

Denver Basin					
Geologic Period	Phase	Stratigraphic Unit	Hydrogeologic Unit		
Quaternary	Modern-Glaciation	Alluvium associated with present rivers	Alluvial Aquifers		
Neogene	Extension	No strata			
Paleogene	Transition	Castle Rock Conglomerate	None		
		Wall Mountain Tuff	Volcanics		
	Laramide	Denver Basin Group D2	Dawson Arkose	(Upper) Dawson Aquifer (Lower)	
			Denver Basin Group D1	Denver Formation ¹ / upper Pulpit Rock Formation, Jimmy Camp and Black Squirrel Formations	Denver Aquifer
				Arapahoe Formation ¹ / Pikeview and lower Pulpit Rock Formations	(Upper) Arapahoe Aquifer (Lower)
		Laramie Formation	Upper	Laramie confining unit	
			Lower	Laramie- Fox Hills Aquifer	
Cretaceous	Interior Seaway	Fox Hills Sandstone			
		Pierre Shale	Upper member	Pierre confining unit	
			Upper Pierre sand	Upper Pierre Aquifer	
			Main body	Pierre confining unit	
		Regional Cretaceous Seaway shale-dominated formations form multiple hydrogeologic units, most are confining units			
Jurassic	Mesozoic Sandstones	Multiple sedimentary units deposited in			
Triassic					
Permian					
Pennsylvanian	Ancestral Rocky Mountains	Ancestral Rocky Mountains event marine and non-marine sedimentary formations form multiple hydrogeologic units in the Ancestral Denver Basin and may be present, depending on location	Colorado Piedmont Regional and Ancestral Denver Basin hydrogeologic units		
Mississippian	Paleozoic Carbonates	Lower Paleozoic sedimentary formations that are dominantly limestone and dolomite form multiple aquifers preserved in the Ancestral Denver Basin may be present depending on location			
Devonian					
Silurian					
Ordovician					
Cambrian					
Precambrian	Precambrian	Crystalline rocks of igneous and metamorphic origin in mountainous region	Crystalline bedrock		

Table 11b-02-01-01. Denver Basin stratigraphic chart.

Denver Basin								
Geologic Period	Phase	Stratigraphic Unit	Unit Thickness (ft)	Physical Characteristics	Hydrogeologic Unit	Hydrologic Characteristics		
Quaternary	Modern-Glaciation	Alluvium associated with present rivers			Alluvial Aquifers			
Neogene	Extension	No strata						
Paleogene	Transition	Castle Rock Conglomerate	0-50	Fine to coarse arkosic sandstone and conglomerate	None	Exposed in cliffs. Forms cap rock on buttes; well drained, does not yield water		
		Wall Mountain Tuff	0-50	Welded ash flow tuff	Volcanics			
	Laramide	Denver Basin Group D2	Dawson Arkose	0-1,200	Sandstone and conglomeratic sandstone with interbedded siltstone and shale	(Upper) Dawson Aquifer (Lower)	Water table aquifer in shallow units, and confined at depth; divided into upper and lower members in its northern extent	
			Denver Basin Group D1	Denver Formation ¹ / upper Pulpit Rock Formation, Jimmy Camp and Black Squirrel Formations	800-1,000	Shale, silty claystone, and interbedded sandstone; beds of lignite and carbonaceous siltstone and shale common Nomenclature north of the Palmer Divide, other names are south	Denver Aquifer	Water table aquifer near outcrop area; generally confined; least permeable of Denver Basin aquifers and consists of many sand bodies with limited lateral continuity within mudstone-dominant strata; generally finer-grained on the east side of the basin where beds of lignite are common
		Denver Basin Group D1		Arapahoe Formation ¹ / Pikeview and lower Pulpit Rock Formations	400-700	Sandstone, conglomeratic sandstone, and interbedded shale and siltstone ¹ Nomenclature north of the Palmer Divide, other names are south	(Upper) Arapahoe Aquifer (Lower)	Water table aquifer near outcrop area; generally confined; most permeable of Denver Basin aquifers; fluvial fan deposits thin in an eastward direction; divided into upper and lower members in its northern extent
			Regional Cretaceous Seaway shale-dominated formations form multiple hydrogeologic units, most are confining units					
Cretaceous	Interior Seaway	Laramie Formation	Upper	100-600	Upper part shale, silty shale, siltstone, and interbedded fine sandstone. Bituminous coal seams common	Laramie confining unit	Sandstone layers might yield limited water	
			Lower		Lower part sandstone and shale	Laramie- Fox Hills Aquifer	Water table aquifer near outcrop area; generally confined; moderately permeable; most extensive of the Denver Basin bedrock aquifers; has generally similar characteristics across its entire extent	
		Pierre Shale	Fox Hills Sandstone		100-200	Sandstone and siltstone interbedded with shale		
			Upper member	3,000-8,000	Interbedded fine-grained sand, siltstone and shale	Pierre confining unit		
			Upper Pierre sand			Upper Pierre Aquifer	Sandstone layers might yield limited water	
	Main body	Pierre confining unit						
Jurassic	Mesozoic Sandstones	Multiple sedimentary units deposited in the stable continent interior may be present that may form aquifers				Colorado Piedmont Regional and Ancestral Denver Basin hydrogeologic units		
Triassic								
Permian	Ancestral Rocky Mountains	Ancestral Rocky Mountains event marine and non-marine sedimentary formations form multiple hydrogeologic units in the Ancestral Denver Basin and may be present, depending on location						
Pennsylvanian								
Mississippian								
Devonian								
Silurian		Paleozoic Carbonates	Lower Paleozoic sedimentary formations that are dominantly limestone and dolomite form multiple aquifers preserved in the Ancestral Denver Basin may be present depending on location					
Ordovician								
Cambrian								
Precambrian	Precambrian	Crystalline rocks of igneous and metamorphic origin in mountainous region			Crystalline bedrock			

Table 11b-02-01-01. Denver Basin stratigraphic chart, detailed. Colorado Geological Survey ON-010 Colorado Groundwater Atlas.

Sources: Robson and Banta (1987); DWR (1986); Dechesne and others (2011); Thorson (2011); Reynolds and Hagadorn (2017)