

## LITHOLOGIC LOG

Project: ThermexHole: 22-2Elevation: 6140Date Drilled: 11/14/83Location: NW of NW Sec 2 T26S R7WMethod: Churn and rotaryGeologist: Huntsman/DeymonazGamma: NR

Depth (m)	Description
300 - 408 (91.5- 124)	<u>Syenite (Monzonite) (Miocene)</u> - Fine to coarse grained, light colored volcanic with 30% dark minerals (leucoeratic), porphyritic to hypidiomorphic. Abundant plagioclase (30%) and orthoclase (30%). Minor hornblende, trace magnetite and biotite. Minor resorbed clear grains of quartz in some chips.
408 - 793 (124 -241.7)	<u>Gabbro Porphyry and Monzonite</u> - Medium gray to light pink gray. Minor fragments and phenocrysts of labradorite and clinopyroxene in a felted plagioclase matrix mixed with intermediate composition volcanics related to the monzonite above. Minor calcite (4%), talc (5%), and quartz (3%), trace magnetite (1%) and possible epidote (1%). Weak, trace of hematite staining in zones and around some grains.  (432-436) Tholeiitic basalt, black, olivine, poor, very dense, glassy with a hardness of about 7.
793 - 802 (241.7-244.5)	<u>Erosion Surface (electric logs).</u>
802 - 890 (244.5-271.3)	<u>Zeolitic Tuff (Miocene)</u> - White, nonwelded, ash flow tuff containing 30% lithic fragments and phenocrysts of sanidine and plagioclase with trace to minor quartz and biotite. Matrix has been almost completely converted to the zeolite mineral clinoptilolite. Steven & Morris, 1981.
890 - 985 (271.3-300.3)	<u>Tuff of Albinus Canyon (Miocene or Oligocene)</u> - Pink weakly welded, crystal poor ash flow tuff. Strong argillic alteration of feldspar to kaolinite. Moderate kaolinite and talc. The tuff contains 2-5% potassium feldspar, 0-5% andesine, 1-2% quartz, trace apatite zircon, biotite and glass shards.
985 -1020 (300.3-310.9)	<u>Basalt</u> - Black with moderate Hematite staining around possible altered olivine grains, very dense and hard. Round inclusions of calcite.

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1020 -1320 (310.9-402.4)	<u>Three Creeks Tuff</u> - Member of Bullion Canyon Volcanics (Oligocene). Densely welded, crystal rich, vesicular ashflow tuff with 40% phenocrysts of plagioclase (25%) (some altered), hornblende (5-10%), biotite (1-4%), and trace sanidine and magnetite. K-Ar and fission-track ages indicate an approximate age of 27 m.y. (Steven & others, 1979).
1320 -1722 (402.4-525)	<u>Volcanics of Wales Canyon (Oligocene)</u> - Reddish gray, intermediate composition lava flows and welded ashflow tuffs containing moderately abundant phenocrysts of plagioclase and pyroxene, and sparse biotite. The welded tuffs were called Wales Canyon tuff member of the Bullion Canyon volcanics by Casken and Shvey (1975), but the name Volcanics of Wales Canyon is here extended to cover the lithologically similar lava flows that overlie and underlie the tuffs from 1380' to 1690'. Poor circulation, no good samples recovered.
1722 2445 (525-745.4)	<u>Needles Range Formation (Oligocene)</u> - Light gray to white, approximately 40% phenocrysts in a welded matrix of devitrified glass shards and flattened pumice. Phenocrysts of plagioclase (20-25%), hornblende (3-5%) biotite (1%). In contrast to the overlying densely welded (elec. log) and crystal-rich Three Creeks Tuff Member, the Needles Range Formation is finer grained and contains moderate amounts of pumice.
	1742-1758 Gabbro, dark brown gray crystal lithic flow consisting of phenocrysts of calcic plagioclase (25-40%), hornblende 5%, biotite 1%, trace magnetite. Very hard slow drilling but unit must also be highly fractured. No oxidation. Minor soft red brown clay also.

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2445-4000  
(745.5-1219.5) Volcanics at Dog Valley (Oligocene) (30 m.y.) - Medium gray heterogeneous assemblage of intermediate composition lava flows, tuff breccias, and local and regional ash flow tuffs. The dacite flows range from porphyritic to aphanitic with phenocrysts of plagioclase (20-50%), hornblende (5%), biotite (2%), magnetite (2%) and pyroxene. Prophyllitic alteration of the lower part of the Bullion Canyon Volcanics has produced epidote, sericite, clays, calcite after plagioclase, and magnetite, chlorite and biotite after amphibole, Moore and Sanber (1979).

2890-2990 Ash Flow Tuff - Medium pink densely welded tuff (881-911.5) with lithic fragment of plagioclase, trace biotite hornblende and magnetite lower 40' of flow is jet black vitrophyre.

3100-4000 Minor amounts of bright blue green clay in (945.1-1219.5) dacite flows, argillic alteration of some phenocrysts and minerals.