

ConocoPhillips SJB

**San Juan Basin - Colorado
Southern Ute Wells (32N7W)
Southern Ute #701H**

Southern Ute 701H

Plan: APD Plan

Standard Planning Report

22 October, 2014

Downhole Drilling Services, LLC

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well Southern Ute #701H
Company:	ConocoPhillips SJBU	TVD Reference:	Well @ 6310.0usft
Project:	San Juan Basin - Colorado	MD Reference:	Well @ 6310.0usft
Site:	Southern Ute Wells (32N7W)	North Reference:	Grid
Well:	Southern Ute #701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Southern Ute 701H		
Design:	APD Plan		

Project	San Juan Basin - Colorado, Colorado, Design Work		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site		Southern Ute Wells (32N7W)			
Site Position:		Northing:	1,125,906.67 usft	Latitude:	36° 59' 43.487 N
From:	Lat/Long	Easting:	2,418,308.50 usft	Longitude:	107° 29' 30.484 W
Position Uncertainty:	30.0 usft	Slot Radius:	12-1/4 "	Grid Convergence:	-1.22 °

Well	Southern Ute #701H					
Well Position	+N/-S	0.0 usft	Northing:	1,131,548.91 usft	Latitude:	37° 0' 32.973 N
	+E/-W	0.0 usft	Easting:	2,389,225.05 usft	Longitude:	107° 35' 30.435 W
Position Uncertainty		2.5 usft	Wellhead Elevation:	6,295.0 usft	Ground Level:	6,295.0 usft

Wellbore	Southern Ute 701H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	9/17/2013	9.62	63.68	50,626

Design	APD Plan			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	69.93

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
824.6	0.00	0.00	824.6	0.0	0.0	0.00	0.00	0.00	0.00	
2,991.2	65.00	61.75	2,555.5	522.0	971.3	3.00	3.00	0.00	61.75	
3,454.1	65.00	61.75	2,751.1	720.6	1,340.9	0.00	0.00	0.00	0.00	701H Target #1
4,287.4	90.00	82.58	2,930.0	964.2	2,105.7	3.87	3.00	2.50	39.13	
5,304.3	90.00	82.58	2,930.0	1,095.5	3,114.1	0.00	0.00	0.00	0.00	
6,066.1	90.00	67.34	2,930.0	1,292.6	3,847.7	2.00	0.00	-2.00	-90.00	SU 701H BHL
8,421.0	92.00	67.34	2,889.0	2,199.6	6,020.3	0.08	0.08	0.00	0.00	SU 701H BHL

Downhole Drilling Services, LLC

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Site:	Southern Ute Wells (32N7W)	North Reference:	Grid
Well:	Southern Ute #701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Southern Ute 701H		
Design:	APD Plan		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SAN JOSE									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
Surface, 9-5/8"									
595.0	0.00	0.00	595.0	0.0	0.0	0.0	0.00	0.00	0.00
NACIMIENTO									
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
824.6	0.00	0.00	824.6	0.0	0.0	0.0	0.00	0.00	0.00
900.0	2.26	61.75	900.0	0.7	1.3	1.5	3.00	3.00	0.00
1,000.0	5.26	61.75	999.8	3.8	7.1	8.0	3.00	3.00	0.00
1,100.0	8.26	61.75	1,099.0	9.4	17.5	19.6	3.00	3.00	0.00
1,200.0	11.26	61.75	1,197.6	17.4	32.4	36.4	3.00	3.00	0.00
1,300.0	14.26	61.75	1,295.1	27.9	51.9	58.3	3.00	3.00	0.00
1,400.0	17.26	61.75	1,391.3	40.7	75.8	85.2	3.00	3.00	0.00
1,500.0	20.26	61.75	1,486.0	56.0	104.1	117.0	3.00	3.00	0.00
1,600.0	23.26	61.75	1,578.9	73.5	136.8	153.7	3.00	3.00	0.00
1,700.0	26.26	61.75	1,669.7	93.3	173.7	195.1	3.00	3.00	0.00
1,800.0	29.26	61.75	1,758.1	115.4	214.7	241.2	3.00	3.00	0.00
1,813.6	29.67	61.75	1,770.0	118.5	220.6	247.9	3.00	3.00	0.00
OJO ALAMO									
1,900.0	32.26	61.75	1,844.1	139.6	259.7	291.9	3.00	3.00	0.00
2,000.0	35.26	61.75	1,927.2	165.9	308.7	346.9	3.00	3.00	0.00
2,100.0	38.26	61.75	2,007.3	194.2	361.4	406.1	3.00	3.00	0.00
2,200.0	41.26	61.75	2,084.2	224.5	417.7	469.4	3.00	3.00	0.00
2,300.0	44.26	61.75	2,157.6	256.6	477.5	536.6	3.00	3.00	0.00
2,400.0	47.26	61.75	2,227.3	290.5	540.6	607.5	3.00	3.00	0.00
2,500.0	50.26	61.75	2,293.2	326.1	606.9	681.9	3.00	3.00	0.00
2,600.0	53.26	61.75	2,355.1	363.3	676.1	759.7	3.00	3.00	0.00
2,700.0	56.26	61.75	2,412.8	402.0	748.0	840.5	3.00	3.00	0.00
2,767.0	58.27	61.75	2,449.0	428.6	797.6	896.3	3.00	3.00	0.00
KIRTLAND									
2,800.0	59.26	61.75	2,466.1	442.0	822.5	924.2	3.00	3.00	0.00
2,900.0	62.26	61.75	2,515.0	483.3	899.3	1,010.6	3.00	3.00	0.00
2,991.2	65.00	61.75	2,555.5	522.0	971.3	1,091.5	3.00	3.00	0.00
3,000.0	65.00	61.75	2,559.2	525.8	978.3	1,099.4	0.00	0.00	0.00
3,100.0	65.00	61.75	2,601.5	568.7	1,058.2	1,189.1	0.00	0.00	0.00
3,165.2	65.00	61.75	2,629.0	596.6	1,110.2	1,247.5	0.00	0.00	0.00
FRUITLAND									
3,200.0	65.00	61.75	2,643.7	611.6	1,138.0	1,278.8	0.00	0.00	0.00
3,300.0	65.00	61.75	2,686.0	654.5	1,217.8	1,368.5	0.00	0.00	0.00
3,400.0	65.00	61.75	2,728.2	697.4	1,297.7	1,458.2	0.00	0.00	0.00
3,454.1	65.00	61.75	2,751.1	720.6	1,340.9	1,506.7	0.00	0.00	0.00
3,500.0	66.38	62.89	2,770.0	740.0	1,377.9	1,548.2	3.77	3.00	2.50
3,559.5	68.17	64.38	2,793.0	764.4	1,427.1	1,602.7	3.79	3.01	2.50
BLUE MESA									
3,600.0	69.38	65.39	2,807.7	780.4	1,461.3	1,640.3	3.79	2.99	2.51
3,663.4	71.29	66.98	2,829.0	804.5	1,515.9	1,699.9	3.82	3.01	2.50

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Wellbore:	Southern Ute 701H		
Design:	APD Plan		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
BLUE CANYON									
3,700.0	72.38	67.89	2,840.4	817.8	1,548.0	1,734.6	3.82	2.99	2.51
3,800.0	75.38	70.39	2,868.2	852.0	1,637.7	1,830.7	3.84	3.00	2.50
3,890.8	78.11	72.66	2,889.0	880.0	1,721.5	1,919.0	3.86	3.01	2.49
BIG BLUE									
3,900.0	78.38	72.89	2,890.9	882.7	1,730.2	1,928.0	3.87	2.94	2.56
4,000.0	81.38	75.39	2,908.5	909.6	1,824.8	2,026.2	3.88	3.00	2.50
4,100.0	84.38	77.89	2,920.9	932.5	1,921.4	2,124.7	3.89	3.00	2.50
4,200.0	87.38	80.39	2,928.0	951.3	2,019.3	2,223.1	3.90	3.00	2.50
4,287.0	89.99	82.57	2,930.0	964.1	2,105.3	2,308.3	3.90	3.00	2.50
Intermediate, 7"									
4,287.4	90.00	82.58	2,930.0	964.2	2,105.7	2,308.7	3.90	3.00	2.50
4,300.0	90.00	82.58	2,930.0	965.8	2,118.2	2,321.0	0.00	0.00	0.00
4,400.0	90.00	82.58	2,930.0	978.7	2,217.4	2,418.6	0.00	0.00	0.00
4,500.0	90.00	82.58	2,930.0	991.7	2,316.5	2,516.2	0.00	0.00	0.00
4,600.0	90.00	82.58	2,930.0	1,004.6	2,415.7	2,613.7	0.00	0.00	0.00
4,700.0	90.00	82.58	2,930.0	1,017.5	2,514.8	2,711.3	0.00	0.00	0.00
4,800.0	90.00	82.58	2,930.0	1,030.4	2,614.0	2,808.9	0.00	0.00	0.00
4,900.0	90.00	82.58	2,930.0	1,043.3	2,713.2	2,906.4	0.00	0.00	0.00
5,000.0	90.00	82.58	2,930.0	1,056.2	2,812.3	3,004.0	0.00	0.00	0.00
5,100.0	90.00	82.58	2,930.0	1,069.1	2,911.5	3,101.6	0.00	0.00	0.00
5,200.0	90.00	82.58	2,930.0	1,082.1	3,010.7	3,199.2	0.00	0.00	0.00
5,304.3	90.00	82.58	2,930.0	1,095.5	3,114.1	3,300.9	0.00	0.00	0.00
5,400.0	90.00	80.67	2,930.0	1,109.5	3,208.8	3,394.6	2.00	0.00	-2.00
5,500.0	90.00	78.67	2,930.0	1,127.4	3,307.1	3,493.2	2.00	0.00	-2.00
5,600.0	90.00	76.67	2,930.0	1,148.8	3,404.8	3,592.3	2.00	0.00	-2.00
5,700.0	90.00	74.67	2,930.0	1,173.5	3,501.7	3,691.8	2.00	0.00	-2.00
5,800.0	90.00	72.67	2,930.0	1,201.6	3,597.7	3,791.6	2.00	0.00	-2.00
5,900.0	90.00	70.67	2,930.0	1,233.1	3,692.6	3,891.5	2.00	0.00	-2.00
6,000.0	90.00	68.67	2,930.0	1,267.8	3,786.3	3,991.5	2.00	0.00	-2.00
6,066.1	90.00	67.34	2,930.0	1,292.6	3,847.7	4,057.6	2.00	0.00	-2.00
6,100.0	90.03	67.34	2,930.0	1,305.7	3,878.9	4,091.4	0.08	0.08	0.00
6,200.0	90.11	67.34	2,929.9	1,344.2	3,971.2	4,191.3	0.08	0.08	0.00
6,300.0	90.20	67.34	2,929.6	1,382.7	4,063.5	4,291.2	0.08	0.08	0.00
6,400.0	90.28	67.34	2,929.2	1,421.2	4,155.8	4,391.1	0.08	0.08	0.00
6,500.0	90.37	67.34	2,928.6	1,459.7	4,248.0	4,491.0	0.08	0.08	0.00
6,600.0	90.45	67.34	2,927.9	1,498.3	4,340.3	4,590.9	0.08	0.08	0.00
6,700.0	90.54	67.34	2,927.1	1,536.8	4,432.6	4,690.8	0.08	0.08	0.00
6,800.0	90.62	67.34	2,926.1	1,575.3	4,524.9	4,790.7	0.08	0.08	0.00
6,900.0	90.71	67.34	2,924.9	1,613.8	4,617.2	4,890.6	0.08	0.08	0.00
7,000.0	90.79	67.34	2,923.6	1,652.3	4,709.4	4,990.5	0.08	0.08	0.00
7,100.0	90.88	67.34	2,922.1	1,690.9	4,801.7	5,090.4	0.08	0.08	0.00
7,200.0	90.96	67.34	2,920.5	1,729.4	4,894.0	5,190.2	0.08	0.08	0.00
7,300.0	91.05	67.34	2,918.8	1,767.9	4,986.2	5,290.1	0.08	0.08	0.00
7,400.0	91.13	67.34	2,916.9	1,806.4	5,078.5	5,390.0	0.08	0.08	0.00
7,500.0	91.22	67.34	2,914.8	1,844.9	5,170.8	5,489.9	0.08	0.08	0.00
7,600.0	91.30	67.34	2,912.6	1,883.4	5,263.0	5,589.8	0.08	0.08	0.00
7,700.0	91.39	67.34	2,910.3	1,921.9	5,355.3	5,689.6	0.08	0.08	0.00
7,800.0	91.47	67.34	2,907.8	1,960.5	5,447.5	5,789.5	0.08	0.08	0.00
7,900.0	91.56	67.34	2,905.1	1,999.0	5,539.8	5,889.4	0.08	0.08	0.00
8,000.0	91.64	67.34	2,902.4	2,037.5	5,632.0	5,989.2	0.08	0.08	0.00
8,100.0	91.72	67.34	2,899.4	2,076.0	5,724.3	6,089.1	0.08	0.08	0.00
8,200.0	91.81	67.34	2,896.3	2,114.5	5,816.5	6,188.9	0.08	0.08	0.00

Downhole Drilling Services, LLC

Planning Report

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Wellbore:	Southern Ute 701H		
Design:	APD Plan		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,300.0	91.89	67.34	2,893.1	2,153.0	5,908.8	6,288.8	0.08	0.08	0.00	
8,400.0	91.98	67.34	2,889.7	2,191.5	6,001.0	6,388.6	0.08	0.08	0.00	
8,421.0	92.00	67.34	2,889.0	2,199.6	6,020.3	6,409.6	0.08	0.08	0.00	

Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
701H Target #1 - plan hits target center - Point	0.00	360.00	2,751.1	720.6	1,340.9	1,132,269.48	2,390,565.90	37° 0' 40.392 N	107° 35' 14.107 W	
SU 701H BHL - plan hits target center - Point	0.00	360.00	2,889.0	2,199.6	6,020.3	1,133,748.47	2,395,245.39	37° 0' 56.041 N	107° 34' 16.834 W	
701H Entry Point - plan misses target center by 0.6usft at 4287.5usft MD (2930.0 TVD, 964.2 N, 2105.8 E) - Point	0.00	0.00	2,930.0	964.8	2,105.8	1,132,513.68	2,391,330.82	37° 0' 42.975 N	107° 35' 4.746 W	
701H Drill Block - 710' 5 - plan misses target center by 3109.7usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	-1.0	2,159.0	2,238.1	1,133,707.91	2,391,463.10	37° 0' 54.808 N	107° 35' 3.444 W	
Point 1			-1.0	0.0	0.0	1,133,707.91	2,391,463.10			
Point 2			-1.0	-1,194.2	-132.3	1,132,513.71	2,391,330.80			
Point 3			-1.0	-1,182.5	3,090.5	1,132,525.41	2,394,553.60			
Point 4			-1.0	-1,177.7	3,692.8	1,132,530.21	2,395,155.90			
Point 5			-1.0	40.6	3,782.3	1,133,748.51	2,395,245.40			
Section 14 S-1/2 Sector - plan misses target center by 3250.6usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	-1.0	2,869.0	1,528.1	1,134,417.91	2,390,753.10	37° 1' 1.670 N	107° 35' 12.391 W	
Point 1			-1.0	0.0	0.0	1,134,417.91	2,390,753.10			
Point 2			-1.0	-2,617.1	-137.5	1,131,800.81	2,390,615.60			
Point 3			-1.0	-2,602.5	3,800.5	1,131,815.41	2,394,553.60			
Point 4			-1.0	-2,597.7	5,112.8	1,131,820.21	2,395,865.90			
Point 5			-1.0	42.7	5,237.1	1,134,460.61	2,395,990.20			

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
8,421.6	2,889.0	Production, 4-1/2"	4-1/2	6-1/4	
4,287.0	2,930.0	Intermediate, 7"	7	8-3/4	
500.0	500.0	Surface, 9-5/8"	9-5/8	12-1/4	

Downhole Drilling Services, LLC

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well Southern Ute #701H
Company:	ConocoPhillips SJB	TVD Reference:	Well @ 6310.0usft
Project:	San Juan Basin - Colorado	MD Reference:	Well @ 6310.0usft
Site:	Southern Ute Wells (32N7W)	North Reference:	Grid
Well:	Southern Ute #701H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Southern Ute 701H		
Design:	APD Plan		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,559.5	2,793.0	BLUE MESA		0.00		
2,767.0	2,449.0	KIRTLAND		0.00		
595.0	595.0	NACIMIENTO		0.00		
1,813.6	1,770.0	OJO ALAMO		0.00		
3,890.8	2,889.0	BIG BLUE		0.00		
0.0	0.0	SAN JOSE		0.00		
3,663.4	2,829.0	BLUE CANYON		0.00		
3,165.2	2,629.0	FRUITLAND		0.00		