

# Conoco Phillips Company

Arapahoe County, Colorado

Sec. 33-T4S-R64W

Tebo 33-1H

Plan A

Plan: Plan A Rev 0 (Lateral)

## Sperry Drilling Services

## Proposal Report

24 January, 2013

Well Coordinates: 1,664,695.27 N, 3,263,310.35 E (39° 39' 16.79" N, 104° 33' 53.33" W)

Ground Level: 5,838.00 ft

Local Coordinate Origin:

Centered on Well Tebo 33-1H

Viewing Datum:

RKB 24 ft @ 5862.00ft (H&P 280)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Version: 2003.16 Build: 431

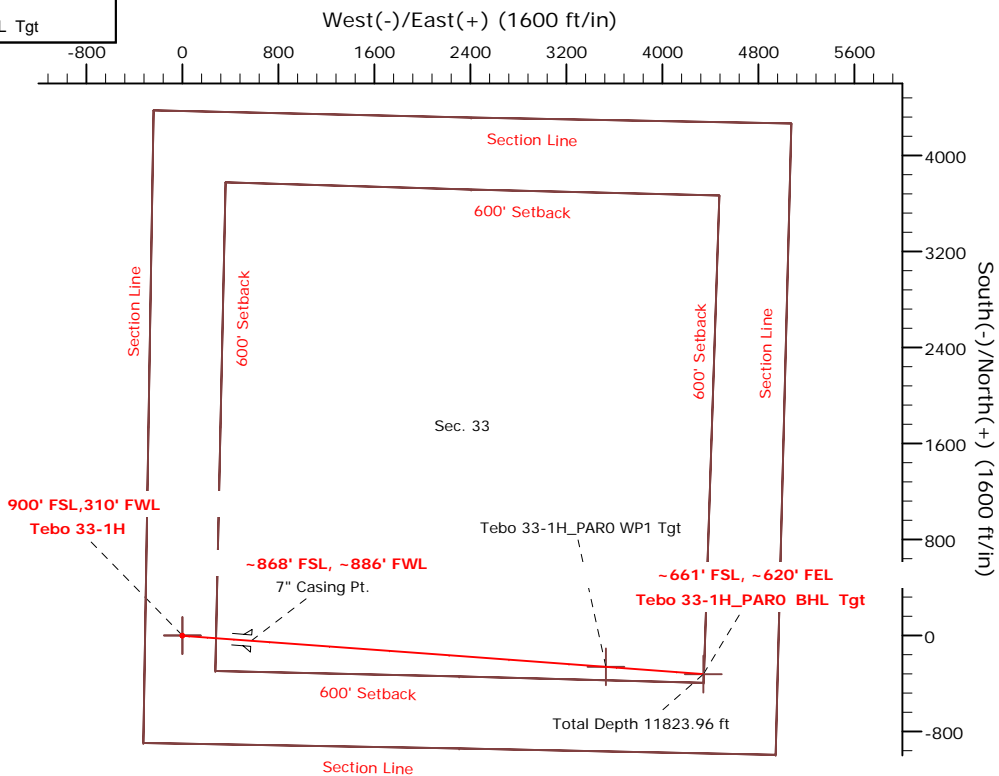
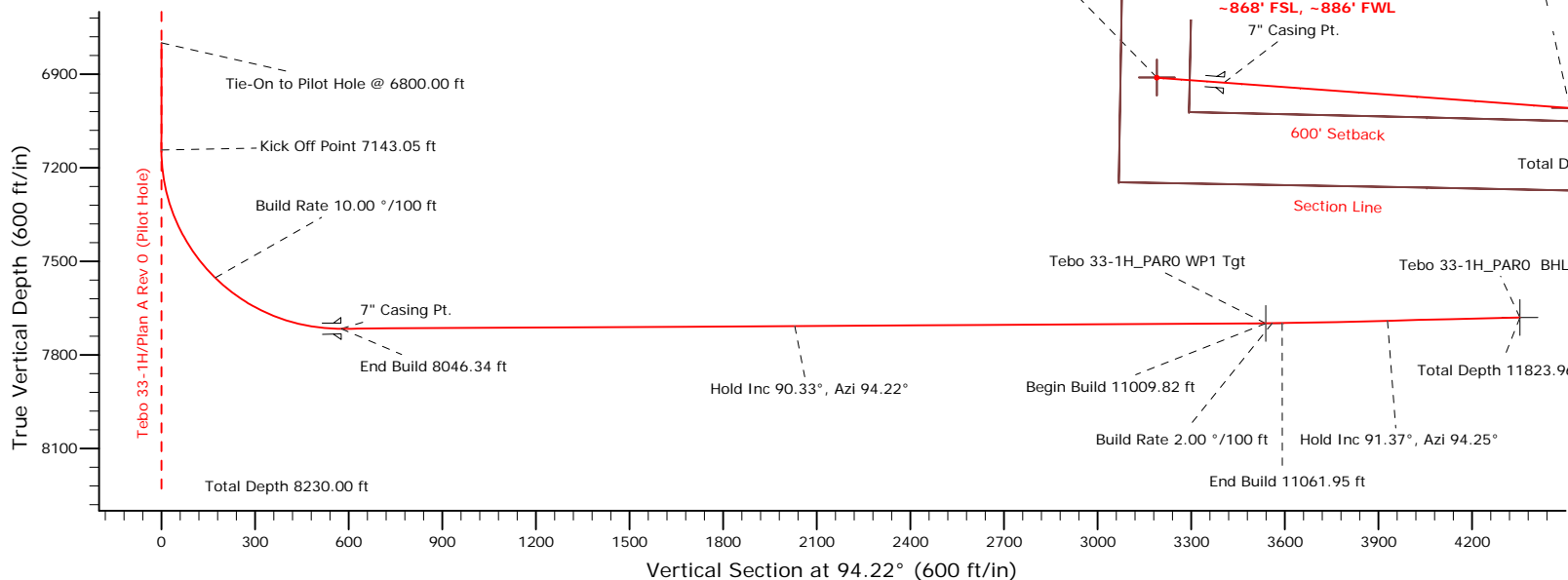
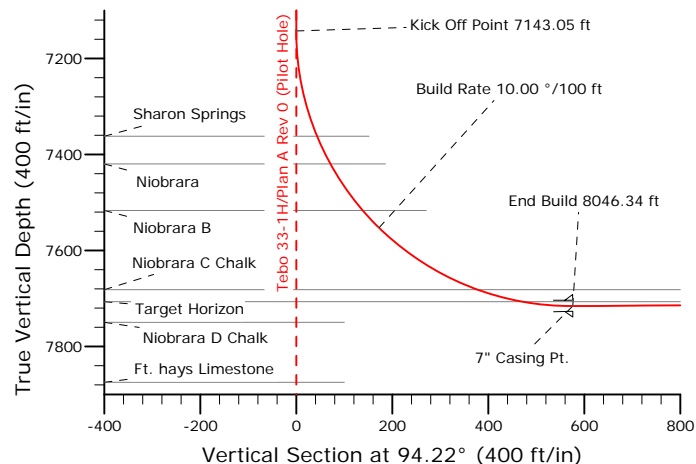
**HALLIBURTON**

# Conoco Phillips Company



WELL DETAILS: Tebo 33-1H										
<u>Ground Level:</u> 5838.00		<u>Northing:</u> 1664695.27		<u>Easting:</u> 3263310.35		<u>Latitude:</u> 39° 39' 16.790 N		<u>Longitude:</u> 104° 33' 53.330 W		
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	6800.00	0.00	0.00	6800.00	0.00	0.00	0.00	0.00	0.00	
2	7143.05	0.00	0.00	7143.05	0.00	0.00	0.00	0.00	0.00	
3	8046.34	90.33	94.22	7716.00	-42.36	574.69	10.00	94.22	576.24	
4	11009.82	90.33	94.22	7699.00	-260.18	3530.10	0.00	0.00	3539.68	Tebo 33-1H_PAR0 WP1 Tgt
5	11061.95	91.37	94.25	7698.23	-264.03	3582.09	2.00	2.13	3591.80	
6	11823.96	91.37	94.25	7680.00	-320.54	4341.78	0.00	0.00	4353.59	Tebo 33-1H_PAR0 BHL Tgt

Plan: Plan A Rev 0 (Lateral) (Tebco 33-1H/Plan A )	
Created By: Matthew R. Epp	Date: 1-24-2013
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____



## Plan Report for Tebo 33-1H - Plan A Rev 0 (Lateral)

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Tie-On to Pilot Hole @ 6800.00 ft</b>										
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,143.05	0.00	0.00	7,143.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Kick Off Point 7143.05 ft</b>										
7,200.00	5.70	94.22	7,199.91	-0.21	2.82	2.83	10.00	10.00	0.00	94.22
7,300.00	15.70	94.22	7,298.04	-1.57	21.30	21.36	10.00	10.00	0.00	0.00
7,367.71	22.47	94.22	7,362.00	-3.20	43.37	43.48	10.00	10.00	0.00	0.00
<b>Sharon Springs</b>										
7,400.00	25.70	94.22	7,391.47	-4.16	56.50	56.66	10.00	10.00	0.00	0.00
7,432.11	28.91	94.22	7,420.00	-5.25	71.19	71.38	10.00	10.00	0.00	0.00
<b>Niobrara</b>										
7,500.00	35.70	94.22	7,477.35	-7.91	107.35	107.64	10.00	10.00	0.00	0.00
7,550.48	40.74	94.22	7,517.00	-10.21	138.48	138.86	10.00	10.00	0.00	0.00
<b>Niobrara B</b>										
7,600.00	45.70	94.22	7,553.08	-12.70	172.29	172.76	10.00	10.00	0.00	0.00
<b>Build Rate 10.00 °/100 ft</b>										
7,700.00	55.70	94.22	7,616.34	-18.38	249.36	250.04	10.00	10.00	0.00	0.00
7,800.00	65.70	94.22	7,665.23	-24.78	336.22	337.13	10.00	10.00	0.00	0.00
7,844.65	70.16	94.22	7,682.00	-27.82	377.48	378.50	10.00	10.00	0.00	0.00
<b>Niobrara C Chalk</b>										
7,900.00	75.70	94.22	7,698.24	-31.71	430.22	431.39	10.00	10.00	0.00	0.00
7,941.32	79.83	94.22	7,707.00	-34.68	470.48	471.76	10.00	10.00	0.00	0.00
<b>Target Horizon</b>										
8,000.00	85.70	94.22	7,714.39	-38.95	528.51	529.95	10.00	10.00	0.00	0.00
8,046.34	90.33	94.22	7,716.00	-42.36	574.69	576.25	10.00	10.00	0.00	0.00
<b>End Build 8046.34 ft - 7" Casing Pt.</b>										
8,100.00	90.33	94.22	7,715.69	-46.30	628.20	629.91	0.00	0.00	0.00	0.00
8,200.00	90.33	94.22	7,715.12	-53.65	727.93	729.91	0.00	0.00	0.00	0.00
8,300.00	90.33	94.22	7,714.54	-61.00	827.66	829.90	0.00	0.00	0.00	0.00
8,400.00	90.33	94.22	7,713.97	-68.35	927.39	929.90	0.00	0.00	0.00	0.00
8,500.00	90.33	94.22	7,713.40	-75.70	1,027.11	1,029.90	0.00	0.00	0.00	0.00
8,600.00	90.33	94.22	7,712.82	-83.05	1,126.84	1,129.90	0.00	0.00	0.00	0.00
8,700.00	90.33	94.22	7,712.25	-90.40	1,226.57	1,229.90	0.00	0.00	0.00	0.00
8,800.00	90.33	94.22	7,711.68	-97.75	1,326.30	1,329.90	0.00	0.00	0.00	0.00
8,900.00	90.33	94.22	7,711.10	-105.10	1,426.03	1,429.89	0.00	0.00	0.00	0.00
9,000.00	90.33	94.22	7,710.53	-112.45	1,525.75	1,529.89	0.00	0.00	0.00	0.00
9,100.00	90.33	94.22	7,709.95	-119.81	1,625.48	1,629.89	0.00	0.00	0.00	0.00
9,200.00	90.33	94.22	7,709.38	-127.16	1,725.21	1,729.89	0.00	0.00	0.00	0.00
9,300.00	90.33	94.22	7,708.81	-134.51	1,824.94	1,829.89	0.00	0.00	0.00	0.00
9,400.00	90.33	94.22	7,708.23	-141.86	1,924.66	1,929.89	0.00	0.00	0.00	0.00
9,500.00	90.33	94.22	7,707.66	-149.21	2,024.39	2,029.88	0.00	0.00	0.00	0.00
<b>Hold Inc 90.33°, Azi 94.22°</b>										
9,600.00	90.33	94.22	7,707.09	-156.56	2,124.12	2,129.88	0.00	0.00	0.00	0.00
9,700.00	90.33	94.22	7,706.51	-163.91	2,223.85	2,229.88	0.00	0.00	0.00	0.00
9,800.00	90.33	94.22	7,705.94	-171.26	2,323.58	2,329.88	0.00	0.00	0.00	0.00
9,900.00	90.33	94.22	7,705.37	-178.61	2,423.30	2,429.88	0.00	0.00	0.00	0.00
10,000.00	90.33	94.22	7,704.79	-185.96	2,523.03	2,529.88	0.00	0.00	0.00	0.00
10,100.00	90.33	94.22	7,704.22	-193.31	2,622.76	2,629.87	0.00	0.00	0.00	0.00
10,200.00	90.33	94.22	7,703.65	-200.66	2,722.49	2,729.87	0.00	0.00	0.00	0.00
10,300.00	90.33	94.22	7,703.07	-208.01	2,822.22	2,829.87	0.00	0.00	0.00	0.00
10,400.00	90.33	94.22	7,702.50	-215.36	2,921.94	2,929.87	0.00	0.00	0.00	0.00
10,500.00	90.33	94.22	7,701.92	-222.71	3,021.67	3,029.87	0.00	0.00	0.00	0.00
10,600.00	90.33	94.22	7,701.35	-230.06	3,121.40	3,129.87	0.00	0.00	0.00	0.00
10,700.00	90.33	94.22	7,700.78	-237.41	3,221.13	3,229.86	0.00	0.00	0.00	0.00

## Plan Report for Tebo 33-1H - Plan A Rev 0 (Lateral)

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
10,800.00	90.33	94.22	7,700.20	-244.76	3,320.85	3,329.86	0.00	0.00	0.00	0.00
10,900.00	90.33	94.22	7,699.63	-252.11	3,420.58	3,429.86	0.00	0.00	0.00	0.00
11,000.00	90.33	94.22	7,699.06	-259.46	3,520.31	3,529.86	0.00	0.00	0.00	0.00
11,009.82	90.33	94.22	7,699.00	-260.18	3,530.10	3,539.68	0.00	0.00	0.00	0.00
<b>Begin Build 11009.82 ft - Tebo 33-1H_PAR0 WP1 Tgt</b>										
11,030.00	90.73	94.23	7,698.81	-261.67	3,550.23	3,559.86	2.00	2.00	0.07	2.13
<b>Build Rate 2.00 °/100 ft</b>										
11,061.95	91.37	94.25	7,698.23	-264.03	3,582.09	3,591.80	2.00	2.00	0.07	2.13
<b>End Build 11061.95 ft</b>										
11,100.00	91.37	94.25	7,697.32	-266.85	3,620.02	3,629.84	0.00	0.00	0.00	0.00
11,200.00	91.37	94.25	7,694.92	-274.27	3,719.72	3,729.81	0.00	0.00	0.00	0.00
11,300.00	91.37	94.25	7,692.53	-281.69	3,819.41	3,829.78	0.00	0.00	0.00	0.00
11,400.00	91.37	94.25	7,690.14	-289.10	3,919.11	3,929.76	0.00	0.00	0.00	0.00
<b>Hold Inc 91.37°, Azi 94.25°</b>										
11,500.00	91.37	94.25	7,687.75	-296.52	4,018.80	4,029.73	0.00	0.00	0.00	0.00
11,600.00	91.37	94.25	7,685.36	-303.93	4,118.50	4,129.70	0.00	0.00	0.00	0.00
11,700.00	91.37	94.25	7,682.97	-311.35	4,218.19	4,229.67	0.00	0.00	0.00	0.00
11,800.00	91.37	94.25	7,680.57	-318.77	4,317.89	4,329.64	0.00	0.00	0.00	0.00
11,823.96	91.37	94.25	7,680.00	-320.54	4,341.78	4,353.59	0.00	0.00	0.00	0.00
<b>Total Depth 11823.96 ft - Tebo 33-1H_PAR0 BHL Tgt</b>										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,800.00	6,800.00	0.00	0.00	Tie-On to Pilot Hole @ 6800.00 ft
7,143.05	7,143.05	0.00	0.00	Kick Off Point 7143.05 ft
7,600.00	7,553.08	-12.70	172.29	Build Rate 10.00 °/100 ft
8,046.34	7,716.00	-42.36	574.69	End Build 8046.34 ft
9,500.00	7,707.66	-149.21	2,024.39	Hold Inc 90.33°, Azi 94.22°
11,009.82	7,699.00	-260.18	3,530.10	Begin Build 11009.82 ft
11,030.00	7,698.81	-261.67	3,550.23	Build Rate 2.00 °/100 ft
11,061.95	7,698.23	-264.03	3,582.09	End Build 11061.95 ft
11,400.00	7,690.14	-289.10	3,919.11	Hold Inc 91.37°, Azi 94.25°
11,823.96	7,680.00	-320.54	4,341.78	Total Depth 11823.96 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (ft)	+E/-W (ft)	Start TVD (ft)
Target	Tebo 33-1H_PAR0 BHL Tgt	94.22	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
6,800.00	11,823.96	Plan A Rev 0 (Lateral)	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
8,046.34	7,716.00	7" Casing Pt.	7	8-3/4

## Plan Report for Tebo 33-1H - Plan A Rev 0 (Lateral)

### Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,812.00	Fox Hills Aquifer			
	1,962.00	Pierre Shale (base of Fox Hills)			
	7,750.00	Niobrara D Chalk			
	7,875.00	Ft. hays Limestone			
	7,905.00	Carlisle Shale			
	7,997.00	Greenhorn			
7,367.71	7,362.00	Sharon Springs			
7,432.11	7,420.00	Niobrara			
7,550.48	7,517.00	Niobrara B			
7,844.65	7,682.00	Niobrara C Chalk			
7,941.32	7,707.00	Target Horizon			

### *Targets associated with this wellbore*

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Tebo 33-1H_PAR0 SB	0.00	0.00	0.00	Polygon
Tebo 33-1H_PAR0 WP1 Tgt	7,699.00	-260.18	3,530.10	Point
Tebo 33-1H_PAR0 SL	0.00	0.00	0.00	Polygon
Tebo 33-1H_PAR0 BHL Tgt	7,680.00	-320.54	4,341.78	Point

## North Reference Sheet for Sec. 33-T4S-R64W - Tebo 33-1H - 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 RKB 24 ft @ 5862.00ft (H&P 280). Northing and Easting are relative to Tebo 33-1H  
Coordinate System is US State Plane 1983, Colorado Central 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:39° 45' 0.000 N°  
False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99998253

Grid Coordinates of Well: 1,664,695.27 ft N, 3,263,310.35 ft E  
Geographical Coordinates of Well: 39° 39' 16.79" N, 104° 33' 53.33" W  
Grid Convergence at Surface is: 0.59°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,823.96ft  
the Bottom Hole Displacement is 4,353.59ft in the Direction of 94.22° (True).

Magnetic Convergence at surface is: -7.94° (28 February 2013, , BGGM2012)

