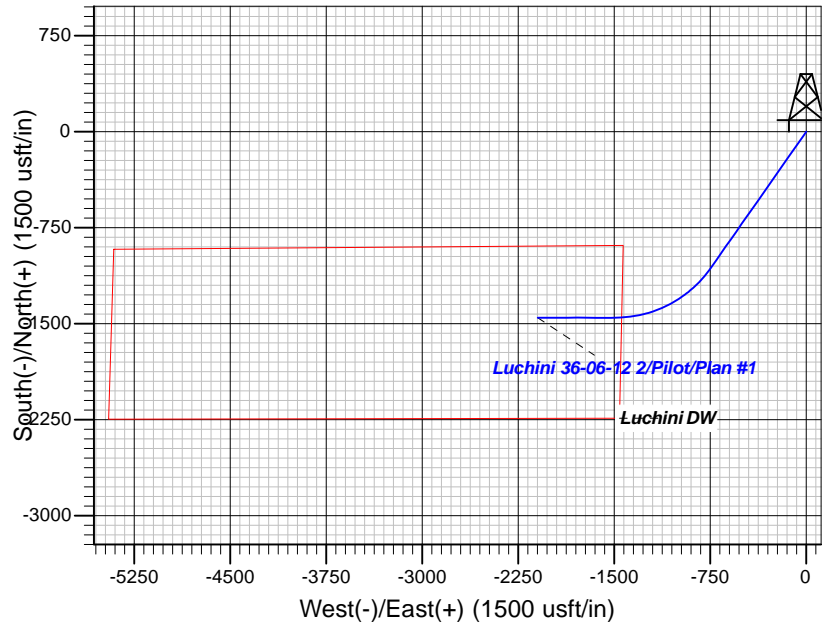
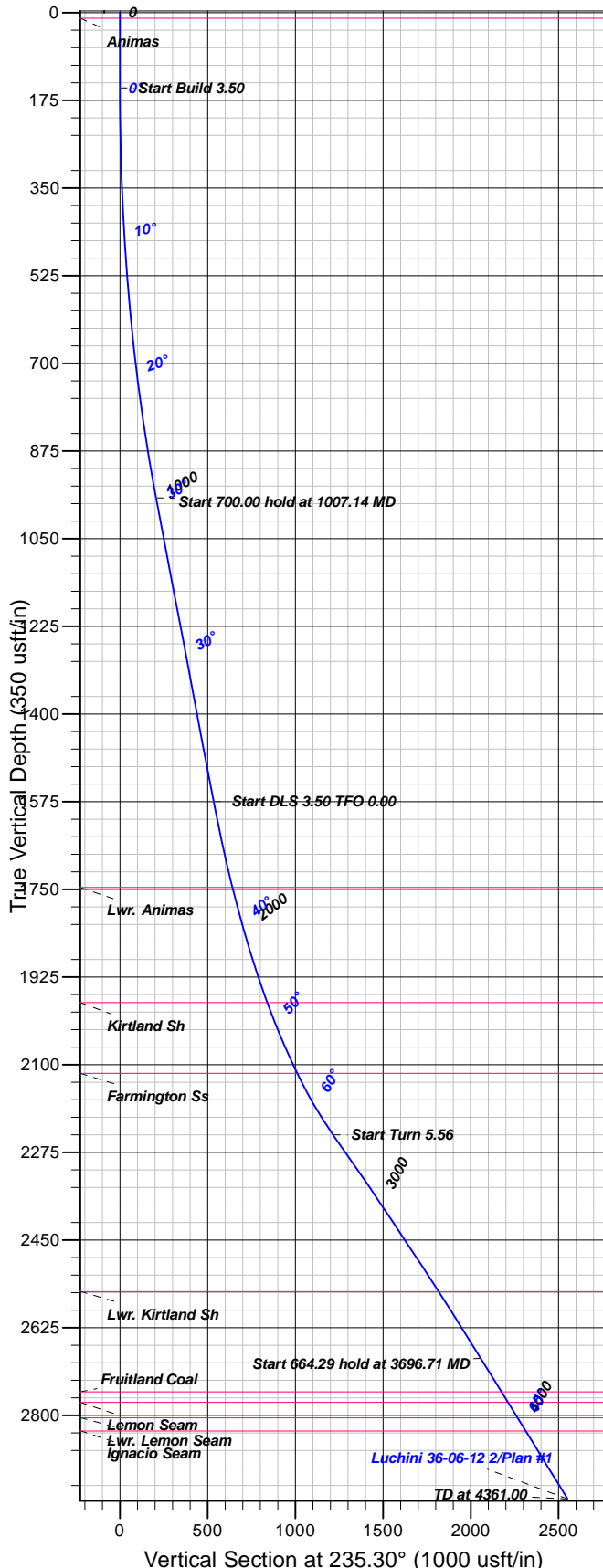




+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1139306.97	2433750.94	37.0330995	-107.4398920



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
11.00	11.00	Animas
1746.00	1912.91	Lwr. Animas
1976.00	2226.28	Kirtland Sh
2117.00	2456.51	Farmington Ss
2553.00	3396.25	Lwr. Kirtland Sh
2753.00	3854.87	Fruitland Coal
2774.00	3904.56	Lemon Seam
2805.00	3977.91	Lwr. Lemon Seam
2831.00	4039.43	Ignacio Seam

Plan: Plan #1

16:08, October 09 2017
Created By: Mel Mireles Jr.

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

No casing data is available

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.0	0.0	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	170.07	30.00	215.00	968.51	-179.66	-125.80	3.50	215.00	205.70	
4	170.07	30.00	215.00	1574.73	-466.36	-326.55	0.00	0.00	533.97	
5	270.77	65.00	215.00	2239.86	-1060.95	-742.89	3.50	0.00	0.01214.78	
6	3696.71	65.00	270.00	2686.16	-1452.95	-1495.91	5.00	102.4	102057.01	
7	4361.00	65.00	270.00	2966.90	-1452.95	-2097.96	0.00	0.00	0.022551.96	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Luchini Pilot	2700.00	-1714.38	-1728.99	1137592.59	2432021.95	37.0282935	-107.4456912	
- plan misses target center by 275.19usft at 3913.80usft MD (2777.90 TVD, -1452.95 N, -1692.66 E)								



B.P.

La Plata County, CO NAD83

Luchini Pad

Luchini 36-06-12 2

Pilot

Plan: Plan #1

Standard Planning Report

09 October, 2017





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Luchini 36-06-12 2
Company:	B.P.	TVD Reference:	GL 6266' & RKB 11' @ 6277.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6266' & RKB 11' @ 6277.00usft (Aztec 507)
Site:	Luchini Pad	North Reference:	Grid
Well:	Luchini 36-06-12 2	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		Luchini Pad			
Site Position:		Northing:	1,139,289.65 usft	Latitude:	37.0330501
From:	Map	Easting:	2,433,719.01 usft	Longitude:	-107.4400002
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.19 °

Well	Luchini 36-06-12 2					
Well Position	+N/-S	17.32 usft	Northing:	1,139,306.97 usft	Latitude:	37.0330995
	+E/-W	31.93 usft	Easting:	2,433,750.94 usft	Longitude:	-107.4398920
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,266.00 usft

Wellbore	Pilot				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/24/2017	9.17	63.60	50,139

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	235.30

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	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,007.14	30.00	215.00	968.51	-179.66	-125.80	3.50	3.50	0.00	215.00	
1,707.14	30.00	215.00	1,574.73	-466.36	-326.55	0.00	0.00	0.00	0.00	
2,707.14	65.00	215.00	2,239.86	-1,060.95	-742.89	3.50	3.50	0.00	0.00	
3,696.71	65.00	270.00	2,686.16	-1,452.95	-1,495.91	5.00	0.00	5.56	102.41	
4,361.00	65.00	270.00	2,966.90	-1,452.95	-2,097.96	0.00	0.00	0.00	0.00	



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Luchini 36-06-12 2
Company:	B.P.	TVD Reference:	GL 6266' & RKB 11' @ 6277.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6266' & RKB 11' @ 6277.00usft (Aztec 507)
Site:	Luchini Pad	North Reference:	Grid
Well:	Luchini 36-06-12 2	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	
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	
200.00	1.75	215.00	199.99	-0.63	-0.44	0.72	3.50	3.50	0.00	
300.00	5.25	215.00	299.79	-5.63	-3.94	6.44	3.50	3.50	0.00	
400.00	8.75	215.00	399.03	-15.61	-10.93	17.87	3.50	3.50	0.00	
500.00	12.25	215.00	497.34	-30.53	-21.38	34.96	3.50	3.50	0.00	
600.00	15.75	215.00	594.35	-50.35	-35.25	57.65	3.50	3.50	0.00	
700.00	19.25	215.00	689.71	-74.97	-52.50	85.85	3.50	3.50	0.00	
800.00	22.75	215.00	783.05	-104.33	-73.05	119.45	3.50	3.50	0.00	
900.00	26.25	215.00	874.04	-138.29	-96.83	158.34	3.50	3.50	0.00	
1,000.00	29.75	215.00	962.32	-176.74	-123.76	202.37	3.50	3.50	0.00	
1,007.14	30.00	215.00	968.51	-179.66	-125.80	205.70	3.50	3.50	0.00	
1,100.00	30.00	215.00	1,048.93	-217.69	-152.43	249.25	0.00	0.00	0.00	
1,200.00	30.00	215.00	1,135.53	-258.65	-181.11	296.15	0.00	0.00	0.00	
1,300.00	30.00	215.00	1,222.13	-299.60	-209.78	343.04	0.00	0.00	0.00	
1,400.00	30.00	215.00	1,308.74	-340.56	-238.46	389.94	0.00	0.00	0.00	
1,500.00	30.00	215.00	1,395.34	-381.52	-267.14	436.83	0.00	0.00	0.00	
1,600.00	30.00	215.00	1,481.94	-422.48	-295.82	483.73	0.00	0.00	0.00	
1,700.00	30.00	215.00	1,568.54	-463.43	-324.50	530.62	0.00	0.00	0.00	
1,707.14	30.00	215.00	1,574.73	-466.36	-326.55	533.97	0.00	0.00	0.00	
1,800.00	33.25	215.00	1,653.79	-506.24	-354.47	579.64	3.50	3.50	0.00	
1,900.00	36.75	215.00	1,735.69	-553.22	-387.37	633.42	3.50	3.50	0.00	
1,912.91	37.20	215.00	1,746.00	-559.58	-391.82	640.71	3.50	3.50	0.00	
Lwr. Animas										
2,000.00	40.25	215.00	1,813.94	-604.20	-423.07	691.80	3.50	3.50	0.00	
2,100.00	43.75	215.00	1,888.24	-659.00	-461.44	754.55	3.50	3.50	0.00	
2,200.00	47.25	215.00	1,958.32	-717.42	-502.34	821.44	3.50	3.50	0.00	
2,226.28	48.17	215.00	1,976.00	-733.34	-513.49	839.67	3.50	3.50	0.00	
Kirtland Sh										
2,300.00	50.75	215.00	2,023.92	-779.23	-545.63	892.21	3.50	3.50	0.00	
2,400.00	54.25	215.00	2,084.78	-844.21	-591.12	966.61	3.50	3.50	0.00	
2,456.51	56.23	215.00	2,117.00	-882.24	-617.75	1,010.15	3.50	3.50	0.00	
Farmington Ss										
2,500.00	57.75	215.00	2,140.69	-912.11	-638.67	1,044.36	3.50	3.50	0.00	
2,600.00	61.25	215.00	2,191.44	-982.68	-688.08	1,125.16	3.50	3.50	0.00	
2,700.00	64.75	215.00	2,236.83	-1,055.66	-739.18	1,208.71	3.50	3.50	0.00	
2,707.14	65.00	215.00	2,239.86	-1,060.95	-742.89	1,214.78	3.50	3.50	0.00	
2,800.00	64.09	220.04	2,279.80	-1,127.43	-793.92	1,294.58	5.00	-0.98	5.43	
2,900.00	63.30	225.55	2,324.14	-1,193.18	-854.78	1,382.05	5.00	-0.78	5.51	
3,000.00	62.73	231.13	2,369.54	-1,252.40	-921.31	1,470.46	5.00	-0.57	5.57	
3,100.00	62.39	236.75	2,415.64	-1,304.62	-993.01	1,559.13	5.00	-0.35	5.62	
3,200.00	62.27	242.39	2,462.11	-1,349.45	-1,069.33	1,647.40	5.00	-0.12	5.64	
3,300.00	62.38	248.04	2,508.59	-1,386.55	-1,149.68	1,734.58	5.00	0.11	5.65	
3,396.25	62.70	253.45	2,553.00	-1,414.70	-1,230.26	1,816.85	5.00	0.33	5.62	
Lwr. Kirtland Sh										
3,400.00	62.72	253.66	2,554.72	-1,415.65	-1,233.46	1,820.02	5.00	0.45	5.60	
3,500.00	63.28	259.24	2,600.15	-1,436.50	-1,320.03	1,903.06	5.00	0.56	5.58	
3,600.00	64.05	264.75	2,644.54	-1,448.97	-1,408.74	1,983.08	5.00	0.78	5.51	



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Luchini 36-06-12 2
Company:	B.P.	TVD Reference:	GL 6266' & RKB 11' @ 6277.00usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6266' & RKB 11' @ 6277.00usft (Aztec 507)
Site:	Luchini Pad	North Reference:	Grid
Well:	Luchini 36-06-12 2	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)
3,696.71	65.00	270.00	2,686.16	-1,452.95	-1,495.91	2,057.01	5.00	0.98	5.43
3,700.00	65.00	270.00	2,687.55	-1,452.95	-1,498.89	2,059.47	0.00	0.00	0.00
3,800.00	65.00	270.00	2,729.81	-1,452.95	-1,589.52	2,133.98	0.00	0.00	0.00
3,854.87	65.00	270.00	2,753.00	-1,452.95	-1,639.25	2,174.86	0.00	0.00	0.00
Fruitland Coal									
3,900.00	65.00	270.00	2,772.07	-1,452.95	-1,680.15	2,208.48	0.00	0.00	0.00
3,904.56	65.00	270.00	2,774.00	-1,452.95	-1,684.29	2,211.88	0.00	0.00	0.00
Lemon Seam									
3,913.80	65.00	270.00	2,777.90	-1,452.95	-1,692.66	2,218.76	0.00	0.00	0.00
Luchini Pilot									
3,977.91	65.00	270.00	2,805.00	-1,452.95	-1,750.77	2,266.53	0.00	0.00	0.00
Lwr. Lemon Seam									
4,000.00	65.00	270.00	2,814.33	-1,452.95	-1,770.78	2,282.99	0.00	0.00	0.00
4,039.43	65.00	270.00	2,831.00	-1,452.95	-1,806.52	2,312.37	0.00	0.00	0.00
Ignacio Seam									
4,100.00	65.00	270.00	2,856.60	-1,452.95	-1,861.42	2,357.50	0.00	0.00	0.00
4,200.00	65.00	270.00	2,898.86	-1,452.95	-1,952.05	2,432.00	0.00	0.00	0.00
4,300.00	65.00	270.00	2,941.12	-1,452.95	-2,042.68	2,506.51	0.00	0.00	0.00
4,361.00	65.00	270.00	2,966.90	-1,452.95	-2,097.96	2,551.96	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Luchini Pilot	0.00	0.00	2,700.00	-1,714.38	-1,728.99	1,137,592.59	2,432,021.96	37.0282935	-107.4456913
- plan misses target center by 275.19usft at 3913.80usft MD (2777.90 TVD, -1452.95 N, -1692.66 E)									
- Point									