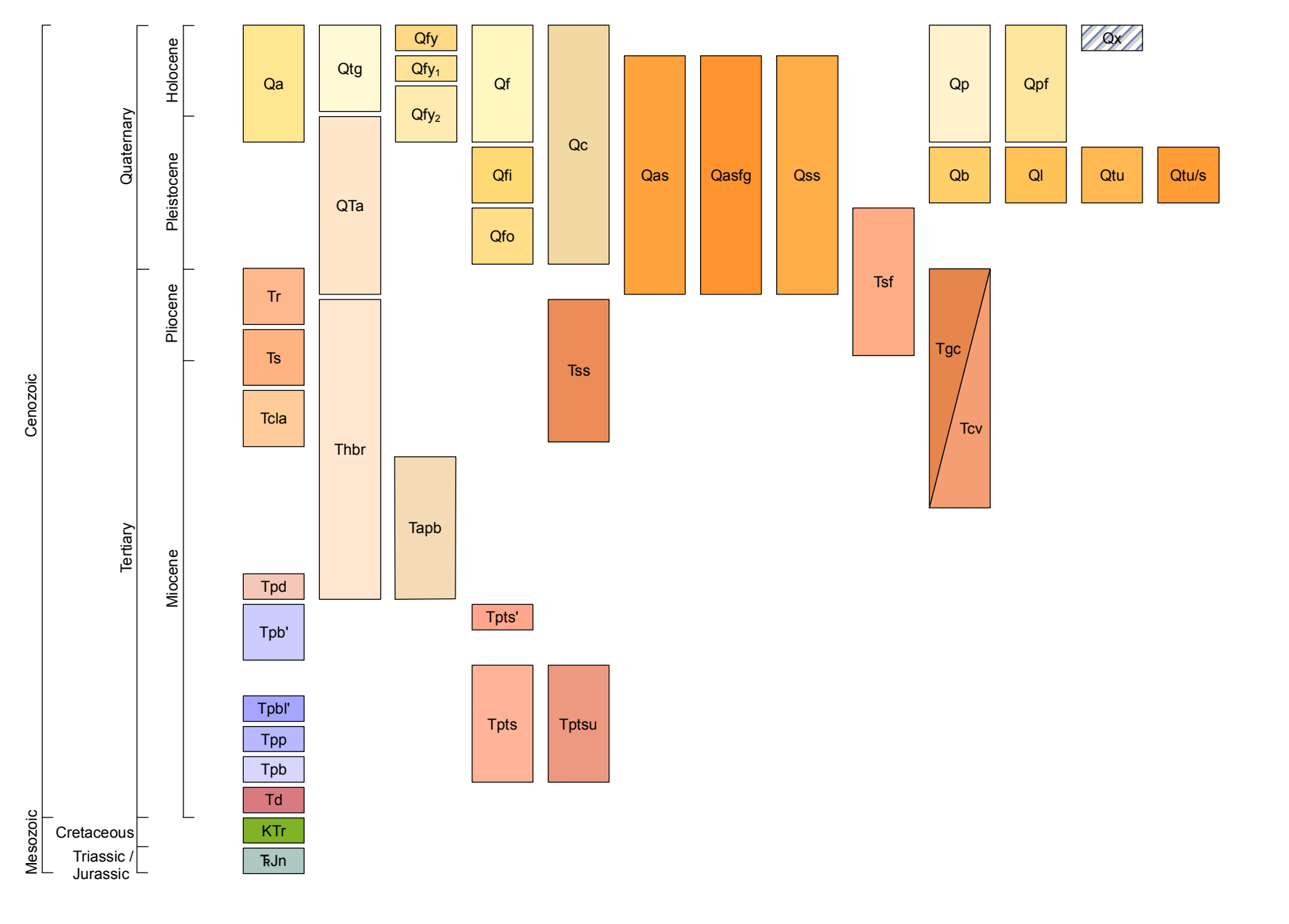
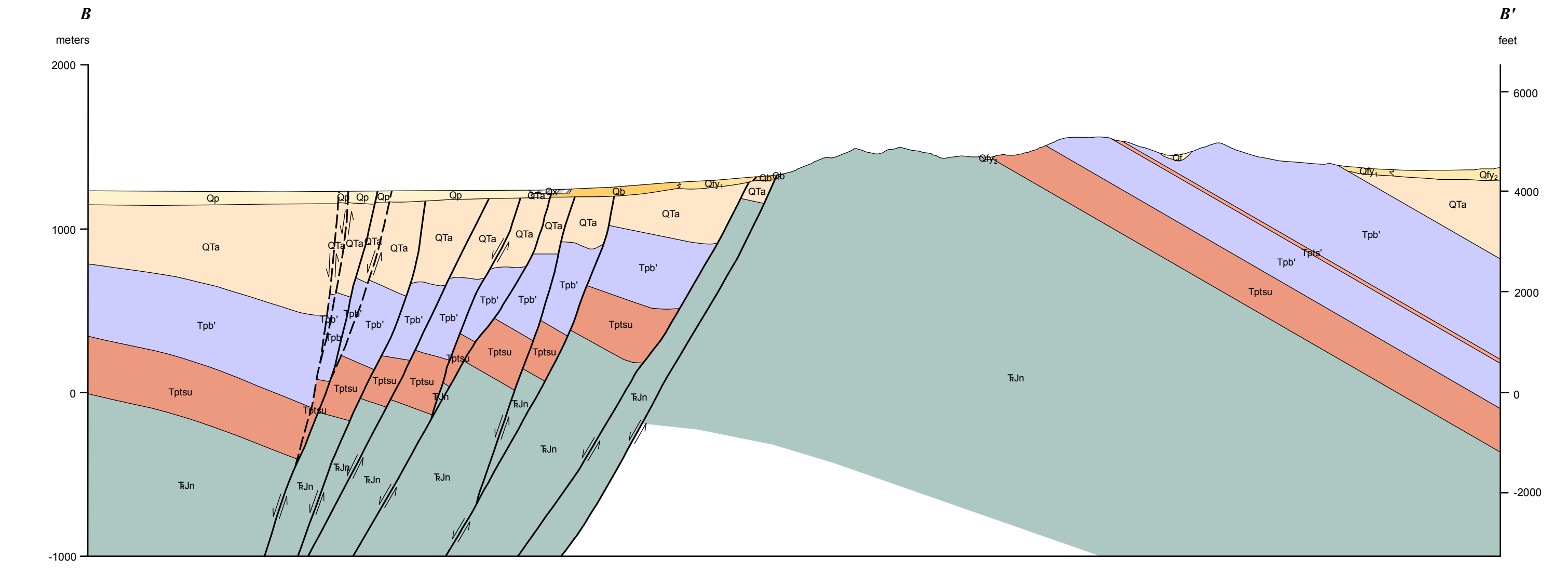
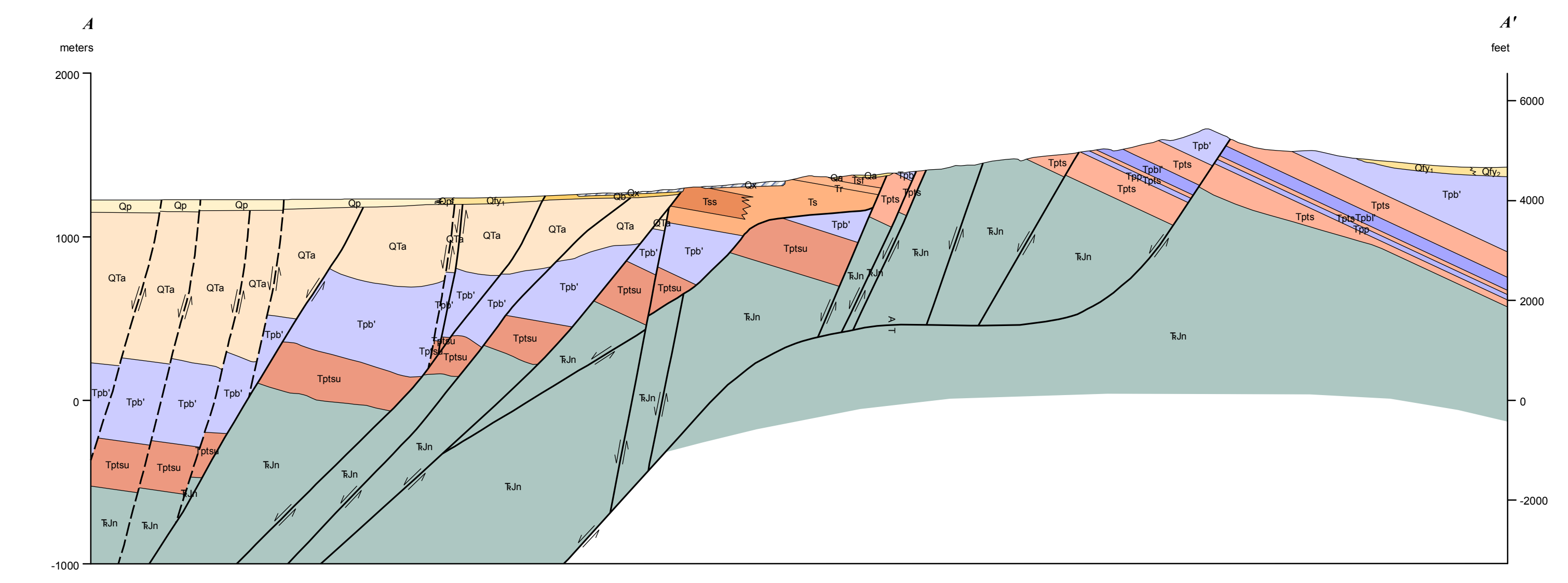


- Anthropogenic Features and Deposits**
- Disturbed and modified areas
- Playa and Related Deposits**
- Qp Playa deposits (latest Holocene to late Pleistocene)
 - Qpf Playa fringe deposits (Holocene to late Pleistocene)
- Hillslope Deposits**
- Qc Colluvium (Holocene to Pleistocene)
- Alluvial Deposits**
- Qa Young alluvium, undivided (Holocene to late Pleistocene)
 - Qay Young active fan alluvium and recently abandoned active alluvial surfaces (Holocene)
 - Qhy Young active fan alluvium (late Holocene)
 - Qfy Young fan alluvium, undivided (Holocene to late Pleistocene)
 - Qf Fan alluvium, undivided (Holocene to late Pleistocene)
 - Qd Intermediate fan alluvium, undivided (late to middle Pleistocene)
 - Qfo Old fan alluvium, (middle to early Pleistocene)
 - Qsa Silicified alluvium, undivided (Pleistocene to Holocene)
 - Qsa Acid-sulfate altered alluvium, undivided (Holocene to Pleistocene)
 - Qsa Acid-sulfate altered fan alluvium (Holocene to Pleistocene)
 - Qg Terraces, undivided (late Holocene to Pleistocene)
 - Qta Basin fill alluvium, undivided (late Holocene to late Tertiary) (in cross section only)
- Quaternary Lacustrine Deposits**
- Qlu Subaqueous spring-related tufa deposits (middle Holocene to late Pleistocene)
 - Qlu Subaqueous spring-related tufa and siliceous sinter deposits (middle Holocene to late Pleistocene)
 - Ql Shallow lake sediments (middle Holocene to late Pleistocene)
 - Qb Beach deposits (middle Holocene to late Pleistocene)
- Tertiary Rocks**
- Tpf Fault related gypsum and calcite deposits
 - Tcv Fault related sheeted calcite veins
 - Tf Non-indurated sedimentary rocks and fan alluvium
 - Tss Silicified sedimentary rocks
 - Tr Rhyolitic tuff
 - Ts Sedimentary rocks (late Miocene to Pliocene)
 - Tsa Clay-rich sedimentary rocks
 - Tsb Hydrothermally altered lower Pyramid sequence volcanic rocks
 - Tbr Hydrothermal breccia
- Pyramid Sequence**
- Tpd Dacite
 - Tptf Tuffaceous sedimentary and volcaniclastic rocks
 - Tptf Sparsely porphyritic basaltic andesite
 - Tptf Tuffaceous sedimentary and volcaniclastic rocks
 - Tptf Tuffaceous sedimentary and volcaniclastic rocks, undivided (in cross section only)
 - Tptf Sparsely porphyritic basaltic andesite
 - Tptf Porphyritic basaltic andesite
 - Tpb Basalt
- Lower Miocene Volcanic Rocks**
- Td Dacite
- Cretaceous Intrusions**
- Kf Flow-banded rhyolite dikes
- Triassic and Jurassic Nightingale Formation**
- Jn Metasediments including phyllite, quartzite, and marble



- Symbology (per FGDC-STD-013-2006)**
- Contact: Solid where certain and location accurate, long-dashed where approximate.
- Normal fault: Solid where certain and location accurate, long-dashed where approximate, dotted where concealed, dashed if identity or existence uncertain. Ball on downthrown side. On cross section only, arrows show relative motion; a away from observer; T, towards observer.
- Oblique strike-slip fault: Solid where certain and location accurate, long-dashed where approximate, quartered if identity or existence uncertain. Arrows show relative motion.
- Former shoreline: Solid where certain and location accurate.
- Calcite vein: Solid where certain.
- Line of cross section
- Gravity (contour interval = 0.5 mgal)
- Strike and dip of bedding
 ———— Inclin'd
- Strike and dip of jointing
 ———— Inclin'd
- Strike and dip of foliation in igneous rock
 ———— Inclin'd
- Strike and dip of foliation in metamorphic rock
 ———— Inclin'd
- *Ar sample locality
- Well locations
 <150°C <100m >100m >150°C



Suggested citation:
 Rhodes, G.T., Faulds, J.E., Ramelli, A.R., 2011. Preliminary Geologic Map of the Northern Lake Range, San Emidio Geothermal Area, Washoe County, Nevada. Nevada Bureau of Mines and Geology Open-File 11-11, 1:24,000 scale, 5 p. text.

Adjoining 7.5' quadrangle names

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

- Smith Canyon
- West of Empire
- Empire
- Tenmile
- Path-Rain Peak
- San Emidio Desert North
- Kurivva Peak
- Beity Creek
- Fox Canyon
- San Emidio Desert South
- Purgatory Peak
- Jardine Well
- Pyramid NE
- Tonikum Peak NW
- Tonikum Peak NE
- Tunnel Spring

Scale 1:24,000

0 0.5 1 kilometer
 0 0.5 1 mile
 0 1000 2000 3000 4000 5000 feet

CONTOUR INTERVAL 20 FEET

Projection: Universal Transverse Mercator, Zone 11, North American Datum 1927 (m)

Base map: U.S. Geological Survey San Emidio Desert North 7.5' quadrangle (1990)
 U.S. Geological Survey San Emidio Desert South 7.5' quadrangle (1990)
 U.S. Geological Survey Kurivva Peak 7.5' quadrangle (1990)
 U.S. Geological Survey Purgatory Peak 7.5' quadrangle (1990)

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

Completion by Gregory T. Rhodes
 Cartography and map production in ESRI ArcGIS v9.3 (ArcGeology v1.3)
 by Steve M. Seeger
 2011 Edition, January 2012
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This map was printed on an electronic photo desktop from digital files. Dimensional color separations were prepared using a color calibration system and a color calibration target. The color calibration target was used to ensure color accuracy and consistency between the printed map and the original digital files.

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PRELIMINARY GEOLOGIC MAP OF THE NORTHERN LAKE RANGE, SAN EMIDIO GEOTHERMAL AREA, WASHOE COUNTY, NEVADA
 Gregory T. Rhodes, James E. Faulds, Alan R. Ramelli
 Nevada Bureau of Mines and Geology
 2011