

# Conoco Phillips Company

Arapahoe County, Colorado

Sec. 6-T4S-R63W

Converse Family #6-1H

Plan B

Plan: Plan B Rev 0 (Lateral)

## Sperry Drilling Services

# Proposal Report

29 December, 2012

Well Coordinates: 1,692,005.67 N, 3,289,106.26 E (39° 43' 43.93" N, 104° 28' 19.58" W)

Ground Level: 5,602.00 ft

Local Coordinate Origin: Centered on Well Converse Family #6-1H

Viewing Datum: RKB 24 ft @ 5626.00ft (H&P 280)

TVDs to System: N

North Reference: True

Unit System: API - US Survey Feet - Custom

Version: 2003.16 Build: 43I

**HALLIBURTON**

Project: Arapahoe County, Colorado  
Site: Sec. 6-T4S-R63W  
Well: Converse Family #6-1H  
Wellbore: Plan B  
Design: Plan B Rev 0 (Lateral)

# Conoco Phillips Company

**HALLIBURTON**  
Sperry Drilling

WELL DETAILS: Converse Family #6-1H

Ground Level: 5602.00 Northing: 1692005.67 Easting: 3289106.26 Latitude: 39° 43' 43.928 N Longitude: 104° 28' 19.582 W

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	6500.00	0.00	0.00	6500.00	0.00	0.00	0.00	0.00	0.00	
2	6687.07	0.00	0.00	6687.07	0.00	0.00	0.00	0.00	0.00	
3	7581.71	89.46	270.16	7260.00	1.55	-567.59	10.00	270.16	567.59	
4	11286.80	89.46	270.16	7294.69	11.68	-4272.51	0.00	0.00	4272.53	Converse Family 6-1H PBR0 BHL Tgt

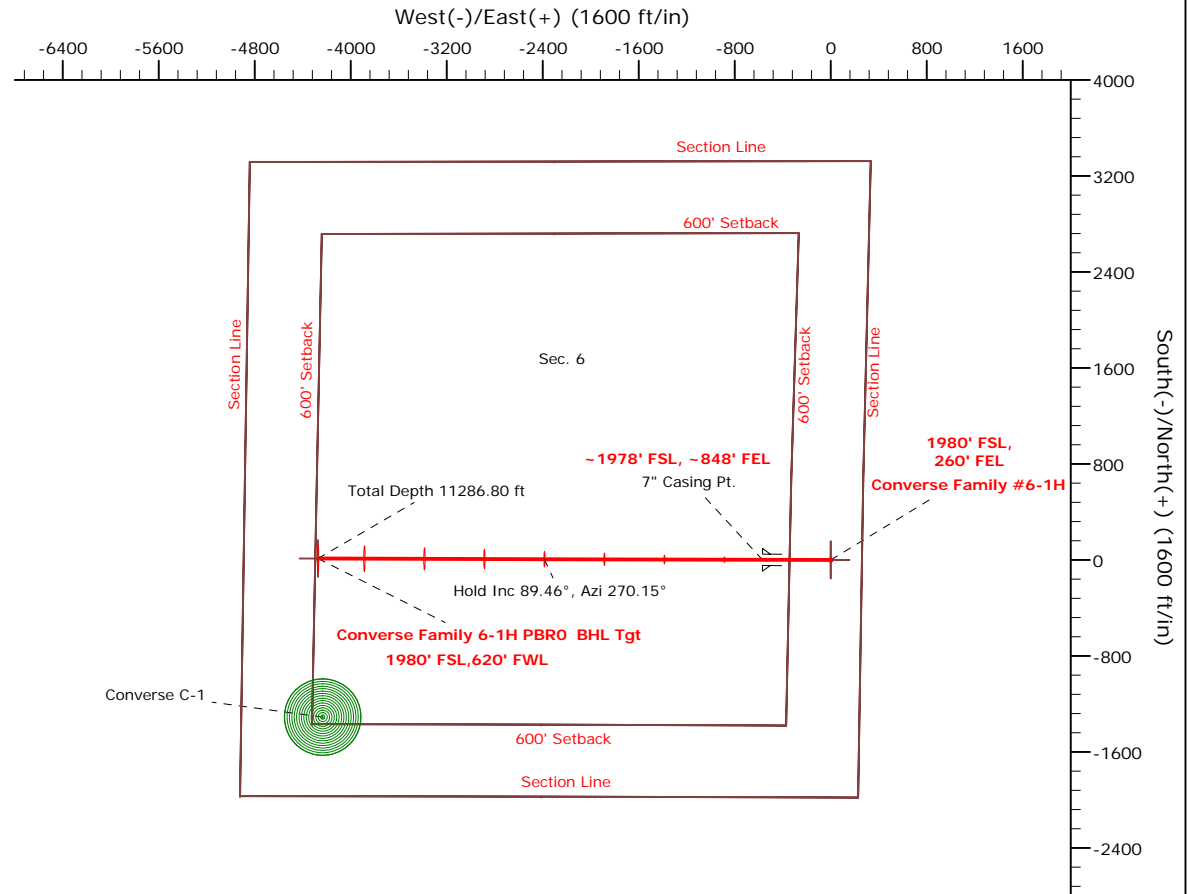
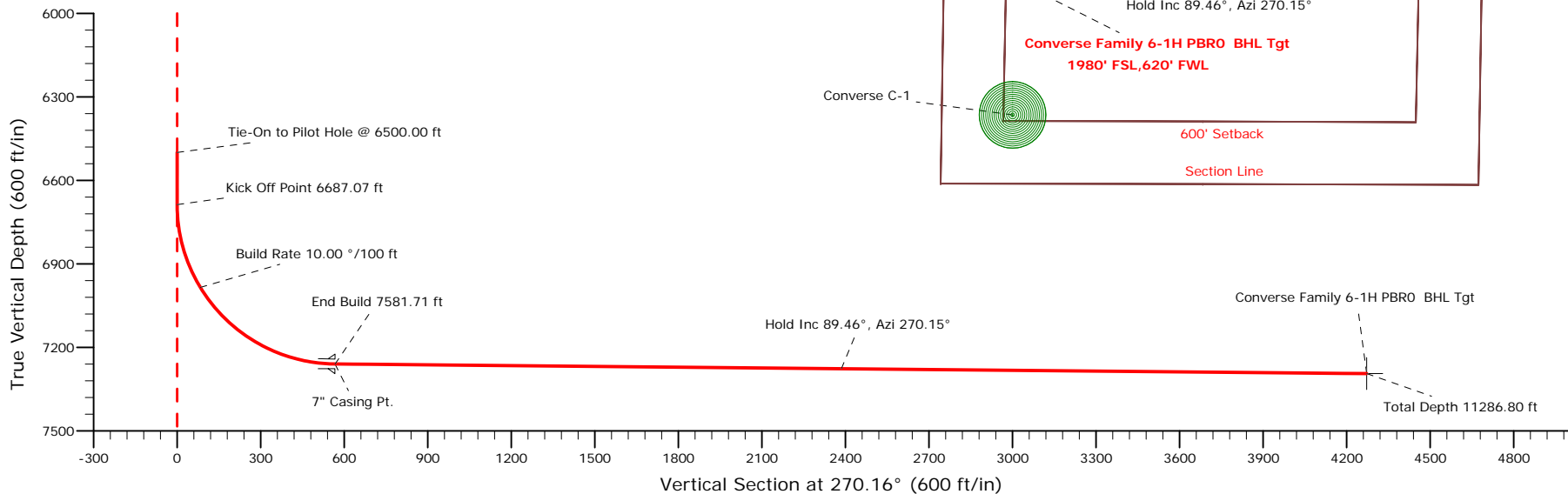
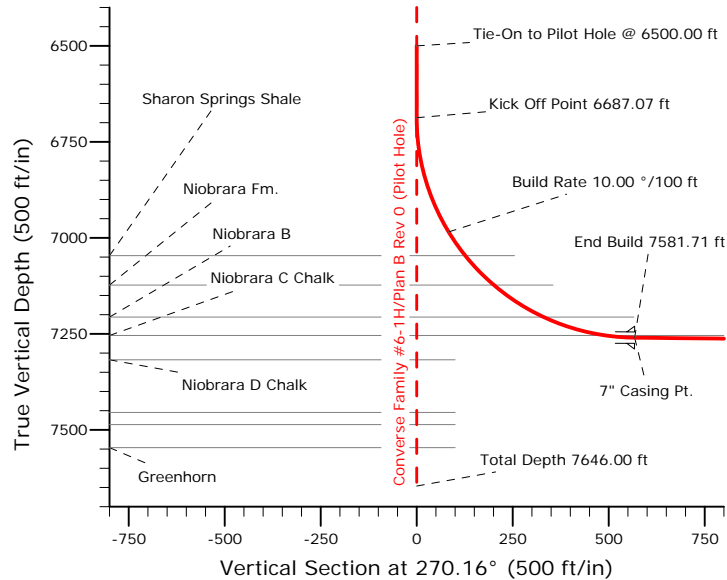
Plan: Plan B Rev 0 (Lateral) (Converse Family #6-1H/Plan B)

Created By: Matthew R. Epp Date: 12/29/2012

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

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

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



## Plan Report for Converse Family #6-1H - Plan B 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 (°)
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Tie-On to Pilot Hole @ 6500.00 ft</b>										
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,687.07	0.00	0.00	6,687.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Kick Off Point 6687.07 ft</b>										
6,700.00	1.29	270.16	6,700.00	0.00	-0.15	0.15	10.00	10.00	0.00	270.16
6,800.00	11.29	270.16	6,799.27	0.03	-11.09	11.09	10.00	10.00	0.00	0.00
6,900.00	21.29	270.16	6,895.13	0.11	-39.11	39.11	10.00	10.00	0.00	0.00
7,000.00	31.29	270.16	6,984.67	0.23	-83.35	83.35	10.00	10.00	0.00	0.00
<b>Build Rate 10.00 °/100 ft</b>										
7,074.96	38.79	270.16	7,046.00	0.35	-126.36	126.36	10.00	10.00	0.00	0.00
<b>Sharon Springs Shale</b>										
7,100.00	41.29	270.16	7,065.17	0.39	-142.47	142.47	10.00	10.00	0.00	0.00
7,182.45	49.54	270.16	7,123.00	0.55	-201.14	201.14	10.00	10.00	0.00	0.00
<b>Niobrara Fm.</b>										
7,200.00	51.29	270.16	7,134.18	0.59	-214.66	214.67	10.00	10.00	0.00	0.00
7,300.00	61.29	270.16	7,189.60	0.81	-297.75	297.75	10.00	10.00	0.00	0.00
7,336.25	64.92	270.16	7,206.00	0.90	-330.07	330.07	10.00	10.00	0.00	0.00
<b>Niobrara B</b>										
7,400.00	71.29	270.16	7,229.76	1.06	-389.19	389.19	10.00	10.00	0.00	0.00
7,500.00	81.29	270.16	7,253.42	1.33	-486.22	486.22	10.00	10.00	0.00	0.00
7,503.89	81.68	270.16	7,254.00	1.34	-490.06	490.07	10.00	10.00	0.00	0.00
<b>Niobrara C Chalk</b>										
7,581.71	89.46	270.16	7,260.00	1.55	-567.60	567.60	10.00	10.00	0.00	0.00
<b>End Build 7581.71 ft - 7" Casing Pt.</b>										
7,600.00	89.46	270.16	7,260.17	1.60	-585.88	585.89	0.00	0.00	0.00	0.00
7,700.00	89.46	270.16	7,261.11	1.88	-685.88	685.88	0.00	0.00	0.00	0.00
7,800.00	89.46	270.16	7,262.05	2.15	-785.88	785.88	0.00	0.00	0.00	0.00
7,900.00	89.46	270.16	7,262.98	2.42	-885.87	885.87	0.00	0.00	0.00	0.00
8,000.00	89.46	270.16	7,263.92	2.70	-985.87	985.87	0.00	0.00	0.00	0.00
8,100.00	89.46	270.16	7,264.85	2.97	-1,085.86	1,085.87	0.00	0.00	0.00	0.00
8,200.00	89.46	270.16	7,265.79	3.24	-1,185.86	1,185.86	0.00	0.00	0.00	0.00
8,300.00	89.46	270.16	7,266.73	3.52	-1,285.85	1,285.86	0.00	0.00	0.00	0.00
8,400.00	89.46	270.16	7,267.66	3.79	-1,385.85	1,385.85	0.00	0.00	0.00	0.00
8,500.00	89.46	270.16	7,268.60	4.06	-1,485.84	1,485.85	0.00	0.00	0.00	0.00
8,600.00	89.46	270.16	7,269.54	4.34	-1,585.84	1,585.84	0.00	0.00	0.00	0.00
8,700.00	89.46	270.16	7,270.47	4.61	-1,685.83	1,685.84	0.00	0.00	0.00	0.00
8,800.00	89.46	270.16	7,271.41	4.88	-1,785.83	1,785.83	0.00	0.00	0.00	0.00
8,900.00	89.46	270.16	7,272.34	5.16	-1,885.82	1,885.83	0.00	0.00	0.00	0.00
9,000.00	89.46	270.16	7,273.28	5.43	-1,985.82	1,985.83	0.00	0.00	0.00	0.00
9,100.00	89.46	270.16	7,274.22	5.70	-2,085.81	2,085.82	0.00	0.00	0.00	0.00
9,200.00	89.46	270.16	7,275.15	5.98	-2,185.81	2,185.82	0.00	0.00	0.00	0.00
9,300.00	89.46	270.16	7,276.09	6.25	-2,285.80	2,285.81	0.00	0.00	0.00	0.00
9,400.00	89.46	270.16	7,277.03	6.52	-2,385.80	2,385.81	0.00	0.00	0.00	0.00
<b>Hold Inc 89.46°, Azi 270.15°</b>										
9,500.00	89.46	270.16	7,277.96	6.80	-2,485.79	2,485.80	0.00	0.00	0.00	0.00
9,600.00	89.46	270.16	7,278.90	7.07	-2,585.79	2,585.80	0.00	0.00	0.00	0.00
9,700.00	89.46	270.16	7,279.83	7.34	-2,685.78	2,685.80	0.00	0.00	0.00	0.00
9,800.00	89.46	270.16	7,280.77	7.62	-2,785.78	2,785.79	0.00	0.00	0.00	0.00
9,900.00	89.46	270.16	7,281.71	7.89	-2,885.78	2,885.79	0.00	0.00	0.00	0.00
10,000.00	89.46	270.16	7,282.64	8.16	-2,985.77	2,985.78	0.00	0.00	0.00	0.00
10,100.00	89.46	270.16	7,283.58	8.44	-3,085.77	3,085.78	0.00	0.00	0.00	0.00
10,200.00	89.46	270.16	7,284.52	8.71	-3,185.76	3,185.77	0.00	0.00	0.00	0.00
10,300.00	89.46	270.16	7,285.45	8.98	-3,285.76	3,285.77	0.00	0.00	0.00	0.00
10,400.00	89.46	270.16	7,286.39	9.26	-3,385.75	3,385.76	0.00	0.00	0.00	0.00
10,500.00	89.46	270.16	7,287.32	9.53	-3,485.75	3,485.76	0.00	0.00	0.00	0.00
10,600.00	89.46	270.16	7,288.26	9.80	-3,585.74	3,585.76	0.00	0.00	0.00	0.00
10,700.00	89.46	270.16	7,289.20	10.08	-3,685.74	3,685.75	0.00	0.00	0.00	0.00

## Plan Report for Converse Family #6-1H - Plan B 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	89.46	270.16	7,290.13	10.35	-3,785.73	3,785.75	0.00	0.00	0.00	0.00
10,900.00	89.46	270.16	7,291.07	10.62	-3,885.73	3,885.74	0.00	0.00	0.00	0.00
11,000.00	89.46	270.16	7,292.00	10.90	-3,985.72	3,985.74	0.00	0.00	0.00	0.00
11,100.00	89.46	270.16	7,292.94	11.17	-4,085.72	4,085.73	0.00	0.00	0.00	0.00
11,200.00	89.46	270.16	7,293.88	11.44	-4,185.71	4,185.73	0.00	0.00	0.00	0.00
11,286.80	89.46	270.16	7,294.69	11.68	-4,272.51	4,272.53	0.00	0.00	0.00	0.00
Total Depth 11286.80 ft - Converse Family 6-1H PBR0 BHL Tgt										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,500.00	6,500.00	0.00	0.00	Tie-On to Pilot Hole @ 6500.00 ft
6,687.07	6,687.07	0.00	0.00	Kick Off Point 6687.07 ft
7,000.00	6,984.67	0.23	-83.35	Build Rate 10.00 °/100 ft
7,581.71	7,260.00	1.55	-567.59	End Build 7581.71 ft
9,400.00	7,277.03	6.52	-2,385.80	Hold Inc 89.46°, Azi 270.15°
11,286.80	7,294.69	11.68	-4,272.51	Total Depth 11286.80 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (ft)	+E/-W (ft)	Start TVD (ft)
Target	Converse Family 6-1H PBR0 BHL Tgt	270.16	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
6,500.00	11,286.80	Plan B Rev 0 (Lateral)	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,581.71	7,260.00	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,460.00	Fox Hills Aquifer			
	1,610.00	Pierre Shale (Base Fox Hills)			
	7,318.00	Niobrara D Chalk			
	7,455.00	Fort Hays Limestone			
	7,486.00	Carlisle Shale			
	7,546.00	Greenhorn			
7,074.96	7,046.00	Sharon Springs Shale			
7,182.45	7,123.00	Niobrara Fm.			
7,336.25	7,206.00	Niobrara B			
7,503.89	7,254.00	Niobrara C Chalk			

**Plan Report for Converse Family #6-1H - Plan B Rev 0 (Lateral)**

*Targets associated with this wellbore*

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Converse Family 6-1H PBR0 BHL Tgt	7,294.69	11.68	-4,272.51	Point
Converse Family 6-1H SL	0.00	0.00	0.00	Polygon
Converse Family 6-1H SB	0.00	0.00	0.00	Polygon

## North Reference Sheet for Sec. 6-T4S-R63W - Converse Family #6-1H - Plan B

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 @ 5626.00ft (H&P 280). Northing and Easting are relative to Converse Family #6-1H

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: 0.99999589

Grid Coordinates of Well: 1,692,005.67 ft N, 3,289,106.26 ft E

Geographical Coordinates of Well: 39° 43' 43.93" N, 104° 28' 19.58" W

Grid Convergence at Surface is: 0.65°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,286.80ft  
the Bottom Hole Displacement is 4,272.53ft in the Direction of 270.16° (True).

Magnetic Convergence at surface is: -7.86° (20 December 2012, , BGGM2012)

