DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
U.S. ATOMIC ENERGY COMMISSION

OPEN FILE
TEI-843

DESCRIPTION OF MAP UNITS

Qac ALLUVIUM AND COLLUVIUM (0-1,025 ft)--brown to gray unconsolidated or caliche-cemented locas; lenses and sheets of sand; sandy gravel composed of pebble- to boulder-size fragments of subrounded to subangular silicified tuff, rhyolite, and basalt of Tertiary age and quartzites and carbonates of Paleozoic age.

Tbk BASALT FLOWS OF KIWI MESA (120 ft)--black dense, vesicular, scoriaceous, stony basalt with quartz phenocrysts.

Tsr RHYOLITE FLOWS OF SHOSHONE MOUNTAIN (250 ft)--pink to porphish-red flow-banded vesicular rhyolite. Limited to northeastern corner of quadrangle.

Tbs BASALT FLOWS OF SKULL MOUNTAIN (125-140 ft)--dark-gray dense to scoriacious amygdaloidal basalt.

Tbd BASALT DIKE--green fine-grained basalt dike containing argillite xenoliths from Eleana Formation; intrudes Eleana Formation and rhyolite intrusion of Calico Hills (Tci).

PIAPI CANYON FORMATION:

Tpc Tiva Canyon Member (360 ft)--multiple-flow, simple cooling unit. In descending order, 160 feet of altered pink, silicified, dense, welded tuff with devitrified flattened pumice near top; plagioclase and potash feldspar are common. Next is 55 feet of altered pink silicified dense crystal-poor welded tuff that is underlain by 140 feet of gray and white bedded zeolitic nonwelded tuff with grit-size rhyolite fragments. Welded tuff weathers out in plates on steep slopes.

Tpt Topopah Spring Member (300-800 ft)--thickens to northeast. Multiple-flow simple cooling unit of lavender ash-flow dense devitrified welded tuff. A vapor phase zone is preserved locally at the top above a black vitrophyre that grades downward to welded lithophysal tuff. Next is a red or black glassy tuff that grades downward to a yellowish-brown nonwelded ash-fall and ash-flow tuff with pebble- to boulder-size fragments of rhyolite at base. Pervasive alteration ranges from red weakly silicified hematitic tuff to white silicified, alunitized, and kaolinized tuff. Weathers to chips, plates, and angular blocks.

ANDESITE FLOWS AND TUFFS OF WAHMONIE FLAT--extend from outcrop three miles southeast of quadrangle into the subsurface where they probably interfinger with the rhyolite flows of the Calico Hills (Tcf). Composed of interbedded andesite and rhyodacite flows and flow breccias, ashy debris beds with cobble- to boulder-size fragments of andesite, and tuffaceous biotite-rich sandstone with pebbles of andesite. Shown on section only.

RHYOLITE FLOWS AND TUFFACEOUS BEDS OF CALICO HILLS (1,000 ft)--correlative in part with Indian Trail Formation.

Tcf Rhyolite flows--red flow-banded, vesicular, lithophysal, or stony fluid rhyolite flows with bluish-gray glassy zones at top or base.

Tcb Tuffaceous beds--yellow nonwelded ash flows, white debris beds composed of cobbles and boulders of angular rhyolite and pumice in an ashy matrix, and greenish gray tuffaceous lenticular, locally biotite-rich, sandstone. Basal tuffaceous beds are conglomeratic with subrounded cobbles of quartzite, carbonate, and rhyolite.

Tci Rhyolite intrusion--gray, silicified and kaolinized, porphyritic.

ELEANA FORMATION:

[PMe] Unit J--yellowish-brown and gray thin-bedded argillite, and thin- and thick-bedded quartzite and conglomerate. Only upper part exposed; forms sole of thrust fault.

MDld LIMESTONE AND DOLOMITE (100 ft)--upper 30 feet dark-gray thin-bedded aphanitic crinoidal limestone; lower 70 feet gray laminated to thin-bedded limestone and dolomite. Occurs in faulted blocks thrust over Eleana Formation. Probably equivalent to Mercury and Narrow Canyon Limestones.

Ddn DEVILS GATE (?) LIMESTONE AND NEVADA FORMATION--gray to dark-gray fine- to coarse-grained thin- and thick-bedded brecciated dolomite and limestone. Occurs in faulted blocks thrust over Devonian limestone and dolomite (MDld) and the Eleana Formation. Mississippian and

EXPLANATION

Qac — Alluvium and colluvium
UNCONFORMITY

Tbk — Basalt flows of Kiwi Mesa
UNCONFORMITY

Tsr — Rhyolite flows of Shoshone Mountain
UNCONFORMITY

Tbs / Tbd — Basalt flows of Skull Mountain
Tbd, basalt dike
UNCONFORMITY

Tpc — Tiva Canyon Member

Tpt — Topopah Spring Member
Stippled where silicified, alunitized, and kaolinized
UNCONFORMITY

Tcf / Tcb / Tci — Rhyolite flows and tuffaceous beds of Calico Hills
Tcf, rhyolite flows;
Tcb, tuffaceous beds;
Tci, rhyolite intrusion;
Stipple indicates silicification, alunitization, and kaolinization
UNCONFORMITY

[PMe] — Unit J of Eleana Formation

MDld — Limestone and dolomite

Ddn — Devils Gate(?) Limestone and Nevada Formation

Pliocene to younger — Piapi Canyon Formation

QUATERNARY / TERTIARY / DEVONIAN / PENNSYLVANIAN / MISSISSIPPIAN / CARBONIFEROUS

Contact
Dashed where approximately located

Fault, showing dip, and bearing and plunge of slickensides (short dash where inferred)
Dashed where approximately located; dotted where concealed
U, upthrown side; D, downthrown side. Arrow indicates relative horizontal movement

Thrust fault
Dashed where approximately located; queried where in doubt. Sawteeth on upper plate

Strike and dip of beds and of layering in welded tuffs

Horizontal beds

Strike and dip of joints

Strike and dip of vertical joints

J-11
SE 3,445
Tbk 2,420
Tpt 2,295
TD 1,329
Drill hole
Showing surface elevation (SE), elevation of tops of basalt flows of Kiwi Mesa (Tbk) and of Topopah Spring Member of Piapi Canyon Formation (Tpt), and total depth (TD), in feet

X
Prospect pit

N E V A D A T E S T S I T E

A R E A 7 0 0

J A C K A S S F L A T S

A N A L I C O H I L L S

B C A L I C O H I L L S

Base by U.S. Geological Survey, 1961

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

Geology mapped in 1960

A S 5000' 4000' 3000' 2000' 1000'

Jackass Flats — Andesite flows and tuffs of Wahmonie Flat(?) — Topopah Wash — Little Skull Mountain

B N 5000' 4000' 3000' 2000'

Topopah Wash

GEOLOGY OF JACKASS FLATS QUADRANGLE, NEVADA TEST SITE, NEVADA

BY

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