



Company: B.P.
Project: La Plata County, CO NAD83
Site: Southern Ute Com F2 Pad
Well: Southern Ute Com F2



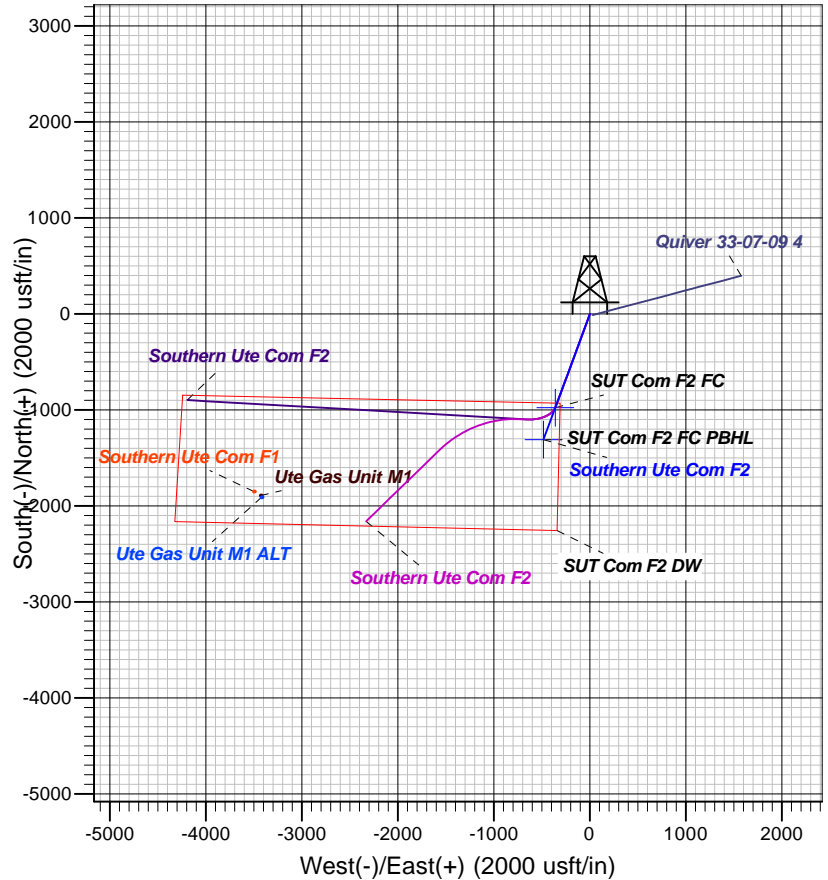
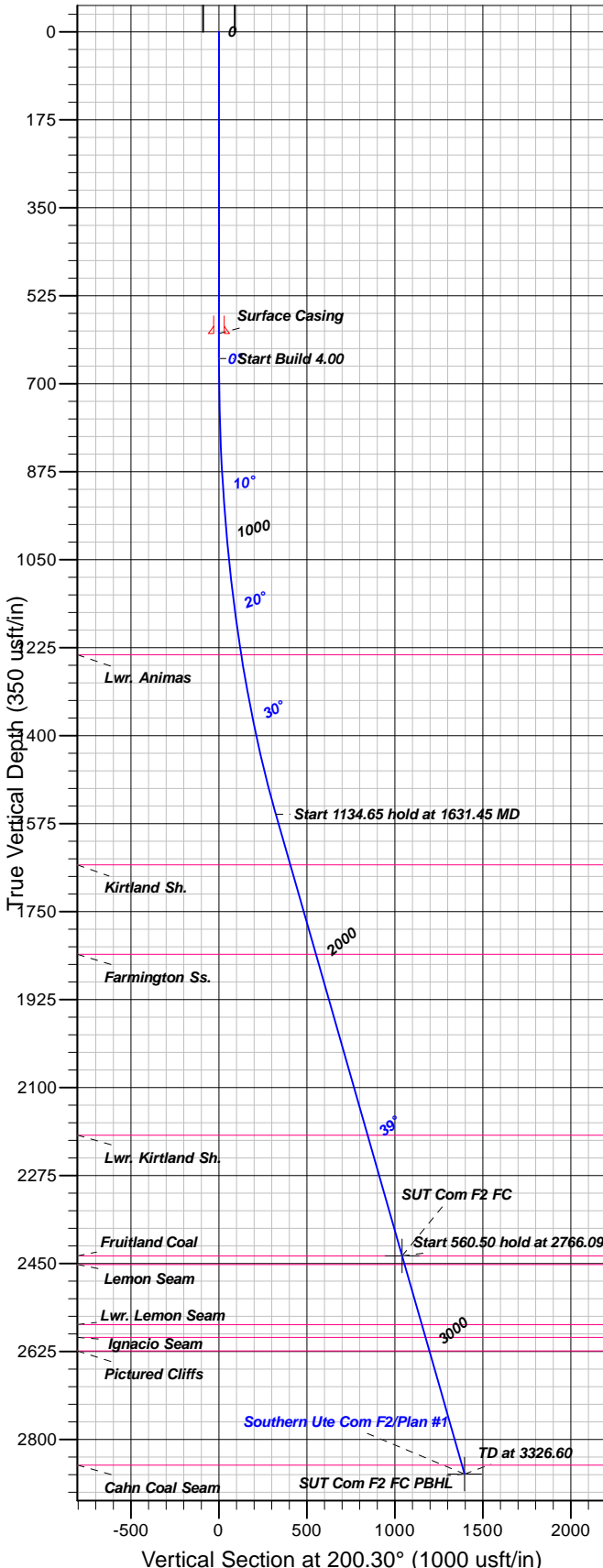
Well Details: Southern Ute Com F2

GL 6458' & RKB 11' @ 6469.00usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1169274.38	2380574.57	37.1122051	-107.6243413	

Azimuths to Grid North
True North: 1.30°
Magnetic North: 10.59°

Magnetic Field
Strength: 50282.1snT
Dip Angle: 63.68°
Date: 12/2/2015
Model: HDGM



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1239.00	1257.01	Lwr. Animas
1657.00	1761.32	Kirtland Sh.
1835.00	1991.21	Farmington Ss.
2195.00	2456.14	Lwr. Kirtland Sh.
2435.00	2766.09	Fruitland Coal
2452.00	2788.05	Lemon Seam
2572.00	2943.03	Lwr. Lemon Seam
2597.00	2975.31	Ignacio Seam
2624.00	3010.18	Pictured Cliffs
2851.00	3303.35	Cahn Coal Seam

Plan: Plan #1

12:04, December 07 2015
Created By: Janie Collins

PROJECT DETAILS: La Plata County, CO NAD83

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

System Datum: Mean Sea Level

CASING DETAILS

TVD	MD	Name	Size
600.00	600.00	Surface Casing	9.62

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	
3	1631.45	39.26	200.30	1556.44	-303.21	-112.15	4.00	200.30	323.28	
4	2766.09	39.26	200.30	2435.00	-976.63	-361.25	0.00	0.001041.30		SUT Com F2 FC
5	3326.60	39.26	200.30	2869.00	-1309.29	-484.30	0.00	0.001395.99		SUT Com F2 FC PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SUT Com F2 FC	2435.00	-976.63	-361.25	1168297.75	2380213.32	37.1095011	-107.6255036	Point
- plan hits target center								
SUT Com F2 FC PBHL	2869.00	-1309.29	-484.30	1167965.09	2380090.27	37.1085800	-107.6258995	Point
- plan hits target center								



B.P.

**La Plata County, CO NAD83
Southern Ute Com F2 Pad
Southern Ute Com F2**

Pilot

Plan: Plan #1

Standard Planning Report

07 December, 2015





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Southern Ute Com F2
Company:	B.P.	TVD Reference:	GL 6458' & RKB 11' @ 6469.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6458' & RKB 11' @ 6469.00usft (Aztec 507)
Site:	Southern Ute Com F2 Pad	North Reference:	Grid
Well:	Southern Ute Com F2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		

Project	La Plata County, CO NAD83		
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 Com F2 Pad			
Site Position:		Northing:	1,169,274.38 usft	Latitude:	37.1122051
From:	Map	Easting:	2,380,574.57 usft	Longitude:	-107.6243414
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.30 °

Well	Southern Ute Com F2					
Well Position	+N/-S	0.00 usft	Northing:	1,169,274.38 usft	Latitude:	37.1122051
	+E/-W	0.00 usft	Easting:	2,380,574.57 usft	Longitude:	-107.6243414
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,458.00 usft

Wellbore	Pilot				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/2/2015	9.28	63.68	50,282

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	200.30

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,631.45	39.26	200.30	1,556.44	-303.21	-112.15	4.00	4.00	0.00	200.30	
2,766.09	39.26	200.30	2,435.00	-976.63	-361.25	0.00	0.00	0.00	0.00	SUT Com F2 FC
3,326.60	39.26	200.30	2,869.00	-1,309.29	-484.30	0.00	0.00	0.00	0.00	SUT Com F2 FC PBH



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Company:	B.P.	TVD Reference:	GL 6458' & RKB 11' @ 6469.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6458' & RKB 11' @ 6469.00usft (Aztec 507)
Site:	Southern Ute Com F2 Pad	North Reference:	Grid
Well:	Southern Ute Com F2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		

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)
0.00	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
Surface Casing									
650.00	0.00	0.00	650.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	2.00	200.30	699.99	-0.82	-0.30	0.87	4.00	4.00	0.00
800.00	6.00	200.30	799.73	-7.36	-2.72	7.85	4.00	4.00	0.00
900.00	10.00	200.30	898.73	-20.41	-7.55	21.76	4.00	4.00	0.00
1,000.00	14.00	200.30	996.53	-39.91	-14.76	42.55	4.00	4.00	0.00
1,100.00	18.00	200.30	1,092.63	-65.75	-24.32	70.11	4.00	4.00	0.00
1,200.00	22.00	200.30	1,186.58	-97.82	-36.18	104.30	4.00	4.00	0.00
1,257.01	24.28	200.30	1,239.00	-118.83	-43.96	126.70	4.00	4.00	0.00
Lwr. Animas									
1,300.00	26.00	200.30	1,277.92	-135.96	-50.29	144.97	4.00	4.00	0.00
1,400.00	30.00	200.30	1,366.20	-179.99	-66.58	191.90	4.00	4.00	0.00
1,500.00	34.00	200.30	1,450.98	-229.68	-84.96	244.89	4.00	4.00	0.00
1,600.00	38.00	200.30	1,531.87	-284.79	-105.34	303.65	4.00	4.00	0.00
1,631.45	39.26	200.30	1,556.44	-303.21	-112.15	323.28	4.00	4.00	0.00
1,700.00	39.26	200.30	1,609.52	-343.89	-127.20	366.66	0.00	0.00	0.00
1,761.32	39.26	200.30	1,657.00	-380.29	-140.67	405.47	0.00	0.00	0.00
Kirtland Sh.									
1,800.00	39.26	200.30	1,686.95	-403.24	-149.16	429.95	0.00	0.00	0.00
1,900.00	39.26	200.30	1,764.38	-462.59	-171.11	493.23	0.00	0.00	0.00
1,991.21	39.26	200.30	1,835.00	-516.73	-191.13	550.94	0.00	0.00	0.00
Farmington Ss.									
2,000.00	39.26	200.30	1,841.81	-521.95	-193.06	556.51	0.00	0.00	0.00
2,100.00	39.26	200.30	1,919.24	-581.30	-215.02	619.79	0.00	0.00	0.00
2,200.00	39.26	200.30	1,996.67	-640.65	-236.97	683.07	0.00	0.00	0.00
2,300.00	39.26	200.30	2,074.10	-700.00	-258.93	746.35	0.00	0.00	0.00
2,400.00	39.26	200.30	2,151.53	-759.35	-280.88	809.63	0.00	0.00	0.00
2,456.14	39.26	200.30	2,195.00	-792.67	-293.20	845.16	0.00	0.00	0.00
Lwr. Kirtland Sh.									
2,500.00	39.26	200.30	2,228.96	-818.70	-302.83	872.91	0.00	0.00	0.00
2,600.00	39.26	200.30	2,306.39	-878.05	-324.79	936.19	0.00	0.00	0.00
2,700.00	39.26	200.30	2,383.82	-937.40	-346.74	999.48	0.00	0.00	0.00
2,766.09	39.26	200.30	2,435.00	-976.63	-361.25	1,041.30	0.00	0.00	0.00
Fruitland Coal - SUT Com F2 FC									
2,788.05	39.26	200.30	2,452.00	-989.66	-366.07	1,055.19	0.00	0.00	0.00
Lemon Seam									
2,800.00	39.26	200.30	2,461.25	-996.75	-368.69	1,062.76	0.00	0.00	0.00
2,900.00	39.26	200.30	2,538.68	-1,056.10	-390.65	1,126.04	0.00	0.00	0.00
2,943.03	39.26	200.30	2,572.00	-1,081.64	-400.09	1,153.27	0.00	0.00	0.00
Lwr. Lemon Seam									
2,975.31	39.26	200.30	2,597.00	-1,100.80	-407.18	1,173.70	0.00	0.00	0.00
Ignacio Seam									
3,000.00	39.26	200.30	2,616.11	-1,115.46	-412.60	1,189.32	0.00	0.00	0.00
3,010.18	39.26	200.30	2,624.00	-1,121.50	-414.84	1,195.76	0.00	0.00	0.00



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Site:	Southern Ute Com F2 Pad	North Reference:	Grid
Well:	Southern Ute Com F2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot		
Design:	Plan #1		

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)
Pictured Cliffs									
3,100.00	39.26	200.30	2,693.55	-1,174.81	-434.55	1,252.60	0.00	0.00	0.00
3,200.00	39.26	200.30	2,770.98	-1,234.16	-456.51	1,315.88	0.00	0.00	0.00
3,300.00	39.26	200.30	2,848.41	-1,293.51	-478.46	1,379.16	0.00	0.00	0.00
3,303.35	39.26	200.30	2,851.00	-1,295.50	-479.20	1,381.28	0.00	0.00	0.00
Cahn Coal Seam									
3,326.59	39.26	200.30	2,869.00	-1,309.29	-484.30	1,395.99	0.00	0.00	0.00
F2 Lat 1 PBHL - SUT Com F2 FC PBHL									

Design 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
SUT Com F2 FC - plan hits target center - Point	0.00	360.00	2,435.00	-976.63	-361.25	1,168,297.75	2,380,213.32	37.1095010	-107.6255036
SUT Com F2 FC PBHL - plan hits target center - Point	0.00	360.00	2,869.00	-1,309.29	-484.30	1,167,965.09	2,380,090.27	37.1085800	-107.6258995

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
600.00	600.00	Surface Casing	9.62	12.25	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,257.01	1,239.00	Lwr. Animas		0.00	360.00	
1,761.32	1,657.00	Kirtland Sh.		0.00	360.00	
1,991.21	1,835.00	Farmington Ss.		0.00	360.00	
2,456.14	2,195.00	Lwr. Kirtland Sh.		0.00	360.00	
2,766.09	2,435.00	Fruitland Coal		0.00	360.00	
2,788.05	2,452.00	Lemon Seam		0.00	360.00	
2,943.03	2,572.00	Lwr. Lemon Seam		0.00	360.00	
2,975.31	2,597.00	Ignacio Seam		0.00	360.00	
3,010.18	2,624.00	Pictured Cliffs		0.00	360.00	
3,303.35	2,851.00	Cahn Coal Seam		0.00	360.00	