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.

Lone Mountain faults (Class A) No. 1186

Last Review Date: 2000-09-18

citation for this record: **Lidke, D.J., compiler, 2000, Fault number 1186, Lone Mountain faults, 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 group of faults nearly encircles Lone Mountain and is marked by faults and scarps of diverse strike directions. The exposed faults juxtapose Paleozoic bedrock of Lone Mountain against Quaternary piedmont slope deposits; most of the scarps are on Quaternary piedmont-slope deposits and face away from Lone Mountain. There is evidence along this fault zone for one or more Quaternary faulting events that may be as young as late Pleistocene in age. These faults have not been studied in detail and very little is known about their nature, character, and movement history. The only known sources of data for these faults consist of photogeologic mapping supplemented by some field verification and reconnaissance photogeologic mapping.
Name comments	Refers to faults mapped by Schell (1981 #2844) and Dohrenwend (1992 #283) that appear to form a ring-like zone around Lone Mountain. Schell (1981 #2844) referred to these faults as the

	Lone Mountain fault, and a slight modification of that name (Lone Mountain faults) is used herein. Lone Mountain is an isolated, small mountain in the southeastern part of the Kobeh Valley. The Lone Mountain faults nearly encircle Lone Mountain and extend just south of U.S. Highway 50. **Fault ID:** Refers to faults that were mapped and labeled number 58 by Schell (1981 #2844).
County(s) and State(s)	EUREKA COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location based on 1:250,000-scale maps of Schell (1981 #2844) and Dohrenwend and others (1992 #283). Mapping by Schell (1981 #2843; 1981 #2844) included field verification but was based primarily on photogeologic analysis of 1:24,000-scale, color, aerial photography that was supplemented by analysis of some 1:60,000-scale, black-and-white, aerial photography: faults identified on the aerial photographs were transferred by inspection to 1:62,500-scale topographic maps that were photographically reduced to 1:250,000-scale for final compilation of the faults on 1:250,000-scale topographic maps. Mapping by Dohrenwend and others (1992 #283) was based on photogeologic analysis of 1:58,000-nominal-scale, color-infrared photography transferred directly to 1:100,000-scale topographic maps enlarged to the scale of the photographs; these maps were then reduced and compiled at 1:250,000-scale.
Geologic setting	The Lone Mountain faults form a ring-like zone of deformation that nearly encircles Lone Mountain, which is a relatively isolated, small, low peak in the southeastern part of the Kobeh Valley. Geologic mapping by Lehner and others (1961 #4363) indicates that Lone Mountain is comprised of Paleozoic rock. Mapping by Schell (1981 #2844) and Dohrenwend and others (1992 #283) shows some of the faults place Paleozoic bedrock of Lone Mountain against Quaternary piedmont-slope deposits along the flanks of the mountain. These scarps and those on proximal piedmont slope deposits face away from Lone Mountain. A few, short, east northeast-striking faults are present directly southeast

	of Lone Mountain and Highway 50 and may be related to the main ring-like zone of faults around Lone Mountain. Stratigraphic relations across the Lone Mountain faults, as well as the outward-facing aspect of the scarps, consistently indicate that Lone Mountain has moved upward relative to the valley area. These relations suggest that Lone Mountain is a dome-like feature that is continuing to show some Quaternary uplift or doming. The topographic expression of Lone Mountain and the ring-like form of the fault zone suggest the possibility (however remote) of igneous activity at depth beneath Lone Mountain; however, these faults have not been studied in detail and information about the nature and amounts of offset have not been reported.
Length (km)	10 km.
Average strike	N16°E
Sense of movement	Normal *Comments:* Not specifically reported, however, stratigraphic relations across faults and the facing direction of scarps consistently suggest down-to-the-valley offsets, which in this extensional regime probably reflects principally normal, dip-slip movement along faults of this zone that dip into the valley and away from the crest of Lone Mountain.
Dip Direction	Unknown *Comments:* Not applicable; faults form a nearly circular fault zone.
Paleoseismology studies	
Geomorphic expression	These faults appear to form a nearly circular zone that encircles Lone Mountain. The faults place Lone Mountain bedrock against Quaternary piedmont-slope deposits of Kobeh Valley and form scarps that face toward the valley and away from Lone Mountain (Schell, 1981 #2844; Dohrenwend and others, 1992 #283).
Age of faulted surficial deposits	Dohrenwend and others (1992 #283) did not assign specific ages to faulted deposits along these faults, and their map indicates only that Quaternary deposits are juxtaposed against older bedrock and scarps are present on Quaternary piedmont-slope deposits along this fault zone. Schell (1981 #2844) more tightly constrained the

	age of the youngest faulted deposits as about 15-700 ka and further suggested that most of these deposits are younger than about 200 ka.
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Mapping studies by Schell (1981 #2844) and Dohrenwend and others (1992 #283) similarly indicate that one or more Quaternary faulting events has occurred along this fault. Schell (1981 #2844) assigned an age range of about 15-700 ka to the youngest faulted deposits, but reported that these deposits probably are no older than about 200 ka. Schell (1981 #2844) also reported a probable late Pleistocene age of latest movement that apparently is based on insights that are not discussed in his report.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Not reported; low slip rate selected on the basis of the faults geomorphic expression.
Date and Compiler(s)	2000 David J. Lidke, U.S. Geological Survey
References	#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. #4363 Lehner, R.E., Tagg, K.M., Bell, M.M., and Roberts, R.J., 1961, Preliminary geologic map of Eureka County, Nevada: U.S. Geological Survey Mineral Investigations Field Studies Map MF-178, 1 sheet, scale 1:250,000. #2843 Schell, B.A., 1981, Faults and lineaments in the MX Sitting Region, Nevada and Utah, Volume I: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 77 p. #2844 Schell, B.A., 1981, Faults and lineaments in the MX Siting

	Region, Nevada and Utah, Volume II: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base, California, under Contract FO4704-80-C-0006, November 6, 1981, 29 p., 11 pls., scale 1:250,000.