

DESCRIPTION OF GEOLOGIC UNITS

Qal	Alluvial deposits – Sand, silt, clay and gravel; variable thickness; Holocene.
Qp	Playa deposits – Silt, clay, and evaporites; deposited along the floor of active playa systems; variable thickness; Pleistocene through Holocene.
Qsm	Spring and wetland related deposits – Clay, silt, and sand; variable thickness; Holocene.
Qea	Eolian deposits – Sand and silt; deposited along valley floor margins, includes active and vegetated dunes; variable thickness; Pleistocene through Holocene.
Qafy	Active alluvial-fan deposits, and undivided lacustrine deposits – Sand, gravel, boulders, silt and clay; variable thickness; Late Pleistocene to Holocene, deposits primarily postdate late Pleistocene pluvial period.
Qls	Lacustrine deposits – Silt, clay, sand, and gravel; deposited along valley floors and low gradient toes of alluvial fans, includes intermixed eolian deposits; variable thickness; Pleistocene.
Qlg	Lacustrine gravel – Gravel, sand, and silt; forms conspicuous bars associated with major lake levels; variable thickness; Pleistocene.
Qlm	Lacustrine marl – White silty or sandy marl; associated with major lake levels; variable thickness; Pleistocene.
Qgt	Glacial and periglacial deposits – Talus, poorly sorted sand, gravel, and boulders; mapped in the upper elevations above 10,000 ft (3050 m) in major mountain ranges; variable thickness; Pleistocene.
Qafo	Inactive alluvial-fan deposits – Sand, gravel and boulders, calcrete and pedogenic carbonate cement commonly form resistant upper surface; forms dissected fan surfaces above pluvial level maximum, variable thickness; Pleistocene.
QTs	Quaternary and Tertiary sedimentary rocks undivided – Conglomerate, sandstone, siltstone, and claystone; lithified and partially lithified early basin fill deposits; variable thickness; Miocene through Pleistocene.
Tv3	Late Tertiary volcanic rocks, undivided – Basalt, rhyolite, tuff and tuffaceous sediments and volcanoclastic deposits; variable thickness; includes Quichapa Group in Utah; Miocene through Pliocene.
Ts3	Late Tertiary sedimentary rocks, undivided – Sandstone, conglomerate, tuffaceous sandstone, siltstone, and claystone; variable thickness; includes Salt Lake Formation in Utah; Miocene through Pliocene.
Tv2	Middle Tertiary volcanic rocks, undivided – Rhyolite, tuff and tuffaceous sediments, and volcanoclastic deposits; variable thickness; includes Needle Range Formation, Tunnel Spring Tuff, and Isom Formation; primarily Oligocene.
Tc	Middle Tertiary conglomerate and interbedded limestone – interbedded with and overlies unit Tv2 in the Conger Range (Hose, 1965).
Ts2	Middle Tertiary sedimentary rocks, undivided – Sandstone, conglomerate, tuffaceous sandstone, siltstone, and claystone; variable thickness; primarily Oligocene.
Tv1	Early Tertiary volcanic rocks, undivided – Rhyolite, tuff, and tuffaceous sediments, and volcanoclastic deposits; variable thickness; primarily Eocene.
Ts1	Early Tertiary sedimentary rocks, undivided – Sandstone, conglomerate, tuffaceous sandstone, fresh water limestone, and siltstone; variable thickness; includes the White Sage Formation in Utah and the Sheep Pass Formation in Nevada; primarily Eocene.
Tv	Tertiary volcanic rocks, undivided – Basalt, rhyolite, tuff and tuffaceous sediments, and volcanoclastic deposits; variable thickness; Tertiary.
T	Tertiary intrusive rocks, undivided – Plutons, stocks, dikes, and sills of various chemical composition, generally quartz monzonite or granodiorite; includes Ithapah stock (> 22 Ma) in the Deep Creek Mts; Tertiary.
Ki	Cretaceous intrusive rocks, undivided – Plutons, stocks, dikes, and sills of various chemical composition, generally quartz monzonite or granodiorite.
Ji	Jurassic intrusive rocks, undivided – Plutons, stocks, dikes, and sills of various chemical composition, generally quartz monzonite or granodiorite.
Jn	Jurassic Navajo Sandstone – Eolian sandstone; incomplete thickness, exposed in the footwall of thrust plates in the southeast portion of the map area.
T1	Triassic sedimentary rocks, undivided – Limestone, siltstone, and claystone, and sandstone; includes the Thaynes Formation; about 1900 feet thick.
P2	Upper Permian sedimentary rocks, undivided – variable thickness; includes the Kaibab Limestone and the Park City Group; thickness about 2250–2400 feet in Utah, 1750–2100 feet in Nevada.
P1	Lower Permian sedimentary rocks, undivided – Dolomite, limestone, sandstone, and gypsum; thickness about 2700 feet in Utah, 3300 feet in Nevada; consists primarily of the Arcturus Formation.
PPM	Lower Permian to Upper Mississippian sedimentary rocks, undivided – Limestone, cherty limestone, sandstone, and shale; consists primarily of the Ely Limestone; thickness about 1850–2000 feet in Utah, 1850–2950 feet in Nevada.
IPc	Middle and Lower Pennsylvanian sedimentary rocks, undivided – Limestone, dolomite, and sandstone; variable thickness; includes the Ely Limestone in Nevada.
M2	Upper Mississippian sedimentary rocks, undivided – Shale, limestone, and sandstone; includes Chainman Formation; thickness about 1600–1800 feet in Utah, 1000–1500 feet in Nevada.
M1	Lower Mississippian sedimentary rocks, undivided – Limestone and dolomite; consists primarily of the Joana Limestone; thickness about 0–300 feet in Utah, 90–500 feet in Nevada.

MDs	Lower Mississippian and Upper Devonian sedimentary rocks, undivided – Shale; consists primarily of the Pilot Shale; thickness about 850 feet in Utah, 300–400 feet in Nevada.
D	Devonian sedimentary rocks, undivided – Limestone, dolomite, shale, and sandstone; includes the Guilmette Formation, Simonson and Sevy Dolomite, and portions of the Pilot Shale in Utah; thickness about 4400–4700 feet in Utah, 2100–4350 feet in Nevada.
S	Silurian sedimentary rocks, undivided – Dolomite; consists primarily of the Laketown Dolomite; thickness about 900–1100 feet in Utah, 600–1850 feet in Nevada.
SOc	Silurian and Ordovician sedimentary rocks, undivided – Dolomite, limestone, quartzite, and shale; thickness about 5650–5900 feet in Utah, 3050–6750 feet in Nevada.
O	Ordovician sedimentary rocks, undivided – Dolomite, limestone, quartzite, and shale; thickness about 4700–4800 feet in Utah, 2450–4900 feet in Nevada; includes Pogonip Group and Eureka Quartzite.
C3	Upper Cambrian sedimentary rocks, undivided – Limestone and Dolomite; includes the Notch Peak Formation; variable thickness; Upper Cambrian.
Cc	Upper and Middle Cambrian sedimentary rocks, undivided – Limestone and dolomite; thickness about 2450–3400 feet in Utah, 4450–4700 feet in Nevada.
C2	Middle Cambrian sedimentary rocks, undivided – Limestone and dolomite; thickness about 3450–5050 feet in Utah, 2450–4900 feet in Nevada.
C1	Lower Cambrian sedimentary rocks – Quartzite; consists primarily of the Prospect Mountain Quartzite; thickness about 4400–4600 feet in Utah, 4200–5450 feet in Nevada.
Zs	Neoproterozoic sedimentary rocks – Quartzite and argillite; consists primarily of the McCoy Creek Group, Sheeprock Group and Mutual Formation; up to 10,000 ft (3050 m) thick.
pCx	Precambrian crystalline and metasedimentary rocks, and Mesozoic and Cenozoic intrusive rocks. Shown only on cross section B–B'.

MAP SYMBOLS

-----	All faults – solid where well located, dashed where approximately located, dotted where concealed Sense of displacement unspecified
+-----	Normal fault – ball and bar on downthrown side
SRD-----	Snake Range decollement low-angle normal fault – teeth on downthrown side
-----	Low-angle normal fault – teeth on downthrown side
-----	Thrust fault – teeth on upthrown side
-----	Reverse fault – teeth on upthrown side
-----	Attenuation fault – places younger rocks on older rocks and omits stratigraphic section, displacement sense uncertain
...+...+	Fault delineated from gravity data (chapter 3) – most are interpreted as steeply dipping normal faults, location approximate
-----	All folds – solid where well located, dashed where approximately located, dotted where concealed
+-----	Anticline – upright
-+-----	Anticline – overturned
+-----	Syncline – upright
-+-----	Syncline – overturned

UGS Groundwater-Monitoring Network
Numeric label is UGS site number (table C.1)

●	Monitor wells in basin-fill aquifer
○	Monitor wells in volcanic-rock aquifer
●	Monitor wells in basin-fill and carbonate-rock aquifers
●	Monitor wells in carbonate-rock aquifer
○	Monitor wells in Lower Cambrian-Neoproterozoic siliciclastic confining unit

Aquifer-Test Sites

▲	Carbonate-rock and basin-fill aquifers
▲	Carbonate-rock aquifers
⊕	Agricultural area monitor wells
□	Nested piezometers near spring
⊙	UGS transducer in previously existing well (table C.2)
◆	UGS spring-flow gage site (table C.4)

Other Features

◆	USGS surface-flow gage
■	SNWA point of diversion
○	Spring
⊕	Petroleum-exploration well

SOURCES USED FOR MAP COMPILATION
AND UNIT CORRELATION

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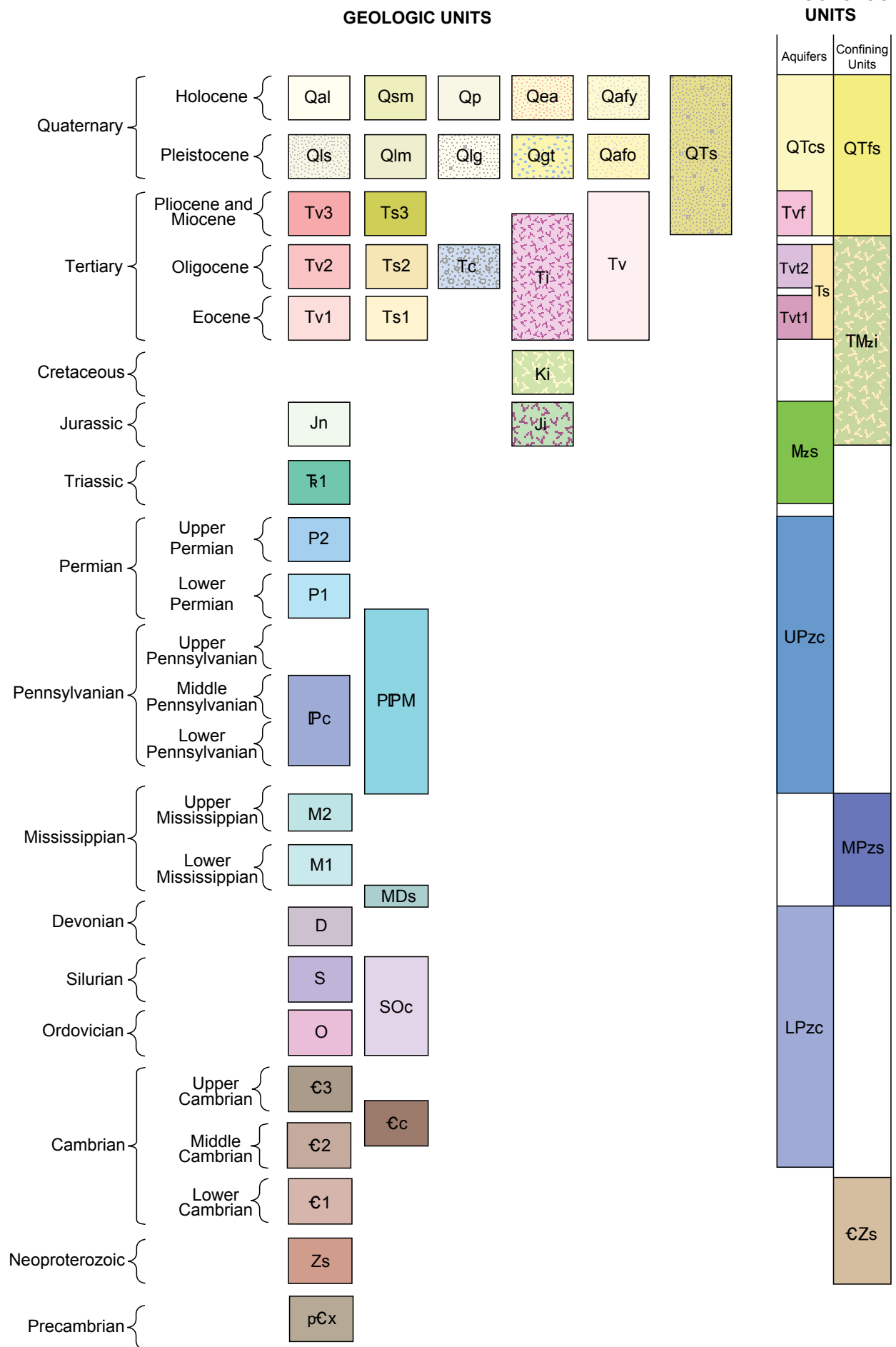
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UNIT CORRELATION



Eon	Era	Period	Epoch	Age (Ma)
Phanerozoic	Cenozoic	Quaternary	Holocene	0.0117
			Pleistocene	2.6
		Tertiary	Pliocene	5.3
			Miocene	23.0
			Oligocene	33.9
			Eocene	55.8
		Paleogene	Paleocene	65.5
			Late	99.6
	Mesozoic	Cretaceous	Early	146
			Late	161
		Jurassic	Middle	176
			Early	200
		Triassic	Late	229
			Middle	245
		Permian	Early	251
			Late	271
	Paleozoic	Pennsylvanian	Early	299
			Late	307
		Mississippian	Middle	312
			Early	318
		Devonian	Late	340
			Early	359
		Silurian	Middle	385
			Early	397
		Ordovician	Late	416
			Early	423
Proterozoic	Phanerozoic	Cambrian	Late	444
			Early	461
		Neoproterozoic	Middle	472
			Early	488
		Mesoproterozoic	Late	501
			Early	513

DESCRIPTION AND CORRELATION OF GEOLOGIC UNITS,
CROSS SECTION, AND GEOLOGIC TIME SCALE

