



Company: B.P.
Project: La Plata County, CO NAD83
Site: Southern Ute Tribal BK2 Pad
Well: Southern Ute Tribal BK2

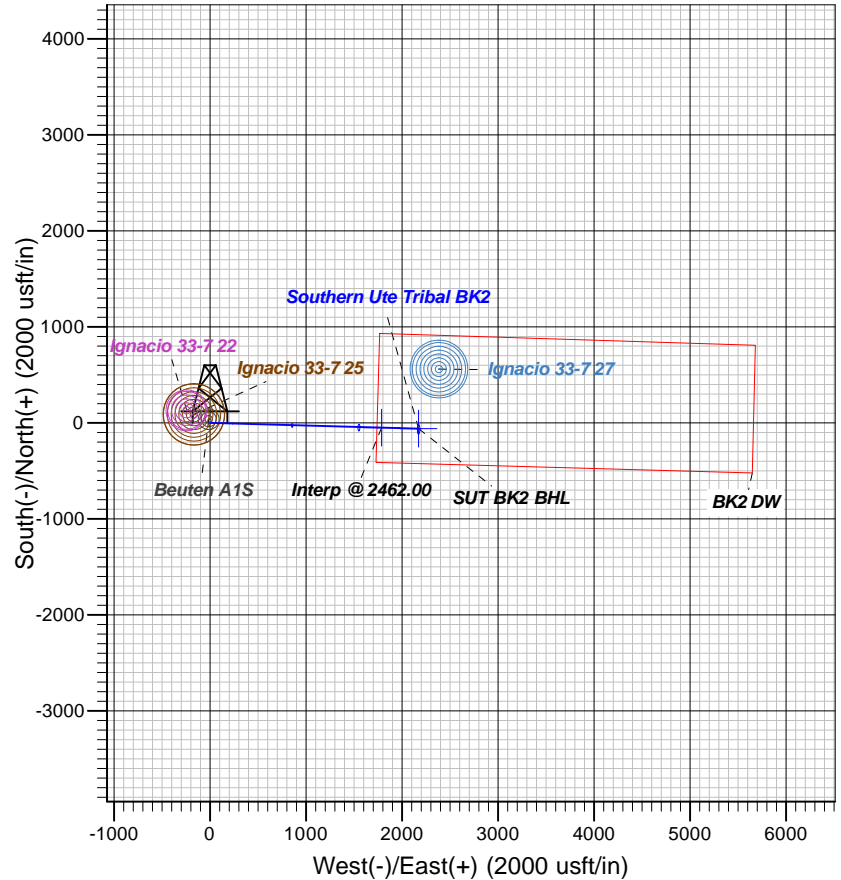
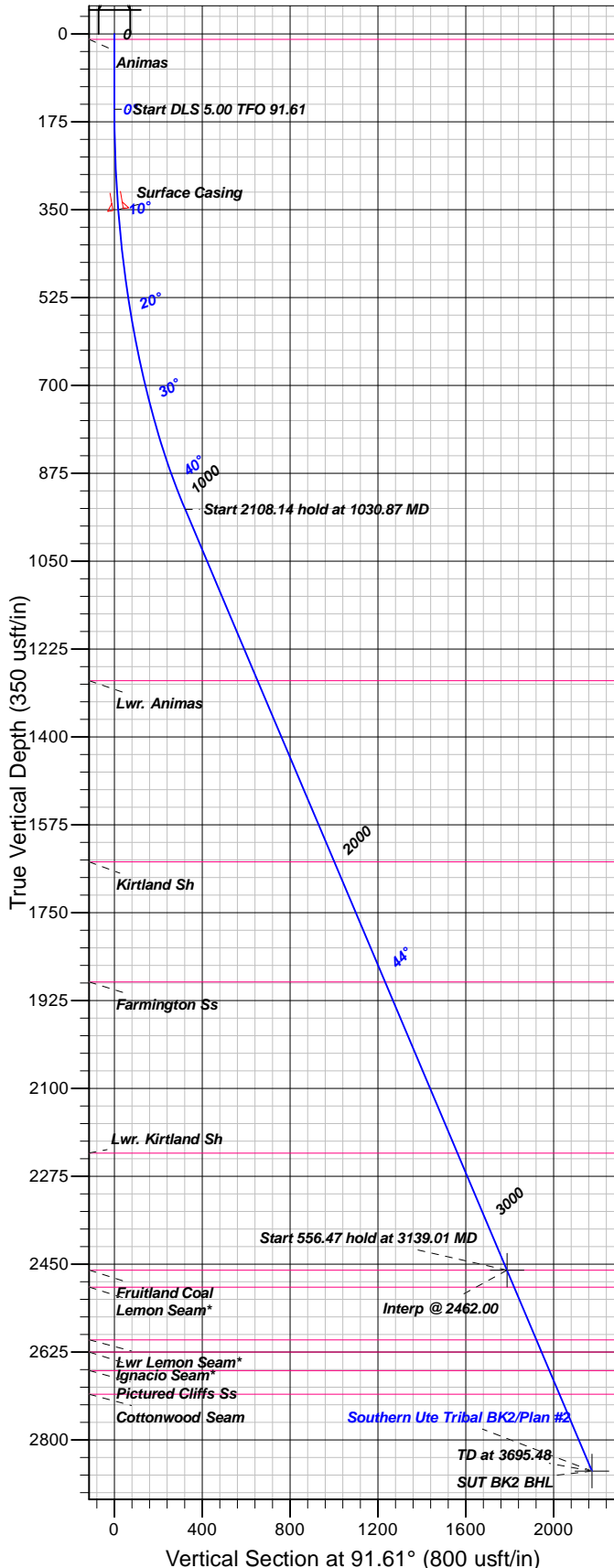


Well Details: Southern Ute Tribal BK2

GL 6397.35' & RKB 11' @ 6408.35usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1154165.30	2379483.07	37.0706524	-107.6269037	

Azimuths to Grid North
True North: 1.30°
Magnetic North: 10.61°
Magnetic Field
Strength: 50294.7snT
Dip Angle: 63.67°
Date: 8/18/2015
Model: HDGM



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
11.00	11.00	Animas
1288.00	1505.76	Lwr. Animas
1649.00	2007.98	Kirtland Sh
1888.00	2340.47	Farmington Ss
2229.00	2814.86	Lwr. Kirtland Sh
2462.00	3139.01	Fruitland Coal
2496.00	3186.31	Lemon Seam*
2601.00	3332.38	Lwr Lemon Seam*
2625.00	3365.77	Ignacio Seam*
2662.00	3417.25	Pictured Cliffs Ss
2709.00	3482.63	Cottonwood Seam

Plan: Plan #2

14:37, November 30 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
350.00	351.03	Surface Casing	9.62

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	1030.87	44.04	91.61	946.65	-9.06	322.09	5.00	91.61	322.22	
4	3139.01	44.04	91.61	2462.00	-50.30	1787.10	0.00	0.001787.81	Interp @ 2462.00	
5	3695.48	44.04	91.61	2862.00	-61.18	2173.81	0.00	0.002174.67	SUT BK2 BHL	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Interp @ 2462.00	2462.00	-50.30	1787.10	1154115.00	2381270.17	37.0706258	-107.6207764	Point
- plan hits target center								
SUT BK2 BHL	2862.00	-61.18	2173.81	1154104.12	2381656.88	37.0706201	-107.6194505	Point
- plan hits target center								



B.P.

La Plata County, CO NAD83
Southern Ute Tribal BK2 Pad
Southern Ute Tribal BK2

OH

Plan: Plan #2

Standard Planning Report

30 November, 2015





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Southern Ute Tribal BK2
Company:	B.P.	TVD Reference:	GL 6397.35' & RKB 11' @ 6408.35usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6397.35' & RKB 11' @ 6408.35usft (Aztec 507)
Site:	Southern Ute Tribal BK2 Pad	North Reference:	Grid
Well:	Southern Ute Tribal BK2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 Tribal BK2 Pad			
Site Position:		Northing:	1,154,165.30 usft	Latitude:	37.0706523
From:	Map	Easting:	2,379,483.07 usft	Longitude:	-107.6269038
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.30 °

Well	Southern Ute Tribal BK2					
Well Position	+N/-S	0.00 usft	Northing:	1,154,165.30 usft	Latitude:	37.0706523
	+E/-W	0.00 usft	Easting:	2,379,483.07 usft	Longitude:	-107.6269038
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,397.35 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/18/2015	9.30	63.67	50,295

Design	Plan #2			
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	91.61

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	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,030.87	44.04	91.61	946.65	-9.06	322.09	5.00	5.00	10.40	91.61	
3,139.01	44.04	91.61	2,462.00	-50.30	1,787.10	0.00	0.00	0.00	0.00	Interp @ 2462.00
3,695.48	44.04	91.61	2,862.00	-61.18	2,173.81	0.00	0.00	0.00	0.00	SUT BK2 BHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Southern Ute Tribal BK2
Company:	B.P.	TVD Reference:	GL 6397.35' & RKB 11' @ 6408.35usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6397.35' & RKB 11' @ 6408.35usft (Aztec 507)
Site:	Southern Ute Tribal BK2 Pad	North Reference:	Grid
Well:	Southern Ute Tribal BK2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	
11.00	0.00	0.00	11.00	0.00	0.00	0.00	0.00	0.00	0.00	
Animas										
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start DLS 5.00 TFO 91.61										
200.00	2.50	91.61	199.98	-0.03	1.09	1.09	5.00	5.00	0.00	
300.00	7.50	91.61	299.57	-0.28	9.80	9.80	5.00	5.00	0.00	
351.03	10.05	91.61	350.00	-0.49	17.58	17.59	5.00	5.00	0.00	
Surface Casing										
400.00	12.50	91.61	398.02	-0.76	27.15	27.16	5.00	5.00	0.00	
500.00	17.50	91.61	494.58	-1.49	53.02	53.04	5.00	5.00	0.00	
600.00	22.50	91.61	588.52	-2.45	87.19	87.23	5.00	5.00	0.00	
700.00	27.50	91.61	679.12	-3.64	129.42	129.48	5.00	5.00	0.00	
800.00	32.50	91.61	765.70	-5.05	179.39	179.46	5.00	5.00	0.00	
900.00	37.50	91.61	847.59	-6.66	236.71	236.80	5.00	5.00	0.00	
1,000.00	42.50	91.61	924.17	-8.47	300.94	301.06	5.00	5.00	0.00	
1,030.87	44.04	91.61	946.65	-9.06	322.09	322.22	5.00	5.00	0.00	
Start 2108.14 hold at 1030.87 MD										
1,100.00	44.04	91.61	996.34	-10.42	370.13	370.28	0.00	0.00	0.00	
1,200.00	44.04	91.61	1,068.22	-12.37	439.62	439.80	0.00	0.00	0.00	
1,300.00	44.04	91.61	1,140.10	-14.33	509.12	509.32	0.00	0.00	0.00	
1,400.00	44.04	91.61	1,211.98	-16.28	578.61	578.84	0.00	0.00	0.00	
1,500.00	44.04	91.61	1,283.86	-18.24	648.10	648.36	0.00	0.00	0.00	
1,505.76	44.04	91.61	1,288.00	-18.35	652.10	652.36	0.00	0.00	0.00	
Lwr. Animas										
1,600.00	44.04	91.61	1,355.74	-20.20	717.60	717.88	0.00	0.00	0.00	
1,700.00	44.04	91.61	1,427.62	-22.15	787.09	787.40	0.00	0.00	0.00	
1,800.00	44.04	91.61	1,499.50	-24.11	856.58	856.92	0.00	0.00	0.00	
1,900.00	44.04	91.61	1,571.39	-26.06	926.07	926.44	0.00	0.00	0.00	
2,000.00	44.04	91.61	1,643.27	-28.02	995.57	995.96	0.00	0.00	0.00	
2,007.98	44.04	91.61	1,649.00	-28.18	1,001.11	1,001.51	0.00	0.00	0.00	
Kirtland Sh										
2,100.00	44.04	91.61	1,715.15	-29.98	1,065.06	1,065.48	0.00	0.00	0.00	
2,200.00	44.04	91.61	1,787.03	-31.93	1,134.55	1,135.00	0.00	0.00	0.00	
2,300.00	44.04	91.61	1,858.91	-33.89	1,204.05	1,204.52	0.00	0.00	0.00	
2,340.47	44.04	91.61	1,888.00	-34.68	1,232.17	1,232.66	0.00	0.00	0.00	
Farmington Ss										
2,400.00	44.04	91.61	1,930.79	-35.84	1,273.54	1,274.04	0.00	0.00	0.00	
2,500.00	44.04	91.61	2,002.67	-37.80	1,343.03	1,343.56	0.00	0.00	0.00	
2,600.00	44.04	91.61	2,074.55	-39.75	1,412.53	1,413.08	0.00	0.00	0.00	
2,700.00	44.04	91.61	2,146.44	-41.71	1,482.02	1,482.61	0.00	0.00	0.00	
2,800.00	44.04	91.61	2,218.32	-43.67	1,551.51	1,552.13	0.00	0.00	0.00	
2,814.86	44.04	91.61	2,229.00	-43.96	1,561.84	1,562.46	0.00	0.00	0.00	
Lwr. Kirtland Sh										
2,900.00	44.04	91.61	2,290.20	-45.62	1,621.00	1,621.65	0.00	0.00	0.00	
3,000.00	44.04	91.61	2,362.08	-47.58	1,690.50	1,691.17	0.00	0.00	0.00	
3,100.00	44.04	91.61	2,433.96	-49.53	1,759.99	1,760.69	0.00	0.00	0.00	
3,139.01	44.04	91.61	2,462.00	-50.30	1,787.10	1,787.81	0.00	0.00	0.00	
Start 556.47 hold at 3139.01 MD - Fruitland Coal - Interp @ 2462.00										
3,186.31	44.04	91.61	2,496.00	-51.22	1,819.97	1,820.69	0.00	0.00	0.00	



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Site:	Southern Ute Tribal BK2 Pad	North Reference:	Grid
Well:	Southern Ute Tribal BK2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
Lemon Seam*									
3,200.00	44.04	91.61	2,505.84	-51.49	1,829.48	1,830.21	0.00	0.00	0.00
3,300.00	44.04	91.61	2,577.72	-53.44	1,898.98	1,899.73	0.00	0.00	0.00
3,332.38	44.04	91.61	2,601.00	-54.08	1,921.48	1,922.24	0.00	0.00	0.00
Lwr Lemon Seam*									
3,365.77	44.04	91.61	2,625.00	-54.73	1,944.68	1,945.45	0.00	0.00	0.00
Ignacio Seam*									
3,400.00	44.04	91.61	2,649.60	-55.40	1,968.47	1,969.25	0.00	0.00	0.00
3,417.25	44.04	91.61	2,662.00	-55.74	1,980.45	1,981.24	0.00	0.00	0.00
Pictured Cliffs Ss									
3,482.63	44.04	91.61	2,709.00	-57.02	2,025.89	2,026.69	0.00	0.00	0.00
Cottonwood Seam									
3,500.00	44.04	91.61	2,721.48	-57.36	2,037.96	2,038.77	0.00	0.00	0.00
3,600.00	44.04	91.61	2,793.37	-59.31	2,107.46	2,108.29	0.00	0.00	0.00
3,695.48	44.04	91.61	2,862.00	-61.18	2,173.81	2,174.67	0.00	0.00	0.00
TD at 3695.48 - SUT BK2 BHL									

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
Interp @ 2462.00 - plan hits target center - Point	0.00	360.00	2,462.00	-50.30	1,787.10	1,154,115.00	2,381,270.17	37.0706258	-107.6207764
SUT BK2 BHL - plan hits target center - Point	0.00	360.00	2,862.00	-61.18	2,173.81	1,154,104.12	2,381,656.88	37.0706200	-107.6194505

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
351.03	350.00	Surface Casing	9.62	12.25



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Project:	La Plata County, CO NAD83	MD Reference:	GL 6397.35' & RKB 11' @ 6408.35usft (Aztec 507)
Site:	Southern Ute Tribal BK2 Pad	North Reference:	Grid
Well:	Southern Ute Tribal BK2	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
11.00	11.00	Animas				
1,505.76	1,288.00	Lwr. Animas				
2,007.98	1,649.00	Kirtland Sh				
2,340.47	1,888.00	Farmington Ss				
2,814.86	2,229.00	Lwr. Kirtland Sh				
3,139.01	2,462.00	Fruitland Coal				
3,186.31	2,496.00	Lemon Seam*				
3,332.38	2,601.00	Lwr Lemon Seam*				
3,365.77	2,625.00	Ignacio Seam*				
3,417.25	2,662.00	Pictured Cliffs Ss				
3,482.63	2,709.00	Cottonwood Seam				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
150.00	150.00	0.00	0.00	Start DLS 5.00 TFO 91.61
1,030.87	946.65	-9.06	322.09	Start 2108.14 hold at 1030.87 MD
3,139.01	2,462.00	-50.30	1,787.10	Start 556.47 hold at 3139.01 MD
3,695.48	2,862.00	-61.18	2,173.81	TD at 3695.48