



Natural Formation Evaluation
Gamma Ray

Realtime Logs

Scale:

1:240

MEASURED DEPTH

Company: Anadarko

Well: 3D 16N-21HZ

Field: Weld County

Region: Continental US Country: United States

Status:

FIELD PRINT

Surface Location:

Latitude: 40° 7' 48.742" N

Longitude: 104° 46' 34.385" W

Other Services:

DIR

API Number:
051233809900

Section 21

TW/N: 2N

Range 66 W

Permanent Datum (P.D.): Ground Level Elevation: 4989.00 ft.

Elevations:
5006.00 ft.
N/A

Log Measured From: Kelly Bushing 17.00 ft. Above P.D.

Depth Reference: Driller's Depth

KB: 5006.00 ft.
DF: N/A
GL: 4989.00 ft.

Interval Logged

Dates

Magnetic Field Reference

Top: 6709.0 ft. Date From: 27/Nov/13 Date To: 01/Dec/13 Dip Angle: 66.90° Azi Reference North: True

Bottom: 11756.0 ft. Date To: 01/Dec/13 Total Mag to Reference

Spud Date: 23/Nov/13 Field Strength: 52904.0 nT North Correction: 8.49°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1022.0 ft.	9.000 in.	36.00 lb/ft	Surface	1005.0 ft.
8.750 in.	1022.0 ft.	7690.0 ft.	7.000 in.	26.00 lb/ft	Surface	7663.0 ft.
6.125 in.	7690.0 ft.	11811.0 ft.				

Mud Record

Deviation Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Water Base	Surface	11811.0 ft.	13.500 in.	Surface	0.0° / 0.0°	0.4° / 294.9°
			8.750 in.	Intermediate	0.4° / 294.9°	84.8° / 181.3°
			6.125 in.	Lateral	84.8° / 181.3°	91.7° / 178.8°
					/	/
					/	/
					/	/

Acquisition System Software Version

Other

Advantage	2.20U4	Rig / Contractor:	Xtreme 8	/	Anadarko
PATS	6.4.1.34	Job No:	5895424		
		District / Unit:	RMD	/	

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Time (hrs.)
							Top (ft.)	Bottom (ft.)	From (ft.)	To (ft.)	Start	End	
1	1	1	8.750	PDC	3.000	Mud Motor	6709.0	7647.0	6709.0	7690.0	27/Nov/2013 09:57	28/Nov/2013 21:42	56.82
2	2	2	6.125	PDC	6.500	Mud Motor	7647.0	11756.0	7691.0	11331.0	30/Nov/2013 03:42	01/Dec/2013 08:41	30.7

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Dickey	23/Nov/2013	02/Dec/2013	Shirley Arimah	23/Nov/2013	02/Dec/2013			

Mud Properties Record

Date / Time		LWD Run No.	Measured Depth (ft.)	Mud Type	Density (sg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
27/Nov/2013	14:00	1	6937.0	Water Based	10.0	13	9.0	N/A	3/89	Flowline	2500	N/A
28/Nov/2013	20:00	1	7690.0	Water Based	10.3	13	9.0	N/A	3/87	Flowline	2600	N/A
30/Nov/2013	20:00	2	10093.0	Water Based	9.2	40	9.0	4.4	4/91	Flowline	2600	N/A

Mnemonics											
Curve		Description									Units
GRAX		Gamma Ray Apparent, 0.5 ft. Avg									API
GRIX		Gamma Ray Density									points
GRSI		Gamma Ray Sliding Indicator									unitless
GRTX		Gamma Time Since Drilled									min
ROPA		Rate of Penetration, 3.0 ft. Avg									ft/hr
TCDX		Downhole Temperature									degF
TVD		True Vertical Depth									ft.
WOBA		Surface Weight on Bit, 1.0 ft. Avg									klbs

Equipment and Service Data						
LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft.)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12456780	Directional	46.65	6.750	2.750
1	SRIG	10595777	Gamma	43.27	6.750	2.750
2	DIR	10307183	Directional	54.26	4.750	2.750
2	SRIG	12554661	Gamma	50.89	4.750	2.750

Service and Tool Mnemonics		
Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

Comments	
(1) Baker Hughes INTEQ run 1 a utilized 6 1/2 inch NaviTrak services (Gamma Ray and Directional) behind an 8 3/4 inch bit and steerable assembly from 1018 to 7690 feet MD (1022 to 7281 feet TVD)	
(2) Baker Hughes INTEQ run 2 utilized 4 3/4 inch NaviTrak services (Gamma Ray and Directional) behind an 6 1/8 inch bit and steerable assembly from 7690 to 11811 feet MD (7281 to 7779 feet TVD)	

Remarks				
Number	Measured Depth (ft.)	Hole Section (in.)	LWD Run No.	Remark
1	6709	8.750	1	The interval from Surface to 6709 feet MD (6662 feet TVD) was logged not logged due to Baker Hughes logging services began at the top of the curve section.
2	7647	8.750	2	The interval from 7647 to 7690 feet MD (7278 to 7281 feet TVD) was logged up to 40 hours after being drilled due to a trip out of the hole for a bit change and re-orientation.

the hole for casing and cement operations.

3

11756

6.125

2

The interval from 11756 to 11811 feet MD (7281 to 7279 feet TVD) was not logged due to sensor offsets to bit at TD.



Company : Anadarko

Well : 3D 16N-21HZ

Interval : 6696.00 - 11825.00 feet

Created : 01/Dec/2013 1:57:58 PM

Gamma Ray Apparent 0.5 ft Avg [GRAX]

0 150

API

True Vertical Depth [TVD]

7400 6700

ft

MD feet 1:240

Rate of Penetration 3.0 ft Avg [ROPA]

1000 0

ft/hr

Gamma Ray Time Since Drilled [GRTX]

0 600

min

Surface Weight On Bit 1.0 ft Avg [WOBA]

0 100

klbf

Downhole Temperature [TCDX]

150 250

degF

6700

Run 1

6720

GRX

6740

6760

6780

6800

6820

6840

6860

6880

6900

6920

See Remark 1

ROPA

WOBA

GRTX

TCDX

GRSI

TVD

GRAX













































