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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.

Pleasant Valley fault zone, graben (Class A) No. 2426

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 2426, Pleasant Valley fault zone, graben, 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 02:55 PM.**

Synopsis	Poorly understood zone of middle to late Pleistocene faulting that forms a graben in Pleasant Valley, near the eastern edge of the Wasatch Plateau.
Name comments	**Fault ID:** Refers to fault number 13-9 of Hecker (1993 #642).
County(s) and State(s)	UTAH COUNTY, UTAH CARBON COUNTY, UTAH
Physiographic	

Physiographic province(s)	COLORADO PLATEAUS
Reliability of location	Good Compiled at 1:60,000 scale. *Comments:* Fault traces from mapping of Foley and others (1986 #1165)
Geologic setting	North-trending graben in Pleasant Valley, on-trend and north of the Joes Valley fault zone. The graben is the central structure in the Pleasant Valley fault zone (PVFZ). Total length and vertical displacement of faults in the PVFZ are considerably less than those of faults in the Joes Valley fault zone to the south.
Length (km)	18 km.
Average strike	N3°E
Sense of movement	Normal
Dip Direction	E; W
Paleoseismology studies	
Geomorphic expression	Asymmetric graben bounded on the east by the west-dipping east Pleasant Valley fault and on the west by two east-dipping parallel and overlapping faults termed the west Pleasant Valley faults (Foley and others, 1986 #1165). The graben is one of the few structures in the PVFZ having topographic relief. Alluvial fans geomorphically similar to latest Pleistocene to Holocene fans in Joe's Valley are unfaulted. PVFZ escarpments are more eroded and less steep than those in Joes Valley, although this may be due to lower scarp heights and less resistant bedrock lithologies in Pleasant Valley. A value for the maximum credible earthquake of 7.0 (Ms) is based on comparison of estimated rupture length with lengths of Joes Valley and other Basin and Range faults.
Age of faulted surficial deposits	Tertiary
Historic earthquake	
Most recent	middle and late Quaternary (<750 ka)

prehistoric deformation	*Comments:* Based on escarpment morphology.
Recurrence interval	*Comments:* For the purpose of seismic-hazard assessment, late Quaternary recurrence intervals are inferred to be comparable to intervals for the Joes Valley fault zone west fault (2453).
Slip-rate category	Less than 0.2 mm/yr
Date and Compiler(s)	1999 Bill D. Black, Utah Geological Survey Suzanne Hecker, U.S. Geological Survey
References	#1165 Foley, L.L., Martin, R.A., Jr., and Sullivan, J.T., 1986, Seismotectonic study for Joes Valley, Scofield and Huntington North Dams, Emery County and Scofield Projects, Utah: U.S. Bureau of Reclamation Seismotectonic Report 86-7, 132 p., 3 pls. #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.