

ConocoPhillips RBU Gold Data_Niobrara

Niobrara - CO Central Zone

Rush 0465 2930

Little Rush 4-65 28 1V

Little Rush 4-65 28 1V

Plan: Little Rush 4-65 28 1V

Standard Planning Report

30 January, 2017

ConocoPhillips

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well Little Rush 4-65 28 1V
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5720.00ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5720.00ft
Site:	Rush 0465 2930	North Reference:	True
Well:	Little Rush 4-65 28 1V	Survey Calculation Method:	Minimum Curvature
Wellbore:	Little Rush 4-65 28 1V		
Design:	Little Rush 4-65 28 1V		

Project	Niobrara - CO Central Zone, Arapahoe, Douglas, Elbert County - Colorado, Definitive (Gold) Database		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	Rush 0465 2930				
Site Position:		Northing:	1,674,265.179 usft	Latitude:	39° 40' 55.358 N
From:	Lat/Long	Easting:	3,220,614.549 usft	Longitude:	104° 42' 58.151 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.49 °

Well	Little Rush 4-65 28 1V					
Well Position	+N/-S	-3,795.97 ft	Northing:	1,670,564.240 usft	Latitude:	39° 40' 17.820 N
	+E/-W	10,991.09 ft	Easting:	3,231,637.821 usft	Longitude:	104° 40' 37.590 W
Position Uncertainty		2.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,696.00 ft

Wellbore	Little Rush 4-65 28 1V				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	1/30/2017	8.32	66.36	52,067

Design	Little Rush 4-65 28 1V			
Audit Notes:				
Version:	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	90.00

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	
6,460.00	0.00	0.00	6,460.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,793.03	5.00	90.00	6,792.61	0.00	14.51	1.50	1.50	0.00	90.00	
7,470.38	5.00	90.00	7,467.39	0.00	73.49	0.00	0.00	0.00	0.00	
7,803.42	0.00	0.00	7,800.00	0.00	88.00	1.50	-1.50	0.00	180.00	
8,693.42	0.00	0.00	8,690.00	0.00	88.00	0.00	0.00	0.00	0.00	Little Rush 4-65 28 1V

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Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well Little Rush 4-65 28 1V
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5720.00ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5720.00ft
Site:	Rush 0465 2930	North Reference:	True
Well:	Little Rush 4-65 28 1V	Survey Calculation Method:	Minimum Curvature
Wellbore:	Little Rush 4-65 28 1V		
Design:	Little Rush 4-65 28 1V		

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
2,100.00	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
2,218.00	0.00	0.00	2,218.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface									
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
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
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00

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Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5720.00ft
Site:	Rush 0465 2930	North Reference:	True
Well:	Little Rush 4-65 28 1V	Survey Calculation Method:	Minimum Curvature
Wellbore:	Little Rush 4-65 28 1V		
Design:	Little Rush 4-65 28 1V		

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)	
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,460.00	0.00	0.00	6,460.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,500.00	0.60	90.00	6,500.00	0.00	0.21	0.21	1.50	1.50	0.00	
6,600.00	2.10	90.00	6,599.97	0.00	2.57	2.57	1.50	1.50	0.00	
6,700.00	3.60	90.00	6,699.84	0.00	7.54	7.54	1.50	1.50	0.00	
6,793.03	5.00	90.00	6,792.61	0.00	14.51	14.51	1.50	1.50	0.00	
6,800.00	5.00	90.00	6,799.55	0.00	15.12	15.12	0.00	0.00	0.00	
6,900.00	5.00	90.00	6,899.17	0.00	23.82	23.82	0.00	0.00	0.00	
7,000.00	5.00	90.00	6,998.79	0.00	32.53	32.53	0.00	0.00	0.00	
7,100.00	5.00	90.00	7,098.41	0.00	41.24	41.24	0.00	0.00	0.00	
7,200.00	5.00	90.00	7,198.03	0.00	49.95	49.95	0.00	0.00	0.00	
7,300.00	5.00	90.00	7,297.65	0.00	58.65	58.65	0.00	0.00	0.00	
7,400.00	5.00	90.00	7,397.27	0.00	67.36	67.36	0.00	0.00	0.00	
7,470.38	5.00	90.00	7,467.39	0.00	73.49	73.49	0.00	0.00	0.00	
7,500.00	4.55	90.00	7,496.90	0.00	75.96	75.96	1.50	-1.50	0.00	
7,600.00	3.05	90.00	7,596.68	0.00	82.58	82.58	1.50	-1.50	0.00	
7,700.00	1.55	90.00	7,696.60	0.00	86.60	86.60	1.50	-1.50	0.00	
7,803.42	0.00	0.00	7,800.00	0.00	88.00	88.00	1.50	-1.50	0.00	
7,900.00	0.00	0.00	7,896.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,996.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,100.00	0.00	0.00	8,096.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,200.00	0.00	0.00	8,196.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,296.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,396.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,496.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,596.58	0.00	88.00	88.00	0.00	0.00	0.00	
8,693.42	0.00	0.00	8,690.00	0.00	88.00	88.00	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape										
Little Rush 4-65 28 1V	0.00	0.00	8,690.00	0.00	88.00	1,670,565.037	3,231,725.816	39° 40' 17.820 N		
- plan hits target center										
- Point								104° 40' 36.465 W		

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Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well Little Rush 4-65 28 1V
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5720.00ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5720.00ft
Site:	Rush 0465 2930	North Reference:	True
Well:	Little Rush 4-65 28 1V	Survey Calculation Method:	Minimum Curvature
Wellbore:	Little Rush 4-65 28 1V		
Design:	Little Rush 4-65 28 1V		

Casing Points					
	Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
	2,218.00	2,218.00	Surface	9-5/8	12-1/4
	8,693.42	8,690.00	Production	5-1/2	8-3/4



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Arapahoe County, Colorado

Little Rush 4-65 28 1V

Ground Level: 5696.00
Surface Location Latitude: 39° 40' 17.820 N
Surface Location Longitude: 104° 40' 37.590 W
North Reference: True
24' RKB @ 5720.00ft

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

Well Profile Data

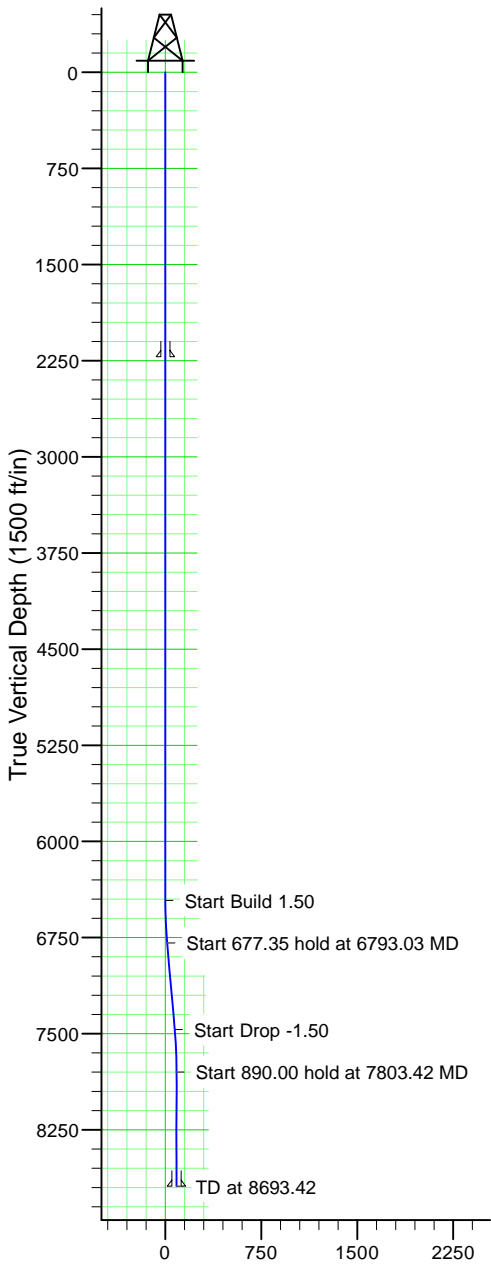
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6460.00	0.00	0.00	6460.00	0.00	0.00	0.00	0.00
6793.03	5.00	90.00	6792.61	0.00	14.51	1.50	14.51
7470.38	5.00	90.00	7467.39	0.00	73.49	0.00	73.49
7803.42	0.00	0.00	7800.00	0.00	88.00	1.50	88.00
8693.42	0.00	0.00	8690.00	0.00	88.00	0.00	88.00

Bottom Hole Location

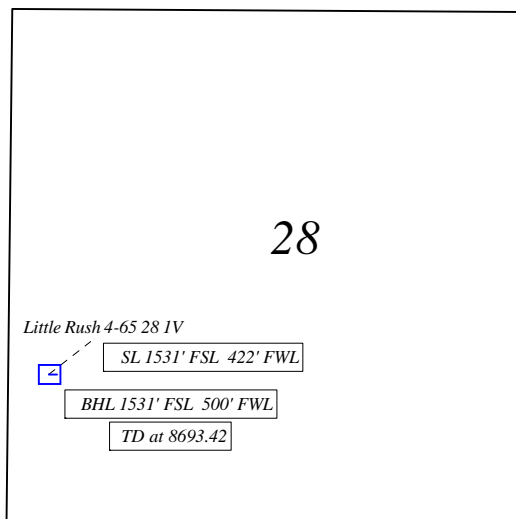
Name	TVD	Latitude	Longitude
Little Rush 4-65 28 1V	8690.00	39° 40' 17.820 N	104° 40' 36.465 W

West(-)/East(+) (2000 ft/in)

-3000 -2000 -1000 0 1000 2000 3000 4000 5000



Section Lines



South(-)/North(+) (2000 ft/in)

4000
3000
2000
1000
0
-1000
-2000

Casing Depths

TVD	MD	Name	Size
2218.00	2218.00	Surface	9-5/8
8690.00	8693.42	Production	5-1/2