PSI
Precision Surveys Inc.

HIGH RESOLUTION INDUCTION COMPENSATED DENSITY COMPENSATED NEUTRON

Company: Anadarko 24-41 Operating Co. LLC
Field:
County: Weld
State/Prov: Colorado
Well: Waterberg
Job Number: 1WWT-E-4333 Rig #2 (R)
Run: 1
Drilling Measurements: Mud Type: WBM Mud Wt: 8.6 ppg Viscosity: 50 sec/qt Chlorides: 1000 ppm
Service Company: Weatherford
Engineer: Jeff Hall
Witness: Mike Hall
Location: Surface Latitude: 40.22 Longitude: -104.84
Permanent Datum: Ground Level
Elevation: 4,727.00 ft
Log Measured From: Kelly Bushing
Elevation: 4,727.00 ft
Drilling Measured From: Kelly Bushing
Elevation: 4,727.00 ft
Date: 08-Jul-2011
Run No.: ONE
Depth Driller: 6,780.00 ft
Depth Logger: 6,780.00 ft
Bottom Logged Interval: 6,780.00 ft
Top Logged Interval: 4,727.00 ft
Type Fluid in Hole: WBM
Salinity: 1000 ppm
Density: 8.6 ppg
Viscosity: 50 sec/qt
Fluid Loss: 6.4 cc
Source of Sample: Flowline
Rm @ Meas. Temp: 1.2 @ 70 °F
Rmf @ Meas. Temp: 0.9 @ 70 °F
Rmc @ Meas. Temp: 1.6 @ 70 °F
Source of Rmf and Rmc: Measured
Rm @ BHT: 0.7 @ 140 °F
Time Since Circulation: 12 hrs
Max. Rec. Temp. Deg. F: 140 °F
Equipment Number: 2
Location: Greeley, CO
Recorded By: Jeff Hall
Witnessed By: Mike Hall

Run Number	Bit Run	Bit Size (in)	Type Bit	Serial Number	Nozzles	TFA	Depth In (ft)	Depth Out (ft)	Footage (ft)	Hours
ONE	1	8.75	PDC	7120167	6x13	0.796	4,727.00	6,780.00	2,053.00	24.00

Run Number	Max Rec Temp (deg. F)	Equipment Number	Location	Recorded By	Witnessed By
ONE	140	2	Greeley, CO	Jeff Hall	Mike Hall

Run Number	Density Tool Type	Density Tool Number	Density Source Type	Density Source Strength	Density Source Number	Density Detector Type	Density Detector Number	Density Caliper Type	Density Caliper Number	Density Caliper Arm Size
ONE	HDIL	1	Cs137	10 mCi	1	LSS	1	Caliper	1	8.75

Run Number	Neutron Tool Type	Neutron Tool Number	Neutron Source Type	Neutron Source Strength	Neutron Source Number	Neutron Detector Type	Neutron Detector Number	Neutron Caliper Type	Neutron Caliper Number	Neutron Caliper Arm Size
ONE	CNDL	1	Am241Be	5 Ci	1	LSS	1	Caliper	1	8.75

Run Number	Resistivity Tool Type	Resistivity Tool Number	Resistivity Source Type	Resistivity Source Strength	Resistivity Source Number	Resistivity Detector Type	Resistivity Detector Number	Resistivity Caliper Type	Resistivity Caliper Number	Resistivity Caliper Arm Size
ONE	HDIL	1	Cs137	10 mCi	1	LSS	1	Caliper	1	8.75

Run Number	Gamma Ray Tool Type	Gamma Ray Tool Number	Gamma Ray Source Type	Gamma Ray Source Strength	Gamma Ray Source Number	Gamma Ray Detector Type	Gamma Ray Detector Number	Gamma Ray Caliper Type	Gamma Ray Caliper Number	Gamma Ray Caliper Arm Size
ONE	HDIL	1	Cs137	10 mCi	1	LSS	1	Caliper	1	8.75

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except to the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Annular volume calculated for 4.5" casing
Fort Drilling Rig 5
Thank you for using Phoenix Surveys!
API #: 05-123-32803-00

Database File: 11595.db
Dataset Pathname: final
Presentation Format: 2in
Dataset Creation: Fri Apr 08 14:00:46 2011
Charted by: Depth in Feet scaled 1:240

Density Caliper (in) 16 | Deep Resistivity (Ohm-m) .2000 20 | Density Porosity (pu) 45
Gamma Ray (GAPI) 150 | Medium Resistivity (Ohm-m) .2000 20 | Neutron Porosity (pu) 45
SP (mV) 100 | Shallow Resistivity (Ohm-m) .2000 20
RS (Ohm-m) .2000

ABAH (RO)

2.68 SS Matrix

Density Caliper (in) 16 | Deep Resistivity (Ohm-m) .2000 20 | Density Porosity (pu) 45
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RS (Ohm-m) .2000

ABAH (RO)

2.68 SS Matrix

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Caliper (in) 16 | Deep Resistivity (Ohm-m) .2000 20 | Density Porosity (pu) 45
Gamma Ray (GAPI) 200 | Medium Resistivity (Ohm-m) .2000 20 | Neutron Porosity (pu) 45
SP (mV) 100 | Shallow Resistivity (Ohm-m) .2000 20
RS (Ohm-m) .2000

ABAH (RO)

2.71 LS Matrix

2.71 LS Matrix

Matrix Change @ 6550'

2.68 SS Matrix

Neutron Porosity

Density Porosity

2.68 SS Matrix

Shallow Resistivity

Medium Resistivity

Deep Resistivity

Caliper

SP

Logger's TD: 6780'

Caliper (in) 16 | Deep Resistivity (Ohm-m) .2000 20 | Density Porosity (pu) 45
Gamma Ray (GAPI) 200 | Medium Resistivity (Ohm-m) .2000 20 | Neutron Porosity (pu) 45
SP (mV) 100 | Shallow Resistivity (Ohm-m) .2000 20
RS (Ohm-m) .2000