

Plate 1. Generalized stratigraphic columns for the Death Valley regional ground-water flow system and vicinity

[Abbreviation: DVRFS, Death Valley regional ground-water flow system. Ages, stratigraphic positions, and correlation of some geologic units were determined using the GEOLEX database (U.S. Geological Survey, 2000)]

Geologic age (System)	Northeast DVRFS: Arrow Canyon Range to Pahranaagat Range ¹	North-central DVRFS: Railroad Valley to Hot Creek Valley ²	Central DVRFS: Nevada Test Site, Pahute Mesa and Yucca Flat to Yucca Mountain area ³	Southern DVRFS: Amargosa Desert to Death Valley ⁴
Quaternary to Pliocene	Fan, floodplain, eolian, and stream-channel alluvium, lake and playa sediments, landslide deposits, talus, and colluvium	Fan, floodplain, eolian, and stream-channel alluvium, lake and playa sediments, landslide deposits, talus, and colluvium	Fan, floodplain, eolian, and stream-channel alluvium, lake and playa sediments, landslide deposits, talus, and colluvium	Fan, floodplain, eolian, and stream-channel alluvium, lake, playa and marsh sediments, spring-deposited limestone, landslide deposits, talus, and colluvium
	Older alluvium, landslide deposits, and poorly consolidated, stratified sediments	Basalt flows of Pancake Range and Lunar Crater area	Basalt flows and cinder cones of Crater Flat-Amargosa Valley area	
Pliocene		Basalt and andesite lava flows	Basalt of Thirsty Mountain	Funeral Formation
Miocene	Muddy Creek Formation	Sedimentary rocks and interbedded tuff, including and correlative in part with the Esmeralda and Siebert Formations and the older basin fill of Plume (1996)	Post-Thirsty Canyon basalt flows	Furnace Creek Formation
	Horse Spring Formation, Lovell Wash and Bitter Ridge Members		Volcanics of Stonewall Mt.	Artist Drive Formation
			Rhyolite of Obsidian Butte	
			Thirsty Canyon Group	
			Volcanics of Fortymile Canyon	
			Timber Mountain Group	
			Paintbrush Group	
			Calico Hills Formation	
	Wahmonie Formation			
	Crater Flat Group			
	Basalt lava flows		Belted Range Group	
	Kane Wash Tuff		Tram Ridge Group	Pavits Spring and Bat Mountain Formations
	Horse Spring Formation, Thumb Member		Tunnel Formation	
			Comendite of Quartet Dome	
			Tub Spring Tuff	
			Tunnel bed 1, Tuff of Yucca Flat, and Tunnel bed 2	Kelley's Well Limestone
			Redrock Valley Tuff	Panuga Formation
	Basalt and andesite lava flows		Tuff of Twin Peaks	
Tuff of Argillite Wash				
Hiko Tuff	Volcanics of Kawich Valley			
Horse Spring Formation, Rainbow Gardens Member	Rhyolitic to andesitic lava flows, dikes, and small intrusive bodies, including Rhyolite of Big Sand Springs Valley	Volcanic rocks of the Groom Range, Jumbled Hills, and Fallout Hills		
Basalt and andesite lava flows				
Harmony Hills Tuff				
Pahranaagat Formation				
Condor Canyon Formation				
Oligocene	Leach Canyon Formation	Bates Mountain Tuff		
	Shingle Pass Tuff	Tuff of Lunar Cuesta	Paleocolluvium	Titus Canyon Formation
		Tuff of Orange Lichen Creek		
		Shingle Pass Tuff		
		Tuff of Kiln Canyon		
		Tuff of Big Ten Peak		
	Monotony Tuff	Monotony Tuff		
	Limestone and conglomerate	Tuffaceous rocks of Slanted Buttes		
		Tuff of Moores Station Buttes		
		Tuffaceous and sedimentary rocks of the Needles area		
		Tuff of Hot Creek Canyon		
		Tuffs of Palisade Mesa and Halligan Mesa		
Gilmore Gulch Formation				
Tuff of Williams Ridge and Morey Peak				
Windous Butte Formation				
Stone Cabin Formation				
Garrett Ranch Group				
Sheep Pass Formation				
Eocene				Granitic intrusive rocks
Paleocene				
Cretaceous			Granitic intrusive rocks	
Jurassic	Aztec Sandstone			
Triassic	Chinle Formation	Allochthonous siltstone, sandstone, conglomerate, and limestone		Sedimentary and volcanic rocks
	Moenkopi Formation			
Permian	Kaibab Limestone	Allochthonous chert, siltstone, pebbly sandstone, argillite, argillaceous limestone, and greenstone		Owens Valley Group
	Toroweap Formation			
	Cutler Group (or Hermit Shale-Supai Group) equivalent redbeds			
Pennsylvanian	Bird Spring Formation	Limestone and sandy limestone	Bird Spring Formation	Keeler Canyon Formation
		Ely Limestone		
Mississippian	Scotty Wash Quartzite	Diamond Peak Formation	Chainman Shale	Rest Spring Shale
	Chainman Shale	Chainman Shale		Perdido Group
	Battleship Wash Formation			
	Monte Cristo Group	Joana Limestone	Eleana Formation	Tin Mountain Limestone
	Pilot Shale	Pilot Shale		
Devonian	Guilmette Formation	Guilmette Formation	Guilmette Formation	Lost Burro Formation
	Simonson Dolomite	Simonson Dolomite	Simonson Dolomite	
	Sevy Dolomite	Sevy Dolomite	Sevy Dolomite	Hidden Valley Dolomite
Silurian	Laketown Dolomite	Laketown Dolomite	Laketown Dolomite	
Ordovician	Ely Springs Dolomite	Ely Springs Dolomite	Ely Springs Dolomite	Ely Springs Dolomite
	Eureka Quartzite	Eureka Quartzite	Eureka Quartzite	Eureka Quartzite
	Pogonip Group	Pogonip Group	Pogonip Group	Pogonip Group
Cambrian	Nopah Formation	Windfall Formation	Nopah Formation	Nopah Formation
	Dunderberg Shale Member	Dunderberg Shale	Dunderberg Shale Member	Dunderberg Shale Member
	Bonanza King Formation	Lincoln Peak and Sidehill Springs Fms	Bonanza King Formation	Bonanza King Formation
	Carrara Formation	Pole Canyon Limestone	Carrara Formation	Carrara Formation
		Pioche Shale		
	Zabriskie Quartzite	Prospect Mountain Quartzite	Zabriskie Quartzite	Zabriskie Quartzite
Wood Canyon Formation		Wood Canyon Formation	Wood Canyon Formation	
Late Proterozoic		Not exposed		
	Stirling Quartzite		Stirling Quartzite	Stirling Quartzite
	Johnnie Formation		Johnnie Formation	Johnnie Formation
Middle Proterozoic	Noonday Dolomite		Noonday Dolomite	Pahrump Group
	Not exposed		Not exposed	
Early Proterozoic				Gneiss, schist, metadiorite, metaconglomerate, marble, and monzonitic to granitic dikes and plutons

¹ Warren and others, 1998; Pohlmann and others, 1998; Schmidt and Dixon, 1995; Jayko, 1990.

² Schalla and Johnson, 1994; Whitebread and John, 1992; Kleinhampl and Ziony, 1985; Ekren and others, 1973.

³ Warren and others, 1998; Laczniaik and others, 1996; Jayko, 1990.

⁴ Cemen and others, 1999; Snow and Lux, 1999; Wright and others, 1999; Wright and Troxel, 1993.