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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.

Last Chance Range fault (Class A) No. 1113

Last Review Date: 1999-03-26

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Synopsis	The Last Chance Range fault consists of two short (<5 km) north-striking fault scarps on the northwest flank of the Last Chance Range, about 18 km northwest of Pahrump, Nev. The two scarps are located in a 950-m-high intermontane valley west of the Last Chance Range. Structurally, these relatively short fault scarps do not define the boundaries of a range or large tilt block. Instead, they are aligned with projections of the Montgomery and Six Mile thrust faults and may reflect normal fault reactivation of the thrusts. The normal faults are marked by low scarps formed on resistant petrocalcic soil, which results in anomalously steep slope angles for their age, which is considered to be middle to early Pleistocene (roughly 300 ka).
Name comments	Name applied by Anderson and others (1995 #897) to two short (<5 km) fault scarps on the northwest flank of the Last Chance Range, about 18 km northwest of Pahrump, Nev. These faults

	were not discussed in earlier studies of Quaternary faults in the area (Hoffard, 1991 #1543; Piety, 1995 #915).
County(s) and State(s)	NYE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* The faults were mapped at approximately 1:60,000 (Anderson and others, 1995 #897) from field study using aerial photos at that scale. Trace recompiled herein at 1:100,000 scale for digitization.
Geologic setting	Scarps of two fault traces are located in a 950-m-high intermontane valley west of the Last Chance Range. Structurally, these relatively short fault scarps do not define the boundaries of a range or large tilt block. Instead, they are aligned with projections of the Montgomery and Six Mile thrust faults (Burchfiel and others, 1983 #1462; Anderson and others, 1995 #897). In both cases the overthrust block of the thrust fault is now the downdropped block of the normal fault, indicating reactivation by slip reversal.
Length (km)	3 km.
Average strike	N0°E
Sense of movement	Normal *Comments:* No evidence for strike-slip was found (Anderson and others, 1995 #897).
Dip Direction	W *Comments:* Dip direction inferred from fault scarp aspect and normal sense of displacement.
Paleoseismology studies	
Geomorphic expression	The fault is on a piedmont, rather than along a bedrock escarpment. The trace is marked by two low (<2.6 m) scarps on

	alluvial-fan materials that are several hundred thousand years old (Anderson and others, 1995 #897). An erosionally resistant massive petrocalcic soil causes the scarp slope angles to be anomalously steep (Anderson and others, 1995 #897).
Age of faulted surficial deposits	The eastern scarp is developed on a surface estimated to be of early Pleistocene or latest Tertiary in age, but the last displacement is probably no younger than middle Pleistocene (about 300 ka). The western scarp is developed on material estimated to be late or middle Pleistocene as suggested by Anderson and others (1995 #897).
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* The last displacement on the western scarp is probably no younger than middle Pleistocene (about 300 ka) as suggested by Anderson and others (1995 #897), whereas the last displacement on the eastern fault could be early Pleistocene or perhaps latest Tertiary.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip rates are suggested if the offset deposits are middle to early Pleistocene (roughly 300 ka), as suggested by Anderson and others (1995 #897). A low slip-rate category is assigned on the basis of poor geomorphic preservation of mapped fault scarps, small offset versus age of faulted deposits, and relative inactivity of similar distributed faults in the Basin and Range province.
Date and Compiler(s)	1999 R. Ernest Anderson, U.S. Geological Survey, Emeritus
References	#897 Anderson, R.E., Bucknam, R.C., Crone, A.J., Haller, K.M., Machette, M.N., Personius, S.F., Barnhard, T.P., Cecil, M.J., and Dart, R.L., 1995, Characterization of Quaternary and suspected Quaternary faults, regional studies, Nevada and California: U.S. Geological Survey Open-File Report 95-599, 70 p., 2 sheets. #1462 Burchfiel, B.C., Hamill, G.S., IV, and Wilhelms, D.E.,

	1983, Structural geology of the Montgomery Mountains and the northern half of the Nopah and Resting Spring Ranges, Nevada and California: Geological Society of America Bulletin, v. 94, p. 1359-1376. #1543 Hoffard, J.L., 1991, Quaternary tectonics and basin history of Pahrump and Stewart valleys, Nevada and California: Reno, University of Nevada, unpublished M.S. thesis, 138 p., 5 pls. #915 Piety, L.A., 1995, Compilation of known and suspected Quaternary faults within 100 km of Yucca Mountain, Nevada and California: U.S. Geological Survey Open-File Report 94-112, 404 p., 2 pls., scale 1:250,000.