



ConocoPhillips  
Adams County, Colorado  
Big Sandy 3-65 36-31 1DH  
Design A

Casing Depths

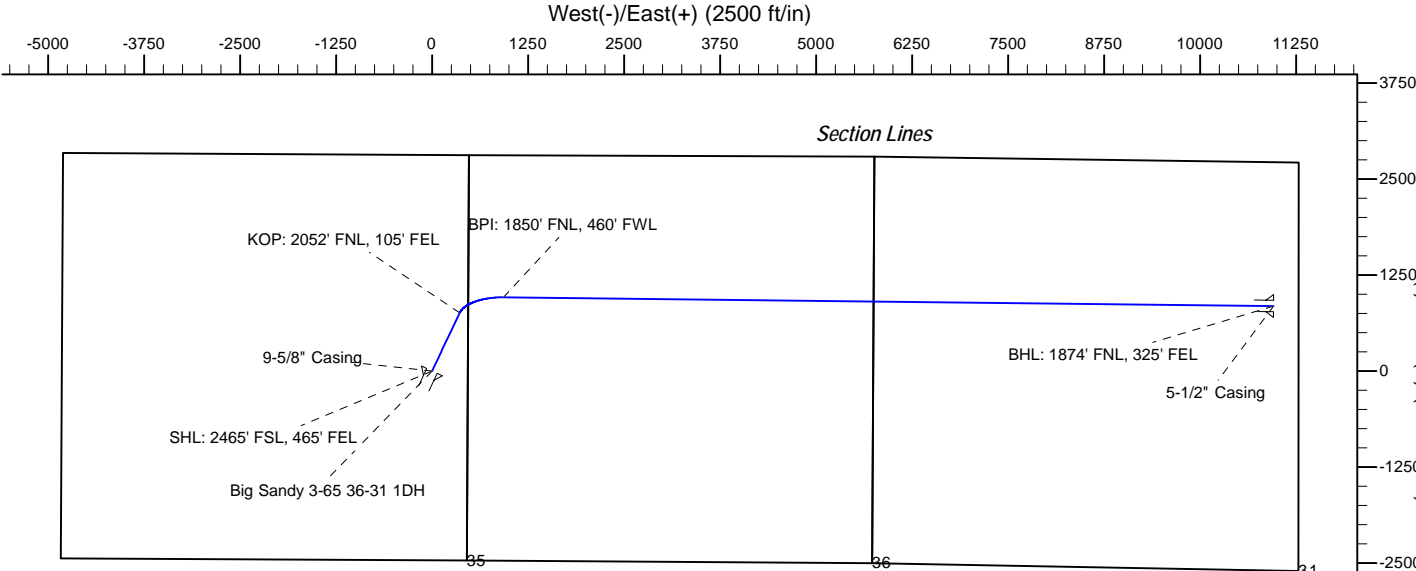
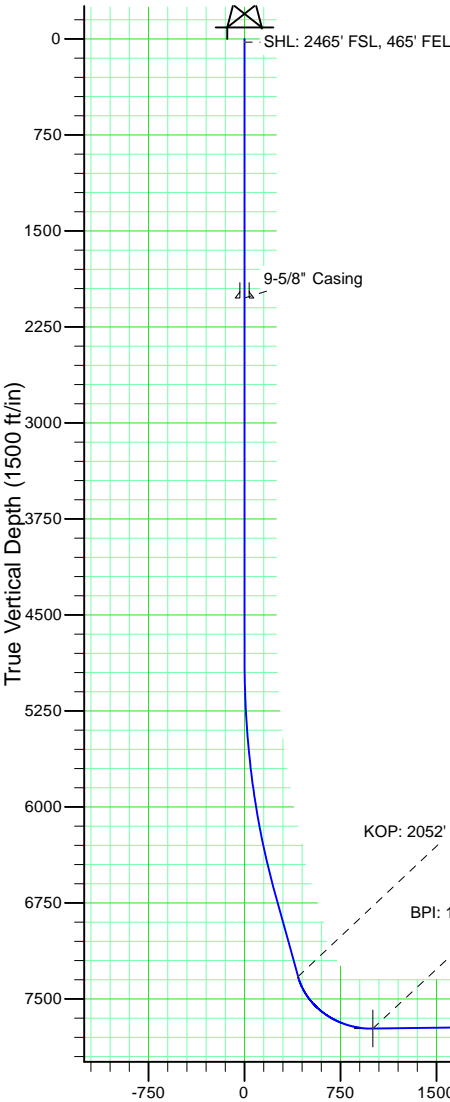
TVD	MD	Name	Size
2024.00	2024.00	9-5/8" Casing	9-5/8
7598.00	18321.33	5-1/2" Casing	5-1/2

Ground Level: 5523.90  
Surface Location Latitude: 39° 44' 47.680 N  
Surface Location Longitude: 104° 37' 24.570 W  
North Reference: True  
25' RKB @ 5548.90ft (25' RKB)

Well Profile Data

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4864.50	0.00	0.00	4864.50	0.00	0.00	0.00	0.00
6714.05	29.00	25.38	6636.07	413.98	196.43	1.57	227.71
7502.19	29.00	25.38	7325.37	759.22	360.25	0.00	417.62
8292.00	90.77	90.66	7732.00	960.65	930.47	10.00	1001.65
18321.33	90.77	90.66	7598.00	845.98	10958.24	0.00	10990.85

North American Datum 1983  
GRS 1980  
US State Plane 1983  
Colorado Northern Zone



Wellbore Targets

Name	TVD	Latitude	Longitude
Big Sandy 3-65 36-31 1DH BHL	7598.00	39° 44' 56.017 N	104° 35' 4.273 W
Big Sandy 3-65 36-31 1DH BPI	7732.00	39° 44' 57.173 N	104° 37' 12.657 W

# **ConocoPhillips RBU Gold Data**

**Niobrara North Zone**

**Big Sandy**

**Big Sandy 3-65 36-31 1DH**

**Big Sandy 3-65 36-31 1DH**

**Plan: Design A**

## **Standard Planning Report**

**19 December, 2017**

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Big Sandy 3-65 36-31 1DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

<b>Project</b>	Niobrara North Zone, Colorado North Zone, FIPS Zone: 0501		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Big Sandy			
Site Position: From: Position Uncertainty:	Lat/Long	Northing:	1,154,567.170 usft	Latitude:	39° 45' 15.469 N
		Easting:	3,246,918.586 usft	Longitude:	104° 37' 18.412 W
		Slot Radius:	26 "	Grid Convergence:	0.57 °

Well	Big Sandy 3-65 36-31 1DH					
Well Position	+N/-S	-2,811.91 ft	Northing:	1,151,750.658 usft	Latitude:	39° 44' 47.680 N
	+E/-W	-481.03 ft	Easting:	3,246,465.428 usft	Longitude:	104° 37' 24.570 W
Position Uncertainty		2.00 ft	Wellhead Elevation:		Ground Level:	5,523.90 ft

<b>Wellbore</b>	Big Sandy 3-65 36-31 1DH					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>	
	BGGM2017	7/25/2017	8.26	66.39	52,081.35783224	
	BGGM2017	1/1/2018	8.22	66.37	51,986.10716616	

<b>Design</b>	Design A				
<b>Audit Notes:</b>					
<b>Version:</b>	0	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	85.59	

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<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

Plan Survey Tool Program		Date 12/19/2017			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,024.00	Design A (Big Sandy 3-65 36-31)	Gyro-BM-MS	
			Gyro - bat/mem drop m/s		
2	2,024.00	4,864.50	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	
			MWD + IFR (No SAG) corre		
3	4,864.50	6,714.05	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	
			MWD + IFR (No SAG) corre		
4	6,714.05	7,502.19	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	
			MWD + IFR (No SAG) corre		
5	7,502.19	8,292.00	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	
			MWD + IFR (No SAG) corre		
6	8,292.00	18,321.33	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	
			MWD + IFR (No SAG) corre		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,864.50	0.00	0.00	4,864.50	0.00	0.00	0.00	0.00	0.00	0.00	
6,714.05	29.00	25.38	6,636.07	413.98	196.43	1.57	1.57	0.00	25.38	
7,502.19	29.00	25.38	7,325.37	759.22	360.25	0.00	0.00	0.00	0.00	
8,292.00	90.77	90.66	7,732.00	960.65	930.47	10.00	7.82	8.26	67.71	Big Sandy 3-65 36-
18,321.33	90.77	90.66	7,598.00	845.98	10,958.24	0.00	0.00	0.00	0.00	Big Sandy 3-65 36-

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## Planning Report

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<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

Planned Survey									
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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL: 2465' FSL, 465' FEL									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	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
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,589.00	0.00	0.00	1,589.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Top									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,824.00	0.00	0.00	1,824.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,024.00	0.00	0.00	2,024.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing - 9-5/8" Casing									
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00

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## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Big Sandy 3-65 36-31 1DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

Planned Survey									
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)
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,864.50	0.00	0.00	4,864.50	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.56	25.38	4,900.00	0.16	0.07	0.09	1.57	1.57	0.00
5,000.00	2.12	25.38	4,999.97	2.27	1.08	1.25	1.57	1.57	0.00
5,100.00	3.69	25.38	5,099.84	6.85	3.25	3.77	1.57	1.57	0.00
5,200.00	5.26	25.38	5,199.53	13.91	6.60	7.65	1.57	1.57	0.00
5,300.00	6.83	25.38	5,298.97	23.42	11.11	12.88	1.57	1.57	0.00
5,400.00	8.40	25.38	5,398.09	35.39	16.79	19.47	1.57	1.57	0.00
5,500.00	9.97	25.38	5,496.80	49.80	23.63	27.40	1.57	1.57	0.00
5,600.00	11.53	25.38	5,595.04	66.66	31.63	36.66	1.57	1.57	0.00
5,700.00	13.10	25.38	5,692.74	85.93	40.77	47.27	1.57	1.57	0.00
5,800.00	14.67	25.38	5,789.81	107.61	51.06	59.19	1.57	1.57	0.00
5,900.00	16.24	25.38	5,886.19	131.68	62.48	72.43	1.57	1.57	0.00
6,000.00	17.81	25.38	5,981.81	158.13	75.03	86.98	1.57	1.57	0.00
6,100.00	19.37	25.38	6,076.59	186.93	88.70	102.82	1.57	1.57	0.00
6,200.00	20.94	25.38	6,170.46	218.06	103.47	119.95	1.57	1.57	0.00
6,300.00	22.51	25.38	6,263.35	251.51	119.34	138.34	1.57	1.57	0.00
6,400.00	24.08	25.38	6,355.20	287.23	136.29	158.00	1.57	1.57	0.00
6,500.00	25.65	25.38	6,445.93	325.22	154.32	178.89	1.57	1.57	0.00
6,600.00	27.21	25.38	6,535.47	365.43	173.40	201.01	1.57	1.57	0.00
6,700.00	28.78	25.38	6,623.77	407.84	193.52	224.34	1.57	1.57	0.00
6,714.05	29.00	25.38	6,636.07	413.98	196.43	227.71	1.57	1.57	0.00
6,800.00	29.00	25.38	6,711.24	451.63	214.30	248.42	0.00	0.00	0.00
6,900.00	29.00	25.38	6,798.70	495.43	235.08	272.52	0.00	0.00	0.00
7,000.00	29.00	25.38	6,886.16	539.24	255.87	296.61	0.00	0.00	0.00
7,100.00	29.00	25.38	6,973.61	583.04	276.65	320.71	0.00	0.00	0.00
7,200.00	29.00	25.38	7,061.07	626.85	297.44	344.80	0.00	0.00	0.00
7,300.00	29.00	25.38	7,148.53	670.65	318.22	368.90	0.00	0.00	0.00
7,400.00	29.00	25.38	7,235.99	714.46	339.01	393.00	0.00	0.00	0.00
7,502.19	29.00	25.38	7,325.37	759.22	360.25	417.62	0.00	0.00	0.00
<b>KOP: 2052' FNL, 105' FEL</b>									
7,550.00	31.11	33.97	7,366.77	779.95	372.13	431.05	10.00	4.40	17.96
7,600.00	33.84	41.78	7,408.96	801.05	388.63	449.13	10.00	5.46	15.62
7,650.00	36.99	48.48	7,449.72	821.41	409.18	471.19	10.00	6.31	13.40
7,700.00	40.47	54.23	7,488.74	840.88	433.62	497.06	10.00	6.96	11.49
7,747.63	44.01	58.97	7,524.00	858.46	460.36	525.07	10.00	7.44	9.95
<b>Niobrara Top</b>									
7,750.00	44.20	59.19	7,525.70	859.31	461.77	526.55	10.00	7.65	9.26
7,800.00	48.11	63.51	7,560.34	876.54	493.42	559.42	10.00	7.82	8.64
7,850.00	52.16	67.32	7,592.39	892.47	528.31	595.44	10.00	8.11	7.63
7,900.00	56.33	70.73	7,621.61	906.95	566.19	634.32	10.00	8.33	6.82
7,950.00	60.58	73.82	7,647.77	919.89	606.77	675.78	10.00	8.50	6.18
8,000.00	64.89	76.67	7,670.67	931.19	649.74	719.49	10.00	8.63	5.68
8,050.00	69.26	79.31	7,690.14	940.75	694.77	765.12	10.00	8.73	5.29
8,100.00	73.66	81.81	7,706.04	948.51	741.52	812.33	10.00	8.81	4.99
8,150.00	78.10	84.20	7,718.23	954.40	789.64	860.76	10.00	8.86	4.77
8,169.69	79.85	85.11	7,722.00	956.20	808.88	880.08	10.00	8.89	4.66
<b>D Chalk Top</b>									
8,200.00	82.55	86.51	7,726.64	958.39	838.75	910.03	10.00	8.91	4.59
8,250.00	87.01	88.77	7,731.19	960.44	888.48	959.77	10.00	8.93	4.53
8,292.00	90.77	90.65	7,732.00	960.65	930.47	1,001.65	10.00	8.94	4.49

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## Planning Report

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<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

Planned Survey									
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)
BPI: 1850' FNL, 460' FWL - Big Sandy 3-65 36-31 1DH BPI									
8,300.00	90.77	90.66	7,731.89	960.56	938.46	1,009.61	0.01	0.01	0.00
8,400.00	90.77	90.66	7,730.56	959.41	1,038.45	1,109.21	0.00	0.00	0.00
8,500.00	90.77	90.66	7,729.22	958.27	1,138.43	1,208.81	0.00	0.00	0.00
8,600.00	90.77	90.66	7,727.89	957.13	1,238.42	1,308.41	0.00	0.00	0.00
8,700.00	90.77	90.66	7,726.55	955.98	1,338.40	1,408.01	0.00	0.00	0.00
8,800.00	90.77	90.66	7,725.21	954.84	1,438.39	1,507.61	0.00	0.00	0.00
8,900.00	90.77	90.66	7,723.88	953.70	1,538.37	1,607.21	0.00	0.00	0.00
9,000.00	90.77	90.66	7,722.54	952.55	1,638.36	1,706.81	0.00	0.00	0.00
9,100.00	90.77	90.66	7,721.20	951.41	1,738.34	1,806.41	0.00	0.00	0.00
9,200.00	90.77	90.66	7,719.87	950.27	1,838.32	1,906.01	0.00	0.00	0.00
9,300.00	90.77	90.66	7,718.53	949.12	1,938.31	2,005.61	0.00	0.00	0.00
9,400.00	90.77	90.66	7,717.20	947.98	2,038.29	2,105.21	0.00	0.00	0.00
9,500.00	90.77	90.66	7,715.86	946.84	2,138.28	2,204.81	0.00	0.00	0.00
9,600.00	90.77	90.66	7,714.52	945.69	2,238.26	2,304.41	0.00	0.00	0.00
9,700.00	90.77	90.66	7,713.19	944.55	2,338.25	2,404.01	0.00	0.00	0.00
9,800.00	90.77	90.66	7,711.85	943.41	2,438.23	2,503.61	0.00	0.00	0.00
9,900.00	90.77	90.66	7,710.52	942.26	2,538.22	2,603.21	0.00	0.00	0.00
10,000.00	90.77	90.66	7,709.18	941.12	2,638.20	2,702.81	0.00	0.00	0.00
10,100.00	90.77	90.66	7,707.84	939.98	2,738.18	2,802.41	0.00	0.00	0.00
10,200.00	90.77	90.66	7,706.51	938.83	2,838.17	2,902.01	0.00	0.00	0.00
10,300.00	90.77	90.66	7,705.17	937.69	2,938.15	3,001.61	0.00	0.00	0.00
10,400.00	90.77	90.66	7,703.84	936.55	3,038.14	3,101.21	0.00	0.00	0.00
10,500.00	90.77	90.66	7,702.50	935.40	3,138.12	3,200.81	0.00	0.00	0.00
10,600.00	90.77	90.66	7,701.16	934.26	3,238.11	3,300.41	0.00	0.00	0.00
10,700.00	90.77	90.66	7,699.83	933.12	3,338.09	3,400.01	0.00	0.00	0.00
10,800.00	90.77	90.66	7,698.49	931.97	3,438.08	3,499.61	0.00	0.00	0.00
10,900.00	90.77	90.66	7,697.16	930.83	3,538.06	3,599.21	0.00	0.00	0.00
11,000.00	90.77	90.66	7,695.82	929.69	3,638.05	3,698.81	0.00	0.00	0.00
11,100.00	90.77	90.66	7,694.48	928.54	3,738.03	3,798.41	0.00	0.00	0.00
11,200.00	90.77	90.66	7,693.15	927.40	3,838.01	3,898.01	0.00	0.00	0.00
11,300.00	90.77	90.66	7,691.81	926.26	3,938.00	3,997.61	0.00	0.00	0.00
11,400.00	90.77	90.66	7,690.47	925.11	4,037.98	4,097.21	0.00	0.00	0.00
11,500.00	90.77	90.66	7,689.14	923.97	4,137.97	4,196.81	0.00	0.00	0.00
11,600.00	90.77	90.66	7,687.80	922.83	4,237.95	4,296.41	0.00	0.00	0.00
11,700.00	90.77	90.66	7,686.47	921.68	4,337.94	4,396.01	0.00	0.00	0.00
11,800.00	90.77	90.66	7,685.13	920.54	4,437.92	4,495.61	0.00	0.00	0.00
11,900.00	90.77	90.66	7,683.79	919.40	4,537.91	4,595.21	0.00	0.00	0.00
12,000.00	90.77	90.66	7,682.46	918.25	4,637.89	4,694.81	0.00	0.00	0.00
12,100.00	90.77	90.66	7,681.12	917.11	4,737.88	4,794.41	0.00	0.00	0.00
12,200.00	90.77	90.66	7,679.79	915.97	4,837.86	4,894.01	0.00	0.00	0.00
12,300.00	90.77	90.66	7,678.45	914.82	4,937.84	4,993.61	0.00	0.00	0.00
12,400.00	90.77	90.66	7,677.11	913.68	5,037.83	5,093.21	0.00	0.00	0.00
12,500.00	90.77	90.66	7,675.78	912.54	5,137.81	5,192.81	0.00	0.00	0.00
12,600.00	90.77	90.66	7,674.44	911.39	5,237.80	5,292.41	0.00	0.00	0.00
12,700.00	90.77	90.66	7,673.11	910.25	5,337.78	5,392.01	0.00	0.00	0.00
12,800.00	90.77	90.66	7,671.77	909.11	5,437.77	5,491.61	0.00	0.00	0.00
12,900.00	90.77	90.66	7,670.43	907.96	5,537.75	5,591.21	0.00	0.00	0.00
13,000.00	90.77	90.66	7,669.10	906.82	5,637.74	5,690.81	0.00	0.00	0.00
13,100.00	90.77	90.66	7,667.76	905.68	5,737.72	5,790.41	0.00	0.00	0.00
13,200.00	90.77	90.66	7,666.43	904.53	5,837.71	5,890.01	0.00	0.00	0.00
13,300.00	90.77	90.66	7,665.09	903.39	5,937.69	5,989.61	0.00	0.00	0.00
13,400.00	90.77	90.66	7,663.75	902.24	6,037.67	6,089.21	0.00	0.00	0.00

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Big Sandy 3-65 36-31 1DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

Planned Survey										
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)	
13,500.00	90.77	90.66	7,662.42	901.10	6,137.66	6,188.81	0.00	0.00	0.00	
13,600.00	90.77	90.66	7,661.08	899.96	6,237.64	6,288.41	0.00	0.00	0.00	
13,700.00	90.77	90.66	7,659.74	898.81	6,337.63	6,388.01	0.00	0.00	0.00	
13,800.00	90.77	90.66	7,658.41	897.67	6,437.61	6,487.61	0.00	0.00	0.00	
13,900.00	90.77	90.66	7,657.07	896.53	6,537.60	6,587.21	0.00	0.00	0.00	
14,000.00	90.77	90.66	7,655.74	895.38	6,637.58	6,686.81	0.00	0.00	0.00	
14,100.00	90.77	90.66	7,654.40	894.24	6,737.57	6,786.41	0.00	0.00	0.00	
14,200.00	90.77	90.66	7,653.06	893.10	6,837.55	6,886.01	0.00	0.00	0.00	
14,300.00	90.77	90.66	7,651.73	891.95	6,937.54	6,985.61	0.00	0.00	0.00	
14,400.00	90.77	90.66	7,650.39	890.81	7,037.52	7,085.21	0.00	0.00	0.00	
14,500.00	90.77	90.66	7,649.06	889.67	7,137.50	7,184.81	0.00	0.00	0.00	
14,600.00	90.77	90.66	7,647.72	888.52	7,237.49	7,284.41	0.00	0.00	0.00	
14,700.00	90.77	90.66	7,646.38	887.38	7,337.47	7,384.01	0.00	0.00	0.00	
14,800.00	90.77	90.66	7,645.05	886.24	7,437.46	7,483.61	0.00	0.00	0.00	
14,900.00	90.77	90.66	7,643.71	885.09	7,537.44	7,583.21	0.00	0.00	0.00	
15,000.00	90.77	90.66	7,642.38	883.95	7,637.43	7,682.81	0.00	0.00	0.00	
15,100.00	90.77	90.66	7,641.04	882.81	7,737.41	7,782.41	0.00	0.00	0.00	
15,200.00	90.77	90.66	7,639.70	881.66	7,837.40	7,882.01	0.00	0.00	0.00	
15,300.00	90.77	90.66	7,638.37	880.52	7,937.38	7,981.61	0.00	0.00	0.00	
15,400.00	90.77	90.66	7,637.03	879.38	8,037.37	8,081.21	0.00	0.00	0.00	
15,500.00	90.77	90.66	7,635.70	878.23	8,137.35	8,180.81	0.00	0.00	0.00	
15,600.00	90.77	90.66	7,634.36	877.09	8,237.33	8,280.41	0.00	0.00	0.00	
15,700.00	90.77	90.66	7,633.02	875.95	8,337.32	8,380.01	0.00	0.00	0.00	
15,800.00	90.77	90.66	7,631.69	874.80	8,437.30	8,479.61	0.00	0.00	0.00	
15,900.00	90.77	90.66	7,630.35	873.66	8,537.29	8,579.21	0.00	0.00	0.00	
16,000.00	90.77	90.66	7,629.02	872.52	8,637.27	8,678.81	0.00	0.00	0.00	
16,100.00	90.77	90.66	7,627.68	871.37	8,737.26	8,778.41	0.00	0.00	0.00	
16,200.00	90.77	90.66	7,626.34	870.23	8,837.24	8,878.01	0.00	0.00	0.00	
16,300.00	90.77	90.66	7,625.01	869.09	8,937.23	8,977.61	0.00	0.00	0.00	
16,400.00	90.77	90.66	7,623.67	867.94	9,037.21	9,077.21	0.00	0.00	0.00	
16,500.00	90.77	90.66	7,622.33	866.80	9,137.20	9,176.81	0.00	0.00	0.00	
16,600.00	90.77	90.66	7,621.00	865.66	9,237.18	9,276.41	0.00	0.00	0.00	
16,700.00	90.77	90.66	7,619.66	864.51	9,337.16	9,376.01	0.00	0.00	0.00	
16,800.00	90.77	90.66	7,618.33	863.37	9,437.15	9,475.61	0.00	0.00	0.00	
16,900.00	90.77	90.66	7,616.99	862.23	9,537.13	9,575.21	0.00	0.00	0.00	
17,000.00	90.77	90.66	7,615.65	861.08	9,637.12	9,674.81	0.00	0.00	0.00	
17,100.00	90.77	90.66	7,614.32	859.94	9,737.10	9,774.41	0.00	0.00	0.00	
17,200.00	90.77	90.66	7,612.98	858.80	9,837.09	9,874.01	0.00	0.00	0.00	
17,300.00	90.77	90.66	7,611.65	857.65	9,937.07	9,973.61	0.00	0.00	0.00	
17,400.00	90.77	90.66	7,610.31	856.51	10,037.06	10,073.21	0.00	0.00	0.00	
17,500.00	90.77	90.66	7,608.97	855.37	10,137.04	10,172.81	0.00	0.00	0.00	
17,600.00	90.77	90.66	7,607.64	854.22	10,237.03	10,272.41	0.00	0.00	0.00	
17,700.00	90.77	90.66	7,606.30	853.08	10,337.01	10,372.01	0.00	0.00	0.00	
17,800.00	90.77	90.66	7,604.97	851.94	10,436.99	10,471.61	0.00	0.00	0.00	
17,900.00	90.77	90.66	7,603.63	850.79	10,536.98	10,571.21	0.00	0.00	0.00	
18,000.00	90.77	90.66	7,602.29	849.65	10,636.96	10,670.81	0.00	0.00	0.00	
18,100.00	90.77	90.66	7,600.96	848.51	10,736.95	10,770.41	0.00	0.00	0.00	
18,200.00	90.77	90.66	7,599.62	847.36	10,836.93	10,870.01	0.00	0.00	0.00	
18,300.00	90.77	90.66	7,598.29	846.22	10,936.92	10,969.61	0.00	0.00	0.00	
18,321.33	90.77	90.66	7,598.00	845.98	10,958.24	10,990.85	0.00	0.00	0.00	
BHL: 1874' FNL, 325' FEL - Big Sandy 3-65 36-31 1DH BHL										



# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Big Sandy 3-65 36-31 1DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5548.90ft (25' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 1DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 1DH		
<b>Design:</b>	Design A		

### Design Targets

#### Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Big Sandy 3-65 36-31 - plan hits target center - Point	0.00	0.00	7,598.00	845.98	10,958.24	1,152,704.900	3,257,414.700	39° 44' 56.017 N	104° 35' 4.273 W
Big Sandy 3-65 36-31 - plan hits target center - Point	0.00	0.00	7,732.00	960.65	930.47	1,152,720.450	3,247,386.350	39° 44' 57.173 N	104° 37' 12.657 W

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,024.00	2,024.00	9-5/8" Casing	9-5/8	12-1/4
18,321.33	7,598.00	5-1/2" Casing	5-1/2	8-1/2

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,589.00	1,589.00	Fox Hills Top		0.00	
1,824.00	1,824.00	Fox Hills Base		0.00	
2,024.00	2,024.00	Surface Casing		0.00	
7,747.63	7,524.00	Niobrara Top		0.00	
8,169.69	7,722.00	D Chalk Top		0.00	

### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
25.00	25.00	0.00	0.00	SHL: 2465' FSL, 465' FEL
7,502.19	7,325.37	759.22	360.25	KOP: 2052' FNL, 105' FEL
8,292.00	7,732.00	960.65	930.46	BPI: 1850' FNL, 460' FWL
18,321.33	7,598.00	845.98	10,958.24	BHL: 1874' FNL, 325' FEL