USGS
science for a changing world

ERA	System and Series		Lithostratigraphic units of Love et al. (1993): Wind River Range	Lithostratigraphic units of Love et al. (1993): Wind River Basin	Hydrogeologic role/unit of Richter (1981)	Hydrogeologic unit of Wyoming Statewide Framework Plan (WWC Engineering et al., 2007, fig. 4-9)	Hydrogeologic unit used in this report	
CENOZOIC	Quaternary	Holocene and Pleistocene	Alluvium, terrace deposits, landslide deposits, dune sand (eolian) deposits, and glacial deposits		Major aquifer	Major aquifer–alluvial	Alluvial aquifers, terrace-deposit aquifers, aquifers in landslide deposits, aquifers in dune sand (eolian) deposits, and glacial-deposit aquifers	Quaternary unconsolidated-deposit aquifers
CENOZOIC	Tertiary	Pliocene[1]						
CENOZOIC	Tertiary	Miocene	South Pass Formation[2]; Split Rock Formation[3]	Split Rock Formation[3]	Aquifer (Arikaree aquifer)[3]	Major aquifer–sandstone	Split Rock aquifer	
CENOZOIC	Tertiary	Oligocene	White River Formation			Marginal aquifer	White River aquifer	
CENOZOIC	Tertiary	Eocene	Upper and middle Eocene rocks[2]; Eocene rocks[2]; Tepee Trail Fm; Aycross Fm; Wagon Bed Fm		Leaky confining unit	Wagon Bed Formation–marginal aquifer	Aycross–Wagon Bed confining unit	
CENOZOIC	Tertiary	Eocene	Wind River Formation		Major aquifer (Wind River aquifer)	Major aquifer–sandstone	Wind River aquifer	
CENOZOIC	Tertiary	Eocene	Conglomerate of Roaring Fork[2]	Indian Meadows Fm	Leaky confining unit	Major aquitard	Indian Meadows confining unit	
CENOZOIC	Tertiary	Paleocene		Fort Union Fm: Shotgun Mbr; Waltman Shale Mbr; Lower unnamed Mbr	Aquifer (Fort Union–Lance aquifer)	Minor aquifer	Fort Union aquifer	Fort Union–Lance aquifer
MESOZOIC	Cretaceous	Upper Cretaceous		Lance Formation		Major aquifer–sandstone	Lance aquifer	
MESOZOIC	Cretaceous	Upper Cretaceous		Meeteetse Fm; Lewis Shale; Lewis Shale	Confining unit	Major aquitard	Meeteetse–Lewis confining unit	
MESOZOIC	Cretaceous	Upper Cretaceous	Mesaverde Formation	Mesaverde Formation: Teapot Sandstone Member; Middle unnamed member; Parkman Ss Mbr; Wallace Creek Tongue of Cody Shale; Fales Ss Member	Confined subaquifer (Teapot horizon aquifer); Confining unit; Confined subaquifer (Parkman-Fales aquifer); Aquifer (Measaverde aquifer)	Minor aquifer	Teapot Sandstone aquifer; Middle confining unit; Parkman Ss aquifer; Confining unit; Fales Ss aquifer	Mesaverde aquifer
MESOZOIC	Cretaceous	Upper Cretaceous	Cody Shale	Cody Shale	Regional confining unit	Major aquitard	Cody confining unit	
MESOZOIC	Cretaceous	Upper Cretaceous	Frontier Formation		Aquifer (Frontier aquifer); Regional confining unit	Minor aquifer	Frontier aquifer; Basal regional confining unit	Lower and middle Mesozoic aquifers and confining units
MESOZOIC	Cretaceous	Upper Cretaceous	Mowry Shale		Leaky confining unit/regional confining unit	Major aquitard	Mowry confining unit	Mowry–Thermopolis confining unit
MESOZOIC	Cretaceous	Lower Cretaceous	Muddy Sandstone		Aquifer (Muddy aquifer)	? Muddy Sandstone[4] ?	Muddy Sandstone aquifer	
MESOZOIC	Cretaceous	Lower Cretaceous	Thermopolis Shale		Leaky confining unit/regional confining unit	Major aquitard	Thermopolis confining unit	
MESOZOIC	Cretaceous	Lower Cretaceous	"Dakota Sandstone"; Cloverly Formation; "Fuson Shale"; "Lakota Sandstone"		Aquifer (Cloverly aquifer)	Minor aquifer	Cloverly aquifer	
MESOZOIC	Jurassic	Upper Jurassic	Morrison Formation		Leaky confining unit	Minor aquifer	Morrison confining unit	
MESOZOIC	Jurassic	Middle Jurassic	Sundance Formation		Regional aquifer (Sundance–Nugget aquifer)	Minor aquifer	Sundance aquifer	Sundance–Nugget aquifer
MESOZOIC	Jurassic	Middle Jurassic	Gypsum Spring Formation		Regional confining unit/leaky confining unit	Marginal aquifer	Gypsum Spring confining unit	
MESOZOIC	Jurassic(?) and Triassic(?)		Nugget Sandstone		Not discussed	Major aquifer–Sandstone	Nugget aquifer	
MESOZOIC	Triassic	Upper Triassic	Chugwater Group or Fm: Popo Agie Formation or Member		Confining unit	Marginal aquifer	Chugwater–Dinwoody aquifer and confining unit: Popo Agie confining unit	
MESOZOIC	Triassic	Upper Triassic	Chugwater Group or Fm: Crow Mountain Ss or Sandstone Member		Aquifer		Chugwater aquifer: Crow Mountain aquifer	
MESOZOIC	Triassic	Lower Triassic	Chugwater Group or Fm: Alcova Limestone or Limestone Member		Confining unit		Alcova confining unit	
MESOZOIC	Triassic	Lower Triassic	Chugwater Group or Fm: Red Peak Formation or Member		Aquifer		Red Peak aquifer	
MESOZOIC	Triassic	Lower Triassic	Dinwoody Formation	Goose Egg Formation	Confining unit	Marginal aquifer	Dinwoody c.u.	Goose Egg aquifer and confining unit
PALEOZOIC	Permian		Phosphoria Formation and related rocks (Park City Fm)	Goose Egg Formation	Aquifer/leaky confining unit (Phosphoria aquifer)	Minor aquifer	Phosphoria aquifer and confining unit	Goose Egg–Phosphoria aquifer and confining unit
PALEOZOIC	Pennsylvanian	Upper Pennsylvanian; Middle Pennsylvanian	Tensleep Sandstone		Aquifer (Tensleep subaquifer)	Major aquifer–limestone[5]	Tensleep aquifer	Paleozoic aquifer system
PALEOZOIC	Pennsylvanian	Lower Pennsylvanian	Amsden Formation		Aquifer (Amsden subaquifer)	Marginal aquifer	Amsden aquifer	Paleozoic aquifer system
PALEOZOIC	Mississippian	Upper Mississippian	Darwin Ss Mbr					
PALEOZOIC	Mississippian	Lower Mississippian	Madison Limestone		Aquifer (Madison subaquifer)	Major aquifer–limestone	Madison aquifer	Paleozoic aquifer system
PALEOZOIC	Devonian	Upper Devonian	Darby Formation		Aquifer (Darby subaquifer)	Major aquifer–limestone	Darby aquifer	Paleozoic aquifer system
PALEOZOIC	Silurian[6]							
PALEOZOIC	Ordovician	Upper Ordovician; Middle Ordovician	Bighorn Dolomite[7]		Aquifer (Bighorn subaquifer)	Major aquifer–limestone/ minor aquifer	Bighorn aquifer	Paleozoic aquifer system
PALEOZOIC	Cambrian	Upper Cambrian	Snowy Range Formation[2]; Pilgrim Limestone[2]	Gallatin Limestone	Leaky confining unit	Minor aquifer	Gallatin confining unit	Gallatin–Gros Ventre confining unit
PALEOZOIC	Cambrian	Middle Cambrian	Gros Ventre Formation			Minor aquifer	Gros Ventre confining unit	Gallatin–Gros Ventre confining unit
PALEOZOIC	Cambrian		Flathead Sandstone		Aquifer (Flathead aquifer)	Major aquifer–limestone[5]	Flathead aquifer	
Precambrian			Precambrian rocks			Major aquitard	Precambrian basal confining unit	

[1]Pliocene rocks not present in Wind River Basin.

[2]Function of lithostratigraphic unit as hydrogeologic unit not defined.

[3]Split Rock Formation previously defined as Arikaree Formation in Wind River Basin (Love et al., 1993).

[4]Function of Muddy Sandstone as hydrogeologic unit not defined in WWC Engineering et al. (2007, fig. 4-9).

[5]Predominant lithology of formation is sandstone, and it is unknown why formation is defined as "Major aquifer–limestone" in WWC Engineering et al. (2007, fig. 4-9).

[6]Silurian rocks not present in Wind River Basin.

[7]Composed of upper Leigh Dolomite Member and Lander Sandstone Member (Keefer and Van Lieu, 1966; Richter, 1981, table IV-1, and references therein).

Abbreviations used in the columns:

c.u. Confining unit
Fm Formation
Ss Sandstone
Mbr Member

Modified from Richter (1981); Love et al. (1993); and WWC Engineering et al. (2007)

Plate II. Relation of lithostratigraphic units to hydrogeologic units, Wind River Basin, Wyoming.