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.

Chicken Springs faults (Class A) No. 780

Last Review Date: 1999-05-17

citation for this record: **Machette, M.N., compiler, 1999, Fault number 780, Chicken Springs faults, 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 03:16 PM.**

Synopsis	Little is known about these seemingly young faults. They have been shown as Quaternary faults, but no reconnaissance was made of them until the late 1980s. They form both north- and south-facing scarps, at least one of which has an abandoned stream channel captured on the uplifted side of a fault. No topographic profiles or detailed investigations have been published on these faults.
Name comments	Named for Chicken Springs, southwest of Bairoil, Wyoming. A variety of names involving Chicken Springs has been used for this group of distributed faults, which are centered about 16 km from Bairoil. We prefer the plural form here, inasmuch as there are at least a dozen separate strands concentrated in an 8 km (N-S) by 15 km (E-W) area. **Fault ID:** Referred to as fault 295 of Witkind (1975 #819).

County(s) and State(s)	SWEETWATER COUNTY, WYOMING
Physiographic province(s)	WYOMING BASIN
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Fault traces based on reconnaissance map of Wyoming Basin at 1:250,000 scale with topographic base by Geomatrix Consultants (pl. 2, 1988 #2973). Geomatrix Consultants (1988 #2973; 1988 #2980) showed the fault and older structures on maps at 1:500,000 scale. The faults were also shown in generalized fashion at 1:500,000 scale by Witkind (1975 #819), Love and Christiansen (1985 #2287) and Geomatrix Consultants (1988 #2980), and at 1:1,000,000 scale by Case and others (1997 #3449).
Geologic setting	The Chicken Springs faults are within the Red Desert portion of the Wyoming Basin, approximately 16 km southwest of Bairoil, Wyoming, and 23 km south of the eastern end of the Green Mountains. Case (cited in Geomatrix Consultants, 1988 #2980) suggested that some of the faults may be as much as 30 km long. However, some lineaments observed on aerial photographs may be related to bedrock jointing rather than surface faulting (Blackstone, cited in Geomatrix Consultants, 1988 #2980).
Length (km)	13 km.
Average strike	N79°W
Sense of movement	Normal *Comments:* Reported as normal by Geomatrix Consultants (1988 #2980). Orientation and sense of displacement are consistent with north-south extensional stress regime postulated for the Wyoming foreland by Zoback and Zoback (1980 #176).
Dip Direction	N; S
Paleoseismology studies	
Geomorphic expression	Discontinuous faults in this group trend west to northwest, are 3-15 km in length (Love and Christiansen, 1985 #2287), and face both north and south. Case and others (1997 #3449) reported that,

	at one locality, an abandoned (undated) stream channel is exposed on the uplifted (northern) block of a prominent fault. No evidence of the north-south trending channel is found on the downdropped (southern) block. In addition, soil horizons and the underlying undated alluvium were observed to be displaced by a fault.
Age of faulted surficial deposits	Not mentioned by Case (1997 #3450), but he infers that the faulted stream channel is young (i.e., Holocene).
Historic earthquake	
Most recent prehistoric deformation	latest Quaternary (<15 ka) *Comments:* Case (1997 #3450) considered the faults within this system to have been active in the Holocene on the basis of displaced soil horizons and the abandoned, but uplifted stream channel. However, additional research is required to confirm the time of most recent faulting (Case, 1997 #3450). Witkind (1975 #819) suspected deformation during the late Cenozoic, and Geomatrix Consultants (1988 #2973; 1988 #2980) considered the faults to be active in the Quaternary.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* A low-slip rate is indicated based on activity rates of other late Quaternary faults in adjacent parts of the Wyoming Basin province. However, inasmuch as the faulting appears to be young, further study could lead to assignment of a higher slip-rate category.
Date and Compiler(s)	1999 Michael N. Machette, U.S. Geological Survey, Retired
References	#3450 Case, J.C., 1997, Earthquakes and active faults in Wyoming: Geological Survey of Wyoming Preliminary Hazard Report 97-2, 58 p. #3449 Case, J.C., Larsen, L.L., Boyd, C.S., and Cannia, J.C., 1997, Earthquake epicenters and suspected active faults with surficial expression in Wyoming: Geological Survey of Wyoming Preliminary Hazards Report 97-1, 1 sheet, scale 1:1,000,000.

	#2973 Geomatrix Consultants, Inc., 1988, Northwestern Wind River Basin seismotectonic evaluation: Technical report to U.S. Department of Interior, Bureau of Reclamation, Denver, under Contract 6-CS-81-07310, 116 p., 3 pls. #2980 Geomatrix Consultants, Inc., 1988, Wyoming Basin geomorphic province seismotectonic evaluation: Technical report to U.S. Department of Interior, Bureau of Reclamation, Denver, under Contract 6-CS-81-07310, 167 p., 2 pls. #2287 Love, J.D., and Christiansen, A.C., 1985, Geologic map of Wyoming: State Geologic Map, 3 sheets, scale 1:500,000. #819 Witkind, I.J., 1975, Preliminary map showing known and suspected active faults in Wyoming: U.S. Geological Survey Open-File Report 75-279, 35 p. pamphlet, 1 sheet, scale 1:500,000. #176 Zoback, M.L., and Zoback, M., 1980, State of stress in the conterminous United States: Journal of Geophysical Research, v. 85, no. B11, p. 6113-6156.