U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1877-A
Explanatory pamphlet accompanies map

Base from U.S. Geological Survey, 1958 (revised 1971)

Universal Transverse Mercator projection

SCALE 1:250 000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 KILOMETERS

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

Compiled by D.H. Whitebread 1985-86; D.A. John, 1990-91.
See sources of Geologic Mapping

Edited by Dale Russell, prepared by Lori Ghequiere

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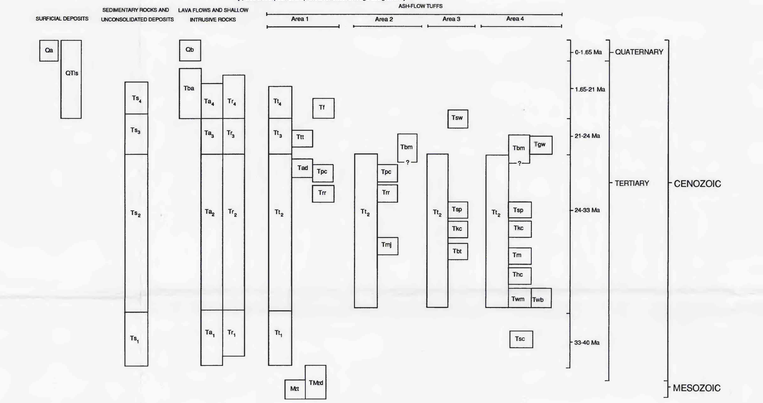
CORRELATION OF MAP UNITS

[*, See Description of Map Units for exact unit age assignment.]



LIST OF MAP UNITS

(See pamphlet for Description of Map Units)

SURFICIAL DEPOSITS

- Qa — Alluvial, lacustrine, and eolian deposits (Quaternary)
- QTls — Landslide deposits (Quaternary and Tertiary)

SEDIMENTARY ROCKS AND UNCONSOLIDATED DEPOSITS

- Ts_4 — Sedimentary rocks and bedded tuff (Tertiary)
- Ts_3 — Sedimentary rocks and bedded tuff (Tertiary)
- Ts_2 — Sedimentary rocks and bedded tuff (Tertiary)
- Ts_1 — Sedimentary rocks and bedded tuff (Tertiary)

LAVA FLOWS AND SHALLOW INTRUSIVE ROCKS

[K-Ar ages published before 1977 are corrected using the constants recommended by IUGS Subcommission on Geochronology (Dalrymple, 1979)]

- Qb — Basalt of Lunar Crater area (Quaternary)
- Tba — Basalt and andesite flows (Tertiary)
- Tr_4 — Rhyolitic rocks (Tertiary)
- Ta_4 — Andesitic rocks (Tertiary)
- Ta_3 — Andesitic rocks (Mesozoic)
- Tr_3 — Rhyolitic rocks (Tertiary)
- Ta_2 — Andesitic rocks (Tertiary)
- Tr_2 — Rhyolitic rocks (Tertiary)
- Ta_1 — Andesitic rocks (Tertiary)
- Tr_1 — Rhyolitic rocks (Tertiary)

ASH-FLOW TUFFS

[K-Ar ages published before 1977 are corrected using the constants recommended by IUGS Subcommission on Geochronology (Dalrymple, 1979)]

Area 1

- Tt_4 — Ash-flow tuff (Tertiary)
- Tf — Fraction Tuff (Tertiary)
- Tt_3 — Ash-flow tuff (Tertiary)
- Ttt — Tuff of Tolyabe (Tertiary)
- Tt_2 — Ash-flow tuff (Tertiary)
- Tad — Tuff of Arc Dome (Tertiary)
- Tpc — Tuff of Peavine Creek (Tertiary)
- Trr — Round Rock Formation (Tertiary)
- Tt_1 — Ash-flow tuff (Tertiary)
- TMzd — Darrough Feisite (Tertiary and Mesozoic)
- Mzt — Ash-flow tuff (Mesozoic)

Area 2

- Tbm — Bates Mountain Tuff (Tertiary)
- Tt_2 — Ash-flow tuff (Tertiary)
- Tpc — Tuff of Peavine Creek (Tertiary)
- Trr — Round Rock Formation (Tertiary)
- Tmj — Tuff of Mount Jefferson (Tertiary)

Area 3

- Tsw — Tuff of Saulsbury Wash (Miocene)
- Tb_2 — Ash-flow tuff (Tertiary)
- Tsp — Shingle Pass Tuff (Tertiary)
- Tkc — Tuff of Kiln Canyon (Tertiary)
- Tbt — Tuff of Big Ten Peak (Tertiary)

Area 4

- Tbm — Bates Mountain Tuff (Tertiary)
- Tgw — Granite-weathering tuff (Tertiary)
- Tb_1 — Ash-flow tuff (Tertiary)
- Tsp — Shingle Pass Tuff (Tertiary)
- Tkc — Tuff of Kiln Canyon (Tertiary)
- Tm — Monotony Tuff (Tertiary)
- Thc — Tuff of Hot Creek Canyon (Tertiary)
- Twn — Tuff of Williams Ridge and Morey Peak (Tertiary)
- Twb — Windous Butte Formation (Tertiary)
- Tsc — Stone Cabin Formation (Tertiary)

PLUTONIC AND INTRUSIVE ROCKS

[Plutonic rock names based on IUGS modal classification (Streckeisen, 1976)]

- TMzg — Granitic rocks (Tertiary or Mesozoic)
- TKg — Granitic rocks (Tertiary or Cretaceous)
- Tg — Granitic rocks (Tertiary)
- Mzd — Dioritic rocks (Mesozoic)
- Mzg — Granitic rocks (Mesozoic)
- Kd — Dioritic rocks (Cretaceous)
- Kg — Granitic rocks (Cretaceous)
- JTg — Granitic rocks (Jurassic or Triassic)
- Jg — Granitic rocks (Jurassic)
- Tg — Granitic rocks (Triassic)

SEDIMENTARY AND VOLCANIC ROCKS

Area 1

- Jd — Dunlap Formation and lithologically equivalent rocks (Middle? and Early Jurassic)
- JTv — Volcano Peak Group of Taylor and others (1983) (Jurassic and Triassic)
- MzPzg — Greenstone (Mesozoic or Paleozoic)—
- Trl — Luning Formation and lithologically equivalent rocks (Triassic)
- Tgv — Gruntsville Formation (Triassic)
- Trc — Candelaria Formation (Triassic)
- Pm — Mina Formation of Speed (1977) (Permian)
- Pd — Diablo Formation (Permian)
- PMh — Havallah sequence of Silberling and Roberts (1962) (Permian, Pennsylvanian, and Mississippian)
- Mp — Pablo Formation (Mississippian)
- Mc — Carbonate rocks (Mississippian)
- DSsv — Sedimentary and volcanic rocks (Devonian to Cambrian)
- DOc — Carbonate rocks (Devonian, Silurian, and Ordovician)
- OSs — Schist, argillite, shale, limestone, and quartzite (Ordovician and Cambrian?)

Area 2

- MzPzs — Serpentinite (Mesozoic or Paleozoic)
- TrPod — Candelaria Formation (Triassic) and Diablo Formation (Permian), undivided
- PMh — Havallah sequence of Silberling and Roberts (1962) (Permian, Pennsylvanian, and Mississippian)
- IPwp — Wildcat Peak Formation (Pennsylvanian)
- DOsv — Sedimentary and volcanic rocks (Devonian to Cambrian)
- DOc — Carbonate rocks (Devonian, Silurian, and Ordovician)
- OSs — Schist, argillite, shale, limestone, and quartzite (Ordovician and Cambrian?)
- Oep — Eureka Quartzite and Pogonip Group, undivided (Ordovician)
- €qs — Quartzite, siltstone, schist, and limestone (Cambrian)
- €Zms — Marble, dolomite, phyllite, siltstone, and quartzite (Cambrian and Late Proterozoic)

Area 3

- PMh — Havallah sequence of Silberling and Roberts (1962) (Permian, Pennsylvanian, and Mississippian)
- PIPs — Sedimentary rocks (Permian and Pennsylvanian)
- MDs — Shale, limestone, sandstone, and conglomerate (Mississippian and Devonian)
- Dc — Carbonate rocks (Devonian)
- DOc — Carbonate rocks (Devonian, Silurian, and Ordovician)
- OSs — Schist, argillite, shale, limestone, and quartzite (Ordovician and Cambrian?)
- Oep — Eureka Quartzite and Pogonip Group, undivided (Ordovician)
- €qs — Quartzite, siltstone, schist, and limestone (Cambrian)

Area 4

- Ts — Sedimentary rocks (Triassic)
- PMh — Havallah sequence of Silberling and Roberts (1962) (Permian, Pennsylvanian, and Mississippian)
- PIPs — Sedimentary rocks (Permian and Pennsylvanian)
- MDs — Shale, limestone, sandstone, and conglomerate (Mississippian and Devonian)
- Dw — Woodruff(?) Formation (Devonian)
- Dc — Carbonate rocks (Devonian)
- DOc — Carbonate rocks (Devonian, Silurian, and Ordovician)
- Oep — Eureka Quartzite and Pogonip Group, undivided (Ordovician)
- OSc — Carbonate rocks (Ordovician and Cambrian)
- €ls — Limestone and shale (Cambrian)

Contact

Fault—Dashed where approximately located. Dotted where concealed. Parallel arrows show relative horizontal movement. Bar and ball on downthrown side

Thrust fault—Sawteeth on upper plate

Overturned thrust fault

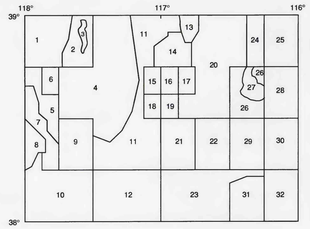
Low-angle extensional fault—Sawteeth on upper plate

Strike and dip of beds

Inclined

Overturned

Strike and dip of inclined compaction foliation



SOURCES OF GEOLOGIC MAPPING

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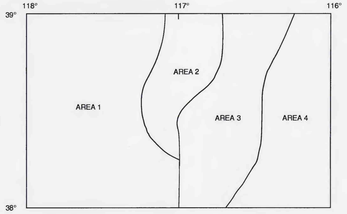

Figure 1. Geographic divisions used in the Description of Map Units for the Tonopah quadrangle

GEOLOGIC MAP OF THE TONOPAH 1° BY 2° QUADRANGLE, CENTRAL NEVADA

By

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1992

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For sale by U.S. Geological Survey, Map Distribution, Box 25286, Federal Center, Denver, CO 80225