

**DESCRIPTION OF MAP UNITS**

**QAL** ALLUVIUM AND COLLUVIUM (0-1,025 ft.)—brown to gray unconsolidated or caliche-cemented loess, lenses and sheets of sand, many 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.

**Ta** BASALT FLOWS OF KIVI MESA (120 ft.)—black dense, vesicular, scoriaceous basalt with quartz phenocrysts.

**Tm** RHYOLITE FLOWS OF SHOSHONE MOUNTAIN (250 ft.)—pink to purplish-red flow rhyolite. Limited to northeastern corner of quadrangle.

**Ts** BASALT FLOWS OF SKULL MOUNTAIN (125-140 ft.)—dark gray dense to scoriaceous vesicular basalt.

**Td** BASALT DIKE—green fine-grained basalt dike containing argillite amplites from Eleena Formation; intrudes Eleena Formation and rhyolite intrusion of Calico Hills (Tc).

**PIAPI CANYON FORMATION**

**Tps** Tiva Canyon Member (180 ft.)—multiple-flow, simple cooling unit, in descending order, 160 feet of altered pink, silicified, dense, welded tuff with desiccated flattened pumice near top; plagioclase and potassium 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 argillite mottled tuff with grayish rhyolite fragments. Welded tuff weathers out in places on steep slopes.

**Tpt** Topopah Spring Member (300-300 ft.)—thickens to northeast. Multiple-flow simple cooling unit of lavender ash-flow dense desiccated welded tuff. A major phase zone is preserved locally to the top above a black vitrophyre that grades downward to welded lithology and to a yellowish brown rounded sub-fall and ash-flow tuff with pebble- to boulder-size fragments of rhyolite as well as vesicular alteration ranges formed weakly silicified basaltic tuff to white silicified, laminated, and kaolinized tuff. Weathers to chips, plates, and angular blocks.

**ANDESITE FLOWS AND TUFFS OF WAHMANIE FLATS**—extend from outcrop three miles southeast of quadrangle into the subsurface where they probably interfinger with the rhyolite flows of the Calico Hills (Tc). Composed of interbedded andesite and rhyodacite flows and flow breccias, and tuffaceous basaltic-rich sandstones with pebbles of andesite. Shown on section only.

**RHYOLITE FLOWS AND TUFFACEOUS BEDS OF CALICO HILLS (1,000 ft.)**—correlate 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 rounded ash flows, white debris beds composed of cobbles and boulders of angular rhyolite and pumice in an ash matrix, and greenish gray tuffaceous lenticular, locally with subrounded cobbles of quartzite, carbonate, and rhyolite.

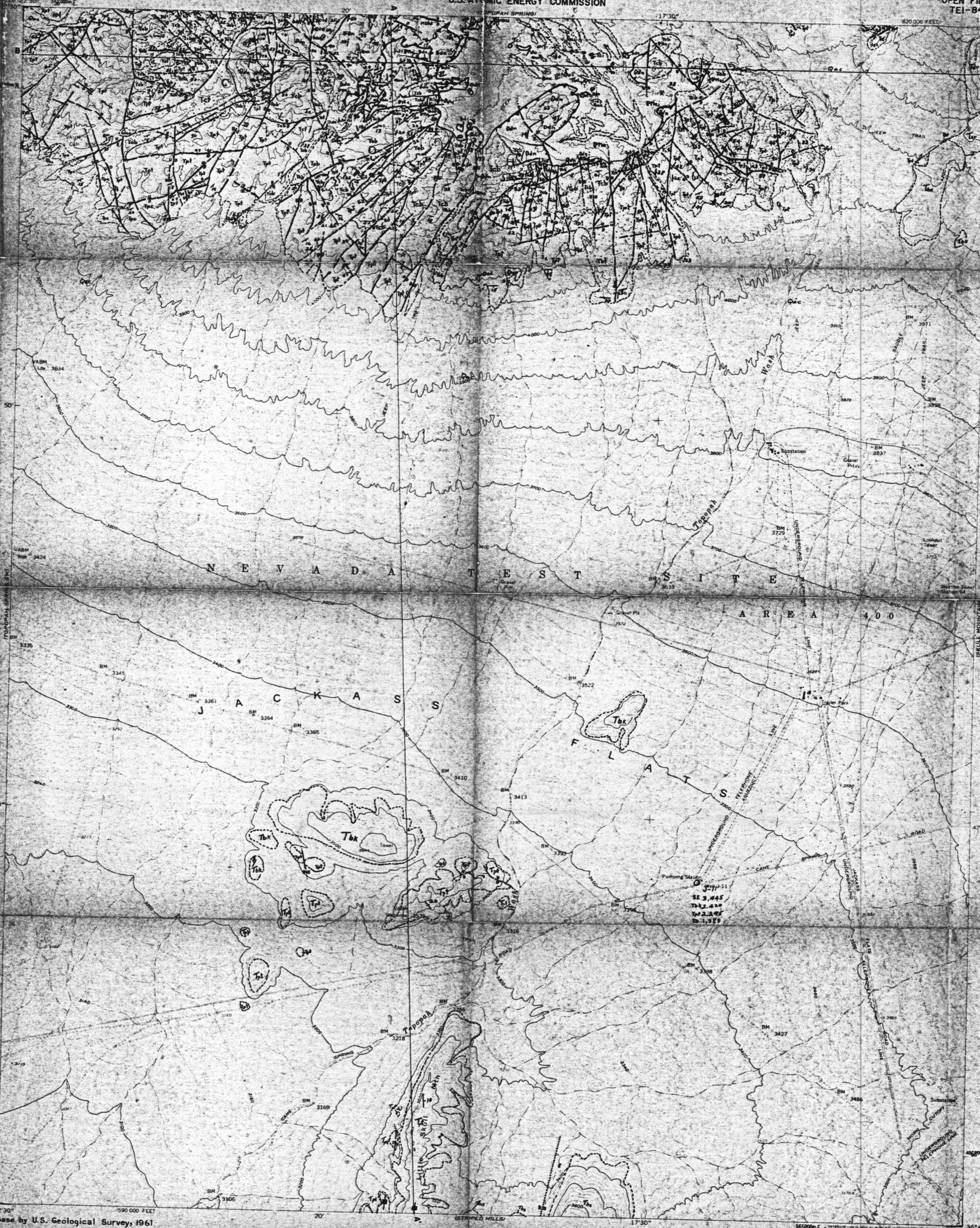
**Tcl** Rhyolite intrusion—gray, silicified and kaolinized, porphyritic.

**ELEENA FORMATION**

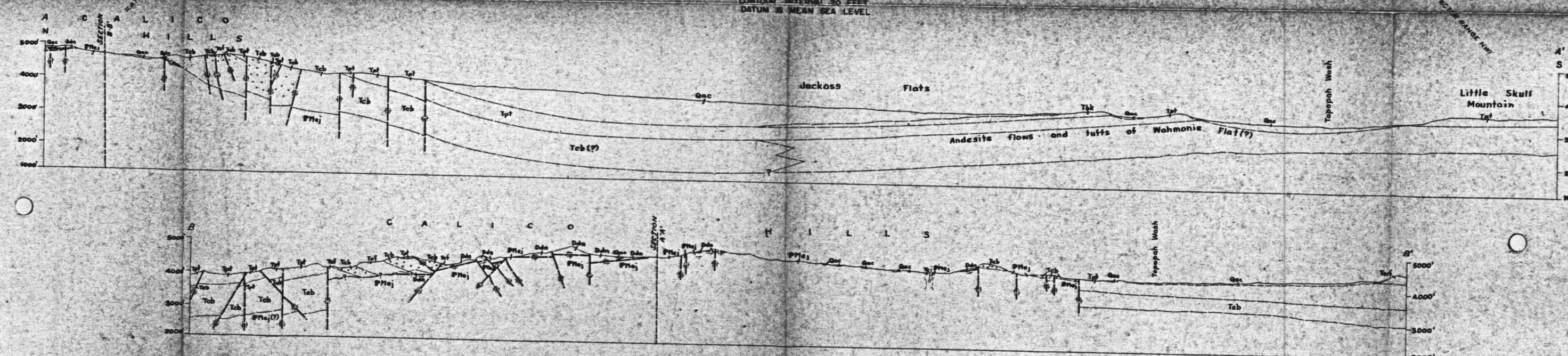
**Unit J**—yellowish-brown and gray thin-bedded argillite, and thin and thick-bedded quartzite and conglomerate. Only upper part exposed; forms sole of thrust fault.

**NDL** LIMESTONE AND DOLOMITE (100 ft.)—upper 30 feet—dark gray thin-bedded argillitic crystalline limestone; lower 70 feet gray laminated to thin-bedded limestone and dolomite. Occurs in faulted blocks thrust over Eleena Formation. Probably equivalent to Mercury and Marrow Canyon Limestones.

**Dca** DEVILS GATE (?) LIMESTONE AND NEVADA FORMATION—gray to dark gray limestone to coarse-grained thin- and thick-bedded brecciated dolomite and limestone. Occurs in faulted blocks thrust over Eleena limestone and dolomite (NDL) and the Eleena Formation. (Mississippi and



- EXPLANATION**
- QAL Alluvium and colluvium UNCONFORMITY
  - Ta Basalt flows of Kivi Mesa UNCONFORMITY
  - Tm Rhyolite flows of Shoshone Mountain UNCONFORMITY
  - Ts Basalt flows of Skull Mountain and basalt dike UNCONFORMITY
  - Tps Tiva Canyon Member
  - Tpt Topopah Spring Member Stippled where silicified, laminated, and kaolinized UNCONFORMITY
  - Tcf Tuffaceous beds and tuffaceous beds of Calico Hills
  - Tcb Tuffaceous beds
  - Tcl Rhyolite intrusion Stippled andesite/silicification, laminated, and kaolinized UNCONFORMITY
  - NDL Unit J of Eleena Formation
  - Dca Devils Gate(?) Limestone and Nevada Formation
- CONTACTS**
- Dashed where approximately located; dotted where inferred; U, upstream side; D, downstream side. Arrow indicates relative horizontal movement.
  - Thrust fault: Dashed where approximately located; queried where in doubt. Sawtooth 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
- ELEVATIONS**
- 1,311
  - 3,445
  - ▲ 2,430
  - △ 2,295
  - ▽ 1,359
- Drill Hole**
- Showing surface elevation (SE), elevation of tops of basalt flows of Kivi Mesa (Ta) and of Topopah Spring Member of Piapi Canyon Formation (Tps), and total depth (TD), in feet.
- X** Prospect pit



GEOLOGY OF JACKASS FLATS QUADRANGLE, NEVADA TEST SITE, NEVADA  
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