

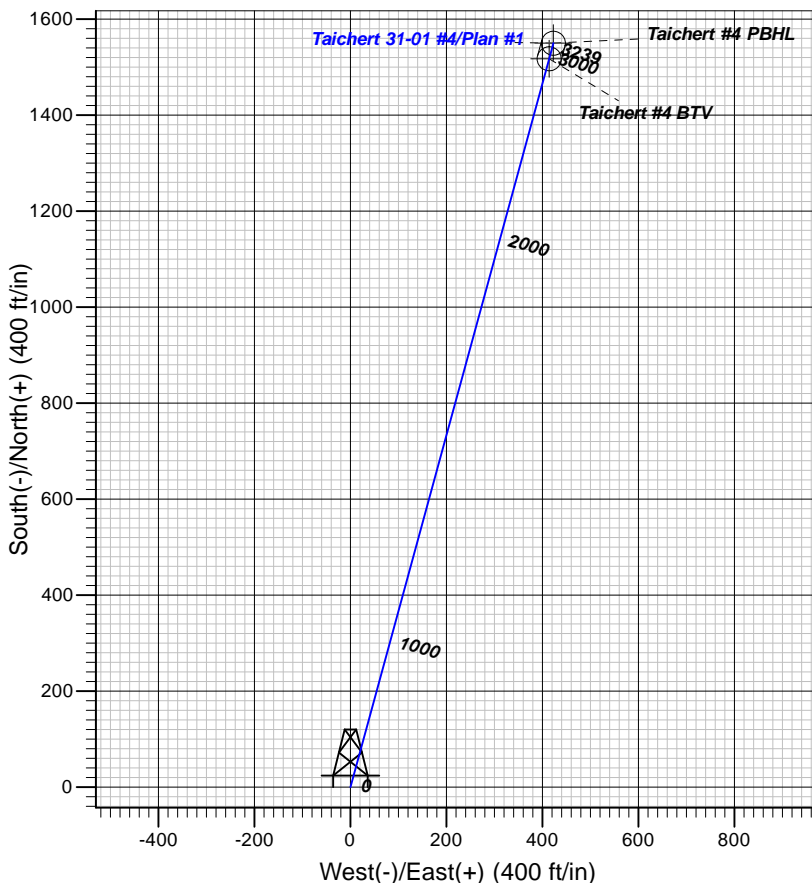
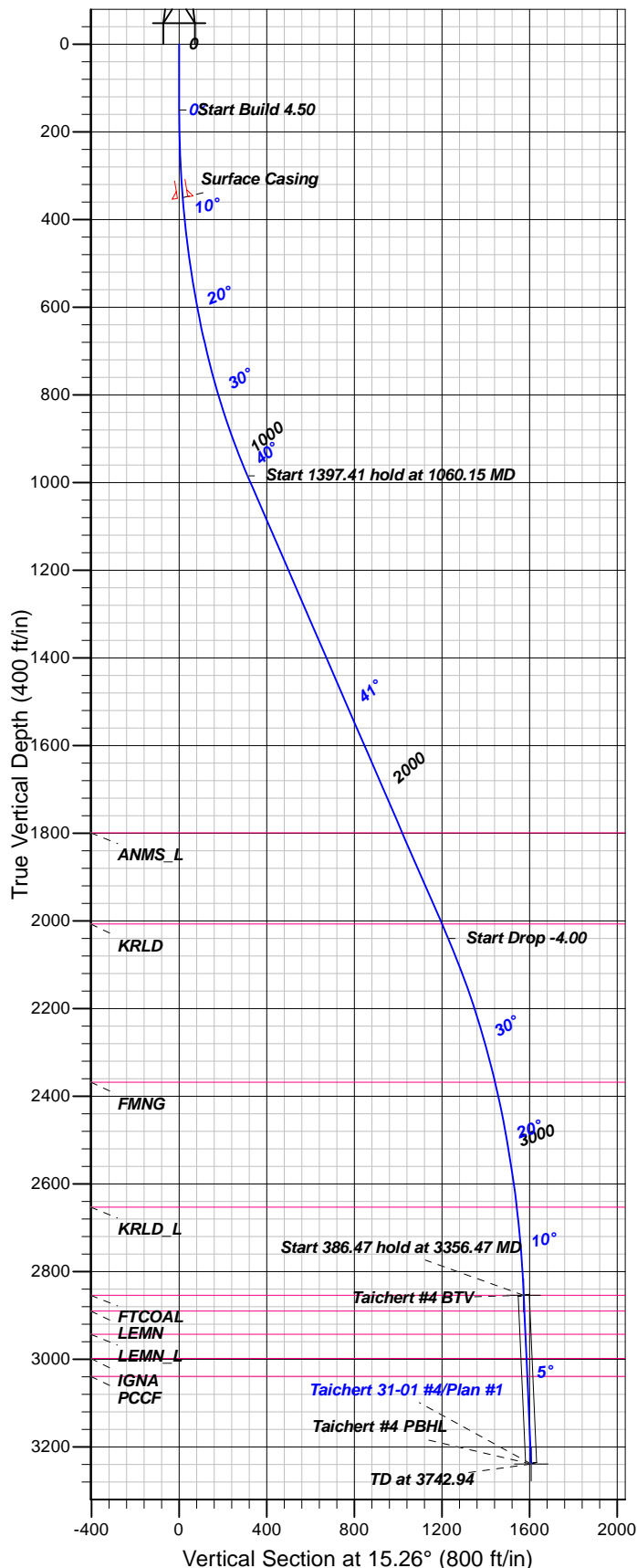


Well Details: Taichert 31-01 #4

GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1149712.50	2402645.20	37.0598475	-107.5472039	

Azimuths to Grid North
True North: 1.26°
Magnetic North: 10.74°
Magnetic Field
Strength: 50463.9snT
Dip Angle: 63.70°
Date: 3/13/2015
Model: BGM2014



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1799.00	2138.54	ANMS_L
2007.00	2413.96	KRLD
2368.00	2850.42	FMNG
2653.00	3152.75	KRLD_L
2854.00	3356.47	FTCOAL
2890.00	3392.61	LEMN
2943.00	3445.81	LEMN_L
2998.00	3501.02	IGNA
3039.00	3542.18	PCCF

Plan: Plan #1

14:06, March 13 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	350.83	Surface Casing	9.625

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	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	1060.15	40.96	15.26	984.59	300.69	82.03	4.50	15.26	311.68	
4	2457.56	40.96	15.26	2039.92	1184.38	323.12	0.00	0.001227.67		
5	3356.47	5.00	15.26	2854.00	1517.40	413.97	4.00	180.001572.86		Taichert #4 BTV
6	3742.94	5.00	15.26	3239.00	1549.90	422.84	0.00	0.001606.54		Taichert #4 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Taichert #4 BTV	2854.00	1517.40	413.97	1151229.90	2403059.17	37.0640387	-107.5458995	Circle (Radius: 25.00)
- plan hits target center								
Taichert #4 PBHL	3239.00	1549.89	422.84	1151262.39	2403068.04	37.0641285	-107.5458716	Point
- plan misses target center by 0.01ft at 3742.94ft MD (3239.00 TVD, 1549.90 N, 422.84 E)								



B.P.

**La Plata County, CO NAD83
SEC 31-T33N-R6W
Taichert 31-01 #4**

OH

Plan: Plan #1

Standard Planning Report

13 March, 2015





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Taichert 31-01 #4
Company:	B.P.	TVD Reference:	GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)
Site:	SEC 31-T33N-R6W	North Reference:	Grid
Well:	Taichert 31-01 #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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		Using Well Reference Point
Map Zone:	Colorado Southern Zone		

Site	SEC 31-T33N-R6W			
Site Position:		Northing:	1,149,682.54 usft	Latitude: 37.0597651
From:	Lat/Long	Easting:	2,402,643.85 usft	Longitude: -107.5472063
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -1.26 °

Well	Taichert 31-01 #4			
Well Position	+N/-S	29.96 ft	Northing:	1,149,712.50 usft
	+E/-W	1.35 ft	Easting:	2,402,645.20 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	6,601.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	3/13/2015	9.48	63.70	50,464

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	15.26

Plan Sections										
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
0.00	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	
1,060.15	40.96	15.26	984.59	300.69	82.03	4.50	4.50	0.00	15.26	
2,457.56	40.96	15.26	2,039.92	1,184.38	323.12	0.00	0.00	0.00	0.00	
3,356.47	5.00	15.26	2,854.00	1,517.40	413.97	4.00	-4.00	0.00	180.00	Taichert #4 BTV
3,742.94	5.00	15.26	3,239.00	1,549.90	422.84	0.00	0.00	0.00	0.00	Taichert #4 PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Taichert 31-01 #4
Company:	B.P.	TVD Reference:	GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)
Site:	SEC 31-T33N-R6W	North Reference:	Grid
Well:	Taichert 31-01 #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)
0.00	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
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 4.50									
200.00	2.25	15.26	199.99	0.95	0.26	0.98	4.50	4.50	0.00
300.00	6.75	15.26	299.65	8.51	2.32	8.83	4.50	4.50	0.00
350.83	9.04	15.26	350.00	15.25	4.16	15.81	4.50	4.50	0.00
Surface Casing									
400.00	11.25	15.26	398.40	23.60	6.44	24.46	4.50	4.50	0.00
500.00	15.75	15.26	495.61	46.12	12.58	47.80	4.50	4.50	0.00
600.00	20.25	15.26	590.69	75.92	20.71	78.70	4.50	4.50	0.00
700.00	24.75	15.26	683.05	112.83	30.78	116.96	4.50	4.50	0.00
800.00	29.25	15.26	772.13	156.62	42.73	162.34	4.50	4.50	0.00
900.00	33.75	15.26	857.37	207.01	56.48	214.58	4.50	4.50	0.00
1,000.00	38.25	15.26	938.25	263.71	71.94	273.34	4.50	4.50	0.00
1,060.15	40.96	15.26	984.59	300.69	82.03	311.68	4.50	4.50	0.00
Start 1397.41 hold at 1060.15 MD									
1,100.00	40.96	15.26	1,014.69	325.89	88.91	337.80	0.00	0.00	0.00
1,200.00	40.96	15.26	1,090.21	389.13	106.16	403.35	0.00	0.00	0.00
1,300.00	40.96	15.26	1,165.73	452.37	123.41	468.90	0.00	0.00	0.00
1,400.00	40.96	15.26	1,241.25	515.61	140.67	534.45	0.00	0.00	0.00
1,500.00	40.96	15.26	1,316.77	578.84	157.92	600.00	0.00	0.00	0.00
1,600.00	40.96	15.26	1,392.29	642.08	175.17	665.55	0.00	0.00	0.00
1,700.00	40.96	15.26	1,467.81	705.32	192.42	731.10	0.00	0.00	0.00
1,800.00	40.96	15.26	1,543.33	768.56	209.68	796.65	0.00	0.00	0.00
1,900.00	40.96	15.26	1,618.85	831.80	226.93	862.19	0.00	0.00	0.00
2,000.00	40.96	15.26	1,694.37	895.03	244.18	927.74	0.00	0.00	0.00
2,100.00	40.96	15.26	1,769.90	958.27	261.43	993.29	0.00	0.00	0.00
2,138.54	40.96	15.26	1,799.00	982.64	268.08	1,018.55	0.00	0.00	0.00
ANMS_L									
2,200.00	40.96	15.26	1,845.42	1,021.51	278.68	1,058.84	0.00	0.00	0.00
2,300.00	40.96	15.26	1,920.94	1,084.75	295.94	1,124.39	0.00	0.00	0.00
2,400.00	40.96	15.26	1,996.46	1,147.98	313.19	1,189.94	0.00	0.00	0.00
2,413.96	40.96	15.26	2,007.00	1,156.81	315.60	1,199.09	0.00	0.00	0.00
KRLD									
2,457.56	40.96	15.26	2,039.92	1,184.38	323.12	1,227.67	0.00	0.00	0.00
Start Drop -4.00									
2,500.00	39.26	15.26	2,072.38	1,210.76	330.32	1,255.01	4.00	-4.00	0.00
2,600.00	35.26	15.26	2,151.96	1,269.16	346.25	1,315.54	4.00	-4.00	0.00
2,700.00	31.26	15.26	2,235.56	1,322.05	360.68	1,370.37	4.00	-4.00	0.00
2,800.00	27.26	15.26	2,322.79	1,369.20	373.54	1,419.24	4.00	-4.00	0.00
2,850.42	25.24	15.26	2,368.00	1,390.71	379.41	1,441.53	4.00	-4.00	0.00
FMNG									
2,900.00	23.26	15.26	2,413.21	1,410.35	384.77	1,461.90	4.00	-4.00	0.00
3,000.00	19.26	15.26	2,506.38	1,445.33	394.31	1,498.15	4.00	-4.00	0.00
3,100.00	15.26	15.26	2,601.86	1,473.94	402.12	1,527.81	4.00	-4.00	0.00
3,152.75	13.15	15.26	2,653.00	1,486.43	405.52	1,540.76	4.00	-4.00	0.00
KRLD_L									
3,200.00	11.26	15.26	2,699.18	1,496.07	408.15	1,550.74	4.00	-4.00	0.00
3,300.00	7.26	15.26	2,797.85	1,511.59	412.39	1,566.83	4.00	-4.00	0.00
3,356.47	5.00	15.26	2,854.00	1,517.40	413.97	1,572.86	4.00	-4.00	0.00
Start 386.47 hold at 3356.47 MD - FTCoAL - Taichert #4 BTV									
3,392.61	5.00	15.26	2,890.00	1,520.44	414.80	1,576.01	0.00	0.00	0.00



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Project:	La Plata County, CO NAD83	MD Reference:	GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)
Site:	SEC 31-T33N-R6W	North Reference:	Grid
Well:	Taichert 31-01 #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)	
LEMN										
3,400.00	5.00	15.26	2,897.36	1,521.06	414.97	1,576.65	0.00	0.00	0.00	
3,445.81	5.00	15.26	2,943.00	1,524.91	416.02	1,580.64	0.00	0.00	0.00	
LEMN_L										
3,500.00	5.00	15.26	2,996.98	1,529.47	417.26	1,585.37	0.00	0.00	0.00	
3,501.02	5.00	15.26	2,998.00	1,529.56	417.29	1,585.46	0.00	0.00	0.00	
IGNA										
3,542.18	5.00	15.26	3,039.00	1,533.02	418.23	1,589.04	0.00	0.00	0.00	
PCCF										
3,600.00	5.00	15.26	3,096.60	1,537.88	419.56	1,594.08	0.00	0.00	0.00	
3,700.00	5.00	15.26	3,196.22	1,546.29	421.85	1,602.80	0.00	0.00	0.00	
3,742.94	5.00	15.26	3,239.00	1,549.90	422.84	1,606.54	0.00	0.00	0.00	
TD at 3742.94 - Taichert #4 PBHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Taichert #4 BTV	-5.00	1.25	2,854.00	1,517.40	413.97	1,151,229.90	2,403,059.17	37.0640387	-107.5458996	
- plan hits target center										
- Circle (radius 25.00)										
Taichert #4 PBHL	0.00	1.25	3,239.00	1,549.89	422.84	1,151,262.39	2,403,068.04	37.0641285	-107.5458716	
- plan misses target center by 0.01ft at 3742.94ft MD (3239.00 TVD, 1549.90 N, 422.84 E)										
- Point										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
350.83	350.00	Surface Casing	9.625	12.250		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,138.54	1,799.00	ANMS_L		0.00		
2,413.96	2,007.00	KRLD		0.00		
2,850.42	2,368.00	FMNG		0.00		
3,152.75	2,653.00	KRLD_L		0.00		
3,356.47	2,854.00	FTCOAL		0.00		
3,392.61	2,890.00	LEMN		0.00		
3,445.81	2,943.00	LEMN_L		0.00		
3,501.02	2,998.00	IGNA		0.00		
3,542.18	3,039.00	PCCF		0.00		



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Project:	La Plata County, CO NAD83	MD Reference:	GL 6601' & RKB 11' @ 6612.00ft (Aztec 703)
Site:	SEC 31-T33N-R6W	North Reference:	Grid
Well:	Taichert 31-01 #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
150.00	150.00	0.00	0.00	Start Build 4.50
1,060.15	984.59	300.69	82.03	Start 1397.41 hold at 1060.15 MD
2,457.56	2,039.92	1,184.38	323.12	Start Drop -4.00
3,356.47	2,854.00	1,517.40	413.97	Start 386.47 hold at 3356.47 MD
3,742.94	3,239.00	1,549.90	422.84	TD at 3742.94