Partially funded by the National Science Foundation, the U.S. Geological Survey National Cooperative Geologic Mapping Program, the Geological Society of America, and the Geological Society of Nevada.



# GEOLOGIC MAP OF THE PETRIFIED SPRING FAULT, GABBS VALLEY RANGE, MINERAL COUNTY, NEVADA

## Sheet 2 of 2

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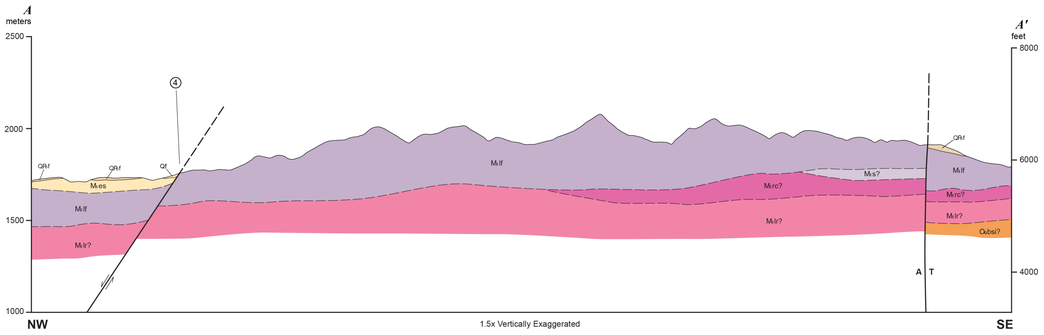
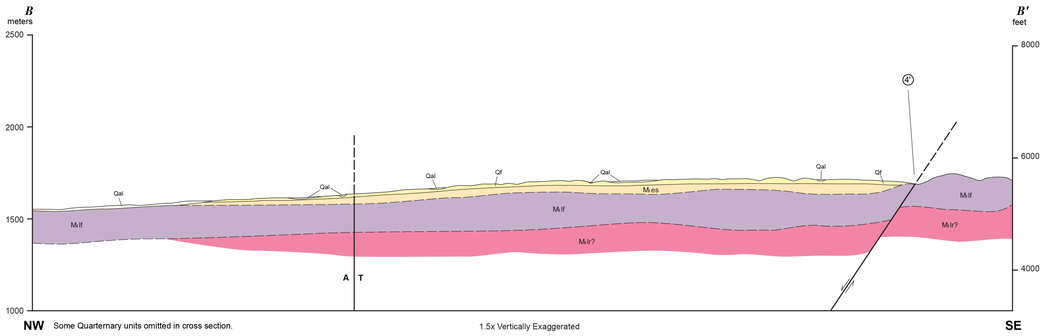
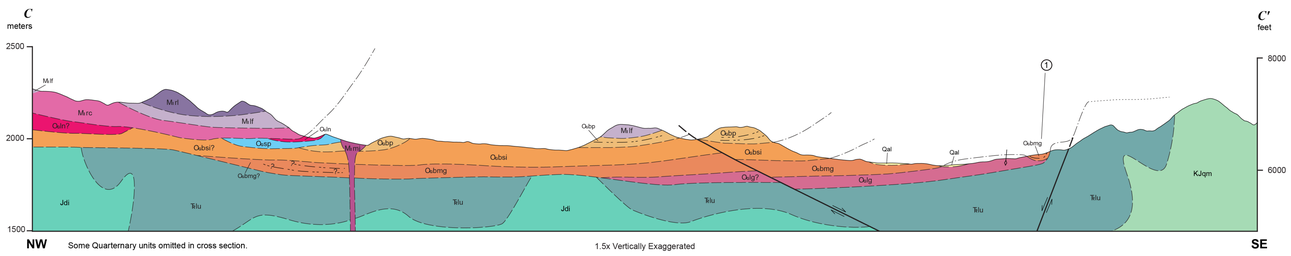
2020




Some Quarternary units omitted in cross section.

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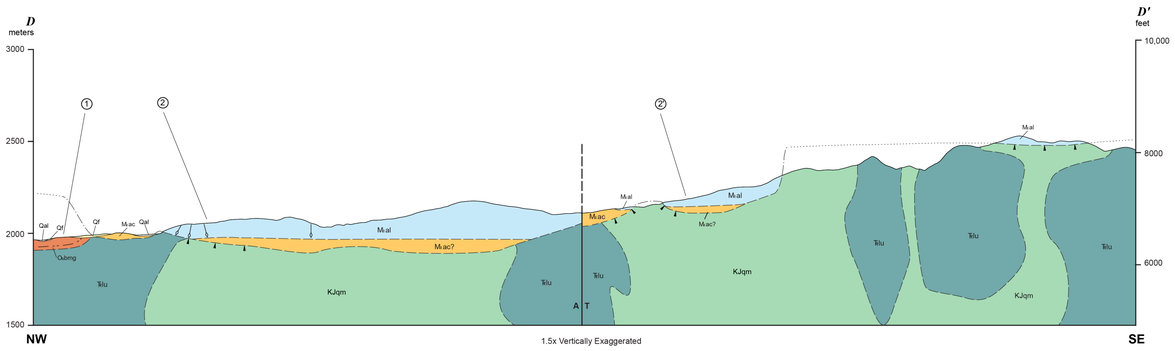
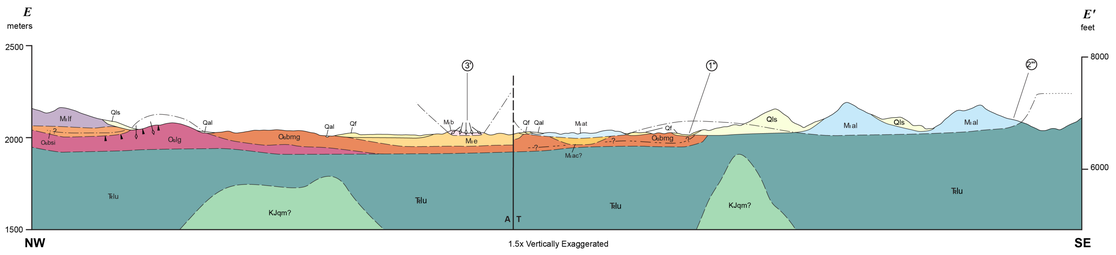



**ANTHROPOGENIC DEPOSITS**

- Htp — Tailings pile (Holocene)

**RECENTLY ACTIVE ALLUVIAL, FLUVIAL, AND COLLUVIAL DEPOSITS**

- Qal — Alluvium (Holocene to Pleistocene)
- Qls — Landslide deposits (Holocene to Pleistocene)
- Qf — Alluvial-fan deposits (Holocene to Pleistocene)

**REMNANT ALLUVIAL-FAN DEPOSITS**

- QRf — Older alluvial-fan deposits (Pleistocene to Pliocene)
- QRfg — Fanglomerate (Pleistocene to Pliocene)

**PLIOCENE-MIOCENE VOLCANIC AND INTRUSIVE ROCKS**

- RMimi — Mafic intrusive rocks (Pliocene to Miocene)
- RMib$_1$ — Basalt lava flow (Pliocene to Miocene)
- RMib$_2$ — Aphanitic basalt lava flow (Pliocene to Miocene)

**MIOCENE SEDIMENTARY ROCKS**

- Mies — Esmeralda sands, massive volcanic ash and sands. $^{40}Ar/^{39}Ar$ 11.8 ± 0.1 Ma (Miocene)
- Mie — Esmeralda Formation (Miocene)

**MIOCENE BASALTIC AND ANDESITIC VOLCANIC ROCKS**

- Mib — Basalt lava flow. $^{40}Ar/^{39}Ar$ age of 15.71 ± 0.03 (Miocene)
- Mial — Andesite lava flow. $^{40}Ar/^{39}Ar$ 15.99 ± 0.05 Ma (Miocene)
- Miat — Andesite tuff (Miocene)

**OTHER MIOCENE SEDIMENTARY ROCKS**

- Miac — Alluvium (Miocene)

**RHYOLITE LAVA FLOWS**

- Mirl — Rhyolite of Gabbs Valley Range. $^{40}Ar/^{39}Ar$ 20.194 ± 0.265 Ma (Miocene)

**MOUNT FERGUSON VOLCANIC AND SEDIMENTARY ROCKS**

- Milf — Lavas of Mount Ferguson, undivided. K/Ar 15-22 Ma, $^{40}Ar/^{39}Ar$ 18.91 ± 0.03 Ma (Miocene)
- Mis — Mount Ferguson volcaniclastic rocks (Miocene)

**OTHER MIOCENE VOLCANIC AND INTRUSIVE ROCKS**

- Mimi — Mafic intrusions. $^{40}Ar/^{39}Ar$ 23.96 ± 0.23 Ma (Miocene)
- Mirc — Tuff of Redrock Canyon. $^{40}Ar/^{39}Ar$ 22.95 ± 0.04 Ma (Miocene)
- Mir — Hu-pwi Rhyodacite (Miocene)

**OLIGOCENE TUFFS**

- Oln — Lavas of Nugent Wash (Oligocene)
- Osp — Blue Sphinx Tuff. $^{40}Ar/^{39}Ar$ 24.30 ± 0.05 Ma (Oligocene)

**BENTON SPRING GROUP**

- Obp — Petrified Spring Tuff of Benton Spring Group (Oligocene)
- Obsi — Singatse Tuff of Benton Spring Group. $^{40}Ar/^{39}Ar$ 26.85 ± 0.02 Ma (Oligocene)
- Obmg — Guild Mine Member of Mickey Pass Tuff of Benton Spring Group. $^{40}Ar/^{39}Ar$ 27.24 ± 0.04 Ma (Oligocene)

**OLIGOCENE LAVA FLOWS**

- Olg — Lavas of Giroux Valley (Oligocene)

**MESOZOIC ROCKS**

- KJqm — Quartz monzonite (Cretaceous to Jurassic)
- Jdi — Diorite (Jurassic)
- Jd — Dunlap Formation (Jurassic)
- Tlu — Luning Formation (Triassic)

**Contact** Solid where certain, dashed on subsurface interpretation, arrowhead shows location of paleosol exposure stratigraphically below contact.

**Fault** Solid where certain, dashed where projected. Arrows show relative motion on vertical displacement. A, away from observer, T, towards observer indicate direction of relative motion on horizontal displacement.

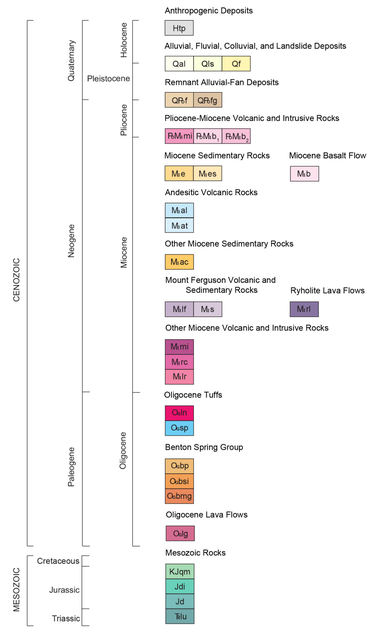
**Dash-dot on projected interpreted paleovalley wall, dotted on paleo-topographic high.**

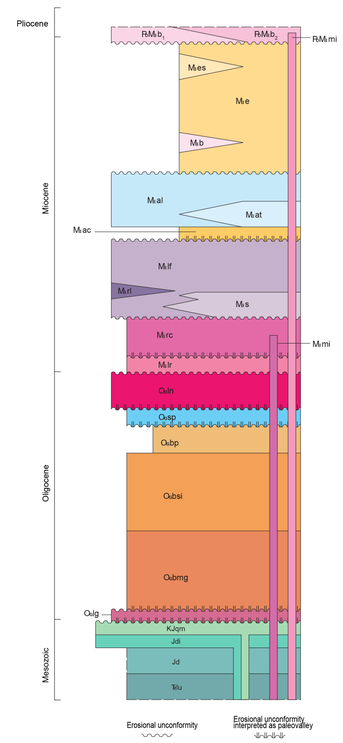
**Orientation of compaction foliation, queried where interpreted.**

**Dextrally offset geologic marker**

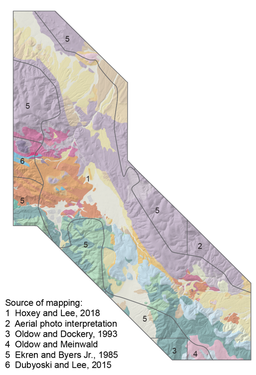
- ① ①′ — Paleovalley of the Guild Mine Member of the Mickey Pass Tuff (Obmg)
- ② ② ②″ — Paleovalley of hornblende andesite lava (Mial)
- ③ — Paleovalley of basalt lava (Mib)
- ④ ④′ — Miocene basin-bounding normal fault

**Orientation of cooling joints**




See accompanying text for full unit descriptions and references for this map.



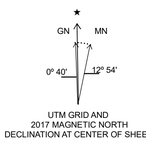
Source of mapping:
1 Hoxey and Lee, 2018
2 Aerial photo interpretation
3 Oldow and Dockery, 1993
4 Oldow and Meinwald
5 Ekren and Byers Jr., 1985
6 Dubyoski and Lee, 2015

***Suggested citation:***
Hoxey, A., Lee, J., and Calvert, A., 2020, Geologic map of the Petrified Spring fault, Gabbs Valley Range, Mineral County, Nevada: Nevada Bureau of Mines and Geology Open-File Report 20-1, 2 sheets, scale 1:24,000, 14 p.

Adjoining 7.5' quadrangle names

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |

1 Mount Ferguson
2 Gabbs Mountain
3 Granny Goose Well
4 Luning
5 Sunrise Flat
6 Stewart Spring
7 Black Dyke Mountain
8 Mina
9 Bettles Well




UTM GRID AND
2017 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

Scale 1:24,000

0 0.5 1 kilometer
0 0.5 1 mile
0 1000 2000 3000 4000 5000 feet

CONTOUR INTERVAL 20 OR 40 FEET

Projection: Universal Transverse Mercator, Zone 11, North American Datum 1983 (m)

Base map: U.S. Geological Survey
Mount Ferguson 7.5' quadrangle (2018)
Gabbs Mountain 7.5' quadrangle (2018)
Luning 7.5' quadrangle (2018)
Sunrise Flat 7.5' quadrangle (2018)
Stewart Spring 7.5' quadrangle (2018)
Mina 7.5' quadrangle (2018)
Bettles Well 7.5' quadrangle (2018)

Nevada Bureau of Mines and Geology
Mackay School of Earth Sciences and Engineering
College of Science
University of Nevada, Reno

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