



ConocoPhillips

Arapahoe County, Colorado

Rush 4-65 29-30 1DH

Design A

Casing Depths

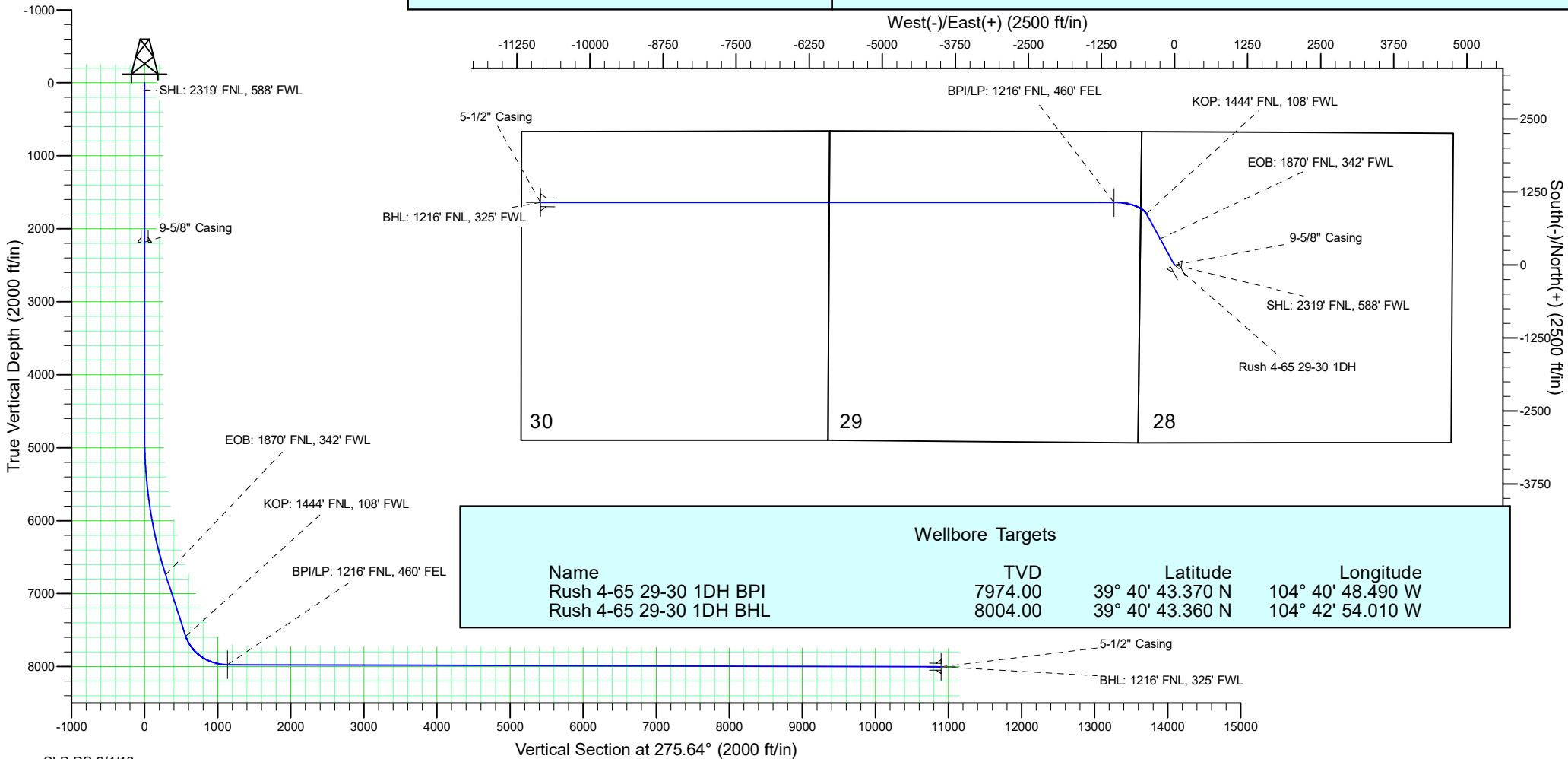
TVD	MD	Name	Size
2185.00	2185.00	9-5/8" Casing	9-5/8
8004.00	18379.09	5-1/2" Casing	5-1/2

Ground Level: 5648.90
 Surface Location Latitude: 39° 40' 32.790 N
 Surface Location Longitude: 104° 40' 35.260 W
 North Reference: True
 25' RKB @ 5673.90ft (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
4834.00	0.00	0.00	4834.00	0.00	0.00	0.00	0.00
6833.69	30.00	331.25	6743.59	448.52	-246.08	1.50	288.99
7805.75	30.00	331.25	7585.46	874.57	-479.83	0.00	563.50
8565.01	89.82	270.01	7974.00	1070.57	-1034.38	10.00	1134.63
18379.09	89.82	270.01	8004.00	1071.84	-10848.41	0.00	10901.23

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



Wellbore Targets

Name	TVD	Latitude	Longitude
Rush 4-65 29-30 1DH BPI	7974.00	39° 40' 43.370 N	104° 40' 48.490 W
Rush 4-65 29-30 1DH BHL	8004.00	39° 40' 43.360 N	104° 42' 54.010 W

ConocoPhillips RBU Gold Data

Niobrara Central Zone

Rush

Rush 4-65 29-30 1DH

Rush 4-65 29-30 1DH

Plan: Design A

Standard Planning Report

04 September, 2018

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	Design A		

Project Niobrara Central Zone, Colorado Central Zone, FIPS Zone: 0502			
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site Rush			
Site Position:		Northing:	1,674,265.179 usft
From:	Lat/Long	Easting:	3,220,614.549 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	39° 40' 55.358 N
		Longitude:	104° 42' 58.151 W
		Grid Convergence:	0.49 °

Well Rush 4-65 29-30 1DH			
Well Position	+N/-S	-2,281.15 ft	Northing: 1,672,080.540 usft
	+E/-W	11,172.62 ft	Easting: 3,231,806.274 usft
Position Uncertainty		2.00 ft	Wellhead Elevation: 5,648.90 ft
			Latitude: 39° 40' 32.790 N
			Longitude: 104° 40' 35.260 W
			Ground Level: 5,648.90 ft

Wellbore Rush 4-65 29-30 1DH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2018	12/1/2018	8.14	66.27	51,842.50649885

Design Design A				
Audit Notes:				
Version:	0	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	275.64

Plan Survey Tool Program		Date			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,185.00	Design A (Rush 4-65 29-30 1DH)	Gyro-BM-MS	
				Gyro - bat/mem drop m/s	
2	2,185.00	4,834.00	Design A (Rush 4-65 29-30 1DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) correctic	
3	4,834.00	6,833.69	Design A (Rush 4-65 29-30 1DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) correctic	
4	6,833.69	7,805.75	Design A (Rush 4-65 29-30 1DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) correctic	
5	7,805.75	8,565.01	Design A (Rush 4-65 29-30 1DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) correctic	
6	8,565.01	18,379.09	Design A (Rush 4-65 29-30 1DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) correctic	

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	Design A		

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	
4,834.00	0.00	0.00	4,834.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,833.69	30.00	331.25	6,743.59	448.52	-246.08	1.50	1.50	0.00	331.25	
7,805.75	30.00	331.25	7,585.46	874.57	-479.83	0.00	0.00	0.00	0.00	
8,565.01	89.82	270.01	7,974.00	1,070.57	-1,034.38	10.00	7.88	-8.07	-64.66	Rush 4-65 29-30 1DH
18,379.09	89.82	270.01	8,004.00	1,071.84	-10,848.41	0.00	0.00	0.00	0.00	Rush 4-65 29-30 1DH

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL: 2319' FNL, 588' FWL										
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
1,600.00	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
1,725.00	0.00	0.00	1,725.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Top										
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,985.00	0.00	0.00	1,985.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Top - Fox Hills Base										
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,185.00	0.00	0.00	2,185.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing - 9-5/8" Casing										
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
4,000.00	0.00	0.00	4,000.00	0.00	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	0.00
4,200.00	0.00	0.00	4,200.00	0.00	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	0.00
4,400.00	0.00	0.00	4,400.00	0.00	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	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	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)
4,700.00	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
4,834.00	0.00	0.00	4,834.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.99	331.25	4,900.00	0.50	-0.27	0.32	1.50	1.50	0.00
5,000.00	2.49	331.25	4,999.95	3.16	-1.73	2.04	1.50	1.50	0.00
5,100.00	3.99	331.25	5,099.79	8.12	-4.45	5.23	1.50	1.50	0.00
5,200.00	5.49	331.25	5,199.44	15.36	-8.43	9.90	1.50	1.50	0.00
5,300.00	6.99	331.25	5,298.85	24.89	-13.66	16.04	1.50	1.50	0.00
5,400.00	8.49	331.25	5,397.93	36.70	-20.13	23.64	1.50	1.50	0.00
5,500.00	9.99	331.25	5,496.63	50.77	-27.86	32.71	1.50	1.50	0.00
5,600.00	11.49	331.25	5,594.88	67.11	-36.82	43.24	1.50	1.50	0.00
5,700.00	12.99	331.25	5,692.60	85.70	-47.02	55.22	1.50	1.50	0.00
5,800.00	14.49	331.25	5,789.74	106.52	-58.44	68.63	1.50	1.50	0.00
5,900.00	15.99	331.25	5,886.22	129.57	-71.09	83.48	1.50	1.50	0.00
6,000.00	17.49	331.25	5,981.98	154.82	-84.94	99.75	1.50	1.50	0.00
6,100.00	18.99	331.25	6,076.95	182.26	-100.00	117.43	1.50	1.50	0.00
6,200.00	20.49	331.25	6,171.07	211.87	-116.24	136.51	1.50	1.50	0.00
6,300.00	21.99	331.25	6,264.27	243.63	-133.67	156.97	1.50	1.50	0.00
6,400.00	23.49	331.25	6,356.50	277.52	-152.26	178.81	1.50	1.50	0.00
6,500.00	24.99	331.25	6,447.68	313.51	-172.01	202.00	1.50	1.50	0.00
6,600.00	26.49	331.25	6,537.75	351.58	-192.90	226.53	1.50	1.50	0.00
6,700.00	27.99	331.25	6,626.66	391.71	-214.91	252.38	1.50	1.50	0.00
6,800.00	29.49	331.25	6,714.34	433.87	-238.04	279.54	1.50	1.50	0.00
6,833.69	30.00	331.25	6,743.59	448.52	-246.08	288.99	1.50	1.50	0.00
EOB: 1870' FNL, 342' FWL									
6,900.00	30.00	331.25	6,801.02	477.58	-262.02	307.71	0.00	0.00	0.00
7,000.00	30.00	331.25	6,887.63	521.41	-286.07	335.95	0.00	0.00	0.00
7,100.00	30.00	331.25	6,974.23	565.24	-310.12	364.19	0.00	0.00	0.00
7,200.00	30.00	331.25	7,060.84	609.07	-334.17	392.43	0.00	0.00	0.00
7,300.00	30.00	331.25	7,147.45	652.90	-358.21	420.67	0.00	0.00	0.00
7,400.00	30.00	331.25	7,234.05	696.73	-382.26	448.91	0.00	0.00	0.00
7,500.00	30.00	331.25	7,320.66	740.56	-406.31	477.15	0.00	0.00	0.00
7,600.00	30.00	331.25	7,407.27	784.39	-430.35	505.39	0.00	0.00	0.00
7,700.00	30.00	331.25	7,493.87	828.22	-454.40	533.63	0.00	0.00	0.00
7,805.75	30.00	331.25	7,585.46	874.57	-479.83	563.50	0.00	0.00	0.00
KOP: 1444' FNL, 108' FWL									
7,850.00	32.12	323.71	7,623.38	893.76	-492.12	577.61	10.00	4.79	-17.03
7,900.00	34.98	316.29	7,665.06	914.84	-509.90	597.38	10.00	5.73	-14.85
7,950.00	38.24	309.92	7,705.21	935.15	-531.69	621.06	10.00	6.51	-12.74
8,000.00	41.79	304.44	7,743.51	954.51	-557.31	648.46	10.00	7.10	-10.96
8,050.00	45.57	299.69	7,779.67	972.78	-586.58	679.38	10.00	7.56	-9.49
8,061.99	46.50	298.64	7,788.00	976.99	-594.11	687.29	10.00	7.78	-8.72
Niobrara Top									
8,100.00	49.52	295.53	7,813.43	989.83	-619.26	713.58	10.00	7.94	-8.19
8,150.00	53.60	291.84	7,844.51	1,005.53	-655.12	750.81	10.00	8.17	-7.38
8,200.00	57.78	288.53	7,872.70	1,019.74	-693.88	790.78	10.00	8.37	-6.63
8,250.00	62.05	285.51	7,897.76	1,032.38	-735.24	833.18	10.00	8.53	-6.04
8,300.00	66.37	282.72	7,919.51	1,043.33	-778.89	877.69	10.00	8.65	-5.58
8,350.00	70.74	280.11	7,937.79	1,052.53	-824.49	923.98	10.00	8.74	-5.22
8,400.00	75.15	277.64	7,952.45	1,059.89	-871.71	971.69	10.00	8.81	-4.95
8,450.00	79.58	275.26	7,963.39	1,065.36	-920.17	1,020.46	10.00	8.86	-4.75
8,453.44	79.88	275.10	7,964.00	1,065.66	-923.54	1,023.84	10.00	8.88	-4.67
D Chalk Top									

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	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)
8,500.00	84.03	272.96	7,970.51	1,068.90	-969.52	1,069.92	10.00	8.90	-4.61
8,550.00	88.49	270.69	7,973.78	1,070.48	-1,019.37	1,119.68	10.00	8.92	-4.54
8,565.01	89.82	270.01	7,974.00	1,070.57	-1,034.38	1,134.63	10.00	8.92	-4.52
BPI/LP: 1216' FNL, 460' FEL									
8,600.00	89.82	270.01	7,974.11	1,070.57	-1,069.37	1,169.45	0.00	0.00	0.00
8,700.00	89.82	270.01	7,974.41	1,070.59	-1,169.37	1,268.96	0.00	0.00	0.00
8,800.00	89.82	270.01	7,974.72	1,070.60	-1,269.37	1,368.48	0.00	0.00	0.00
8,900.00	89.82	270.01	7,975.02	1,070.61	-1,369.37	1,468.00	0.00	0.00	0.00
9,000.00	89.82	270.01	7,975.33	1,070.62	-1,469.37	1,567.51	0.00	0.00	0.00
9,100.00	89.82	270.01	7,975.64	1,070.64	-1,569.36	1,667.03	0.00	0.00	0.00
9,200.00	89.82	270.01	7,975.94	1,070.65	-1,669.36	1,766.54	0.00	0.00	0.00
9,300.00	89.82	270.01	7,976.25	1,070.66	-1,769.36	1,866.06	0.00	0.00	0.00
9,400.00	89.82	270.01	7,976.55	1,070.68	-1,869.36	1,965.58	0.00	0.00	0.00
9,500.00	89.82	270.01	7,976.86	1,070.69	-1,969.36	2,065.09	0.00	0.00	0.00
9,600.00	89.82	270.01	7,977.16	1,070.70	-2,069.36	2,164.61	0.00	0.00	0.00
9,700.00	89.82	270.01	7,977.47	1,070.72	-2,169.36	2,264.13	0.00	0.00	0.00
9,800.00	89.82	270.01	7,977.78	1,070.73	-2,269.36	2,363.64	0.00	0.00	0.00
9,900.00	89.82	270.01	7,978.08	1,070.74	-2,369.36	2,463.16	0.00	0.00	0.00
10,000.00	89.82	270.01	7,978.39	1,070.75	-2,469.36	2,562.68	0.00	0.00	0.00
10,100.00	89.82	270.01	7,978.69	1,070.77	-2,569.36	2,662.19	0.00	0.00	0.00
10,200.00	89.82	270.01	7,979.00	1,070.78	-2,669.36	2,761.71	0.00	0.00	0.00
10,300.00	89.82	270.01	7,979.30	1,070.79	-2,769.36	2,861.22	0.00	0.00	0.00
10,400.00	89.82	270.01	7,979.61	1,070.81	-2,869.36	2,960.74	0.00	0.00	0.00
10,500.00	89.82	270.01	7,979.92	1,070.82	-2,969.36	3,060.26	0.00	0.00	0.00
10,600.00	89.82	270.01	7,980.22	1,070.83	-3,069.36	3,159.77	0.00	0.00	0.00
10,700.00	89.82	270.01	7,980.53	1,070.84	-3,169.36	3,259.29	0.00	0.00	0.00
10,800.00	89.82	270.01	7,980.83	1,070.86	-3,269.36	3,358.81	0.00	0.00	0.00
10,900.00	89.82	270.01	7,981.14	1,070.87	-3,369.36	3,458.32	0.00	0.00	0.00
11,000.00	89.82	270.01	7,981.44	1,070.88	-3,469.36	3,557.84	0.00	0.00	0.00
11,100.00	89.82	270.01	7,981.75	1,070.90	-3,569.36	3,657.35	0.00	0.00	0.00
11,200.00	89.82	270.01	7,982.05	1,070.91	-3,669.36	3,756.87	0.00	0.00	0.00
11,300.00	89.82	270.01	7,982.36	1,070.92	-3,769.35	3,856.39	0.00	0.00	0.00
11,400.00	89.82	270.01	7,982.67	1,070.94	-3,869.35	3,955.90	0.00	0.00	0.00
11,500.00	89.82	270.01	7,982.97	1,070.95	-3,969.35	4,055.42	0.00	0.00	0.00
11,600.00	89.82	270.01	7,983.28	1,070.96	-4,069.35	4,154.94	0.00	0.00	0.00
11,700.00	89.82	270.01	7,983.58	1,070.97	-4,169.35	4,254.45	0.00	0.00	0.00
11,800.00	89.82	270.01	7,983.89	1,070.99	-4,269.35	4,353.97	0.00	0.00	0.00
11,900.00	89.82	270.01	7,984.19	1,071.00	-4,369.35	4,453.48	0.00	0.00	0.00
12,000.00	89.82	270.01	7,984.50	1,071.01	-4,469.35	4,553.00	0.00	0.00	0.00
12,100.00	89.82	270.01	7,984.81	1,071.03	-4,569.35	4,652.52	0.00	0.00	0.00
12,200.00	89.82	270.01	7,985.11	1,071.04	-4,669.35	4,752.03	0.00	0.00	0.00
12,300.00	89.82	270.01	7,985.42	1,071.05	-4,769.35	4,851.55	0.00	0.00	0.00
12,400.00	89.82	270.01	7,985.72	1,071.06	-4,869.35	4,951.07	0.00	0.00	0.00
12,500.00	89.82	270.01	7,986.03	1,071.08	-4,969.35	5,050.58	0.00	0.00	0.00
12,600.00	89.82	270.01	7,986.33	1,071.09	-5,069.35	5,150.10	0.00	0.00	0.00
12,700.00	89.82	270.01	7,986.64	1,071.10	-5,169.35	5,249.61	0.00	0.00	0.00
12,800.00	89.82	270.01	7,986.95	1,071.12	-5,269.35	5,349.13	0.00	0.00	0.00
12,900.00	89.82	270.01	7,987.25	1,071.13	-5,369.35	5,448.65	0.00	0.00	0.00
13,000.00	89.82	270.01	7,987.56	1,071.14	-5,469.35	5,548.16	0.00	0.00	0.00
13,100.00	89.82	270.01	7,987.86	1,071.15	-5,569.35	5,647.68	0.00	0.00	0.00
13,200.00	89.82	270.01	7,988.17	1,071.17	-5,669.35	5,747.20	0.00	0.00	0.00
13,300.00	89.82	270.01	7,988.47	1,071.18	-5,769.35	5,846.71	0.00	0.00	0.00
13,400.00	89.82	270.01	7,988.78	1,071.19	-5,869.34	5,946.23	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	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	89.82	270.01	7,989.09	1,071.21	-5,969.34	6,045.74	0.00	0.00	0.00	
13,600.00	89.82	270.01	7,989.39	1,071.22	-6,069.34	6,145.26	0.00	0.00	0.00	
13,700.00	89.82	270.01	7,989.70	1,071.23	-6,169.34	6,244.78	0.00	0.00	0.00	
13,800.00	89.82	270.01	7,990.00	1,071.25	-6,269.34	6,344.29	0.00	0.00	0.00	
13,900.00	89.82	270.01	7,990.31	1,071.26	-6,369.34	6,443.81	0.00	0.00	0.00	
14,000.00	89.82	270.01	7,990.61	1,071.27	-6,469.34	6,543.33	0.00	0.00	0.00	
14,100.00	89.82	270.01	7,990.92	1,071.28	-6,569.34	6,642.84	0.00	0.00	0.00	
14,200.00	89.82	270.01	7,991.23	1,071.30	-6,669.34	6,742.36	0.00	0.00	0.00	
14,300.00	89.82	270.01	7,991.53	1,071.31	-6,769.34	6,841.87	0.00	0.00	0.00	
14,400.00	89.82	270.01	7,991.84	1,071.32	-6,869.34	6,941.39	0.00	0.00	0.00	
14,500.00	89.82	270.01	7,992.14	1,071.34	-6,969.34	7,040.91	0.00	0.00	0.00	
14,600.00	89.82	270.01	7,992.45	1,071.35	-7,069.34	7,140.42	0.00	0.00	0.00	
14,700.00	89.82	270.01	7,992.75	1,071.36	-7,169.34	7,239.94	0.00	0.00	0.00	
14,800.00	89.82	270.01	7,993.06	1,071.37	-7,269.34	7,339.46	0.00	0.00	0.00	
14,900.00	89.82	270.01	7,993.37	1,071.39	-7,369.34	7,438.97	0.00	0.00	0.00	
15,000.00	89.82	270.01	7,993.67	1,071.40	-7,469.34	7,538.49	0.00	0.00	0.00	
15,100.00	89.82	270.01	7,993.98	1,071.41	-7,569.34	7,638.00	0.00	0.00	0.00	
15,200.00	89.82	270.01	7,994.28	1,071.43	-7,669.34	7,737.52	0.00	0.00	0.00	
15,300.00	89.82	270.01	7,994.59	1,071.44	-7,769.34	7,837.04	0.00	0.00	0.00	
15,400.00	89.82	270.01	7,994.89	1,071.45	-7,869.34	7,936.55	0.00	0.00	0.00	
15,500.00	89.82	270.01	7,995.20	1,071.47	-7,969.34	8,036.07	0.00	0.00	0.00	
15,600.00	89.82	270.01	7,995.50	1,071.48	-8,069.33	8,135.59	0.00	0.00	0.00	
15,700.00	89.82	270.01	7,995.81	1,071.49	-8,169.33	8,235.10	0.00	0.00	0.00	
15,800.00	89.82	270.01	7,996.12	1,071.50	-8,269.33	8,334.62	0.00	0.00	0.00	
15,900.00	89.82	270.01	7,996.42	1,071.52	-8,369.33	8,434.13	0.00	0.00	0.00	
16,000.00	89.82	270.01	7,996.73	1,071.53	-8,469.33	8,533.65	0.00	0.00	0.00	
16,100.00	89.82	270.01	7,997.03	1,071.54	-8,569.33	8,633.17	0.00	0.00	0.00	
16,200.00	89.82	270.01	7,997.34	1,071.56	-8,669.33	8,732.68	0.00	0.00	0.00	
16,300.00	89.82	270.01	7,997.64	1,071.57	-8,769.33	8,832.20	0.00	0.00	0.00	
16,400.00	89.82	270.01	7,997.95	1,071.58	-8,869.33	8,931.72	0.00	0.00	0.00	
16,500.00	89.82	270.01	7,998.26	1,071.59	-8,969.33	9,031.23	0.00	0.00	0.00	
16,600.00	89.82	270.01	7,998.56	1,071.61	-9,069.33	9,130.75	0.00	0.00	0.00	
16,700.00	89.82	270.01	7,998.87	1,071.62	-9,169.33	9,230.26	0.00	0.00	0.00	
16,800.00	89.82	270.01	7,999.17	1,071.63	-9,269.33	9,329.78	0.00	0.00	0.00	
16,900.00	89.82	270.01	7,999.48	1,071.65	-9,369.33	9,429.30	0.00	0.00	0.00	
17,000.00	89.82	270.01	7,999.78	1,071.66	-9,469.33	9,528.81	0.00	0.00	0.00	
17,100.00	89.82	270.01	8,000.09	1,071.67	-9,569.33	9,628.33	0.00	0.00	0.00	
17,200.00	89.82	270.01	8,000.40	1,071.68	-9,669.33	9,727.85	0.00	0.00	0.00	
17,300.00	89.82	270.01	8,000.70	1,071.70	-9,769.33	9,827.36	0.00	0.00	0.00	
17,400.00	89.82	270.01	8,001.01	1,071.71	-9,869.33	9,926.88	0.00	0.00	0.00	
17,500.00	89.82	270.01	8,001.31	1,071.72	-9,969.33	10,026.40	0.00	0.00	0.00	
17,600.00	89.82	270.01	8,001.62	1,071.74	-10,069.33	10,125.91	0.00	0.00	0.00	
17,700.00	89.82	270.01	8,001.92	1,071.75	-10,169.32	10,225.43	0.00	0.00	0.00	
17,800.00	89.82	270.01	8,002.23	1,071.76	-10,269.32	10,324.94	0.00	0.00	0.00	
17,900.00	89.82	270.01	8,002.54	1,071.78	-10,369.32	10,424.46	0.00	0.00	0.00	
18,000.00	89.82	270.01	8,002.84	1,071.79	-10,469.32	10,523.98	0.00	0.00	0.00	
18,100.00	89.82	270.01	8,003.15	1,071.80	-10,569.32	10,623.49	0.00	0.00	0.00	
18,200.00	89.82	270.01	8,003.45	1,071.81	-10,669.32	10,723.01	0.00	0.00	0.00	
18,300.00	89.82	270.01	8,003.76	1,071.83	-10,769.32	10,822.53	0.00	0.00	0.00	
18,379.09	89.82	270.01	8,004.00	1,071.84	-10,848.41	10,901.23	0.00	0.00	0.00	
BHL: 1216' FNL, 325' FWL - 5-1/2" Casing										

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 1DH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5673.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5673.90ft (25' RKB)
Site:	Rush	North Reference:	True
Well:	Rush 4-65 29-30 1DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 1DH		
Design:	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
Rush 4-65 29-30 1DH B - plan hits target center - Point	0.00	0.00	7,974.00	1,070.57	-1,034.38	1,673,141.671	3,230,762.248	39° 40' 43.370 N	104° 40' 48.490 W
Rush 4-65 29-30 1DH B - plan hits target center - Point	0.00	0.00	8,004.00	1,071.84	-10,848.41	1,673,053.976	3,220,948.762	39° 40' 43.360 N	104° 42' 54.010 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
2,185.00	2,185.00	9-5/8" Casing	9-5/8	12-1/4	
18,379.09	8,004.00	5-1/2" Casing	5-1/2	8-1/2	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,725.00	1,725.00	Fox Hills Top		0.00	
1,985.00	1,985.00	Pierre Top - Fox Hills Base		0.00	
2,185.00	2,185.00	Surface Casing		0.00	
8,061.99	7,788.00	Niobrara Top		0.00	
8,453.44	7,964.00	D Chalk Top		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
100.00	100.00	0.00	0.00	SHL: 2319' FNL, 588' FWL	
6,833.69	6,743.59	448.52	-246.08	EOB: 1870' FNL, 342' FWL	
7,805.75	7,585.46	874.57	-479.83	KOP: 1444' FNL, 108' FWL	
8,565.01	7,974.00	1,070.57	-1,034.38	BPI/LP: 1216' FNL, 460' FEL	
18,379.09	8,004.00	1,071.84	-10,848.41	BHL: 1216' FNL, 325' FWL	