

Project: Rio Blanco, Colorado  
 Site: Sec. 3-T1S-R104W  
 Well: Meagher #3-3H  
 Wellbore: Plan A  
 Design: Rev 2

# KGH Operating

**HALLIBURTON**  
 Sperry Drilling

## WELL DETAILS: Meagher #3-3H

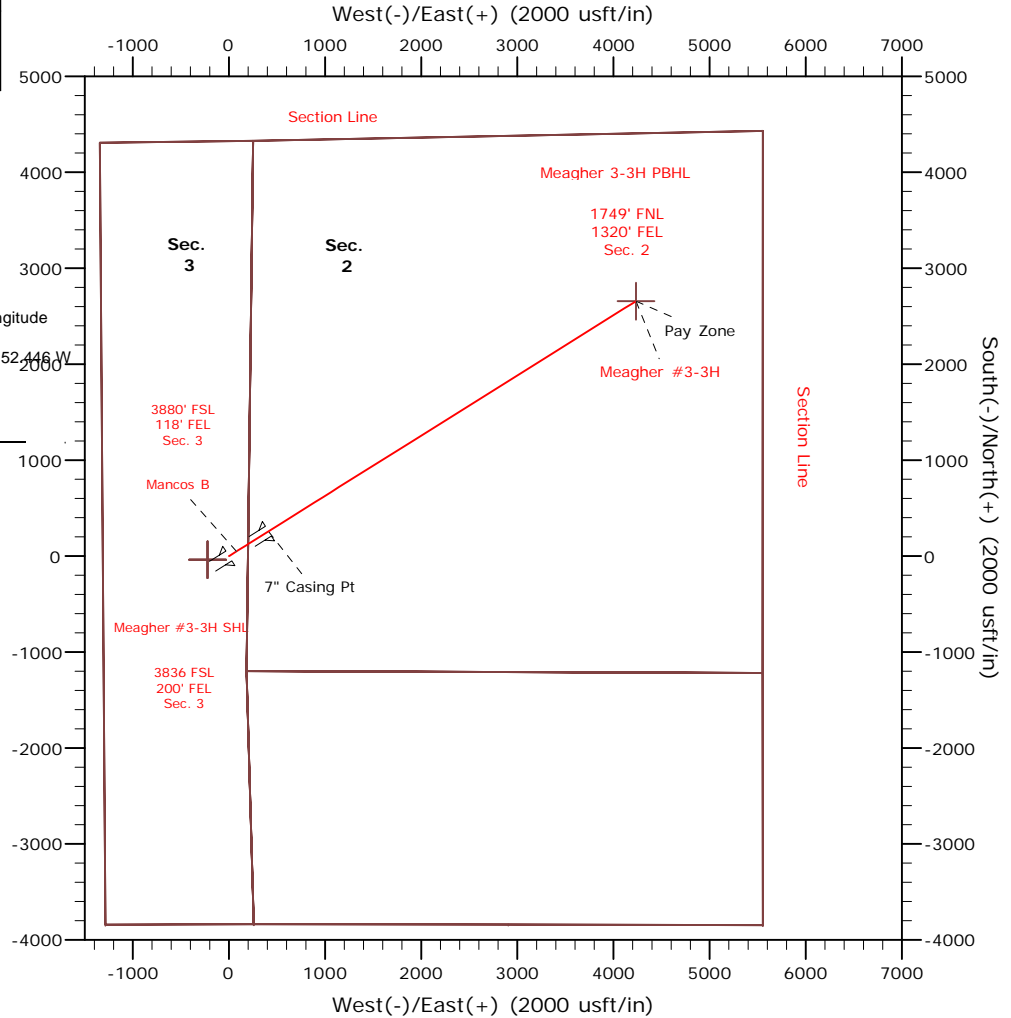
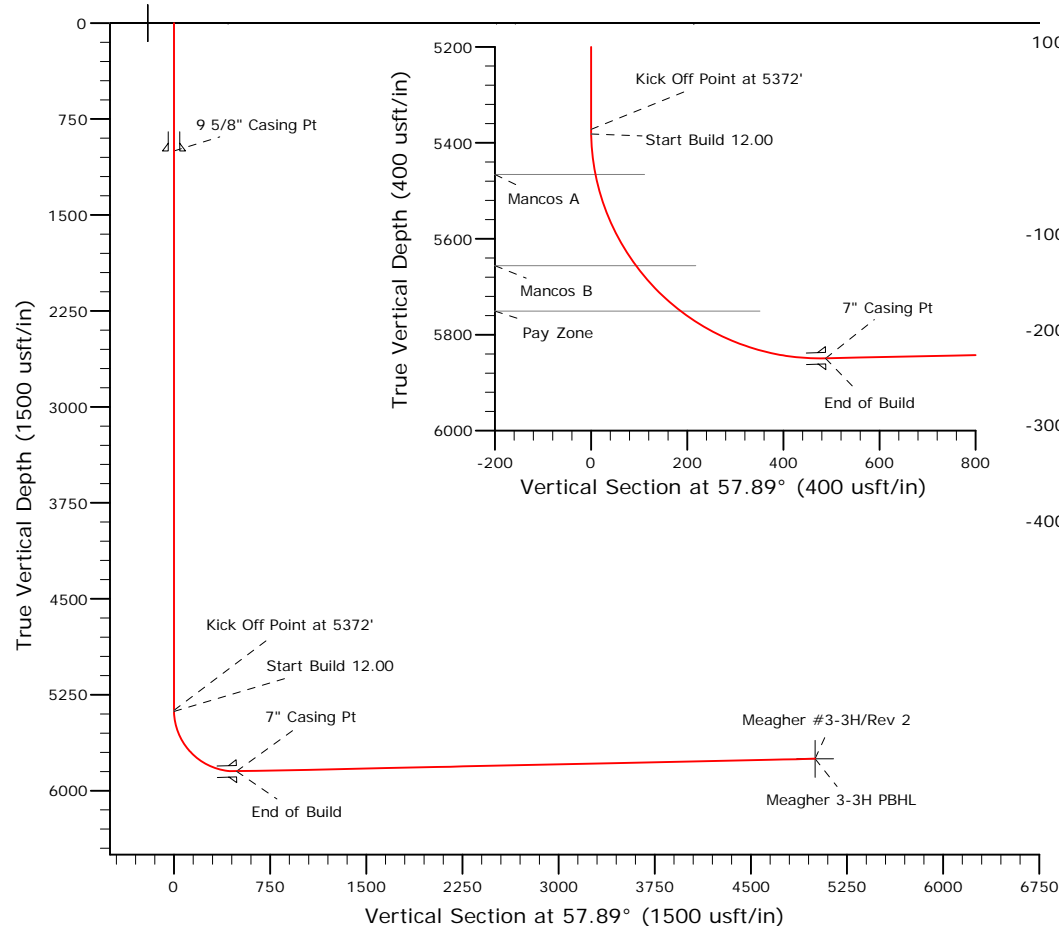
Ground Level:	Northing:	Easting:	Latitude:	Longitude:
6124.00	1260367.01	2006647.22	39° 59' 36.816 N	109° 2' 46.874 W

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5372.12	0.00	0.00	5372.12	0.00	0.00	0.00	0.00	0.00	
3	6132.53	91.25	57.89	5849.47	259.31	413.26	12.00	57.89	487.88	
4	10646.28	91.25	57.89	5751.00	2657.84	4235.73	0.00	0.00	5000.55	Meagher 3-3H PBHL

## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Meagher 3-3H PBHL	5751.00	2657.84	4235.73	1262853.29	2010985.69	40° 0' 3.078 N	109° 1' 52.446 W



## Plan: Rev 2 (Meagher #3-3H/Plan A)

Created By: Troy Stoute

Date: 13:56, May 09 2014

Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# **KGH Operating**

**Rio Blanco, Colorado**

**Sec. 3-T1S-R104W**

**Meagher #3-3H**

**Plan A**

**Plan: Rev 2**

## **Sperry Drilling Services**

### **Proposal Report**

**09 May, 2014**

Well Coordinates: 1,260,367.01 N, 2,006,647.22 E (39° 59' 36.82" N, 109° 02' 46.87" W)

Ground Level: 6,124.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Meagher #3-3H

KB 20' @ 6144.00usft (Original)

N

True

API - US Survey Feet - Custom

**HALLIBURTON**

## Plan Report for Meagher #3-3H - Rev 2

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 (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8" Casing Pt</b>										
4,148.00	0.00	0.00	4,148.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Lower Sego</b>										
4,314.00	0.00	0.00	4,314.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Buck Tongue</b>										
4,513.00	0.00	0.00	4,513.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Castlegate</b>										
5,372.00	0.00	0.00	5,372.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Kick Off Point at 5372'</b>										
5,372.12	0.00	0.00	5,372.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,382.00	1.19	57.89	5,382.00	0.05	0.09	0.10	12.00	12.00	0.00	57.89
<b>Start Build 12.00</b>										
5,400.00	3.35	57.89	5,399.98	0.43	0.69	0.81	12.00	12.00	0.00	0.00
5,466.62	11.34	57.89	5,466.00	4.95	7.90	9.32	12.00	12.00	0.00	0.00
<b>Mancos A</b>										
5,500.00	15.35	57.89	5,498.48	9.05	14.42	17.02	12.00	12.00	0.00	0.00
5,600.00	27.35	57.89	5,591.45	28.36	45.20	53.36	12.00	12.00	0.00	0.00
5,676.13	36.48	57.89	5,656.00	49.73	79.25	93.56	12.00	12.00	0.00	0.00
<b>Mancos B</b>										
5,700.00	39.35	57.89	5,674.83	57.52	91.67	108.23	12.00	12.00	0.00	0.00
5,800.00	51.35	57.89	5,744.98	95.26	151.82	179.23	12.00	12.00	0.00	0.00
5,809.76	52.52	57.89	5,751.00	99.35	158.33	186.91	12.00	12.00	0.00	0.00
<b>Pay Zone</b>										
5,900.00	63.35	57.89	5,798.84	139.93	223.01	263.27	12.00	12.00	0.00	0.00
6,000.00	75.35	57.89	5,834.05	189.58	302.12	356.68	12.00	12.00	0.00	0.00
6,100.00	87.35	57.89	5,849.07	242.03	385.71	455.36	12.00	12.00	0.00	0.00
6,132.50	91.25	57.89	5,849.47	259.30	413.23	487.85	12.00	12.00	0.00	0.00
<b>End of Build</b>										
6,132.53	91.25	57.89	5,849.47	259.31	413.26	487.88	12.00	12.00	0.00	0.00
6,133.00	91.25	57.89	5,849.46	259.56	413.66	488.35	0.00	0.00	0.00	0.00
<b>7" Casing Pt</b>										
6,200.00	91.25	57.89	5,848.00	295.16	470.40	555.33	0.00	0.00	0.00	0.00
6,300.00	91.25	57.89	5,845.81	348.30	555.08	655.31	0.00	0.00	0.00	0.00
6,400.00	91.25	57.89	5,843.63	401.44	639.77	755.28	0.00	0.00	0.00	0.00
6,500.00	91.25	57.89	5,841.45	454.58	724.45	855.26	0.00	0.00	0.00	0.00
6,600.00	91.25	57.89	5,839.27	507.72	809.14	955.24	0.00	0.00	0.00	0.00
6,700.00	91.25	57.89	5,837.09	560.86	893.82	1,055.21	0.00	0.00	0.00	0.00
6,800.00	91.25	57.89	5,834.91	613.99	978.51	1,155.19	0.00	0.00	0.00	0.00
6,900.00	91.25	57.89	5,832.72	667.13	1,063.19	1,255.17	0.00	0.00	0.00	0.00
7,000.00	91.25	57.89	5,830.54	720.27	1,147.88	1,355.14	0.00	0.00	0.00	0.00
7,100.00	91.25	57.89	5,828.36	773.41	1,232.56	1,455.12	0.00	0.00	0.00	0.00
7,200.00	91.25	57.89	5,826.18	826.55	1,317.25	1,555.09	0.00	0.00	0.00	0.00
7,300.00	91.25	57.89	5,824.00	879.69	1,401.93	1,655.07	0.00	0.00	0.00	0.00
7,400.00	91.25	57.89	5,821.82	932.82	1,486.62	1,755.05	0.00	0.00	0.00	0.00
7,500.00	91.25	57.89	5,819.64	985.96	1,571.30	1,855.02	0.00	0.00	0.00	0.00
7,600.00	91.25	57.89	5,817.45	1,039.10	1,655.99	1,955.00	0.00	0.00	0.00	0.00
7,700.00	91.25	57.89	5,815.27	1,092.24	1,740.67	2,054.98	0.00	0.00	0.00	0.00
7,800.00	91.25	57.89	5,813.09	1,145.38	1,825.36	2,154.95	0.00	0.00	0.00	0.00
7,900.00	91.25	57.89	5,810.91	1,198.52	1,910.04	2,254.93	0.00	0.00	0.00	0.00
8,000.00	91.25	57.89	5,808.73	1,251.65	1,994.73	2,354.90	0.00	0.00	0.00	0.00
8,100.00	91.25	57.89	5,806.55	1,304.79	2,079.41	2,454.88	0.00	0.00	0.00	0.00
8,200.00	91.25	57.89	5,804.37	1,357.93	2,164.10	2,554.86	0.00	0.00	0.00	0.00
8,300.00	91.25	57.89	5,802.18	1,411.07	2,248.78	2,654.83	0.00	0.00	0.00	0.00
8,400.00	91.25	57.89	5,800.00	1,464.21	2,333.47	2,754.81	0.00	0.00	0.00	0.00
8,500.00	91.25	57.89	5,797.82	1,517.35	2,418.15	2,854.78	0.00	0.00	0.00	0.00

## Plan Report for Meagher #3-3H - Rev 2

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 (°)
8,600.00	91.25	57.89	5,795.64	1,570.48	2,502.84	2,954.76	0.00	0.00	0.00	0.00
8,700.00	91.25	57.89	5,793.46	1,623.62	2,587.52	3,054.74	0.00	0.00	0.00	0.00
8,800.00	91.25	57.89	5,791.28	1,676.76	2,672.21	3,154.71	0.00	0.00	0.00	0.00
8,900.00	91.25	57.89	5,789.09	1,729.90	2,756.89	3,254.69	0.00	0.00	0.00	0.00
9,000.00	91.25	57.89	5,786.91	1,783.04	2,841.58	3,354.67	0.00	0.00	0.00	0.00
9,100.00	91.25	57.89	5,784.73	1,836.18	2,926.26	3,454.64	0.00	0.00	0.00	0.00
9,200.00	91.25	57.89	5,782.55	1,889.31	3,010.95	3,554.62	0.00	0.00	0.00	0.00
9,300.00	91.25	57.89	5,780.37	1,942.45	3,095.63	3,654.59	0.00	0.00	0.00	0.00
9,400.00	91.25	57.89	5,778.19	1,995.59	3,180.32	3,754.57	0.00	0.00	0.00	0.00
9,500.00	91.25	57.89	5,776.01	2,048.73	3,265.00	3,854.55	0.00	0.00	0.00	0.00
9,600.00	91.25	57.89	5,773.82	2,101.87	3,349.69	3,954.52	0.00	0.00	0.00	0.00
9,700.00	91.25	57.89	5,771.64	2,155.01	3,434.37	4,054.50	0.00	0.00	0.00	0.00
9,800.00	91.25	57.89	5,769.46	2,208.14	3,519.06	4,154.48	0.00	0.00	0.00	0.00
9,900.00	91.25	57.89	5,767.28	2,261.28	3,603.74	4,254.45	0.00	0.00	0.00	0.00
10,000.00	91.25	57.89	5,765.10	2,314.42	3,688.43	4,354.43	0.00	0.00	0.00	0.00
10,100.00	91.25	57.89	5,762.92	2,367.56	3,773.11	4,454.40	0.00	0.00	0.00	0.00
10,200.00	91.25	57.89	5,760.74	2,420.70	3,857.80	4,554.38	0.00	0.00	0.00	0.00
10,300.00	91.25	57.89	5,758.55	2,473.84	3,942.48	4,654.36	0.00	0.00	0.00	0.00
10,400.00	91.25	57.89	5,756.37	2,526.97	4,027.17	4,754.33	0.00	0.00	0.00	0.00
10,500.00	91.25	57.89	5,754.19	2,580.11	4,111.85	4,854.31	0.00	0.00	0.00	0.00
10,600.00	91.25	57.89	5,752.01	2,633.25	4,196.54	4,954.29	0.00	0.00	0.00	0.00
10,646.28	91.25	57.89	5,751.00	2,657.84	4,235.73	5,000.55	0.00	0.00	0.00	0.00

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,372.00	5,372.00	0.00	0.00	Kick Off Point at 5372'
5,382.00	5,382.00	0.05	0.09	Start Build 12.00
6,132.50	5,849.47	259.30	413.23	End of Build

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	Meagher 3-3H PBHL	57.89	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	6,133.00	Rev 2	MWD
6,133.00	10,646.27	Rev 2	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,000.00	1,000.00	9 5/8" Casing Pt	9-5/8	12-1/4
6,133.00	5,849.46	7" Casing Pt	7	8-3/4

## Plan Report for Meagher #3-3H - Rev 2

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,148.00	4,148.00	Lower Sego		0.00	
4,314.00	4,314.00	Buck Tongue		0.00	
4,513.00	4,513.00	Castlegate		0.00	
5,466.62	5,466.00	Mancos A		0.00	
5,676.13	5,656.00	Mancos B		0.00	
5,809.76	5,751.00	Pay Zone		0.00	

**Targets associated with this wellbore**

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Meagher 3-3H Section Divider	0.00	-36.05	-220.23	Polygon
Meagher 3-3H Section Divider Lower	0.00	-36.05	-220.23	Polygon
Meagher 3-3H Section Horiz	0.00	-36.05	-220.23	Polygon
Meagher 3-3H Section 2&3 Lines	0.00	-36.05	-220.23	Polygon
Meagher 3-3H PBHL	5,751.00	2,657.84	4,235.73	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	0.86 °/100usft	Maximum Dogleg over Survey:	12.00 °/100usft at 6,132.53 usft
Net Tortousity applicable to Plans:	0.86 °/100usft	Directional Difficulty Index:	6.031

**Audit Info**

# North Reference Sheet for Sec. 3-T1S-R104W - Meagher #3-3H - Plan A

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.  
Vertical Depths are relative to KB 20' @ 6144.00usft (Original). Northing and Easting are relative to Meagher #3-3H  
Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980  
Projection method is Lambert Conformal Conic (2 parallel)  
Central Meridian is -105.50°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°  
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996687

Grid Coordinates of Well: 1,260,367.01 usft N, 2,006,647.22 usft E  
Geographical Coordinates of Well: 39° 59' 36.82" N, 109° 02' 46.87" W  
Grid Convergence at Surface is: -2.29°

Based upon Minimum Curvature type calculations, at a Measured Depth of 10,646.28usft  
the Bottom Hole Displacement is 5,000.55usft in the Direction of 57.89° (True).

Magnetic Convergence at surface is: -12.87° (11 June 2014, , BGGM2013)

