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GEOLOGIC MAP OF THE
PLUTONIUM VALLEY QUADRANGLE,
NYE AND LINCOLN COUNTIES, NEVADA

By E. N. Hinrichs and E. J. McKay

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

ILLUSTRATION

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PLATE

Plate 1. Geologic map of the Plutonium Valley quadrangle, Nye and Lincoln Counties, Nevada-----	In pocket
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Figure 1.--Index map of Nevada showing the Plutonium Valley quadrangle, Nye and Lincoln Counties

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
DESCRIPTION OF MAP UNITS

Qac ALLUVIUM AND COLLUVIUM (0-30+ ft)—angular locally derived gravel and well-sorted reworked gravel on dissected fans and pediments; silt and clay on playa.

Qtb BASALT DIKES AND SILL (0-30 ft)—bluish-black fine-grained olivine basalt.

Qts TUFFACEOUS SANDSTONE AND GRAVEL (0-50 ft)—well-sorted pebbles and cobbles of dark quartzite and limestone. Thin beds of gray and tan fine- to medium-grained tuffaceous sandstone; generally eroded less than the surrounding tuff.

PIAPI CANYON FORMATION:

Rainier Mesa Member—multiple-flow compound cooling unit:

Tpm Middle part, undivided (75 ft)—brown partially welded vitric ash-flow tuff; caps round buttes in north-eastern part of quadrangle. Locally subdivided into three units:

Tpm₁ Unit 3 (30+ ft)—pale-gray, partially welded, devitrified ash-flow tuff; may be vapor-phase crystallization zone.

Tpm₂ Unit 2 (250+ ft)—grayish-brown, densely welded devitrified ash-flow tuff with conspicuous biotite.

Tpm₃ Unit 1 (60-150 ft)—gray, densely welded devitrified ash-flow tuff, grades downward through brown vitric, partially welded tuff to gray nonwelded, slope-forming tuff, locally is entirely brown partially welded tuff, with large fragments of pale olive-tan pumice.

Tpr₁ Lower part, undivided (100-200 ft)—gray partially to densely welded ash-flow tuff. Locally subdivided:

Tpr₁₁ Unit 2 (100-220 ft)—pale-gray devitrified partially welded tuff with porous vapor-phase zone at top; weathers to bench and steep slope covered with desert-varnished boulders.

Tpr₁₂ Unit 1 (100-220 ft)—gray and purplish-brown densely welded devitrified ash-flow tuff, grades downward through pink partially welded vitric tuff to pale-gray nonwelded ash-flow tuff; weathers to a steep slope littered with platy fragments above discontinuous knobby columns and low cavernous cliffs.

Tpra Ash-fall tuff (0-230 ft)—bedded tuff, yellow and gray; zeolitic and a small amount of pale-gray vitric tuff; weathers to a slope.

TOPOPAH SPRING MEMBER (0-320 ft)—multiple flow simple cooling unit; chiefly brown welded devitrified and black vitrophyric ash-flow tuff; the typical section in descending order is black vitrophyric, reddish or grayish-brown densely welded tuff with local zones of quartz-lined cavities, and orange-brown crystal-poor partially welded to nonwelded tuff. Locally pale-gray and medium-brown vapor phase zone, in places zeolitized at top.

Tps SURVEY BUTTE(?) MEMBER (0-160 ft)—pale-gray and brown, vitric bedded tuff; many cycles made up of brown, chiefly fine but also some poorly sorted tuff, in beds 1 to 4 feet thick, underlain by pale-gray, fine to lapilli, thin-bedded, medium- to well-sorted tuff; cycles separated by diastemes.

Tpw STOCKADE WASH(?) MEMBER (0-100 ft)—simple cooling unit of pale-gray and tan, fine, vitric ash-flow tuff with orange pumice fragments.

Tw ANDESITE FLOW AND TUFF OF WAHMONIE FLAT (0-100 ft) bluish-gray and black andesite underlain by poorly exposed thick-bedded lapilli tuff and tuff breccia with pebbles and cobbles of andesite.

Ti INDIAN TRAIL(?) FORMATION (100 ft)—bedded tuff and tuffaceous sandstone; tuff is gray, pink, and brown, and most of it zeolitic; subordinate sandstone is reddish brown.

Tms TUFF AND TUFFACEOUS ROCKS OF MOUNT SALYER (90-180+ ft)—reddish-brown tuffaceous sandstone and siltstone, locally conglomeratic; gray, yellow, orange, and red, zeolitic and clayey bedded tuff, some biotite rich; sparse black fossil algae(?).

Tda TUFF OF PAVITS SPRING: BEDDED TUFF (0-120 ft)—gray, yellow, and red, vitric and zeolitic; locally conglomeratic, carbonaceous, and fossiliferous; in upper Nye Canyon, about 1 mile east of quadrangle, pink vitric tuff contains fossil horse *Merychippus* sp. of late Miocene or early Pliocene age (G. E. Lewis, written communication, 1962).

Tpan NONWELDED ASH-FLOW(?) TUFF (610+ ft)—gray, yellow and brown, mostly zeolitic; slightly flattened pumice; zeolitic part weathers to cavernous outcrop on ridges and along washes.

DSOI DOLOMITIC LIMESTONE (400+ ft)—pale- and medium-gray, very sparsely fossiliferous.

De EUREKA QUARTZITE (200 ft)—quartzite and sandstone, pale-gray and tan, fine-grained; thin interbeds of purple and brown argillite and shale.

Oa ANTELOPE VALLEY LIMESTONE (250+ ft)—medium-gray, fine- to medium-crystalline, sparsely fossiliferous; thin tan quartzite in upper part.

Terminology used for pyroclastic rocks is that of C. S. Ross and R. L. Smith (1963). Ash-flow tuffs: their origin, geologic relations and identification. U. S. Geol. Survey Prof. Paper 366, 81 p. and R. L. Smith (1960). Zones and zonal variations in welded ashflows. U. S. Geol. Survey Prof. Paper 354F, p. 149-159.

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

EXPLANATION

- Qac**
Alluvium and colluvium
UNCONFORMITY
- Qtb**
Basalt dikes and sill
UNCONFORMITY
- Qts**
Tuffaceous sandstone and gravel
UNCONFORMITY

- Tpm**
Rainier Mesa Member
Tpm, middle part, undivided.
Tpm₁, unit 3.
Tpm₂, unit 2.
Tpm₃, unit 1.
Tpr₁, lower part, undivided.
Tpr₁₁, unit 2.
Tpr₁₂, unit 1.
Tpra, ash-fall tuff.

- Tpr**
Topopah Spring Member
- Tps**
Survey Butte(?) Member
- Tpw**
Stockade Wash(?) Member

- Tw**
Andesite flow and tuff of Wahmonie Flat

- Ti**
Indian Trail(?) Formation
- Tms**
Tuff and tuffaceous rocks of Mount Salyer
- Tda**
Tuff of Pavits Spring
Correlation uncertain at some localities.
Tda, bedded tuff.
Tpan, nonwelded ash-flow(?) tuff.
- UNCONFORMITY**
- DSOI**
Dolomitic limestone
- De**
Eureka Quartzite
- Oa**
Antelope Valley Limestone

Contact, showing dip
Dashed where approximately located; short dashed where inferred or gradual

Fault, showing dip, and plunge of slickensides
Dashed where approximately located; short dashed where concealed. U, upthrown side; D, downthrown side

Strike and dip of beds, and of layering in welded tuffs

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