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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.

Ward Tank fault (Class A) No. 2078

Last Review Date: 2016-01-06

Compiled in cooperation with the New Mexico Bureau of Geology & Mineral Resources

citation for this record: **Machette, M.N., and Jochems, A.P., compilers, 2016, Fault number 2078, Ward Tank 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 02:22 PM.**

Synopsis	This Quaternary fault is the major boundary fault of the Sierra de las Uvas Range. It deforms Permian and Tertiary rocks as well as the upper (Quaternary) sediment of the Camp Rice Formation. Although much of the fault's movement probably occurred in the Tertiary, offset of Quaternary surfaces indicates reactivation of the fault. No detailed studies have been made of the fault's Quaternary history or its scarp morphology.
Name comments	This fault was named by Seager and others (1975 #995) for Ward Tank, a small reservoir on the northwest side of the Cedar Hills (Sierra Alta 7.5-minute quadrangle). The fault extends from Rock Canyon (about 3 km northeast of Sierro Kemado), west and

	southwest of the Cedar Hills. According to mapping by Seager (1995 #975), the fault has surface offset to a point at least 2 km south of U.S. Interstate Highway 10 (due north of the Aden Hills). The northern end of the Ward Tank fault (mapped as the Sierro Kemado fault [2079]) splays northwestward. Seager (1995 #975) considered this splay as a segment of the Ward Tank, but in this database it is treated as a separate fault.
County(s) and State(s)	DOÑA ANA COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:24,000 scale. *Comments:* Compiled from trace of the fault from 1:24,000-scale maps of Seager and others (1975 #995) and Clemons (1976 #1007) combined with accurate placement using photogrammetric methods.
Geologic setting	This is the major boundary fault of the Sierra de las Uvas Range. It displaces Permian and Tertiary rocks and, for most of its length, places upper Santa Fe Group sediment against these older rocks. Movement on the Ward Tank fault is primarily responsible for uplift and northwesterly tilting of the Sierra de las Uvas block. Total stratigraphic separation on the fault appears to reach 610–760 m near the Rattlesnake Hills (Seager and others, 1975 #995).
Length (km)	34 km.
Average strike	N6°E
Sense of movement	Normal
Dip	65°–75° E *Comments:* The fault dips 65°–75° to the east according to Seager and others (1975 #995) and is shown as a high-angle structure on cross sections by Seager and others (1975 #995) and Clemons (1976 #1007).
Paleoseismology studies	

Geomorphic expression	For most of the fault's length, it places sediment of the Camp Rice Formation against older bedrock. However, at numerous locations along the central and northern parts of the fault, it offsets the Jornada I surface (middle Pleistocene), which is a local constructional piedmont surface of the Camp Rice Formation. Seager and others (1975 #995) stated that the Jornada I surface is deformed as evidenced by a continuous fresh (?) scarp about 3 m high between Horse Canyon and the Rattlesnake Hills. Along the southern part of the fault, Clemons (1976 #1007) mapped the trace as primarily buried, but it appears to control the course of local drainages. In later mapping, Seager (1995 #975) showed the fault as deforming the surface (La Mesa) of the Camp Rice Formation. According to Seager and others (1975 #995) the Jornada I surface is deformed about 3 m.
Age of faulted surficial deposits	The fault offsets sediment of the upper part of the Camp Rice Formation (early to middle Pleistocene) and the Jornada I surface (middle Pleistocene). Younger (late Pleistocene) alluvial surfaces are not known to be offset by the Ward Tank fault.
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Timing based on offset of Jornada I surface (middle Pleistocene). However, late Pleistocene faulting may have occurred on the basis of the young appearance of the fault scarps (Seager and others, 1975 #995).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category assigned based on 3-m-high scarp on the Jornada I surface (500–700 ka; Gile and others, 2007 #7346).
Date and Compiler(s)	2016 Michael N. Machette, U.S. Geological Survey, Retired Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources
References	#1007 Clemons, R.E., 1976, Geology of east half Corralitos Ranch quadrangle, New Mexico: New Mexico Bureau of Mines and Mineral Resources Geologic Map 36, 2 sheets, scale

	1:24,000. #7346 Gile, L.H., Monger, H.C., Grossman, R.B., Ahrens, R.J., Hawley, J.W., Peterson, F.F., Gibbens, R.P., Lenz, J.M., Bestelmeyer, B.T., and Nolen, B.A., 2007, A 50th anniversary guidebook for the Desert Project: U.S. Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, 295 p. #975 Seager, W.R., 1995, Geology of southwest quarter of Las Cruces and northwest El Paso 1° x 2° sheets, New Mexico: New Mexico Bureau of Mines and Mineral Resources Geologic Map 60, 5 sheets, scale 1:125,000. #995 Seager, W.R., Clemons, R.E., and Hawley, J.W., 1975, Geology of Sierra Alta quadrangle, Doña Ana County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Bulletin 102, 56 p., 1 pl., scale 1:24,000.