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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.

Mud Lake-Goldfield Hills fault (Class A) No. 1093

Last Review Date: 1998-12-23

citation for this record: **Anderson, R.E., compiler, 1998, Fault number 1093, Mud Lake-Goldfield 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 02:19 PM.**

Synopsis	The Mud Lake-Goldfield Hills fault consists of poorly aligned, north-northwest-striking, discontinuous fault traces. Most of the traces are developed on Tertiary deposits, but some are weakly expressed lineaments or scarps on surfaces of stratigraphically undivided Quaternary deposits. The traces probably do not mark a major single fault. No data are available to constrain estimates of timing or slip rate. Photogeologic mapping is the main source of data for this fault.
Name comments	Name given by Piety (1995 #915) to discontinuous, poorly aligned zone of faults that extends about 33 km from the east flank of the Goldfield Hills south-southeast to near Wildhorse Spring about 8 km south of Mud Lake. The fault is shown on a 1:100,000-scale photogeologic map by Reheis and Noller (1991

	#1195), but not shown on a 1:250,000-scale photogeologic map by Dohrenwend and others (1992 #289). **Fault ID:** Fault referred to as MLGH by Piety (1995 #915).
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:* Location is from Reheis and Noller (1991 #1195) who compiled the faults on a topographic map at 1:100,000 scale from study of aerial photos at scales ranging from 1:24,000 to 1:80,000.
Geologic setting	The Mud Lake-Goldfield Hills fault does not follow a margin between a basin and range. Instead, it transects low bedrock hills and piedmonts, and individual traces a few kilometers long follow discontinuous bedrock ridges (Reheis and Noller, 1991 #1195). It was not mapped through those bedrock areas by Cornwall (1972 #1482), suggesting that it probably does not mark a single major fault. The traces are poorly aligned producing a suggestion of a left-stepping arrangement.
Length (km)	33 km.
Average strike	N3°W
Sense of movement	Unspecified *Comments:* Traces mapped by Reheis and Noller (1991 #1195) are decorated with tics indicating the presence of both east- and west-facing scarps, possibly suggesting dip-slip, normal displacement in those directions along individual faults and perhaps suggesting the presence of horst and graben structure within this fault zone.
Dip Direction	Unknown *Comments:* Unknown, possibly both east and west dip directions, based on the presence of both east- and west-facing scarps Reheis and Noller (1991 #1195).

Paleoseismology studies	
Geomorphic expression	Reheis and Noller (1991 #1195) mapped about 37 km of total fault traces along the Mud Hill-Goldfield Hills fault and about two thirds of those are shown as moderately to well-expressed lineaments or scarps on surfaces of Tertiary deposits. The remaining approximately 12 km of traces are expressed as weak lineaments or scarps on surfaces of Quaternary deposits, suggesting that nowhere is there strong evidence for a Quaternary displacement history. Reheis and Noller (1991 #1195) suggested, on the basis of the degraded appearance of the fault, that the area may be quiescent. The fault was not shown by Dohrenwend and others (1992 #289) in their 1:250,000-scale compilation of Quaternary faults.
Age of faulted surficial deposits	Photogeologic mapping by Reheis and Noller (1991 #1195) indicates that scarps and lineaments are present on Quaternary deposits or surfaces but no detailed mapping or subdivision of Quaternary deposits and surfaces has been done in this area.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Scarps and lineaments on Quaternary deposits and surfaces show evidence for Quaternary activity along these faults (Reheis and Noller, 1991 #1195).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No age or stratigraphic data for surficial deposits nor scarp-height data are available to serve as a basis for estimating timing or slip rate. The late Quaternary characteristics of this fault (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 this fault.
Date and Compiler(s)	1998 R. Ernest Anderson, U.S. Geological Survey, Emeritus

References	#1482 Cornwall, H.R., 1972, Geology and mineral deposits of southern Nye County, Nevada: Nevada Bureau of Mines and Geology Bulletin 77, 49 p., 1 pl., scale 1:250,000. #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.