Jump to Navigation

# 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.**

## McAfee Canyon fault (Class A) No. 1731

**Last Review Date: 1999-03-10**

***citation for this record:*** **Anderson, R.E., and Machette, M.N., compilers, 1999, Fault number 1731, McAfee Canyon 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 02:24 PM.**

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| **Synopsis** | The McAfee Canyon fault is a discontinuous north-striking structure the north part of which bounds a small portion of the west margin of the Silver Peak Range and the south part of which extends southward into Fish Lake Valley to a point near the Nevada/California border. As mapped it extends south to within 5 km of the Fish Lake Valley fault zone [49], but does not appear to connect with it. It is uncertain how the behavior of this fault is linked to the Fish Lake Valley fault, both of which show evidence for late Holocene movement. It is expressed as low fault scarps on alluvium and as larger scarps on bedrock, and where it is exposed in bedrock in its northern part, striations suggest a component of left slip. Late Holocene alluvium is offset as much as 0.8 m; early Holocene alluvium is offset as much as 3.0 m; and late Pleistocene alluvium is offset as much as 10 m across two faults. Based on displacement of Quaternary deposits with ages estimated from late Pleistocene to late Holocene, which suggests |

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| | a moderate slip rate. |
| **Name comments** | Name taken from Piety (1995 #915). Fault strands, scarps, and lineaments that express the fault, were mapped Brogan and others (1991 #298), Reheis and Noller (1991 #1195), and Dohrenwend and others (1992 #289). The McAfee Canyon fault bounds a small portion of the western margin of the Silver Peak Range and the southern part of which extends southward into Fish Lake Valley to a point near the Nevada/California border (Reheis and Noller, 1991 #1195). Mc Afee Canyon, the faults namesake, is crossed by the long northern strand of the fault and is a small west-trending canyon along the southwest flank of the Silver Peak Range.<br><br>**Fault ID:** Referred to as MAC by Piety (1995 #915). |
| **County(s) and State(s)** | ESMERALDA COUNTY, NEVADA |
| **Physiographic province(s)** | BASIN AND RANGE |
| **Reliability of location** | Good<br>Compiled at 1:100,000 scale.<br><br>*Comments:* Most faults were located photogeologically on 1:24,000-scale topographic maps and transferred by inspection to a 1:100,000-scale topographic map (Reheis and Noller, 1991 #1195). |
| **Geologic setting** | The McAfee Canyon fault is a discontinuous north-striking structure the north part of which bounds a small portion of the west margin of the Silver Peak Range and the south part of which extends southward into Fish Lake Valley to a point near the Nevada/California border. As mapped by Reheis and Noller (1991 #1195) it extends south to within 5 km of the Fish Lake Valley fault zone, but does not appear to connect with it. It is uncertain how the behavior of this fault is linked to the Fish Lake Valley fault. |
| **Length (km)** | 11 km. |
| **Average strike** | N9°W |
| **Sense of movement** | Normal |

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| | *Comments:* Where fault is exposed in bedrock in its north part, striations suggest a component of left slip (M. Reheis, written commun., 1995). |
| **Dip** | 55° to 80°W<br><br>*Comments:* Northern part of fault dips about 80? west where striations suggest left slip (M. Reheis, written commun. 1995). |
| **Paleoseismology studies** | |
| **Geomorphic expression** | Southern part of fault is expressed by lineaments and low, west-facing scarps on alluvium and northern part is expressed west-facing scarps on bedrock Reheis and Noller (1992 #289). |
| **Age of faulted surficial deposits** | Holocene (40 percent); late Pleistocene (30 percent); middle and early Pleistocene (<5 percent); Miocene (5 percent); Paleozoic (20 percent). Late Holocene alluvium (1.1-1.7 ka) is offset as much as 0.8 m; early Holocene alluvium (about 5-10 ka) is offset as much as 3.0 m, and late Pleistocene alluvium (about 50-100 ka) is offset as much as 10 m across two faults (M. Reheis, written commun., 1995). Age estimates are based on regional mapping and age determinations reported in Reheis and others (1996 #4769). |
| **Historic earthquake** | |
| **Most recent prehistoric deformation** | latest Quaternary (<15 ka)<br><br>*Comments:* Late Holocene alluvium, estimated to be 1.7-1.1 ka by correlation to dated deposits in Fish Lake Valley, is the youngest offset unit (M. Reheis, written commun., 1995). |
| **Recurrence interval** | *Comments:* Relatively young stratigraphic units are offset differing amounts across the McAfee Canyon fault, which suggests recurrent faulting. Late Holocene alluvium (1.7-1.1 ka) is offset as much as 0.8 m; early Holocene alluvium ( 5-10 ka) is offset as much as 3.0 m; and late Pleistocene alluvium (50-100 ka) is offset as much as 10 m across two different strands of the fault (M. Reheis, written commun., 1995). Because specific faulting events are undated, recurrence intervals are not reported. |

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| **Slip-rate category** | Between 0.2 and 1.0 mm/yr<br><br>*Comments:* The slip rate is difficult to estimate owing to a lack of dated events. However, based on the displacement of Holocene deposits, it appears that the fault is moderately active. For example, deposits of 5-10 k.y. age are offset 3 m, whereas those of 50-100 k.y. age are offset about 10 m. Accordingly, we have assigned the fault to the 0.2-1 mm/yr category. |
| **Date and Compiler(s)** | 1999<br>R. Ernest Anderson, U.S. Geological Survey, Emeritus<br>Michael N. Machette, U.S. Geological Survey, Retired |
| **References** | #298 Brogan, G.E., Kellogg, K.S., Slemmons, D.B., and Terhune, C.L., 1991, Late Quaternary faulting along the Death Valley-Furnace Creek fault system, California and Nevada: U.S. Geological Survey Bulletin 1991, 23 p., 4 pls., scale 1:62,500.<br><br>#289 Dohrenwend, J.C., Schell, B.A., McKittrick, M.A., and Moring, B.C., 1992, Reconnaissance photogeologic map of young faults in the Goldfield 1° by 2° quadrangle, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2183, 1 sheet, scale 1:250,000.<br><br>#915 Piety, L.A., 1995, Compilation of known and suspected Quaternary faults within 100 km of Yucca Mountain, Nevada and California: U.S. Geological Survey Open-File Report 94-112, 404 p., 2 pls., scale 1:250,000.<br><br>#1195 Reheis, M.C., and Noller, J.S., 1991, Aerial photographic interpretation of lineaments and faults in late Cenozoic deposits in the eastern part of the Benton Range 1:100,000 quadrangle and the Goldfield, Last Chance Range, Beatty, and Death Valley Junction 1:100,000 quadrangles, Nevada and California: U.S. Geological Survey Open-File Report 90-41, 9 p., 4 sheets, scale 1:100,000.<br><br>#4769 Reheis, M.C., Slate, J.L., Throckmorton, C.K., McGeehin, J.P., Sarna-Wojcicki, A.M., and Dengler, L., 1996, Late Quaternary sedimentation on the Leidy Creek fan, Nevada-California—Geomorphic responses to climate change: Basin Research, v. 12, p. 279-299. |

Questions or comments?