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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.

West Delaware Mountains fault zone (Class A) No. 911

Last Review Date: 1993-12-30

Compiled in cooperation with the Texas Bureau of Economic Geology

citation for this record: **Collins, E., compiler, 1993, Fault number 911, West Delaware Mountains fault zone, 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 03:14 PM.**

Synopsis	This fault zone forms a series of en echelon scarps along the western margin of the Delaware Mountains. Reconnaissance studies of scarp morphology and mapping of Quaternary deposits along the western fault of this zone are the sources of data. Trench investigations have not been conducted.
Name comments	Named by Collins and Raney (1993 #852). Fault extends from about 14 km south of the intersection of U.S. Highway 180 and Texas Highway 54, south-southeastward to about 6 km north of Ocotillo Well.

County(s) and State(s)	CULBERSON COUNTY, TEXAS
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location based on 1:250,000-scale map compiled from aerial photographs and 1:24,000- to 1:65,000-scale photos of Collins and Raney (1993 #852). Other maps of fault include those by Belcher and others (1977 #875) and Goetz (1977 #863; 1980 #859).
Geologic setting	Down-to-the-west en echelon faults that separate the west flank of the Delaware Mountains from the eastern (deepest) part of the Salt basin (Goetz, 1977 #863; 1980 #859; Collins and Raney, #852; 1994 #853).
Length (km)	24 km.
Average strike	N30°W
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement inferred from topography.
Dip Direction	SW
Paleoseismology studies	
Geomorphic expression	Faults of this zone form distinct scarps and a sharp bedrock-alluvium contact. The westernmost scarp is as much as 2.3 m high and has a maximum scarp-slope angle of 9°–11° (Collins and Raney, 1993 #852).
Age of faulted surficial deposits	Quaternary alluvium. One fault strand places Quaternary alluvium against Permian bedrock. The youngest faulted deposits are at least as young as late Pleistocene, but there have been no detailed studies to determine if Holocene deposits are faulted (Collins and Raney, 1993 #852).
Historic earthquake	

Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Faulted deposits include sand and gravel that have calcic soils with stage I to II morphology of probable Holocene-late Pleistocene age (Collins and Raney, 1993 #852). A conservative age category is assigned here; however, faulting could be younger than 15 ka.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Inferred low slip rate based on general knowledge of slip rate estimates for other faults in the region.
Date and Compiler(s)	1993 E.W. Collins, Bureau of Economic Geology, The University of Texas at Austin
References	#875 Belcher, R.C., Goetz, L.K., and Muehlberger, W.R., 1977, Map B—Fault scarps within Quaternary units in West Texas, *in* Goetz, L.K., ed., Quaternary faulting in Salt Basin graben, West Texas: The University of Texas at Austin, unpublished M.S. thesis, 1 pl., scale 1:500,000. #852 Collins, E.W., and Raney, J.A., 1993, Late Cenozoic faults of the region surrounding the Eagle Flat study area, northwestern trans-Pecos Texas: Technical report to Texas Low-Level Radioactive Waste Disposal Authority, under Contract IAC(92-93)-0910, 74 p. #853 Collins, E.W., and Raney, J.A., 1994, Impact of late Cenozoic extension on Laramide overthrust belt and Diablo Platform margins, northwestern trans-Pecos Texas, *in* Ahlen, J., Peterson, J., and Bowsher, A.L., eds., Geologic activities in the 90s: New Mexico Bureau of Mines and Mineral Resources Bulletin 150, p. 71-81. #863 Goetz, L.K., 1977, Quaternary faulting in Salt Basin graben, West Texas: The University of Texas at Austin, unpublished M.S. thesis, 136 p. #859 Goetz, L.K., 1980, Quaternary faulting in Salt Basin graben, West Texas, *in* Dickerson, P.W., and Hoffer, J.M., eds., Trans-

	Pecos region southeastern New Mexico and West Texas: New Mexico Geological Society, 31st Field Conference, November 6-8, 1980, Guidebook, p. 83-92.