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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.

unnamed faults near Tonkin Summit (Class A) No. 1180

Last Review Date: 2000-09-06

citation for this record: **Lidke, D.J., compiler, 2000, Fault number 1180, unnamed faults near Tonkin Summit, 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 02:17 PM.**

Synopsis	This discontinuous zone of faults consists of a series of north- to northwest-striking, right-stepping faults, and linear features. The faults place bedrock of the Simpson Park Mountains and connecting hills against Quaternary piedmont slope-deposits of the Denay Valley, and form east- to northeast-facing scarps locally along these faults and on the adjacent piedmont-slope. The fault zone has not been studied in detail and little is actually known about the nature and character of these faults. The principle sources of data consist of geologic mapping studies and reconnaissance photogeologic mapping.
Name comments	Refers to unnamed faults near Tonkin Summit that were mapped by Murphy and others (1978 #4368) and Dohrenwend and others (1992 #283). These faults are north of Tonkin Summit along the

	eastern flank of unnamed northwest-trending hills that connect the Roberts and Simpson Park Mountains, and farther north along the eastern flank of the Simpson Park Mountains. This zone of faults extends south-southwest from about Indian Creek to just north of Tonkin Summit.
County(s) and State(s)	EUREKA COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Location is from 1:250,000-scale map of Dohrenwend and others (1992 #283), which shows mapping based on photogeologic analysis of 1:58,000-nominal-scale, color-infrared photography transferred directly to 1:100,000-scale topographic maps enlarged to the scale of the photographs; these maps were then reduced and compiled at 1:250,000-scale.
Geologic setting	This relatively short zone of discontinuous north- to northwest-striking faults is mostly characterized by down-to-the-east faults that place Tertiary and Paleozoic bedrock against Quaternary piedmont-slope deposits (Murphy and others, 1978 #4368; Dohrenwend and others, 1992 #283). The faults zone is at least in part a range-front fault zone, but Dohrenwend and others (1992 #283) did not classify any of these faults as major range-front faults. The apparent down-to-the-east stratigraphic offsets shown by the faults and the east-facing direction of scarps consistently indicate principally down-to-the-east offsets along fault zone that probably reflect some continued Quaternary uplift of the Simpson Park Mountains relative to the adjacent Denay Valley.
Length (km)	10 km.
Average strike	N12°W
Sense of movement	Normal *Comments:* Not specifically reported, however, the east-facing direction of the scarps and the down-to-the-east stratigraphic offsets shown by the faults, consistently indicate down-to-the-east fault offsets, which in this extensional regime probably reflects principally normal, dip-slip movement along easterly dipping

	faults.
Dip Direction	E; NE *Comments:* Not reported, but probably steep, based on dip measurements of other Quaternary faults in localities nearby and elsewhere in the Basin and Range Province.
Paleoseismology studies	
Geomorphic expression	This north- to northwest-striking deformation zone is expressed by discontinuous, locally preserved scarps along faults that place bedrock against Quaternary deposits. However, photogeologic mapping by Dohrenwend and others (1992 #283) indicates that they are relatively lower, shorter, and less continuous features than those commonly present along major range-front faults. Some scarps and linear features are developed on Quaternary piedmont-slope deposits the Denay Valley (Murphy and others, 1978 #4368; Dohrenwend and others, 1992 #283).
Age of faulted surficial deposits	Dohrenwend and others (1992 #283) did not specifically assign ages to any of the faulted deposits on their map, however, their mapping implies a Quaternary age for faulted deposits along the zone. Murphy and others (1978 #4368) assigned a broad Pleistocene to recent age range to faulted deposits they mapped as alluvium and older fan deposits.
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* The timing of the most recent prehistoric faulting event is not well constrained. Mapping studies by Murphy and others (1978 #4368) and by Dohrenwend and others (1992 #283) similarly indicate that one or more Quaternary faulting events has occurred along faults of this zone.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Not reported; low slip rate selected on the basis of the

	faults geomorphic expression.
Date and Compiler(s)	2000 David J. Lidke, U.S. Geological Survey
References	#283 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Millett 1° by 2° quadrangle, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-2176, 1 sheet, scale 1:250,000. #4368 Murphy, M.A., McKee, E.H., Winterer, E.L., Matti, J.C., and Dunham, J.B., 1978, Preliminary geologic map of the Roberts Creek Mountain quadrangle, Nevada: U.S. Geological Survey Open-File Report 78-376, 1 sheet, scale 1:31,250.