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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.

Puddle Valley fault zone (Class A) No. 2383

Last Review Date: 1999-10-01

Compiled in cooperation with the Utah Geological Survey

citation for this record: **Black, B.D., and Hecker, S., compilers, 1999, Fault number 2383, Puddle Valley 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 02:59 PM.**

Synopsis	Three short faults in Quaternary basin-fill deposits east of the Grassy Mountains in northwestern Utah.
Name comments	**Fault ID:** Refers to fault number 7-16 of Hecker (1993 #642).
County(s) and State(s)	BOX ELDER COUNTY, UTAH TOOELE COUNTY, UTAH
Physiographic province(s)	BASIN AND RANGE
Reliability of	Good

location	Compiled at 1:250,000 scale. *Comments:* Fault traces from mapping of Barnhard and Dodge (1988 #429)
Geologic setting	Characeterized by generally north-trending normal faults in Puddle Valley, between the Lakeside and Grassy Mountains in western Utah. Surficial geology of the valley is dominated by deposits of late Pleistocene Lake Bonneville.
Length (km)	7 km.
Average strike	N10°E
Sense of movement	Normal
Dip Direction	E
Paleoseismology studies	
Geomorphic expression	The fault zone displaces Quaternary basin-fill (primarily lacustrine) deposits down to the east and is topographically below the Bonneville and Provo shorelines. Barnhard and Dodge (1988 #429) measured eight profiles across scarps in the fault zone; scarp heights range from 1.3 to 4.4 m and maximum scarp slope angles are 6.5?-13.5?; displacement per event is 0.7-2.3 m. Fault-scarp morphology suggests two spatially distinct surface-faulting events; surface faulting associated with scarps in the southern end of the fault zone appears younger than the northern end (Barnhard and Dodge, 1988 #429). Scarps in the northern end have heights greater than 2 m, whereas scarps in the southern end are less than 2 m high.
Age of faulted surficial deposits	Late Pleistocene basin-fill (primarily lacustrine) deposits
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Scarps at the north end of the fault zone appear older than the Bonneville shoreline (14.5 ka), whereas those at the south end appear to be younger than the shoreline but older than

	the Drum Mountains [2432] fault scarps (dated at 9 ka).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* The estimated geologic slip rate is 0.04-0.3 mm/yr, based on 0.7-4.6 m of displacement since the formation of the Provo shoreline (~16.5 ka).
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#429 Barnhard, T.P., and Dodge, R.L., 1988, Map of fault scarps formed on unconsolidated sediments, Tooele 1° x 2° quadrangle, northwestern Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-1990, 1 sheet, scale 1:250,000. #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.