



BOREHOLE USW WT-10, YUCCA MOUNTAIN, NEVADA

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Borehole USW WT-10 was completed in July, 1983 to a total depth of 1413 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 3.3 degrees at 1350 feet, (Plate 23 in Nelson and others, 1991): at a measured depth of 1350 feet, the computed true vertical depth is 1349.6 feet, and the computed horizontal offset is 17.7 feet.

Original logs in columns 1-3, acquired on July 30-31, 1983, were described and presented by Nelson and others, 1991. USW WT-10 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 phiwnp, 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 phitenp and phiwnp (Nelson, 1994). Green hatching between the porosity and water content curves denotes air-filled porosity.

Saturation (swdiel in column 4, swenp in column 5) is computed as the ratio of water content to porosity. The flag physzone (green bar in column 5) denotes the presence of abundant lithophysae. Their depth extent is taken from inspection of the green hatch areas in columns 4 and 5 and from consideration of other logs.

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 (weldng) 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 (tvnfrg) 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.
DBCNDND 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.
ENPBND Epithermal bound, red dash curve.
RILD Induction resistivity in ohm-m, blue dot curve.
DIEL Dielectric permittivity, ratio, green curve.

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

Column 5 [fractional volume of whole rock, increasing to left]
PHIWNP Water content, from ENPBND and DBCNDND logs, cyan curve.
PHITENP Porosity, from ENPBND and DBCNDND logs, red curve.
(green hatch where PHITENP > PHIWNP,
red hatch where PHITENP < PHIWNP).
SWENP Water saturation, ratio of PHIWNP to PHITENP, green curve.
PHYSZONE Lithophysal zone, picked from logs, green bar.

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

NOTES

Date of last computation: April 1995
Plot Date: May 1996
Scientific Notebook: SN-0092

REFERENCES

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