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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.

Stonewall Flat faults (Class A) No. 1089

Last Review Date: 1998-12-15

citation for this record: **Anderson, R.E., compiler, 1998, Fault number 1089, Stonewall Flat 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 02:19 PM.**

Synopsis	The Stonewall Flat faults form a cluster of fault traces extending from the west part of Stonewall Flat southwest to the Cuprite Hills, a distance of about 22 km. They strike approximately parallel to other northeast-striking mid-valley, block- and range-bounding faults in the region (Piety, 1995 #915), but their tectonic significance is not understood. Most traces mark lineaments along bedrock blocks, but where the cluster extends into the low relief Stonewall Flat, the traces are mostly defined by weak to prominent lineaments or scarps in unstudied surficial deposits. There are no age data or scarp-height data to constrain slip rate or recurrence; however, slip rate estimates have been reported that are based mainly on the presence of scarps along the faults. Photogeologic maps are the main sources of data for these faults.
Name comments	Name adapted from Piety (1995 #915) who gave the name Stonewall Flat faults to a cluster of northeast-striking faults in the

	west part of Gold Flat extending southwest along the Cuprite Hills. dePolo (1998 #2845) later applied the name Cuprite Hills fault zone to these faults. The adapted earlier name of Piety (1995 #915) is retained herein. Faults and fault-related features of this fault zone were mapped by Dohrenwend and others (1992 #289) and Reheis and Noller (1991 #1195). The northeast-striking Stonewall Flat faults are expressed as a single trace along the northwest flank of the Cuprite Hills and from there extend northeastward as a cluster of northeast-striking traces into the west side of Stonewall Flat to about 5 km southeast of Blackcap Mountain. **Fault ID:** Fault referred to as SWF by Piety (1995 #915). Portrayed as two related parts and shown as faults G9A and G9B by dePolo (1998 #2845).
County(s) and State(s)	ESMERALDA COUNTY, NEVADA NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Traces taken from Reheis and Noller (1991 #1195) who compiled them on a 1:100,000 scale topographic map from photogeologic mapping on aerial photos at scales ranging from 1:30,000 to 1:80,000.
Geologic setting	The faults are among several northeast-striking faults in the area west of Cactus Flat and east of Fish Lake Valley (Piety, 1995 #915). Many of these faults bound range blocks. The southwestern strand of the Stonewall Flat faults bounds the Cuprite Hills block on the northwest, but other strands are in the low-relief northwestern flank of Stonewall Flat. Reheis and Noller (1991 #1195) speculated that these northeast-striking faults could be conjugate shears to the right-slip, northwest-striking Furnace Creek fault in the Death Valley area of California. Alternatively, they could be dip-slip faults oriented normal to the regional NW-SE extension direction.
Length (km)	22 km.
Average strike	N28°E

Sense of movement	Unspecified *Comments:* Reheis and Noller (1991 #1195) show fault scarps facing northwest and southeast, possibly indicating dip-slip displacement in those directions. The opposed facing directions of scarps may also indicate the presence of small horst and graben structures within the fault zone, which would suggest a normal sense of offset along faults of the zone.
Dip Direction	Unknown *Comments:* Reheis and Noller (1991 #1195) show fault scarps facing northwest and southeast, possibly indicating dips in those directions.
Paleoseismology studies	
Geomorphic expression	Reheis and Noller (1991 #1195) compiled about 46 km of fault traces in an area about 21.5 x 6 km. Most of the traces mark topographic lineaments bounding bedrock features and those tend to comprise the southwest part of the fault cluster. Quaternary displacement is not established for those traces, which includes the northwest margin of the Cuprite Hills. In a generally low-relief area about 12 km long and 2.5 km wide in the northeast part of the cluster, the traces are defined by weakly to prominently expressed lineaments or scarps on Quaternary surfaces or deposits (Reheis and Noller, 1991 #1195). A few of these traces are also shown by Dohrenwend and others (1992 #289).
Age of faulted surficial deposits	Reheis and Noller (1991 #1195) show most of the faults as expressed on surfaces of Quaternary deposits and as fault traces that are in Quaternary deposits and that were recognized from previous mapping. Dohrenwend and others (1992 #289) estimate, on the basis of reconnaissance photogeologic study, that the youngest surfaces displaced on a single fault (<2 km long) may be late Pleistocene and (or) Holocene (<30 ka).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Based on a poorly constrained estimate of the age of the youngest surfaces cut by the fault (Dohrenwend and others,

	1992 #289), the most recent event may be younger than 30 ka. Thus, the less than 130 ka age category is assigned to these faults.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for these 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 these faults (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) also suggest 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 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. #289 Dohrenwend, J.C., Schell, B.A., McKittrick, M.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Goldfield 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2183, 1 sheet, scale 1:250,000. #915 Piety, L.A., 1995, Compilation of known and suspected Quaternary faults within 100 km of Yucca Mountain, Nevada and California: U.S. Geological Survey Open-File Report 94-112, 404 p., 2 pls., scale 1:250,000. #1195 Reheis, M.C., and Noller, J.S., 1991, Aerial photographic interpretation of lineaments and faults in late Cenozoic deposits in the eastern part of the Benton Range 1:100,000 quadrangle and the Goldfield, Last Chance Range, Beatty, and Death Valley Junction 1:100,000 quadrangles, Nevada and California: U.S. Geological Survey Open-File Report 90-41, 9 p., 4 sheets, scale 1:100,000.

Questions or comments?