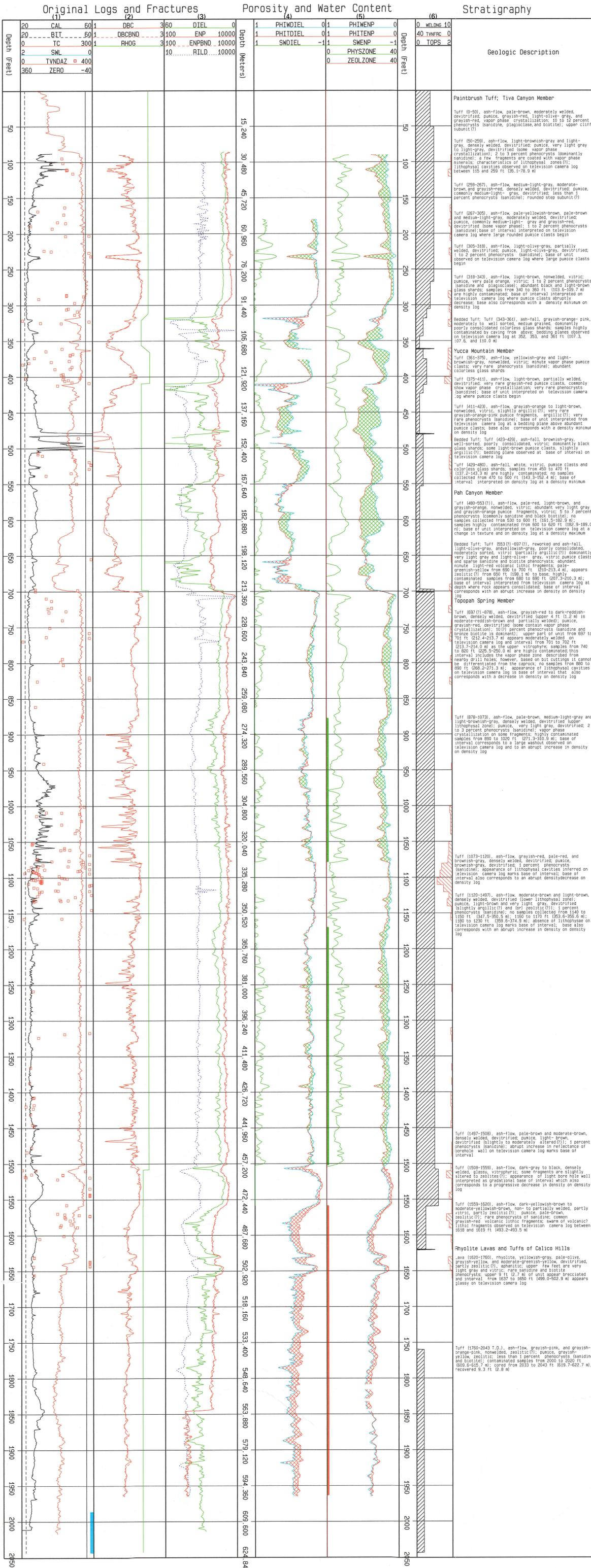


UE-25WT#18



BOREHOLE UE-25 WT#18, YUCCA MOUNTAIN, NEVADA

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Borehole UE-25 WT#18 was completed in May, 1984 to a total depth of 2043 feet. The hole was rotary drilled using air foam consisting of air, detergent, and water (Muller and Kibler, 1985). Depth on the plot is measured along hole, and has not been corrected for deviation. Hole deviation is as great as 2.1 degrees at 1875 feet, (Plate 31 in Nelson and others, 1991); at a measured depth of 1875 feet, the computed true vertical depth is 1874.6 feet, and the computed horizontal offset is 17.3 feet.

Original logs in columns 1-3, acquired on May 18-21, 1984, were described and presented by Nelson and others, 1991. UE-25 WT#18 was drilled for the purpose of monitoring water levels; the static water level is indicated by a cyan bar in column 1 (Robison, 1984).

Porosity and water content computed from the dielectric and density logs are shown in column 4 as phitdiel and phitwep, using a method described by Nelson, 1993. Porosity and water content computed from the epithermal neutron and density logs are shown in column 5 as phitwep and phitwep (Nelson, 1994). Green hatching between the porosity and water content curves denotes air-filled porosity. Red hatching appears where water content exceeds porosity, often indicating the presence of zeolitic minerals.

Saturation (swdiel in column 4, swenp in column 5) is computed as the ratio of water content to porosity. It has been nullified in zones flagged as zeolone. The flags phyzone and zeolone (green and red bars in column 5) denote the presence of abundant lithophysae and extensive alteration, respectively. Their depth extent is taken from inspection of the green and red hatch areas in columns 4 and 5 and from consideration of other logs, especially resistivity, rild.

Stratigraphic tops and degree of welding, given in column 6, and the geologic description, in the text column, are from R. Spengler, U.S. Geological Survey, written communication, 1995. The degree of welding (wldng) increases to the right, in accordance with the geologic description.

Plots of individual fractures, (tvndaz, column 1), observed on television logs are plotted to show the azimuth of the dip of each fracture. The same data are plotted as fracture density (twfrnc) in column 6.

EXPLANATION OF CURVES AND SYMBOLS

Column 1
CAL Caliper in cm, black curve.
BIT Bit size in cm, black dash line.
SWL Static water level, vertical cyan bar.
TC Gamma ray in API units, red curve.
TVNDAZ Dip azimuth of fractures, from television, red squares.
Undetermined azimuth is coded as 380 or 390 degrees.

Column 2
DBC Density in g/cc, red curve.
DBCBOUND Density bound in g/cc, red dash curve.
RHOG Grain density in g/cc, green curve.

Column 3
ENP Epithermal neutron in counts/sec, red curve.
ENPND Epithermal bound, red dash curve.
RILD Induction resistivity in ohm-m, blue dot curve.
DIEL Dielectric permittivity, rad, green curve.

Column 4 [fractional volume of whole rock, increasing to left]
PHITWEP Water content, from DIEL and DBCBOUND logs, cyan curve.
PHITDIEL Porosity, from DIEL and DBCBOUND logs, red curve.
(green hatch where PHITDIEL > PHITWEP).
(red hatch where PHITDIEL < PHITWEP).

SWDIEL Water saturation, ratio of PHITDIEL to PHITWEP, green curve.

Column 5 [fractional volume of whole rock, increasing to left]
PHITWEP Water content, from ENPND and DBCBOUND logs, cyan curve.
PHITENP Porosity, from ENPND and DBCBOUND logs, red curve.
(green hatch where PHITENP > PHITWEP).
(red hatch where PHITENP < PHITWEP).

SWENP Water saturation, ratio of PHITENP to PHITWEP, green curve.
PHYZONE Lithophysal zone, picked from logs, green bar.
ZEOLZONE Zeolitic zone, picked from logs, red bar.

Column 6
TOPS Stratigraphic boundaries, black ticks.
WLDNG Degree of welding from core inspection, black slant.
TWFRNC Number of fractures per 10 feet, from television, red.

NOTES

Date of last computation: May 1996
Plot Date: May 1996
Scientific Notebook: SN-0092

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