

Conoco Phillips Company

Adams County, Colorado

Sec. 36-T3S-R64W

State of Colorado 36-1H

Plan A

Plan: Plan A Rev 0 (Lateral)

Sperry Drilling Services

Proposal Report

26 July, 2012

Well Coordinates: 1,150,999.01 N, 3,283,980.65 E (39° 44' 36.31" N, 104° 29' 24.42" W)

Ground Level: 5,556.00 ft

Local Coordinate Origin:

Centered on Well State of Colorado 36-1H

Viewing Datum:

RKB 24 ft @ 5580.00ft (H&P 280)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Version: 2003.16 Build: 431

HALLIBURTON

Project: Adams County, Colorado
Site: Sec. 36-T3S-R64W
Well: State of Colorado 36-1H
Wellbore: Plan A
Design: Plan A Rev 0 (Lateral)

Conoco Phillips Company

HALLIBURTON
Sperry Drilling

WELL DETAILS: State of Colorado 36-1H

Ground Level: 5556.00 Northing: 1150999.01 Easting: 3283980.65 Latitude: 39° 44' 36.308 N Longitude: 104° 29' 24.421 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	6748.04	0.00	0.00	6748.04	0.00	0.00	0.00	0.00	0.00	
3	7648.04	90.00	271.17	7321.00	11.71	-572.84	10.00	271.17	572.96	
4	11658.02	90.00	271.17	7321.00	93.68	-4581.98	0.00	0.00	4582.94	State of Colorado 36-1H BHL Tgt

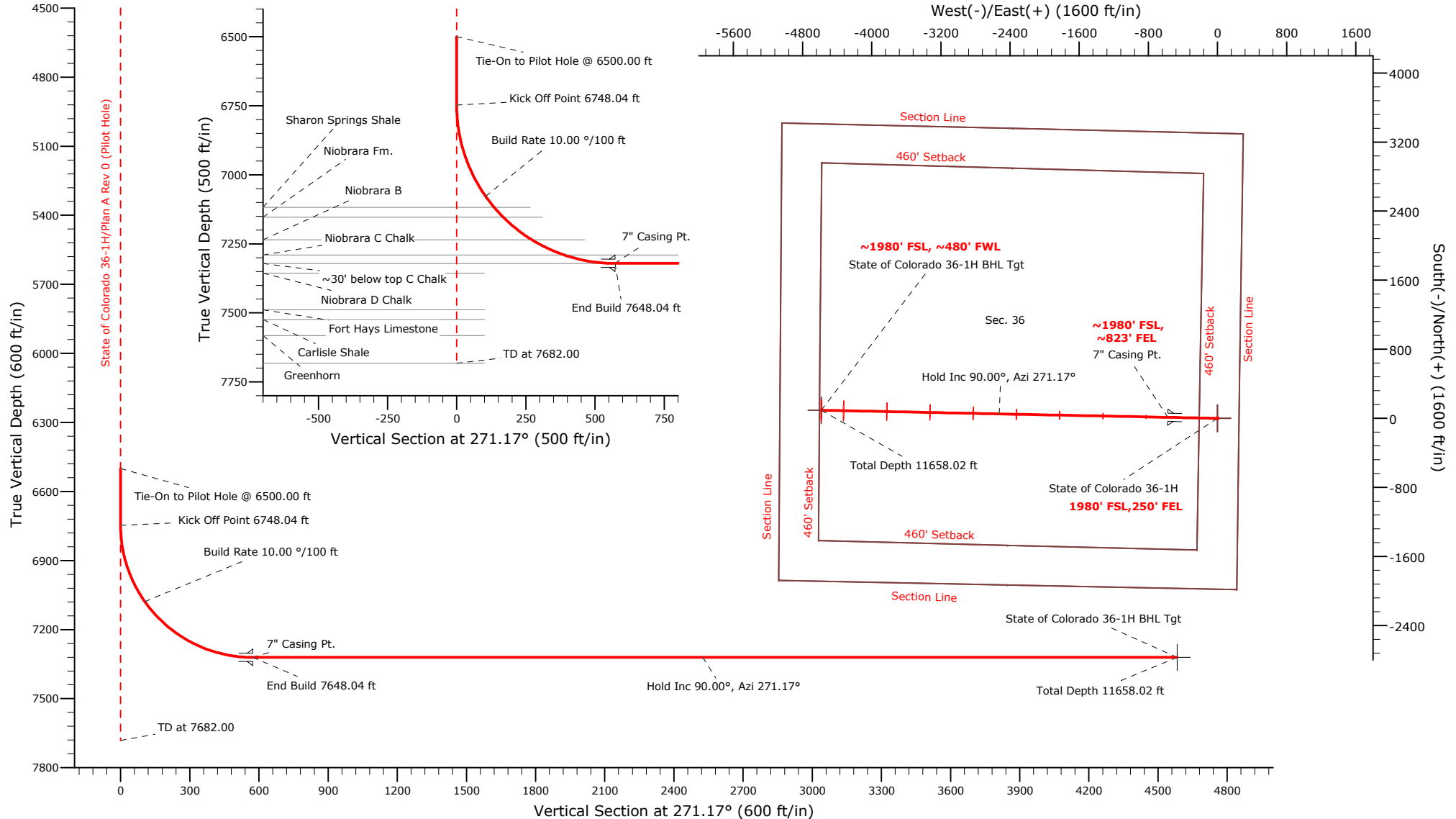
Plan: Plan A Rev 0 (Lateral) (State of Colorado 36-1H/Plan A)

Created By: Matthew R. Epp Date: 07-26-2012

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____



Plan Report for State of Colorado 36-1H - 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 (°)
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tie-On to Pilot Hole @ 6500.00 ft										
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,748.04	0.00	0.00	6,748.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kick Off Point 6748.04 ft										
6,800.00	5.20	271.17	6,799.93	0.05	-2.35	2.35	10.00	10.00	0.00	271.17
6,900.00	15.20	271.17	6,898.22	0.41	-20.03	20.03	10.00	10.00	0.00	0.00
7,000.00	25.20	271.17	6,991.96	1.11	-54.50	54.51	10.00	10.00	0.00	0.00
7,100.00	35.20	271.17	7,078.28	2.14	-104.72	104.75	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
7,150.22	40.20	271.17	7,118.00	2.77	-135.42	135.45	9.96	9.96	0.00	0.00
Sharon Springs Shale										
7,199.20	45.12	271.17	7,154.00	3.45	-168.60	168.63	10.05	10.05	0.00	0.00
Niobrara Fm.										
7,200.00	45.20	271.17	7,154.57	3.46	-169.17	169.20	10.00	10.00	0.00	0.00
7,300.00	55.20	271.17	7,218.50	5.03	-245.88	245.93	10.00	10.00	0.00	0.00
7,331.96	58.39	271.17	7,236.00	5.57	-272.61	272.67	10.00	10.00	0.00	0.00
Niobrara B										
7,400.00	65.20	271.17	7,268.14	6.80	-332.52	332.59	10.00	10.00	0.00	0.00
7,461.82	71.38	271.17	7,291.00	7.97	-389.91	390.00	10.00	10.00	0.00	0.00
Niobrara C Chalk										
7,500.00	75.20	271.17	7,301.98	8.72	-426.47	426.56	10.00	10.00	0.00	0.00
7,600.00	85.20	271.17	7,318.99	10.73	-524.86	524.97	10.00	10.00	0.00	0.00
7,648.04	90.00	271.17	7,321.00	11.71	-572.84	572.96	10.00	10.00	0.00	0.00
End Build 7648.04 ft - ~30' below top C Chalk - 7" Casing Pt.										
7,700.00	90.00	271.17	7,321.00	12.77	-624.79	624.92	0.00	0.00	0.00	0.00
7,800.00	90.00	271.17	7,321.00	14.82	-724.77	724.92	0.00	0.00	0.00	0.00
7,900.00	90.00	271.17	7,321.00	16.86	-824.75	824.92	0.00	0.00	0.00	0.00
8,000.00	90.00	271.17	7,321.00	18.91	-924.72	924.92	0.00	0.00	0.00	0.00
8,100.00	90.00	271.17	7,321.00	20.95	-1,024.70	1,024.92	0.00	0.00	0.00	0.00
8,200.00	90.00	271.17	7,321.00	23.00	-1,124.68	1,124.92	0.00	0.00	0.00	0.00
8,300.00	90.00	271.17	7,321.00	25.04	-1,224.66	1,224.92	0.00	0.00	0.00	0.00
8,400.00	90.00	271.17	7,321.00	27.08	-1,324.64	1,324.92	0.00	0.00	0.00	0.00
8,500.00	90.00	271.17	7,321.00	29.13	-1,424.62	1,424.92	0.00	0.00	0.00	0.00
8,600.00	90.00	271.17	7,321.00	31.17	-1,524.60	1,524.92	0.00	0.00	0.00	0.00
8,700.00	90.00	271.17	7,321.00	33.22	-1,624.58	1,624.92	0.00	0.00	0.00	0.00
8,800.00	90.00	271.17	7,321.00	35.26	-1,724.56	1,724.92	0.00	0.00	0.00	0.00
8,900.00	90.00	271.17	7,321.00	37.30	-1,824.54	1,824.92	0.00	0.00	0.00	0.00
9,000.00	90.00	271.17	7,321.00	39.35	-1,924.52	1,924.92	0.00	0.00	0.00	0.00
9,100.00	90.00	271.17	7,321.00	41.39	-2,024.49	2,024.92	0.00	0.00	0.00	0.00
9,200.00	90.00	271.17	7,321.00	43.44	-2,124.47	2,124.92	0.00	0.00	0.00	0.00
9,300.00	90.00	271.17	7,321.00	45.48	-2,224.45	2,224.92	0.00	0.00	0.00	0.00
9,400.00	90.00	271.17	7,321.00	47.52	-2,324.43	2,324.92	0.00	0.00	0.00	0.00
9,500.00	90.00	271.17	7,321.00	49.57	-2,424.41	2,424.92	0.00	0.00	0.00	0.00
9,600.00	90.00	271.17	7,321.00	51.61	-2,524.39	2,524.92	0.00	0.00	0.00	0.00
Hold Inc 90.00°, Azi 271.17°										
9,700.00	90.00	271.17	7,321.00	53.66	-2,624.37	2,624.92	0.00	0.00	0.00	0.00
9,800.00	90.00	271.17	7,321.00	55.70	-2,724.35	2,724.92	0.00	0.00	0.00	0.00
9,900.00	90.00	271.17	7,321.00	57.75	-2,824.33	2,824.92	0.00	0.00	0.00	0.00
10,000.00	90.00	271.17	7,321.00	59.79	-2,924.31	2,924.92	0.00	0.00	0.00	0.00
10,100.00	90.00	271.17	7,321.00	61.83	-3,024.29	3,024.92	0.00	0.00	0.00	0.00
10,200.00	90.00	271.17	7,321.00	63.88	-3,124.26	3,124.92	0.00	0.00	0.00	0.00
10,300.00	90.00	271.17	7,321.00	65.92	-3,224.24	3,224.92	0.00	0.00	0.00	0.00
10,400.00	90.00	271.17	7,321.00	67.97	-3,324.22	3,324.92	0.00	0.00	0.00	0.00
10,500.00	90.00	271.17	7,321.00	70.01	-3,424.20	3,424.92	0.00	0.00	0.00	0.00
10,600.00	90.00	271.17	7,321.00	72.05	-3,524.18	3,524.92	0.00	0.00	0.00	0.00
10,700.00	90.00	271.17	7,321.00	74.10	-3,624.16	3,624.92	0.00	0.00	0.00	0.00

Plan Report for State of Colorado 36-1H - 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	90.00	271.17	7,321.00	76.14	-3,724.14	3,724.92	0.00	0.00	0.00	0.00
10,900.00	90.00	271.17	7,321.00	78.19	-3,824.12	3,824.92	0.00	0.00	0.00	0.00
11,000.00	90.00	271.17	7,321.00	80.23	-3,924.10	3,924.92	0.00	0.00	0.00	0.00
11,100.00	90.00	271.17	7,321.00	82.28	-4,024.08	4,024.92	0.00	0.00	0.00	0.00
11,200.00	90.00	271.17	7,321.00	84.32	-4,124.06	4,124.92	0.00	0.00	0.00	0.00
11,300.00	90.00	271.17	7,321.00	86.36	-4,224.03	4,224.92	0.00	0.00	0.00	0.00
11,400.00	90.00	271.17	7,321.00	88.41	-4,324.01	4,324.92	0.00	0.00	0.00	0.00
11,500.00	90.00	271.17	7,321.00	90.45	-4,423.99	4,424.92	0.00	0.00	0.00	0.00
11,600.00	90.00	271.17	7,321.00	92.50	-4,523.97	4,524.92	0.00	0.00	0.00	0.00
11,658.02	90.00	271.17	7,321.00	93.68	-4,581.98	4,582.94	0.00	0.00	0.00	0.00
Total Depth 11658.02 ft - State of Colorado 36-1H 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
6,748.04	6,748.04	0.00	0.00	Kick Off Point 6748.04 ft
7,100.00	7,078.28	2.14	-104.72	Build Rate 10.00 °/100 ft
7,648.04	7,321.00	11.71	-572.84	End Build 7648.04 ft
9,600.00	7,321.00	51.61	-2,524.39	Hold Inc 90.00°, Azi 271.17°
11,658.02	7,321.00	93.68	-4,581.98	Total Depth 11658.02 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
TD	No Target (Freehand)	271.17	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
6,500.00	11,658.02	Plan A Rev 0 (Lateral)	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,648.04	7,321.00	7" Casing Pt.	7	8-3/4

Plan Report for State of Colorado 36-1H - Plan A Rev 0 (Lateral)

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,482.00	Fox Hills Aquifer			
	1,620.00	Pierre Shale (Base Fox Hills)			
	1,820.00	Surface Casing Point			
	7,356.00	Niobrara D Chalk			
	7,489.00	Fort Hays Limestone			
	7,524.00	Carlisle Shale			
	7,582.00	Greenhorn			
	7,682.00	Pilot Hole TD			
7,150.22	7,118.00	Sharon Springs Shale			
7,199.20	7,154.00	Niobrara Fm.			
7,331.96	7,236.00	Niobrara B			
7,461.82	7,291.00	Niobrara C Chalk			
7,648.04	7,321.00	~30' below top C Chalk			

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
State of Colorado 36-1H SL	0.00	0.00	0.00	Polygon
State of Colorado 36-1H BHL Tgt	7,321.00	93.68	-4,581.98	Point
State of Colorado 36-1H SB	0.00	0.00	0.00	Polygon

North Reference Sheet for Sec. 36-T3S-R64W - State of Colorado 36-1H - 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 @ 5580.00ft (H&P 280). Northing and Easting are relative to State of Colorado 36-1H
 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: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99999579

Grid Coordinates of Well: 1,150,999.01 ft N, 3,283,980.65 ft E
 Geographical Coordinates of Well: 39° 44' 36.31" N, 104° 29' 24.42" W
 Grid Convergence at Surface is: 0.65°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,658.02ft
 the Bottom Hole Displacement is 4,582.94ft in the Direction of 271.17° (True).
 Magnetic Convergence at surface is: -7.91° (26 July 2012, , BGGM2012)

