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Reliz fault zone, Blanco section (Class A) No. 286a

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Synopsis	**General:** Late Quaternary, predominately high-angle reverse fault. The Reliz fault zone is mapped at regional scales of mainly 1:62,500 and 1:24,000. No paleoseismic data are available for this fault. Vertical uplift rates derived from marine terrace profiles on western side of Santa Lucia Range suggest a late Quaternary slip rate of about 0.16 mm/yr (Page and others, 1998 #6176). Dextral slip rate unknown, but is probably 0.2-1 mm/yr if assumed the same as for the Rinconada fault zone, and maybe less if slip is partitioned along intra-Salinian faults, such as the Tularcitos fault [62c], westward to the San Gregorio fault zone [60] (Working Group on Northern California Earthquake Potential, 1996 #1216; Jachens and others, 1998 #6174; Clark and Rosenberg, 1999 #5394). Only one site has been investigated by trenching. At site 286b-1 (Terratech Inc., 1989 #6179) strands of the Reliz fault zone offset soil horizons estimated to be between several tens of

	thousands to a few hundred thousand years old that have developed within Pliocene-Pleistocene Paso Robles Formation. Overlying late Pleistocene colluvium estimated to be 30-50 ka is not offset. **Sections:** This fault has 2 sections.
Name comments	**General:** **Section:** The part of the Reliz fault zone concealed beneath the Salinas River alluvium north of Spreckels is herein named the Blanco section, for the Blanco district of the Salinas Valley, of which it crosses. This section extends from its complex junction with the Monterey Bay-Tularcitos fault zone [62] southeast to its intersection with the Sierra de Salinas section [286b] near Spreckels. **Fault ID:** Refers to number 239 (Reliz fault) of Jennings (1994 #2878) and L01 (Rinconada fault) of Working Group on Northern California Earthquake Potential (1996 #1216).
County(s) and State(s)	MONTEREY COUNTY, CALIFORNIA
Physiographic province(s)	PACIFIC BORDER
Reliability of location	Poor Compiled at 1:100,000 scale. *Comments:* Location is constrained by stratigraphy from water and oil wells, and from regional geophysical (gravity and magnetic) data.
Geologic setting	The Reliz fault zone is a major, high-angle reverse fault, which offsets Salinian block crystalline basement rocks and locally juxtaposes Pliocene-Pleistocene age Paso Robles Formation against basement rocks. The continuity of the Reliz fault zone with the Rinconada fault zone [63] to the southeast is controversial. Durham (1974 #6171) regarded the Reliz fault as a relatively minor Coast Range structure, stating that it is unlikely that the fault extends south of Arroyo Seco. On the other hand, Dibblee (1976 #6170) interprets the Reliz fault as the northern component of a major structural feature he calls the Rinconada-Reliz fault zone. Although the Reliz and Rinconada [63] faults are roughly aligned, there is a 10-15 degree difference in strike at the

	juncture. More significantly, the dominant style of displacement on the Reliz fault is reverse, whereas on the Rinconada fault zone [63], it is dextral strike-slip. Indeed, based on the distribution of the schist of the Sierra de Salinas, Ross (1974 #6178, (Ross, 1984 ,p. 18) sees "no compelling reason to believe that this schist belt was significantly faulted or offset" by this fault zone. Limited subsurface data (Ross, 1984 #6458, fig.11) suggest that this schist terrane continues to the east across the Reliz fault zone and disallow right-slip in excess of 23 km since Cretaceous time. Most of the offset on the Reliz fault appears to have been reverse dip-slip with Sierra de Salinas and Salinian basement uplifted to the southwest by as much as 3,000 m (Dibblee, 1976 #6170). The total documented dextral-slip on the Rinconada fault zone [63] is 38 km, whereas the maximum possible right-slip on the Reliz fault zone probably does not exceed 23 km and may be less. Thus, some, if not all, of the strike-slip motion along the Rinconada trend may have been partitioned northwestward via the Paloma and related faults to the Tularcitos fault [62c] of upper Carmel Valley. This latter fault is Holocene active and may have at least 16 km and possibly as much as 40 km of right-lateral displacement (Clark and others, 1997 #6137). Therefore, we believe that the Reliz fault is a separate zone because of the difference in type of displacement, the change in overall strike, and the likelihood that slip is partitioned at different rates between the Rinconada fault zone [63] and the Reliz fault zone.
Length (km)	This section is 23 km of a total fault length of 77 km.
Average strike	N52°W (for section) versus N43°W (for whole fault)
Sense of movement	Reverse *Comments:* The Blanco section predominantly is delineated by high-angle reverse faults. Fairborn (1963 #6172) interpreted Bouger gravity anomalies to show Reliz fault as a high-angle reverse fault with about 3,000 m of vertical displacement. Fairborn also stated that Reliz fault did not continue beyond the northern end of the Sierra de Salinas. In contrast, Sieck (1964 #6145) interpreted the gravity data as supporting a northwestward continuation of the Reliz fault with about 900 m of vertical displacement. Recent gravity data (Langenheim and others, 2002 #6175) and magnetic anomaly data (R.C. Jachens, USGS, unpublished data) confirm the connection with onland Reliz fault and the offshore Monterey Bay fault zone [62]. A compilation map of isostatic gravity contours shows a prominent gravity low

	with a value of about -46 mGal near the western boundary of the former Fort Ord. This low extends in a northwest-southeast direction beneath several deep water wells (Langenheim and others, 2002 #6175). We interpret this gravity low as a concealed sedimentary basin with the deepest part near Marina and the former Fort Ord. This deep basin could partly explain the unusually thick section of Purisima Formation penetrated by the USGS DMW-1 well (Hanson and others, 2002 #6173). The gravity low continues southeastward, forming a trough parallel to the axis of the Salinas Valley and aligns with the projection of the Blanco section.
Dip	70° *Comments:* Unknown, but likely deeps steeply southwest, based on alignment with Sierra de Salinas section to the south and gravity data (Fairborn, 1963 #6172, cross section A-A').
Paleoseismology studies	
Geomorphic expression	Poor. Traces delineating the Blanco section are concealed by Holocene alluvial and eolian deposits of the Salinas River valley.
Age of faulted surficial deposits	Youngest unit faulted is the Aromas Red Sands of probable late Pleistocene age (50-100 ka in Dupre, 1975 #5386) based on regional analysis of deep water and oil wells, and unpublished micro-paleontology reports used to construct cross sections for the Marina coastal area (Wrime Inc., 2003 #6182).
Historic earthquake	
Most recent prehistoric deformation	late Quaternary (<130 ka) *Comments:* Timing of the most recent paleoevent is poorly constrained. Dupre (1975 #5386) mapped Aromas Red Sands as offset and estimated age of this deposit as 50-100 ka.
Recurrence interval	
Slip-rate category	Between 0.2 and 1.0 mm/yr *Comments:* Vertical uplift rates derived from marine terrace

	profiles on western side of Santa Lucia Range suggest a late Quaternary slip rate of about 0.16 mm/yr (Page and others, 1998 #6176). Dextral slip rate unknown, but is probably 0.2-1 mm/yr if assumed the same as for the Rinconada fault zone. May be less if slip is partitioned along intra-Salinian faults, such as the Tularcitos fault [62c], westward to the San Gregorio fault zone [60] (Working Group on Northern California Earthquake Potential, 1996 #1216; Jachens and others, 1998 #6174; Clark and Rosenberg, 1999 #5394). Slip rate assigned to the entire Reliz fault by Petersen and others (1996 #4860) for probabilistic seismic hazard assessment for the State of California was 1 mm/yr (with minimum and maximum assigned slip rates of 0 mm/yr and 2 mm/yr, respectively.
Date and Compiler(s)	2003 Lewis I. Rosenberg, San Luis Obispo County Planning Department William A. Bryant, California Geological Survey
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