

PRELIMINARY  
LITHOLOGIC LOG

Project: Topaz

Hole: 1198-128

Elevation: 4940'

Date Drilled: 2/28/82

Location: NE 1/4 SE 1/4 33, T13S, R12W

Method: rotary air - mud

Geologist: Avery - Deymonaz

Gamma: N/A

Depth (m)	Description
0- 23	<u>Sand &amp; Gravel</u> - Subrounded gravels of rhyolite and minor limestone in a sand to sandy-clay matrix. Dry.
23- 76	<u>Rhyolite (Tsp)</u> - Pink to gray, hard to moderately hard, porphyritic fractured and altered. 5-15% phenocrysts of quartz, plagioclase, sanidine with rare biotite, magnetite and hornblende.
76-230	<u>Tuffs</u> - Tan to med. brown, dry to 160m. Some interbedded tuffitic flow rocks, possibly Tdr. 2-5% crystals of quartz and plagioclase, altered mostly to clays. Flow of water increased to approximately 20 gpm at 230m.
230-245	<u>Clay</u> - Brick red clay with dk. gray dolomite fragments.
245-250	<u>Dolomite</u> - Dark to medium-gray, hard, dense, fractured, water flow increased to 40-60 gpm.
250-256	<u>Clay</u> - Red clay and dolomite as in 230-245m interval.
256-459	<u>Dolomite</u> - Dark gray, hard, fractured changed to mud at 280m and had l.c. problems below that depth; very poor returns. Rock in this interval appears to be dolomites with minor cherts, silicic siltstones and quartzites.

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-129

Elevation: 5170'

Date Drilled: 10/31/81-11/01/81

Location: SW 1/4 NE 1/4 S24 T13S R12W

Method: air/foam injection

Geologist: Mark Avery

Gamma: N/A

Depth (m)	Description
0-43	<u>Rhyolite Tuff</u> - Gray, dense, strongly-moderately welded, hard x-tal rich to x-tal poor ash flow tuff. Biotite, hornblende 2%.
43-67	<u>Rhyolite X-Tal Rich Ash Flow Tuff</u> - Tan-reddish brown-gray, dense moderately hard, moderately-strongly welded, x-tal rich ash flow tuff. Mafic minerals 5% include biotite, hornblende.

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-126

Elevation: 4830'

Date Drilled: 11/14/81

Location: NW 1/4 NW 1/4 33, T13S, R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m)	Description
0-93	<u>Sand &amp; Gravel</u> - Gravels of volcanics and limestones in sandy to sandy-clay matrix. <u>No fluids encountered.</u>

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-125

Elevation: 4880

Date Drilled: 11/13/81

Location: NE 1/4 SE 1/4 28, T13S, R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m)	Description
0- 6	<u>Sand</u>
6- 40	<u>Sand &amp; Gravel</u> - Volcanic and limestone gravels in sandy matrix.
40- 49	<u>Gravel</u> - As above, but no sand.
49- 91	<u>Sand &amp; Gravel</u> - As in 6-40m interval.
91-131	<u>Sand &amp; Gravel</u> - As above but with considerable red silt and clay.
131-148	<u>Sand &amp; Gravels</u> - Predominantly volcanics in sand matrix. <u>No fluids encountered.</u>

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-123

Elevation: 5120'

Date Drilled: 11/2/81

Location: NW 1/4 NW 1/4 36, T13S, R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m)	Description
0-49	<u>Limestone</u> - Dk. gray limestone with interbedded calcareous siltstones, and chert lenses. Siltstones are hard, well indurated, thinly bedded, gray to reddish-brown. Drills slow.
49-58	<u>Limestone</u> - As above but with addition of chert-limestone conglomerate and calcareous siltstone greater than 50% of total. <u>No fluids encountered.</u>

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-122

Elevation: 4960'

Date Drilled: 11/5/81

Location: SW 1/4, SW 1/4, 15, T13S R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m)	Description
0-10	<u>Sand &amp; Gravels</u> - Subangular to subrounded gravels of rhyolite, latite, obsidian, limestone and quartzite in sandy matrix.
10-37	<u>Sandy Clay</u> - Brown clay with abundant sand and some gravels of volcanics and limestone.
37-93	<u>Rhyolite (Tsp)</u> - Pinkish-gray, porphyritic, with 5-10% crystals of quartz, plagioclase biotite and rare magnetite. Fractured and altered, drills easily with rock bit. <u>No fluids encountered.</u>

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-121

Elevation: 4960'

Date Drilled: 11/13/81

Location: SW 1/4 SW 1/4 21, T13S R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m) Description

0-69

Sand & Gravel - Angular to subrounded cobbles and gravels of rhyolite, latite and limestone in a sandy to sandy clay matrix. No fluids encountered.

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-120

Elevation: 4640'

Date Drilled: 11/15/81

Location: SW 1/4 SW 1/4 7, T13S R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m)	Description
0- 5	<u>Sand &amp; Gravels</u> - Dry, poorly consolidated gravels in a sand matrix.
5-93	<u>Rhyolite (Tsp)</u> - Pinkish-gray, porphyritic with 10% crystals of qtz, plagioclase, sanidine and biotite. Thin flow laminations common. Rock fractured and moderately altered, drills easily. <u>No fluids encountered.</u>



LITHOLOGIC LOG

Project: Topaz

Hole: 1198-116

Elevation: 5080'

Date Drilled: 11/16/81

Location: NE 1/4 SW 1/4 10, T13S R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m) Description

0-44

Limestone - Dk. gray with interbedded siltstones. Fractured with red clay along fractures. L.C. problems while drilling. No fluids encountered.

LITHOLOGIC LOG

Project: Topaz

Hole: 1198-118

Elevation: 4740'

Date Drilled: 11/11/81

Location: SW 1/4 SW 1/4 8, T13S R12W

Method: rotary air

Geologist: Avery

Gamma: N/A

Depth (m)	Description
0- 12	<u>Sand &amp; Gravel</u> - Angular to subrounded cobbles and gravels in sandy matrix. Gravels mostly of rhyolite with minor limestones. Dry.
12-152(?)	<u>Rhyolite (Tsp)</u> - Reddish gray, porphyritic w/10-15% phenos of qtz, sanidine, plagioclase and rare biotite and magnetite.
52-152	<u>Tuff (Tsb)</u> - Tan to brown, mostly altered to clay with a sandy clay texture. 2-5% crystals of quartz, and rare feldspars. Sluffing and contamination by sandy material in upper 12 meters. <u>No fluids encountered.</u>