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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.

Golden Gate fault (Class A) No. 1393

Last Review Date: 1998-06-29

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1393, Golden Gate 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 02:14 PM.**

Synopsis	This discontinuous group of distributed, short normal faults bounds the east and west fronts of the Golden Gate Range and includes easterly striking cross faults within the range. Reconnaissance photogeologic mapping of the fault and limited analysis of scarp morphology are the sources of data. There is not good agreement with regard to timing of the most recent event. Trench investigations and studies of scarp morphology have not been completed.
Name comments	Refers to the Golden Gate fault mapped and named by Schell (1981 #2844) and subsequently mapped by Dohrenwend and others (1991 #287). dePolo (1998 #2845) called it the Coal Valley fault. We use the original name by Schell herein. The fault is a complex zone of short faults and cross faults within and at the east base of the Golden Gate Range. **Fault ID:** Refers to fault 20 of Schell (1981 #2844) and fault LD6

	(Coal Valley fault) of dePolo (1998 #2845).
County(s) and State(s)	LINCOLN COUNTY, NEVADA NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based on 1:250,000-scale maps of Schell (1981 #2844) and of Dohrenwend and others (1991 #287) in the Lund sheet and the Caliente sheet, based on unpublished 1:250,000 map by J.C. Dohrenwend (compiled at 1:1,000,000 for Dohrenwend and others 1996, #2846). Original mapping by Schell (1981 #2843; 1981 #2844) based on photogeologic analysis of primarily 1:24,000-scale color aerial photography supplemented with 1:60,000-scale black-and-white aerial photography, transferred by inspection to 1:62,500-scale topographic maps and photographically reduced and directly transferred to 1:250,000-scale topographic maps, and field verification. Mapping by Dohrenwend and others (1991 #287; 1996, #2846) based on photogeologic 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.
Geologic setting	This discontinuous group of distributed, short normal faults mainly bounds the east fronts of the Golden Gate Range against Coal Valley and includes easterly striking cross faults within the range. A 13-km-long gap exists between the faults mapped in the Lund and Caliente sheets, and how these faults are related is not known.
Length (km)	30 km.
Average strike	N21°E
Sense of movement	Normal *Comments:* (Schell, 1981 #2844).
Dip Direction	E; W; N; S
Paleoseismology	

studies	
Geomorphic expression	The fault is marked by abrupt well-defined fault scarps and less well defined scarps juxtaposing Quaternary alluvium against bedrock, and by lineaments scarps on Quaternary and Tertiary deposits (Dohrenwend and others, 1991 #287). Schell (1981 #2844) reports that there are low (up to 1.8 m) scarps, but location(s) is uncertain. dePolo (1998 #2845) indicates that there are scarps on alluvium but no basal fault facets.
Age of faulted surficial deposits	latest Pleistocene (~15 k.y.) lacustrine to late Pleistocene deposits (Schell, 1981 #2844). In an unpublished Quaternary fault map of the Caliente sheet by J.C. Dohrenwend (compiled at 1:1,000,000; Dohrenwend and others, 1996 #2846), a short trace is considered to be formed on surfaces of deposits of late Pleistocene (10–130 ka) age. Because of the 13-km gap, that fault is shown as late Quaternary (<130 ka).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* The timing of most recent event is not well constrained, and the two sources do not concur. Schell (1981 #2844) suggested a Holocene time based on scarp morphology and photogeologic analysis. Along that same scarp, Dohrenwend and others (1991 #287) suggested a Quaternary time based on reconnaissance photogeologic analysis. In the Caliente sheet, Dohrenwend and others (1996, #2846) shows short east-facing scarps on surfaces of late Pleistocene (10–130 ka) age. We assign herein the youngest age as suggested by reconnaissance photogeologic mapping Schell (1981 #2843; 1981 #2844).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* 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. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.

Date and Compiler(s)	1998 Thomas L. Sawyer, Piedmont Geosciences, Inc.
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. #287 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1991, Reconnaissance photogeologic map of young faults in the Lund 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2180, 1 sheet, scale 1:250,000. #2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000. #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.