

ConocoPhillips RBU Gold Data_Niobrara

Niobrara - CO Central Zone

B&D Land

B&D Land 4-64 4-5 4BH

B&D Land 4-64 4-5 4BH

Plan: B&D Land 4-64 4-5 4BH

Standard Planning Report

13 February, 2017

ConocoPhillips

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well B&D Land 4-64 4-5 4BH
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5641.20ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5641.20ft
Site:	B&D Land	North Reference:	True
Well:	B&D Land 4-64 4-5 4BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	B&D Land 4-64 4-5 4BH		
Design:	B&D Land 4-64 4-5 4BH		

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		B&D Land			
Site Position:		Northing:	1,695,514.657 usft	Latitude:	39° 44' 21.919 N
From:	Lat/Long	Easting:	3,257,771.308 usft	Longitude:	104° 35' 0.172 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	B&D Land 4-64 4-5 4BH					
Well Position	+N/-S	-4,634.23 ft	Northing:	1,690,983.696 usft	Latitude:	39° 43' 36.100 N
	+E/-W	10,210.47 ft	Easting:	3,268,027.970 usft	Longitude:	104° 32' 49.490 W
Position Uncertainty		2.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,617.20 ft

Wellbore	B&D Land 4-64 4-5 4BH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	2/13/2017	8.24	66.42	52,109

Design	B&D Land 4-64 4-5 4BH			
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	271.76

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	
5,070.00	0.00	0.00	5,070.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,403.14	5.00	355.48	5,402.72	14.47	-1.14	1.50	1.50	0.00	355.48	
6,061.75	5.00	355.48	6,058.83	71.66	-5.67	0.00	0.00	0.00	0.00	
6,461.52	0.00	0.00	6,458.09	89.03	-7.04	1.25	-1.25	0.00	180.00	
6,931.52	0.00	0.00	6,928.09	89.03	-7.04	0.00	0.00	0.00	0.00	
7,824.34	89.28	271.13	7,501.00	100.19	-572.71	10.00	10.00	0.00	0.00	B&D Land 4-64 4-5 4BH
15,325.48	89.28	271.13	7,595.00	248.18	-8,071.80	0.00	0.00	0.00	0.00	B&D Land 4-64 4-5 4BH

ConocoPhillips

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well B&D Land 4-64 4-5 4BH
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5641.20ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5641.20ft
Site:	B&D Land	North Reference:	True
Well:	B&D Land 4-64 4-5 4BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	B&D Land 4-64 4-5 4BH		
Design:	B&D Land 4-64 4-5 4BH		

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
1,938.00	0.00	0.00	1,938.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface									
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
2,300.00	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
5,070.00	0.00	0.00	5,070.00	0.00	0.00	0.00	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well B&D Land 4-64 4-5 4BH
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5641.20ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5641.20ft
Site:	B&D Land	North Reference:	True
Well:	B&D Land 4-64 4-5 4BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	B&D Land 4-64 4-5 4BH		
Design:	B&D Land 4-64 4-5 4BH		

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)
5,100.00	0.45	355.48	5,100.00	0.12	-0.01	0.01	1.50	1.50	0.00
5,200.00	1.95	355.48	5,199.98	2.21	-0.17	0.24	1.50	1.50	0.00
5,300.00	3.45	355.48	5,299.86	6.90	-0.55	0.76	1.50	1.50	0.00
5,403.14	5.00	355.48	5,402.72	14.47	-1.14	1.59	1.50	1.50	0.00
5,500.00	5.00	355.48	5,499.21	22.88	-1.81	2.51	0.00	0.00	0.00
5,600.00	5.00	355.48	5,598.83	31.57	-2.50	3.47	0.00	0.00	0.00
5,700.00	5.00	355.48	5,698.45	40.25	-3.18	4.42	0.00	0.00	0.00
5,800.00	5.00	355.48	5,798.07	48.93	-3.87	5.37	0.00	0.00	0.00
5,900.00	5.00	355.48	5,897.69	57.62	-4.56	6.33	0.00	0.00	0.00
6,000.00	5.00	355.48	5,997.31	66.30	-5.24	7.28	0.00	0.00	0.00
6,061.75	5.00	355.48	6,058.83	71.66	-5.67	7.87	0.00	0.00	0.00
6,100.00	4.52	355.48	6,096.94	74.83	-5.92	8.22	1.25	-1.25	0.00
6,200.00	3.27	355.48	6,196.71	81.60	-6.45	8.96	1.25	-1.25	0.00
6,300.00	2.02	355.48	6,296.60	86.19	-6.82	9.46	1.25	-1.25	0.00
6,400.00	0.77	355.48	6,396.57	88.62	-7.01	9.73	1.25	-1.25	0.00
6,461.52	0.00	0.00	6,458.09	89.03	-7.04	9.77	1.25	-1.25	0.00
6,500.00	0.00	0.00	6,496.57	89.03	-7.04	9.77	0.00	0.00	0.00
6,600.00	0.00	0.00	6,596.57	89.03	-7.04	9.77	0.00	0.00	0.00
6,700.00	0.00	0.00	6,696.57	89.03	-7.04	9.77	0.00	0.00	0.00
6,800.00	0.00	0.00	6,796.57	89.03	-7.04	9.77	0.00	0.00	0.00
6,900.00	0.00	0.00	6,896.57	89.03	-7.04	9.77	0.00	0.00	0.00
6,931.52	0.00	0.00	6,928.09	89.03	-7.04	9.77	0.00	0.00	0.00
6,950.00	1.85	271.13	6,946.56	89.04	-7.34	10.07	10.00	10.00	0.00
7,000.00	6.85	271.13	6,996.41	89.11	-11.13	13.86	10.00	10.00	0.00
7,050.00	11.85	271.13	7,045.73	89.27	-19.25	21.98	10.00	10.00	0.00
7,100.00	16.85	271.13	7,094.15	89.52	-31.63	34.37	10.00	10.00	0.00
7,150.00	21.85	271.13	7,141.31	89.84	-48.19	50.93	10.00	10.00	0.00
7,200.00	26.85	271.13	7,186.85	90.25	-68.79	71.53	10.00	10.00	0.00
7,250.00	31.85	271.13	7,230.42	90.73	-93.28	96.03	10.00	10.00	0.00
7,300.00	36.85	271.13	7,271.69	91.29	-121.48	124.23	10.00	10.00	0.00
7,350.00	41.85	271.13	7,310.34	91.91	-153.17	155.92	10.00	10.00	0.00
7,400.00	46.85	271.13	7,346.08	92.60	-188.10	190.86	10.00	10.00	0.00
7,450.00	51.85	271.13	7,378.65	93.35	-226.01	228.78	10.00	10.00	0.00
7,500.00	56.85	271.13	7,407.78	94.15	-266.62	269.39	10.00	10.00	0.00
7,550.00	61.85	271.13	7,433.26	95.00	-309.61	312.39	10.00	10.00	0.00
7,600.00	66.85	271.13	7,454.90	95.89	-354.66	357.44	10.00	10.00	0.00
7,650.00	71.85	271.13	7,472.53	96.81	-401.42	404.21	10.00	10.00	0.00
7,700.00	76.85	271.13	7,486.02	97.76	-449.55	452.34	10.00	10.00	0.00
7,750.00	81.85	271.13	7,495.26	98.73	-498.66	501.46	10.00	10.00	0.00
7,800.00	86.85	271.13	7,500.18	99.71	-548.39	551.20	10.00	10.00	0.00
7,824.34	89.28	271.13	7,501.00	100.19	-572.71	575.52	10.00	10.00	0.00
7,900.00	89.28	271.13	7,501.95	101.69	-648.35	651.17	0.00	0.00	0.00
8,000.00	89.28	271.13	7,503.20	103.66	-748.32	751.15	0.00	0.00	0.00
8,100.00	89.28	271.13	7,504.45	105.63	-848.30	851.14	0.00	0.00	0.00
8,200.00	89.28	271.13	7,505.71	107.60	-948.27	951.13	0.00	0.00	0.00
8,300.00	89.28	271.13	7,506.96	109.58	-1,048.24	1,051.11	0.00	0.00	0.00
8,400.00	89.28	271.13	7,508.21	111.55	-1,148.21	1,151.10	0.00	0.00	0.00
8,500.00	89.28	271.13	7,509.47	113.52	-1,248.19	1,251.09	0.00	0.00	0.00
8,600.00	89.28	271.13	7,510.72	115.50	-1,348.16	1,351.07	0.00	0.00	0.00
8,700.00	89.28	271.13	7,511.97	117.47	-1,448.13	1,451.06	0.00	0.00	0.00
8,800.00	89.28	271.13	7,513.23	119.44	-1,548.10	1,551.04	0.00	0.00	0.00
8,900.00	89.28	271.13	7,514.48	121.41	-1,648.08	1,651.03	0.00	0.00	0.00
9,000.00	89.28	271.13	7,515.73	123.39	-1,748.05	1,751.02	0.00	0.00	0.00
9,100.00	89.28	271.13	7,516.99	125.36	-1,848.02	1,851.00	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well B&D Land 4-64 4-5 4BH
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5641.20ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5641.20ft
Site:	B&D Land	North Reference:	True
Well:	B&D Land 4-64 4-5 4BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	B&D Land 4-64 4-5 4BH		
Design:	B&D Land 4-64 4-5 4BH		

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)
9,200.00	89.28	271.13	7,518.24	127.33	-1,947.99	1,950.99	0.00	0.00	0.00
9,300.00	89.28	271.13	7,519.49	129.31	-2,047.97	2,050.97	0.00	0.00	0.00
9,400.00	89.28	271.13	7,520.75	131.28	-2,147.94	2,150.96	0.00	0.00	0.00
9,500.00	89.28	271.13	7,522.00	133.25	-2,247.91	2,250.95	0.00	0.00	0.00
9,600.00	89.28	271.13	7,523.25	135.23	-2,347.89	2,350.93	0.00	0.00	0.00
9,700.00	89.28	271.13	7,524.50	137.20	-2,447.86	2,450.92	0.00	0.00	0.00
9,800.00	89.28	271.13	7,525.76	139.17	-2,547.83	2,550.90	0.00	0.00	0.00
9,900.00	89.28	271.13	7,527.01	141.14	-2,647.80	2,650.89	0.00	0.00	0.00
10,000.00	89.28	271.13	7,528.26	143.12	-2,747.78	2,750.88	0.00	0.00	0.00
10,100.00	89.28	271.13	7,529.52	145.09	-2,847.75	2,850.86	0.00	0.00	0.00
10,200.00	89.28	271.13	7,530.77	147.06	-2,947.72	2,950.85	0.00	0.00	0.00
10,300.00	89.28	271.13	7,532.02	149.04	-3,047.69	3,050.83	0.00	0.00	0.00
10,400.00	89.28	271.13	7,533.28	151.01	-3,147.67	3,150.82	0.00	0.00	0.00
10,500.00	89.28	271.13	7,534.53	152.98	-3,247.64	3,250.81	0.00	0.00	0.00
10,600.00	89.28	271.13	7,535.78	154.95	-3,347.61	3,350.79	0.00	0.00	0.00
10,700.00	89.28	271.13	7,537.04	156.93	-3,447.58	3,450.78	0.00	0.00	0.00
10,800.00	89.28	271.13	7,538.29	158.90	-3,547.56	3,550.77	0.00	0.00	0.00
10,900.00	89.28	271.13	7,539.54	160.87	-3,647.53	3,650.75	0.00	0.00	0.00
11,000.00	89.28	271.13	7,540.80	162.85	-3,747.50	3,750.74	0.00	0.00	0.00
11,100.00	89.28	271.13	7,542.05	164.82	-3,847.48	3,850.72	0.00	0.00	0.00
11,200.00	89.28	271.13	7,543.30	166.79	-3,947.45	3,950.71	0.00	0.00	0.00
11,300.00	89.28	271.13	7,544.56	168.76	-4,047.42	4,050.70	0.00	0.00	0.00
11,400.00	89.28	271.13	7,545.81	170.74	-4,147.39	4,150.68	0.00	0.00	0.00
11,500.00	89.28	271.13	7,547.06	172.71	-4,247.37	4,250.67	0.00	0.00	0.00
11,600.00	89.28	271.13	7,548.31	174.68	-4,347.34	4,350.65	0.00	0.00	0.00
11,700.00	89.28	271.13	7,549.57	176.66	-4,447.31	4,450.64	0.00	0.00	0.00
11,800.00	89.28	271.13	7,550.82	178.63	-4,547.28	4,550.63	0.00	0.00	0.00
11,900.00	89.28	271.13	7,552.07	180.60	-4,647.26	4,650.61	0.00	0.00	0.00
12,000.00	89.28	271.13	7,553.33	182.57	-4,747.23	4,750.60	0.00	0.00	0.00
12,100.00	89.28	271.13	7,554.58	184.55	-4,847.20	4,850.58	0.00	0.00	0.00
12,200.00	89.28	271.13	7,555.83	186.52	-4,947.18	4,950.57	0.00	0.00	0.00
12,300.00	89.28	271.13	7,557.09	188.49	-5,047.15	5,050.56	0.00	0.00	0.00
12,400.00	89.28	271.13	7,558.34	190.47	-5,147.12	5,150.54	0.00	0.00	0.00
12,500.00	89.28	271.13	7,559.59	192.44	-5,247.09	5,250.53	0.00	0.00	0.00
12,600.00	89.28	271.13	7,560.85	194.41	-5,347.07	5,350.52	0.00	0.00	0.00
12,700.00	89.28	271.13	7,562.10	196.38	-5,447.04	5,450.50	0.00	0.00	0.00
12,800.00	89.28	271.13	7,563.35	198.36	-5,547.01	5,550.49	0.00	0.00	0.00
12,900.00	89.28	271.13	7,564.61	200.33	-5,646.98	5,650.47	0.00	0.00	0.00
13,000.00	89.28	271.13	7,565.86	202.30	-5,746.96	5,750.46	0.00	0.00	0.00
13,100.00	89.28	271.13	7,567.11	204.28	-5,846.93	5,850.45	0.00	0.00	0.00
13,200.00	89.28	271.13	7,568.36	206.25	-5,946.90	5,950.43	0.00	0.00	0.00
13,300.00	89.28	271.13	7,569.62	208.22	-6,046.87	6,050.42	0.00	0.00	0.00
13,400.00	89.28	271.13	7,570.87	210.19	-6,146.85	6,150.40	0.00	0.00	0.00
13,500.00	89.28	271.13	7,572.12	212.17	-6,246.82	6,250.39	0.00	0.00	0.00
13,600.00	89.28	271.13	7,573.38	214.14	-6,346.79	6,350.38	0.00	0.00	0.00
13,700.00	89.28	271.13	7,574.63	216.11	-6,446.77	6,450.36	0.00	0.00	0.00
13,800.00	89.28	271.13	7,575.88	218.09	-6,546.74	6,550.35	0.00	0.00	0.00
13,900.00	89.28	271.13	7,577.14	220.06	-6,646.71	6,650.33	0.00	0.00	0.00
14,000.00	89.28	271.13	7,578.39	222.03	-6,746.68	6,750.32	0.00	0.00	0.00
14,100.00	89.28	271.13	7,579.64	224.00	-6,846.66	6,850.31	0.00	0.00	0.00
14,200.00	89.28	271.13	7,580.90	225.98	-6,946.63	6,950.29	0.00	0.00	0.00
14,300.00	89.28	271.13	7,582.15	227.95	-7,046.60	7,050.28	0.00	0.00	0.00
14,400.00	89.28	271.13	7,583.40	229.92	-7,146.57	7,150.26	0.00	0.00	0.00
14,500.00	89.28	271.13	7,584.66	231.90	-7,246.55	7,250.25	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well B&D Land 4-64 4-5 4BH
Company:	ConocoPhillips RBU Gold Data_Niobrara	TVD Reference:	24' RKB @ 5641.20ft
Project:	Niobrara - CO Central Zone	MD Reference:	24' RKB @ 5641.20ft
Site:	B&D Land	North Reference:	True
Well:	B&D Land 4-64 4-5 4BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	B&D Land 4-64 4-5 4BH		
Design:	B&D Land 4-64 4-5 4BH		

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)
14,600.00	89.28	271.13	7,585.91	233.87	-7,346.52	7,350.24	0.00	0.00	0.00
14,700.00	89.28	271.13	7,587.16	235.84	-7,446.49	7,450.22	0.00	0.00	0.00
14,800.00	89.28	271.13	7,588.42	237.81	-7,546.47	7,550.21	0.00	0.00	0.00
14,900.00	89.28	271.13	7,589.67	239.79	-7,646.44	7,650.20	0.00	0.00	0.00
15,000.00	89.28	271.13	7,590.92	241.76	-7,746.41	7,750.18	0.00	0.00	0.00
15,100.00	89.28	271.13	7,592.17	243.73	-7,846.38	7,850.17	0.00	0.00	0.00
15,200.00	89.28	271.13	7,593.43	245.71	-7,946.36	7,950.15	0.00	0.00	0.00
15,300.00	89.28	271.13	7,594.68	247.68	-8,046.33	8,050.14	0.00	0.00	0.00
15,325.48	89.28	271.13	7,595.00	248.18	-8,071.80	8,075.61	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	Longitude
- hit/miss target									
- Shape									
B&D Land 4-64 4-5 4BH	0.00	0.00	7,501.00	100.19	-572.71	1,691,077.876	3,267,454.245	39° 43' 37.090 N	104° 32' 56.820 W
- plan hits target center									
- Point									
B&D Land 4-64 4-5 4BH	0.00	0.00	7,595.00	248.18	-8,071.80	1,691,147.197	3,259,954.064	39° 43' 38.540 N	104° 34' 32.800 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,938.00	1,938.00	Surface	9-5/8	12-1/4	
15,325.48	7,595.00	Production	5-1/2	8-3/4	



ConocoPhillips

Arapahoe County, Colorado

B&D Land 4-64 4-5 4BH

Ground Level: 5617.20
Surface Location Latitude: 39° 43' 36.100 N
Surface Location Longitude: 104° 32' 49.490 W
North Reference: True
24' RKB @ 5641.20ft

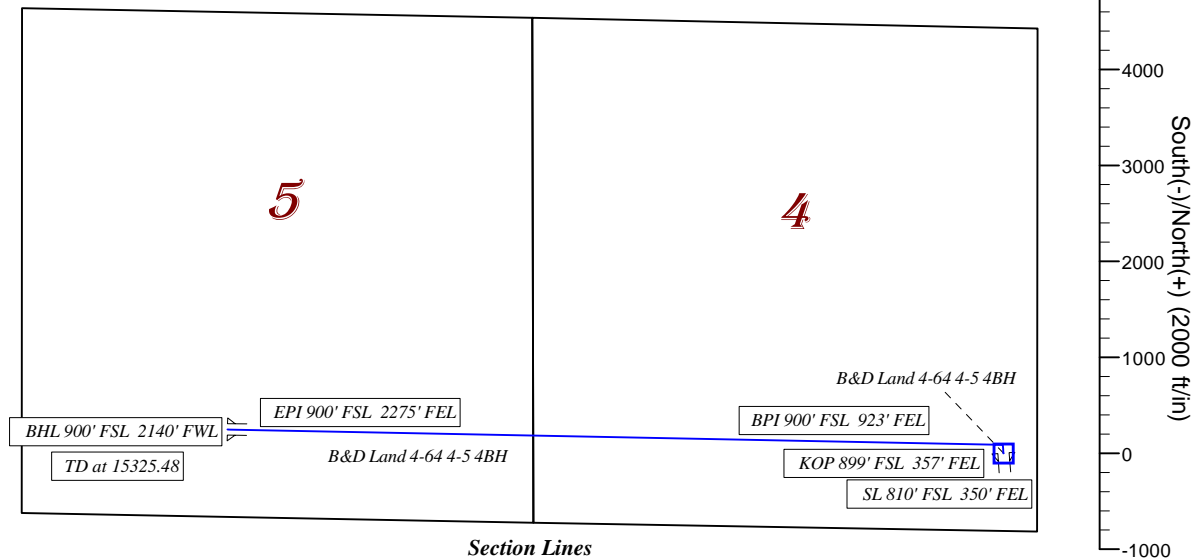
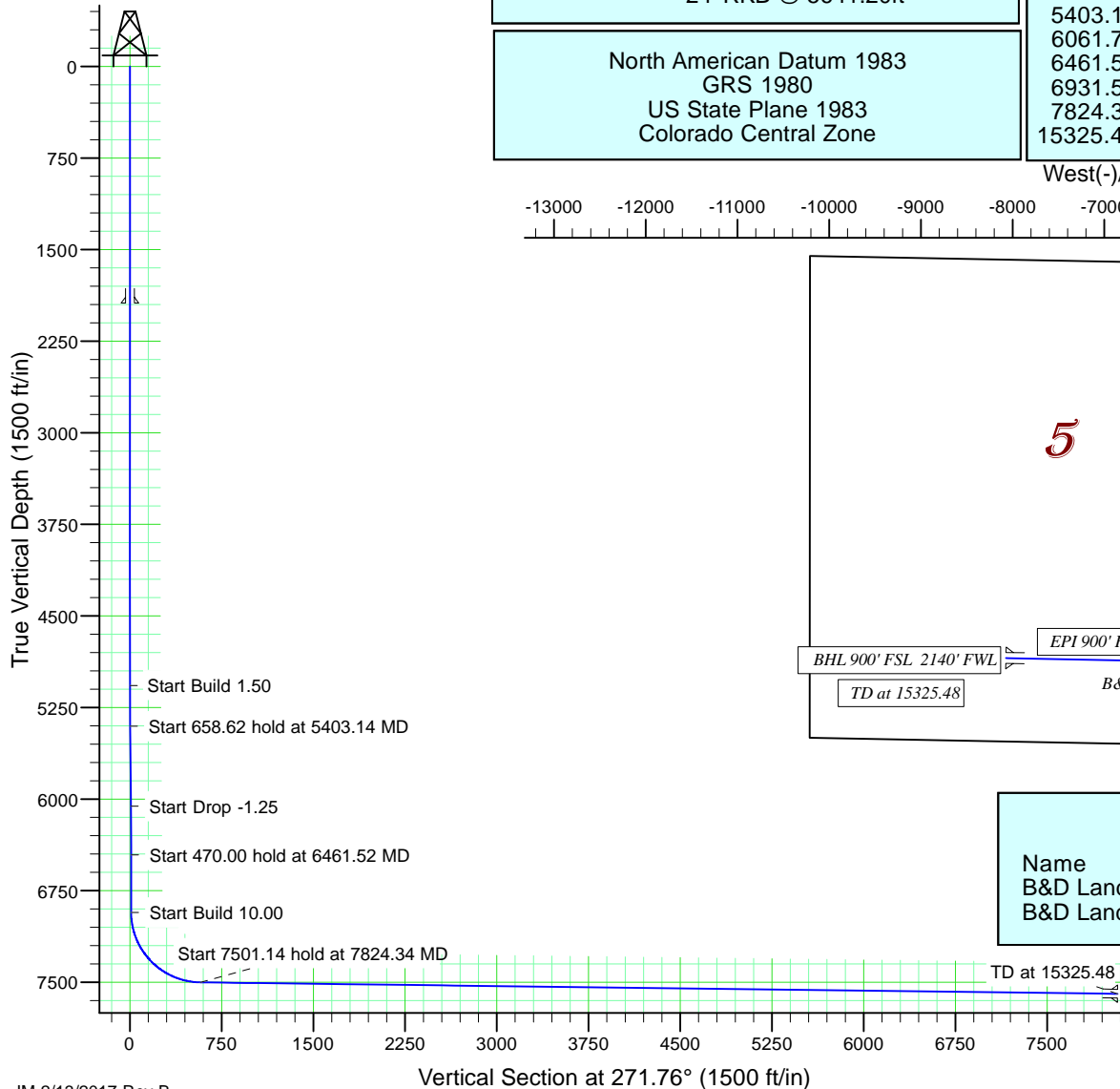
North American Datum 1983
GRS 1980
US State Plane 1983
Colorado Central Zone

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
5070.00	0.00	0.00	5070.00	0.00	0.00	0.00	0.00
5403.14	5.00	355.48	5402.72	14.47	-1.14	1.50	1.59
6061.75	5.00	355.48	6058.83	71.66	-5.67	0.00	7.87
6461.52	0.00	0.00	6458.09	89.03	-7.04	1.25	9.77
6931.52	0.00	0.00	6928.09	89.03	-7.04	0.00	9.77
7824.34	89.28	271.13	7501.00	100.19	-572.71	10.00	575.52
15325.48	89.28	271.13	7595.00	248.18	-8071.80	0.00	8075.61

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

-13000 -12000 -11000 -10000 -9000 -8000 -7000 -6000 -5000 -4000 -3000 -2000 -1000 0 1000



Wellbore Targets

Name	TVD	Latitude	Longitude
B&D Land 4-64 4-5 4BH BPI	7501.00	39° 43' 37.090 N	104° 32' 56.820 W
B&D Land 4-64 4-5 4BH BHL	7595.00	39° 43' 38.540 N	104° 34' 32.800 W

Casing Depths

TVD	MD	Name	Size
1938.00	1938.00	Surface	9-5/8
7595.00	15325.48	Production	5-1/2