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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.

Weepah Hills fault (Class A) No. 1109

Last Review Date: 1999-02-17

citation for this record: **Anderson, R.E., compiler, 1999, Fault number 1109, Weepah Hills 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 02:18 PM.**

Synopsis	The Weepah Hills fault is a poorly understood west-northwest-striking structure on the south flank of the Weepah Hills. It is apparently not a range-bounding or major block-bounding normal fault. Its tectonic significance is not reported. Photogeologic mapping is the main source of data for this fault. A photogeologic map shows a 2.5-km-long trace of the fault on Quaternary deposits or surfaces, but that trace is from previous mapping of uncertain origin. The age of the last Quaternary displacement event is unknown, and no information has been reported on the style of faulting, displacement, slip rate, or recurrence interval.
Name comments	Name given by Piety (1995 #915) to west-northwest-striking faults on the south flank of the Weepah Hills. The fault is mapped on a 1:100,000-scale photogeologic map (Reheis and Noller, 1991 #1195) but not on a 1:250,000-scale photogeologic map (Dohrenwend and others, 1992 #289), and it is shown on a

	compilation of Quaternary faults (Piety, 1995 #915). The Weepah Hills fault extends from about Paymaster Canyon, west-northwest along the southern flank of the Weepah Hills, to about 2 km east of Highway 265 and the old railroad grade. **Fault ID:** Referred to as WH by Piety (1995 #915)
County(s) and State(s)	ESMERALDA COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location is from Reheis and Noller (1991 #1195) who compiled the fault on a 1:100,000-scale topographic map from photogeologic study of aerial photographs at scales ranging from 1:24,000 to 1:80,000.
Geologic setting	The Weepah Hills fault is located in the Goldfield section of the Walker Lane belt of Stewart (1988 #1654), an area characterized by a general lack of major through-going northwest-striking strike-slip faults and a scarcity of major Basin and Range faults. The fault was not recognized in the 1:250,000-scale mapping of the geology of Esmeralda County (Albers and Stewart, 1972 #3863). As mapped photogeologically (Reheis and Noller, 1991 #1195), it strikes west-northwest, uncommon for this region in which many faults strike northeast (Reheis and Noller, 1989 #1610; 1991 #1195; Dohrenwend and others, 1992 #289). It is located on the south flank of the Weepah Hills, but its trace does not follow a conspicuous range-front escarpment and thus it does not appear to be a major range-front fault. Also, its western part is shown as facing north, and its eastern part as facing south (Reheis and Noller, 1991 #1195), suggesting opposed displacement directions uncharacteristic of range-bounding or major block-bounding faults. It was not recognized in a compilation of Quaternary faults at 1:250,000 by Dohrenwend and others (1992 #289). Its structural and tectonic significance is unknown.
Length (km)	15 km.
Average strike	N72°E
Sense of	Normal

movement	*Comments:* Normal components of movement could be expected to be down to the north and south as based on the facing direction of the fault scarps (Reheis and Noller, 1991 #1195), and strike-slip movement, although possible, is not reported.
Dip Direction	Unknown *Comments:* Not reported. The north and south facing directions of the scarps (Reheis and Noller, 1991 #1195) may suggest dips in those directions.
Paleoseismology studies	
Geomorphic expression	Most of the Weepah Hills fault traces are depicted as topographic lineaments with tics indicating the direction that scarps face (Reheis and Noller, 1991 #1195). One 2.5-km-long south-facing trace is taken from previous mapping, presumably identified from 1:12,000 low-sun-angle photos by G.E. Brogan as provided in written communication to Reheis and Noller (p.2, 1991 #1195). No information is available on scarp characteristics (Piety, 1995 #915).
Age of faulted surficial deposits	Quaternary. The 2.5-km-long scarp identified by Reheis and Noller (p.2, 1991 #1195) as taken from previous mapping is characterized as a fault in Quaternary deposits. Detailed mapping and subdivision of Quaternary deposits and surfaces have not been done in this area.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Photogeologic mapping by Reheis and Noller (1991 #1195) indicates evidence for Quaternary displacement along the fault; detailed studies of Quaternary deposits and surfaces and fault-related features, however, have not been done in this area.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr

	Comments: No scarp height or displacement data are available. 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)	1999 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#3863 Albers, J.P., and Stewart, J.H., 1972, Geology and mineral deposits of Esmeralda County, Nevada: Nevada Bureau of Mines and Geology Bulletin 78, 88 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. #1610 Reheis, M.C., and Noller, J.S., 1989, New perspectives on Quaternary faulting in the southern Walker Lane, Nevada and California, *in* Ellis, M.A., ed., Late Cenozoic evolution of the southern Great Basin: Nevada Bureau of Mines and Geology Open-File Report 89-1, p. 57-61. #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. #1654 Stewart, J.H., 1988, Tectonics of the Walker Lane belt, western Great Basin—Mesozoic and Cenozoic deformation in a zone of shear, *in* Ernst, W.G., ed., Metamorphism and crustal evolution of the western United States, Ruby Volume VII: Englewood Cliffs, New Jersey, Prentice Hall, p. 683-713.

Questions or comments?