

# **ConocoPhillips RBU Gold Data**

**Niobrara North Zone**

**Big Sandy**

**Big Sandy 3-65 36-31 2AH**

**Big Sandy 3-65 36-31 2AH**

**Plan: Big Sandy 3-65 36-31 2AH**

## **Standard Planning Report**

**24 July, 2017**

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Big Sandy 3-65 36-31 2AH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5550.90ft (27' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	27' RKB @ 5550.90ft (27' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<b>Design:</b>	Big Sandy 3-65 36-31 2AH		

<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

<b>Site</b>	Big Sandy			
<b>Site Position:</b>		<b>Northing:</b>	1,154,567.170 usft	<b>Latitude:</b> 39° 45' 15.469 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,246,918.586 usft	<b>Longitude:</b> 104° 37' 18.412 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	26 "	<b>Grid Convergence:</b> 0.57 °

<b>Well</b>	Big Sandy 3-65 36-31 2AH			
<b>Well Position</b>	<b>+N/-S</b>	-2,731.95 ft	<b>Northing:</b>	1,151,830.615 usft
	<b>+E/-W</b>	-480.25 ft	<b>Easting:</b>	3,246,465.418 usft
<b>Position Uncertainty</b>		2.00 ft	<b>Wellhead Elevation:</b>	<b>Ground Level:</b> 5,523.90 ft

<b>Wellbore</b>	Big Sandy 3-65 36-31 2AH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2017	7/24/2017	8.26	66.39	52,037.82794849

<b>Design</b>	Big Sandy 3-65 36-31 2AH			
<b>Audit Notes:</b>				
<b>Version:</b>	<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	84.36

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/24/2017		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	2,026.00	Big Sandy 3-65 36-31 2AH (Big S	Gyro-BM-MS Gyro - bat/mem drop m/s
2	2,026.00	8,165.94	Big Sandy 3-65 36-31 2AH (Big S	MWD+IFR_No SAG MWD + IFR (No SAG) correctic
3	8,165.94	18,193.21	Big Sandy 3-65 36-31 2AH (Big S	MWD+IFR_No SAG MWD + IFR (No SAG) correctic

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<b>Design:</b>	Big Sandy 3-65 36-31 2AH		

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	
2,710.00	0.00	0.00	2,710.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,776.95	16.00	18.30	3,763.12	140.56	46.49	1.50	1.50	0.00	18.30	
7,306.66	16.00	18.30	7,156.03	1,064.50	352.07	0.00	0.00	0.00	0.00	
8,165.94	90.75	90.66	7,662.00	1,198.07	931.81	10.00	8.70	8.42	72.80	Big Sandy 3-65 36-31
18,193.21	90.75	90.66	7,531.00	1,083.08	10,957.56	0.00	0.00	0.00	0.00	Big Sandy 3-65 36-31

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<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<b>Design:</b>	Big Sandy 3-65 36-31 2AH		

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
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
1,600.00	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
1,900.00	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
2,026.00	0.00	0.00	2,026.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface									
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
2,710.00	0.00	0.00	2,710.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	1.35	18.30	2,799.99	1.01	0.33	0.43	1.50	1.50	0.00
2,900.00	2.85	18.30	2,899.92	4.49	1.48	1.92	1.50	1.50	0.00
3,000.00	4.35	18.30	2,999.72	10.45	3.46	4.47	1.50	1.50	0.00
3,100.00	5.85	18.30	3,099.32	18.89	6.25	8.07	1.50	1.50	0.00
3,200.00	7.35	18.30	3,198.66	29.80	9.86	12.74	1.50	1.50	0.00
3,300.00	8.85	18.30	3,297.66	43.18	14.28	18.46	1.50	1.50	0.00
3,400.00	10.35	18.30	3,396.25	59.01	19.52	25.23	1.50	1.50	0.00
3,500.00	11.85	18.30	3,494.38	77.29	25.56	33.04	1.50	1.50	0.00
3,600.00	13.35	18.30	3,591.97	98.00	32.41	41.89	1.50	1.50	0.00
3,700.00	14.85	18.30	3,688.95	121.13	40.06	51.78	1.50	1.50	0.00
3,776.95	16.00	18.30	3,763.12	140.56	46.49	60.09	1.50	1.50	0.00
3,800.00	16.00	18.30	3,785.29	146.59	48.48	62.67	0.00	0.00	0.00
3,900.00	16.00	18.30	3,881.41	172.77	57.14	73.86	0.00	0.00	0.00
4,000.00	16.00	18.30	3,977.53	198.95	65.80	85.05	0.00	0.00	0.00
4,100.00	16.00	18.30	4,073.66	225.12	74.45	96.24	0.00	0.00	0.00
4,200.00	16.00	18.30	4,169.78	251.30	83.11	107.43	0.00	0.00	0.00
4,300.00	16.00	18.30	4,265.91	277.47	91.77	118.62	0.00	0.00	0.00
4,400.00	16.00	18.30	4,362.03	303.65	100.43	129.81	0.00	0.00	0.00
4,500.00	16.00	18.30	4,458.16	329.83	109.08	141.00	0.00	0.00	0.00
4,600.00	16.00	18.30	4,554.28	356.00	117.74	152.19	0.00	0.00	0.00
4,700.00	16.00	18.30	4,650.40	382.18	126.40	163.38	0.00	0.00	0.00
4,800.00	16.00	18.30	4,746.53	408.36	135.06	174.57	0.00	0.00	0.00
4,900.00	16.00	18.30	4,842.65	434.53	143.71	185.76	0.00	0.00	0.00

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<b>Well:</b>	Big Sandy 3-65 36-31 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<b>Design:</b>	Big Sandy 3-65 36-31 2AH		

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)	
5,000.00	16.00	18.30	4,938.78	460.71	152.37	196.95	0.00	0.00	0.00	
5,100.00	16.00	18.30	5,034.90	486.88	161.03	208.14	0.00	0.00	0.00	
5,200.00	16.00	18.30	5,131.02	513.06	169.69	219.33	0.00	0.00	0.00	
5,300.00	16.00	18.30	5,227.15	539.24	178.34	230.52	0.00	0.00	0.00	
5,400.00	16.00	18.30	5,323.27	565.41	187.00	241.71	0.00	0.00	0.00	
5,500.00	16.00	18.30	5,419.40	591.59	195.66	252.90	0.00	0.00	0.00	
5,600.00	16.00	18.30	5,515.52	617.77	204.31	264.09	0.00	0.00	0.00	
5,700.00	16.00	18.30	5,611.65	643.94	212.97	275.28	0.00	0.00	0.00	
5,800.00	16.00	18.30	5,707.77	670.12	221.63	286.47	0.00	0.00	0.00	
5,900.00	16.00	18.30	5,803.89	696.29	230.29	297.66	0.00	0.00	0.00	
6,000.00	16.00	18.30	5,900.02	722.47	238.94	308.85	0.00	0.00	0.00	
6,100.00	16.00	18.30	5,996.14	748.65	247.60	320.04	0.00	0.00	0.00	
6,200.00	16.00	18.30	6,092.27	774.82	256.26	331.23	0.00	0.00	0.00	
6,300.00	16.00	18.30	6,188.39	801.00	264.92	342.42	0.00	0.00	0.00	
6,400.00	16.00	18.30	6,284.51	827.18	273.57	353.61	0.00	0.00	0.00	
6,500.00	16.00	18.30	6,380.64	853.35	282.23	364.80	0.00	0.00	0.00	
6,600.00	16.00	18.30	6,476.76	879.53	290.89	375.99	0.00	0.00	0.00	
6,700.00	16.00	18.30	6,572.89	905.70	299.54	387.18	0.00	0.00	0.00	
6,800.00	16.00	18.30	6,669.01	931.88	308.20	398.37	0.00	0.00	0.00	
6,900.00	16.00	18.30	6,765.14	958.06	316.86	409.56	0.00	0.00	0.00	
7,000.00	16.00	18.30	6,861.26	984.23	325.52	420.75	0.00	0.00	0.00	
7,100.00	16.00	18.30	6,957.38	1,010.41	334.17	431.94	0.00	0.00	0.00	
7,200.00	16.00	18.30	7,053.51	1,036.59	342.83	443.13	0.00	0.00	0.00	
7,306.66	16.00	18.30	7,156.03	1,064.50	352.07	455.06	0.00	0.00	0.00	
7,350.00	17.76	31.99	7,197.52	1,075.79	357.45	461.53	10.00	4.06	31.58	
7,400.00	20.72	44.27	7,244.74	1,088.60	367.67	472.96	10.00	5.93	24.55	
7,450.00	24.34	53.32	7,290.93	1,101.10	382.12	488.57	10.00	7.23	18.11	
7,500.00	28.35	60.06	7,335.74	1,113.19	400.68	508.23	10.00	8.03	13.47	
7,550.00	32.62	65.20	7,378.82	1,124.77	423.22	531.80	10.00	8.54	10.29	
7,600.00	37.06	69.26	7,419.86	1,135.77	449.56	559.09	10.00	8.87	8.10	
7,650.00	41.60	72.54	7,458.53	1,146.09	479.50	589.90	10.00	9.09	6.58	
7,700.00	46.23	75.29	7,494.54	1,155.66	512.81	624.00	10.00	9.25	5.49	
7,750.00	50.91	77.64	7,527.62	1,164.40	549.25	661.12	10.00	9.36	4.70	
7,800.00	55.63	79.69	7,557.52	1,172.25	588.53	700.98	10.00	9.44	4.11	
7,850.00	60.38	81.52	7,584.00	1,179.16	630.35	743.28	10.00	9.50	3.67	
7,900.00	65.16	83.19	7,606.88	1,185.05	674.40	787.70	10.00	9.55	3.33	
7,950.00	69.95	84.73	7,625.96	1,189.90	720.34	833.89	10.00	9.58	3.09	
8,000.00	74.75	86.19	7,641.12	1,193.66	767.83	881.51	10.00	9.61	2.90	
8,050.00	79.57	87.57	7,652.23	1,196.31	816.49	930.20	10.00	9.63	2.77	
8,100.00	84.39	88.92	7,659.20	1,197.83	865.96	979.58	10.00	9.64	2.69	
8,150.00	89.21	90.24	7,661.99	1,198.19	915.87	1,029.28	10.00	9.65	2.64	
8,165.94	90.75	90.66	7,662.00	1,198.07	931.81	1,045.13	10.00	9.65	2.63	
8,200.00	90.75	90.66	7,661.56	1,197.68	965.86	1,078.98	0.00	0.00	0.00	
8,300.00	90.75	90.66	7,660.25	1,196.53	1,065.84	1,178.37	0.00	0.00	0.00	
8,400.00	90.75	90.66	7,658.94	1,195.38	1,165.83	1,277.75	0.00	0.00	0.00	
8,500.00	90.75	90.66	7,657.64	1,194.24	1,265.81	1,377.14	0.00	0.00	0.00	
8,600.00	90.75	90.66	7,656.33	1,193.09	1,365.80	1,476.53	0.00	0.00	0.00	
8,700.00	90.75	90.66	7,655.02	1,191.94	1,465.78	1,575.92	0.00	0.00	0.00	
8,800.00	90.75	90.66	7,653.72	1,190.80	1,565.77	1,675.30	0.00	0.00	0.00	
8,900.00	90.75	90.66	7,652.41	1,189.65	1,665.75	1,774.69	0.00	0.00	0.00	
9,000.00	90.75	90.66	7,651.10	1,188.50	1,765.74	1,874.08	0.00	0.00	0.00	
9,100.00	90.75	90.66	7,649.80	1,187.36	1,865.72	1,973.47	0.00	0.00	0.00	
9,200.00	90.75	90.66	7,648.49	1,186.21	1,965.71	2,072.85	0.00	0.00	0.00	
9,300.00	90.75	90.66	7,647.18	1,185.06	2,065.69	2,172.24	0.00	0.00	0.00	

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9,400.00	90.75	90.66	7,645.88	1,183.92	2,165.68	2,271.63	0.00	0.00	0.00	
9,500.00	90.75	90.66	7,644.57	1,182.77	2,265.66	2,371.01	0.00	0.00	0.00	
9,600.00	90.75	90.66	7,643.27	1,181.62	2,365.65	2,470.40	0.00	0.00	0.00	
9,700.00	90.75	90.66	7,641.96	1,180.48	2,465.63	2,569.79	0.00	0.00	0.00	
9,800.00	90.75	90.66	7,640.65	1,179.33	2,565.62	2,669.18	0.00	0.00	0.00	
9,900.00	90.75	90.66	7,639.35	1,178.18	2,665.60	2,768.56	0.00	0.00	0.00	
10,000.00	90.75	90.66	7,638.04	1,177.04	2,765.59	2,867.95	0.00	0.00	0.00	
10,100.00	90.75	90.66	7,636.73	1,175.89	2,865.57	2,967.34	0.00	0.00	0.00	
10,200.00	90.75	90.66	7,635.43	1,174.74	2,965.56	3,066.73	0.00	0.00	0.00	
10,300.00	90.75	90.66	7,634.12	1,173.60	3,065.54	3,166.11	0.00	0.00	0.00	
10,400.00	90.75	90.66	7,632.81	1,172.45	3,165.53	3,265.50	0.00	0.00	0.00	
10,500.00	90.75	90.66	7,631.51	1,171.30	3,265.51	3,364.89	0.00	0.00	0.00	
10,600.00	90.75	90.66	7,630.20	1,170.16	3,365.50	3,464.27	0.00	0.00	0.00	
10,700.00	90.75	90.66	7,628.89	1,169.01	3,465.48	3,563.66	0.00	0.00	0.00	
10,800.00	90.75	90.66	7,627.59	1,167.86	3,565.47	3,663.05	0.00	0.00	0.00	
10,900.00	90.75	90.66	7,626.28	1,166.72	3,665.45	3,762.44	0.00	0.00	0.00	
11,000.00	90.75	90.66	7,624.97	1,165.57	3,765.44	3,861.82	0.00	0.00	0.00	
11,100.00	90.75	90.66	7,623.67	1,164.42	3,865.42	3,961.21	0.00	0.00	0.00	
11,200.00	90.75	90.66	7,622.36	1,163.28	3,965.41	4,060.60	0.00	0.00	0.00	
11,300.00	90.75	90.66	7,621.06	1,162.13	4,065.39	4,159.99	0.00	0.00	0.00	
11,400.00	90.75	90.66	7,619.75	1,160.98	4,165.38	4,259.37	0.00	0.00	0.00	
11,500.00	90.75	90.66	7,618.44	1,159.84	4,265.36	4,358.76	0.00	0.00	0.00	
11,600.00	90.75	90.66	7,617.14	1,158.69	4,365.35	4,458.15	0.00	0.00	0.00	
11,700.00	90.75	90.66	7,615.83	1,157.54	4,465.33	4,557.53	0.00	0.00	0.00	
11,800.00	90.75	90.66	7,614.52	1,156.40	4,565.32	4,656.92	0.00	0.00	0.00	
11,900.00	90.75	90.66	7,613.22	1,155.25	4,665.30	4,756.31	0.00	0.00	0.00	
12,000.00	90.75	90.66	7,611.91	1,154.10	4,765.29	4,855.70	0.00	0.00	0.00	
12,100.00	90.75	90.66	7,610.60	1,152.96	4,865.27	4,955.08	0.00	0.00	0.00	
12,200.00	90.75	90.66	7,609.30	1,151.81	4,965.26	5,054.47	0.00	0.00	0.00	
12,300.00	90.75	90.66	7,607.99	1,150.66	5,065.24	5,153.86	0.00	0.00	0.00	
12,400.00	90.75	90.66	7,606.68	1,149.52	5,165.23	5,253.25	0.00	0.00	0.00	
12,500.00	90.75	90.66	7,605.38	1,148.37	5,265.21	5,352.63	0.00	0.00	0.00	
12,600.00	90.75	90.66	7,604.07	1,147.22	5,365.20	5,452.02	0.00	0.00	0.00	
12,700.00	90.75	90.66	7,602.77	1,146.07	5,465.18	5,551.41	0.00	0.00	0.00	
12,800.00	90.75	90.66	7,601.46	1,144.93	5,565.16	5,650.79	0.00	0.00	0.00	
12,900.00	90.75	90.66	7,600.15	1,143.78	5,665.15	5,750.18	0.00	0.00	0.00	
13,000.00	90.75	90.66	7,598.85	1,142.63	5,765.13	5,849.57	0.00	0.00	0.00	
13,100.00	90.75	90.66	7,597.54	1,141.49	5,865.12	5,948.96	0.00	0.00	0.00	
13,200.00	90.75	90.66	7,596.23	1,140.34	5,965.10	6,048.34	0.00	0.00	0.00	
13,300.00	90.75	90.66	7,594.93	1,139.19	6,065.09	6,147.73	0.00	0.00	0.00	
13,400.00	90.75	90.66	7,593.62	1,138.05	6,165.07	6,247.12	0.00	0.00	0.00	
13,500.00	90.75	90.66	7,592.31	1,136.90	6,265.06	6,346.50	0.00	0.00	0.00	
13,600.00	90.75	90.66	7,591.01	1,135.75	6,365.04	6,445.89	0.00	0.00	0.00	
13,700.00	90.75	90.66	7,589.70	1,134.61	6,465.03	6,545.28	0.00	0.00	0.00	
13,800.00	90.75	90.66	7,588.39	1,133.46	6,565.01	6,644.67	0.00	0.00	0.00	
13,900.00	90.75	90.66	7,587.09	1,132.31	6,665.00	6,744.05	0.00	0.00	0.00	
14,000.00	90.75	90.66	7,585.78	1,131.17	6,764.98	6,843.44	0.00	0.00	0.00	
14,100.00	90.75	90.66	7,584.48	1,130.02	6,864.97	6,942.83	0.00	0.00	0.00	
14,200.00	90.75	90.66	7,583.17	1,128.87	6,964.95	7,042.22	0.00	0.00	0.00	
14,300.00	90.75	90.66	7,581.86	1,127.73	7,064.94	7,141.60	0.00	0.00	0.00	
14,400.00	90.75	90.66	7,580.56	1,126.58	7,164.92	7,240.99	0.00	0.00	0.00	
14,500.00	90.75	90.66	7,579.25	1,125.43	7,264.91	7,340.38	0.00	0.00	0.00	
14,600.00	90.75	90.66	7,577.94	1,124.29	7,364.89	7,439.76	0.00	0.00	0.00	
14,700.00	90.75	90.66	7,576.64	1,123.14	7,464.88	7,539.15	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 2AH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5550.90ft (27' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	27' RKB @ 5550.90ft (27' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<b>Design:</b>	Big Sandy 3-65 36-31 2AH		

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)
14,800.00	90.75	90.66	7,575.33	1,121.99	7,564.86	7,638.54	0.00	0.00	0.00
14,900.00	90.75	90.66	7,574.02	1,120.85	7,664.85	7,737.93	0.00	0.00	0.00
15,000.00	90.75	90.66	7,572.72	1,119.70	7,764.83	7,837.31	0.00	0.00	0.00
15,100.00	90.75	90.66	7,571.41	1,118.55	7,864.82	7,936.70	0.00	0.00	0.00
15,200.00	90.75	90.66	7,570.10	1,117.41	7,964.80	8,036.09	0.00	0.00	0.00
15,300.00	90.75	90.66	7,568.80	1,116.26	8,064.79	8,135.48	0.00	0.00	0.00
15,400.00	90.75	90.66	7,567.49	1,115.11	8,164.77	8,234.86	0.00	0.00	0.00
15,500.00	90.75	90.66	7,566.19	1,113.97	8,264.76	8,334.25	0.00	0.00	0.00
15,600.00	90.75	90.66	7,564.88	1,112.82	8,364.74	8,433.64	0.00	0.00	0.00
15,700.00	90.75	90.66	7,563.57	1,111.67	8,464.73	8,533.02	0.00	0.00	0.00
15,800.00	90.75	90.66	7,562.27	1,110.53	8,564.71	8,632.41	0.00	0.00	0.00
15,900.00	90.75	90.66	7,560.96	1,109.38	8,664.70	8,731.80	0.00	0.00	0.00
16,000.00	90.75	90.66	7,559.65	1,108.23	8,764.68	8,831.19	0.00	0.00	0.00
16,100.00	90.75	90.66	7,558.35	1,107.09	8,864.67	8,930.57	0.00	0.00	0.00
16,200.00	90.75	90.66	7,557.04	1,105.94	8,964.65	9,029.96	0.00	0.00	0.00
16,300.00	90.75	90.66	7,555.73	1,104.79	9,064.64	9,129.35	0.00	0.00	0.00
16,400.00	90.75	90.66	7,554.43	1,103.65	9,164.62	9,228.74	0.00	0.00	0.00
16,500.00	90.75	90.66	7,553.12	1,102.50	9,264.61	9,328.12	0.00	0.00	0.00
16,600.00	90.75	90.66	7,551.81	1,101.35	9,364.59	9,427.51	0.00	0.00	0.00
16,700.00	90.75	90.66	7,550.51	1,100.21	9,464.58	9,526.90	0.00	0.00	0.00
16,800.00	90.75	90.66	7,549.20	1,099.06	9,564.56	9,626.28	0.00	0.00	0.00
16,900.00	90.75	90.66	7,547.90	1,097.91	9,664.55	9,725.67	0.00	0.00	0.00
17,000.00	90.75	90.66	7,546.59	1,096.77	9,764.53	9,825.06	0.00	0.00	0.00
17,100.00	90.75	90.66	7,545.28	1,095.62	9,864.52	9,924.45	0.00	0.00	0.00
17,200.00	90.75	90.66	7,543.98	1,094.47	9,964.50	10,023.83	0.00	0.00	0.00
17,300.00	90.75	90.66	7,542.67	1,093.33	10,064.49	10,123.22	0.00	0.00	0.00
17,400.00	90.75	90.66	7,541.36	1,092.18	10,164.47	10,222.61	0.00	0.00	0.00
17,500.00	90.75	90.66	7,540.06	1,091.03	10,264.45	10,322.00	0.00	0.00	0.00
17,600.00	90.75	90.66	7,538.75	1,089.88	10,364.44	10,421.38	0.00	0.00	0.00
17,700.00	90.75	90.66	7,537.44	1,088.74	10,464.42	10,520.77	0.00	0.00	0.00
17,800.00	90.75	90.66	7,536.14	1,087.59	10,564.41	10,620.16	0.00	0.00	0.00
17,900.00	90.75	90.66	7,534.83	1,086.44	10,664.39	10,719.54	0.00	0.00	0.00
18,000.00	90.75	90.66	7,533.52	1,085.30	10,764.38	10,818.93	0.00	0.00	0.00
18,100.00	90.75	90.66	7,532.22	1,084.15	10,864.36	10,918.32	0.00	0.00	0.00
18,193.21	90.75	90.66	7,531.00	1,083.08	10,957.56	11,010.96	0.00	0.00	0.00
Production									

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 2/ - plan hits target center - Point	0.00	0.00	7,531.00	1,083.08	10,957.56	1,153,021.946	3,257,411.666	39° 44' 59.150 N	104° 35' 4.270 W
Big Sandy 3-65 36-31 2/ - plan hits target center - Point	0.00	0.00	7,662.00	1,198.07	931.81	1,153,037.827	3,247,385.331	39° 45' 0.310 N	104° 37' 12.630 W

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Big Sandy 3-65 36-31 2AH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5550.90ft (27' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	27' RKB @ 5550.90ft (27' RKB)
<b>Site:</b>	Big Sandy	<b>North Reference:</b>	True
<b>Well:</b>	Big Sandy 3-65 36-31 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<b>Design:</b>	Big Sandy 3-65 36-31 2AH		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
2,026.00	2,026.00	Surface	9-5/8	12-1/4	
18,193.21	7,531.00	Production	5-1/2	8-1/2	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,000.00	2,000.00	0.00	0.00	SL 2545' FSL 465' FEL	
2,710.00	2,710.00	0.00	0.00	Start Build 1.50	
3,776.95	3,763.12	140.56	46.49	Start 3529.71 hold at 3776.95 MD	
7,306.66	7,156.03	1,064.51	352.07	Start DLS 10.00 TFO 72.80	
8,165.00	7,662.01	1,198.08	930.87	BPI 1533' FNL 460' FWL	
8,165.94	7,662.00	1,198.07	931.80	Start 10027.27 hold at 8165.94 MD	
18,058.00	7,532.77	1,084.63	10,822.37	EPI 1557' FNL 460' FEL	
18,193.00	7,531.00	1,083.08	10,957.35	BHL 1557' FNL 325' FEL	
18,193.21	7,531.00	1,083.08	10,957.56	TD at 18193.21	





ConocoPhillips

Adams County, Colorado

Big Sandy 3-65 36-31 2AH

Ground Level: 5523.90  
Surface Location Latitude: 39° 44' 48.470 N  
Surface Location Longitude: 104° 37' 24.560 W  
North Reference: True  
27' RKB @ 5550.90ft (27' RKB)

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

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
2710.00	0.00	0.00	2710.00	0.00	0.00	0.00	0.00
3776.95	16.00	18.30	3763.12	140.56	46.49	1.50	60.09
7306.66	16.00	18.30	7156.03	1064.50	352.07	0.00	455.06
8165.94	90.75	90.66	7662.00	1198.07	931.81	10.00	1045.13
18193.21	90.75	90.66	7531.00	1083.08	10957.56	0.00	11010.96

