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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.

Faults near Monte Vista (Class A) No. 2315

Last Review Date: 1998-07-10

Compiled in cooperation with the Colorado Geological Survey

citation for this record: **Kirkham, R.M., compiler, 1998, Fault number 2315, Faults near Monte Vista, 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 02:59 PM.**

Synopsis	The faults near Monte Vista include a number of northwest- and north-trending faults in the foothills west of Monte Vista on the west side of San Luis Valley. The faults are downthrown both to the southwest and southeast (Steven and others, 1974 #2748; Lipman, 1976 #2717) and appear to be minor faults developed along the hinge zone along the western margin of the Rio Grande rift. The faults offset Pleistocene and Pliocene alluvia-fan deposits (Lipman, 1976 #2717). Two of the faults were investigated by Kirkham (1992 # 4452) and McCalpin (1992 #4454), who concluded the latest movement was Pleistocene, not Holocene.
Name	This is a group of about 10 generally northwest-trending faults

comments	south of Highway 160, between Del Norte and Monte Vista. The fault name was assigned during this compilation. **Fault ID:** Fault 100 in Kirkham and Rogers (1981 #792) and fault number Q63 of Widman and others (1998 #3441).
County(s) and State(s)	RIO GRANDE COUNTY, COLORADO
Physiographic province(s)	SOUTHERN ROCKY MOUNTAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The trace of these faults is mainly from 1:48,000 scale mapping by Lipman (1976 #2717) and modified locally based on mapping by Kirkham (1992 #4452) and McCalpin (1992 #4454).
Geologic setting	The faults near Monte Vista include several northwest- and north-trending, minor normal faults in the foothills west of Monte Vista (Lipman, 1976 #2717). The faults are along the east-tilted hinge zone on the west side of the Rio Grande rift.
Length (km)	16 km.
Average strike	N34°W
Sense of movement	Normal
Dip Direction	SW; NE
Paleoseismology studies	No detailed (trenching) studies have been conducted, but McCalpin (1992 #4454) measured profiles on two of the fault scarps near Monte Vista. Scarp profiles suggested the last rupture was during the Quaternary but was pre-Holocene.
Geomorphic expression	Discontinuous, somewhat subtle scarps are present on surficial deposits along some of the faults (Kirkham, 1992 #4452; McCalpin, 1992 #4454).
Age of faulted surficial deposits	The faults offset undifferentiated Pleistocene and Pliocene alluvial-fan deposits (Lipman, 1976 #2717) but apparently have not moved during the Holocene (Kirkham, 1992 #4452; McCalpin, 1992 #4454).

Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* All of the faults included in this group displace Pleistocene and Pliocene alluvial-fan deposits (Lipman, 1976 #2717). Two of the faults were studied by Kirkham (1992 #4452) and McCalpin (1992 #4454), who concluded they were Quaternary faults,but had not moved during the Holocene.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Widmann and others (1998 #3441) placed this fault in the <0.2 mm/yr slip-rate category.
Date and Compiler(s)	1998 Robert M. Kirkham, Colorado Geological Survey
References	#4452 Kirkham, R.M., 1992, Preliminary geologic assessment of a tract of land in sections 19 and 30, T39N, R7E for use as the new landfill site for Rio Grande County: Technical report to Rio Grande County Commissioners, 18 p. #792 Kirkham, R.M., and Rogers, W.P., 1981, Earthquake potential in Colorado: Colorado Geological Survey Bulletin 43, 171 p., 3 pls. #2717 Lipman, P.W., 1976, Geologic map of the Del Norte area, eastern San Juan Mountains, Colorado: U.S. Geological Survey Miscellaneous Geologic Investigations I-952. #4454 McCalpin, J.P., 1992, Assessment of faulting at the proposed new landfill site for Rio Grande County, Colorado: Technical report to Rio Grande County Commissioners, 13 p. #2748 Steven, T.A., Lipman, P.W., Hail, W.J., Jr., Barker, F., and Luedke, R.G., 1974, Geologic map of the Durango quadrangle, southwestern Colorado: U.S. Geological Survey Miscellaneous Geologic Investigations I-764. #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.