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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.

House Range (west side) fault (Class A) No. 2430

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 2430, House Range (west side) 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 02:56 PM.**

Synopsis	Moderately understood Holocene to late Quaternary fault on the western side of the House Range. Movement on the fault is considered to be less than 15 ka on the basis of general scarp slope-age considerations, presence of scarps on post-Bonneville alluvial fans, and faulted shorelines that are estimated about 19 ka.
Name comments	**Fault ID:** Refers to fault number 8-10 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 1:250,000 scale. *Comments:* Mapped or discussed by Piekarski (1980 #179), Ertec Western, Inc. (Schell, 1981 #2844), Sack (1990 #4540), and Hintze and Davis (in preparation). Fault traces from 1:250,000-scale mapping of Ertec Western, Inc. (Schell, 1981 #2844).
Geologic setting	Range-front fault along the west side of the House Range in eastern Tule Valley. The House Range is the centermost of three north-trending mountain ranges in west-central Utah, including the Thomas Range to the east and the Confusion Range to the west. The mountains expose mainly Paleozoic sedimentary rocks. Unconsolidated deposits in the valley are mainly lake sediments and alluvium.
Length (km)	46 km.
Average strike	N0°E
Sense of movement	Normal
Dip Direction	W
Paleoseismology studies	
Geomorphic expression	Generally north-trending fault along the western base of the House Range. The fault forms scarps in transgressive Lake Bonneville deposits and post-lake alluvium. The most recent event on the fault displaces these sediments 1.4 m down to the west. Seismic reflection data suggest that the fault merges with or is trucated by a low-angle detachment fault at a depth less than about 5 km (Allmendinger and others, 1983 #405; Smith and Bruhn, 1984 #4561).
Age of faulted surficial deposits	Holocene to late Quaternary alluvium.
Historic	

earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Piekarski (1980 #179) and Sack (1990 #4540) estimate a minimum-limiting time of 12 ka based on general slope-age considerations, although Ertec Western, Inc. (Schell, 1981 #2844) classified the fault as Holocene based on the presence of scarps on post-Bonneville alluvial fans. Sack (1990 #4540) reports the presence of faulted transgressive shorelines above the level of the Provo shoreline (i.e., Bonneville cycle) provide an estimated maximum-limiting age for faulting of 19 ka.
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	#405 Allmendinger, R.W., Sharp, J.W., Von Tish, D., Serpa, L., Brown, L., Kaufman, S., and Oliver, J., 1983, Cenozoic and Mesozoic structure of the eastern Basin and Range province, Utah, from COCORP seismic-reflection data: Geology, v. 11, p. 532-536. #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. #179 Piekarski, L., 1980, Relative age determination of Quaternary fault scarps along the southern Wasatch, Fish Springs, and House Ranges, Utah: Brigham Young University Geology Studies, v. 27, part 2, p. 123-137. #4540 Sack, D., 1990, Geologic map of the Tule Valley, west-central Utah: Utah Geological and Mineral Survey Map 124, 26 p. pamphlet, scale 1:100,000. #2844 Schell, B.A., 1981, Faults and lineaments in the MX Siting Region, Nevada and Utah, Volume II: Technical report to U.S. Department of [Defense] the Air Force, Norton Air Force Base,

	California, under Contract FO4704-80-C-0006, November 6, 1981, 29 p., 11 pls., scale 1:250,000. #4561 Smith, R.B., and Bruhn, R.L., 1984, Intraplate extensional tectonics of the western U.S. Cordillera-Inferences on structural style from seismic-reflection data, regional tectonics and thermal-mechanical models of brittle-ductile deformation: Journal of Geophysical Research, v. 89, no. B7, p. 5733-5762.

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