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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.

Tule Canyon faults (Class A) No. 1098

Last Review Date: 1999-01-13

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Synopsis	The northerly striking Tule Canyon faults cut transverse across the western part of Slate Ridge east of Tule Canyon and they lie along strike of similarly striking faults in the north part of Death Valley to the south. The relation, if any, of the Tule Canyon faults to faults in Death Valley is not known. The Tule Canyon faults apparently dip east and west and do not bound major range blocks. Photogeologic studies show fault as two separate faults and two more faults to the west. Geomorphic evidence of Quaternary displacement is found along the western fault and the northern part of the eastern fault. Photogeologic mapping is main source of data for these faults. No information is available on the displacement, slip rate, or recurrence interval.
Name comments	Name adapted from Tule Canyon fault applied by Piety (1995 #915) to faults in the western part of Slate Ridge east of Tule Canyon and east of northern Death Valley. There are two

	relatively straight eastern faults each about 4 km long and a concave-eastward western fault about 4 km long. These faults are shown on a 1:100,000-scale photogeologic map by Reheis and Noller (1991 #1195) and on a 1:250,000-scale photogeologic map by Dohrenwend and others (1992 #289). The northerly striking Tule Canyon faults cross the west end of Slate Ridge and extend northward about 4 km into the southwest margin of Lida Valley. **Fault ID:** Referred to as TLC 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 faults on a 1:100,000-scale topographic map from photogeologic study of aerial photos at scales ranging from 1:24,000 to 1:80,000.
Geologic setting	The faults are 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. They strike northerly, transverse to the more northeasterly topographic grain of the Slate Ridge-Gold Mountain area, and thus are not range-bounding faults. Also, they were not recognized in the 1:250,000-scale mapping of the geology of Esmeralda County (Albers and Stewart, 1972 #3863). The four faults are not aligned (Reheis and Noller, 1991 #1195), but Dohrenwend and others (1992 #289) connect the two eastern ones. Other northerly striking faults occur along strike to the south in northern Death Valley and at the east base of the Last Chance Range (Dohrenwend and others, 1992 #289), but their relation to the Tule Canyon faults is unknown.
Length (km)	9 km.
Average strike	N20°E
Sense of movement	Normal *Comments:* No data are reported on the sense of slip. On the basis

	of photogeologic study, the two eastern faults are shown as down to the east and the two western faults as down to the west (Reheis and Noller, 1991 #1195); these relations may suggest that the faults are normal faults that bound a weakly expressed horst.
Dip Direction	Unknown *Comments:* Unknown, probably east and west as suggested by the inferred displacement directions (Reheis and Noller, 1991 #1195) and the facing directions of scarps (Dohrenwend and others, 1992 #289).
Paleoseismology studies	
Geomorphic expression	Reheis and Noller (1991 #1195) photogeologically map two relatively straight unaligned eastern faults (one north and one south) and map two western faults, the longer of the two western faults is concave-eastward. They show the western faults as well expressed lineaments or scarps on Quaternary deposits, the northern fault as a weakly to well expressed lineament or scarp on Quaternary deposits, and the southern fault as a topographic lineament bounding bedrock. Dohrenwend and others (1992 #289) do not show the western faults and show the two eastern faults as connected through Slate Ridge; they show the north part as a scarp on Quaternary deposits or surfaces, and they show the south part as a fault that juxtaposes Quaternary alluvium against bedrock.
Age of faulted surficial deposits	On the basis of photogeologic study, the north part of the eastern of the Tule Canyon faults is portrayed as scarps on depositional or erosional surfaces of early to middle and (or) late Pleistocene age (ranging from 10 ka to 1.5 Ma; Dohrenwend and others, 1992 #289).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Based on photogeologic study, Dohrenwend and others (1992 #289) and Reheis and Noller (1991 #1195) show evidence for Quaternary activity along the Slate Ridge faults. Detailed mapping and study of Quaternary deposits 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 stratigraphic-offset or scarp-height data are reported. The late Quaternary characteristics of these faults (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to these faults.
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. #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?