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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.

Trinity Site fault (Class A) No. 1993

Last Review Date: 2016-07-25

citation for this record: **Jochems, A.P., and Cikoski, C.T., compilers, 2016, Fault number 1993, Trinity Site 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 02:23 PM.**

Synopsis	Little is known about this previously unmapped fault that forms mostly west-facing scarps on alluvial fan deposits in the northern Jornada del Muerto basin. The fault cuts alluvial fan deposits that may grade to or cover the 700–800 ka constructional top of the Santa Fe Group to the west. The northern part of the fault may extend for a distance of about 5–7 km to a down-to-the-west structure cutting Upper Paleozoic strata in the Hansonburg Hills.
Name comments	Named by the compilers for its location just east of the Trinity Site on White Sands Missile Range. Previously unnamed.
County(s) and State(s)	SOCORRO COUNTY, NEW MEXICO
Physiographic province(s)	BASIN AND RANGE
Reliability of	Good

location	Compiled at 1:24,000 scale. *Comments:* Compiled from 1:24,000-scale mapping using aerial photographs and stereogrammetric analysis. The fault has not been checked in the field due to restricted access on a military reservation. Not shown on 1:62,500-scale map of Bachman (1968 #7565).
Geologic setting	The Trinity Site fault is located in the northeastern part of the Jornada del Muerto basin of the Rio Grande rift. The fault parallels the northern tip of the Little Burro Mountains and the Oscura Mountains north of Mockingbird Gap. At its northern end, the fault may link with a down-to-the-west fault cutting Permian and Pennsylvanian strata in the Hansonburg Hills as mapped by Wilpot and Wanek (1951 #1425).
Length (km)	19 km.
Average strike	N11°W
Sense of movement	Normal
Dip Direction	W; SW *Comments:* Two short, east-facing scarps mapped at the northern end of the fault may represent unrelated structures.
Paleoseismology studies	
Geomorphic expression	The fault forms subdued to somewhat conspicuous scarps up to 6 m high on medial to distal alluvial fan surfaces. The main scarp decreases in height to the north and may extend beneath the surface to a down-to-the-west fault cutting Upper Paleozoic strata in the Hansonburg Hills. Several short strands with sympathetic displacement parallel the main fault scarp.
Age of faulted surficial deposits	The Trinity Site fault cuts alluvial fan deposits that have not been differentiated by previous workers. Analysis of aerial photography suggests that these deposits may grade to or cover the constructional top of the Santa Fe Group to the west. This surface is approximately 700–800 ka to the north in the Albuquerque basin (Connell and others, 2013 #7235) and to the south in the basins of the southern Rio Grande rift (Mack and

	others, 1993 #1020).
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* No age constraints are available for the Trinity Site fault. However, it cuts alluvial fan deposits that are inferred to grade to or cover the constructional top of the Santa Fe Group, which is approximately 700–800 ka to the north in the Albuquerque basin (Connell and others, 2013 #7235) and to the south in the basins of the southern Rio Grande rift (Mack and others, 1993 #1020).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* The slip rate category is based on low rates of slip on similar faults in this part of the Rio Grande rift.
Date and Compiler(s)	2016 Andrew P. Jochems, New Mexico Bureau of Geology & Mineral Resources Colin T. Cikoski, New Mexico Bureau of Geology & Mineral Resources
References	#7565 Bachman, G.O., 1968, Geology of the Mockingbird Gap quadrangle, Lincoln and Socorro Counties, New Mexico: U.S. Geological Survey Professional Paper 594-J, scale 1:62,50 #7235 Connell, S.D., Smith, G.A., Geissman, J.W., and McIntosh, W.C., 2013, Climatic controls on nonmarine depositional sequences in the Albuquerque Basin, Rio Grande rift, north-central New Mexico, *in* Hudson, M.R., and Grauch, V.J.S., eds., New perspectives on Rio Grande rift basins—From tectonics to groundwater: Geological Society of America Special Paper 494, p. 383–425, doi:10.1130/2013.2494(15) #1020 Mack, G.H., Salyards, S.L., and James, W.C., 1993, Magnetostratigraphy of the Plio-Pleistocene Camp Rice and Palomas formations in the Rio Grande rift of southern New Mexico: American Journal of Science, v. 293, p. 49–77. #1425 Wilpolt, R.H., and Wanek, A.A., 1951, Geology of the

	region from Socorro and San Antonio east of Chupadera Mesa, Socorro County, New Mexico: U.S. Geological Survey Oil and Gas Investigations Map OM-121, 2 sheets, scale 1:63,360.