Upper Arkansas Valley

Period	Phase	Stratigraphic Unit		Hydrogeologic Unit	
Quaternary	Modern	Alluvium and outwash deposits		Valley-fill aquifer	Alluvial Aquifer
	Glaciation	Glacial deposits			Glacial deposits
		Older stream and outwash terrace deposits			Local perched aquifer
Neogene	Extension	Dry Union Formation			Dry Union aquifer
Paleogene	Transition	Central Colorado volcanic field rocks	Volcanic rocks	Volcanic rocks	
			Igneous intrusions	Crystalline bedrock	
	Laramide	Igneous intrusions		Crystalline bedrock	
Cretaceous	Interior Seaway	No strata recognized in this area			
Jurassic	Mesozoic Sandstones				
Triassic					
Permian	Ancestral Rocky Mountains	Sangre de Cristo Formation		Permian-Pensylvannian aquifer	
		Minturn Formation	Upper interval		
			Evaporite facies		
			Lower member-Coffman Member		
		Belden-Kerber-Sharpsdale Formations		Belden confining unit	
	Paleozoic Carbonates	Leadville Limestone		Lower Paleozoic carbonate aquifer	
		Chaffee Group			
		Fremont Dolomite-Harding Sandstone			
		Manitou Formation			
		Dotsero Formation and Sawatch Sandstone			
Precambrian	Precambrian	Crystalline rocks of igneous and metamorphic origin in mountainous region		Crystalline bedrock	

Table 12a-03-01. Upper Arkansas Valley stratigraphic chart.

Upper Arkansas Valley

Period	Phase	Stratigraphic Unit		Unit Thickness (ft)	Physical Characteristics	Hydrogeologic Unit		Hydrologic Characteristics (from Chaffee County)
Quaternary	Modern	Alluvium and outwash deposits		0-150	Well to poorly-sorted, uncemented sands, silts and gravels along modern streams and as valley-fill	Valley-fill aquifer	Alluvial Aquifer	
	Glaciation	Glacial deposits			Unstratified sand, gravel, and silt within, and at the mouths of, mountain valleys of the Sawatch and Mosquito ranges		Glacial deposits	
		Older stream and outwash terrace deposits			Well to poorly-sorted, uncemented sands, silts and gravels on bedrock-cored terraces above modern streams		Local perched aquifer	
Neogene	Extension	Dry Union Formation		>5,000	Interbedded, unconsolidated to semi-consolidated claystone, siltstone, sandstone, and lenticular gravel with beds of volcanic ash		Dry Union aquifer	
Paleogene	Transition	Central Colorado volcanic field rocks	Volcanic rocks	0-150	Flows of andesite, dacite, rhyodacite, and rhyolite, flow breccias, volcanoclastic sediments, and ash-flow tuffs associated with caldera complexes that often fill paleovalleys; includes deposits of sand and gravel	Volcanic rocks		
			Igneous intrusions		Intrusive granite, leucogranite, granodiorite, quartz monzonite, and other granitic rocks	Crystalline bedrock		
	Laramide	Igneous intrusions			intrusive rhyolite, granodiorite, monzonite, and diorite in intrusive bodies of varying sizes in the Sawatch and Mosquito ranges	Crystalline bedrock		
Cretaceous	Interior Seaway	No strata recognized in this area						
Jurassic	Mesozoic Sandstones							
Triassic								
Permian	Ancestral Rocky Mountains	Sangre de Cristo Formation		0-3,100	Sandstone, siltstone, shale, conglomerate, and rare limestone	Permian-Pensylvannian aquifer		Limited use
		Minturn Formation	Upper interval	0-5,000	Sandstone, siltstone, shale, conglomerate, and limestone			
			Evaporite facies	0-1,000	Pale gray siltstone, shale, sandstone and limestone with beds of gypsum and halite			Possible saline water
			Lower member-Coffman Member	0-800	Sandstone, siltstone, shale, conglomerate, and limestone			
		Belden-Kerber-Sharpsdale Formations		850-2,200	Shale with minor limestone and siltstone; sandstone and conglomerate	Belden confining unit		
	Paleozoic Carbonates	Leadville Limestone		160-590	Limestone and dolomite with chert and beds of quartz sandstone	Lower Paleozoic carbonate aquifer		Limited use
		Chaffee Group		up to 410	Quartz sandstone, dolomite, and limestone			
		Fremont Dolomite-Harding Sandstone		up to 350	Sandstone and dolomite			
		Manitou Formation		120-200	Dolomite and shale			
		Dotsero Formation and Sawatch Sandstone		up to 175	Quartz sandstone and dolomitic sandstone with shale partings, arkosic conglomerate at base			
Precambrian	Precambrian	Crystalline rocks of igneous and metamorphic origin in mountainous region				Crystalline bedrock		

Table 12a-03-01. Upper Arkansas Valley stratigraphic chart, detailed. Colorado Geological Survey ON-010 Colorado Groundwater Atlas.

Sources: Watts (2005); Barkmann and others (2017); Kellogg and others (2017); Raynolds and Hagadorn (2017)