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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.

Clear Lake fault zone (Class B) No. 2436

Last Review Date: 1999-10-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: **Black, B.D., Hylland, M.D., and Hecker, S., compilers, 1999, Fault number 2436, Clear Lake fault zone, 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 02:56 PM.**

Synopsis	Poorly understood zone of Holocene faulting near Clear Lake in the Sevier Desert. Seismic-reflection data indicate that the high-angle Clear Lake fault intersects, but does not cut, the Sevier detachment at a shallow depth, raising questions about the seismic potential of the fault. In addition, some fault displacements may be related to subsidence following volcanic activity and thus the fault's origins are uncertain. Therefore, we consider these faults to be Class B structures.
Name comments	**Fault ID:** Refers to fault number 8-5 of Hecker (1993 #642).
County(s) and	

County(s) and State(s)	MILLARD COUNTY, UTAH
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Mapped or discussed by Bucknam and Anderson (1979 #332), Currey (1982 #941), Crone and Harding (1984 #551), Oviatt (1989 #381; 1991 #4552), and Hintze and Davis (, in preparation #4539). Fault traces from mapping by Oviatt (1989 #381; 1991 #4552).
Geologic setting	Complex zone of north-trending down-to-the-east normal faults near Clear Lake in the Sevier Desert. The faults are in lake and playa deposits in a zone roughly 30 km long and 5-10 km wide. Seismic-reflection data indicate that the high-angle Clear Lake fault intersects, but does not cut, the Sevier detachment at a shallow depth (about 3.5 km), raising questions about the seismic potential of the fault (Crone and Harding, 1984 #551).
Length (km)	36 km.
Average strike	N9°W
Sense of movement	Normal
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	To the east of the Clear Lake fault, which is the largest (at least 3 m of displacement) and most continuous fault in the zone, lies a group of fractures having unknown (but probably small) displacements. Some fault displacements may be related to subsidence into a magma chamber beneath the Pavant, Ice Springs, and Tabernacle Hill volcanic fields, which have been active in Bonneville and post-Bonneville (>14 ka) time. The Bonneville and Provo shorelines on Pavant Butte to the east are anomalously low (17 m and 10 m too low, respectively, as indicated by regional shoreline mapping), but the highest shoreline on Pavant Butte may not be equivalent to the Bonneville shoreline elsewhere. The lower elevations may also be due to suppression of post-Bonneville crustal rebound by the isostatic

	load of the volcanic pile
Age of faulted surficial deposits	Holocene.
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:*
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Michael D. Hylland, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#332 Bucknam, R.C., and Anderson, R.E., 1979, Estimation of fault-scarp ages from a scarp-height—slope-angle relationship: Geology, v. 7, p. 11-14. #551 Crone, A.J., and Harding, S.T., 1984, Relationship of late Quaternary fault scarps to subjacent faults, eastern Great Basin, Utah: Geology, v. 12, p. 292-295. #941 Currey, D.R., 1982, Lake Bonneville—Selected features of relevance to neotectonic analysis: U.S. Geological Survey Open-File Report 82-1070, 30 p., 1 pl., scale 1:1,000,000. #642 Hecker, S., 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 157 p., 6 pls., scale 1:500,000. #381 Oviatt, C.G., 1989, Quaternary geology of part of the Sevier Desert, Millard County, Utah: Utah Geological and Mineral Survey Special Studies 70, 41 p., 1 pl., scale 1:100,000. #4552 Oviatt, C.G., 1991, Quaternary geology of the Black Rock Desert, Millard County, Utah: Utah Geological and Mineral

	Survey Special Studies 73, 23 p., scale 1:100,000.