

Table 1.--Stratigraphic and hydrogeologic units in the Dolores River basin

[Based in part on Eckel (1949), Hunt (1958), Williams (1964), Hitkind (1964), Ekren and Houser (1965), and Haynes, Vogel, and Nyant (1972)]

System	Series or epoch	Stratigraphic unit	Thickness (meters)	Lithologic characteristics	Principal water-bearing characteristics	Hydrogeologic unit
Quaternary	Holocene and Pleistocene	Alluvium	0-65	Alluvium--clay, silt, sand, and gravel. Eolian deposits--fine to coarse sand. Colluvium and till--unsorted clay, silt, sand, gravel, cobbles, and boulders.	Comprise the principal water-bearing material and source of ground water in the larger valleys.	Alluvial aquifer
Tertiary		Intrusive rocks, usually laccoliths, sills, dikes, and stocks.	----	Igneous rocks; mostly porphyritic diorite, quartz diorite, granodiorite, quartz monzonite, and syenite.	Precipitation may enter these rocks where they are intensely fractured and subsequently recharge adjacent permeable sedimentary rocks. Yields water to a few high-altitude springs.	Tertiary-Upper Cretaceous aquifer
		Mesaverde Group				
		Point Lookout Sandstone	122+	Yellowish-gray sandstone with interbeds of gray shale. Mostly present on the high mesas in the southeast part of the area.	Yields water to numerous small freshwater springs.	
	Upper Cretaceous	Mancos Shale	366-1,914	Dark-gray, fissile, marine shale.	Not water bearing.	Cretaceous confining beds
		Juana Lopez Member	8-30	Occurs 152 meters above the base of the Mancos Shale. Sandy fossiliferous limestone. Only present in the southern part of the area.	Yields some water.	
	- ? - ?	Dakota Sandstone	3-69	Sandstone and conglomerate with interbeds of carbonaceous shale. unconformity	Yield water to numerous small freshwater springs.	
	Lower Cretaceous	Burro Canyon Formation	0-61	Green mudstone interbedded with conglomerate and conglomeratic sandstone. Only present in the west part of the area.		
		Morrison Formation	69-290	Friable fine-grained, yellowish-brown to gray sandstone and variegated shales.	Yields some water where the Westwater Canyon or Saltwash Members are present.	
		Brushy Basin Member	46-213	Bentonitic varicolored mudstone.	Not water bearing.	
	Upper Jurassic	Westwater Canyon Member	0-61	Fine- to medium-grained sandstone; present only in the southwest part of the area.	Yields small quantities of water.	
		Recapture Creek Member	0-61	Reddish-gray, white, and brown sandstone interbedded with reddish-gray siltstone. Present only in the southwest part of the area.	Not water bearing.	
		Saltwash Member	0-168	Interbedded yellowish-gray sandstone and red mudstone.	Yields small quantities of freshwater.	
		Junction Creek Sandstone	49-152	Massive, cross-bedded coarse-grained, friable, white sandstone. Not present in the southeast part of the area.	Yields water to both springs and wells.	
Jurassic		Summerville Formation (lateral equivalent of Wanakah)	0-61	Evenly bedded, dark reddish-brown siltstone, shale, and sandy siltstone. Not present in the southeast part of the area.	Not water bearing.	Mesozoic sandstone aquifer
	Middle Jurassic	San Rafael Group				
		Wanakah Formation	8-46	Upper part, pink to red sandy marl; lower part gray to black massive limestone. Present only in the southeast part of the area.	Confining unit.	
		Entrada Sandstone	14-168	Buff to grayish-white, fine- to medium-grained, cross-bedded sandstone.		
		Moab Sandstone Member	0-15	Pale orange to white, massive, cross-bedded, very fine-grained sandstone. Thins to east.	Water bearing.	
		Slick Rock Member	21-55	Pale orange, fine- to medium-grained sandstone.		
		Dewey Bridge Member (grades into Carmel Formation of some reports)	0-37	Brick red, flat to contorted beds, argillaceous, silty to very fine-grained sandstone. Thins to east. unconformity	Not water bearing.	
	Lower Jurassic and Upper Triassic (?)	Glen Canyon Group				
		Navajo Sandstone	0-125	Orange to light-brown, fine- to medium-grained, cross-bedded eolian sandstone. Thins rapidly to the east.	Yields small to moderate quantities of freshwater where fractured.	
	Upper Triassic (?)	Kayenta Formation	0-73	Pale to dark-red or purplish-gray shale, siltstone, and fine- to coarse-grained sandstone. Thins rapidly to the east.	Yields little or no water.	
		Wingate Sandstone	0-137	Reddish-brown to buff, very fine- to fine-grained, eolian sandstone. Thins to the east.	Yields water to numerous small freshwater springs.	
		Dolores Formation	152-229	Salmon-pink to bright-red mudstone and fine-grained sandstone of Late Triassic age. Equivalent to lower part of Glen Canyon Group and underlying Chinle Formation. Present only in the southeast part of area.	Confining units.	
Triassic	Upper Triassic	Chinle Formation	0-427	Varicolored pale-red to reddish-brown mudstone and red, reddish-brown, and orange-red siltstone, sandstone, and shale. Thins to the north and east. unconformity	Not water bearing.	Mesozoic-Upper Paleozoic confining beds
		Moenkopi Formation	0-305	Chocolate-brown to brick-red sandy mudstone, sandstone, and arkosic conglomerate. Thins to the north and east.		
Permian		Cutler Formation	0-1,700±	Red to purple arkosic sandstone. Thins northeastward on to the flanks of the Uncompahgre Plateau.	Yields small quantities of water where fractured.	
	Upper Pennsylvanian and Lower Pennsylvanian	Hermosa Formation				
		Rico Formation	0-198	Reddish-brown and greenish-gray sandstone and gray fossiliferous cherty limestone. Thins to the northeast. Local unconformity	Generally a confining unit but might yield small quantities of water where fractured.	
		Upper Member	0-550	Green to gray and dull-red arkosic sandstone, shale, and fossiliferous limestone.		
		Paradox Member	0-3,350	Salt, gypsum, carbonaceous shale, sandstone, and dolomite.	Yields no water.	Salt, confining beds.
	Lower Pennsylvanian	Molas Formation	0-23	Interbedded red siltstone, sandstone, limestone, and shale. unconformity	Confining unit.	Upper Paleozoic confining beds
Mississippian		Leadville Limestone	18-92	Massive to thinly laminated, gray, buff, and yellow limestone.		Lower Paleozoic aquifer
Devonian	Upper Devonian	Ouray Formation	0-30	Limestone and shale	Transmits saltwater through fractures.	
		Elbert Formation	0-145	Dolomite and limestone. unconformity		
Cambrian	Upper Cambrian	Ignacio Formation	15-30	Massive to thin-bedded quartzite. unconformity		Lower Paleozoic-Proterozoic confining beds
Proterozoic			----	Granite and other igneous and metamorphic lithologies.	Water-bearing characteristics not known, but probably yields no water.	

Upper ground-water system

Lower ground-water system