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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.

Iron Mountain fault (Class A) No. 1195

Last Review Date: 2000-09-29

citation for this record: **Lidke, D.J., compiler, 2000, Fault number 1195, Iron Mountain 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 02:17 PM.**

Synopsis	This north-striking fault zone is characterized by a relatively continuous range-front fault that juxtaposes bedrock of the central Shoshone Mountains against Quaternary piedmont-slope deposits of the Smith Creek Valley, and locally form west-facing scarps on piedmont-slope deposits along the range-front fault. Most of the fault zone as a major, down-to-the-west, range-front fault, and the east-facing direction of the associated scarps implies principally down-to-the-west offset along the fault zone. There is evidence along the fault zone for at least one Quaternary faulting event that is no older than early Pleistocene, and perhaps no older than late Pleistocene in age. The fault zone has not been studied in detail, however, and little is actually known with certainty about its nature, character, and movement history. The principal sources of data consist of geologic mapping, reconnaissance photogeologic mapping, and reconnaissance geomorphic study of fault scarps and basal fault facets.

Name comments	Refers to a north-striking fault zone mapped by McKee (1968 #4366), Stewart and McKee (1977 #4351), and Dohrenwend and others (1992 #283) that bounds the western side of the central part of the Shoshone Mountains and eastern side of the Smith Creek Valley. dePolo (1998 #2845) portrayed and referred to this fault as the Iron Mountain fault and that name is used herein. The fault zone extends from about 3 km south of Highway 50 south along the western flank of the Shoshone Mountains to about 2 km southwest of Iron Mountain. **Fault ID:** Refers to fault that dePolo (1998 #2845) portrayed and labeled MI7.
County(s) and State(s)	LANDER COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location is from 1:250,000-scale map of Dohrenwend and others (1992 #283) that shows mapping based on photogeologic analysis of 1:58,000-nominal-scale, color-infrared photography, which was transferred directly to 1:100,000-scale topographic maps enlarged to the scale of the photographs. The 1:100,000-scale fault maps were reduced and compiled at 1:250,000-scale for final publication.
Geologic setting	This north-striking fault zone is mostly marked by a relatively continuous, range-front fault that shows down-to-the-west stratigraphic offset that places Tertiary volcanic rock of the northern Shoshone Mountains against Quaternary piedmont-slope deposits of the Smith Creek Valley (Stewart and McKee, 1977 #4351; Dohrenwend and others, 1992 #283). Some west-facing scarps are formed on piedmont-slope deposits along and near the range-front faults. The west-facing direction of the scarps and the apparent down-to-the-west stratigraphic offsets along the range-front faults consistently imply mostly down-to-the-west offset that probably reflects some continued Quaternary uplift of the Shoshone Mountains relative to the adjacent Smith Creek Valley.
Length (km)	20 km.
Average strike	N4°E

Sense of movement	Normal *Comments:* Not specifically reported, however, the down-to-west range-front faults and the west-facing scarps consistently indicate down-to-the-west offsets, which in this extensional regime probably reflects principally normal, dip-slip movement along westerly dipping faults.
Dip Direction	W *Comments:* Not reported, but probably steep, based on dip measurements of other Quaternary faults in localities nearby and elsewhere in the Basin and Range Province.
Paleoseismology studies	
Geomorphic expression	Fault zone is expressed by a relatively continuous north-striking, range-front fault and, locally, west-facing scarps near the range-front on piedmont-slope deposits of the Smith Creek Valley (Stewart and McKee, 1977 #4351; Dohrenwend and others, 1992 #283). dePolo (1998 #2845) reported a preferred maximum basal facet height of 85 m (73-98 m).
Age of faulted surficial deposits	McKee (1968 #4366) and Stewart and McKee (1977 #4351) mapped the faulted deposits along the fault zone as fan deposits, which they assigned a broad age range of Pleistocene to Holocene. Dohrenwend and others (1992 #283) were unable to constrain the age(s) of faulted deposits; they assigned an undifferentiated Pleistocene age to deposits that are offset along the fault zone.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of the most recent prehistoric faulting event is not tightly constrained. McKee (1968 #4366), Stewart and McKee (1977 #4351), and Dohrenwend and others (1992 #283) all agree that the most recent faulting event is no older than early Pleistocene in age.
Recurrence	

interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.184 mm/yr based on an empirical relationship between his preferred maximum basal facet height and vertical slip rate. The size of the facets (tens to hundreds of meters, as measured from topographic maps) indicates they are the result of many seismic cycles, and thus the derived slip rate reflects a long-term average. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) also suggest the slip rate during this period is of a similar magnitude. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	2000 David J. Lidke, U.S. Geological Survey
References	#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #283 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Millett 1° by 2° quadrangle, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2176, 1 sheet, scale 1:250,000. #4366 McKee, E.H., 1968, Geologic map of southwestern part of Lander County, Nevada: U.S. Geological Survey Open-File Report 68-173, 1 sheet, scale 1:62,500. #4351 Stewart, J.H., and McKee, E.H., 1977, Geology and mineral deposits of Lander County, Nevada: Nevada Bureau of Mines and Geology Bulletin 88, 106 p., 3 pls.

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