System	Series	Formation	Thickness (feet)	Lithology	Water Supply
Quaternary	Recent	Alluvium	5-30	Sand, silt, clay, and gravel; sediments are finer grained away from the Bighorn Mountains	Yields abundant supplies of highly mineralized water from saturated sand and gravel of perennial streams
		Colluvium	0-60	Silt, clay, and sand	The intermingled colluvial and alluvial deposits in the valley west of "the red wall", where irrigation recharge is available, probably would yield small quantities of highly mineralized water
	Recent and Pleistocene	Stream terrace deposits	5-40	Silt, sand, and clay underlain by coarse sand and gravel. Gravel consists of well-rounded pebbles and cobbles of quartzite, chert, and igneous rocks	Yield moderate to large supplies of water from irrigated localities. The water is reported to be unsuitable as a domestic supply
Tertiary	Eocene	Wasatch	[1]2400±	Shale, bentonite, lignite, and sandstone layers having an overall drab brownish gray appearance in upper part. White sandstone and conglomerate in lower part	Small to moderate supplies of water available to wells at many localities. Local residents generally consider water to be of good quality, but report that water from some wells has a cathartic effect
	Paleocene	Fort Union	[1]2500-3000	Interbedded clay, shale, sandy shale, and coal in lower and upper parts. Middle part consists of massive sandstone beds	Moderate to large supplies of water available to wells penetrating sandstone layers where recharge is available. Local residents report that the water is slightly mineralized but potable
Cretaceous	Upper Cretaceous	Lance	[1]3000±	Brownish sandstone, gray shale, and carbonaceous shale; some lignite in upper part. The sandstone is a typical cross-bedded channel deposit	Yields small to moderate supplies of water that locally is used for domestic purposes
		Fox Hills sandstone	[1]600±	White "salt and pepper" sandstone; contains gray shale at top and massive, cliff-forming reddish-brown sandstone at bottom	Probably yields moderate supplies of water from sandstone, but water-bearing properties have not been adequately tested
		Bearpaw shale	[1]600±	Sandy carbonaceous shale that weathers buff and blue	Probably not water bearing
		Mesaverde	600±	Upper and middle parts consist of carbonaceous shale and slabby sandstone. Parkman sandstone member (lower part) is massive, crossbedded, and medium grained	Small to moderate supplies of water available from the Parkman sandstone member. Local residents consider the water unsuitable for domestic use
		Cody shale	3000-3300	Medium- to dark-gray marine shale; contains sandstone lens in upper part	Moderate supplies of water obtained from the sandstone lens. Yields from the shale are very small and the water probably is highly mineralized
		Frontier	900±	Interbedded sandstone and shale at the top form the Wall Creek sandstone member, the first Wall Creek sand of drillers. Second Wall Creek sand of drillers consists of medium- to coarse-grained sandstone containing a black pebble conglomerate. Third Wall Creek sand of drillers consists of light-gray sandy shale underlain by dark-gray shale and bentonite; the bentonite lies at the base of the formation	Small to moderate supplies of water are available to wells penetrating the sandstone members
	Lower Cretaceous	Mowry shale	[2]146	Dark brownish gray siliceous shale that weathers to silvery gray; contains thin beds of bentonite	Probably not water bearing at depth. Where formation is exposed locally, fractured surficial zone contains shallow ground water
		Thermopolis shale	[2]244	The upper part consists of gray shale and beds of bentonite. Lower part consists of thin-bedded black shale. The Muddy sandstone member is a well-indurated drab buff to brown medium-grained sandstone	Small supplies of water probably can be obtained locally from the Muddy sandstone member
		Cloverly	[2]27	Massive white to light-cream medium-grained sandstone containing lenses of small pebble conglomerate	Small-to-moderate supplies of water are probably available where recharge is adequate. Locally, large quantities may be produced where jointing due to diastrophism has occured
Jurassic	Upper Jurassic	Morrison	[2]205	Lenticular beds of fine- to medium-grained sandstone and shale; weathers to variegated colors	Probably yields small to moderate supplies of water where recharge is available. Salt water was encountered in drilling through this formation on the axis of the Kaycee dome
		Sundance	[2]264	Interbedded greenish-gray glauconitic shale and light-gray and yellow sandstone	Yields small to moderate supplies of water. A sample of water collected from this formation was highly mineralized
Triassic	Lower Triassic	Chugwater	[2]1023	Bright-red fine- to medium-grained sandstone, shale, and siltstone containing gypsum beds as much as 2 feet thick	The sandstone members of the formation probably would yield small quantities of water. However, the water is sealed off in all wells penetrating the Chugwater formation because it is considered unfit for use
Permian		Unnamed rocks	30-40	Two buff to light-brown mottled sandy limestone layers interbedded with maroon- and limonite-colored clay. The lower limestone bed contains gray- to black concretionary chert	Water-bearing properties unknown
Pennsylvanian		Tensleep sandstone	[2]407	Massive, light-gray, white, or pinkish-white fine- to medium-grained crossbedded sandstone	Yields abundant supplies of water for domestic and stock use. Artesian wells flow in valley west of "the red wall"

[1]Wegemann (1917)

[2]Wyoming Geol. Assoc. (1949)

GENERALIZED SECTION OF THE GEOLOGIC FORMATIONS EXPOSED IN THE KAYCEE IRRIGATION PROJECT AREA, WYOMING

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