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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.

Newark Valley fault zone (Class A) No. 1282

Last Review Date: 2000-12-01

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Synopsis	This large fault zone consists of tens of northeast-trending, subparallel lineaments and scarps with both down-to-the-east and down-to-the-west displacements. The fault zone is within the Newark Valley, between the Pancake Range to the west and the Antelope Mountains to the east. The zone is bisected by U.S. Highway 50 and encompasses an area that is about 30 km long and 9 km wide. Most of the faults and lineaments are on early to middle Quaternary deposits. Reconnaissance photogeologic mapping and limited analysis of scarp morphology are the sources of data. Trench investigations and detailed studies of scarp morphology have not been completed.
Name comments	This large fault zone, referred to as the Newark Valley fault swarm by dePolo (1998 #2845), lies within the Newark Valley between the Pancake Range to the west and Antelope Mountain to the east.

	Fault ID: Also referred to as fault numbers 88 of Schell (1981 #2843) and EY5 of dePolo (1998 #2845).
County(s) and State(s)	WHITE PINE COUNTY, NEVADA
Physiographic province(s)	BASIN AND RANGE
Reliability of location	Good Compiled at 1:100,000 scale. *Comments:* Location based on 1:250,000-scale map of Dohrenwend and others (1992 #2480). Mapping based on photogeologic analysis of primarily 1:24,000-scale color aerial photography supplemented with 1:60,000-scale black-and-white aerial photography, transferred to 1:62,500-scale topographic maps and photographically reduced and transferred to 1:250,000-scale topographic maps, with subsequent mapping by photogeologic analysis of 1:58,000-nominal-scale color-infrared photography transferred directly to 1:100,000-scale topographic quadrangle maps enlarged to scale of the photographs.
Geologic setting	The Newark Valley fault zone lies within the Newark Valley, 35-40 km east of Eureka, Nevada. Newark Valley is in the central part of the Great Basin within the Basin and Range Province. This region typically consists of north-south trending mountains separated by broad desert valleys. During the Paleozoic, the central part of the Great Basin was located on the eastern margin of the Cordilleran geosyncline (Kay, 1951 #4402). The majority of the area was overlain with Paleozoic sedimentary rocks more than a mile thick that are primarily of marine origin (Hose and Blake, 1976 #4341). The Paleozoic sequence is deformed by folding and thrust faulting, and unconformably capped by Tertiary volcanic and intrusive rocks of Eocene to Oligocene and perhaps Miocene age (Stewart, 1980 #3056). These rocks have been uplifted into Mountain Ranges with elevations of 3,000 m (9,000 to 10,000 ft) that alternate with 1,700 m (5.,600 ft) high flat-floored valleys. Valley sediments are typically comprised of Pleistocene lake deposits, and sand and gravel deposits of alluvial fans and terraces.
Length (km)	30 km.
Average strike	N17°E

Sense of movement	Normal
Dip Direction	W; E
Paleoseismology studies	
Geomorphic expression	This fault zone is defined by a series of northeast-trending fault-related lineaments and scarps within the Newark Valley; these structures mimic the trend of the Pancake Range to the southeast. The surface of the valley floor tilts gently to the northwest, perpendicular to the fault trend, and is perhaps influenced by it. Most of the lineaments are included in this group due to their close association with bona fide fault scarps as mapped by Dohrenwend and others (1992 #2480).
Age of faulted surficial deposits	Late Pleistocene, Pleistocene and Tertiary (Schell, 1981 #2843; Dohrenwend and others, 1992 #2480)
Historic earthquake	
Most recent prehistoric deformation	middle and late Quaternary (<750 ka) *Comments:* Timing estimated to be late Pleistocene (15-700 ka) by Schell (1981 #2843) and primarily early to middle Pleistocene (0.13 to 1.6 Ma) by Dohrenwend and others (1992 #2480). From these estimates, we have designated the most recent faulting to be middle to late Quaternary (<750 ka).
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* No detailed data exists to determine slip rates for this fault. dePolo (1998 #2845) assigned a reconnaissance vertical slip rate of 0.01 mm/yr for the fault based on the presence of scarps on alluvium and the absence of basal facets. The late Quaternary characteristics of this fault (overall geomorphic expression, continuity of scarps, age of faulted deposits, etc.) support a low slip rate. Accordingly, the less than 0.2 mm/yr slip-rate category has been assigned to this fault zone.
Date and	2000

Compiler(s)	Margaret Hisa Redsteer, U.S. Geological Survey
References	#2845 dePolo, C.M., 1998, A reconnaissance technique for estimating the slip rate of normal-slip faults in the Great Basin, and application to faults in Nevada, U.S.A.: Reno, University of Nevada, unpublished Ph.D. dissertation, 199 p. #2480 Dohrenwend, J.C., Schell, B.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Ely 1° by 2° quadrangle, Nevada and Utah: U.S. Geological Survey Miscellaneous Field Studies Map MF-2181, 1 sheet, scale 1:250,000. #4341 Hose, R.K., and Blake, M.C., Jr., 1976, Geology and mineral resources of White Pine County, Nevada: Nevada Bureau of Mines and Geology Bulletin 85, 105 p. #4402 Kay, M., 1951, North American geosynclines: Geological Society of America Memoir 48, 143 p. #2843 Schell, B.A., 1981, Faults and lineaments in the MX Sitting Region, Nevada and Utah, Volume I: 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, 77 p. #3056 Stewart, J.H., 1980, Geology of Nevada—A discussion to accompany the geologic map of Nevada: Nevada Bureau of Mines and Geology Special Publication 4, 136 p.