



LWD MEMORY LOG

Gamma Ray

Scale: 1:1200

Measured Depth

Depth Reference:

Driller's Depth

Company: ConocoPhillips  
Well: Property\_Reserve\_4-65\_3-4\_2AH  
Field: Arapahoe County  
County: Arapahoe  
State: Colorado  
Country: United States

Status: Final Print

API No: 05005073780000

Job ID: 109473940

Permanent Datum (P.D.): Ground Level

Log Measured From: Rig Floor

Interval Drilled

Dates

Date From: 2018-11-11

Date To: 2018-11-16

Spud Date: 2018-11-09

Borehole Record

Casing Record

Magnetic Field Reference

Azi Reference North: True

Total Magnetic Field Strength: (nT)

Mag to Reference North Correction: (deg)

Dip Angle: (deg)

Interval Drilled

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

13.500

25.00

2171.00

8.500

2171.00

17595.00

9.625

36.00


25.00

2161.00

2171.00

17595.00

8.500

LWD MEMORY LOG									
<div>BAKER HUGHES</div> <div>a GE company</div> <div></div>				Gamma Ray					
Scale: 1:1200				Company: ConocoPhillips					
Measured Depth				Well: Property_Reserve_4-65_3-4_2AH					
Depth Reference:				Field: Arapahoe County					
Driller's Depth				County: Arapahoe Country: United States					
Status: Final Print				State: Colorado			Other Services:		
API No: 05005073780000		Job ID: 109473940		Surface Location: Latitude: 039° 44' 00.810" N Longitude: 104° 38' 33.510" W			Directional		
Permanent Datum (P.D.): Ground Level		Log Measured From: Rig Floor		SEC: 3 TWN: 4S RGE: 65W		Elevation: Above P.D. 25.00 ft		Elev. KB: 5612.00 ft Elev. DF: 5637.00 ft Elev. GL: 5612.00 ft	
Dates				Interval Drilled			Magnetic Field Reference		
Date From: 2018-11-11		Top: (ft) 2171.00		Date To: 2018-11-16		Bottom: (ft) 17595.00		Azi Reference North: True Dip Angle: (deg) 66.34	
Spud Date: 2018-11-09								Total Magnetic Field Strength: (nT) 51741	
								Mag to Reference North Correction: (deg) 8.23	
Borehole Record									
Casing Record									
Hole Size (in)		From (ft)		To (ft)		Size (in)		Weight (lb/ft)	
13.500		25.00		2171.00		9.625		36.00	
8.500		2171.00		17595.00					
Mud Record									
Deviation Record									
Type		From (ft)		To (ft)		Hole Size (in)		Interval (ft)	
Oil Based Mud		2171.00		17595.00		8.500		15424.00	
								0.14   130.40	
								89.32   272.91	

2018-11-15 00:00	1	12048.00	Oil Based Mud	9.9	14	N/A	N/A	67.5/31.5	Active Pit	47000	0.00
2018-11-15 12:00	1	15308.00	Oil Based Mud	9.9	15	N/A	N/A	67.5/32.5	Active Pit	47000	0.00
2018-11-16 00:00	1	17575.00	Oil Based Mud	10.0	15	N/A	N/A	68.5/31.5	Active Pit	39000	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	AutoTrak Curve Steering Unit	14381513	Near Bit VSS	5.93	6.93	7.000	4.330
1	AutoTrak Curve Steering Unit	14381513	Near Bit Inclination	5.93	6.93	7.000	4.330
1	AutoTrak Curve MWD	12418079	Gamma (single)	2.82	13.10	7.000	3.250
1	AutoTrak Curve MWD	12418079	Directional (mag)	12.34	22.62	7.000	3.250

#### Service and Tool Mnemonics

Mnemonic	Name	Description
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit
ATC MWD	AutoTrak Curve MWD	Auto Trak Curve MWD
ATC LCPM	AutoTrak Curve LCPM	Auto Trak Curve LCPM

#### Comments



- 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
- 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 2171 to 17595 feet MD (2171 to 7901 feet TVD)

#### Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	2171.00	8.500	1	BHGE logging services began at 2171 feet MD (2171 feet TVD) per customer request.
2	17595.00	8.500	1	The interval from 17582 to 17595 feet MD (7901 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

 	<b>Company</b>	ConocoPhillips
	<b>Well</b>	Property_Reserve_4-65_3-4_2AH
	<b>Interval</b>	<b>Date From:</b> 2018-11-11 13:16 <b>Top:</b> 2171.00 ft <b>Date To:</b> 2018-11-16 13:50 <b>Bottom:</b> 17595.00 ft
	<b>Created</b>	2018-11-16 13:37:08

