



# **ConocoPhillips**

**LA PLATA COUNTY, CO**

**SEC 16-T32N-R7W**

**Southern Ute #704**

**Lateral A**

**Plan: Plan #8**

## **Standard Planning Report**

**09 April, 2010**





Project: LA PLATA COUNTY, CO  
Site: SEC 16-T32N-R7W  
Well: Southern Ute #704  
Wellbore: Lateral A  
Design: Plan #8



## REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Southern Ute #704, True North  
Vertical (TVD) Reference: DFE @ 6363.0ft (AWS 730)  
Section (VS) Reference: Slot - (0.0N, 0.0E)  
Measured Depth Reference: DFE @ 6363.0ft (AWS 730)  
Calculation Method: Minimum Curvature

## PROJECT DETAILS

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Southern Zone  
System Datum: Mean Sea Level

WELL DETAILS: Southern Ute #704

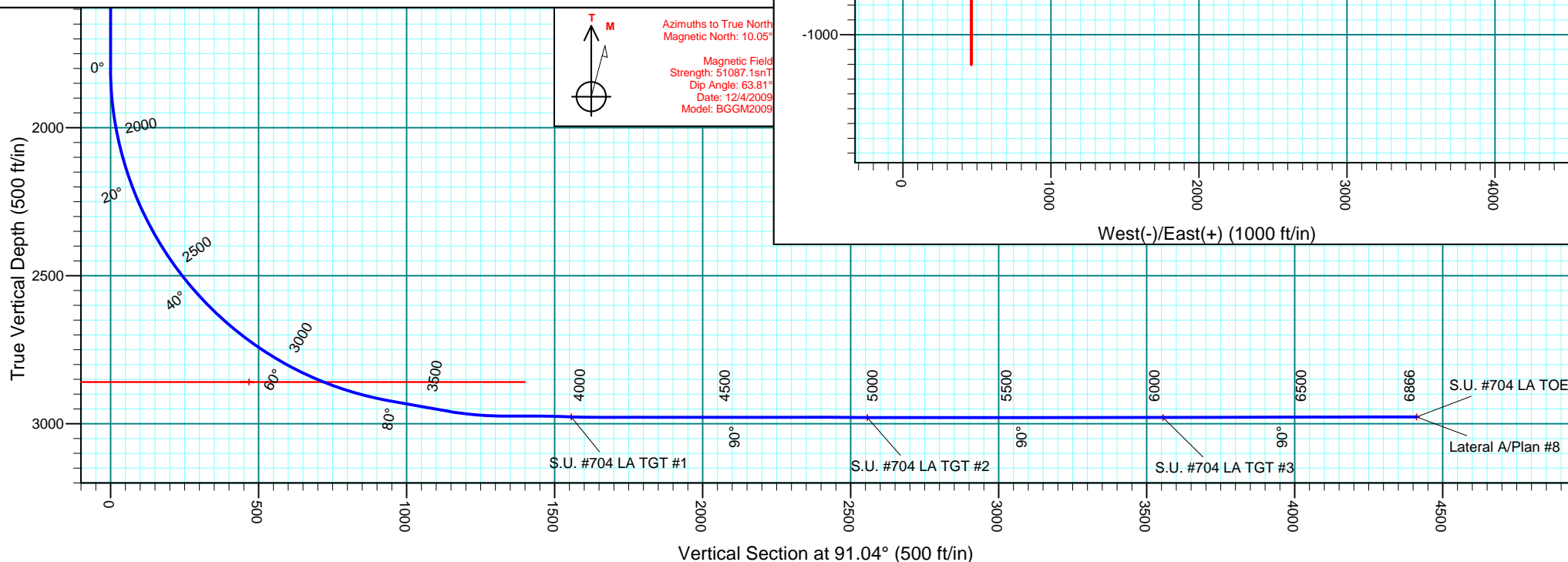
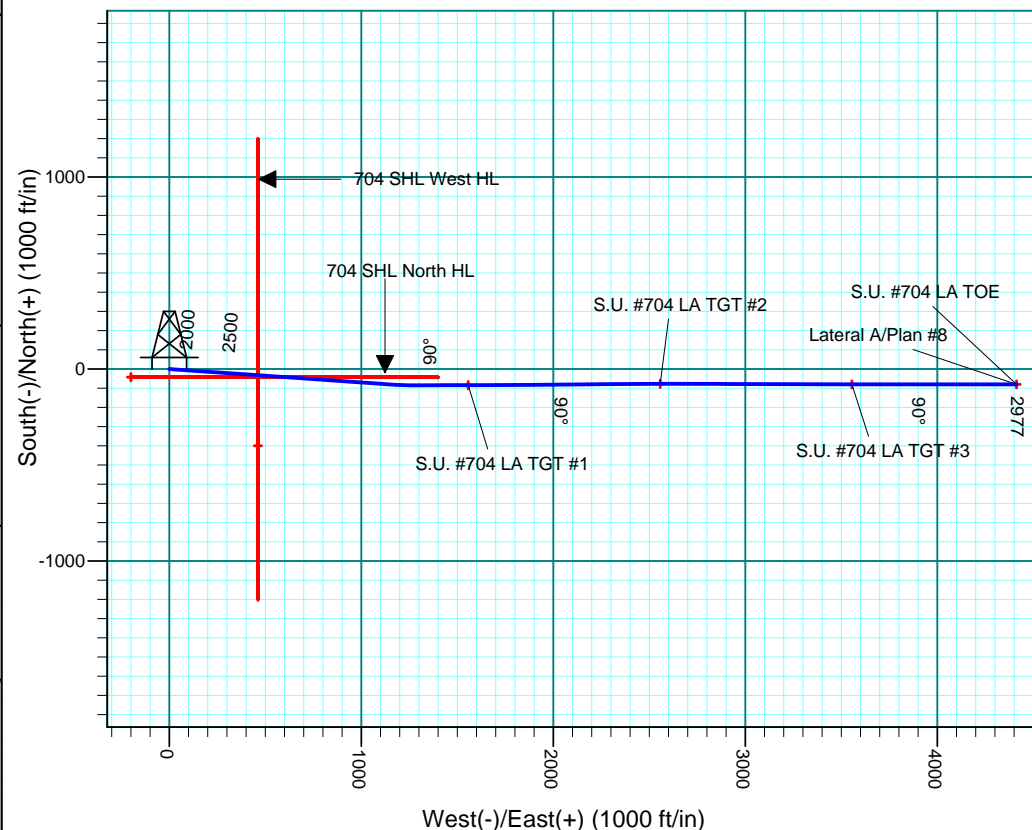
+N/-S	+E/-W	Northing	Ground Level: 6348.0	Easting	Latitude	Longitude
0.0	0.0	1136600.58		2380354.50	37° 1' 20.928 N	107° 37' 21.180 W

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1795.0	0.00	0.00	1795.0	0.0	0.0	0.00	0.00	0.0	
3	3395.0	80.00	94.00	2923.5	-66.1	944.6	5.00	94.00	945.7	
4	3595.0	80.00	94.00	2958.2	-79.8	1141.1	0.00	0.00	1142.4	
5	3778.5	90.00	89.37	2974.2	-85.1	1323.5	6.00	-25.00	1324.9	
6	3878.5	90.00	89.37	2974.2	-84.0	1423.5	0.00	0.00	1424.8	
7	4003.5	87.71	90.56	2976.7	-83.9	1548.5	2.07	152.67	1549.8	
8	4010.5	87.71	90.56	2977.0	-84.0	1555.5	0.00	0.00	1556.7	S.U. #704 LA TGT #1
9	4099.5	89.99	89.53	2978.8	-84.1	1644.5	2.81	-24.32	1645.7	
10	5010.8	89.99	89.53	2979.0	-76.5	2555.8	0.00	0.00	2556.8	S.U. #704 LA TGT #2
11	5038.2	90.00	90.20	2979.0	-76.5	2583.1	2.46	88.87	2584.1	
12	6010.1	90.00	90.20	2979.0	-79.8	3555.1	0.00	0.00	3555.9	S.U. #704 LA TGT #3
13	6019.7	90.13	89.99	2979.0	-79.8	3564.6	2.56	-56.76	3565.5	
14	6866.4	90.13	89.99	2977.0	-79.7	4411.3	0.00	0.00	4412.1	S.U. #704 LA TOE

## WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
704 SHL North HL	2859.0	-42.0	-200.0	37° 1' 20.513 N	107° 37' 23.646 W	Polygon
704 SHL West HL	2859.0	-400.0	461.0	37° 1' 16.973 N	107° 37' 15.495 W	Polygon
S.U. #704 LA TGT #1	2977.0	-84.0	1555.5	37° 1' 20.097 N	107° 37' 1.999 W	Point
S.U. #704 LA TOE	2977.0	-79.7	4411.3	37° 1' 20.136 N	107° 36' 26.784 W	Point
S.U. #704 LA TGT #2	2979.0	-76.5	2555.8	37° 1' 20.170 N	107° 36' 49.665 W	Point
S.U. #704 LA TGT #3	2979.0	-79.8	3555.1	37° 1' 20.136 N	107° 36' 37.342 W	Point



<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Southern Ute #704
<b>Company:</b>	ConocoPhillips	<b>TVD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Project:</b>	LA PLATA COUNTY, CO	<b>MD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Site:</b>	SEC 16-T32N-R7W	<b>North Reference:</b>	True
<b>Well:</b>	Southern Ute #704	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral A		
<b>Design:</b>	Plan #8		

<b>Project</b>	LA PLATA COUNTY, CO, SOUTHERN COLORADO, S-Type Fruitland		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Southern Zone		Using geodetic scale factor

Site						SEC 16-T32N-R7W							
Site Position: From: Position Uncertainty:			Lat/Long  0.0 ft			Northing:		1,136,600.59 ft		Latitude:		37° 1' 20.928 N	
						Easting:		2,380,354.50 ft		Longitude:		107° 37' 21.180 W	
						Slot Radius:		6-1/8"		Grid Convergence:		-1.30 °	

Well	Southern Ute #704					
Well Position	+N/-S	0.0 ft	Northing:	1,136,600.58 ft	Latitude:	37° 1' 20.928 N
	+E/-W	0.0 ft	Easting:	2,380,354.50 ft	Longitude:	107° 37' 21.180 W
Position Uncertainty		3.5 ft	Wellhead Elevation:	ft	Ground Level:	6,348.0 ft

<b>Wellbore</b>	Lateral A				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2009	12/4/2009	10.05	63.81	51,087

<b>Design</b>	Plan #8			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	91.04

<b>Plan Sections</b>										
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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,795.0	0.00	0.00	1,795.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,395.0	80.00	94.00	2,923.5	-66.1	944.6	5.00	5.00	0.00	94.00	
3,595.0	80.00	94.00	2,958.2	-79.8	1,141.1	0.00	0.00	0.00	0.00	
3,778.5	90.00	89.37	2,974.2	-85.1	1,323.5	6.00	5.45	-2.52	-25.00	
3,878.5	90.00	89.37	2,974.2	-84.0	1,423.5	0.00	0.00	0.00	0.00	
4,003.5	87.71	90.56	2,976.7	-83.9	1,548.5	2.07	-1.83	0.95	152.67	
4,010.5	87.71	90.56	2,977.0	-84.0	1,555.5	0.00	0.00	0.00	0.00	S.U. #704 LA TGT ;
4,099.5	89.99	89.53	2,978.8	-84.1	1,644.5	2.81	2.56	-1.16	-24.32	
5,010.8	89.99	89.53	2,979.0	-76.5	2,555.8	0.00	0.00	0.00	0.00	S.U. #704 LA TGT ;
5,038.2	90.00	90.20	2,979.0	-76.5	2,583.1	2.46	0.05	2.46	88.87	
6,010.1	90.00	90.20	2,979.0	-79.8	3,555.1	0.00	0.00	0.00	0.00	S.U. #704 LA TGT ;
6,019.7	90.13	89.99	2,979.0	-79.8	3,564.6	2.56	1.41	-2.14	-56.76	
6,866.4	90.13	89.99	2,977.0	-79.7	4,411.3	0.00	0.00	0.00	0.00	S.U. #704 LA TOE

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Southern Ute #704
<b>Company:</b>	ConocoPhillips	<b>TVD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Project:</b>	LA PLATA COUNTY, CO	<b>MD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Site:</b>	SEC 16-T32N-R7W	<b>North Reference:</b>	True
<b>Well:</b>	Southern Ute #704	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral A		
<b>Design:</b>	Plan #8		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
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
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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,795.0	0.00	0.00	1,795.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.25	94.00	1,800.0	0.0	0.0	0.0	5.00	5.00	0.00
1,900.0	5.25	94.00	1,899.9	-0.3	4.8	4.8	5.00	5.00	0.00
2,000.0	10.25	94.00	1,998.9	-1.3	18.2	18.3	5.00	5.00	0.00
2,100.0	15.25	94.00	2,096.4	-2.8	40.3	40.3	5.00	5.00	0.00
2,200.0	20.25	94.00	2,191.6	-4.9	70.7	70.7	5.00	5.00	0.00
2,300.0	25.25	94.00	2,283.8	-7.6	109.2	109.3	5.00	5.00	0.00
2,400.0	30.25	94.00	2,372.3	-10.9	155.7	155.8	5.00	5.00	0.00
2,500.0	35.25	94.00	2,456.4	-14.7	209.6	209.8	5.00	5.00	0.00
2,569.4	38.72	94.00	2,511.8	-17.6	251.2	251.5	5.00	5.00	0.00
<b>704 SHL North HL</b>									
2,600.0	40.25	94.00	2,535.4	-18.9	270.7	271.0	5.00	5.00	0.00
2,700.0	45.25	94.00	2,608.8	-23.7	338.3	338.7	5.00	5.00	0.00
<b>S.U. #704 LA TGT Line</b>									
2,800.0	50.25	94.00	2,676.0	-28.8	412.2	412.6	5.00	5.00	0.00
2,900.0	55.25	94.00	2,736.5	-34.4	491.5	492.1	5.00	5.00	0.00
2,961.2	58.31	94.00	2,770.0	-37.9	542.6	543.2	5.00	5.00	0.00
<b>704 SHL West HL</b>									
3,000.0	60.25	94.00	2,789.9	-40.3	575.9	576.5	5.00	5.00	0.00
3,069.7	63.73	94.00	2,822.6	-44.6	637.3	638.0	5.00	5.00	0.00
<b>S.U. #704 LA Coal PPT</b>									
3,100.0	65.25	94.00	2,835.7	-46.5	664.5	665.3	5.00	5.00	0.00
3,200.0	70.25	94.00	2,873.5	-52.9	756.8	757.7	5.00	5.00	0.00
3,300.0	75.25	94.00	2,903.2	-59.6	852.1	853.0	5.00	5.00	0.00
3,395.0	80.00	94.00	2,923.5	-66.1	944.6	945.7	5.00	5.00	0.00
3,400.0	80.00	94.00	2,924.4	-66.4	949.5	950.6	0.00	0.00	0.00
3,500.0	80.00	94.00	2,941.7	-73.3	1,047.8	1,048.9	0.00	0.00	0.00
3,595.0	80.00	94.00	2,958.2	-79.8	1,141.1	1,142.4	0.00	0.00	0.00
3,600.0	80.27	93.87	2,959.1	-80.1	1,146.0	1,147.3	6.00	5.44	-2.57
3,650.0	82.99	92.60	2,966.4	-82.9	1,195.4	1,196.7	6.00	5.44	-2.55
3,700.0	85.72	91.33	2,971.3	-84.6	1,245.1	1,246.4	6.00	5.45	-2.52
3,750.0	88.45	90.08	2,973.8	-85.2	1,295.0	1,296.4	6.00	5.45	-2.50
3,766.7	89.36	89.67	2,974.2	-85.2	1,311.7	1,313.1	6.00	5.46	-2.50
<b>7"</b>									
3,778.5	90.00	89.37	2,974.2	-85.1	1,323.5	1,324.9	6.00	5.46	-2.50

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Southern Ute #704
<b>Company:</b>	ConocoPhillips	<b>TVD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Project:</b>	LA PLATA COUNTY, CO	<b>MD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Site:</b>	SEC 16-T32N-R7W	<b>North Reference:</b>	True
<b>Well:</b>	Southern Ute #704	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral A		
<b>Design:</b>	Plan #8		

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)
3,800.0	90.00	89.37	2,974.2	-84.9	1,345.0	1,346.4	0.00	0.00	0.00
3,878.5	90.00	89.37	2,974.2	-84.0	1,423.5	1,424.8	0.00	0.00	0.00
3,900.0	89.61	89.57	2,974.3	-83.8	1,445.0	1,446.3	2.07	-1.83	0.95
4,003.5	87.71	90.56	2,976.7	-83.9	1,548.5	1,549.8	2.07	-1.83	0.95
4,010.5	87.71	90.56	2,977.0	-84.0	1,555.5	1,556.7	0.00	0.00	0.00
<b>S.U. #704 LA TGT #1</b>									
4,099.5	89.99	89.53	2,978.8	-84.1	1,644.5	1,645.7	2.81	2.56	-1.16
4,200.0	89.99	89.53	2,978.8	-83.2	1,745.0	1,746.2	0.00	0.00	0.00
4,300.0	89.99	89.53	2,978.8	-82.4	1,845.0	1,846.2	0.00	0.00	0.00
4,400.0	89.99	89.53	2,978.9	-81.6	1,945.0	1,946.1	0.00	0.00	0.00
4,500.0	89.99	89.53	2,978.9	-80.7	2,045.0	2,046.1	0.00	0.00	0.00
4,600.0	89.99	89.53	2,978.9	-79.9	2,145.0	2,146.0	0.00	0.00	0.00
4,700.0	89.99	89.53	2,978.9	-79.1	2,245.0	2,246.0	0.00	0.00	0.00
4,800.0	89.99	89.53	2,979.0	-78.3	2,344.9	2,346.0	0.00	0.00	0.00
4,900.0	89.99	89.53	2,979.0	-77.4	2,444.9	2,445.9	0.00	0.00	0.00
5,000.0	89.99	89.53	2,979.0	-76.6	2,544.9	2,545.9	0.00	0.00	0.00
5,010.8	89.99	89.53	2,979.0	-76.5	2,555.8	2,556.8	0.00	0.00	0.00
<b>S.U. #704 LA TGT #2</b>									
5,038.2	90.00	90.20	2,979.0	-76.5	2,583.1	2,584.1	2.46	0.05	2.46
5,100.0	90.00	90.20	2,979.0	-76.7	2,644.9	2,645.9	0.00	0.00	0.00
5,200.0	90.00	90.20	2,979.0	-77.0	2,744.9	2,745.9	0.00	0.00	0.00
5,300.0	90.00	90.20	2,979.0	-77.4	2,844.9	2,845.9	0.00	0.00	0.00
5,400.0	90.00	90.20	2,979.0	-77.7	2,944.9	2,945.9	0.00	0.00	0.00
5,500.0	90.00	90.20	2,979.0	-78.1	3,044.9	3,045.9	0.00	0.00	0.00
5,600.0	90.00	90.20	2,979.0	-78.4	3,144.9	3,145.8	0.00	0.00	0.00
5,700.0	90.00	90.20	2,979.0	-78.8	3,244.9	3,245.8	0.00	0.00	0.00
5,800.0	90.00	90.20	2,979.0	-79.1	3,344.9	3,345.8	0.00	0.00	0.00
5,900.0	90.00	90.20	2,979.0	-79.4	3,444.9	3,445.8	0.00	0.00	0.00
6,000.0	90.00	90.20	2,979.0	-79.8	3,544.9	3,545.8	0.00	0.00	0.00
6,010.1	90.00	90.20	2,979.0	-79.8	3,555.1	3,555.9	0.00	0.00	0.00
<b>S.U. #704 LA TGT #3</b>									
6,019.7	90.13	89.99	2,979.0	-79.8	3,564.6	3,565.5	2.56	1.41	-2.14
6,100.0	90.13	89.99	2,978.8	-79.8	3,644.9	3,645.8	0.00	0.00	0.00
6,200.0	90.13	89.99	2,978.6	-79.8	3,744.9	3,745.8	0.00	0.00	0.00
6,300.0	90.13	89.99	2,978.3	-79.8	3,844.9	3,845.7	0.00	0.00	0.00
6,400.0	90.13	89.99	2,978.1	-79.8	3,944.9	3,945.7	0.00	0.00	0.00
6,500.0	90.13	89.99	2,977.9	-79.8	4,044.9	4,045.7	0.00	0.00	0.00
6,600.0	90.13	89.99	2,977.6	-79.8	4,144.9	4,145.7	0.00	0.00	0.00
6,700.0	90.13	89.99	2,977.4	-79.8	4,244.9	4,245.7	0.00	0.00	0.00
6,800.0	90.13	89.99	2,977.2	-79.7	4,344.9	4,345.7	0.00	0.00	0.00
6,866.4	90.13	89.99	2,977.0	-79.7	4,411.3	4,412.1	0.00	0.00	0.00
<b>S.U. #704 LA TOE</b>									

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Southern Ute #704
<b>Company:</b>	ConocoPhillips	<b>TVD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Project:</b>	LA PLATA COUNTY, CO	<b>MD Reference:</b>	DFE @ 6363.0ft (AWS 730)
<b>Site:</b>	SEC 16-T32N-R7W	<b>North Reference:</b>	True
<b>Well:</b>	Southern Ute #704	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral A		
<b>Design:</b>	Plan #8		

**Design Targets**
**Target Name**

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
704 SHL North HL	0.00	0.00	2,859.0	-42.0	-200.0	1,136,563.15	2,380,153.59	37° 1' 20.513 N	107° 37' 23.646 W
- plan misses target center by 569.9ft at 2569.4ft MD (2511.8 TVD, -17.6 N, 251.2 E)									
- Polygon									
Point 1			2,859.0	0.0	0.0	1,136,563.15	2,380,153.59		
Point 2			2,859.0	0.0	1,600.0	1,136,526.79	2,381,753.24		
704 SHL West HL	0.00	0.00	2,859.0	-400.0	461.0	1,136,190.21	2,380,806.31	37° 1' 16.973 N	107° 37' 15.495 W
- plan misses target center by 381.6ft at 2961.2ft MD (2770.0 TVD, -37.9 N, 542.6 E)									
- Polygon									
Point 1			2,859.0	1,600.0	0.0	1,137,789.86	2,380,842.67		
Point 2			2,859.0	-800.0	0.0	1,135,390.38	2,380,788.13		
S.U. #704 LA TGT #1	0.00	0.00	2,977.0	-84.0	1,555.5	1,136,481.26	2,381,907.73	37° 1' 20.097 N	107° 37' 1.999 W
- plan hits target center									
- Point									
S.U. #704 LA TOE	0.00	0.00	2,977.0	-79.7	4,411.3	1,136,420.63	2,384,763.07	37° 1' 20.136 N	107° 36' 26.784 W
- plan hits target center									
- Point									
S.U. #704 LA TGT #2	0.00	0.00	2,979.0	-76.5	2,555.8	1,136,466.00	2,382,908.00	37° 1' 20.170 N	107° 36' 49.665 W
- plan hits target center									
- Point									
S.U. #704 LA TGT #3	0.00	0.00	2,979.0	-79.8	3,555.1	1,136,440.00	2,383,907.00	37° 1' 20.136 N	107° 36' 37.342 W
- plan hits target center									
- Point									

**Casing Points**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
3,766.7	2,974.2	7"	7	8-3/4