



ConocoPhillips

Arapahoe County, Colorado

Lone Tree 4-65 15-16 3BH

Design A

Casing Depths

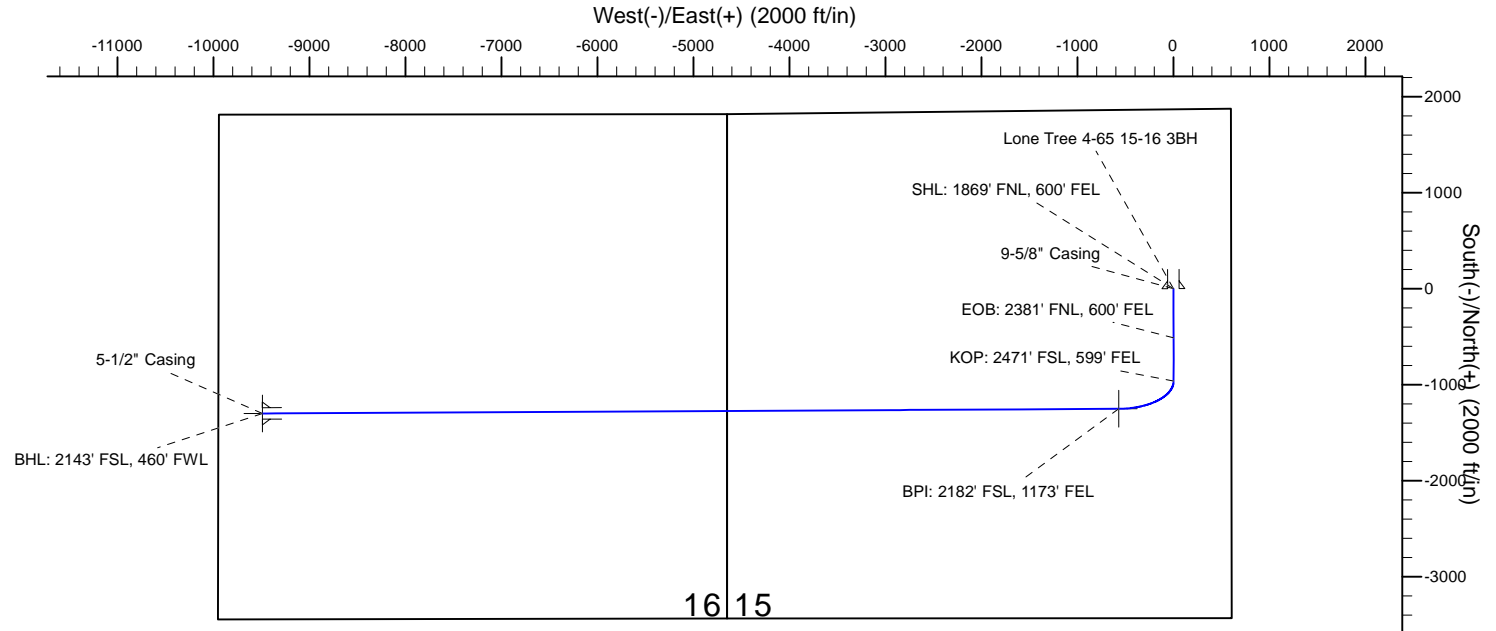
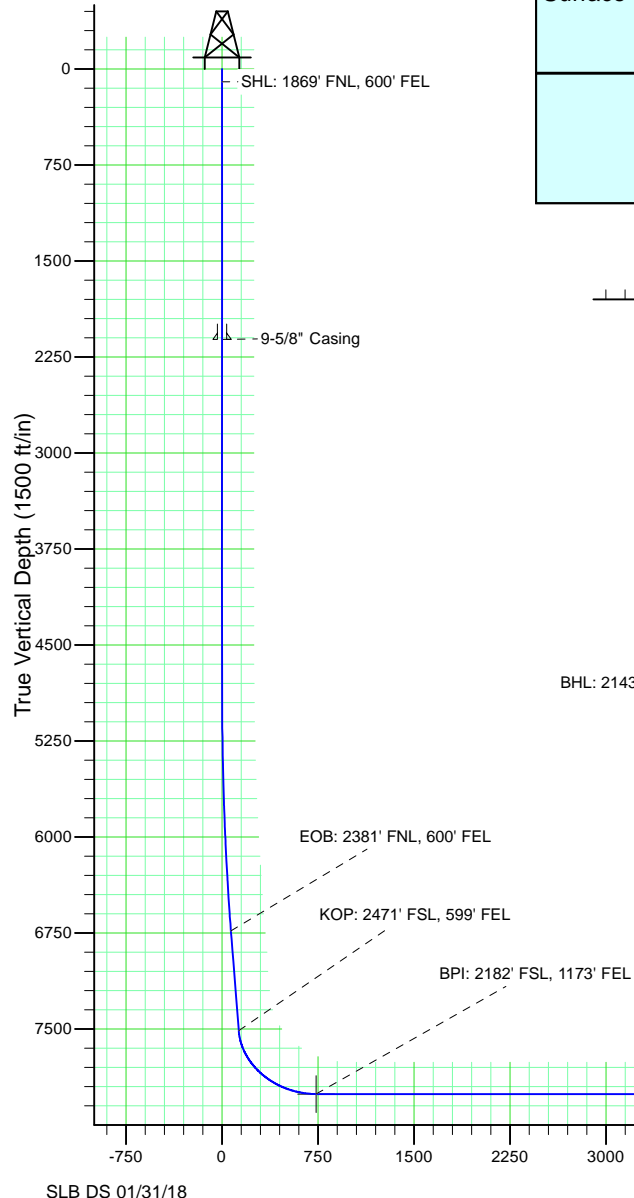
TVD	MD	Name	Size
2112.00	2112.00	9-5/8" Casing	9-5/8
8008.00	17542.39	5-1/2" Casing	5-1/2

Ground Level: 5693.10
Surface Location Latitude: 39° 42' 21.630 N
Surface Location Longitude: 104° 38' 34.920 W
North Reference: True
25' RKB @ 5718.10ft (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
4824.00	0.00	0.00	4824.00	0.00	0.00	0.00	0.00
6824.27	30.00	179.95	6734.10	-511.88	0.43	1.50	69.01
7723.68	30.00	179.95	7512.97	-961.64	0.81	0.00	129.65
8622.35	90.00	269.69	8008.00	-1250.63	-570.57	10.00	734.96
17542.39	90.00	269.69	8008.00	-1299.53	-9490.47	0.00	9579.03



Wellbore Targets

Name	TVD	Latitude	Longitude
Lone Tree 4-65 15-16 3BH BHL	8008.00	39° 42' 8.769 N	104° 40' 36.344 W
Lone Tree 4-65 15-16 3BH BPI	8008.00	39° 42' 9.270 N	104° 38' 42.220 W

ConocoPhillips RBU Gold Data

Niobrara Central Zone

Lone Tree

Lone Tree 4-65 15-16 3BH

Lone Tree 4-65 15-16 3BH

Plan: Design A

Standard Planning Report

31 January, 2018

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Lone Tree 4-65 15-16 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5718.10ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
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	Lone Tree				
Site Position:		Northing:	1,684,901.193 usft	Latitude:	39° 42' 39.550 N
From:	Lat/Long	Easting:	3,231,149.887 usft	Longitude:	104° 40' 42.172 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.52 °

Well		Lone Tree 4-65 15-16 3BH				
Well Position	+N-S	-1,811.29 ft	Northing:	1,683,179.937 usft	Latitude:	39° 42' 21.630 N
	+E-W	9,945.46 ft	Easting:	3,241,111.226 usft	Longitude:	104° 38' 34.920 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,693.10 ft

Wellbore	Lone Tree 4-65 15-16 3BH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2017	12/1/2018	8.15	66.31	51,855.20293345

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	262.20	

Plan Survey Tool Program	Date	1/31/2018			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	2,112.00	Design A (Lone Tree 4-65 15-16 Gyro-BM-MS		
			Gyro - bat/mem drop m/s		
2	2,112.00	4,824.00	Design A (Lone Tree 4-65 15-16 MWD+IFR_No SAG		
			MWD + IFR (No SAG) corre		
3	4,824.00	6,824.27	Design A (Lone Tree 4-65 15-16 MWD+IFR_No SAG		
			MWD + IFR (No SAG) corre		
4	6,824.27	7,723.68	Design A (Lone Tree 4-65 15-16 MWD+IFR_No SAG		
			MWD + IFR (No SAG) corre		
5	7,723.68	8,622.35	Design A (Lone Tree 4-65 15-16 MWD+IFR_No SAG		
			MWD + IFR (No SAG) corre		
6	8,622.35	17,542.39	Design A (Lone Tree 4-65 15-16 MWD+IFR_No SAG		
			MWD + IFR (No SAG) corre		

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Lone Tree 4-65 15-16 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5718.10ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
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	
4,824.00	0.00	0.00	4,824.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,824.27	30.00	179.95	6,734.10	-511.88	0.43	1.50	1.50	0.00	179.95	
7,723.68	30.00	179.95	7,512.97	-961.64	0.81	0.00	0.00	0.00	0.00	
8,622.35	90.00	269.69	8,008.00	-1,250.63	-570.57	10.00	6.68	9.99	89.77	Lone Tree 4-65 15-
17,542.39	90.00	269.69	8,008.00	-1,299.53	-9,490.47	0.00	0.00	0.00	0.00	Lone Tree 4-65 15-

ConocoPhillips

Planning Report

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Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
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: 1869' FNL, 600' FEL									
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
2,112.00	0.00	0.00	2,112.00	0.00	0.00	0.00	0.00	0.00	0.00
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
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
4,824.00	0.00	0.00	4,824.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	1.14	179.95	4,900.00	-0.76	0.00	0.10	1.50	1.50	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Lone Tree 4-65 15-16 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5718.10ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
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)
5,000.00	2.64	179.95	4,999.94	-4.05	0.00	0.55	1.50	1.50	0.00
5,100.00	4.14	179.95	5,099.76	-9.97	0.01	1.34	1.50	1.50	0.00
5,200.00	5.64	179.95	5,199.39	-18.49	0.02	2.49	1.50	1.50	0.00
5,300.00	7.14	179.95	5,298.77	-29.62	0.03	3.99	1.50	1.50	0.00
5,400.00	8.64	179.95	5,397.82	-43.35	0.04	5.84	1.50	1.50	0.00
5,500.00	10.14	179.95	5,496.48	-59.66	0.05	8.04	1.50	1.50	0.00
5,600.00	11.64	179.95	5,594.67	-78.55	0.07	10.59	1.50	1.50	0.00
5,700.00	13.14	179.95	5,692.34	-100.01	0.08	13.48	1.50	1.50	0.00
5,800.00	14.64	179.95	5,789.41	-124.01	0.11	16.72	1.50	1.50	0.00
5,900.00	16.14	179.95	5,885.83	-150.55	0.13	20.30	1.50	1.50	0.00
6,000.00	17.64	179.95	5,981.51	-179.61	0.15	24.22	1.50	1.50	0.00
6,100.00	19.14	179.95	6,076.40	-211.15	0.18	28.47	1.50	1.50	0.00
6,200.00	20.64	179.95	6,170.43	-245.17	0.21	33.06	1.50	1.50	0.00
6,300.00	22.14	179.95	6,263.54	-281.64	0.24	37.97	1.50	1.50	0.00
6,400.00	23.64	179.95	6,355.66	-320.54	0.27	43.22	1.50	1.50	0.00
6,500.00	25.14	179.95	6,446.74	-361.83	0.31	48.78	1.50	1.50	0.00
6,600.00	26.64	179.95	6,536.70	-405.50	0.34	54.67	1.50	1.50	0.00
6,700.00	28.14	179.95	6,625.48	-451.50	0.38	60.87	1.50	1.50	0.00
6,800.00	29.64	179.95	6,713.04	-499.81	0.42	67.39	1.50	1.50	0.00
6,824.27	30.00	179.95	6,734.10	-511.88	0.43	69.01	1.50	1.50	0.00
6,824.28	30.00	179.95	6,734.10	-511.89	0.43	69.01	0.00	0.00	0.00
EOB: 2381' FNL, 600' FEL									
6,900.00	30.00	179.95	6,799.67	-549.75	0.47	74.12	0.00	0.00	0.00
7,000.00	30.00	179.95	6,886.27	-599.76	0.51	80.86	0.00	0.00	0.00
7,100.00	30.00	179.95	6,972.87	-649.76	0.55	87.60	0.00	0.00	0.00
7,200.00	30.00	179.95	7,059.47	-699.77	0.59	94.35	0.00	0.00	0.00
7,300.00	30.00	179.95	7,146.07	-749.77	0.63	101.09	0.00	0.00	0.00
7,400.00	30.00	179.95	7,232.67	-799.78	0.68	107.83	0.00	0.00	0.00
7,500.00	30.00	179.95	7,319.27	-849.79	0.72	114.57	0.00	0.00	0.00
7,600.00	30.00	179.95	7,405.87	-899.79	0.76	121.31	0.00	0.00	0.00
7,700.00	30.00	179.95	7,492.47	-949.80	0.80	128.06	0.00	0.00	0.00
7,723.68	30.00	179.95	7,512.97	-961.64	0.81	129.65	0.00	0.00	0.00
KOP: 2471' FSL, 599' FEL									
7,750.00	30.12	185.20	7,535.76	-974.80	0.22	132.03	10.00	0.44	19.95
7,800.00	30.90	194.94	7,578.86	-999.71	-4.23	139.81	10.00	1.56	19.47
7,850.00	32.37	204.06	7,621.45	-1,024.36	-13.00	151.85	10.00	2.94	18.24
7,900.00	34.44	212.33	7,663.21	-1,048.54	-26.03	168.04	10.00	4.14	16.55
7,950.00	37.01	219.69	7,703.82	-1,072.09	-43.21	188.26	10.00	5.14	14.71
8,000.00	39.98	226.16	7,742.96	-1,094.81	-64.42	212.35	10.00	5.94	12.94
8,050.00	43.26	231.84	7,780.35	-1,116.53	-89.49	240.14	10.00	6.57	11.36
8,100.00	46.80	236.84	7,815.69	-1,137.10	-118.24	271.41	10.00	7.07	10.01
8,150.00	50.52	241.29	7,848.72	-1,156.35	-150.44	305.92	10.00	7.45	8.89
8,200.00	54.40	245.27	7,879.19	-1,174.13	-185.85	343.42	10.00	7.76	7.96
8,250.00	58.40	248.88	7,906.86	-1,190.32	-224.20	383.61	10.00	7.99	7.22
8,300.00	62.49	252.18	7,931.52	-1,204.79	-265.20	426.19	10.00	8.18	6.61
8,350.00	66.65	255.25	7,952.99	-1,217.42	-308.53	470.84	10.00	8.33	6.14
8,400.00	70.87	258.13	7,971.10	-1,228.13	-353.87	517.21	10.00	8.44	5.76
8,450.00	75.13	260.87	7,985.72	-1,236.83	-400.87	564.96	10.00	8.52	5.47
8,500.00	79.42	263.50	7,996.73	-1,243.45	-449.18	613.72	10.00	8.59	5.26
8,550.00	83.74	266.05	8,004.05	-1,247.95	-498.42	663.11	10.00	8.63	5.11
8,600.00	88.06	268.57	8,007.62	-1,250.29	-548.22	712.77	10.00	8.65	5.03
8,622.35	90.00	269.69	8,008.00	-1,250.63	-570.56	734.95	10.00	8.66	5.00
BPI: 2182' FSL, 1173' FEL									

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Lone Tree 4-65 15-16 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5718.10ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
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)
8,700.00	90.00	269.69	8,008.00	-1,251.05	-648.21	811.94	0.00	0.00	0.00
8,800.00	90.00	269.69	8,008.00	-1,251.60	-748.21	911.09	0.00	0.00	0.00
8,900.00	90.00	269.69	8,008.00	-1,252.15	-848.21	1,010.24	0.00	0.00	0.00
9,000.00	90.00	269.69	8,008.00	-1,252.70	-948.21	1,109.39	0.00	0.00	0.00
9,100.00	90.00	269.69	8,008.00	-1,253.24	-1,048.21	1,208.54	0.00	0.00	0.00
9,200.00	90.00	269.69	8,008.00	-1,253.79	-1,148.20	1,307.68	0.00	0.00	0.00
9,300.00	90.00	269.69	8,008.00	-1,254.34	-1,248.20	1,406.83	0.00	0.00	0.00
9,400.00	90.00	269.69	8,008.00	-1,254.89	-1,348.20	1,505.98	0.00	0.00	0.00
9,500.00	90.00	269.69	8,008.00	-1,255.44	-1,448.20	1,605.13	0.00	0.00	0.00
9,600.00	90.00	269.69	8,008.00	-1,255.99	-1,548.20	1,704.28	0.00	0.00	0.00
9,700.00	90.00	269.69	8,008.00	-1,256.53	-1,648.20	1,803.43	0.00	0.00	0.00
9,800.00	90.00	269.69	8,008.00	-1,257.08	-1,748.20	1,902.57	0.00	0.00	0.00
9,900.00	90.00	269.69	8,008.00	-1,257.63	-1,848.19	2,001.72	0.00	0.00	0.00
10,000.00	90.00	269.69	8,008.00	-1,258.18	-1,948.19	2,100.87	0.00	0.00	0.00
10,100.00	90.00	269.69	8,008.00	-1,258.73	-2,048.19	2,200.02	0.00	0.00	0.00
10,200.00	90.00	269.69	8,008.00	-1,259.27	-2,148.19	2,299.17	0.00	0.00	0.00
10,300.00	90.00	269.69	8,008.00	-1,259.82	-2,248.19	2,398.32	0.00	0.00	0.00
10,400.00	90.00	269.69	8,008.00	-1,260.37	-2,348.19	2,497.46	0.00	0.00	0.00
10,500.00	90.00	269.69	8,008.00	-1,260.92	-2,448.19	2,596.61	0.00	0.00	0.00
10,600.00	90.00	269.69	8,008.00	-1,261.47	-2,548.18	2,695.76	0.00	0.00	0.00
10,700.00	90.00	269.69	8,008.00	-1,262.02	-2,648.18	2,794.91	0.00	0.00	0.00
10,800.00	90.00	269.69	8,008.00	-1,262.56	-2,748.18	2,894.06	0.00	0.00	0.00
10,900.00	90.00	269.69	8,008.00	-1,263.11	-2,848.18	2,993.21	0.00	0.00	0.00
11,000.00	90.00	269.69	8,008.00	-1,263.66	-2,948.18	3,092.35	0.00	0.00	0.00
11,100.00	90.00	269.69	8,008.00	-1,264.21	-3,048.18	3,191.50	0.00	0.00	0.00
11,200.00	90.00	269.69	8,008.00	-1,264.76	-3,148.17	3,290.65	0.00	0.00	0.00
11,300.00	90.00	269.69	8,008.00	-1,265.30	-3,248.17	3,389.80	0.00	0.00	0.00
11,400.00	90.00	269.69	8,008.00	-1,265.85	-3,348.17	3,488.95	0.00	0.00	0.00
11,500.00	90.00	269.69	8,008.00	-1,266.40	-3,448.17	3,588.10	0.00	0.00	0.00
11,600.00	90.00	269.69	8,008.00	-1,266.95	-3,548.17	3,687.24	0.00	0.00	0.00
11,700.00	90.00	269.69	8,008.00	-1,267.50	-3,648.17	3,786.39	0.00	0.00	0.00
11,800.00	90.00	269.69	8,008.00	-1,268.05	-3,748.17	3,885.54	0.00	0.00	0.00
11,900.00	90.00	269.69	8,008.00	-1,268.59	-3,848.16	3,984.69	0.00	0.00	0.00
12,000.00	90.00	269.69	8,008.00	-1,269.14	-3,948.16	4,083.84	0.00	0.00	0.00
12,100.00	90.00	269.69	8,008.00	-1,269.69	-4,048.16	4,182.99	0.00	0.00	0.00
12,200.00	90.00	269.69	8,008.00	-1,270.24	-4,148.16	4,282.14	0.00	0.00	0.00
12,300.00	90.00	269.69	8,008.00	-1,270.79	-4,248.16	4,381.28	0.00	0.00	0.00
12,400.00	90.00	269.69	8,008.00	-1,271.33	-4,348.16	4,480.43	0.00	0.00	0.00
12,500.00	90.00	269.69	8,008.00	-1,271.88	-4,448.16	4,579.58	0.00	0.00	0.00
12,600.00	90.00	269.69	8,008.00	-1,272.43	-4,548.15	4,678.73	0.00	0.00	0.00
12,700.00	90.00	269.69	8,008.00	-1,272.98	-4,648.15	4,777.88	0.00	0.00	0.00
12,800.00	90.00	269.69	8,008.00	-1,273.53	-4,748.15	4,877.03	0.00	0.00	0.00
12,900.00	90.00	269.69	8,008.00	-1,274.08	-4,848.15	4,976.17	0.00	0.00	0.00
13,000.00	90.00	269.69	8,008.00	-1,274.62	-4,948.15	5,075.32	0.00	0.00	0.00
13,100.00	90.00	269.69	8,008.00	-1,275.17	-5,048.15	5,174.47	0.00	0.00	0.00
13,200.00	90.00	269.69	8,008.00	-1,275.72	-5,148.14	5,273.62	0.00	0.00	0.00
13,300.00	90.00	269.69	8,008.00	-1,276.27	-5,248.14	5,372.77	0.00	0.00	0.00
13,400.00	90.00	269.69	8,008.00	-1,276.82	-5,348.14	5,471.92	0.00	0.00	0.00
13,500.00	90.00	269.69	8,008.00	-1,277.37	-5,448.14	5,571.06	0.00	0.00	0.00
13,600.00	90.00	269.69	8,008.00	-1,277.91	-5,548.14	5,670.21	0.00	0.00	0.00
13,700.00	90.00	269.69	8,008.00	-1,278.46	-5,648.14	5,769.36	0.00	0.00	0.00
13,800.00	90.00	269.69	8,008.00	-1,279.01	-5,748.14	5,868.51	0.00	0.00	0.00
13,900.00	90.00	269.69	8,008.00	-1,279.56	-5,848.13	5,967.66	0.00	0.00	0.00
14,000.00	90.00	269.69	8,008.00	-1,280.11	-5,948.13	6,066.81	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Lone Tree 4-65 15-16 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5718.10ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
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)	
14,100.00	90.00	269.69	8,008.00	-1,280.65	-6,048.13	6,165.95	0.00	0.00	0.00	
14,200.00	90.00	269.69	8,008.00	-1,281.20	-6,148.13	6,265.10	0.00	0.00	0.00	
14,300.00	90.00	269.69	8,008.00	-1,281.75	-6,248.13	6,364.25	0.00	0.00	0.00	
14,400.00	90.00	269.69	8,008.00	-1,282.30	-6,348.13	6,463.40	0.00	0.00	0.00	
14,500.00	90.00	269.69	8,008.00	-1,282.85	-6,448.13	6,562.55	0.00	0.00	0.00	
14,600.00	90.00	269.69	8,008.00	-1,283.40	-6,548.12	6,661.70	0.00	0.00	0.00	
14,700.00	90.00	269.69	8,008.00	-1,283.94	-6,648.12	6,760.84	0.00	0.00	0.00	
14,800.00	90.00	269.69	8,008.00	-1,284.49	-6,748.12	6,859.99	0.00	0.00	0.00	
14,900.00	90.00	269.69	8,008.00	-1,285.04	-6,848.12	6,959.14	0.00	0.00	0.00	
15,000.00	90.00	269.69	8,008.00	-1,285.59	-6,948.12	7,058.29	0.00	0.00	0.00	
15,100.00	90.00	269.69	8,008.00	-1,286.14	-7,048.12	7,157.44	0.00	0.00	0.00	
15,200.00	90.00	269.69	8,008.00	-1,286.68	-7,148.11	7,256.59	0.00	0.00	0.00	
15,300.00	90.00	269.69	8,008.00	-1,287.23	-7,248.11	7,355.73	0.00	0.00	0.00	
15,400.00	90.00	269.69	8,008.00	-1,287.78	-7,348.11	7,454.88	0.00	0.00	0.00	
15,500.00	90.00	269.69	8,008.00	-1,288.33	-7,448.11	7,554.03	0.00	0.00	0.00	
15,600.00	90.00	269.69	8,008.00	-1,288.88	-7,548.11	7,653.18	0.00	0.00	0.00	
15,700.00	90.00	269.69	8,008.00	-1,289.43	-7,648.11	7,752.33	0.00	0.00	0.00	
15,800.00	90.00	269.69	8,008.00	-1,289.97	-7,748.11	7,851.48	0.00	0.00	0.00	
15,900.00	90.00	269.69	8,008.00	-1,290.52	-7,848.10	7,950.63	0.00	0.00	0.00	
16,000.00	90.00	269.69	8,008.00	-1,291.07	-7,948.10	8,049.77	0.00	0.00	0.00	
16,100.00	90.00	269.69	8,008.00	-1,291.62	-8,048.10	8,148.92	0.00	0.00	0.00	
16,200.00	90.00	269.69	8,008.00	-1,292.17	-8,148.10	8,248.07	0.00	0.00	0.00	
16,300.00	90.00	269.69	8,008.00	-1,292.71	-8,248.10	8,347.22	0.00	0.00	0.00	
16,400.00	90.00	269.69	8,008.00	-1,293.26	-8,348.10	8,446.37	0.00	0.00	0.00	
16,500.00	90.00	269.69	8,008.00	-1,293.81	-8,448.10	8,545.52	0.00	0.00	0.00	
16,600.00	90.00	269.69	8,008.00	-1,294.36	-8,548.09	8,644.66	0.00	0.00	0.00	
16,700.00	90.00	269.69	8,008.00	-1,294.91	-8,648.09	8,743.81	0.00	0.00	0.00	
16,800.00	90.00	269.69	8,008.00	-1,295.46	-8,748.09	8,842.96	0.00	0.00	0.00	
16,900.00	90.00	269.69	8,008.00	-1,296.00	-8,848.09	8,942.11	0.00	0.00	0.00	
17,000.00	90.00	269.69	8,008.00	-1,296.55	-8,948.09	9,041.26	0.00	0.00	0.00	
17,100.00	90.00	269.69	8,008.00	-1,297.10	-9,048.09	9,140.41	0.00	0.00	0.00	
17,200.00	90.00	269.69	8,008.00	-1,297.65	-9,148.08	9,239.55	0.00	0.00	0.00	
17,300.00	90.00	269.69	8,008.00	-1,298.20	-9,248.08	9,338.70	0.00	0.00	0.00	
17,400.00	90.00	269.69	8,008.00	-1,298.74	-9,348.08	9,437.85	0.00	0.00	0.00	
17,500.00	90.00	269.69	8,008.00	-1,299.29	-9,448.08	9,537.00	0.00	0.00	0.00	
17,542.39	90.00	269.69	8,008.00	-1,299.53	-9,490.47	9,579.03	0.00	0.00	0.00	
BHL: 2143' FSL, 460' FWL - 5-1/2" Casing										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Lone Tree 4-65 15-16	0.00	0.00	8,008.00	-1,250.63	-570.57	1,681,923.997	3,240,552.488	39° 42' 9.270 N	104° 38' 42.220 W	
- plan hits target center										
- Point										
Lone Tree 4-65 15-16	0.00	0.00	8,008.00	-1,299.53	-9,490.47	1,681,790.960	3,231,633.534	39° 42' 8.769 N	104° 40' 36.344 W	
- plan hits target center										
- Point										

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Lone Tree 4-65 15-16 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5718.10ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5718.10ft (25' RKB)
Site:	Lone Tree	North Reference:	True
Well:	Lone Tree 4-65 15-16 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lone Tree 4-65 15-16 3BH		
Design:	Design A		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,112.00	2,112.00	9-5/8" Casing	9-5/8	12-1/4
17,542.39	8,008.00	5-1/2" Casing	5-1/2	8-1/2

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: 1869' FNL, 600' FEL
6,824.28	6,734.10	-511.89	0.43	EOB: 2381' FNL, 600' FEL
7,723.68	7,512.97	-961.64	0.81	KOP: 2471' FSL, 599' FEL
8,622.35	8,008.00	-1,250.63	-570.56	BPI: 2182' FSL, 1173' FEL
17,542.39	8,008.00	-1,299.53	-9,490.47	BHL: 2143' FSL, 460' FWL