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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.

unnamed faults in the Panaca area (Class A) No. 1734

Last Review Date: 2001-11-20

citation for this record: **Anderson, R.E., compiler, 2001, Fault number 1734, unnamed faults in the Panaca area, 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 02:24 PM.**

Synopsis	These widely distributed northerly striking mostly down-to-the-west faults in eastern Meadow Valley are neither continuous nor aligned with one another. As a group, they may define the poorly developed east margin of the basins beneath eastern Meadow Valley and southeastern Lake Valley. By contrast, these faults may be part of a widely distributed system of faults that cut late Tertiary basin-fill strata of the Panaca Formation as well as Tertiary volcanic rocks. They may have small total displacement. Little is known of the geomorphic expression of these faults other than that they have west-facing surface expression. No detailed studies are known, no recurrence times reported, and no scarp-height or stratigraphic-offset data allow for estimating the slip rate closer than the slowest category.

Name comments	Refers to faults near Panaca, Nev. There are several widely distributed, unaligned, north- to northeast-striking faults in the east part of Meadow Valley that are shown in an unpublished 1:250,000-scale map of Quaternary faults in the 1? x2? Caliente sheet by J. C. Dohrenwend(published at 1:1,000,000 by Dohrenwend and others, 1996 #2846). These faults are grouped here, but it is not known how or if they are related structurally to one another. They extend from the north boundary of the Caliente 1? x 2? sheet south and southwest to the north margin of the Cedar Range. dePolo (1998 #2845) referred to the southernmost, and most prominent, fault in this group as the Panaca fault. **Fault ID:** Includes fault C17 of dePolo (1998 #2845).
County(s) and State(s)	LINCOLN COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* The fault traces are shown in an unpublished 1:250,000-scale map by J. C. Dohrenwend of Quaternary faults in the 1? x2? Caliente sheet (published at 1:1,000,000 by Dohrenwend and others, 1996 #2846). The unpublished map was produced by photogeologic analysis of 1:58,000 nominal-scale, color infrared photography. The photogeologic mapping was transferred directly to 1/2? x 1? topographic quadrangle maps enlarged to the scale of the photographs and then reduced to and compiled on the 1:250,00 Caliente sheet.
Geologic setting	These widely distributed northerly striking mostly down-to-the-west faults in eastern Meadow Valley are neither continuous nor aligned with one another. As a group, they may define the poorly developed east margin of the basins beneath eastern Meadow Valley and southeastern Lake Valley. By contrast, these faults may be part of a widely distributed system of faults that cut late Tertiary basin-fill strata of the Panaca Formation (Rowley and Shroba, 1991 #4690) as well as Tertiary volcanic rocks (Ekren and others, 1977 #1036). They may have small total displacement consistent with a general lack of bedrock in their footwalls and gravity data (Blank and Kucks, 1989 #4714) suggesting that the main fault defining the basin beneath Meadow Valley is located

	along the west valley margin (Rowley and Shroba, 1991 #4690). In general, these faults trend transverse to a broad belt of northwest-striking Tertiary faults in the Clover Mountains (Ekren and others, 1977 #1036; Dohrenwend and others, 1996 #2846), but it is not known if the north-striking faults are younger or if there is a strain field boundary between the two diversely oriented fault groups.
Length (km)	41 km.
Average strike	N3°E
Sense of movement	Normal *Comments:* Inferred on the basis of location within an extensional tectonic province.
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	Little is known of the geomorphic expression of these faults other than that they have west-facing surface expression as determined by photogeologic reconnaissance and shown in an unpublished 1:250,000-scale map by J. C. Dohrenwend (published at 1:1,000,000 by Dohrenwend and others, 1996 #2846). Only the fault east of Echo Canyon Reservoir has a bedrock escarpment in its footwall.
Age of faulted surficial deposits	Tertiary volcanic rocks, late Tertiary basin-fill sedimentary strata, and Quaternary/Tertiary sediments.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Although timing of the most recent event is not well constrained, reconnaissance studies by Dohrenwend and others (1991 #287; 1996 #2846) suggest a Quaternary time based on photogeologic interpretation.
Recurrence interval	

Slip-rate category	Less than 0.2 mm/yr *Comments:* A low slip rate is inferred from general knowledge of slip rates estimated for other faults in the region. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 mm/yr for the fault based on the presence of scarps on alluvium and the absence of basal facets to the southernmost fault in this group. The late Quaternary characteristics of these faults (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) suggest the slip rate during this period is of a lesser magnitude. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault.
Date and Compiler(s)	2001 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#4714 Blank, H.R., and Kucks, R.P., 1989, Complete-Bouguer gravity anomaly map of the USGS BARCO project area, southwestern Utah, southeastern Nevada, and northwestern Arizona: U.S. Geological Survey Open-File Report 89-432, 1 pl., scale 1:250,000. #2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #2846 Dohrenwend, J.C., Schell, B.A., Menges, C.M., Moring, B.C., and McKittrick, M.A., 1996, Reconnaissance photogeologic map of young (Quaternary and late Tertiary) faults in Nevada, *in* Singer, D.A., ed., Analysis of Nevada's metal-bearing mineral resources: Nevada Bureau of Mines and Geology Open-File Report 96-2, 1 pl., scale 1:1,000,000. #1036 Ekren, E.B., Orkild, P.P., Sargent, K.A., and Dixon, G.L., 1977, Geologic map of Tertiary rocks, Lincoln County, Nevada: U.S. Geological Survey Miscellaneous Investigations Map I-1041, 1 sheet, scale 1:250,000. #4690 Rowley, P.D., and Shroba, R.R., 1991, Geologic map of the Indian Cove quadrangle, Lincoln County, Nevada: U.S. Geological Survey Geologic quadrangle Map GQ-1701, scale 1:24,000.

Questions or comments?