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Quaternary Fault and Fold Database of the United States

As of January 12, 2017, the USGS maintains a limited number of metadata fields that characterize the Quaternary faults and folds of the United States. For the most up-to-date information, please refer to the interactive fault map.

Monitor Creek fault (Class A) No. 2268

Last Review Date: 1998-01-06

Compiled in cooperation with the Colorado Geological Survey

citation for this record: **Widmann, B.L., compiler, 1998, Fault number 2268, Monitor Creek fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2020 03:01 PM.**

Synopsis	The Monitor Creek fault lies on the southwest margin of the Uncompahgre Uplift. The fault is marked by a south-facing scarp. Based on the timing of abandonment of Unaweep Canyon from the Uncompahgre plateau Cater (1966 #2671) indicated uplift began in the mid-Pliocene and continued into the Pleistocene resulting in as much as 640 m of differential uplift. Lettis and other (1996) suggested the fault is similar in age to other faults which offset the Pliocene to middle Pleistocene Uncompahgre Plateau surface but concluded that the fault has not been active during the Holocene. Despite the lack of definitive evidence of Quaternary offset, the most recent movement on the fault is herein considered to have occurred during the Quaternary.

Name comments	This fault is referred to as the Monitor Creek fault by Lettis and others (1996 #4453). It is comprised of four generally east-west-trending faults on the southwest side of the Uncompahgre Uplift. The faults extend from the Middle Fork of the Escalante River to near Cushman Creek, south of the town of Delta. **Fault ID:** Fault number Q18 of Widman and others (1998 #3441).
County(s) and State(s)	MONTROSE COUNTY, COLORADO MESA COUNTY, COLORADO
Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The faults were mapped at a scale of 1:250,000 by Williams (1964 #2789) and Lettis and others (1996). The fault trace used herein is from Lettis and others (1996 #4453).
Geologic setting	These faults lie on the southwest margin of the Uncompahgre Uplift, which is a northwest-trending, east-tilted fault block. The faults are downthrown to the south.
Length (km)	30 km.
Average strike	N86°W
Sense of movement	Normal
Dip Direction	S
Paleoseismology studies	
Geomorphic expression	The main fault trace is marked by a south-facing scarp on the Cretaceous Dakota Sandstone (Lettis and others, 1996).
Age of faulted surficial deposits	The Monitor Creek fault offsets Jurassic to Cretaceous bedrock (Williams, 1964 #2789), but Quaternary deposits are not mapped along the fault. Lettis and others (1996 #4453) suggested the fault is similar in age to other faults that offset the Pliocene to middle Pleistocene Uncompahgre Plateau surface, but also concluded that

	the fault has not been active during the Holocene.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Although there is no direct evidence of Quaternary offset along this fault, faults associated with the Uncompahgre Uplift are often considered to have experienced Quaternary movement. Based on the timing of abandonment of Unaweep Canyon from the Uncompahgre plateau Cater (1966 #2671) indicated uplift began in the mid-Pliocene and continued into the Pleistocene resulting in as much as 640 m of differential uplift. Lettis and other (1996 #4453) suggested the fault is similar in age to other faults which offset the Pliocene to middle Pleistocene Uncompahgre Plateau surface but concluded that the fault has not been active during the Holocene.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Widmann and others (1998 #3441) placed this structure within the <0.2 mm/yr slip-rate category based on the lack of geomorphic features on Quaternary deposits and on calculations of an uplift rate of 0.4 m/1000 yr since 1.8 Ma for the Uncompahgre Plateau (Perry, 1989 #2731).
Date and Compiler(s)	1998 Beth L. Widmann, Colorado Geological Survey
References	#2671 Cater, F.W., Jr., 1966, Age of the Uncompahgre Uplift and Unaweep Canyon, west-central Colorado: U.S. Geological Survey Professional Paper 550-C, 86-92 p. #4453 Lettis, W., Noller, J., Wong, I., Ake, J., Vetter, U., and LaForge, R., 1996, Draft report, Seismotectonic evaluation of Colorado River storage project-Crystal, Morrow Point, Blue Mesa dams, Smith Fork project-Crawford dam, west-central Colorado: Technical report to U.S. Bureau of Reclamation, Denver, Colorado, 177 p. #2731 Perry, T.W.V., 1989, Tectonic inference and computer simulation in stream longitudinal profile evolution, Unaweep Canyon and vicinity, Colorado and Utah: Geological Society of

	America Abstracts with Programs, v. 21, no. 6, p. 269. #3441 Widmann, B.L., Kirkham, R.M., and Rogers, W.P., 1998, Preliminary Quaternary fault and fold map and database of Colorado: Colorado Geological Survey Open-File Report 98-8, 331 p., 1 pl., scale 1:500,000. #2789 Williams, P.L., 1964, Geology, structure, and uranium deposits of the Moab quadrangle, Colorado and Utah: U.S. Geological Survey Miscellaneous Geologic Investigations I-360.