

The following table is calculated from the MWD gamma ray data of the Proposed Injection Well and estimated data from the offset well Big Horn 0780 1-17.

MUTUAL 0780 3-8H		
Age	Stratigraphic Unit	Depth
Quaternary	Quaternary Glacial	0 - 100' Estimate
Tertiary	North Park Formation	100 - 500' Estimate
	Coalmont Formation	500' (est.) - 3178'
Cretaceous	Pierre Shale	3178' - 6985'
	Niobrara Formation	6985' - 7440' (est.)
	Benton Shale (Carlile)	7440' - 7970' Estimate
	Mowry Shale	7970' - 8070' Estimate
	Dakota Sandstone	8070' - 8270' Estimate
Jurassic	Morrison Formation	8270' - 8650' Estimate
	Entrada Sandstone	8650' - 8753' Estimate
Triassic	Chugwater Formation	8753' Estimate

LITERATURE:

- Reasonably Foreseeable Development 2008-2027
Oil & Gas Activities in the Kremmling Field Office
Jackson, Larimer, Grand & Summit Counties, Colorado
BLM Kremmling Field Office October 2009
Page 11 Figure 1: Stratigraphic Column (Wandrey, C. J., Barker, C. E., 1995)

- Park Basins province (038) (Wandrey, C. J., Barker, C. E.) Page 10.

WELL LOGS:

- Mutual 0780 3-8H API 05 057 065430000 (proposed injection well; log limited to Niobrara)

Bighorn 0780 1-17 API 05 057 065850000 (nearest offset vertical well, which penetrated horizons below the Niobrara)

The target of the injection test is the produced interval of the Niobrara formation "D" chalk in the Mutual 0780 3-8H. The Niobrara formation in the vicinity of the target location averages 450' in thickness and top of the Niobrara in the target well is at 6990' MD. The Niobrara in North Park is comprised of 5 chalk beds (A-E) interbedded with marls that isolate the individual chalk beds. The Niobrara formation is above the underlying confining Carlile Shale. The Carlile Shale is approximately 210' thick. The overlying confining Pierre Shale is approximately 1,460' thick. All nearby water wells are defined as "all unnamed aquifers" and are most likely producing from Quaternary deposits. Water wells are all under 200' in depth from the surface.

Injection Zones isolated by the Carlile Shale (below) and the Pierre Shale (above). All wells producing from the Niobrara Formation. Confining layers within the Niobrara formation include "Marl" benches and above and below the Niobrara by the confining shales as listed above. All identified sources of drinking water are identified as "all unnamed aquifers" at depths of less than 200'.

North Park			
Geologic Period	Phase	Stratigraphic Unit	Hydrogeologic Unit
Quaternary	Modern	Alluvium and outwash deposits	Alluvial Aquifer
	Glaciation	Glacial deposits	Glacial deposits
		Older stream and outwash terrace deposits	Local perched aquifer
Neogene	Extension	North Park Formation	North Park Aquifer
Paleogene	Transition	Rabbit Ears Volcanics	Volcanics
		White River Formation	White River confining unit
	Laramide	Coalmont Formation	Coalmont Aquifer
Cretaceous	Interior Seaway	Pierre Shale	Pierre Confining unit
		Niobrara Formation	
		Benton Group	
		Dakota Sandstone	Dakota Aquifer
Jurassic	Mesozoic Sandstones	Morrison Formation	Morrison confining unit
		Sundance Formation	Entrada-Sundance Aquifer
Triassic		Chugwater Formation	Chugwater Aquifer
Permian	Ancestral Rocky Mountains	No strata	
Pennsylvanian			
Mississippian	Paleozoic Carbonates		
Devonian			
Silurian			
Ordovician			
Cambrian			
Precambrian	Precambrian	Crystalline rocks of igneous and metamorphic origin in mountainous region	Crystalline bedrock

Table 12a-06-01. North Park stratigraphic chart.