

# Catamount Energy Partners

## Standard Planning Report

Hahn 3

Sec 15 T33N R8W

La Plata County CO

August 15, 2017



# Catamount Energy Partners

## DIRECTIONAL DRILLING PLAN

Well: HAHN 3  
 STR: Sec 15 T33N R8W  
 Location (Ft.): 1058FSL, 1703FEL  
 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	500.00	0.00	0.00	500.00	0.00	0.00	0.00
3	1526.01	30.78	49.72	1477.36	173.94	205.24	269.03
4	3677.75	30.78	49.72	3326.00	885.86	1045.29	1370.17

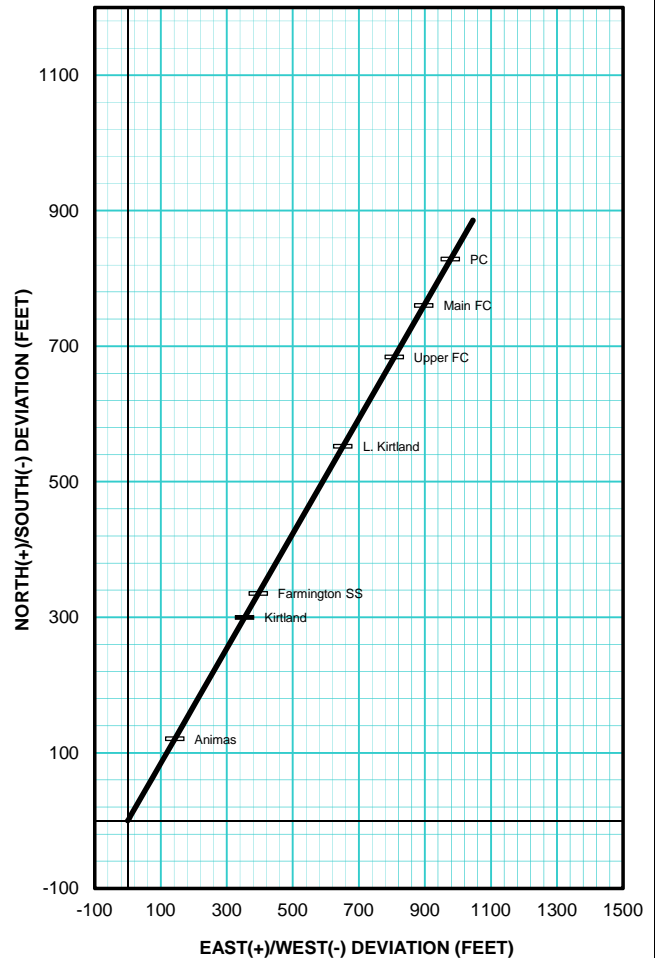
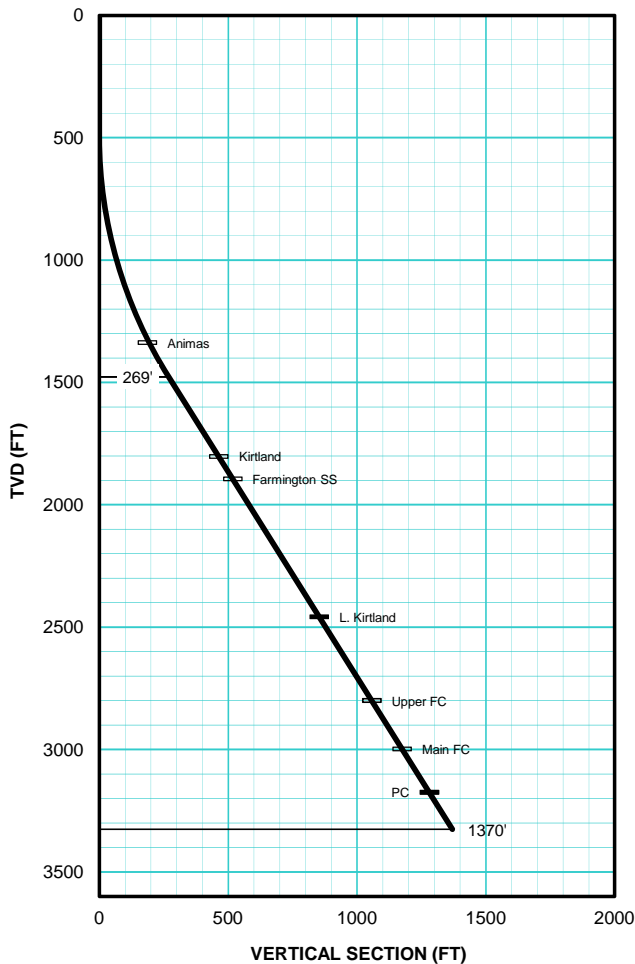
PBHL

### ESTIMATED FORMATION TOP DETAILS

Formation	TVD Path	MD Path	+N/-S	+E/-W
Animas	1338.00	1363.79	120.27	141.91
Kirtland Shale	1803.00	1905.04	299.34	353.21
Farmington Sandstone	1895.00	2012.12	334.77	395.02
Lower Kirtland Shale	2459.00	2668.59	551.97	651.31
Upper Fruitland Coal	2801.00	3066.67	683.68	806.72
Main Fruitland Coal	2999.00	3297.13	759.93	896.70
Pictured Cliffs	3176.00	3503.15	828.09	977.13

GL: 6710'

KB: 6721'



# Hahn 3, Plan 1

<b>Operator</b>	Catamount Energy Partners	<b>Units</b>	feet, °/100ft	10:05 Tuesday, August 15, 2017	Page 1 of 3
<b>Field</b>	Ignacio Blanco	<b>County</b>	La Plata	<b>Vertical Section Azimuth</b>	49.71
<b>Well Name</b>	Hahn 3	<b>State</b>	CO	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>		<b>Database</b>	Access

<b>Location</b>	1058 FSL & 1703 FEL	<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>	Sec 15 T33N R8W	<b>Surface X</b>		<b>Surface Long</b>	37.09962
<b>Slot Name</b>		<b>Surface Y</b>		<b>Surface Lat</b>	-107.70157
<b>Well Number</b>		<b>Surface Z</b>		<b>Global Z Ref</b>	Mean Sea Level
<b>Project</b>		<b>Ground Level</b>	6710	<b>Local North Ref</b>	Grid
	<b>UWI</b>				
	<b>API</b>				
	<b>MD/TVD Ref</b>	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	
*** KOP (at MD = 500.00)										
500.00	0.00	0.0	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
550.00	1.50	49.7	549.99	0.42	0.50	3.00	0.65	0.00	0.00	
600.00	3.00	49.7	599.95	1.69	2.00	3.00	2.62	0.00	0.00	
650.00	4.50	49.7	649.85	3.81	4.49	3.00	5.89	0.00	0.00	
700.00	6.00	49.7	699.63	6.77	7.98	3.00	10.46	0.00	0.00	
750.00	7.50	49.7	749.29	10.57	12.46	3.00	16.34	0.00	0.00	
800.00	9.00	49.7	798.77	15.21	17.93	3.00	23.51	0.00	0.00	
850.00	10.50	49.7	848.04	20.68	24.39	3.00	31.98	0.00	0.00	
900.00	12.00	49.7	897.08	26.99	31.83	3.00	41.74	0.00	0.00	
950.00	13.50	49.7	945.85	34.13	40.25	3.00	52.77	0.00	0.00	
1000.00	15.00	49.7	994.31	42.08	49.64	3.00	65.08	0.00	0.00	
1050.00	16.50	49.7	1042.43	50.86	59.99	3.00	78.65	0.00	0.00	
1100.00	18.00	49.7	1090.18	60.45	71.30	3.00	93.48	0.00	0.00	
1150.00	19.50	49.7	1137.52	70.84	83.56	3.00	109.55	0.00	0.00	
1200.00	21.00	49.7	1184.43	82.03	96.76	3.00	126.85	0.00	0.00	
1250.00	22.50	49.7	1230.87	94.02	110.89	3.00	145.38	0.00	0.00	
1300.00	24.00	49.7	1276.81	106.78	125.94	3.00	165.12	0.00	0.00	
1350.00	25.50	49.7	1322.22	120.32	141.91	3.00	186.05	0.00	0.00	
1400.00	27.00	49.7	1367.06	134.62	158.78	3.00	208.16	0.00	0.00	
1450.00	28.50	49.7	1411.31	149.67	176.53	3.00	231.44	0.00	0.00	
1500.00	30.00	49.7	1454.93	165.47	195.17	3.00	255.87	0.00	0.00	
1525.91	30.78	49.7	1477.28	173.95	205.16	3.00	268.98	0.00	0.00	
1550.00	30.78	49.7	1497.98	181.92	214.57	0.00	281.31	0.00	0.00	
1600.00	30.78	49.7	1540.94	198.47	234.08	0.00	306.89	0.00	0.00	
1650.00	30.78	49.7	1583.89	215.01	253.60	0.00	332.48	0.00	0.00	
1700.00	30.78	49.7	1626.85	231.56	273.11	0.00	358.06	0.00	0.00	

# Hahn 3, Plan 1

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<b>Field</b>	Ignacio Blanco	<b>County</b>	La Plata	<b>Vertical Section Azimuth</b>	49.71
<b>Well Name</b>	Hahn 3	<b>State</b>	CO	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>		<b>Database</b>	Access

<b>Location</b>	1058 FSL & 1703 FEL	<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>	Sec 15 T33N R8W	<b>Surface X</b>		<b>Surface Long</b>	37.09962
<b>Slot Name</b>		<b>Surface Y</b>		<b>Surface Lat</b>	-107.70157
<b>Well Number</b>		<b>Surface Z</b>		<b>Global Z Ref</b>	Mean Sea Level
<b>Project</b>		<b>Ground Level</b>	6710	<b>Local North Ref</b>	Grid
	<b>UWI</b>				
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	<b>MD/TVD Ref</b>	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
1750.00	30.78	49.7	1669.81	248.10	292.63	0.00	383.65	0.00	0.00	
1800.00	30.78	49.7	1712.77	264.65	312.14	0.00	409.23	0.00	0.00	
1850.00	30.78	49.7	1755.73	281.19	331.66	0.00	434.82	0.00	0.00	
1900.00	30.78	49.7	1798.68	297.74	351.17	0.00	460.40	0.00	0.00	
1950.00	30.78	49.7	1841.64	314.29	370.69	0.00	485.99	0.00	0.00	
2000.00	30.78	49.7	1884.60	330.83	390.20	0.00	511.57	0.00	0.00	
2050.00	30.78	49.7	1927.56	347.38	409.72	0.00	537.16	0.00	0.00	
2100.00	30.78	49.7	1970.52	363.92	429.23	0.00	562.74	0.00	0.00	
2150.00	30.78	49.7	2013.47	380.47	448.75	0.00	588.33	0.00	0.00	
2200.00	30.78	49.7	2056.43	397.01	468.26	0.00	613.91	0.00	0.00	
2250.00	30.78	49.7	2099.39	413.56	487.78	0.00	639.50	0.00	0.00	
2300.00	30.78	49.7	2142.35	430.11	507.29	0.00	665.08	0.00	0.00	
2350.00	30.78	49.7	2185.31	446.65	526.81	0.00	690.67	0.00	0.00	
2400.00	30.78	49.7	2228.27	463.20	546.32	0.00	716.25	0.00	0.00	
2450.00	30.78	49.7	2271.22	479.74	565.84	0.00	741.84	0.00	0.00	
2500.00	30.78	49.7	2314.18	496.29	585.35	0.00	767.42	0.00	0.00	
2550.00	30.78	49.7	2357.14	512.83	604.87	0.00	793.01	0.00	0.00	
2600.00	30.78	49.7	2400.10	529.38	624.38	0.00	818.59	0.00	0.00	
2650.00	30.78	49.7	2443.06	545.93	643.90	0.00	844.18	0.00	0.00	
2700.00	30.78	49.7	2486.01	562.47	663.41	0.00	869.76	0.00	0.00	
2750.00	30.78	49.7	2528.97	579.02	682.93	0.00	895.35	0.00	0.00	
2800.00	30.78	49.7	2571.93	595.56	702.44	0.00	920.93	0.00	0.00	
2850.00	30.78	49.7	2614.89	612.11	721.96	0.00	946.52	0.00	0.00	
2900.00	30.78	49.7	2657.85	628.65	741.47	0.00	972.10	0.00	0.00	
2950.00	30.78	49.7	2700.81	645.20	760.99	0.00	997.69	0.00	0.00	
3000.00	30.78	49.7	2743.76	661.75	780.50	0.00	1023.27	0.00	0.00	
3050.00	30.78	49.7	2786.72	678.29	800.02	0.00	1048.86	0.00	0.00	
3100.00	30.78	49.7	2829.68	694.84	819.53	0.00	1074.44	0.00	0.00	
3150.00	30.78	49.7	2872.64	711.38	839.05	0.00	1100.03	0.00	0.00	
3200.00	30.78	49.7	2915.60	727.93	858.56	0.00	1125.61	0.00	0.00	
3250.00	30.78	49.7	2958.55	744.47	878.08	0.00	1151.20	0.00	0.00	
3300.00	30.78	49.7	3001.51	761.02	897.59	0.00	1176.79	0.00	0.00	
3350.00	30.78	49.7	3044.47	777.57	917.11	0.00	1202.37	0.00	0.00	
3400.00	30.78	49.7	3087.43	794.11	936.62	0.00	1227.96	0.00	0.00	
3450.00	30.78	49.7	3130.39	810.66	956.14	0.00	1253.54	0.00	0.00	
3500.00	30.78	49.7	3173.34	827.20	975.65	0.00	1279.13	0.00	0.00	
3550.00	30.78	49.7	3216.30	843.75	995.17	0.00	1304.71	0.00	0.00	

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<b>Slot Name</b>		<b>Surface Y</b>		<b>Surface Lat</b>	-107.70157
<b>Well Number</b>		<b>Surface Z</b>		<b>Global Z Ref</b>	Mean Sea Level
<b>Project</b>		<b>Ground Level</b>	6710	<b>Local North Ref</b>	Grid
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	<b>MD/TVD Ref</b>	KB			

## DIRECTIONAL WELL PLAN

<b>MD*</b>	<b>INC*</b>	<b>AZI*</b>	<b>TVD*</b>	<b>N*</b>	<b>E*</b>	<b>DLS*</b>	<b>V. S.*</b>	<b>MapE*</b>	<b>MapN*</b>	<b>SysTVD*</b>
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
3600.00	30.78	49.7	3259.26	860.29	1014.68	0.00	1330.30	0.00	0.00	
3650.00	30.78	49.7	3302.22	876.84	1034.20	0.00	1355.88	0.00	0.00	
3677.68	30.78	49.7	3326.00	886.00	1045.00	0.00	1370.04	0.00	0.00	