

Catamount Energy Partners

Standard Planning Report

IGS 148

Sec 21 T33N R8W

La Plata County CO

July 17, 2017



Catamount Energy Partners

DIRECTIONAL DRILLING PLAN

Well: IGS 148
 STR: Sec 21 T33N R8W
 Location (Ft.): 1188FNL, 1485FEL
 Field: Ignacio Blanco Field
 Co, State: La Plata County, Colorado

SECTION DETAILS

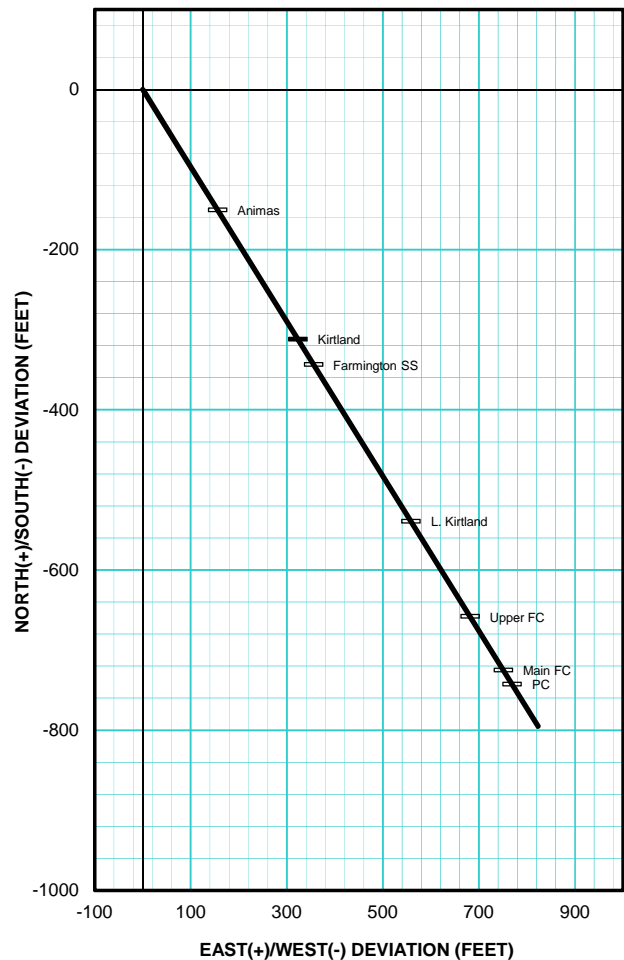
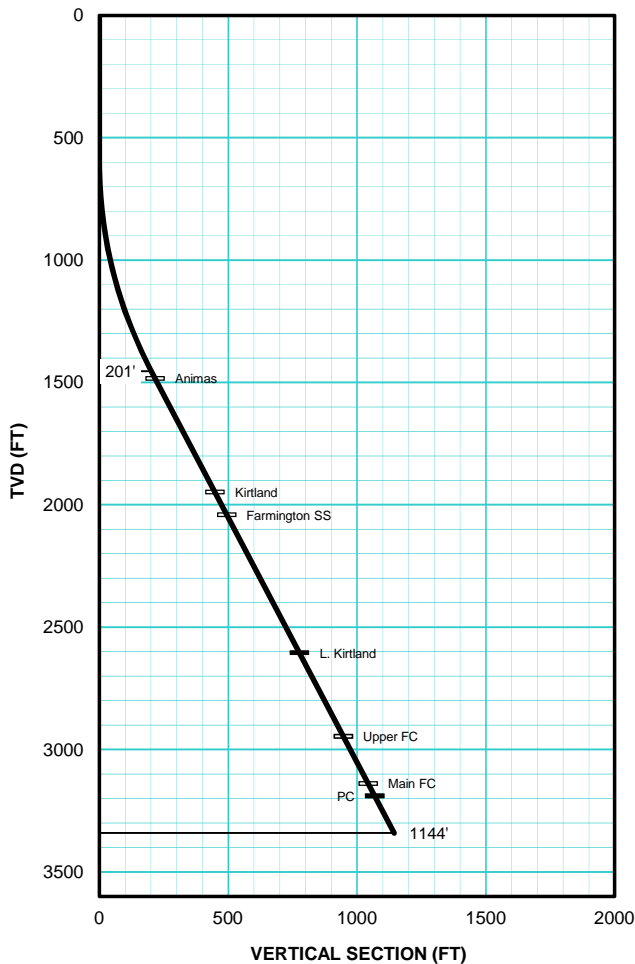
Section	MD	Incl	Azi	TVD	+N/-S	+E/-W	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	600.00	0.00	0.00	600.00	0.00	0.00	0.00
3	1484.85	26.55	134.01	1453.53	-139.88	144.81	201.34
4	3594.74	26.55	134.01	3341.00	-795.00	823.00	1144.27 PBHL

ESTIMATED FORMATION TOP DETAILS

Formation	TVD Path	MD Path	+N/-S	+E/-W
Animas	1484.00	1518.91	-150.46	155.76
Kirtland Shale	1949.00	2038.71	-311.85	322.84
Famington Sandstone	2041.00	2141.55	-343.79	355.89
Lower Kirtland Shale	2605.00	2772.01	-539.54	558.55
Upper Fruitland Coal	2947.00	3154.31	-658.25	681.43
Main Fruitland Coal	3140.00	3370.06	-725.24	750.78
Pictured Cliffs	3191.00	3427.07	-742.94	769.10

GL: 6786'

KB: 6798'



IGS 148, Plan 1

Operator	Catamount Energy Partners	Units	feet, °/100ft	15:03 Monday, July 17, 2017	Page 1 of 2
Field	Ignacio Blanco	County	La Plata	Vertical Section Azimuth	0
Well Name	IGS 148	State	CO	Survey Calculation Method	Minimum Curvature
Plan	1	Country		Database	Access

Location	1188 FNL & 1485 FEL SEC 21 T33N R8W	Map Zone	UTM	Lat Long Ref	NAD83
Site		Surface X		Surface Long	
Slot Name		Surface Y		Surface Lat	
Well Number		Surface Z		Global Z Ref	Mean Sea Level
Project		Ground Level	6786	Local North Ref	Grid
	UWI				
	API				
	MD/TVD Ref	KB			

DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
*** RKB (at MD = 0.00)										
0.00	0.00	0.0	0.00	0.00	0.00		0.00	0.00	0.00	
50.00	0.00	0.0	50.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
150.00	0.00	0.0	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.0	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.0	250.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.0	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
350.00	0.00	0.0	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.0	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
450.00	0.00	0.0	450.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.0	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
550.00	0.00	0.0	550.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.0	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
650.00	1.50	134.0	649.99	-0.45	0.47	3.00	-0.45	0.00	0.00	
700.00	3.00	134.0	699.95	-1.82	1.88	3.00	-1.82	0.00	0.00	
750.00	4.50	134.0	749.85	-4.09	4.23	3.00	-4.09	0.00	0.00	
800.00	6.00	134.0	799.63	-7.27	7.52	3.00	-7.27	0.00	0.00	
850.00	7.50	134.0	849.29	-11.35	11.75	3.00	-11.35	0.00	0.00	
900.00	9.00	134.0	898.77	-16.34	16.91	3.00	-16.34	0.00	0.00	
950.00	10.50	134.0	948.04	-22.22	23.00	3.00	-22.22	0.00	0.00	
1000.00	12.00	134.0	997.08	-29.00	30.02	3.00	-29.00	0.00	0.00	
1050.00	13.50	134.0	1045.85	-36.66	37.95	3.00	-36.66	0.00	0.00	
1100.00	15.00	134.0	1094.31	-45.21	46.81	3.00	-45.21	0.00	0.00	
1150.00	16.50	134.0	1142.43	-54.64	56.57	3.00	-54.64	0.00	0.00	
1200.00	18.00	134.0	1190.18	-64.94	67.23	3.00	-64.94	0.00	0.00	
1250.00	19.50	134.0	1237.52	-76.11	78.79	3.00	-76.11	0.00	0.00	
1300.00	21.00	134.0	1284.43	-88.13	91.24	3.00	-88.13	0.00	0.00	
1350.00	22.50	134.0	1330.87	-101.00	104.56	3.00	-101.00	0.00	0.00	
1400.00	24.00	134.0	1376.81	-114.72	118.76	3.00	-114.72	0.00	0.00	
1450.00	25.50	134.0	1422.22	-129.26	133.81	3.00	-129.26	0.00	0.00	
1484.85	26.55	134.0	1453.53	-139.88	144.81	3.00	-139.88	0.00	0.00	
1500.00	26.55	134.0	1467.09	-144.59	149.68	0.00	-144.59	0.00	0.00	
1550.00	26.55	134.0	1511.81	-160.11	165.75	0.00	-160.11	0.00	0.00	
1600.00	26.55	134.0	1556.54	-175.64	181.82	0.00	-175.64	0.00	0.00	
1650.00	26.55	134.0	1601.27	-191.16	197.89	0.00	-191.16	0.00	0.00	
1700.00	26.55	134.0	1646.00	-206.69	213.97	0.00	-206.69	0.00	0.00	
1750.00	26.55	134.0	1690.73	-222.21	230.04	0.00	-222.21	0.00	0.00	

IGS 148, Plan 1

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Field	Ignacio Blanco			County	La Plata		Vertical Section Azimuth		0	
Well Name	IGS 148			State	CO		Survey Calculation Method		Minimum Curvature	
Plan	1			Country			Database		Access	
Location	1188 FNL & 1485 FEL SEC 21 T33N R8W					Map Zone	UTM		Lat Long Ref	NAD83
Site						Surface X			Surface Long	
Slot Name	UWI					Surface Y			Surface Lat	
Well Number	API					Surface Z			Global Z Ref	Mean Sea Level
Project	MD/TVD Ref KB					Ground Level	6786		Local North Ref	Grid
DIRECTIONAL WELL PLAN										
MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
1800.00	26.55	134.0	1735.46	-237.74	246.11	0.00	-237.74	0.00	0.00	
1850.00	26.55	134.0	1780.19	-253.26	262.18	0.00	-253.26	0.00	0.00	
1900.00	26.55	134.0	1824.92	-268.79	278.25	0.00	-268.79	0.00	0.00	
1950.00	26.55	134.0	1869.65	-284.31	294.32	0.00	-284.31	0.00	0.00	
2000.00	26.55	134.0	1914.37	-299.84	310.40	0.00	-299.84	0.00	0.00	
2050.00	26.55	134.0	1959.10	-315.36	326.47	0.00	-315.36	0.00	0.00	
2100.00	26.55	134.0	2003.83	-330.89	342.54	0.00	-330.89	0.00	0.00	
2150.00	26.55	134.0	2048.56	-346.41	358.61	0.00	-346.41	0.00	0.00	
2200.00	26.55	134.0	2093.29	-361.94	374.68	0.00	-361.94	0.00	0.00	
2250.00	26.55	134.0	2138.02	-377.46	390.75	0.00	-377.46	0.00	0.00	
2300.00	26.55	134.0	2182.75	-392.98	406.83	0.00	-392.98	0.00	0.00	
2350.00	26.55	134.0	2227.48	-408.51	422.90	0.00	-408.51	0.00	0.00	
2400.00	26.55	134.0	2272.21	-424.03	438.97	0.00	-424.03	0.00	0.00	
2450.00	26.55	134.0	2316.94	-439.56	455.04	0.00	-439.56	0.00	0.00	
2500.00	26.55	134.0	2361.66	-455.08	471.11	0.00	-455.08	0.00	0.00	
2550.00	26.55	134.0	2406.39	-470.61	487.18	0.00	-470.61	0.00	0.00	
2600.00	26.55	134.0	2451.12	-486.13	503.26	0.00	-486.13	0.00	0.00	
2650.00	26.55	134.0	2495.85	-501.66	519.33	0.00	-501.66	0.00	0.00	
2700.00	26.55	134.0	2540.58	-517.18	535.40	0.00	-517.18	0.00	0.00	
2750.00	26.55	134.0	2585.31	-532.71	551.47	0.00	-532.71	0.00	0.00	
2800.00	26.55	134.0	2630.04	-548.23	567.54	0.00	-548.23	0.00	0.00	
2850.00	26.55	134.0	2674.77	-563.76	583.61	0.00	-563.76	0.00	0.00	
2900.00	26.55	134.0	2719.50	-579.28	599.69	0.00	-579.28	0.00	0.00	
2950.00	26.55	134.0	2764.22	-594.81	615.76	0.00	-594.81	0.00	0.00	
3000.00	26.55	134.0	2808.95	-610.33	631.83	0.00	-610.33	0.00	0.00	
3050.00	26.55	134.0	2853.68	-625.86	647.90	0.00	-625.86	0.00	0.00	
3100.00	26.55	134.0	2898.41	-641.38	663.97	0.00	-641.38	0.00	0.00	
3150.00	26.55	134.0	2943.14	-656.91	680.04	0.00	-656.91	0.00	0.00	
3200.00	26.55	134.0	2987.87	-672.43	696.12	0.00	-672.43	0.00	0.00	
3250.00	26.55	134.0	3032.60	-687.96	712.19	0.00	-687.96	0.00	0.00	
3300.00	26.55	134.0	3077.33	-703.48	728.26	0.00	-703.48	0.00	0.00	
3350.00	26.55	134.0	3122.06	-719.01	744.33	0.00	-719.01	0.00	0.00	
3400.00	26.55	134.0	3166.79	-734.53	760.40	0.00	-734.53	0.00	0.00	
3450.00	26.55	134.0	3211.51	-750.06	776.47	0.00	-750.06	0.00	0.00	
3500.00	26.55	134.0	3256.24	-765.58	792.55	0.00	-765.58	0.00	0.00	
3550.00	26.55	134.0	3300.97	-781.11	808.62	0.00	-781.11	0.00	0.00	
3594.74	26.55	134.0	3341.00	-795.00	823.00	0.00	-795.00	0.00	0.00	