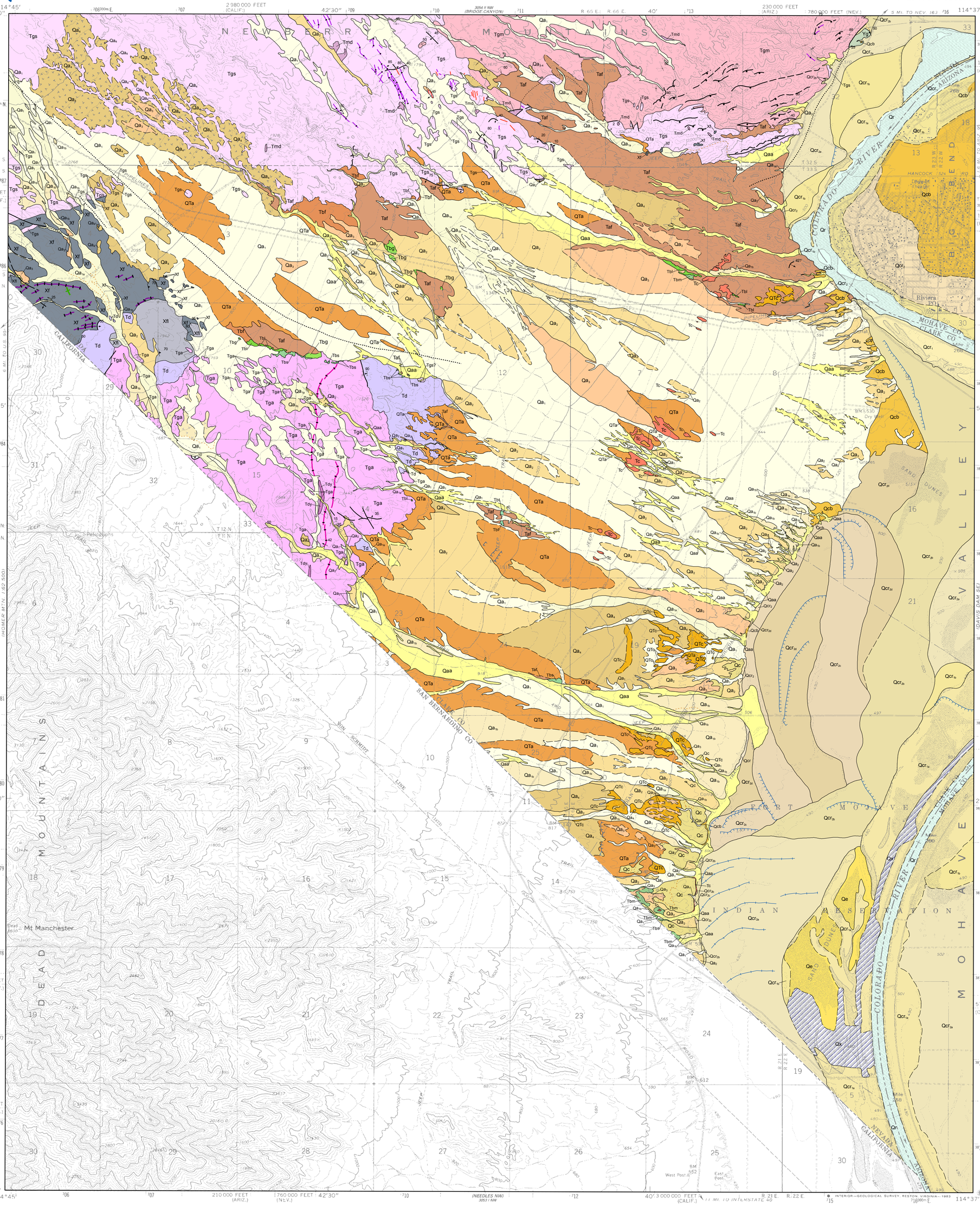
Nevada Bureau of Mines and Geology

Prepared as part of the STATEMAP component of the National Cooperative Geologic Mapping Program in cooperation with the U.S. Geological Survey.

OPEN-FILE REPORT 04-04
PRELIMINARY GEOLOGIC MAP OF THE NEVADA AND ARIZONA PARTS OF THE MOUNT MANCHESTER QUADRANGLE



Miscellaneous Deposits

- **Qx** Areas of extensive anthropogenic disturbance, modern
- Pediment, pattern indicates areas where relatively thin (3-5 m) alluvial veneer overlies bedrock
- **Qe** Eolian dunes and sheets, latest Holocene

Piedmont Deposits (late Holocene to late Miocene)

- **Qa_1** Alluvium (late Holocene to modern), recently active channel and alluvial fan deposits, unconsolidated sand and gravel
- **Qaa** Deposits of most frequently inundated alluvial channels and fans, (late Holocene)
- **Qa_{1a}** Deposits of active, disperesed alluvial channels, sheetflow areas, and fans (late Holocene)
- **Qa_{1b}** Deposits of intermittently active alluvial channels, sheetflow areas, and alluvial fans (late Holocene)
- **Qa_2** Alluvium (late Holocene? to latest Pleistocene), alluvial fan remnants graded to prehistoric Colorado River (Qcb)
- **$Qa_{3,4}$** Alluvium, undivided (late and middle Pleistocene)
  - **Qa_3** Alluvium (late Pleistocene), alluvial fan remnants, poorly consolidated sand and gravel
  - **Qa_4** Alluvium (middle Pleistocene), weakly to moderately indurated alluvial fan remnants, distinctly reddened soil
- **QTa** Alluvium, undivided (Pleistocene and Pliocene)
- **Tbf** Fanglomerate, cross-stratified, contains abundant rounded pebbles and cobbles of local lithologies, interfingered locally with Tbg
- **Taf** Fanglomerate (late Miocene), moderately to strongly indurated alluvium, predominantly sand and gravel

Colorado River deposits (late Holocene to late Miocene?)

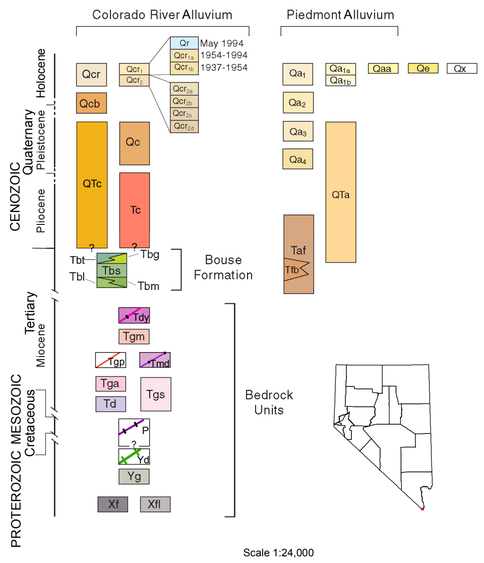
- **Qr** Colorado River extent June 1994, includes some active sand and gravel bars
- **Qcr** Colorado River floodplain terraces, paleochannels, and local flood deposits (latest Holocene), includes mud, sand, and gravel
  - **Qcr_1** Colorado River deposits that postdate Hoover and Davis dams, includes mud, sand, and gravel
    - **Qcr_{1a}** Post-Davis Dam channel and floodplain deposits (approximately 1937 to 1954), includes deposits that predate channelization in the southern part of the map area
    - **Qcr_{1b}** Post-Davis Dam channel and floodplain deposits (approximately 1954 to at least 1994)
  - **Qcr_2** Pre-Hoover Dam fluvial deposits of the Colorado River (late Holocene), includes an inset series of braid-plain terraces, floodplain terraces and meander-scroll platforms
    - **Qcr_{2a}** Sandy braid-plain deposits abandoned immediately prior to 1938 as determined from aerial photographs dated April 1938
    - **Qcr_{2b}**, **Qcr_{2c}**, **Qcr_{2d}** Inset sequence of alluvial terraces (late Holocene), includes mud, sand, and gravel
- **Qc** Undivided Colorado River alluvium (Pleistocene), includes mud, sand, and gravel
- **Qcb** Alluvium of Big Bend, fluvial gravel, sand, and mud (Holocene to latest Pleistocene), deposits of the lowest Colorado River terrace with varnished gravel veneer
- **QTc** Undivided Colorado River alluvium (Pleistocene and late Pliocene), broadly defined unit that includes remnants of a series of large-scale cut and fill sequences of mud, sand, and gravel
- **Tc** Bullhead alluvium (Pliocene to late? Miocene), fluvial gravel, sand, and mud; compositionally immature at base

Bouse Formation (late Miocene)

- **Tbg** Rounded pebble gravel and cobbles, derived from local lithologies, possible beach gravel, interbedded locally with Tbf and Tbs
- **Tbt** Tufa
- **Tbs** Flat-bedded medium to coarse-grained sand, interfingers with Tbm
- **Tbm** Flat-bedded mud and minor sand
- **Tbl** Calcareous mudstone, marl, and muddy limestone

Bedrock units (Middle Miocene to Early Proterozoic)

- **Tdy** Younger mafic dikes (middle Miocene)
- **Tgm** Granite of Mirage (middle Miocene), biotite granite to hornblende-biotite granodiorite
- **Tgp** Granite porphyry dikes (Miocene), fine-grained to very fine-grained biotite microgranite
- **Tmd** Microdiorite dikes (Miocene), hornblende microdiorite, leucomicrodiorite, and subophitic diabase
- **Tgs** Granite of Spirit Mountain (Miocene), coarse-grained biotite leucogranite and leuco-quartz monzonite
- **Tga** Granite of Avi (Miocene), biotite granite to hornblende-biotite granodiorite
- **Td** Quartz diorite (Miocene), biotite-hornblende quartz diorite, leuco-quartz diorite, and hornblende gabbro
- **P** Pegmatite dikes (Cretaceous or Proterozoic?), contain muscovite and garnet
- **Yd** Diabase (Middle Proterozoic?), medium-grained diabase, texture subophitic to trachytic, cuts Fenner gneiss
- **Yg** Granite of Davis Dam (Middle Proterozoic), coarse-grained porphyritic biotite granite with K-feldspar megacrysts
- **Xf** Fenner Gneiss? (Early Proterozoic), dark, coarse-grained to medium-grained biotite granite to granodiorite augen gneiss containing very coarse, commonly rapakivi, white feldspar augen
- **Xfl** Fenner Gneiss? leucocratic facies (Early Proterozoic), leucocratic augen gneiss, rapakivi texture marked by very coarse K-feldspar augen mantled by plagioclase



- Strike and dip of primary igneous foliation - vertical
- Strike and dip of primary igneous foliation - inclined
- Bearing and plunge of mineral elongation lineation
- Strike and dip of metamorphic foliation
- Strike and dip of mylonitic foliation
- Bearing and plunge of mylonitic lineation
- Strike and dip of bedding

- Contact, approximately located, concealed
- Inferred intraformational contact
- Fluvial scroll ridge, fluvial scarp
- Fault (ball on downthrown side), approximately located, concealed

Scale 1:24,000

0 0.5 1 Kilometers

0 0.5 1 Miles

0 1,000 2,000 3,000 4,000 5,000 Feet

CONTOUR INTERVAL 40 FEET
Supplementary Contour Interval 20 feet

Base map: U.S. Geological Survey Mount Manchester, NV 7.5' Quadrangle, 1989
Projection: Polyconic Projection, 1927 North American Datum

Field work performed 2000, 2003-2004
Geologic mapping was supported by the U.S. Geological Survey STATEMAP Program (Agreement No. 03-HQ-AG-0049).

DRAFT
Preliminary geologic map.
Has not undergone office or field review.
Will be revised before publication.

First Edition.
Printed by Nevada Bureau of Mines and Geology
Digital geologic map compilation by P. K. House
Digital cartography by E. Crouse

Nevada Bureau of Mines and Geology
University of Nevada, Mail Stop 178
Reno, Nevada 89557-0088
(775)784-6691, ext. 2
www.nbmg.unr.edu, nbmgsales@unr.edu

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P. Kyle House, Keith A. Howard, Philip A. Pearthree, and John W. Bell

2004