



ConocoPhillips

Arapahoe County, Colorado

Rush 4-65 29-30 2DH

Design A

Casing Depths

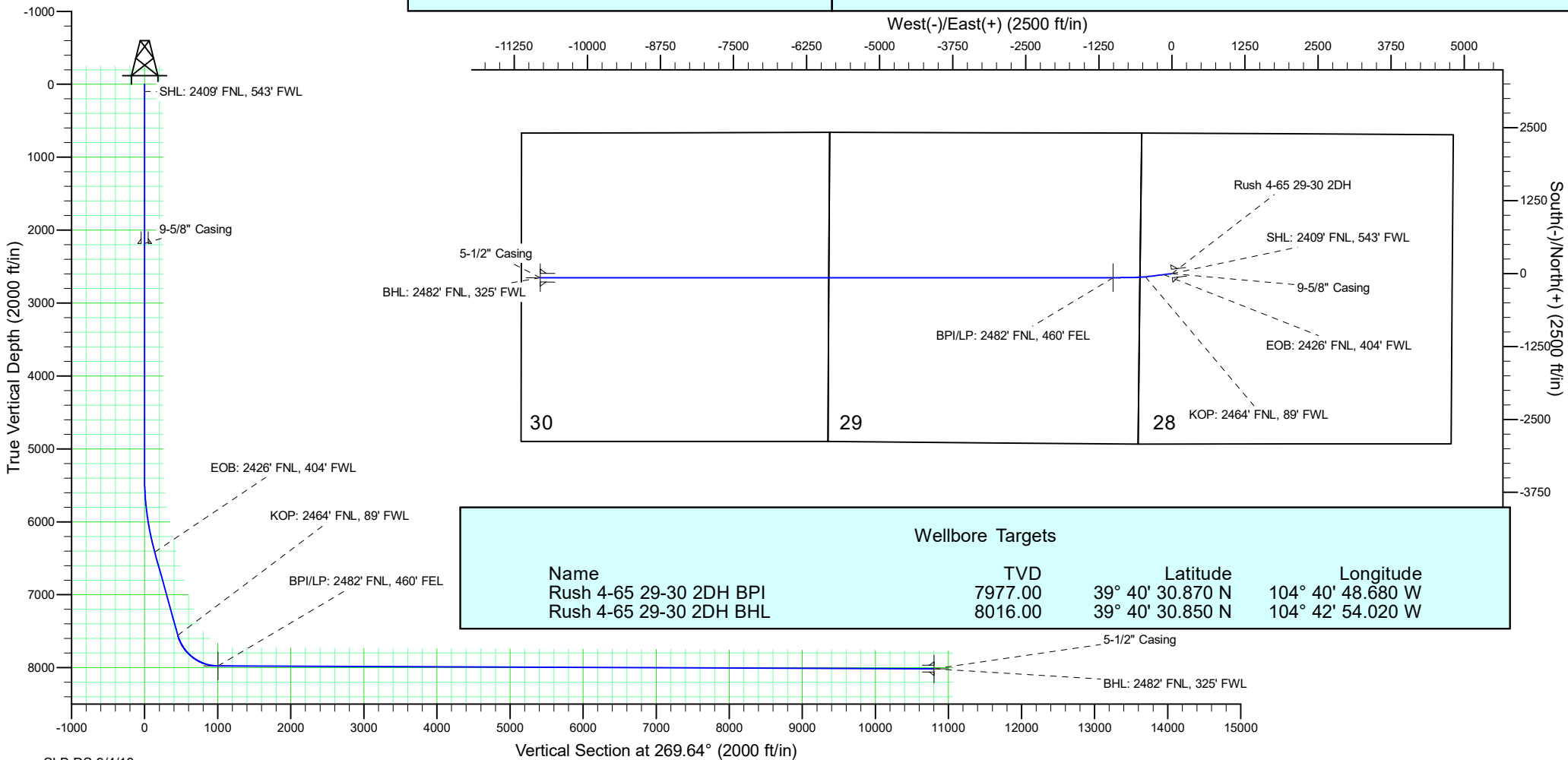
TVD	MD	Name	Size
2185.00	2185.00	9-5/8" Casing	9-5/8
8016.00	18156.65	5-1/2" Casing	5-1/2

Ground Level: 5648.90
Surface Location Latitude: 39° 40' 31.550 N
Surface Location Longitude: 104° 40' 35.840 W
North Reference: True
25' RKB @ 5673.90ft (25' RKB)

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
5392.00	0.00	0.00	5392.00	0.00	0.00	0.00	0.00
6428.66	15.55	263.11	6415.98	-16.76	-138.80	1.50	138.91
7612.79	15.55	263.11	7556.77	-54.82	-453.95	0.00	454.29
8356.16	89.77	270.00	7977.00	-68.77	-1003.97	10.00	1004.38
18156.65	89.77	270.00	8016.00	-68.57	-10804.38	0.00	10804.60



ConocoPhillips RBU Gold Data

Niobrara Central Zone

Rush

Rush 4-65 29-30 2DH

Rush 4-65 29-30 2DH

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 2DH
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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
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	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	Rush 4-65 29-30 2DH					
Well Position	+N/-S	-2,406.65 ft	Northing:	1,671,954.662 usft	Latitude:	39° 40' 31.550 N
	+E/-W	11,127.33 ft	Easting:	3,231,762.064 usft	Longitude:	104° 40' 35.840 W
Position Uncertainty		2.00 ft	Wellhead Elevation:	5,648.90 ft	Ground Level:	5,648.90 ft

Wellbore	Rush 4-65 29-30 2DH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2018	12/1/2018	8.14	66.27	51,842.31822171

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	269.64

Plan Survey Tool Program			Date	9/4/2018	
	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,185.00	Design A (Rush 4-65 29-30 2DH)	Gyro-BM-MS Gyro - bat/mem drop m/s	
2	2,185.00	5,392.00	Design A (Rush 4-65 29-30 2DH)	MWD+IFR_No SAG MWD + IFR (No SAG) correctic	
3	5,392.00	6,428.66	Design A (Rush 4-65 29-30 2DH)	MWD+IFR_No SAG MWD + IFR (No SAG) correctic	
4	6,428.66	7,612.79	Design A (Rush 4-65 29-30 2DH)	MWD+IFR_No SAG MWD + IFR (No SAG) correctic	
5	7,612.79	8,356.16	Design A (Rush 4-65 29-30 2DH)	MWD+IFR_No SAG MWD + IFR (No SAG) correctic	
6	8,356.16	18,156.65	Design A (Rush 4-65 29-30 2DH)	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 2DH
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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
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	
5,392.00	0.00	0.00	5,392.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,428.66	15.55	263.11	6,415.98	-16.76	-138.80	1.50	1.50	0.00	263.11	
7,612.79	15.55	263.11	7,556.77	-54.82	-453.95	0.00	0.00	0.00	0.00	
8,356.16	89.77	270.00	7,977.00	-68.77	-1,003.97	10.00	9.98	0.93	7.15	Rush 4-65 29-30 2DH
18,156.65	89.77	270.00	8,016.00	-68.57	-10,804.38	0.00	0.00	0.00	0.00	Rush 4-65 29-30 2DH

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 2DH
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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL: 2409' FNL, 543' FWL									
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
1,725.00	0.00	0.00	1,725.00	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
1,900.00	0.00	0.00	1,900.00	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
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
2,100.00	0.00	0.00	2,100.00	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
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
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

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Planning Report

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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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
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
4,900.00	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
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
5,392.00	0.00	0.00	5,392.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.12	263.11	5,400.00	0.00	-0.01	0.01	1.50	1.50	0.00
5,500.00	1.62	263.11	5,499.99	-0.18	-1.52	1.52	1.50	1.50	0.00
5,600.00	3.12	263.11	5,599.90	-0.68	-5.62	5.63	1.50	1.50	0.00
5,700.00	4.62	263.11	5,699.67	-1.49	-12.32	12.33	1.50	1.50	0.00
5,800.00	6.12	263.11	5,799.22	-2.61	-21.61	21.63	1.50	1.50	0.00
5,900.00	7.62	263.11	5,898.50	-4.04	-33.49	33.51	1.50	1.50	0.00
6,000.00	9.12	263.11	5,997.44	-5.79	-47.94	47.97	1.50	1.50	0.00
6,100.00	10.62	263.11	6,095.95	-7.84	-64.96	65.00	1.50	1.50	0.00
6,200.00	12.12	263.11	6,193.99	-10.21	-84.53	84.59	1.50	1.50	0.00
6,300.00	13.62	263.11	6,291.47	-12.88	-106.64	106.72	1.50	1.50	0.00
6,400.00	15.12	263.11	6,388.34	-15.85	-131.28	131.38	1.50	1.50	0.00
6,428.66	15.55	263.11	6,415.98	-16.76	-138.80	138.91	1.50	1.50	0.00
EOB: 2426' FNL, 404' FWL									
6,500.00	15.55	263.11	6,484.71	-19.06	-157.79	157.91	0.00	0.00	0.00
6,600.00	15.55	263.11	6,581.05	-22.27	-184.40	184.54	0.00	0.00	0.00
6,700.00	15.55	263.11	6,677.39	-25.48	-211.02	211.18	0.00	0.00	0.00
6,800.00	15.55	263.11	6,773.73	-28.70	-237.63	237.81	0.00	0.00	0.00
6,900.00	15.55	263.11	6,870.07	-31.91	-264.25	264.45	0.00	0.00	0.00
7,000.00	15.55	263.11	6,966.41	-35.13	-290.86	291.08	0.00	0.00	0.00
7,100.00	15.55	263.11	7,062.75	-38.34	-317.48	317.71	0.00	0.00	0.00
7,200.00	15.55	263.11	7,159.09	-41.55	-344.09	344.35	0.00	0.00	0.00
7,300.00	15.55	263.11	7,255.43	-44.77	-370.71	370.98	0.00	0.00	0.00
7,400.00	15.55	263.11	7,351.77	-47.98	-397.32	397.62	0.00	0.00	0.00
7,500.00	15.55	263.11	7,448.11	-51.20	-423.93	424.25	0.00	0.00	0.00
7,600.00	15.55	263.11	7,544.45	-54.41	-450.55	450.89	0.00	0.00	0.00
7,612.79	15.55	263.11	7,556.77	-54.82	-453.95	454.29	0.00	0.00	0.00
KOP: 2464' FNL, 89' FWL									
7,650.00	19.25	264.52	7,592.27	-56.00	-465.01	465.36	10.00	9.94	3.78
7,700.00	24.23	265.75	7,638.70	-57.55	-483.46	483.82	10.00	9.96	2.47
7,750.00	29.21	266.58	7,683.35	-59.04	-505.88	506.25	10.00	9.97	1.66
7,800.00	34.20	267.19	7,725.87	-60.46	-532.12	532.49	10.00	9.98	1.22
7,850.00	39.19	267.66	7,765.95	-61.79	-561.96	562.34	10.00	9.98	0.94
7,869.70	41.16	267.82	7,781.00	-62.29	-574.66	575.04	10.00	9.99	0.80
Niobrara Top									
7,900.00	44.19	268.04	7,803.27	-63.03	-595.18	595.57	10.00	9.99	0.73
7,950.00	49.18	268.36	7,837.56	-64.17	-631.53	631.93	10.00	9.99	0.63
8,000.00	54.18	268.63	7,868.55	-65.20	-670.73	671.13	10.00	9.99	0.54
8,050.00	59.17	268.87	7,896.01	-66.11	-712.49	712.89	10.00	9.99	0.48
8,100.00	64.17	269.08	7,919.73	-66.90	-756.48	756.89	10.00	9.99	0.43
8,150.00	69.17	269.28	7,939.53	-67.55	-802.37	802.79	10.00	9.99	0.40
8,200.00	74.16	269.47	7,955.25	-68.07	-849.82	850.23	10.00	9.99	0.37
8,250.00	79.16	269.64	7,966.78	-68.45	-898.45	898.87	10.00	9.99	0.35
8,251.18	79.28	269.65	7,967.00	-68.46	-899.62	900.03	10.00	9.99	0.35
D Chalk Top									
8,300.00	84.16	269.81	7,974.03	-68.68	-947.91	948.32	10.00	9.99	0.34

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 2DH
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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
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)
8,350.00	89.16	269.98	7,976.94	-68.77	-997.81	998.22	10.00	9.99	0.34
8,356.16	89.77	270.00	7,977.00	-68.77	-1,003.97	1,004.38	10.00	9.99	0.33
BPI/LP: 2482' FNL, 460' FEL									
8,400.00	89.77	270.00	7,977.17	-68.77	-1,047.81	1,048.22	0.00	0.00	0.00
8,500.00	89.77	270.00	7,977.57	-68.77	-1,147.81	1,148.22	0.00	0.00	0.00
8,600.00	89.77	270.00	7,977.97	-68.77	-1,247.80	1,248.22	0.00	0.00	0.00
8,700.00	89.77	270.00	7,978.37	-68.77	-1,347.80	1,348.21	0.00	0.00	0.00
8,800.00	89.77	270.00	7,978.77	-68.76	-1,447.80	1,448.21	0.00	0.00	0.00
8,900.00	89.77	270.00	7,979.16	-68.76	-1,547.80	1,548.21	0.00	0.00	0.00
9,000.00	89.77	270.00	7,979.56	-68.76	-1,647.80	1,648.20	0.00	0.00	0.00
9,100.00	89.77	270.00	7,979.96	-68.76	-1,747.80	1,748.20	0.00	0.00	0.00
9,200.00	89.77	270.00	7,980.36	-68.76	-1,847.80	1,848.20	0.00	0.00	0.00
9,300.00	89.77	270.00	7,980.76	-68.75	-1,947.80	1,948.20	0.00	0.00	0.00
9,400.00	89.77	270.00	7,981.15	-68.75	-2,047.80	2,048.19	0.00	0.00	0.00
9,500.00	89.77	270.00	7,981.55	-68.75	-2,147.80	2,148.19	0.00	0.00	0.00
9,600.00	89.77	270.00	7,981.95	-68.75	-2,247.80	2,248.19	0.00	0.00	0.00
9,700.00	89.77	270.00	7,982.35	-68.75	-2,347.80	2,348.18	0.00	0.00	0.00
9,800.00	89.77	270.00	7,982.75	-68.74	-2,447.79	2,448.18	0.00	0.00	0.00
9,900.00	89.77	270.00	7,983.14	-68.74	-2,547.79	2,548.18	0.00	0.00	0.00
10,000.00	89.77	270.00	7,983.54	-68.74	-2,647.79	2,648.18	0.00	0.00	0.00
10,100.00	89.77	270.00	7,983.94	-68.74	-2,747.79	2,748.17	0.00	0.00	0.00
10,200.00	89.77	270.00	7,984.34	-68.74	-2,847.79	2,848.17	0.00	0.00	0.00
10,300.00	89.77	270.00	7,984.74	-68.73	-2,947.79	2,948.17	0.00	0.00	0.00
10,400.00	89.77	270.00	7,985.13	-68.73	-3,047.79	3,048.16	0.00	0.00	0.00
10,500.00	89.77	270.00	7,985.53	-68.73	-3,147.79	3,148.16	0.00	0.00	0.00
10,600.00	89.77	270.00	7,985.93	-68.73	-3,247.79	3,248.16	0.00	0.00	0.00
10,700.00	89.77	270.00	7,986.33	-68.73	-3,347.79	3,348.16	0.00	0.00	0.00
10,800.00	89.77	270.00	7,986.73	-68.72	-3,447.79	3,448.15	0.00	0.00	0.00
10,900.00	89.77	270.00	7,987.12	-68.72	-3,547.79	3,548.15	0.00	0.00	0.00
11,000.00	89.77	270.00	7,987.52	-68.72	-3,647.79	3,648.15	0.00	0.00	0.00
11,100.00	89.77	270.00	7,987.92	-68.72	-3,747.78	3,748.15	0.00	0.00	0.00
11,200.00	89.77	270.00	7,988.32	-68.72	-3,847.78	3,848.14	0.00	0.00	0.00
11,300.00	89.77	270.00	7,988.71	-68.71	-3,947.78	3,948.14	0.00	0.00	0.00
11,400.00	89.77	270.00	7,989.11	-68.71	-4,047.78	4,048.14	0.00	0.00	0.00
11,500.00	89.77	270.00	7,989.51	-68.71	-4,147.78	4,148.13	0.00	0.00	0.00
11,600.00	89.77	270.00	7,989.91	-68.71	-4,247.78	4,248.13	0.00	0.00	0.00
11,700.00	89.77	270.00	7,990.31	-68.71	-4,347.78	4,348.13	0.00	0.00	0.00
11,800.00	89.77	270.00	7,990.70	-68.70	-4,447.78	4,448.13	0.00	0.00	0.00
11,900.00	89.77	270.00	7,991.10	-68.70	-4,547.78	4,548.12	0.00	0.00	0.00
12,000.00	89.77	270.00	7,991.50	-68.70	-4,647.78	4,648.12	0.00	0.00	0.00
12,100.00	89.77	270.00	7,991.90	-68.70	-4,747.78	4,748.12	0.00	0.00	0.00
12,200.00	89.77	270.00	7,992.30	-68.70	-4,847.78	4,848.11	0.00	0.00	0.00
12,300.00	89.77	270.00	7,992.69	-68.69	-4,947.78	4,948.11	0.00	0.00	0.00
12,400.00	89.77	270.00	7,993.09	-68.69	-5,047.77	5,048.11	0.00	0.00	0.00
12,500.00	89.77	270.00	7,993.49	-68.69	-5,147.77	5,148.11	0.00	0.00	0.00
12,600.00	89.77	270.00	7,993.89	-68.69	-5,247.77	5,248.10	0.00	0.00	0.00
12,700.00	89.77	270.00	7,994.29	-68.69	-5,347.77	5,348.10	0.00	0.00	0.00
12,800.00	89.77	270.00	7,994.68	-68.68	-5,447.77	5,448.10	0.00	0.00	0.00
12,900.00	89.77	270.00	7,995.08	-68.68	-5,547.77	5,548.09	0.00	0.00	0.00
13,000.00	89.77	270.00	7,995.48	-68.68	-5,647.77	5,648.09	0.00	0.00	0.00
13,100.00	89.77	270.00	7,995.88	-68.68	-5,747.77	5,748.09	0.00	0.00	0.00
13,200.00	89.77	270.00	7,996.28	-68.68	-5,847.77	5,848.09	0.00	0.00	0.00
13,300.00	89.77	270.00	7,996.67	-68.67	-5,947.77	5,948.08	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Rush 4-65 29-30 2DH
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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
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)
13,400.00	89.77	270.00	7,997.07	-68.67	-6,047.77	6,048.08	0.00	0.00	0.00
13,500.00	89.77	270.00	7,997.47	-68.67	-6,147.77	6,148.08	0.00	0.00	0.00
13,600.00	89.77	270.00	7,997.87	-68.67	-6,247.76	6,248.07	0.00	0.00	0.00
13,700.00	89.77	270.00	7,998.27	-68.66	-6,347.76	6,348.07	0.00	0.00	0.00
13,800.00	89.77	270.00	7,998.66	-68.66	-6,447.76	6,448.07	0.00	0.00	0.00
13,900.00	89.77	270.00	7,999.06	-68.66	-6,547.76	6,548.07	0.00	0.00	0.00
14,000.00	89.77	270.00	7,999.46	-68.66	-6,647.76	6,648.06	0.00	0.00	0.00
14,100.00	89.77	270.00	7,999.86	-68.66	-6,747.76	6,748.06	0.00	0.00	0.00
14,200.00	89.77	270.00	8,000.26	-68.65	-6,847.76	6,848.06	0.00	0.00	0.00
14,300.00	89.77	270.00	8,000.65	-68.65	-6,947.76	6,948.06	0.00	0.00	0.00
14,400.00	89.77	270.00	8,001.05	-68.65	-7,047.76	7,048.05	0.00	0.00	0.00
14,500.00	89.77	270.00	8,001.45	-68.65	-7,147.76	7,148.05	0.00	0.00	0.00
14,600.00	89.77	270.00	8,001.85	-68.65	-7,247.76	7,248.05	0.00	0.00	0.00
14,700.00	89.77	270.00	8,002.24	-68.64	-7,347.76	7,348.04	0.00	0.00	0.00
14,800.00	89.77	270.00	8,002.64	-68.64	-7,447.76	7,448.04	0.00	0.00	0.00
14,900.00	89.77	270.00	8,003.04	-68.64	-7,547.75	7,548.04	0.00	0.00	0.00
15,000.00	89.77	270.00	8,003.44	-68.64	-7,647.75	7,648.04	0.00	0.00	0.00
15,100.00	89.77	270.00	8,003.84	-68.64	-7,747.75	7,748.03	0.00	0.00	0.00
15,200.00	89.77	270.00	8,004.23	-68.63	-7,847.75	7,848.03	0.00	0.00	0.00
15,300.00	89.77	270.00	8,004.63	-68.63	-7,947.75	7,948.03	0.00	0.00	0.00
15,400.00	89.77	270.00	8,005.03	-68.63	-8,047.75	8,048.02	0.00	0.00	0.00
15,500.00	89.77	270.00	8,005.43	-68.63	-8,147.75	8,148.02	0.00	0.00	0.00
15,600.00	89.77	270.00	8,005.83	-68.63	-8,247.75	8,248.02	0.00	0.00	0.00
15,700.00	89.77	270.00	8,006.22	-68.62	-8,347.75	8,348.02	0.00	0.00	0.00
15,800.00	89.77	270.00	8,006.62	-68.62	-8,447.75	8,448.01	0.00	0.00	0.00
15,900.00	89.77	270.00	8,007.02	-68.62	-8,547.75	8,548.01	0.00	0.00	0.00
16,000.00	89.77	270.00	8,007.42	-68.62	-8,647.75	8,648.01	0.00	0.00	0.00
16,100.00	89.77	270.00	8,007.82	-68.62	-8,747.75	8,748.00	0.00	0.00	0.00
16,200.00	89.77	270.00	8,008.21	-68.61	-8,847.74	8,848.00	0.00	0.00	0.00
16,300.00	89.77	270.00	8,008.61	-68.61	-8,947.74	8,948.00	0.00	0.00	0.00
16,400.00	89.77	270.00	8,009.01	-68.61	-9,047.74	9,048.00	0.00	0.00	0.00
16,500.00	89.77	270.00	8,009.41	-68.61	-9,147.74	9,147.99	0.00	0.00	0.00
16,600.00	89.77	270.00	8,009.81	-68.61	-9,247.74	9,247.99	0.00	0.00	0.00
16,700.00	89.77	270.00	8,010.20	-68.60	-9,347.74	9,347.99	0.00	0.00	0.00
16,800.00	89.77	270.00	8,010.60	-68.60	-9,447.74	9,447.98	0.00	0.00	0.00
16,900.00	89.77	270.00	8,011.00	-68.60	-9,547.74	9,547.98	0.00	0.00	0.00
17,000.00	89.77	270.00	8,011.40	-68.60	-9,647.74	9,647.98	0.00	0.00	0.00
17,100.00	89.77	270.00	8,011.80	-68.60	-9,747.74	9,747.98	0.00	0.00	0.00
17,200.00	89.77	270.00	8,012.19	-68.59	-9,847.74	9,847.97	0.00	0.00	0.00
17,300.00	89.77	270.00	8,012.59	-68.59	-9,947.74	9,947.97	0.00	0.00	0.00
17,400.00	89.77	270.00	8,012.99	-68.59	-10,047.73	10,047.97	0.00	0.00	0.00
17,500.00	89.77	270.00	8,013.39	-68.59	-10,147.73	10,147.96	0.00	0.00	0.00
17,600.00	89.77	270.00	8,013.79	-68.59	-10,247.73	10,247.96	0.00	0.00	0.00
17,700.00	89.77	270.00	8,014.18	-68.58	-10,347.73	10,347.96	0.00	0.00	0.00
17,800.00	89.77	270.00	8,014.58	-68.58	-10,447.73	10,447.96	0.00	0.00	0.00
17,900.00	89.77	270.00	8,014.98	-68.58	-10,547.73	10,547.95	0.00	0.00	0.00
18,000.00	89.77	270.00	8,015.38	-68.58	-10,647.73	10,647.95	0.00	0.00	0.00
18,100.00	89.77	270.00	8,015.77	-68.58	-10,747.73	10,747.95	0.00	0.00	0.00
18,156.65	89.77	270.00	8,016.00	-68.57	-10,804.38	10,804.60	0.00	0.00	0.00
BHL: 2482' 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 2DH
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 2DH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rush 4-65 29-30 2DH		
Design:	Design A		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
Rush 4-65 29-30 2DH B	0.00	0.00	7,977.00	-68.77	-1,003.97	1,671,876.794	3,230,758.776	39° 40' 30.870 N	104° 40' 48.680 W
- plan hits target center									
- Point									
Rush 4-65 29-30 2DH B	0.00	0.00	8,016.00	-68.57	-10,804.38	1,671,788.170	3,220,958.918	39° 40' 30.850 N	104° 42' 54.020 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(ft)	(ft)	Name		(")	(")
2,185.00	2,185.00	9-5/8" Casing		9-5/8	12-1/4
18,156.65	8,016.00	5-1/2" Casing		5-1/2	8-1/2

Formations					
Measured Depth	Vertical Depth			Dip	Dip Direction
(ft)	(ft)	Name	Lithology	(°)	(°)
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	
7,869.70	7,781.00	Niobrara Top		0.00	
8,251.18	7,967.00	D Chalk Top		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(ft)	(ft)	+N/-S	+E/-W	Comment
(ft)	(ft)	(ft)	(ft)	
100.00	100.00	0.00	0.00	SHL: 2409' FNL, 543' FWL
6,428.66	6,415.98	-16.76	-138.80	EOB: 2426' FNL, 404' FWL
7,612.79	7,556.77	-54.82	-453.95	KOP: 2464' FNL, 89' FWL
8,356.16	7,977.00	-68.77	-1,003.97	BPI/LP: 2482' FNL, 460' FEL
18,156.65	8,016.00	-68.57	-10,804.38	BHL: 2482' FNL, 325' FWL