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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.

Duck Water fault (Class A) No. 1378

Last Review Date: 1998-07-11

citation for this record: **Sawyer, T.L., compiler, 1998, Fault number 1378, Duck Water 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 zone of short, down-to-the-west normal faults discontinuously bounds west flank of Duckwater Hills and has distributed faults on the floor and along the margins of Duckwater Valley. Reconnaissance photogeologic mapping of the fault and a limited study of fault scarp morphology are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	The fault was mapped and named by Schell (1981 #2844) and Dohrenwend and others (1991 #287). The fault extends along the entire east edge of Duckwater Valley from the Pancake Range northward along the front of range and across the piedmont slope of Duckwater Hills, to near Bull Fork. **Fault ID:** Refers to fault 99 on Plate A6 of Schell (1981 #2844) and to fault EY4 (Duck Water fault) of dePolo (1998 #2845).
County(s) and	WHITE PINE COUNTY, NEVADA

State(s)	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; 1992 #2480). 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; 1992 #2480) 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 zone of short, down-to-the-west normal faults discontinuously bounds west flank of Duckwater Hills and has distributed faults on the floor and along the margins of Duckwater Valley.
Length (km)	41 km.
Average strike	N3°E
Sense of movement	Normal *Comments:* (Schell, 1981 #2844; Dohrenwend and others, 1991 #287; 1992 #2480)
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	The fault is expressed by abrupt well-defined hillslope-piedmont transitions, and by low (up to 3 m high) scarps and lineaments on Quaternary deposits (Schell, 1981 #2844; Dohrenwend and others, 1991 #287; 1992 #2480).

Age of faulted surficial deposits	Dohrenwend and others (1991 #287; 1992 #2480) show that most of the scarps are on Pleistocene deposits; possible late Pleistocene movement is not precluded. Schell (1981 #2844) indicates late Pleistocene deposits are faulted.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of most recent event is not well constrained, and the two sources do not concur. Dohrenwend and others (1991 #287; 1996 #2846) suggested late Pleistocene movement at one location; the rest of the fault can be characterized as Quaternary. However, Schell (1981 #2844) suggested a late Pleistocene time based on reconnaissance photogeologic studies. We assign herein the most conservative age as suggested by reconnaissance photogeologic mapping of Dohrenwend and others (1991 #287; 1996 #2846).
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. 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.

	#2480 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Ely 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2181, 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.