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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.

Eastern Battle Mountain faults (Class A) No. 1143

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Synopsis	The Eastern Battle Mountain faults are a poorly understood group of short (<5 km) north-striking, down-to-the-east faults at the eastern base of Battle Mountain, adjacent to Reese River Valley. Based on reconnaissance photogeologic mapping, the northern of two unaligned block-bounding faults is marked by a short (<1 km) scarp on a Quaternary surficial deposit or erosion surface. Elsewhere those faults juxtapose Quaternary alluvium against bedrock, but the bedrock escarpments apparently lack fault facets. The group includes two short (<2 km) faults located on the piedmont slope between Battle Mountain and Nevada State Highway 305. None of the faults were recognized during 1:125,000-scale mapping of young fault scarps in the region or on a 1:24,000-scale geologic map of the Galena Canyon 7.5? quad, raising some doubt as to their late Quaternary history. There are no data to estimate recurrence times or slip rates.

Name comments	Name modified from dePolo (1998 #2845) who apparently combined four short (< 5 km) faults mapped by Dohrenwend and Moring (1991 #282) and referred to them as the Eastern Battle Mountain fault. The main western block-bounding faults of the group extend south from about the latitude of the Buckingham Mine to about 2 km south of Galena Canyon. **Fault ID:** Fault referred to as WI11 by dePolo (1998 #2845).
County(s) and State(s)	LANDER COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are based on 1:250,000-scale map of Dohrenwend and Moring (1991 #284) which was produced by analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs. The fault is not shown by Wallace (1979 #203) on the 1:125,000-scale regional map of young fault scarps. Also, a geologic map at scale 1:125,000-scale (Ferguson and others, 1952 #4478) shows only a short (about 1 km) Quaternary fault across the mouth of Cottonwood Canyon. At 1:24,000 scale, geologic maps (Doebrich, 1994 #4314; Theodore and others, 1994 #4317) show no Quaternary fault along the southwest base of Battle Mountain. These maps raise some question as to the location and existence of faults along the eastern flank of Battle Mountain.
Geologic setting	The eastern Battle Mountain faults are short (<5 km) down-to-the-east structures that are apparently block-bounding faults (lesser faults than range-bounding faults) located along part of the eastern base of Battle Mountain adjacent to Reese River Valley (Dohrenwend and Moring, 1991 #282). Wallace (1979 #203) does not show the traces on his 1:125,000-scale map of young fault scarps. Also, on 1:24,000-scale geologic maps, neither Theodore (1994 #4317) nor Dobrich (1994 #4314) show Quaternary faults along the eastern margin of Battle Mountain. There is, therefore, some cause for questioning the geologic significance of the faults and whether they have a Quaternary movement.

Length (km)	8 km.
Average strike	N11°E
Sense of movement	Normal *Comments:* No specific data available; sense inferred from location and orientation in extensional tectonic province.
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	Four faults comprise the eastern Battle Mountain faults as recognized from reconnaissance photogeologic mapping by Dohrenwend and Moring (1991 #282). These faults were not recognized by Wallace (1979 #203) as part of a study of young fault scarps in the region, nor were they shown as Quaternary faults of the 1:24,000-scale geologic map of the Galena Canyon 7.5? quad (Doebrich, 1994 #4314), raising some doubt as to their Quaternary history of activity. However, at the mouth of Cottonwood Canyon a 1-km-long scarp on Quaternary surficial deposits or erosion surfaces (Dohrenwend and Moring, 1991 #282) marks the northern of two unaligned western faults. Elsewhere those same faults juxtapose Quaternary alluvium against bedrock, but the bedrock escarpments apparently lack fault facets. Dohrenwend and Moring (1991 #282) mapped two short (< 2 km), low east-facing scarps on surficial deposits or erosion surfaces faults on the piedmont slope between Battle Mountain and Nevada State Highway 305. dePolo (1998 #2845) indicates that there are scarps on alluvium but no basal fault facets.
Age of faulted surficial deposits	Middle to early Pleistocene (10 ka-1.5 Ma) deposits or erosion surfaces are offset along the range front faults. In addition, piedmont scarps on possible late Pleistocene (10-130 ka) deposits or erosion surfaces are shown based on a reconnaissance photogeologic study (Dohrenwend and Moring, 1991 #282).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The main fault traces are on Pleistocene (10 ka-1.5

	Ma) deposits or erosion surfaces, thus indicating movement in the Quaternary. However, less convincing is the possibility of movement younger than 130 ka as suggested by the piedmont scarps (Dohrenwend and Moring, 1991 #282). Thus, a conservative age assignment is indicated here.
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 0.01 mm/yr for the fault based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Low slip-rate category chosen in accordance with other relatively inactive faults in the region (Wallace, 1978 #2648).
Date and Compiler(s)	2000 R. Ernest Anderson, U.S. Geological Survey, Emeritus
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. #4314 Doebrich, J.L., 1994, Preliminary geologic map of the Galena Canyon quadrangle, Lander County, Nevada: U.S. Geological Survey Open-File Report 94-664. #282 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Winnemucca 1° by 2° quadrangle, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2175, 1 sheet, scale 1:250,000. #284 Dohrenwend, J.C., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the McDermitt 1° by 2° quadrangle, Nevada, Oregon, and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-2177, 1 sheet, scale 1:250,000. #4478 Ferguson, H.G., Roberts, R.J., and Muller, S.W., 1952, Geology of the Golconda quadrangle, Nevada: U.S. Geological

	Survey Geologic quadrangle Map GQ-15, 1 sheet, scale 1:125,000. #4317 Theodore, T.G., Murchey, B.L., Hanger, R.A., Strong, E.E., and Ashinhurst, R.T., 1994, Preliminary geologic map of the Snow Gulch quadrangle, Humboldt and Lander Counties, Nevada: U.S. Geological Survey Open-File Report 94-436. #2648 Wallace, R.E., 1978, Geometry and rates of change of fault-generated range fronts, north-central Nevada: Journal of Research of the U.S. Geological Survey, v. 6, no. 5, p. 637-649. #203 Wallace, R.E., 1979, Map of young fault scarps related to earthquakes in north-central Nevada: U.S. Geological Survey Open-File Report 79-1554, 2 sheet, scale 1:125,000.