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GEOLOGIC MAP OF
THE FRENCHMAN FLAT
QUADRANGLE, NYE, LINCOLN,
AND CLARK COUNTIES, NEVADA

By Forrest G. Poole

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Groundwater Branch
P. O. Box 4217
Albuquerque, New Mexico, 87106

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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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GEOLOGIC MAP OF THE FRENCHMAN FLAT QUADRANGLE
NYE, LINCOLN, AND CLARK COUNTIES, NEVADA*

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June 1964

Report TEI-848

This report is preliminary and
has not been edited for conformity
with Geological Survey format.

*Prepared on behalf of the U.S. Atomic Energy Commission.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
Washington 25, D. C.

June 8, 1964

Mr. James E. Reeves, Manager
Nevada Operations Office
U.S. Atomic Energy Commission
P. O. Box 1676
Las Vegas, Nevada

Dear Mr. Reeves:

Transmitted herewith, are two copies of TEI-848, "Geologic Map of the Franchman Flat quadrangle, Nye, Lincoln, and Clark Counties, Nevada," by F. G. Poole, June 1964.

We plan to release this report to the public in the open files, and to publish it later in the Geologic Quadrangle Map series.

Sincerely yours,

W. S. Twendefel

for V. R. Wilmarth
Assistant Chief Geologist
Office of Engineering Geology

Enclosures

DESCRIPTION OF MAP UNITS

Qm SLOPEWASH AND TALUS (0-50' ft.)—unconsolidated sand and gravel; includes alluvium in minor washes, which dissect these deposits.

Qp PLAYA DEPOSITS (0-400' ft.)—yellowish-gray clay, silt, and fine sand.

Qa ALLUVIUM (0-2,000' ft.)—unconsolidated and caliche-cemented sand and gravel; includes alluvial fans, pediments, washes, and locally windblown sand and silt; many siliceous gravels coated by desert varnish.

Qe OLDER COLLUVIUM (0-50' ft.)—mainly angular to subangular blocks of Furnas Quartzite as large as 20 ft. across in matrix of orange, red, and brown siliceous sand, silt, and clay. Occurs in northern Hunger Mountains.

Qta LOWER TERRACE ALLUVIUM (0-100' ft.)—unconsolidated and caliche-cemented sand and gravel; silty alluvial fans and pediments; includes alluvium in minor washes, which dissect these deposits; most siliceous gravels coated by desert varnish; generally crudely bedded; forms prominent low terrace.

Qtl HIGHER TERRACE ALLUVIUM AND GRAVEL (0-50' ft.)—mainly angular to well-rounded chert-marked pebbles, cobbles, and boulders as much as 14 ft. in diameter of pre-Cenozoic quartzite and carbonate, and subordinate conglomerate, chert, siltstone, sandstone, and Tertiary limestone; well-cemented in matrix of caliche and rounded tuff; most siliceous gravels coated by desert varnish; forms high terrace remnants near south edge of quadrangle and in northern Hunger Mountains.

PLATEAU CANYON FORMATION

Tm TUFF OF AMMONIA TANKS (0-150' ft.)—rhyolitic multiple-flow compound-cooling unit; ash-flow and ash-fall tuff; central red and purple zone of dense welding and cataclastic structure grading through gray partly welded zone into pink and white nonwelded zones; this brown shard-rich zone generally present near base; densely welded zone locally contains an upper and lower vitrophyre; this white stratified ash-fall tuff locally at base. Glassy to partly devitrified; 25 percent phenocrysts of sanidine, plagioclase, quartz, biotite, and pyroxene.

Tr RAINIER MESA MEMBER (0-200' ft.)—rhyolitic simple-cooling unit; ash-flow and ash-fall tuff; zones of welding and color similar to tuff of Ammonia Tanks except for presence of well-developed vapor-phase crystallization near top. Glassy to partly devitrified; 100 percent phenocrysts of sanidine, quartz, plagioclase, and biotite.

Tb BEDDED TUFF (0-50' ft.)—rhyolitic bedded tuff and possibly minor unbedded ash-flow tuff; generally azoicized.

Rocks of Wahmonia Flat

Tf LAVA FLOWS AND FLOW BRECCIAS (0-500' ft.)—dacitic, dark gray to black; flows characteristically zoned with stony interior grading outward through glassy zone into zone of flow breccias; generally flow banded and sheeted. Glassy to holocrystalline; porphyritic; 30-60 percent phenocrysts of plagioclase, pyroxene, biotite, and magnetite. Unit equivalent to upper part of lava-flow sequence of Mahanua Flat area.

Tfb TUFF, SANDSTONE, AND TUFF BRECCIA (0-500' ft.)—gray, white, and red laminated to very thick bedded biotite-rich porphyritic and little tuff, sandstone, and tuff breccia; little fragments as large as 4 inches across; locally cross laminated.

Tm ROCKS OF PAVITA SPRING (0-100' ft.)—sandstone and siltstone, white and gray, tuffaceous, calcareous, clayey, laminated to thin-bedded. Pure pale-red and grayish-brown spongy clayey laminated to very thin bedded limestone. Occurs in southwest corner of quadrangle.

Dolomite

Dm UNIT 6 (1,700' ft.)—light-gray ledgy dolomite. Medium to light gray, weathering light to very light gray, some darker beds of medium gray to light olive gray in upper part; aphanitic to finely crystalline; some quartz sand layers and scattered grains in upper 50 ft.; laminated to thin bedded (lenses each out in aphanitic parts); lower part locally recrystallized fine to medium, vuggy; lower locally thicker bedded. Unit forms ledges and cliffs.

Dm UNIT 5 (300' ft.)—light-, medium-, and dark-gray bedded craggy dolomite. Darker beds weather to shades of medium gray; some lighter beds weather medium light gray and show faint laminae; finely to medium crystalline, some coarsely crystalline and vuggy beds; thick to very thick bedded; abundant fossiliferous; some dark- and medium-gray beds in upper part contain rod-shaped fossils; upper 85 ft. very slightly bedded and transitional with overlying unit. Unit forms cliffs.

Dm UNIT 4 (300' ft.)—light-gray craggy dolomite. Medium-gray, weathering medium to light gray, commonly mottled; aphanitic to finely crystalline, some beds are medium crystalline and vuggy; laminated to thin bedded. Unit forms cliffs. Similar to unit 2 (200').

Dm UNIT 3 (425' ft.)—dark-gray ledgy dolomite. Dark to medium gray; common chert layers, lenses, and blebs in upper and lower part; aphanitic to finely crystalline; middle part locally silty and clayey; 50-foot-thick light-gray aphanitic to coarsely crystalline vuggy unit in upper part; laminated to thin bedded; silicified fossils, including *Hyalotrypa*, *Favosites*, *Atrypa*, *Spongyolites*, *Platystrophia* and *Spirifer*. *Rhynchonella*; basal part recrystallized in southern part of area and is similar to underlying unit 2 (200'). Unit forms ledgy slopes and cliffs.

Dm UNIT 2 (260' ft.)—light-gray craggy dolomite. Medium gray, weathering medium to light gray and commonly mottled; finely to coarsely crystalline, vuggy, rare chert blebs; fossiliferous and thin bedded; numerous recrystallized poorly preserved paleozoic columnals and coral heads as much as 1 foot in diameter; Unit forms massive cliffs.

Dm UNIT 1 (115' ft.)—dark-gray craggy dolomite. Dark to medium gray; aphanitic to finely crystalline; some chert lenses, nodules, and blebs throughout unit; basal 20 ft. contains chert layers as much as 2 inches thick, thinly laminated to thin bedded; upper 6 ft. contains silicified and dolomitized fossils including *Hyalotrypa*. Unit forms cliffs.

Es ELY SPRINGS DOLOMITE (260' ft.)—light gray in upper part and dark gray in lower part. Upper part (150' ft.)—medium gray, weathering light gray; aphanitic to finely crystalline; laminated to thin bedded; local chert lenses and blebs; quartz sand zone 15 ft. below top; basal 25 ft. silty and clayey, shaly to platy; some siliceous and dolomitized fossils; forms ledgy slope. Lower part (110' ft.)—dark- to medium gray; finely crystalline; lighter gray parts medium to coarsely crystalline; some quartz sand layers and scattered grains; some chert lenses and blebs; white dolomite veins; common tiny dolomitized paleozoic debris and some corals including *Leptorhynchus* and *Siphonaria*. Lower part forms ledgy and rounded cliffs.

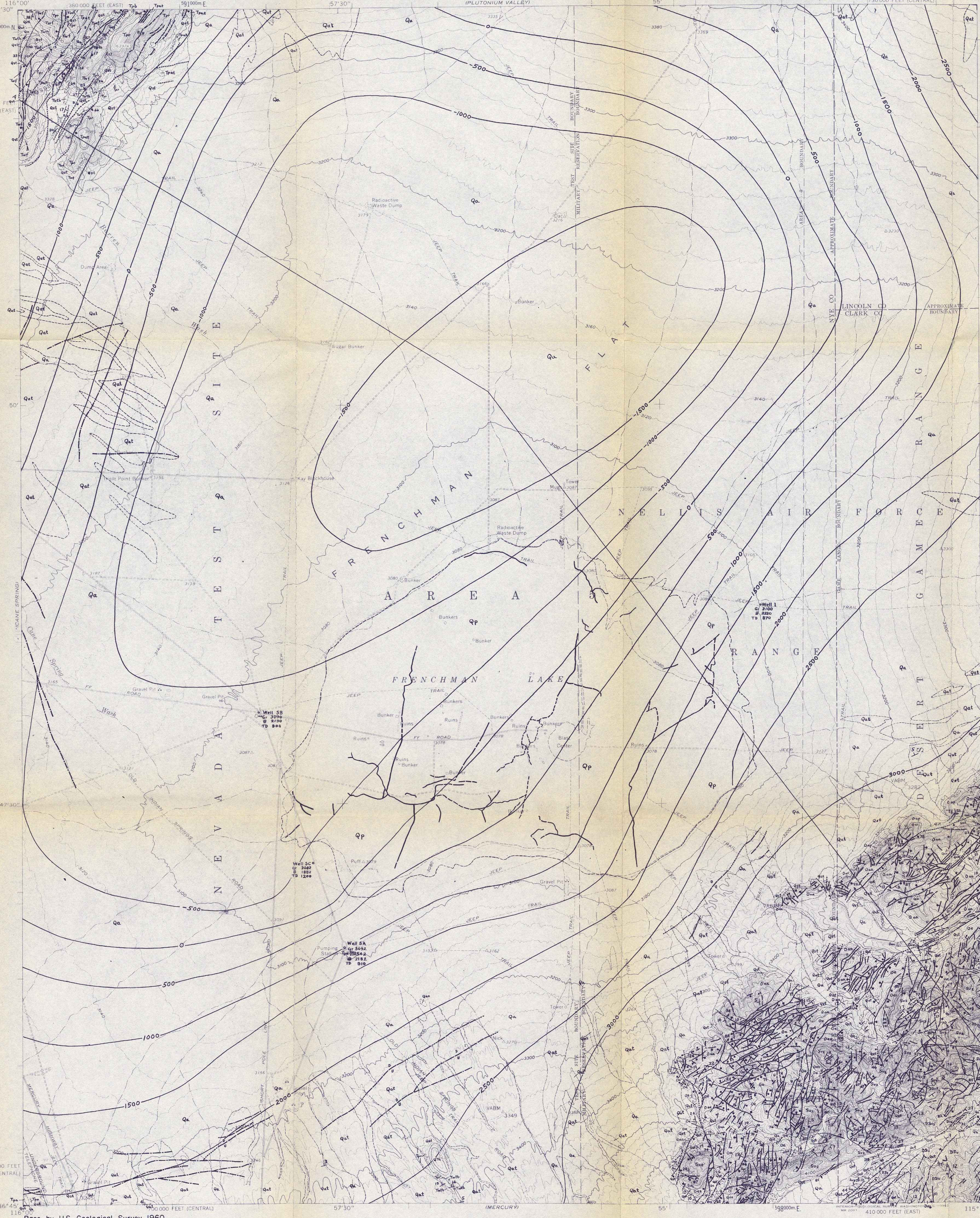
Qa RUBENIA QUARTZITE (400' ft.)—brown ledgy unit. Uppermost unit (20' ft.)—gray and brown fine-grained dolomitic quartzite to sandy dolomite; thin to thick bedded; forms ledge. White quartzite and sandstone (120' ft.)—weathers gray and brown; vitreous and very fine-grained; quartzite indistinctly bedded; forms cliff. *Rhynchonella*, quartzite (10' ft.)—red, white, gray, orange, yellow, and brown; mottled; very fine to fine grained, silty, laminated to thin bedded; common worm borings; forms ledgy slope. Quartzite and sandstone (20' ft.)—brown; very fine to medium grained; cross laminated; forms cliff. *Rhynchonella* unit (55' ft.)—finely to medium crystalline dolomite in upper part and medium to coarsely crystalline limestone and fine siltstone in lower part; lower part locally is dolomite; medium gray, mottled and weathered in shades of gray and brown; laminated to thin bedded; limestone is fossiliferous; silty layers contain twiglike algae; forms ledgy slope. Basal quartzite (55' ft.)—medium-gray, white to light gray in upper 25 ft.; weathers yellow and brown; very fine to medium grained, vitreous in upper part; common gray laminae especially in lower part; dolomite at base; numerous worm borings; forms cliff.

POOPNTIP GROUP

AVYSSA MEMBER (950' ft.)—upper part contains brown silty zones and lower part in gray cliffy limestone. Upper part (450' ft.)—limestone and silty-sandy limestone; medium gray, some red and yellow mottling; weathers light gray and light olive gray to yellowish gray; aphanitic to finely crystalline; some beds contain chert lenses, nodules, and blebs; several laminated to thin-bedded quartzite silty sandy limestone zones weather shades of orange and brown; two pink ledges in lower part; many rusty zones are persistent throughout area; some irregular silty partings and blebs; silty-sandy limestone, locally cross laminated and ripple marked; commonly contains twiglike algae; unit very fossiliferous; represents widespread *Avyssa* limestone (lower part); fossil zone forms dark-brown band 70 ft. above base; abundant silicified brachiopods in upper part; represents widespread *Orthis* fossil zone; forms steep ledgy slope.

PAISATE RIDGE MEMBER (400' ft.)—upper part is gray cliffy limestone and lower part contains minor silty limestone. Upper part (100' ft.)—limestone and minor silty limestone; medium gray, weathers lighter shades of gray and yellowish gray; finely to coarsely crystalline; thin to thick bedded; upper part forms cliff and contains numerous straight-coned cephalopods; lower part forms ledges and contains interbedded finely crystalline silty limestone and a few thin units of laminated siltstone and claystone that weather pale red and yellowish gray to grayish yellow; lower 50 feet transitional with underlying unit. Lower part (300' ft.)—limestone to silty limestone and interbedded laminated siltstone and claystone; limestone similar to upper part except thinner bedded and commonly contains irregular network of brown silty laminae that each into a "chicken-wire" pattern; unit contains numerous zones of thinly laminated red, yellow, and brown siltstone and claystone, especially in lower part; forms ledgy slope.

Grade scale for authigenic crystalline sediments used is aphanitic (0.06 mm), finely crystalline (0.06-0.25 mm), medium crystalline (0.25-0.5 mm), and coarsely crystalline (0.5-2 mm).
Fossils identified by W. A. Oliver, Jr.
Fossils identified by R. J. Ross, Jr.



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1964

EXPLANATION

Qm	Slopewash, talus, playa deposits, and alluvium
Qp	Playa deposits
Qa	Older colluvium
Qe	Lower terrace alluvium
Qta	Higher terrace alluvium and gravel
Qtl	Tuff of Ammonia Tanks
Tr	Rainier Mesa Member
Tb	Bedded tuff
Tfb	Lava flows and flow breccias
Tm	Tuff, sandstone, and tuff breccia
Tm	Rocks of Pavita Spring
Dm	Dolomite units 1 and 2, undifferentiated
Dm	Dolomite unit 3
Dm	Dolomite unit 4
Dm	Dolomite unit 5
Dm	Dolomite unit 6
Es	Ely Springs Dolomite
Es	Eureka Quartzite
Qa	Avyssa Member
Qa	Ranger Mountains Member
Qa	Paisate Ridge Member

UNCONFORMITY (x)

CONTACT

PROSPECT PIT

BRILL HOLE

SHOWING GROUND ELEVATION (87) ELEVATION OF TOPS OF MAP UNITS, AND ELEVATION OF BOTTOM OF HOLE (8) IN FEET, TD, TOTAL DEPTH, IN FEET

INFERRED CONTOURS
DRAWN ON PRESENT UPPER SURFACE OF BEDDED PRE-CENOZOIC ROCKS ON FRENCHMAN FLATS. DASHED WHERE QUESTIONABLE.
INTERVAL 500 FEET. DATUM IS MEAN SEA LEVEL

CONTACT
Dashed where approximately located; dotted where concealed

FAULT, SHOWING RELATIVE MOVEMENT AND DIP
U, upthrown side; D, downthrown side; SW and NE on downthrown side of fault. Backslashes indicate fault steep or fault-line scarp against which younger rocks were deposited; backslashes on side of younger deposit. In Frenchman Flats, the fault symbol represents cracks that we believe to be largely the result of desiccation.

FAULT OR LINEAMENT, FROM PHOTOGRAPHS

STRIKE AND DIP OF BEDS OR ASH-FLOW LAYERING

STRIKE AND DIP OF FLUIDAL LAYERING OR SHEETING

SCALE 1:24,000
CONTOUR INTERVAL 50 FEET
DOTTED LINES REPRESENT 50-FOOT CONTOURS
DASHED LINES REPRESENT 100-FOOT CONTOURS
CENTUM IS MEAN SEA LEVEL

Geology mapped in 1962. Contours on pre-Cenozoic rocks by D.L. Hedley and C.H. Miller, 1958-63

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