Jump to Navigation

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.

Valmont fault (Class B) No. 2325

Last Review Date: 1997-11-17

Compiled in cooperation with the Colorado Geological Survey

citation for this record: **Widmann, B.L., compiler, 1997, Fault number 2325, Valmont 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 03:00 PM.**

Synopsis	The Valmont fault is southeast of Valmont (a community), near the Valmont Reservoir. There is no surface expression of the fault, but the fault is exposed in a roadcut on North 75th Street. A fault zone is defined by disrupted and shingled stones of the Slocum Alluvium. Scott (1970 #1141) and Kirkham and Rogers (1981 #792) suggested movement on the fault is Sangamon (middle Pleistocene) or younger. Unruh and others (1996 #2779), however, concluded that the fault is related to the Valmont dike and that the shingled stones are depositional in origin, not tectonic. Without more detailed investigation of this structure, it is herein considered to be a feature of suspect origin (Class B), but Quaternary movement is not ruled out.

Name comments	The Valmont fault is an east-northeast-trending fault southeast of the town of Valmont. The fault is at the northeast end of the Valmont Reservoir and is exposed in the east side of the roadcut for North 75th Street east of Boulder. The fault strikes parallel to the Valmont dike. The fault was discovered in 1957 by Frank Riley (U.S. Geological Survey) and was first mapped by Scott and Cobban (1965 #2734). **Fault ID:** Fault 167 in Kirkham and Rogers (1981#792), fault 154 in Witkind (1976 #2792), and fault number Q75 of Widman and others (1998 #3441).
County(s) and State(s)	BOULDER COUNTY, COLORADO
Physiographic province(s)	GREAT PLAINS
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* The fault was mapped at a scale of 1:24,000 by Trimble (1975 #2758), 1:48,000 by Scott and Cobban (1965 #2734) and 1:250,000 by Unruh and others (1996 #2779). The trace used herein is from Unruh and others (1996 #2779).
Geologic setting	The Valmont fault is in the Great Plains province east of Boulder and about 10 km from the Front Range, an uplifted Neogene block. It is in close proximity to and has a strike similar to the Valmont dike, but the relationship between the two features is not clear. The fault is a high-angle normal fault, down to the southeast.
Length (km)	1 km.
Average strike	N75°E
Sense of movement	Normal *Comments:* Witkind (1976 #2792) and Kirkham and Rogers (1981 #792) reported normal movement on the fault.

Dip	90°, V *Comments:* Scott (1970 #1141) described the fault as vertical in the roadcut.
Paleoseismology studies	
Geomorphic expression	There is no surface expression of the fault (Scott, 1970 #1141; Kirkham and Rogers, 1981 #792).
Age of faulted surficial deposits	Slocum Alluvium (Illinoian or Sangamon, both middle Pleistocne) appears to be offset 1.5 m across the fault zone (Scott ,1970 #1141).
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* The fault is characterized by a 13-m-wide zone of disrupted and shingled stones in the Slocum Alluvium (Scott, 1970 #1141; Kirkham and Rogers, 1981 #792). Scott (1970 #1141) reported that the stones were shingled due to movement on the Valmont fault as opposed to depositional shingling, and that movement on the fault was Sangamon or younger. Unruh and others (1996 #2779) concluded that the stones were imbricated in accordance with paleo-transportation direction, and that apparent movement on the fault was related to the Valmont dike and is not tectonic. With out more detailed investigation, it is herein classified as a feature of suspect origin (Class B) that may have moved as recently as the middle and late Quaternary.
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 based on 1.5 m of offset of Sangamon deposits.
Date and Compiler(s)	1997 Beth L. Widmann, Colorado Geological Survey
References	#792 Kirkham, R.M., and Rogers, W.P., 1981, Earthquake potential in Colorado: Colorado Geological Survey Bulletin 43,

	171 p., 3 pls. #1141 Scott, G.R., 1970, Quaternary faulting and potential earthquakes in east-central Colorado: U.S. Geological Survey Professional Paper 700-C, C11-C18 p. #2734 Scott, G.R., and Cobban, W.A., 1965, Geologic and biostratigraphic map of the Pierre Shale between Jarre Creek and Loveland, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-551. #2758 Trimble, D.E., 1975, Geologic map of the Niwot quadrangle, Boulder County, Colorado: U.S. Geological Survey Geologic quadrangle Map GQ-1229. #2779 Unruh, J.R., Wong, I.G., Knudsen, K.L., Bott, J.D.J., Becker, A., Silva, W.J., and Lettis, W.R., 1996, unpublished, Seismotectonic evaluation, Rattlesnake and Flatiron Dams, Colorado-Big Thompson Project, north-central Colorado: U.S. Bureau of Reclamation, 174 p. #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. #2792 Witkind, I.J., 1976, Preliminary map showing known and suspected active faults in Colorado: U.S. Geological Survey Open-File Report 76-154.