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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.

Continental fault (Class B) No. 776

Last Review Date: 1999-05-11

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Synopsis	The fault is considered to be a late Cenozoic normal fault reactivation of an early Eocene tear fault bordering the southern margin of the Wind River thrust fault. This reactivation was in a down-to-the-northeast direction (reversal from previous sense) and may be related to the middle Miocene collapse of the Wind River uplift. Reconnaissance studies show no evidence (aerial or ground-based) for surface rupturing in the late Quaternary or Quaternary. However, some authors argue for Quaternary displacement on the basis of offset high-level terrace gravel and anomalous drainage patterns. No detailed studies have been performed on this fault that prove Quaternary movement. Thus, the fault is considered to be a Class B structure of potential, but unproven Quaternary age.
Name comments	Although undocumented, the name of the fault appears to arise from its proximity to the Continental Divide or Continental Peak,

	both of which are astride the fault. The bedrock fault extends along the southwestern margin of the Wind River uplift, from near U.S. Highway 187 (on the northwest) to 5 km southeast of Picket Lake (on the southeast; as shown by Witkind (1975 #819) and Case and others (1997 #3449). Only the eastern 60 km of the fault is included herein on the basis of topographic expression, such as impounding of drainages. The western end of this part of the fault is taken as being at North Pacific Creek; the eastern end is as stated above. **Fault ID:** Referred to as normal fault 4 (Continental) on figure 2-1 of Geomatrix Consultants (1988 #2973).
County(s) and State(s)	SUBLETTE COUNTY, WYOMING SWEETWATER COUNTY, WYOMING FREMONT COUNTY, WYOMING
Physiographic province(s)	WYOMING BASIN
Reliability of location	Good Compiled at 1:250,000 scale. *Comments:* Only the eastern 60 km of the fault is include herein on the basis of topographic expression and impounding of drainages. Trace from plate 2 in Geomatrix Consultants (1988 #2973) at 1:250,000 scale on a topographic base map Also shown, in generalized fashion at 1:1,000,000 scale by Case and others (1997 #3449).
Geologic setting	This roughly 90-km-long, southeast-striking normal fault strikes along the southwestern margin of the Wind River uplift, which is about 220 km long and about 40 km wide and forms the largest Laramide uplift in Wyoming (Smithson and others, 1978 #3455; Geomatrix Consultants, 1988 #2973). The uplift is a broad northwest-trending asymmetric anticline that has been thrust to the southwest over sedimentary rocks of the Green River basin along the Wind River thrust. The initial deformation along the Continental fault is considered to be as a tear fault related to Laramide motion on the Wind River thrust, but the Continental fault appears to have been reactivated as a normal fault during the middle Miocene collapse of the Wind River uplift (Steidtmann and Middleton, 1986 #3453). The Continental fault is subparallel to, but southwest of, the Continental fault [775], which is known to be late Cenozoic and may have Quaternary (but not late Quaternary) movement.

Length (km)	59 km.
Average strike	N°75W
Sense of movement	Normal *Comments:* Love and Keefer (1975 #2285) stated that the down-to-the-north (normal) displacement occurred largely during the Pliocene and Pleistocene. The vertical (post-Miocene) displacement ranges from 75-450 m (Table 2-1, Geomatrix Consultants, 1988 #2973).
Dip	Steep to the north, probably at high angle.
Paleoseismology studies	
Geomorphic expression	The fault is marked by a complex zone of sinuous, relatively continuous traces and straight, discontinuous traces (Steidtmann and others, 1983 #3456). Zeller and Stephens (1969 #3442) noted that a high gravel terrace (unknown age, presumed to be Quaternary) appears to be displaced. Love (Table 2-1, Geomatrix Consultants, 1988 #2973) suggested that the low gradient and impounding of Pacific Creek, which flows parallel to Utah Highway 28 along the central part of the fault, may reflect Quaternary activity. However no geomorphic features such as scarps or lineations indicative of Quaternary activity were observed in seismotectonic studies by Anders and LaForge (1983 #836), Steidtmann (cited in Geomatrix Consultants, 1988 #2980), or by Geomatrix Consultants (1988 #2973).
Age of faulted surficial deposits	Zeller and Stephens (1969 #3442) noted that a high gravel terrace (unknown age, presumed to be Quaternary) appears to be displaced
Historic earthquake	
Most recent prehistoric deformation	undifferentiated Quaternary (<1.6 Ma) *Comments:* Witkind (1975 #819) and Case (1997 #3450) reported that the fault may be a late Cenozoic structure. The relatively continuous trace of the fault, anomalous drainage patterns, and apparent displacement of a high-level terrace deposit are suggestive of Quaternary displacement. However, reconnaissance

	studies by Anders and LaForge (1983 #836) and Geomatrix Consultants' (1988 #2973) and others found no geomorphic evidence for Quaternary or late Quaternary displacement (respectively). Thus, the fault is considered to be a Class B structure of potential but unproven Quaternary age.
Recurrence interval	
Slip-rate category	Less than 0.2 mm/yr *Comments:* Low slip-rate category assigned on basis of lack of evidence of late Quaternary displacement.
Date and Compiler(s)	1999 Michael N. Machette, U.S. Geological Survey, Retired
References	#836 Anders, M.H., and LaForge, R.C., 1983, Seismotectonic study for Big Sandy and Eden Dams Eden Project, Wyoming: U.S. Bureau of Reclamation Seismotectonic Report 83-5, 18 p. #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. #2285 Love, J.D., and Keefer, W.R., 1975, Geology of sedimentary rocks in southern Yellowstone National Park, Wyoming: U.S. Geological Survey Professional Paper 729-D, 60 p.

	#3455 Smithson, S.B., Brewer, J., Kaufman, S., Oliver, J., and Hurich, C., 1978, Nature of the Wind River thrust, Wyoming, from COCORP deep-reflection data and from gravity data: Geology, v. 6, p. 648-652. #3453 Steidtmann, J.R., and Middleton, L.T., 1986, Eocene-Pliocene stratigraphy along the southern margin of the Wind River Range, Wyoming—Revisions and implications from field and fission-track studies: The Mountain Geologist, v. 23, no. 1, p. 19-25. #3456 Steidtmann, J.R., McGee, L.C., and Middleton, L.T., 1983, Laramide sedimentation, folding, and faulting in the southern Wind River Range, Wyoming, *in* Lowell, J.D., ed., Rocky Mountain foreland basins and uplifts: Rocky Mountain Association of Geologists, p. 161-167. #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. #3442 Zeller, H.D., and Stephens, E.V., 1969, Geology of the Oregon Buttes area Sweetwater, Sublette and Fremont Counties southwestern Wyoming: Geological Society of America Bulletin 1256, 58 p., 2 pls.