

FORMATION EVALUATION LOG

Scale: 2" = 100'

COMPANY: NORTHWEST NATURAL
WELL: IW 23adh-3-65
FIELD: Mist (Flora Pool Storage)
COUNTY: Columbia, OR

Location: SW 1/4 Sec. 3, T6N-R5W; WB&M
 Coordinates: 1509.41' S 86°38'36" E and
 1985.04' N 03°21'24" E from
 SW corner. Y:874602.1 X:1291029.6 NAD 27

API No.: 36-009-00365
 Spud Date: 4/11/07
 Total Depth: 4211.07
 Elevation: K.B. 1089.5'
 G.L. 1075.5'

Company Geologist: Jack Meyer
 Company Engineer: Clayton Roth
 Company Pumper: Ed Vader
 Directional Engineer: Scientific Drilling
 Mud Company: Beaver Drilling Fluids
 Mud Engineer: Ed Vader
 Drilling Contractor: TD Well Service
 Rig Pumper: Jerry Gann
 Rig No.: 101
 Geolog Unit No.: 19
 Logging Geologists: Jim Ferguson
 Joe Klamecki

LOG INTERVAL

DATES: 4/10/07 TO 4/23/07
 DEPTHS: 60' TO 3581'

TOTAL DEPTH

MEASURED: 3581'
 TRUE VERTICAL: 2636.40'

MUD TYPES

Gel Chem TO 3581'
 TO TO
 TO TO

HOLE SIZE

17-1/2" TO 572'
 12-1/4" TO 694'
 8-3/4" TO 3581'

MUD PUMPS

PUMP #1: EMSCO DB 550 (16" x 5-1/2")
 PUMP #2: OILWELL H 560 37 (8" x 5-1/2")

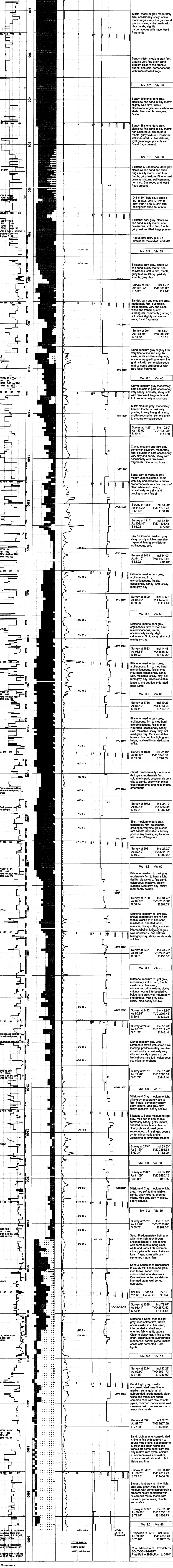
CASING DATA

20" AT 20'
 13-3/8" AT 565'
 AT

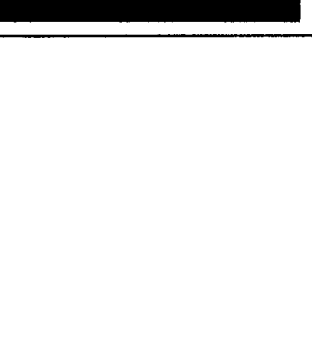
LEGEND

- BG - Background Gas
- CB - Core Bit
- CG - Connection Gas
- CK - Filter Cake
- CL - Check for Flow
- CI - Salinity, ppm
- CR - Circulate Returns
- DB - Diamond Bit
- DC - Depth Connection
- DCB - Diamond Core Bit
- DF - Derrick Floor
- DG - Drilling Gas
- DS - Directional Survey
- DST - Drill Stem Test
- EL - Electric Log
- E.M.A. - Equivalent Methane In Air, 1% = 50 Units
- F - Filtrate, API cc's
- F/T - Flowing Temperature
- GCM - Gas Cut Mud
- GCW - Gas Cut Water
- G & OCM - Gas and Oil
- GL - Ground Level
- KB - Kelly Bushing
- LAT - Logged After Trip
- NB - New Bit
- NCB - New Core Bit
- NR - No Returns
- PDC - Polycrystalline Diamond Compact Bit
- LC - Lost Circulation
- PPM - Parts Per Million
- PR - Poor Returns
- PP - Pump Pressure
- PV - Plastic Viscosity
- RM - Mud Resistivity, Ohm-Meter
- RMC - Mud Cake Resistivity, Ohm-Meter
- RFM - Revolutions Per Minute
- RRB - Return Bit
- RT - Rotary Table
- SO - Show of Oil
- SOL - Solids %
- SPM - Strikes Per Minute
- STG - Strip Trip Gas
- SWB - Swab Gas
- SWG - Swab Gas
- TCL - Trip Chlorides
- TD - True Gas
- TVD - True Vertical Depth
- W - Weight of Mud, ppg/ppf
- WOB - Weight on Bit

- CEMENT
- LIMESTONE
- DOLOMITE
- GYPSUM
- ANHYDRITE
- COAL & LIGNITE
- CLAY
- SHALE
- SILTSTONE
- SANDY SILTSTONE
- FINE SAND
- MEDIUM SAND
- COARSE SAND
- CONGLOMERATE
- SANDSTONE
- KAOLINITE
- TUFF
- DIATOMITE
- PORCELANITE
- CHERT
- VOLCANIC
- IGNEOUS
- METAMORPHIC



Comments:



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