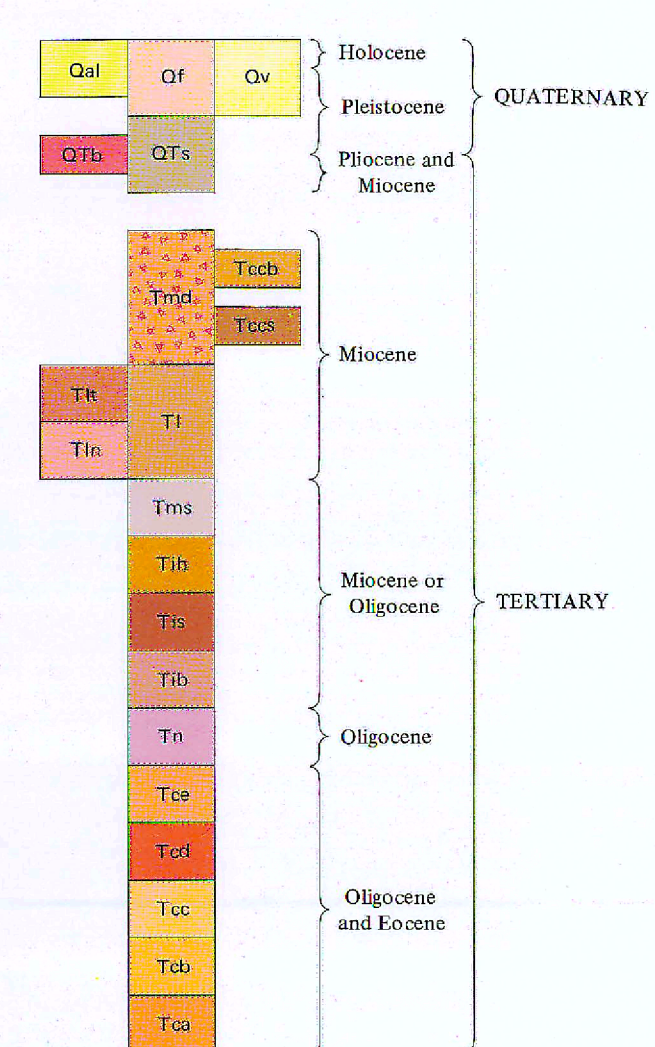
UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.

GEOLOGIC QUADRANGLE MAP
ENOCH NW QUADRANGLE, UTAH
GQ-1302

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qal** ALLUVIUM (HOLOCENE AND PLEISTOCENE) - Sand and less abundant pebbles gravel deposited in intermittent stream channels, on bordering flood plains, and in fans of major drainages. Contact transitional with valley bottom deposits (Qv) in some places. As much as several feet (10 m) thick.
- Qf** FAN AND PEDESTAL DEPOSITS (HOLOCENE AND PLEISTOCENE) - Silt, sand, and minor pebbles gravel from local sources deposited in alluvial fans and on pedestals. Includes minor colluvium. Contacts approximately levelled.
- Qv** VALLEY BOTTOM DEPOSITS (HOLOCENE AND PLEISTOCENE) - Clay, silt, and sand, mostly of alluvial origin; this channel drained west to the east, including a probable shallow lake in the adjacent Enoch NE quadrangle (Rowley, 1975), and carried water through Mud Spring Canyon into Escalante Bay of Lake Bonneville, 6 miles (10 km) west of the quadrangle (Dwight, 1943). Contacts approximately levelled.
- Qts** POORLY CONSOLIDATED SEDIMENTS (PLEISTOCENE, PLEISTOCENE, AND MIOCENE) - Mostly poorly consolidated light gray to tan sandy fine-pebbles to boulder conglomerate or coarse-grained sandstone, and colluvium derived from such deposits. Primarily of alluvial origin. Includes abundant clasts of Tertiary volcanic rock and highly colored clasts of Mesozoic sedimentary rock. Provenance of the deposit is the Hurricane Cliffs, about 20 miles (32 km) east of the quadrangle, and the Black Mountains in the northeastern part of the quadrangle and to the north. Dissected by present streams. Locally overlain by a thin cover of younger Quaternary sediments. Contact with upper part of the Mount Dutton Formation is approximately levelled and contact with younger deposits also approximately levelled.
- Qv** HASLET LAVA FLOWS (PLEISTOCENE, PLEISTOCENE, AND MIOCENE) - Resistant black to medium-gray welded lava flows of olive-basis. About 30 feet (10 m) thick, interbedded with poorly consolidated sediments (Qv).
- Tmb** MOUNT DUTTON FORMATION (MIOCENE) - Mostly volcanic mudflow breccias consisting of angular dark gray, brown, or green pebbles to boulder-sized clasts of aphanitic to vesicular volcanic rock contained in a light-gray to tan matrix and composed of direct contact with each other. Weathers to boulder-strewn slopes. Correlated with the Mount Dutton Formation (Anderson and Rowley, 1975) of the Black Mountains and High Plateaus to the north and northeast, which has K-Ar ages that range from about 21 to 26 m.y. (Fleck and others, 1975). Basal and Sweet Tuff Members of the Mount Dutton Formation are locally interbedded with the formation. The Mount Dutton Formation above a stratigraphic horizon approximately equal to that of the Sweet Tuff Member is less resistant than the lower part, and consists in large part of alluvial sandstone and conglomerate, which increase in volume upward; this poorly exposed upper part of the unit probably was formed by erosion of the volcanic mudflow breccias, and may be transitional with the poorly consolidated sediments (Qts). Maximum thickness is at least 1,000 feet (300 m), thickening south of the mapped area and thinning south of the mapped area.
- Lub** CONDOR CANYON FORMATION OF QUICHLAPA GROUP (MIOCENE) - Defined by Cook (1965). Basal Tuff Member - Resistant brownish to dark gray welded crystalline tuff containing abundant light gray ash flow tuff breccias as much as several feet (1 m) long. K-Ar age is about 22 m.y. (Armstrong, 1970). Interstratified with the Mount Dutton Formation. Defined by Mackin (1960). Thickness of 0-100 feet (0-30 m).
- Tsv** Sweet Tuff Member - Resistant reddish-brown to chocolate-brown densely welded crystalline tuff containing locally abundant large (as much as 2 ft. or 5 cm in diameter) oval to irregularly shaped vesicles. Includes black basal vitrophyres 0-8 feet (0-2 m) thick. K-Ar age is about 23 m.y. (Armstrong, 1970). Interstratified with the lower part of the Mount Dutton Formation. Defined by Mackin (1960). Member 0-20 feet (0-6 m) thick.
- Tn** LEACH CANYON FORMATION OF QUICHLAPA GROUP (MIOCENE) - First defined as a member of the QuicHLAPA Formation (Mackin, 1960), later elevated to formation status (Cook, 1965); two members were later defined (Williams, 1967; Anderson and Rowley, 1975). Table Butte Tuff Member - Poorly resistant pale-salmon to white slightly welded crystalline tuff (plagioclase, quartz, sanidine, minor biotite, hornblende, and magnetite) ash-flow tuff rich in dark aphanitic volcanic lithic fragments (5-10 percent of rock volume) and white noncompacted antihelictic pumice fragments (5-20 percent of rock volume). Incomplete section; at least 50 feet (15 m) thick.
- Tn** Narrows Tuff Member - Moderately resistant chocolate-brown to pale-salmon moderately welded crystalline tuff (plagioclase, quartz, sanidine, minor biotite, hornblende, and magnetite) ash-flow tuff containing locally abundant large (as much as 2 ft. or 5 cm in diameter) oval to irregularly shaped vesicles. Includes black basal vitrophyres 0-8 feet (0-2 m) thick. K-Ar age is about 24 m.y. (Armstrong, 1970). Thickness about 150 feet (45 m) in the southwestern corner of the mapped area. Thinning northeast.
- Ti** Table Butte and Narrows Tuff Members undivided - Consists entirely or almost entirely of the Table Butte Tuff Member. Locally includes at the base a pale to medium-green poorly resistant medium to coarse-grained sandstone 0-15 feet (0-5 m) thick. Total thickness, where mapped, 150-300 feet (45-90 m).
- Tms** FLOWS OF MUD SPREADING (MIOCENE OR OLIGOCENE) - Resistant dark reddish-brown to gray-purple, flow-foliated crystalline tuff (plagioclase, minor but compressible brown colored biotite, minor magnetite) lava flows and feeder dikes. Anticlastically and deformed(?) stored in places. Black vitrophyre is present locally. Chemical analysis shows that the unit is similar to rhyolite of Nockolds (1954). Thickness 0-150 feet (0-45 m).
- Isom** ISOM FORMATION (MIOCENE OR OLIGOCENE) - Defined by Mackin (1960). Hole-in-the-Wall Tuff Member - Resistant medium red densely welded crystalline tuff (plagioclase, minor magnetite and pyroxene) ash-flow tuff containing abundant pinhead-sized vesicles and numerous thin light-gray ash-flow tuff breccias as much as 1 foot (0.3 m) long. Black basal vitrophyre to 0-3 feet (0-1 m) thick. Total thickness 0-25 feet (0-8 m).
- Is** Sandstone - Poorly resistant tan, yellow, or pink-green medium to coarse-grained sandstone. Thickness 0-40 feet (0-12 m).
- Tb** Baldpate Tuff Member - At least six cooling units of resistant medium-brown, medium- to fine-grained, dark gray to purple densely welded crystalline tuff (plagioclase, minor pyroxene and magnetite) ash-flow tuff and some possible lava flows. Moderately to steeply dipping flow structures characterizes the top of several upper cooling units. Some units have thin light-gray ash-flow tuff breccias as much as 2 feet (0.6 m) long, and some have large vesicles drawn out as much as 1 foot (0.3 m) long by flowage. Several cooling units have black basal vitrophyres. K-Ar age is about 25-26 m.y. (Armstrong, 1970). As redefined by Anderson and Rowley (1975) consists of the Baldpate Member (Mackin, 1960) and a lowermost unnamed member of similar rock. Thickness 100-300 feet (30-90 m).
- Tn** NEEDLES RANGE FORMATION (OLIGOCENE) - Moderately resistant pink, light-reddish-purple, or light-gray moderately welded crystalline tuff (plagioclase, hornblende, quartz, biotite, minor magnetite and sanidine) ash-flow tuff. Contains white or pink ash-flow tuff breccias as much as 4 inches (10 cm) long and 2 inches (5 cm) thick. Consists of two nearly identical cooling units, the lower one having a dark-gray basal vitrophyre. The upper unit is generally gray or light-reddish-purple containing crystals that are smaller and less abundant than those in the lower unit, which is generally pink. These two cooling units are separated locally by a light-gray volcanic ash as much as 20 feet (6 m) thick. K-Ar age is about 29 m.y. (Armstrong, 1970). Defined by Mackin (1960). Lower contact approximately levelled. About 100-300 feet (30-90 m) thick.
- Cl** CLARON FORMATION (OLIGOCENE AND EOCENE) - Thin to thick-bedded (fossil and lacustrine) sedimentary rock, white in the upper part and red in the lower part. Member are those of Mackin (1947, 1954). Member E - Poorly resistant thin to medium-bedded white sandstone, shale, minor limestone, and conglomerate that contains increasing amount of volcanic detritus. In some places a reddish-tan sandstone or pebble to boulder conglomerate occurs at or near the top of the unit. The clasts in this bed are well rounded and consist in large part of reddish-brown aphanitic volcanic rock as much as 5 feet (2 m) in diameter; this is the lag gravel mentioned by Mackin (1960). A poorly resistant pale-pink 12-foot (4-m) thick, slightly welded crystalline tuff (quartz, plagioclase, minor sanidine, biotite, and magnetite) ash-flow tuff, characterized by green volcanic lithic fragments surrounded by green stains, is exposed in one location (center on pp. 35, T. 33 S., R. 12 W.). The tuff is probably correlative with Indian Peak unit 2 of Conrad (1969). The tuff overlies a reddish-tan sandstone and is overlain by a moderately resistant 30-foot (9-m) thick unit that is probably correlative with the lag gravel bed and may be partly of mudflow origin. Incomplete section is at least 450 feet (140 m) thick.
- Cl** Member D - Moderately resistant medium-bedded white sandstone. Thickness 10 feet (3 m).
- Cl** Member C - Mostly poorly resistant thin to medium-bedded white sandstone, limestone, shale, and minor conglomerate. About 100 feet (30 m) thick.
- Cl** Member B - Mostly poorly resistant thin to thick-bedded red shale, sandstone, conglomerate, and limestone. About 30 feet (10 m) thick.
- Cl** Member A - Pimplish-red limestone and minor resistant red basal pebble to boulder conglomerate. About 60 feet (20 m) thick.

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GEOLOGIC MAP OF THE ENOCH NW QUADRANGLE, IRON COUNTY, UTAH

By
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1976