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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.

Western Fairview Peak fault (Class A) No. 1686

Last Review Date: 1999-03-31

citation for this record: **Sawyer, T.L., compiler, 1999, Fault number 1686, Western Fairview Peak 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 02:26 PM.**

Synopsis	This discontinuous zone primarily has distributed piedmont and intra basin faults in eastern Fairview Valley and southern Dixie Valley and has short range-front faults locally bounding west front of southern Fairview Peak range, in Slate Mountain and Bell Canyon areas. Fairview Peak range has been tilted about 20? westward post-Tertiary volcanism (post 18.5 Ma). This fault may be related to the Louderback Mountains fault [1689] and Dixie Valley fault [1687], but unlike these faults did not rupture in 1954. Reconnaissance and detailed photogeologic mapping of the faults are the sources of data. Trench investigations and detailed studies of scarp morphology have not been conducted.
Name comments	Refers to faults mapped by Slemmons (1968, unpublished Reno 1? X 2? sheet), Bell (1984 #105), Greene and others (1991 #3487), Caskey (1996 #2437), Caskey and others (1996 #2439), and Henry (1996 #3710) along the west side of Fairview Peak and

	in eastern Fairview Valley and southern Dixie Valley. dePolo (1998 #2845) refers to part of this fault as the Western Fairview Peak fault; the name retained herein. **Fault ID:** Generally refers to fault number R33 (Western Fairview Peak fault) of dePolo (1998 #2845).
County(s) and State(s)	MINERAL COUNTY, NEVADA CHURCHILL COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Fault locations are based on 1:48,000-scale map of Caskey (1996 #2437; reproduced in Caskey and others, 1996 #2439) and 1:250,000-scale map of Bell (1984 #105). Mapping of Caskey (1996 #2437) is based on detailed photogeologic analysis of 1:10,000- to 1:12,000-scale vertical, low-sun-angle aerial photography, transferred by inspection to 1:24,000-scale mylar orthophotos and directly to 1:24,000-scale topographic maps, that were then reduced to 1:48,000-scale; mapping also based on detailed field mapping and numerous measurements of fault offsets along the fault. Mapping of Bell (1984 #105) is based on photogeologic analysis of 1:40,000-scale low sun-angle aerial photography, supplemented with 1:12,000-scale aerial photography of selected areas, several low-altitude aerial reconnaissance flights, and field reconnaissance of major structural and stratigraphic relationships.
Geologic setting	This discontinuous zone primarily consists of distributed piedmont and intra basin faults in eastern Fairview Valley and southern Dixie Valley and short range-front faults locally bounding west front of southern Fairview Peak range, in Slate Mountain and Bell Canyon areas (Slemmons, 1968, unpublished Reno 1?x2? sheet, Bell, 1984 #105; Greene and others, 1991 #3487; Caskey, 1996 #2437; Caskey and others, 1996 #2439); Fairview Peak range has been tilted about 20? westward post-Tertiary volcanism (18.5 Ma, Henry, 1996 #3710). This fault may be related to the Louderback Mountains fault (1689) and Dixie Valley fault (1687), but it is unlike these faults did not rupture in 1954.

Length (km)	40 km.
Average strike	N16°E
Sense of movement	Normal *Comments:* Not studied in detail; sense of movement from Caskey (1996 #2437), Caskey and others (1996 #2439), and Henry (1996 #3710), and inferred from topography.
Dip Direction	W; NW
Paleoseismology studies	
Geomorphic expression	Piedmont faults are expressed as short west-facing scarps on western and northern piedmont slope of Fairview Peak range from southeastern part of Little Bell Flat and continue beyond the north end of the range as intra basin faults in southern Dixie Valley, that are marked by lineaments and locally by west-facing scarps (Slemmons, 1968, unpublished Reno 1? X 2? sheet, Bell, 1984 #105; Greene and others, 1991 #3487; Caskey, 1996 #2437; Caskey and others, 1996 #2439). Faults in southern part of zone also are expressed as topographic lineaments (Bell, 1984 #105), that commonly coincide with contacts between upper piedmont-slope deposits and Tertiary bedrock (Greene and others, 1991 #3487). dePolo (1998 #2845) reported that basal fault facets do not occur along west side of Fairview Peak range.
Age of faulted surficial deposits	Quaternary; Tertiary. Quaternary alluvium on piedmont slope of Fairview Peak range and Quaternary basin-fill deposits in southern Dixie Valley are displaced along piedmont and intra basin faults, respectively. Quaternary alluvium appears to be locally juxtaposed against Tertiary bedrock along range-front faults (Bell, 1984 #105; Greene and others, 1991 #3487; Caskey, 1996 #2437; Henry, 1996 #3710). Henry (1996 #3710) shows one fault west of Fairview Peak that apparently juxtaposes younger (Holocene?) alluvial-fan deposits against older Pleistocene alluvial-fan deposits, but to be concealed by older deposits at either end.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Although timing of most recent event is not well

	constrained, a Quaternary time is suggested based on photogeologic mapping by Bell (1984 #105), Caskey (1996 #2437), Caskey and others (1996 #2439), and Dohrenwend and others (1996 #2846). However, a latest Quaternary is possible based on detailed geologic mapping of Henry (1996 #3710) and studies by Slemmons (1968, unpublished Reno 1? X 2? sheet).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. 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. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support 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)	1999 Thomas L. Sawyer, Piedmont Geosciences, Inc.
References	#105 Bell, J.W., 1984, Quaternary fault map of Nevada—Reno sheet: Nevada Bureau of Mines and Geology Map 79, 1 sheet, scale 1:250,000. #2437 Caskey, S.J., 1996, Surface faulting, static stress changes, and earthquake triggering during the 1954 Fairview Peak (M (sub s) = 7.2) and Dixie Valley (M (sub s) = 6.8) earthquakes, central Nevada: Reno, University of Nevada, Mackay School of Mines, unpublished Ph.D. dissertation, 144 p. #2439 Caskey, S.J., Wesnousky, S.G., Zhang, P., and Slemmons, D.B., 1996, Surface faulting of the 1954 Fairview Peak (Ms 7.2) and Dixie Valley (Ms 6.8) earthquakes, central Nevada: Bulletin of the Seismological Society of America, v. 86, no. 3, p. 761-787. #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. #3487 Greene, R.C., Stewart, J.H., John, D.A., Hardyman, R.F., Silberling, N.J., and Sorensen, M.L., 1991, Geologic map of the Reno 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2154-A, scale 1:250,000. #3710 Henry, C.D., 1996, Geologic map of the Bell Canyon quadrangle, western Nevada: Nevada Bureau of Mines and Geology Field Studies Map 11, scale 1:24,000.