UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNFAIR QUADRANGLE
CALIFORNIA—SAN BERNARDINO CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 TWENTYNINE PALMS 15' QUADRANGLE

Figure 3b (to FER-181). Recently active faults in the Yucca Valley-Twentynine Palms study area. Mapping is by Bryant (this report), based on air photo interpretation and field observations.

MAP EXPLANATION

Recently active faults mapped by Bryant (this report), based on air photo interpretation and limited field mapping (indicated by f/c and date). Solid line indicates well-defined feature, dashed where approximately located; queries indicate uncertainty; hachures indicate direction scarp faces.

Locality referred to in text.

Location and orientation of trench excavation. Evidence of possible Holocene activity exposed in trench indicated in red. Location of trench less than 100 feet long indicated by X.

Geomorphic features indicative of fault recency and/or location, based on air photo interpretation and field mapping by Bryant (this report).

b - bench
bd - beheaded drainage
cd - closed depression
dd - deflected drainage - rl - right-lateral, ll - left-lateral
dov - drainage offset vertically
ld - linear drainage
fs - faceted spur
lr - linear ridge
n - notch
pa - ponded alluvium
s - saddle
sb - sidehill bench
sr - shutter ridge
t - tonal lineament
tr - trough
vc - vegetation contrast

COPPER MOUNTAIN FAULT

lldd - probably result of resistant granitic bedrock. Contiguous bedrock exposures in stream channel across fault - no fault planes or shears observed. Joints in bedrock trend N15°E dip 60°-70° E. f/c 2-86

lr in granitic bedrock

pa

scarp in granitic bedrock

ld & t

scarp in alluvial fan

t in alluvial fan

vertically offset drainage & scarp in alluvial fan

dissected alluvial fan doesn't appear to be offset.

Major shear fabric in granitic bedrock trends N40°W, 55°SW. Overlying Holocene alluvium offset. f/c 3-86.

rldd

lldd

Fault (N25°W 75°SW) offsets Holocene(?) alluvium. f/c 3-86 (see photo 5.)

fault exposed in Holocene alluvial fan deposits. Fault att. N30°W 50°SW. f/c 3-86

Holocene(?) alluvium faulted against granitic bedrock. Fault zone approx. 5m wide characterized by strong shear fabric and brecciated zone in bedrock. No well-defined fault planes: strong jointing in granitic bedrock N55°W 80°SW. f/c 3-86

Scarp in alluvial fan: scarp height ~2m, scarp slope = 20° Sharp crest. Fault zone at this location consists of two seperate faults: eastern fault in well-jointed granitic bedrock (N40°-55°W, near vertical dip) and does't seem to offset overlying alluvium. Western fault coincides with SW-facing scarp in alluvial fan. No clearly defined fault plane along western fault, fault in alluvium defined by vertically aligned clasts below scarp and juxtaposed poorly indurated alluvium on west against very loose sand on east (sand-filled fissure?). This site described by Bull (fig. 27B 1978). f/c 3-86 (See photos 4a,4b)

linear contrast between alluvial deposits. No additional geomorphic features indicating recent faulting

PINTO MOUNTAIN FAULT

scarp in late Pleistocene to Holocene alluvium

Fault plane exposed in test pits along fs. Flt trends N85°E to E-W dips 50°-70°N. Gouge 3-11cm thick, has striations plunging 15°-20° W, indicating component of up to vertical displacement. Flt. juxtaposes coarse sand against fine sand with silt beds to 3. f/c 2-86

scarp in Holocene alluvium

lldd

rldd

fs

lr

cd?

strong vc in Holocene alluvium

vc in Holocene alluvium

Black (10YR 3/1 : 2.5Y 2/0M), carbonaceous silt exposed in stream cut. Deposit, which occurs just south of principal trace of flt, may be sag pond deposit. Deposit (base) appears to be offset along N75°-80°W vertical shear, but shear doesn't extend to bottom of exposure. f/c 2-86

N.-facing scarp in mid-Pleistocene Campbell Hill Fm. of Bachelley (1978) is composite, indicating multiple surface rupture events. Holocene surface rupture indicated by break-in-slope of terrace deposit. Terrace composed of fine to med. grained, cohesionless sand derived from Campbell Hill Fm. Weak organic horizon (A) developed on terrace. f/c 2-86

scarp may be erosion along ld

lldd?

lr

lldd

vc in Holocene alluvium

cd; possibly formed by coalescing alluvial fans.

low, eroded scarp in late(?) Pleistocene alluvium

ll deflected ridge

vague t in Holocene alluvium

vague t in Holocene alluvium

t - possible N-facing scarp concealed by late Holocene alluvium

fault concealed by late Holocene alluvium

vc in Holocene alluvium

Mapped, edited, and published by the Geological Survey in cooperation with California Department of Water Resources

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1970. Field checked 1972

Projection and 10,000-foot grid ticks: California coordinate system, zone 5 (Lambert conformal conic)
1000-metre Universal Transverse Mercator grid ticks, zone 11, shown in blue. 1927 North American datum

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route — U. S. Route — State Route

SUNFAIR, CALIF.
NW/4 TWENTYNINE PALMS 15' QUADRANGLE
N3407.5—W11607.5/7.5

1972

AMS 2752 II NW—SERIES V895

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