

Well Details: Anderson GC-C3

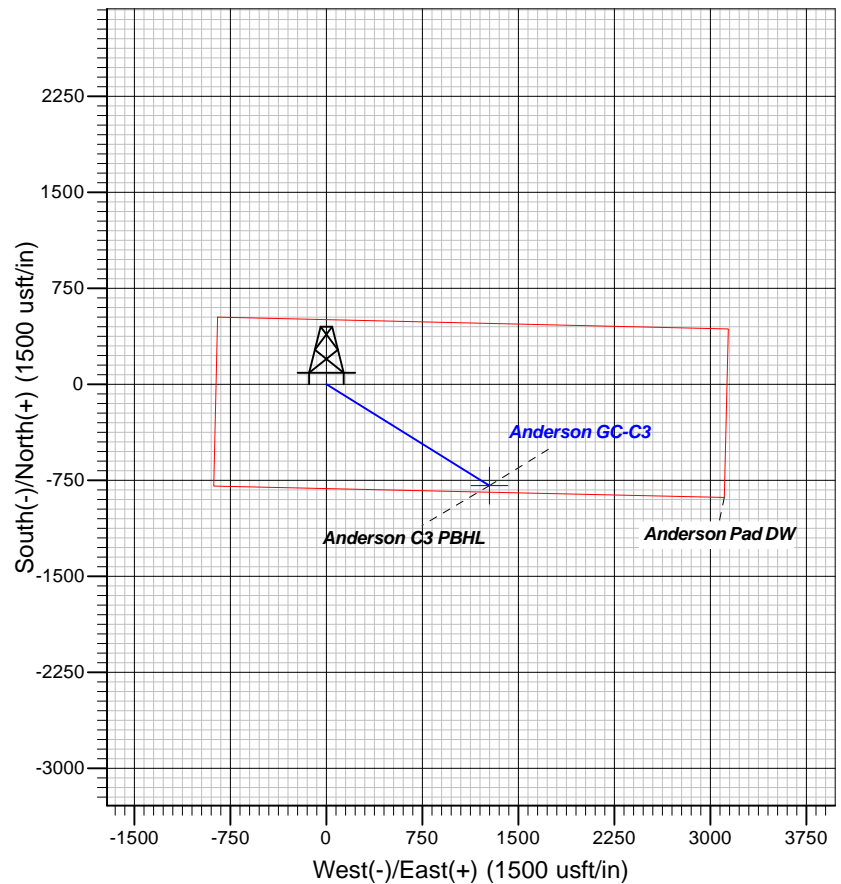
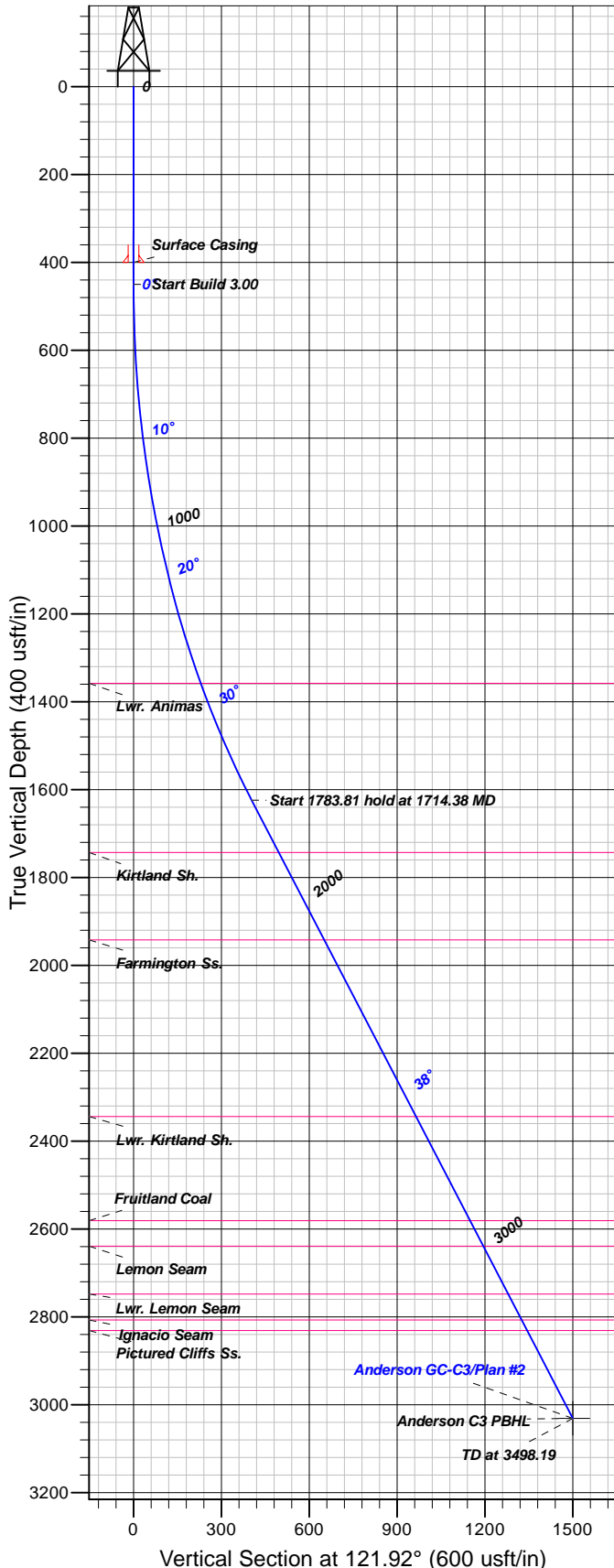
GL 6709.61' & RKB 11' @ 6720.61usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1191884.51	2367128.86	37.1734358	-107.6722403	



<p>Azimuths to Grid North</p> <p>True North: 1.33°</p> <p>Magnetic North: 10.63°</p>
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Magnetic Field
Strength: 50310.6snT
Dip Angle: 63.73°
Date: 11/30/2015
Model: HDGM



FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
1358.00	1396.24	Lwr. Animas
1743.00	1865.22	Kirtland Sh.
1942.00	2117.52	Farmington Ss.
2344.00	2627.19	Lwr. Kirtland Sh.
2581.00	2927.66	Fruitland Coal
2639.00	3001.20	Lemon Seam
2748.00	3139.39	Lwr. Lemon Seam
2807.00	3214.19	Ignacio Seam
2831.00	3244.62	Pictured Cliffs Ss.

Plan: Plan #2

15:48, December 01 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
400.00	400.00	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	450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	
3	1714.38	37.93	121.92	1624.02	-213.33	342.45	3.00	121.92	403.46	
4	1498.18	37.93	121.92	3031.00	-793.12	1273.17	0.00	0.00	1500.00	Anderson C3 PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Anderson C3 PBHL	3031.00	-793.12	1273.17	1191091.39	2368402.03	37.1713393	-107.6678088	Point
- plan hits target center								



B.P.

La Plata County, CO NAD83
Anderson Pad
Anderson GC-C3

OH

Plan: Plan #2

Standard Planning Report

01 December, 2015





Database:	Grand Junction District	Local Co-ordinate Reference:	Well Anderson GC-C3
Company:	B.P.	TVD Reference:	GL 6709.61' & RKB 11' @ 6720.61usft (Aztec 507)
Project:	La Plata County, CO NAD83	MD Reference:	GL 6709.61' & RKB 11' @ 6720.61usft (Aztec 507)
Site:	Anderson Pad	North Reference:	Grid
Well:	Anderson GC-C3	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	Anderson Pad			
Site Position:		Northing:	1,191,885.01 usft	Latitude: 37.1734358
From: Map		Easting:	2,367,108.87 usft	Longitude: -107.6723090
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: -1.33 °

Well	Anderson GC-C3			
Well Position	+N/-S	-0.50 usft	Northing:	1,191,884.51 usft
	+E/-W	19.99 usft	Easting:	2,367,128.86 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 6,720.61 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/30/2015	9.30	63.73	50,311

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	121.92

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	
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,714.38	37.93	121.92	1,624.02	-213.33	342.45	3.00	3.00	0.00	121.92	
3,498.19	37.93	121.92	3,031.00	-793.12	1,273.17	0.00	0.00	0.00	0.00	Anderson C3 PBHL



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Project:	La Plata County, CO NAD83	MD Reference:	GL 6709.61' & RKB 11' @ 6720.61usft (Aztec 507)
Site:	Anderson Pad	North Reference:	Grid
Well:	Anderson GC-C3	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
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
Surface Casing									
450.00	0.00	0.00	450.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	1.50	121.92	499.99	-0.35	0.56	0.65	3.00	3.00	0.00
600.00	4.50	121.92	599.85	-3.11	5.00	5.89	3.00	3.00	0.00
700.00	7.50	121.92	699.29	-8.64	13.87	16.34	3.00	3.00	0.00
800.00	10.50	121.92	798.04	-16.91	27.14	31.98	3.00	3.00	0.00
900.00	13.50	121.92	895.85	-27.90	44.79	52.77	3.00	3.00	0.00
1,000.00	16.50	121.92	992.43	-41.59	66.76	78.65	3.00	3.00	0.00
1,100.00	19.50	121.92	1,087.52	-57.92	92.98	109.55	3.00	3.00	0.00
1,200.00	22.50	121.92	1,180.87	-76.87	123.40	145.38	3.00	3.00	0.00
1,300.00	25.50	121.92	1,272.22	-98.37	157.91	186.05	3.00	3.00	0.00
1,396.24	28.39	121.92	1,358.00	-121.43	194.92	229.65	3.00	3.00	0.00
Lwr. Animas									
1,400.00	28.50	121.92	1,361.31	-122.37	196.44	231.44	3.00	3.00	0.00
1,500.00	31.50	121.92	1,447.90	-148.81	238.88	281.44	3.00	3.00	0.00
1,600.00	34.50	121.92	1,531.76	-177.60	285.10	335.89	3.00	3.00	0.00
1,700.00	37.50	121.92	1,612.65	-208.68	334.98	394.67	3.00	3.00	0.00
1,714.38	37.93	121.92	1,624.02	-213.33	342.45	403.46	3.00	3.00	0.00
1,800.00	37.93	121.92	1,691.56	-241.16	387.12	456.09	0.00	0.00	0.00
1,865.22	37.93	121.92	1,743.00	-262.36	421.15	496.19	0.00	0.00	0.00
Kirtland Sh.									
1,900.00	37.93	121.92	1,770.43	-273.66	439.30	517.57	0.00	0.00	0.00
2,000.00	37.93	121.92	1,849.31	-306.16	491.48	579.04	0.00	0.00	0.00
2,100.00	37.93	121.92	1,928.18	-338.67	543.65	640.51	0.00	0.00	0.00
2,117.52	37.93	121.92	1,942.00	-344.36	552.79	651.28	0.00	0.00	0.00
Farmington Ss.									
2,200.00	37.93	121.92	2,007.06	-371.17	595.83	701.98	0.00	0.00	0.00
2,300.00	37.93	121.92	2,085.93	-403.67	648.00	763.45	0.00	0.00	0.00
2,400.00	37.93	121.92	2,164.81	-436.18	700.18	824.93	0.00	0.00	0.00
2,500.00	37.93	121.92	2,243.68	-468.68	752.36	886.40	0.00	0.00	0.00
2,600.00	37.93	121.92	2,322.56	-501.18	804.53	947.87	0.00	0.00	0.00
2,627.19	37.93	121.92	2,344.00	-510.02	818.72	964.58	0.00	0.00	0.00
Lwr. Kirtland Sh.									
2,700.00	37.93	121.92	2,401.43	-533.69	856.71	1,009.34	0.00	0.00	0.00
2,800.00	37.93	121.92	2,480.30	-566.19	908.88	1,070.81	0.00	0.00	0.00
2,900.00	37.93	121.92	2,559.18	-598.69	961.06	1,132.28	0.00	0.00	0.00
2,927.66	37.93	121.92	2,581.00	-607.68	975.49	1,149.29	0.00	0.00	0.00
Fruitland Coal									
3,000.00	37.93	121.92	2,638.05	-631.19	1,013.24	1,193.76	0.00	0.00	0.00
3,001.20	37.93	121.92	2,639.00	-631.58	1,013.86	1,194.49	0.00	0.00	0.00
Lemon Seam									
3,100.00	37.93	121.92	2,716.93	-663.70	1,065.41	1,255.23	0.00	0.00	0.00
3,139.39	37.93	121.92	2,748.00	-676.50	1,085.96	1,279.44	0.00	0.00	0.00
Lwr. Lemon Seam									
3,200.00	37.93	121.92	2,795.80	-696.20	1,117.59	1,316.70	0.00	0.00	0.00
3,214.20	37.93	121.92	2,807.00	-700.81	1,124.99	1,325.42	0.00	0.00	0.00



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Project:	La Plata County, CO NAD83	MD Reference:	GL 6709.61' & RKB 11' @ 6720.61usft (Aztec 507)
Site:	Anderson Pad	North Reference:	Grid
Well:	Anderson GC-C3	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)
Ignacio Seam									
3,244.62	37.93	121.92	2,831.00	-710.70	1,140.87	1,344.13	0.00	0.00	0.00
Pictured Cliffs Ss.									
3,300.00	37.93	121.92	2,874.68	-728.70	1,169.76	1,378.17	0.00	0.00	0.00
3,400.00	37.93	121.92	2,953.55	-761.21	1,221.94	1,439.64	0.00	0.00	0.00
3,498.19	37.93	121.92	3,031.00	-793.12	1,273.17	1,500.00	0.00	0.00	0.00
Anderson C3 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
Anderson C3 PBHL - plan hits target center - Point	0.00	360.00	3,031.00	-793.12	1,273.17	1,191,091.39	2,368,402.03	37.1713393	-107.6678088

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
400.00	400.00	Surface Casing	9.62	12.25

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,396.24	1,357.20	Lwr. Animas		0.00	0.00
1,865.22	1,742.20	Kirtland Sh.		0.00	0.00
2,117.52	1,941.20	Farmington Ss.		0.00	0.00
2,627.19	2,343.20	Lwr. Kirtland Sh.		0.00	0.00
2,927.66	2,580.20	Fruitland Coal		0.00	0.00
3,001.20	2,638.20	Lemon Seam		0.00	0.00
3,139.39	2,747.20	Lwr. Lemon Seam		0.00	0.00
3,214.20	2,806.20	Ignacio Seam		0.00	0.00
3,244.62	2,830.20	Pictured Cliffs Ss.		0.00	0.00