


LWD MEMORY LOG											
<div><div><div>BAKER HUGHES</div><div>a GE company</div></div><div></div></div>				Gamma Ray							
Scale:		Company: ConocoPhillips									
1:1200 MD		Well: BIG_SANDY_3-65_36-31_2BH									
Depth Reference:		Field: Adams County									
Driller's Depth		County: Adams									
		State: Colorado									
		Country: United States									
Status:		Surface Location:				Other Services:					
Final Print		Latitude:				Elev. KB:					
API No: 05001101000000		Longitude:				Elev. DF:					
Job ID: 8976748		SEC: 35 TWN: 3S RGE: 65W				Elev. GL: 5524.00 ft					
Permanent Datum (P.D.): Ground Level		Elevation: 5524.00 ft				N/A					
Log Measured From: Rig Floor		Above P.D. 25.00 ft				5524.00 ft					
Dates		Interval Logged				Magnetic Field Reference					
Date From: 2018-03-24		Top: (ft) 2108.00				Azi Reference North: True					
Date To: 2018-03-28		Bottom: (ft) 18220.00				Total Magnetic Field Strength: (nT) 51770					
Spud Date: 2018-03-23						Mag to Reference North Correction: (deg) 8.35 E					
Borehole Record		Casing Record									
Hole Size (in)		From (ft)	To (ft)	Size (in)	Weight (lb/ft)	From (ft)	To (ft)				
13.500		25.00	2108.00	9.625	36.00	25.00	2098.00				
8.500		2108.00	18220.00								

	No.	Depth (ft)	Type	(ppg)	(cP)		Loss (cm3)	Water		Chlorides (ppm)	(%)
2018-03-23 17:00	1	2073.00	Oil Based Mud	9.3	12	N/A	N/A	63.3/36.7	Active Pit	53000	0.00
2018-03-24 04:50	1	2108.00	Oil Based Mud	9.3	14	N/A	N/A	63.7/36.3	Active Pit	56000	0.00
2018-03-25 05:00	1	5604.00	Oil Based Mud	9.3	15	N/A	N/A	63/37	Active Pit	67000	0.00
2018-03-25 17:00	1	7693.00	Oil Based Mud	9.4	15	N/A	N/A	62.9/37.1	Active Pit	68000	0.00
2018-03-26 05:00	1	9083.00	Oil Based Mud	9.4	16	N/A	N/A	61.4/38.6	Active Pit	69000	0.00
2018-03-26 17:00	1	10925.00	Oil Based Mud	9.5	17	N/A	N/A	60.8/39.2	Active Pit	66500	0.00
2018-03-27 05:00	1	12304.00	Oil Based Mud	9.6	16	N/A	N/A	61/39	Active Pit	68000	0.00
2018-03-27 17:00	1	13901.00	Oil Based Mud	9.6	17	N/A	N/A	61.8/38.2	Active Pit	67000	0.00
2018-03-28 05:00	1	15695.00	Oil Based Mud	9.8	20	N/A	N/A	60/40	Active Pit	62000	0.00
2018-03-28 17:00	1	17594.00	Oil Based Mud	10.1	22	N/A	N/A	59.3/40.7	Active Pit	67000	0.00
2018-03-29 05:00	1	18220.00	Oil Based Mud	10.0	23	N/A	N/A	66.1/33.9	Active Pit	61500	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	ATC_SU	14236893	Near Bit VSS	5.93	6.93	7.000	4.330
1	ATC_SU	14236893	Near Bit Inclination	5.93	6.93	7.000	4.330
1	ATC_MWD	14284442	Gamma (single)	2.75	13.10	7.000	3.250
1	ATC_MWD	14284442	Directional (mag)	12.27	22.62	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

Comments


1	Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes, a GE Company (BHGE). Due to the lack of control by BHGE logging engineers, depth calibrations and measurements could not be independently verified.
2	BHGE LWD run 1 utilized 6.75 inch NaviGamma Services (Gamma Ray and Directional) behind a 8.5 inch bit and Rotary steerable assembly from 2108 to 18220 feet MD (2107 to 7569 feet TVD).

Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	2108.00	8.500	1	BHGE logging services began at 2108 feet MD (2107 feet TVD) per customer request.
2	18220.00	8.500	1	The interval from 18207 to 18220 feet MD (7570 to 7569 feet TVD) was not logged due to sensor to bit offset at TD.

Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 10 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 3 ft Average	API
TCDM	Downhole Temperature	degF

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	Well	BIG_SANDY_3-65_36-31_2BH				
	Interval	Date From:	2018-03-24 06:47:13	Top:	2108.00	
		Date To:	2018-03-28 14:46:06	Bottom:	18220.00	
	Created	2018-03-29 15:41:10				
Gamma Ray - Apparent 3 ft Average GRAM		MD 1:1200	Depth Averaged ROP 10 ft Average ROPA		Weight On Bit, Average 1 ft Average WOBA	
0 200			1000 0		0 50	
API			ft/h		klb	
True Vertical Depth TVD					Downhole Temperature TCDM	

