

# **ConocoPhillips RBU Gold Data**

**Niobrara North Zone**

**Schuh**

**Schuh 3-65 21-20 3DH**

**Schuh 3-65 21-20 3DH**

**Plan: Design B**

## **Standard Planning Report**

**26 April, 2018**



#### Casing Depths

TVD	MD	Name	Size
2186.00	2186.00	9-5/8" Casing	9-5/8
7977.00	17996.54	5-1/2" Casing	5-1/2

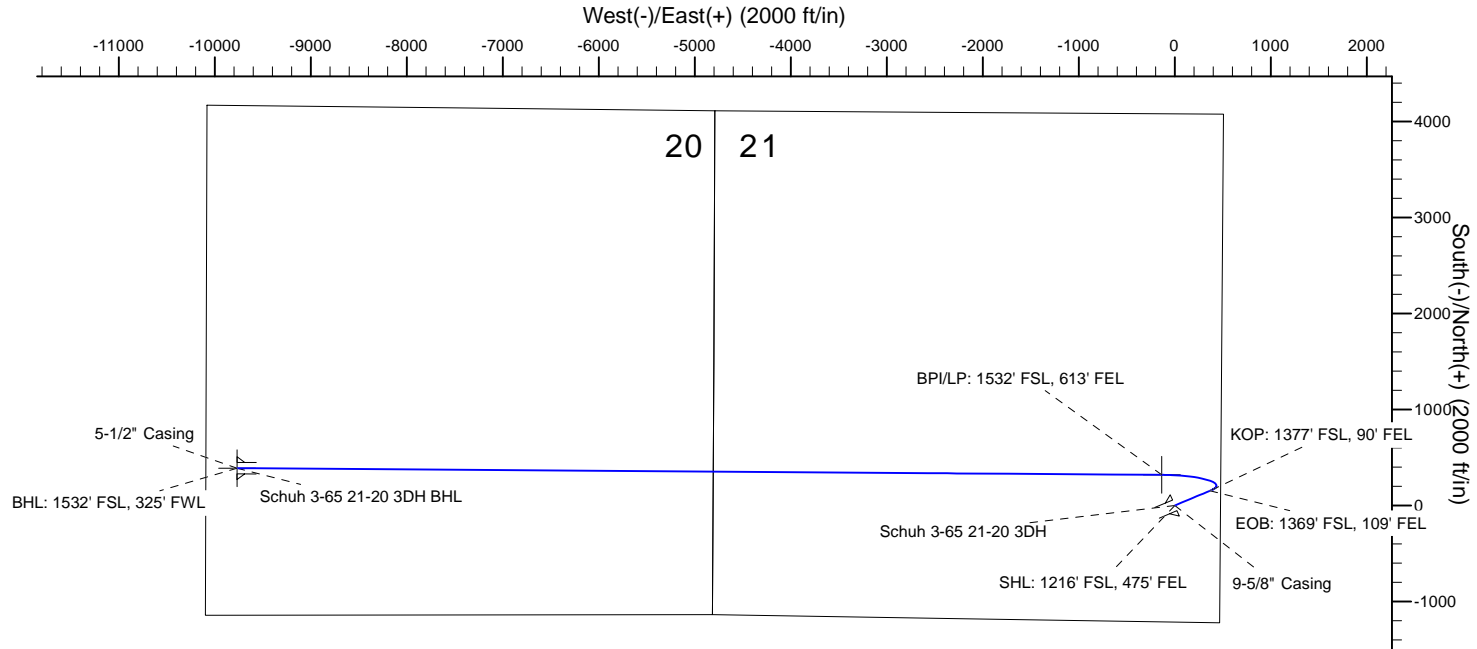
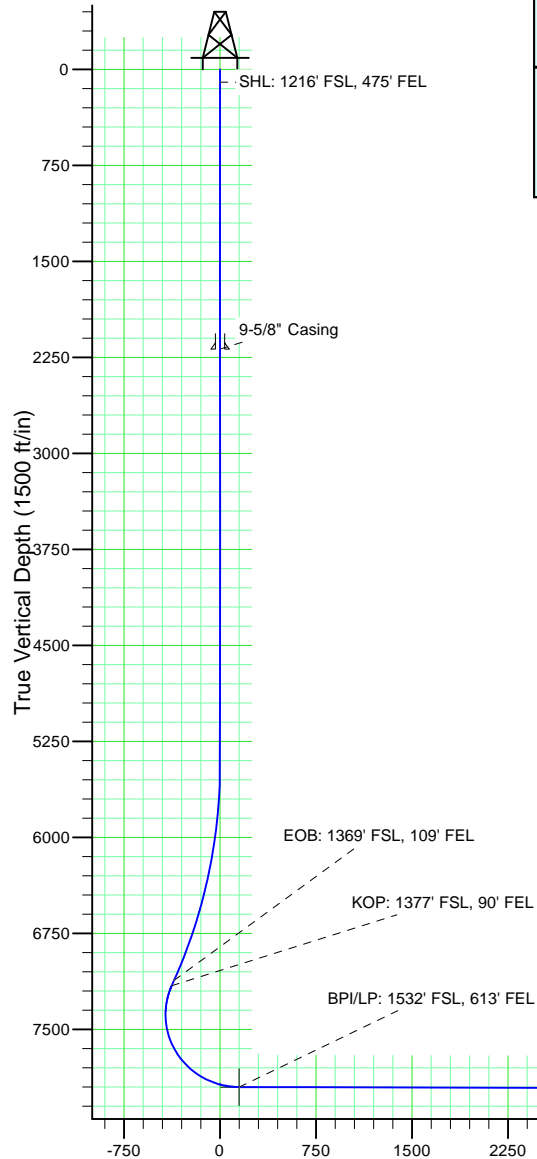
## ConocoPhillips Schuh 3-65 21-20 3DH Design B

Ground Level: 5594.40  
Surface Location Latitude: 39° 46' 20.600 N  
Surface Location Longitude: 104° 39' 40.100 W  
North Reference: True  
25' RKB @ 5619.40ft (25' RKB)

North American Datum 1983  
GRS 1980  
US State Plane 1983  
Colorado Northern 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
5423.00	0.00	0.00	5423.00	0.00	0.00	0.00	0.00
7179.53	26.35	67.26	7118.27	153.40	365.96	1.50	-359.58
7225.01	26.35	67.26	7159.03	161.20	384.58	0.00	-377.87
8364.33	89.85	270.41	7951.00	318.75	-135.86	10.00	148.42
17996.54	89.85	270.41	7977.00	388.46	-9767.78	0.00	9775.50



#### Wellbore Targets

Name	TVD	Latitude	Longitude
Schuh 3-65 21-20 3DH BPI	7951.00	39° 46' 23.750 N	104° 39' 41.840 W
Schuh 3-65 21-20 3DH BHL	7977.00	39° 46' 24.420 N	104° 41' 45.200 W

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Schuh 3-65 21-20 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

<b>Project</b>	Niobrara North Zone, Colorado North Zone, FIPS Zone: 0501		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Schuh				
Site Position:		Northing:	1,161,145.634 usft	Latitude:	39° 46' 21.540 N
From:	Lat/Long	Easting:	3,235,840.633 usft	Longitude:	104° 39' 39.450 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well	Schuh 3-65 21-20 3DH					
Well Position	+N-S	-95.13 ft	Northing:	1,161,050.031 usft	Latitude:	39° 46' 20.600 N
	+E-W	-50.75 ft	Easting:	3,235,790.784 usft	Longitude:	104° 39' 40.100 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	5,594.40 ft	Ground Level:	5,594.40 ft

<b>Wellbore</b>	Schuh 3-65 21-20 3DH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2017	12/1/2018	8.16	66.35	51,885.70123256

<b>Design</b>	Design B				
<b>Audit Notes:</b>					
<b>Version:</b>	0	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N-S (ft)</b>	<b>+E-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	272.28	

<b>Plan Survey Tool Program</b>	<b>Date</b>	4/26/2018			
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	2,186.00	Design B (Schuh 3-65 21-20 3DH)	Gyro-BM-MS	
				Gyro - bat/mem drop m/s	
2	2,186.00	5,423.00	Design B (Schuh 3-65 21-20 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
3	5,423.00	7,179.53	Design B (Schuh 3-65 21-20 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
4	7,179.53	7,225.01	Design B (Schuh 3-65 21-20 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
5	7,225.01	8,364.33	Design B (Schuh 3-65 21-20 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
6	8,364.33	17,996.54	Design B (Schuh 3-65 21-20 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	

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<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

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	
5,423.00	0.00	0.00	5,423.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,179.53	26.35	67.26	7,118.27	153.40	365.96	1.50	1.50	0.00	67.26	
7,225.01	26.35	67.26	7,159.03	161.20	384.58	0.00	0.00	0.00	0.00	
8,364.33	89.85	270.41	7,951.00	318.75	-135.86	10.00	5.57	-13.77	-154.52	Schuh 3-65 21-20 3
17,996.54	89.85	270.41	7,977.00	388.46	-9,767.78	0.00	0.00	0.00	0.00	Schuh 3-65 21-20 3

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<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

### 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
<b>SHL: 1216' FSL, 475' FEL</b>									
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
1,720.00	0.00	0.00	1,720.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Top</b>									
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
1,986.00	0.00	0.00	1,986.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Base</b>									
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
2,186.00	0.00	0.00	2,186.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Casing - 9-5/8" Casing</b>									
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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<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

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
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,423.00	0.00	0.00	5,423.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	1.16	67.26	5,499.99	0.30	0.72	-0.70	1.50	1.50	0.00
5,600.00	2.66	67.26	5,599.94	1.59	3.78	-3.72	1.50	1.50	0.00
5,700.00	4.16	67.26	5,699.76	3.88	9.26	-9.10	1.50	1.50	0.00
5,800.00	5.66	67.26	5,799.39	7.19	17.14	-16.85	1.50	1.50	0.00
5,900.00	7.16	67.26	5,898.76	11.50	27.43	-26.95	1.50	1.50	0.00
6,000.00	8.66	67.26	5,997.81	16.82	40.12	-39.42	1.50	1.50	0.00
6,100.00	10.16	67.26	6,096.46	23.13	55.19	-54.22	1.50	1.50	0.00
6,200.00	11.66	67.26	6,194.65	30.44	72.63	-71.37	1.50	1.50	0.00
6,300.00	13.16	67.26	6,292.32	38.75	92.44	-90.83	1.50	1.50	0.00
6,400.00	14.66	67.26	6,389.38	48.04	114.61	-112.61	1.50	1.50	0.00
6,500.00	16.16	67.26	6,485.79	58.31	139.11	-136.68	1.50	1.50	0.00
6,600.00	17.66	67.26	6,581.46	69.55	165.92	-163.03	1.50	1.50	0.00
6,700.00	19.16	67.26	6,676.34	81.75	195.04	-191.64	1.50	1.50	0.00
6,800.00	20.66	67.26	6,770.37	94.91	226.44	-222.49	1.50	1.50	0.00
6,900.00	22.16	67.26	6,863.47	109.02	260.10	-255.56	1.50	1.50	0.00
7,000.00	23.66	67.26	6,955.58	124.07	295.99	-290.83	1.50	1.50	0.00
7,100.00	25.16	67.26	7,046.64	140.04	334.10	-328.27	1.50	1.50	0.00
7,179.53	26.35	67.26	7,118.27	153.40	365.96	-359.58	1.50	1.50	0.00
<b>EOB: 1369' FSL, 109' FEL</b>									
7,200.00	26.35	67.26	7,136.62	156.91	374.34	-367.81	0.00	0.00	0.00
7,225.01	26.35	67.26	7,159.03	161.20	384.58	-377.87	0.00	0.00	0.00
<b>KOP: 1377' FSL, 90' FEL</b>									
7,250.00	24.11	64.63	7,181.63	165.53	394.31	-387.42	10.00	-8.94	-10.53
7,300.00	19.82	57.73	7,228.00	174.44	410.71	-403.46	10.00	-8.58	-13.80
7,350.00	15.93	47.43	7,275.59	183.62	422.94	-415.31	10.00	-7.78	-20.59
7,400.00	12.81	31.56	7,324.04	192.99	430.91	-422.90	10.00	-6.25	-31.74
7,450.00	11.12	8.66	7,372.97	202.48	434.53	-426.15	10.00	-3.38	-45.81
7,500.00	11.52	343.06	7,422.03	212.03	433.81	-425.04	10.00	0.79	-51.21
7,550.00	13.82	322.64	7,470.84	221.56	428.72	-419.58	10.00	4.61	-40.84
7,600.00	17.28	309.08	7,519.01	230.99	419.33	-409.82	10.00	6.93	-27.12
7,650.00	21.35	300.23	7,566.20	240.26	405.69	-395.82	10.00	8.13	-17.70
7,700.00	25.74	294.18	7,612.03	249.30	387.91	-377.70	10.00	8.77	-12.08
7,750.00	30.30	289.83	7,656.17	258.03	366.13	-355.58	10.00	9.13	-8.71
7,800.00	34.98	286.53	7,698.26	266.39	340.51	-329.65	10.00	9.35	-6.60
7,844.82	39.23	284.17	7,734.00	273.52	314.44	-303.32	10.00	9.48	-5.26
<b>Niobrara Top</b>									
7,850.00	39.72	283.93	7,738.00	274.32	311.24	-300.10	10.00	9.54	-4.72
7,900.00	44.51	281.80	7,775.08	281.75	278.56	-267.14	10.00	9.58	-4.26
7,950.00	49.34	280.00	7,809.22	288.63	242.70	-231.04	10.00	9.65	-3.59
8,000.00	54.19	278.45	7,840.16	294.91	203.95	-192.07	10.00	9.70	-3.10
8,050.00	59.06	277.08	7,867.66	300.54	162.59	-150.52	10.00	9.73	-2.74
8,100.00	63.94	275.84	7,891.51	305.47	118.94	-106.71	10.00	9.76	-2.48
8,150.00	68.83	274.71	7,911.54	309.67	73.34	-60.98	10.00	9.78	-2.28
8,200.00	73.72	273.64	7,927.59	313.11	26.13	-13.67	10.00	9.79	-2.13

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## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Schuh 3-65 21-20 3DH
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<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

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)
8,250.00	78.63	272.63	7,939.53	315.76	-22.34	34.87	10.00	9.80	-2.03
8,257.69	79.38	272.47	7,941.00	316.10	-29.87	42.41	10.00	9.81	-1.98
<b>D Chalk Top</b>									
8,300.00	83.53	271.65	7,947.29	317.60	-71.68	84.24	10.00	9.81	-1.95
8,350.00	88.44	270.69	7,950.79	318.61	-121.53	134.10	10.00	9.81	-1.92
8,364.33	89.85	270.41	7,951.00	318.75	-135.86	148.42	10.00	9.82	-1.91
<b>BPI/LP: 1532' FSL, 613' FEL</b>									
8,400.00	89.85	270.41	7,951.10	319.01	-171.53	184.07	0.00	0.00	0.00
8,500.00	89.85	270.41	7,951.37	319.73	-271.52	284.02	0.00	0.00	0.00
8,600.00	89.85	270.41	7,951.64	320.46	-371.52	383.96	0.00	0.00	0.00
8,700.00	89.85	270.41	7,951.91	321.18	-471.52	483.91	0.00	0.00	0.00
8,800.00	89.85	270.41	7,952.18	321.90	-571.52	583.86	0.00	0.00	0.00
8,900.00	89.85	270.41	7,952.45	322.63	-671.51	683.80	0.00	0.00	0.00
9,000.00	89.85	270.41	7,952.72	323.35	-771.51	783.75	0.00	0.00	0.00
9,100.00	89.85	270.41	7,952.99	324.08	-871.51	883.70	0.00	0.00	0.00
9,200.00	89.85	270.41	7,953.26	324.80	-971.50	983.64	0.00	0.00	0.00
9,300.00	89.85	270.41	7,953.53	325.52	-1,071.50	1,083.59	0.00	0.00	0.00
9,400.00	89.85	270.41	7,953.80	326.25	-1,171.50	1,183.54	0.00	0.00	0.00
9,500.00	89.85	270.41	7,954.07	326.97	-1,271.49	1,283.48	0.00	0.00	0.00
9,600.00	89.85	270.41	7,954.34	327.69	-1,371.49	1,383.43	0.00	0.00	0.00
9,700.00	89.85	270.41	7,954.61	328.42	-1,471.49	1,483.38	0.00	0.00	0.00
9,800.00	89.85	270.41	7,954.88	329.14	-1,571.49	1,583.32	0.00	0.00	0.00
9,900.00	89.85	270.41	7,955.15	329.87	-1,671.48	1,683.27	0.00	0.00	0.00
10,000.00	89.85	270.41	7,955.42	330.59	-1,771.48	1,783.22	0.00	0.00	0.00
10,100.00	89.85	270.41	7,955.69	331.31	-1,871.48	1,883.16	0.00	0.00	0.00
10,200.00	89.85	270.41	7,955.96	332.04	-1,971.47	1,983.11	0.00	0.00	0.00
10,300.00	89.85	270.41	7,956.23	332.76	-2,071.47	2,083.06	0.00	0.00	0.00
10,400.00	89.85	270.41	7,956.50	333.48	-2,171.47	2,183.00	0.00	0.00	0.00
10,500.00	89.85	270.41	7,956.76	334.21	-2,271.47	2,282.95	0.00	0.00	0.00
10,600.00	89.85	270.41	7,957.03	334.93	-2,371.46	2,382.90	0.00	0.00	0.00
10,700.00	89.85	270.41	7,957.30	335.66	-2,471.46	2,482.85	0.00	0.00	0.00
10,800.00	89.85	270.41	7,957.57	336.38	-2,571.46	2,582.79	0.00	0.00	0.00
10,900.00	89.85	270.41	7,957.84	337.10	-2,671.45	2,682.74	0.00	0.00	0.00
11,000.00	89.85	270.41	7,958.11	337.83	-2,771.45	2,782.69	0.00	0.00	0.00
11,100.00	89.85	270.41	7,958.38	338.55	-2,871.45	2,882.63	0.00	0.00	0.00
11,200.00	89.85	270.41	7,958.65	339.27	-2,971.44	2,982.58	0.00	0.00	0.00
11,300.00	89.85	270.41	7,958.92	340.00	-3,071.44	3,082.53	0.00	0.00	0.00
11,400.00	89.85	270.41	7,959.19	340.72	-3,171.44	3,182.47	0.00	0.00	0.00
11,500.00	89.85	270.41	7,959.46	341.44	-3,271.44	3,282.42	0.00	0.00	0.00
11,600.00	89.85	270.41	7,959.73	342.17	-3,371.43	3,382.37	0.00	0.00	0.00
11,700.00	89.85	270.41	7,960.00	342.89	-3,471.43	3,482.31	0.00	0.00	0.00
11,800.00	89.85	270.41	7,960.27	343.62	-3,571.43	3,582.26	0.00	0.00	0.00
11,900.00	89.85	270.41	7,960.54	344.34	-3,671.42	3,682.21	0.00	0.00	0.00
12,000.00	89.85	270.41	7,960.81	345.06	-3,771.42	3,782.15	0.00	0.00	0.00
12,100.00	89.85	270.41	7,961.08	345.79	-3,871.42	3,882.10	0.00	0.00	0.00
12,200.00	89.85	270.41	7,961.35	346.51	-3,971.41	3,982.05	0.00	0.00	0.00
12,300.00	89.85	270.41	7,961.62	347.23	-4,071.41	4,081.99	0.00	0.00	0.00
12,400.00	89.85	270.41	7,961.89	347.96	-4,171.41	4,181.94	0.00	0.00	0.00
12,500.00	89.85	270.41	7,962.16	348.68	-4,271.41	4,281.89	0.00	0.00	0.00
12,600.00	89.85	270.41	7,962.43	349.41	-4,371.40	4,381.83	0.00	0.00	0.00
12,700.00	89.85	270.41	7,962.70	350.13	-4,471.40	4,481.78	0.00	0.00	0.00
12,800.00	89.85	270.41	7,962.97	350.85	-4,571.40	4,581.73	0.00	0.00	0.00
12,900.00	89.85	270.41	7,963.24	351.58	-4,671.39	4,681.67	0.00	0.00	0.00
13,000.00	89.85	270.41	7,963.51	352.30	-4,771.39	4,781.62	0.00	0.00	0.00

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Schuh 3-65 21-20 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

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)
13,100.00	89.85	270.41	7,963.78	353.02	-4,871.39	4,881.57	0.00	0.00	0.00
13,200.00	89.85	270.41	7,964.05	353.75	-4,971.38	4,981.52	0.00	0.00	0.00
13,300.00	89.85	270.41	7,964.32	354.47	-5,071.38	5,081.46	0.00	0.00	0.00
13,400.00	89.85	270.41	7,964.59	355.20	-5,171.38	5,181.41	0.00	0.00	0.00
13,500.00	89.85	270.41	7,964.86	355.92	-5,271.38	5,281.36	0.00	0.00	0.00
13,600.00	89.85	270.41	7,965.13	356.64	-5,371.37	5,381.30	0.00	0.00	0.00
13,700.00	89.85	270.41	7,965.40	357.37	-5,471.37	5,481.25	0.00	0.00	0.00
13,800.00	89.85	270.41	7,965.67	358.09	-5,571.37	5,581.20	0.00	0.00	0.00
13,900.00	89.85	270.41	7,965.94	358.81	-5,671.36	5,681.14	0.00	0.00	0.00
14,000.00	89.85	270.41	7,966.21	359.54	-5,771.36	5,781.09	0.00	0.00	0.00
14,100.00	89.85	270.41	7,966.48	360.26	-5,871.36	5,881.04	0.00	0.00	0.00
14,200.00	89.85	270.41	7,966.75	360.98	-5,971.35	5,980.98	0.00	0.00	0.00
14,300.00	89.85	270.41	7,967.02	361.71	-6,071.35	6,080.93	0.00	0.00	0.00
14,400.00	89.85	270.41	7,967.29	362.43	-6,171.35	6,180.88	0.00	0.00	0.00
14,500.00	89.85	270.41	7,967.56	363.16	-6,271.35	6,280.82	0.00	0.00	0.00
14,600.00	89.85	270.41	7,967.83	363.88	-6,371.34	6,380.77	0.00	0.00	0.00
14,700.00	89.85	270.41	7,968.10	364.60	-6,471.34	6,480.72	0.00	0.00	0.00
14,800.00	89.85	270.41	7,968.37	365.33	-6,571.34	6,580.66	0.00	0.00	0.00
14,900.00	89.85	270.41	7,968.64	366.05	-6,671.33	6,680.61	0.00	0.00	0.00
15,000.00	89.85	270.41	7,968.91	366.77	-6,771.33	6,780.56	0.00	0.00	0.00
15,100.00	89.85	270.41	7,969.18	367.50	-6,871.33	6,880.50	0.00	0.00	0.00
15,200.00	89.85	270.41	7,969.45	368.22	-6,971.33	6,980.45	0.00	0.00	0.00
15,300.00	89.85	270.41	7,969.72	368.95	-7,071.32	7,080.40	0.00	0.00	0.00
15,400.00	89.85	270.41	7,969.99	369.67	-7,171.32	7,180.34	0.00	0.00	0.00
15,500.00	89.85	270.41	7,970.26	370.39	-7,271.32	7,280.29	0.00	0.00	0.00
15,600.00	89.85	270.41	7,970.53	371.12	-7,371.31	7,380.24	0.00	0.00	0.00
15,700.00	89.85	270.41	7,970.80	371.84	-7,471.31	7,480.19	0.00	0.00	0.00
15,800.00	89.85	270.41	7,971.07	372.56	-7,571.31	7,580.13	0.00	0.00	0.00
15,900.00	89.85	270.41	7,971.34	373.29	-7,671.30	7,680.08	0.00	0.00	0.00
16,000.00	89.85	270.41	7,971.61	374.01	-7,771.30	7,780.03	0.00	0.00	0.00
16,100.00	89.85	270.41	7,971.88	374.74	-7,871.30	7,879.97	0.00	0.00	0.00
16,200.00	89.85	270.41	7,972.15	375.46	-7,971.30	7,979.92	0.00	0.00	0.00
16,300.00	89.85	270.41	7,972.42	376.18	-8,071.29	8,079.87	0.00	0.00	0.00
16,400.00	89.85	270.41	7,972.69	376.91	-8,171.29	8,179.81	0.00	0.00	0.00
16,500.00	89.85	270.41	7,972.96	377.63	-8,271.29	8,279.76	0.00	0.00	0.00
16,600.00	89.85	270.41	7,973.23	378.35	-8,371.28	8,379.71	0.00	0.00	0.00
16,700.00	89.85	270.41	7,973.50	379.08	-8,471.28	8,479.65	0.00	0.00	0.00
16,800.00	89.85	270.41	7,973.77	379.80	-8,571.28	8,579.60	0.00	0.00	0.00
16,900.00	89.85	270.41	7,974.04	380.52	-8,671.27	8,679.55	0.00	0.00	0.00
17,000.00	89.85	270.41	7,974.31	381.25	-8,771.27	8,779.49	0.00	0.00	0.00
17,100.00	89.85	270.41	7,974.58	381.97	-8,871.27	8,879.44	0.00	0.00	0.00
17,200.00	89.85	270.41	7,974.85	382.70	-8,971.27	8,979.39	0.00	0.00	0.00
17,300.00	89.85	270.41	7,975.12	383.42	-9,071.26	9,079.33	0.00	0.00	0.00
17,400.00	89.85	270.41	7,975.39	384.14	-9,171.26	9,179.28	0.00	0.00	0.00
17,500.00	89.85	270.41	7,975.66	384.87	-9,271.26	9,279.23	0.00	0.00	0.00
17,600.00	89.85	270.41	7,975.93	385.59	-9,371.25	9,379.17	0.00	0.00	0.00
17,700.00	89.85	270.41	7,976.20	386.31	-9,471.25	9,479.12	0.00	0.00	0.00
17,800.00	89.85	270.41	7,976.47	387.04	-9,571.25	9,579.07	0.00	0.00	0.00
17,900.00	89.85	270.41	7,976.74	387.76	-9,671.24	9,679.01	0.00	0.00	0.00
17,996.54	89.85	270.41	7,977.00	388.46	-9,767.78	9,775.50	0.00	0.00	0.00
BHL: 1532' FSL, 325' FWL									

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Schuh 3-65 21-20 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Project:</b>	Niobrara North Zone	<b>MD Reference:</b>	25' RKB @ 5619.40ft (25' RKB)
<b>Site:</b>	Schuh	<b>North Reference:</b>	True
<b>Well:</b>	Schuh 3-65 21-20 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Schuh 3-65 21-20 3DH		
<b>Design:</b>	Design B		

### 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
Schuh 3-65 21-20 3DI - plan hits target center - Point	0.00	0.00	7,951.00	318.75	-135.86	1,161,367.480	3,235,651.917	39° 46' 23.750 N	104° 39' 41.840 W
Schuh 3-65 21-20 3DI - plan hits target center - Point	0.00	0.00	7,977.00	388.46	-9,767.78	1,161,346.069	3,226,019.868	39° 46' 24.420 N	104° 41' 45.200 W

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,186.00	2,186.00	9-5/8" Casing	9-5/8	12-1/4
17,996.54	7,977.00	5-1/2" Casing	5-1/2	8-1/2

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,720.00	1,720.00	Fox Hills Top		0.00	
1,986.00	1,986.00	Fox Hills Base		0.00	
2,186.00	2,186.00	Surface Casing		0.00	
7,844.82	7,734.00	Niobrara Top		0.00	
8,257.69	7,941.00	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: 1216' FSL, 475' FEL
7,179.53	7,118.27	153.40	365.96	EOB: 1369' FSL, 109' FEL
7,225.01	7,159.03	161.20	384.58	KOP: 1377' FSL, 90' FEL
8,364.33	7,951.00	318.75	-135.86	BPI/LP: 1532' FSL, 613' FEL
17,996.54	7,977.00	388.46	-9,767.78	BHL: 1532' FSL, 325' FWL