



ConocoPhillips  
 Adams County, Colorado  
 Big Sandy 3-65 36-31 2AH  
 Design A

Casing Depths

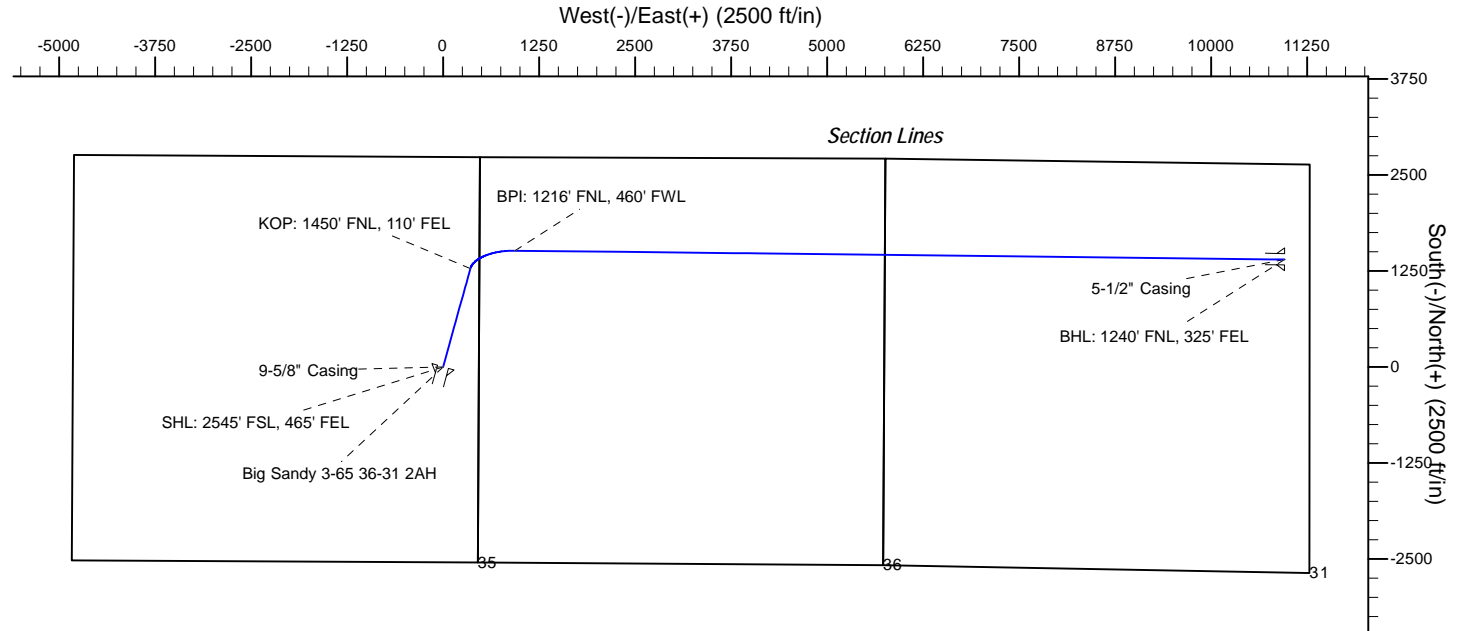
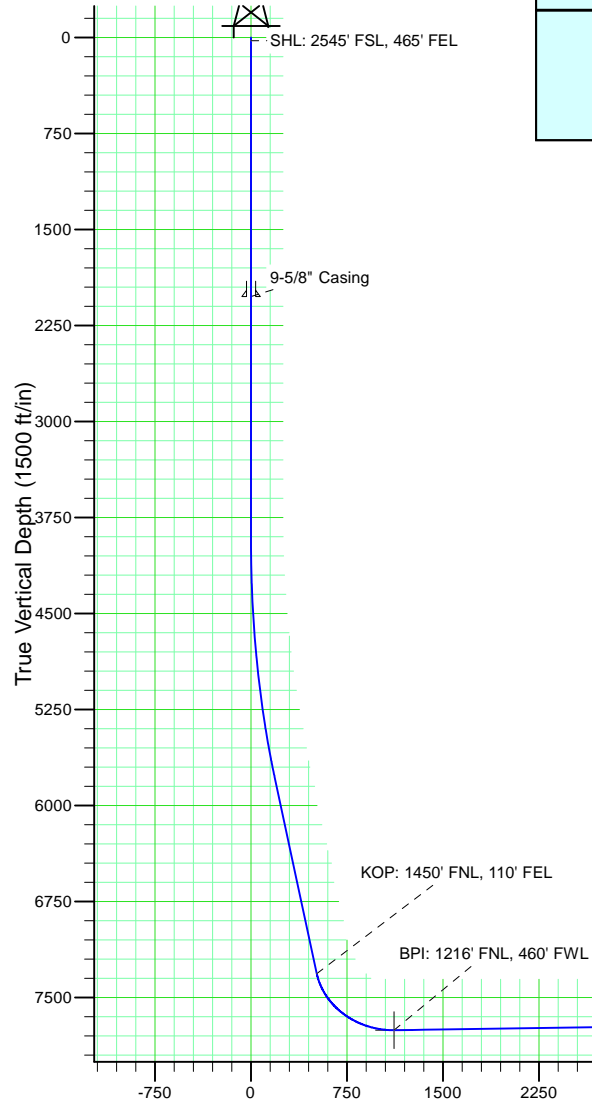
TVD	MD	Name	Size
2024.00	2024.00	9-5/8" Casing	9-5/8
7607.00	18478.28	5-1/2" Casing	5-1/2

Ground Level: 5523.90  
 Surface Location Latitude: 39° 44' 48.470 N  
 Surface Location Longitude: 104° 37' 24.560 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
3929.00	0.00	0.00	3929.00	0.00	0.00	0.00	0.00
5862.61	29.00	15.48	5781.08	461.68	127.85	1.50	185.32
7615.78	29.00	15.48	7314.37	1280.91	354.71	0.00	514.17
8451.98	90.85	90.66	7755.00	1514.52	933.39	10.00	1117.79
18478.28	90.85	90.66	7607.00	1399.91	10957.95	0.00	11047.01

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 2AH BHL	7607.00	39° 45' 2.281 N	104° 35' 4.263 W
Big Sandy 3-65 36-31 2AH BPI	7755.00	39° 45' 3.437 N	104° 37' 12.610 W

# **ConocoPhillips RBU Gold Data**

**Niobrara North Zone**

**Big Sandy**

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

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

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

<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>	-2,731.96 ft	<b>Northing:</b>	1,151,830.607 usft	<b>Latitude:</b>	39° 44' 48.470 N
	<b>+E/-W</b>	-480.25 ft	<b>Easting:</b>	3,246,465.419 usft	<b>Longitude:</b>	104° 37' 24.560 W
<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	
	BGGM2017	1/1/2018	8.22	66.37	51,986.21477748	

<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	82.72	

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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 2AH
<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 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<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	3,929.00	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	MWD + IFR (No SAG) corre	
3	3,929.00	5,862.61	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	MWD + IFR (No SAG) corre	
4	5,862.61	7,615.78	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	MWD + IFR (No SAG) corre	
5	7,615.78	8,451.98	Design A (Big Sandy 3-65 36-31)	MWD+IFR_No SAG	MWD + IFR (No SAG) corre	
6	8,451.98	18,478.28	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	
3,929.00	0.00	0.00	3,929.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,862.61	29.00	15.48	5,781.08	461.68	127.85	1.50	1.50	0.00	15.48	
7,615.78	29.00	15.48	7,314.37	1,280.91	354.71	0.00	0.00	0.00	0.00	
8,451.98	90.85	90.66	7,755.00	1,514.52	933.39	10.00	7.40	8.99	76.57	Big Sandy 3-65 36-
18,478.28	90.85	90.66	7,607.00	1,399.91	10,957.95	0.00	0.00	0.00	0.00	Big Sandy 3-65 36-

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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 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<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	0.00
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>SHL: 2545' FSL, 465' FEL</b>										
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	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	0.00
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	0.00	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	0.00
900.00	0.00	0.00	900.00	0.00	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	0.00
1,100.00	0.00	0.00	1,100.00	0.00	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	0.00
1,300.00	0.00	0.00	1,300.00	0.00	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	0.00
1,500.00	0.00	0.00	1,500.00	0.00	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	0.00
<b>Fox Hills Top</b>										
1,600.00	0.00	0.00	1,600.00	0.00	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	0.00
1,800.00	0.00	0.00	1,800.00	0.00	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	0.00
<b>Fox Hills Base</b>										
1,900.00	0.00	0.00	1,900.00	0.00	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	0.00
2,024.00	0.00	0.00	2,024.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Casing - 9-5/8" Casing</b>										
2,100.00	0.00	0.00	2,100.00	0.00	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	0.00
2,300.00	0.00	0.00	2,300.00	0.00	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	0.00
2,500.00	0.00	0.00	2,500.00	0.00	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	0.00
2,700.00	0.00	0.00	2,700.00	0.00	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	0.00
2,900.00	0.00	0.00	2,900.00	0.00	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	0.00
3,100.00	0.00	0.00	3,100.00	0.00	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	0.00
3,300.00	0.00	0.00	3,300.00	0.00	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	0.00
3,500.00	0.00	0.00	3,500.00	0.00	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	0.00
3,700.00	0.00	0.00	3,700.00	0.00	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	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,929.00	0.00	0.00	3,929.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	1.07	15.48	4,000.00	0.64	0.18	0.26	1.50	1.50	0.00	0.00
4,100.00	2.57	15.48	4,099.94	3.69	1.02	1.48	1.50	1.50	0.00	0.00
4,200.00	4.07	15.48	4,199.77	9.26	2.56	3.72	1.50	1.50	0.00	0.00
4,300.00	5.57	15.48	4,299.42	17.35	4.80	6.96	1.50	1.50	0.00	0.00
4,400.00	7.07	15.48	4,398.81	27.95	7.74	11.22	1.50	1.50	0.00	0.00

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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 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<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)
4,500.00	8.57	15.48	4,497.88	41.05	11.37	16.48	1.50	1.50	0.00
4,600.00	10.07	15.48	4,596.55	56.65	15.69	22.74	1.50	1.50	0.00
4,700.00	11.57	15.48	4,694.78	74.74	20.70	30.00	1.50	1.50	0.00
4,800.00	13.07	15.48	4,792.47	95.29	26.39	38.25	1.50	1.50	0.00
4,900.00	14.57	15.48	4,889.58	118.30	32.76	47.49	1.50	1.50	0.00
5,000.00	16.07	15.48	4,986.02	143.76	39.81	57.71	1.50	1.50	0.00
5,100.00	17.57	15.48	5,081.74	171.63	47.53	68.90	1.50	1.50	0.00
5,200.00	19.07	15.48	5,176.68	201.92	55.91	81.05	1.50	1.50	0.00
5,300.00	20.57	15.48	5,270.75	234.59	64.96	94.16	1.50	1.50	0.00
5,400.00	22.07	15.48	5,363.91	269.62	74.66	108.23	1.50	1.50	0.00
5,500.00	23.57	15.48	5,456.08	306.98	85.01	123.23	1.50	1.50	0.00
5,600.00	25.07	15.48	5,547.21	346.67	96.00	139.15	1.50	1.50	0.00
5,700.00	26.57	15.48	5,637.23	388.63	107.62	156.00	1.50	1.50	0.00
5,800.00	28.07	15.48	5,726.07	432.85	119.87	173.75	1.50	1.50	0.00
5,862.61	29.00	15.48	5,781.08	461.68	127.85	185.32	1.50	1.50	0.00
5,900.00	29.00	15.48	5,813.78	479.15	132.69	192.33	0.00	0.00	0.00
6,000.00	29.00	15.48	5,901.24	525.88	145.63	211.09	0.00	0.00	0.00
6,100.00	29.00	15.48	5,988.70	572.61	158.57	229.85	0.00	0.00	0.00
6,200.00	29.00	15.48	6,076.15	619.34	171.51	248.61	0.00	0.00	0.00
6,300.00	29.00	15.48	6,163.61	666.06	184.45	267.36	0.00	0.00	0.00
6,400.00	29.00	15.48	6,251.07	712.79	197.39	286.12	0.00	0.00	0.00
6,500.00	29.00	15.48	6,338.53	759.52	210.33	304.88	0.00	0.00	0.00
6,600.00	29.00	15.48	6,425.99	806.25	223.27	323.64	0.00	0.00	0.00
6,700.00	29.00	15.48	6,513.45	852.98	236.21	342.39	0.00	0.00	0.00
6,800.00	29.00	15.48	6,600.90	899.71	249.15	361.15	0.00	0.00	0.00
6,900.00	29.00	15.48	6,688.36	946.44	262.09	379.91	0.00	0.00	0.00
7,000.00	29.00	15.48	6,775.82	993.17	275.03	398.67	0.00	0.00	0.00
7,100.00	29.00	15.48	6,863.28	1,039.89	287.97	417.42	0.00	0.00	0.00
7,200.00	29.00	15.48	6,950.74	1,086.62	300.91	436.18	0.00	0.00	0.00
7,300.00	29.00	15.48	7,038.20	1,133.35	313.85	454.94	0.00	0.00	0.00
7,400.00	29.00	15.48	7,125.66	1,180.08	326.79	473.70	0.00	0.00	0.00
7,500.00	29.00	15.48	7,213.11	1,226.81	339.73	492.45	0.00	0.00	0.00
7,600.00	29.00	15.48	7,300.57	1,273.54	352.67	511.21	0.00	0.00	0.00
7,615.78	29.00	15.48	7,314.37	1,280.91	354.71	514.17	0.00	0.00	0.00
<b>KOP: 1450' FNL, 110' FEL</b>									
7,650.00	29.97	22.15	7,344.17	1,296.83	360.15	521.58	10.00	2.82	19.50
7,700.00	31.93	31.10	7,387.07	1,319.73	371.69	535.94	10.00	3.93	17.90
7,750.00	34.46	39.00	7,428.93	1,342.06	387.44	554.38	10.00	5.05	15.79
7,800.00	37.42	45.86	7,469.42	1,363.65	407.25	576.77	10.00	5.93	13.73
7,850.00	40.73	51.81	7,508.24	1,384.33	430.99	602.94	10.00	6.62	11.90
7,897.07	44.10	56.70	7,543.00	1,402.83	456.77	630.86	10.00	7.14	10.39
<b>Niobrara Top</b>									
7,900.00	44.31	56.98	7,545.10	1,403.94	458.48	632.69	10.00	7.37	9.70
7,950.00	48.09	61.52	7,579.71	1,422.34	489.49	665.79	10.00	7.56	9.07
8,000.00	52.03	65.54	7,611.80	1,439.39	523.81	701.99	10.00	7.88	8.03
8,050.00	56.10	69.14	7,641.15	1,454.95	561.16	741.01	10.00	8.13	7.20
8,100.00	60.25	72.41	7,667.51	1,468.91	601.27	782.57	10.00	8.32	6.54
8,150.00	64.49	75.41	7,690.70	1,481.16	643.82	826.33	10.00	8.46	6.01
8,200.00	68.78	78.21	7,710.53	1,491.60	688.50	871.97	10.00	8.58	5.60
8,250.00	73.11	80.86	7,726.86	1,500.17	734.96	919.14	10.00	8.67	5.28
8,300.00	77.47	83.38	7,739.55	1,506.79	782.85	967.48	10.00	8.73	5.04
8,327.80	79.91	84.74	7,745.00	1,509.61	809.96	994.73	10.00	8.77	4.91
<b>D Chalk Top</b>									

# 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>	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 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<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)	
8,350.00	81.86	85.82	7,748.52	1,511.41	831.80	1,016.63	10.00	8.79	4.84	
8,400.00	86.26	88.20	7,753.69	1,514.00	881.45	1,066.20	10.00	8.80	4.77	
8,451.98	90.85	90.65	7,755.00	1,514.52	933.39	1,117.79	10.00	8.82	4.72	
<b>BPI: 1216' FNL, 460' FWL - Big Sandy 3-65 36-31 2AH BPI</b>										
8,500.00	90.85	90.66	7,754.29	1,513.97	981.41	1,165.35	0.00	0.00	0.00	
8,600.00	90.85	90.66	7,752.82	1,512.83	1,081.39	1,264.38	0.00	0.00	0.00	
8,700.00	90.85	90.66	7,751.34	1,511.69	1,181.37	1,363.41	0.00	0.00	0.00	
8,800.00	90.85	90.66	7,749.86	1,510.54	1,281.35	1,462.44	0.00	0.00	0.00	
8,900.00	90.85	90.66	7,748.39	1,509.40	1,381.34	1,561.48	0.00	0.00	0.00	
9,000.00	90.85	90.66	7,746.91	1,508.26	1,481.32	1,660.51	0.00	0.00	0.00	
9,100.00	90.85	90.66	7,745.43	1,507.11	1,581.30	1,759.54	0.00	0.00	0.00	
9,200.00	90.85	90.66	7,743.96	1,505.97	1,681.28	1,858.57	0.00	0.00	0.00	
9,300.00	90.85	90.66	7,742.48	1,504.83	1,781.27	1,957.60	0.00	0.00	0.00	
9,400.00	90.85	90.66	7,741.01	1,503.68	1,881.25	2,056.63	0.00	0.00	0.00	
9,500.00	90.85	90.66	7,739.53	1,502.54	1,981.23	2,155.67	0.00	0.00	0.00	
9,600.00	90.85	90.66	7,738.05	1,501.40	2,081.21	2,254.70	0.00	0.00	0.00	
9,700.00	90.85	90.66	7,736.58	1,500.26	2,181.20	2,353.73	0.00	0.00	0.00	
9,800.00	90.85	90.66	7,735.10	1,499.11	2,281.18	2,452.76	0.00	0.00	0.00	
9,900.00	90.85	90.66	7,733.63	1,497.97	2,381.16	2,551.79	0.00	0.00	0.00	
10,000.00	90.85	90.66	7,732.15	1,496.83	2,481.14	2,650.82	0.00	0.00	0.00	
10,100.00	90.85	90.66	7,730.67	1,495.68	2,581.13	2,749.86	0.00	0.00	0.00	
10,200.00	90.85	90.66	7,729.20	1,494.54	2,681.11	2,848.89	0.00	0.00	0.00	
10,300.00	90.85	90.66	7,727.72	1,493.40	2,781.09	2,947.92	0.00	0.00	0.00	
10,400.00	90.85	90.66	7,726.25	1,492.25	2,881.07	3,046.95	0.00	0.00	0.00	
10,500.00	90.85	90.66	7,724.77	1,491.11	2,981.06	3,145.98	0.00	0.00	0.00	
10,600.00	90.85	90.66	7,723.29	1,489.97	3,081.04	3,245.01	0.00	0.00	0.00	
10,700.00	90.85	90.66	7,721.82	1,488.82	3,181.02	3,344.05	0.00	0.00	0.00	
10,800.00	90.85	90.66	7,720.34	1,487.68	3,281.01	3,443.08	0.00	0.00	0.00	
10,900.00	90.85	90.66	7,718.86	1,486.54	3,380.99	3,542.11	0.00	0.00	0.00	
11,000.00	90.85	90.66	7,717.39	1,485.39	3,480.97	3,641.14	0.00	0.00	0.00	
11,100.00	90.85	90.66	7,715.91	1,484.25	3,580.95	3,740.17	0.00	0.00	0.00	
11,200.00	90.85	90.66	7,714.44	1,483.11	3,680.94	3,839.20	0.00	0.00	0.00	
11,300.00	90.85	90.66	7,712.96	1,481.97	3,780.92	3,938.24	0.00	0.00	0.00	
11,400.00	90.85	90.66	7,711.48	1,480.82	3,880.90	4,037.27	0.00	0.00	0.00	
11,500.00	90.85	90.66	7,710.01	1,479.68	3,980.88	4,136.30	0.00	0.00	0.00	
11,600.00	90.85	90.66	7,708.53	1,478.54	4,080.87	4,235.33	0.00	0.00	0.00	
11,700.00	90.85	90.66	7,707.06	1,477.39	4,180.85	4,334.36	0.00	0.00	0.00	
11,800.00	90.85	90.66	7,705.58	1,476.25	4,280.83	4,433.39	0.00	0.00	0.00	
11,900.00	90.85	90.66	7,704.10	1,475.11	4,380.81	4,532.43	0.00	0.00	0.00	
12,000.00	90.85	90.66	7,702.63	1,473.96	4,480.80	4,631.46	0.00	0.00	0.00	
12,100.00	90.85	90.66	7,701.15	1,472.82	4,580.78	4,730.49	0.00	0.00	0.00	
12,200.00	90.85	90.66	7,699.67	1,471.68	4,680.76	4,829.52	0.00	0.00	0.00	
12,300.00	90.85	90.66	7,698.20	1,470.53	4,780.74	4,928.55	0.00	0.00	0.00	
12,400.00	90.85	90.66	7,696.72	1,469.39	4,880.73	5,027.58	0.00	0.00	0.00	
12,500.00	90.85	90.66	7,695.25	1,468.25	4,980.71	5,126.62	0.00	0.00	0.00	
12,600.00	90.85	90.66	7,693.77	1,467.10	5,080.69	5,225.65	0.00	0.00	0.00	
12,700.00	90.85	90.66	7,692.29	1,465.96	5,180.67	5,324.68	0.00	0.00	0.00	
12,800.00	90.85	90.66	7,690.82	1,464.82	5,280.66	5,423.71	0.00	0.00	0.00	
12,900.00	90.85	90.66	7,689.34	1,463.68	5,380.64	5,522.74	0.00	0.00	0.00	
13,000.00	90.85	90.66	7,687.87	1,462.53	5,480.62	5,621.77	0.00	0.00	0.00	
13,100.00	90.85	90.66	7,686.39	1,461.39	5,580.60	5,720.81	0.00	0.00	0.00	
13,200.00	90.85	90.66	7,684.91	1,460.25	5,680.59	5,819.84	0.00	0.00	0.00	
13,300.00	90.85	90.66	7,683.44	1,459.10	5,780.57	5,918.87	0.00	0.00	0.00	
13,400.00	90.85	90.66	7,681.96	1,457.96	5,880.55	6,017.90	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>	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 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<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	90.85	90.66	7,680.49	1,456.82	5,980.53	6,116.93	0.00	0.00	0.00
13,600.00	90.85	90.66	7,679.01	1,455.67	6,080.52	6,215.96	0.00	0.00	0.00
13,700.00	90.85	90.66	7,677.53	1,454.53	6,180.50	6,315.00	0.00	0.00	0.00
13,800.00	90.85	90.66	7,676.06	1,453.39	6,280.48	6,414.03	0.00	0.00	0.00
13,900.00	90.85	90.66	7,674.58	1,452.24	6,380.46	6,513.06	0.00	0.00	0.00
14,000.00	90.85	90.66	7,673.10	1,451.10	6,480.45	6,612.09	0.00	0.00	0.00
14,100.00	90.85	90.66	7,671.63	1,449.96	6,580.43	6,711.12	0.00	0.00	0.00
14,200.00	90.85	90.66	7,670.15	1,448.82	6,680.41	6,810.15	0.00	0.00	0.00
14,300.00	90.85	90.66	7,668.68	1,447.67	6,780.40	6,909.19	0.00	0.00	0.00
14,400.00	90.85	90.66	7,667.20	1,446.53	6,880.38	7,008.22	0.00	0.00	0.00
14,500.00	90.85	90.66	7,665.72	1,445.39	6,980.36	7,107.25	0.00	0.00	0.00
14,600.00	90.85	90.66	7,664.25	1,444.24	7,080.34	7,206.28	0.00	0.00	0.00
14,700.00	90.85	90.66	7,662.77	1,443.10	7,180.33	7,305.31	0.00	0.00	0.00
14,800.00	90.85	90.66	7,661.30	1,441.96	7,280.31	7,404.34	0.00	0.00	0.00
14,900.00	90.85	90.66	7,659.82	1,440.81	7,380.29	7,503.38	0.00	0.00	0.00
15,000.00	90.85	90.66	7,658.34	1,439.67	7,480.27	7,602.41	0.00	0.00	0.00
15,100.00	90.85	90.66	7,656.87	1,438.53	7,580.26	7,701.44	0.00	0.00	0.00
15,200.00	90.85	90.66	7,655.39	1,437.38	7,680.24	7,800.47	0.00	0.00	0.00
15,300.00	90.85	90.66	7,653.92	1,436.24	7,780.22	7,899.50	0.00	0.00	0.00
15,400.00	90.85	90.66	7,652.44	1,435.10	7,880.20	7,998.53	0.00	0.00	0.00
15,500.00	90.85	90.66	7,650.96	1,433.95	7,980.19	8,097.57	0.00	0.00	0.00
15,600.00	90.85	90.66	7,649.49	1,432.81	8,080.17	8,196.60	0.00	0.00	0.00
15,700.00	90.85	90.66	7,648.01	1,431.67	8,180.15	8,295.63	0.00	0.00	0.00
15,800.00	90.85	90.66	7,646.53	1,430.53	8,280.13	8,394.66	0.00	0.00	0.00
15,900.00	90.85	90.66	7,645.06	1,429.38	8,380.12	8,493.69	0.00	0.00	0.00
16,000.00	90.85	90.66	7,643.58	1,428.24	8,480.10	8,592.72	0.00	0.00	0.00
16,100.00	90.85	90.66	7,642.11	1,427.10	8,580.08	8,691.76	0.00	0.00	0.00
16,200.00	90.85	90.66	7,640.63	1,425.95	8,680.06	8,790.79	0.00	0.00	0.00
16,300.00	90.85	90.66	7,639.15	1,424.81	8,780.05	8,889.82	0.00	0.00	0.00
16,400.00	90.85	90.66	7,637.68	1,423.67	8,880.03	8,988.85	0.00	0.00	0.00
16,500.00	90.85	90.66	7,636.20	1,422.52	8,980.01	9,087.88	0.00	0.00	0.00
16,600.00	90.85	90.66	7,634.73	1,421.38	9,079.99	9,186.91	0.00	0.00	0.00
16,700.00	90.85	90.66	7,633.25	1,420.24	9,179.98	9,285.95	0.00	0.00	0.00
16,800.00	90.85	90.66	7,631.77	1,419.09	9,279.96	9,384.98	0.00	0.00	0.00
16,900.00	90.85	90.66	7,630.30	1,417.95	9,379.94	9,484.01	0.00	0.00	0.00
17,000.00	90.85	90.66	7,628.82	1,416.81	9,479.92	9,583.04	0.00	0.00	0.00
17,100.00	90.85	90.66	7,627.35	1,415.66	9,579.91	9,682.07	0.00	0.00	0.00
17,200.00	90.85	90.66	7,625.87	1,414.52	9,679.89	9,781.10	0.00	0.00	0.00
17,300.00	90.85	90.66	7,624.39	1,413.38	9,779.87	9,880.14	0.00	0.00	0.00
17,400.00	90.85	90.66	7,622.92	1,412.24	9,879.85	9,979.17	0.00	0.00	0.00
17,500.00	90.85	90.66	7,621.44	1,411.09	9,979.84	10,078.20	0.00	0.00	0.00
17,600.00	90.85	90.66	7,619.96	1,409.95	10,079.82	10,177.23	0.00	0.00	0.00
17,700.00	90.85	90.66	7,618.49	1,408.81	10,179.80	10,276.26	0.00	0.00	0.00
17,800.00	90.85	90.66	7,617.01	1,407.66	10,279.79	10,375.29	0.00	0.00	0.00
17,900.00	90.85	90.66	7,615.54	1,406.52	10,379.77	10,474.33	0.00	0.00	0.00
18,000.00	90.85	90.66	7,614.06	1,405.38	10,479.75	10,573.36	0.00	0.00	0.00
18,100.00	90.85	90.66	7,612.58	1,404.23	10,579.73	10,672.39	0.00	0.00	0.00
18,200.00	90.85	90.66	7,611.11	1,403.09	10,679.72	10,771.42	0.00	0.00	0.00
18,300.00	90.85	90.66	7,609.63	1,401.95	10,779.70	10,870.45	0.00	0.00	0.00
18,400.00	90.85	90.66	7,608.16	1,400.80	10,879.68	10,969.48	0.00	0.00	0.00
18,478.28	90.85	90.66	7,607.00	1,399.91	10,957.95	11,047.01	0.00	0.00	0.00

BHL: 1240' FNL, 325' FEL - 5-1/2" Casing - Big Sandy 3-65 36-31 2AH BHL

# 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>	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 2AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Big Sandy 3-65 36-31 2AH		
<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	7,607.00	1,399.91	10,957.95	1,153,338.750	3,257,408.920	39° 45' 2.281 N	104° 35' 4.263 W
Big Sandy 3-65 36-31 - plan hits target center - Point	0.00	0.00	7,755.00	1,514.52	933.39	1,153,354.270	3,247,383.790	39° 45' 3.437 N	104° 37' 12.610 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
18,478.28	7,607.00	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	
7,897.07	7,543.00	Niobrara Top		0.00	
8,327.80	7,745.00	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: 2545' FSL, 465' FEL
7,615.78	7,314.37	1,280.91	354.71	KOP: 1450' FNL, 110' FEL
8,451.98	7,755.00	1,514.52	933.39	BPI: 1216' FNL, 460' FWL
18,478.28	7,607.00	1,399.91	10,957.95	BHL: 1240' FNL, 325' FEL