

Project: Lincoln County, CO (NAD 27)
 Site: Sec. 33-T16S-R52W
 Well: Billheimer **31** 33-16-52H
 Wellbore: Cherokee Plan
 Design: Rev A0

Pioneer Natural Resources

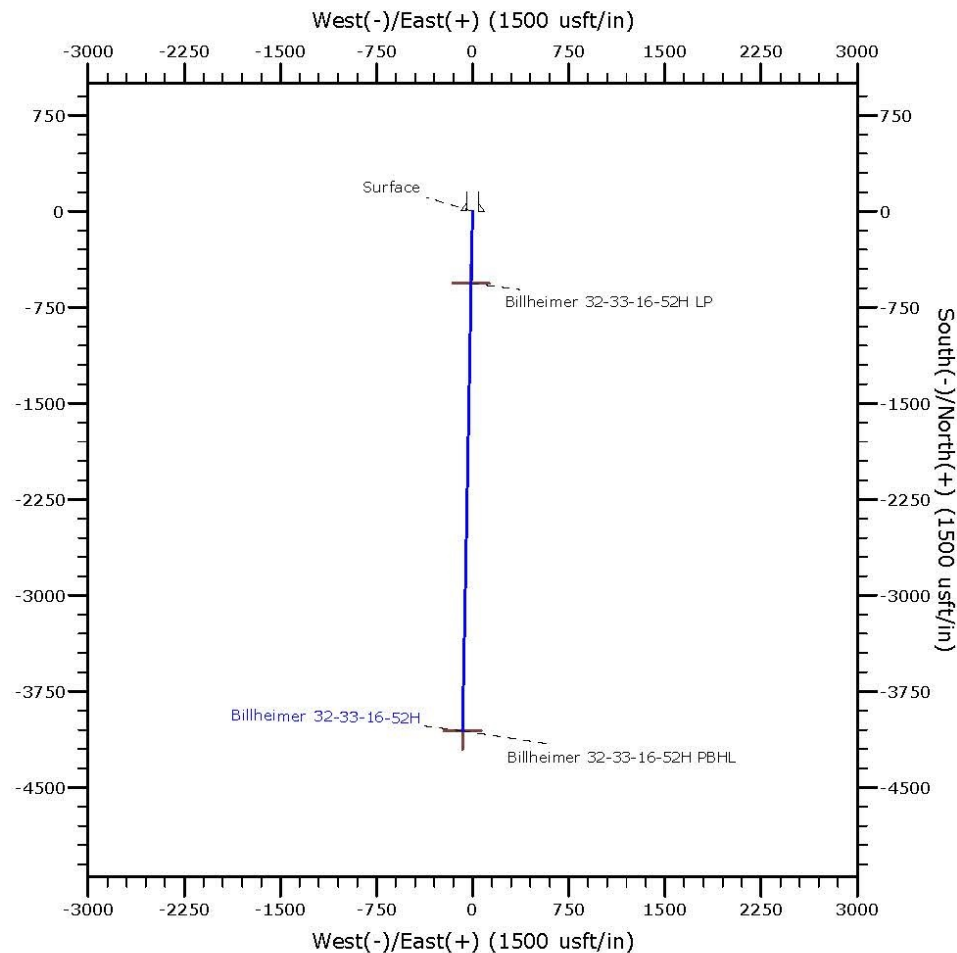
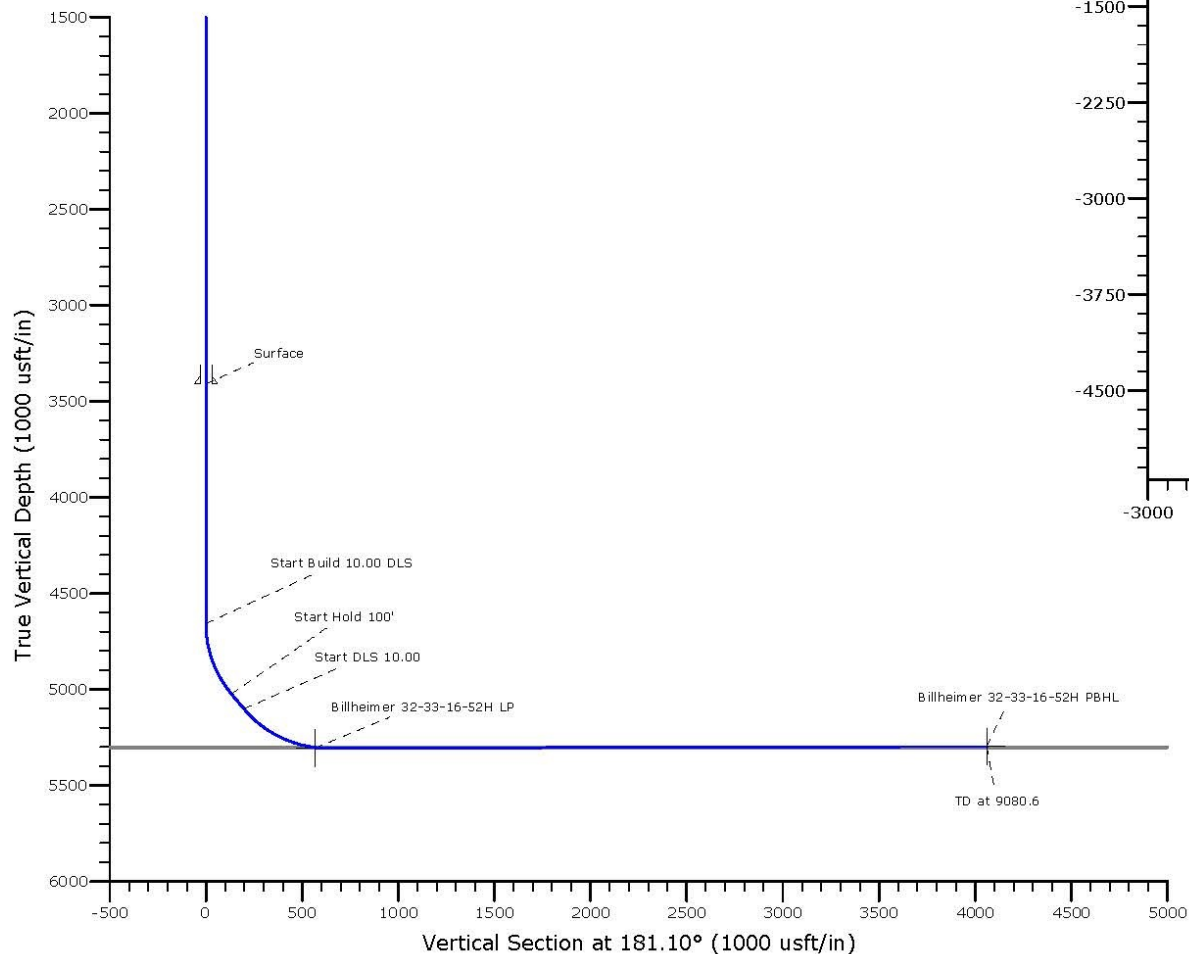
HALLIBURTON
 Sperry Drilling

WELL DETAILS: Billheimer 31-33-16-52H

Ground Level:	Northing:	Easting:	Latitude:	Longitude:
4739.0	14028650.00	2144940.00	38° 37' 13.928 N	103° 14' 0.944 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4657.4	0.00	0.00	4657.4	0.0	0.0	0.00	0.00	0.0	
3	5057.4	40.00	181.10	5025.7	-134.0	-2.6	10.00	181.10	134.0	
4	5157.4	40.00	181.10	5102.3	-198.3	-3.8	0.00	0.00	198.3	
5	5658.9	90.15	181.10	5307.0	-638.6	-12.3	10.00	0.00	638.7	
6	9080.6	90.15	181.10	5298.0	-4059.7	-78.1	0.00	0.00	4060.4	Billheimer 32-33-16-52H PBHL



PIONEER
 NATURAL RESOURCES

Plan: Rev A0 (Billheimer 32-33-16-52H/Cherokee Plan)

Created By:	Troy Stoute	Date:	10/18, April 29 2014
Checked:		Date:	
Reviewed:		Date:	
Approved:		Date:	

Pioneer Natural Resources

Lincoln County, CO (NAD 27)
Sec. 33-T16S-R52W
Billheimer 31-33-16-52H

Cherokee Plan

Plan: Cherokee Rev A0

Sperry Drilling Services

Proposal Report

, 24 April, 2014

Well Coordinates: 14,028,650.00 N, 2,144,940.00 E (38° 37' 13.93" N, 103° 14' 00.94" W)
Ground Level: 4,739.00 usft

Local Coordinate Origin:	Centered on Well Zorro Prospect
Viewing Datum:	KB 23' @ 4762.0usft (Original Well Elev)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet
Geodetic Scale Factor Applied	
Version: 5000.1 Build: 70	

HALLIBURTON

Pioneer Natural Resources

HALLIBURTON

Lincoln County, CO (NAD 27)

Plan Report for Billheimer 31-33-16-52H - Cherokee Rev A0

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00

2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,410.0	0.00	0.00	3,410.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Surface										
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
4,657.4	0.00	0.00	4,657.4	0.0	0.0	0.0	0.00	0.00	0.00	0.00
Start Build 10.00										
4,700.0	4.26	181.10	4,700.0	-1.6	0.0	1.6	10.00	10.00	0.00	181.10
4,800.0	14.26	181.10	4,798.5	-17.7	-0.3	17.7	10.00	10.00	0.00	0.00
4,900.0	24.26	181.10	4,892.8	-50.6	-1.0	50.6	10.00	10.00	0.00	0.00
5,000.0	34.26	181.10	4,979.9	-99.4	-1.9	99.4	10.00	10.00	0.00	0.00
5,057.4	40.00	181.10	5,025.7	-134.0	-2.6	134.0	10.00	10.00	0.00	0.00
Start 100.0 hold at 5057.4 MD										
5,100.0	40.00	181.10	5,058.3	-161.4	-3.1	161.4	0.00	0.00	0.00	0.00

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
5,157.4	40.00	181.10	5,102.3	-198.3	-3.8	198.3	0.00	0.00	0.00	0.00
Start DLS 10.00 TFO 0.00										
5,200.0	44.26	181.10	5,133.9	-226.9	-4.4	226.9	10.00	10.00	0.00	0.00
5,300.0	54.26	181.10	5,199.1	-302.5	-5.8	302.6	10.00	10.00	0.00	0.00
5,400.0	64.26	181.10	5,250.1	-388.3	-7.5	388.4	10.00	10.00	0.00	0.00
5,500.0	74.26	181.10	5,285.5	-481.7	-9.3	481.8	10.00	10.00	0.00	0.00
5,555.9	79.85	181.10	5,298.0	-536.2	-10.3	536.3	10.00	10.00	0.00	0.00
Cherokee TD										
5,600.0	84.26	181.10	5,304.1	-579.8	-11.2	579.9	10.00	10.00	0.00	0.00
5,643.7	90.15	181.10	5,307.0	-623.4	-12.0	623.6	13.47	13.47	0.00	0.00
Cherokee LP										
5,658.9	90.15	181.10	5,307.0	-638.6	-12.3	638.7	0.00	0.00	0.00	0.00
5,700.0	90.15	181.10	5,306.9	-679.7	-13.1	679.8	0.00	0.00	0.00	0.00
5,800.0	90.15	181.10	5,306.6	-779.7	-15.0	779.8	0.00	0.00	0.00	0.00
5,900.0	90.15	181.10	5,306.3	-879.7	-16.9	879.8	0.00	0.00	0.00	0.00
6,000.0	90.15	181.10	5,306.1	-979.7	-18.9	979.8	0.00	0.00	0.00	0.00
6,100.0	90.15	181.10	5,305.8	-1,079.6	-20.8	1,079.8	0.00	0.00	0.00	0.00
6,200.0	90.15	181.10	5,305.5	-1,179.6	-22.7	1,179.8	0.00	0.00	0.00	0.00
6,300.0	90.15	181.10	5,305.3	-1,279.6	-24.6	1,279.8	0.00	0.00	0.00	0.00
6,400.0	90.15	181.10	5,305.0	-1,379.6	-26.6	1,379.8	0.00	0.00	0.00	0.00
6,500.0	90.15	181.10	5,304.8	-1,479.6	-28.5	1,479.8	0.00	0.00	0.00	0.00
6,600.0	90.15	181.10	5,304.5	-1,579.5	-30.4	1,579.8	0.00	0.00	0.00	0.00
6,700.0	90.15	181.10	5,304.2	-1,679.5	-32.3	1,679.8	0.00	0.00	0.00	0.00
6,800.0	90.15	181.10	5,304.0	-1,779.5	-34.3	1,779.8	0.00	0.00	0.00	0.00
6,900.0	90.15	181.10	5,303.7	-1,879.5	-36.2	1,879.8	0.00	0.00	0.00	0.00
7,000.0	90.15	181.10	5,303.4	-1,979.5	-38.1	1,979.8	0.00	0.00	0.00	0.00
7,100.0	90.15	181.10	5,303.2	-2,079.4	-40.0	2,079.8	0.00	0.00	0.00	0.00
7,200.0	90.15	181.10	5,302.9	-2,179.4	-42.0	2,179.8	0.00	0.00	0.00	0.00
7,300.0	90.15	181.10	5,302.7	-2,279.4	-43.9	2,279.8	0.00	0.00	0.00	0.00
7,400.0	90.15	181.10	5,302.4	-2,379.4	-45.8	2,379.8	0.00	0.00	0.00	0.00
7,500.0	90.15	181.10	5,302.1	-2,479.4	-47.7	2,479.8	0.00	0.00	0.00	0.00
7,600.0	90.15	181.10	5,301.9	-2,579.4	-49.7	2,579.8	0.00	0.00	0.00	0.00
7,700.0	90.15	181.10	5,301.6	-2,679.3	-51.6	2,679.8	0.00	0.00	0.00	0.00
7,800.0	90.15	181.10	5,301.4	-2,779.3	-53.5	2,779.8	0.00	0.00	0.00	0.00
7,900.0	90.15	181.10	5,301.1	-2,879.3	-55.4	2,879.8	0.00	0.00	0.00	0.00
8,000.0	90.15	181.10	5,300.8	-2,979.3	-57.4	2,979.8	0.00	0.00	0.00	0.00
8,100.0	90.15	181.10	5,300.6	-3,079.3	-59.3	3,079.8	0.00	0.00	0.00	0.00
8,200.0	90.15	181.10	5,300.3	-3,179.2	-61.2	3,179.8	0.00	0.00	0.00	0.00
8,300.0	90.15	181.10	5,300.0	-3,279.2	-63.1	3,279.8	0.00	0.00	0.00	0.00
8,400.0	90.15	181.10	5,299.8	-3,379.2	-65.0	3,379.8	0.00	0.00	0.00	0.00
8,500.0	90.15	181.10	5,299.5	-3,479.2	-67.0	3,479.8	0.00	0.00	0.00	0.00
8,600.0	90.15	181.10	5,299.3	-3,579.2	-68.9	3,579.8	0.00	0.00	0.00	0.00
8,700.0	90.15	181.10	5,299.0	-3,679.1	-70.8	3,679.8	0.00	0.00	0.00	0.00
8,800.0	90.15	181.10	5,298.7	-3,779.1	-72.7	3,779.8	0.00	0.00	0.00	0.00
8,900.0	90.15	181.10	5,298.5	-3,879.1	-74.7	3,879.8	0.00	0.00	0.00	0.00
9,000.0	90.15	181.10	5,298.2	-3,979.1	-76.6	3,979.8	0.00	0.00	0.00	0.00
9,080.6	90.15	181.10	5,298.0	-4,059.7	-78.1	4,060.4	0.00	0.00	0.00	0.00
TD at 9080.6										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
4,657.4	4,657.4	0.0		0.0 Start Build 10.00
5,057.4	5,025.7	-134.0		-2.6 Start 100.0 hold at 5057.4 MD
5,157.4	5,102.3	-198.3		-3.8 Start DLS 10.00 TFO 0.00
9,080.6	5,298.0	-4,059.7	-78.1	TD at 9080.6

Vertical Section Information

Angle Type	Target	Azimuth	Origin Type	+N/-S	Origin	Start TVD
					+E/-W	

		(°)	(usft)	(usft)	(usft)
Target	Zorro BHL	181.10 Slot	0.0	0.0	0.0

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.0	9,080.6 Cherokee Rev A0		MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
3,410.0	3,410.0 Surface		8-5/8	12-1/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,555.9	5,298.0 Cherokee TD		0.00		
5,643.7	5,307.0 Cherokee LP		0.00		

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Zorro BHL	5,298.0	-4,059.7	-78.1 Point	
Zorro LP	5,307.0	-565.0	-10.9 Point	

Directional Difficulty Index

Average Dogleg over Survey:	0.99 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 5,057.4 usft
Net Tortousity applicable to Plans:	0.99 °/100usft	Directional Difficulty Index:	5.959

Audit Info

HALLIBURTON

Pioneer Natural Resources

Lincoln County, CO (NAD 27)

North Reference Sheet for Sec. 33-T16S-R52W - Billheimer 31-33-16-52H - Cherokee Plan

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to KB 23° @ 4762.0usft (Original Well Elev). Northing and Easting are relative to Zorro Prospect

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum NAD 1927 - Western US, ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.00°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:0° 0' 0.000 N°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99989122

Grid Coordinates of Well: 14,028,650.00 usft N, 2,144,940.00 usft E

Geographical Coordinates of Well: 38° 37' 13.93" N, 103° 14' 00.94" W

Grid Convergence at Surface is: 1.10°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,080.60usft

the Bottom Hole Displacement is 4,060.42usft in the Direction of 181.10°
(True)

Magnetic Convergence at surface is: -6.50° (24 April 2014, , BGGM2013)

