

# **Catamount Energy Partners**

**San Juan Basin  
Archuleta County CO  
Lamke 33-5-29 #1**

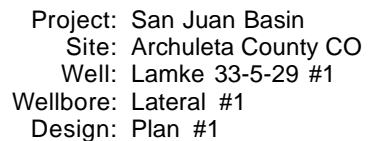
**Lateral #1**

**Plan: Plan #1**

## **Standard Planning Report**

**14 December, 2015**





Ground Level: 6118.99

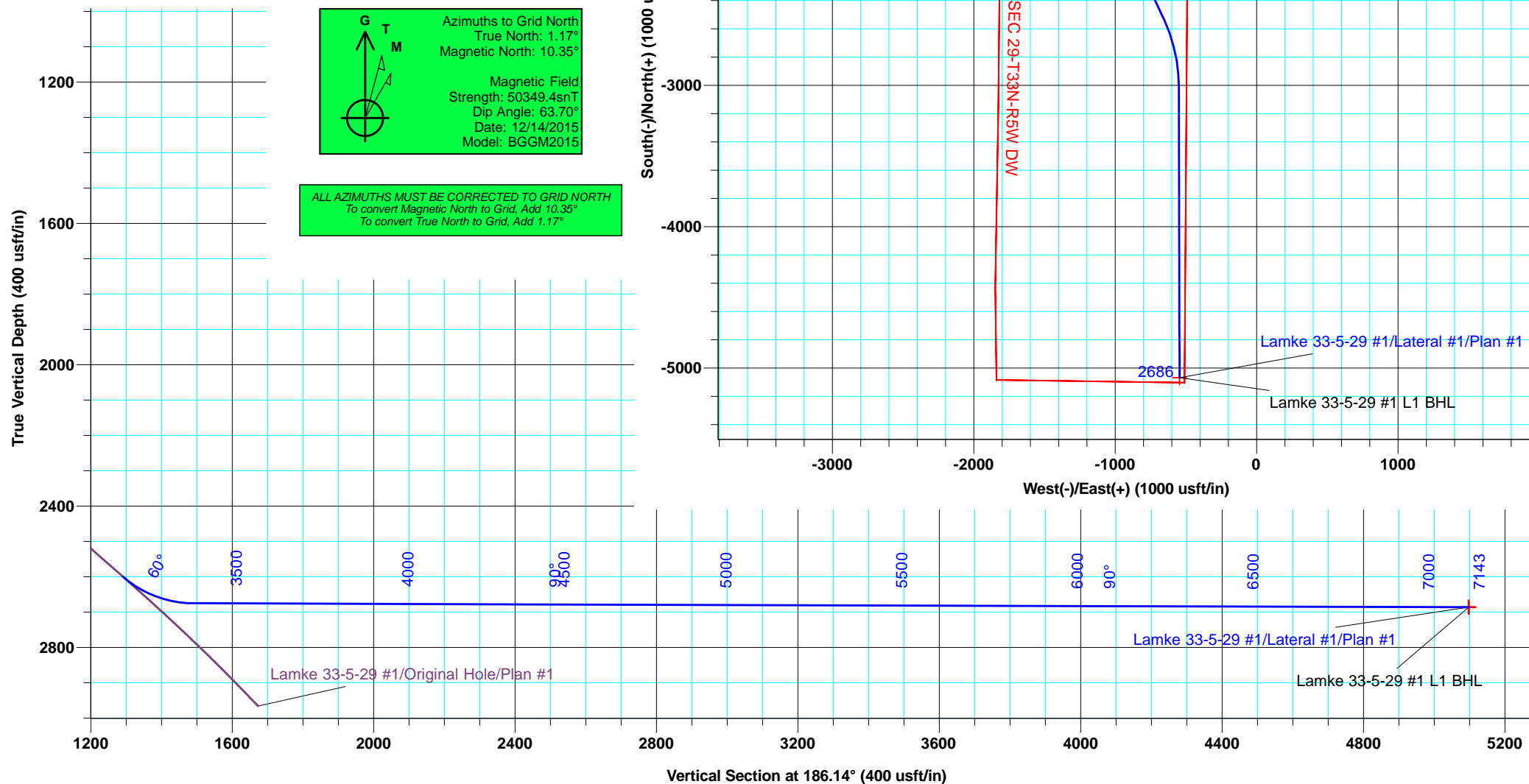
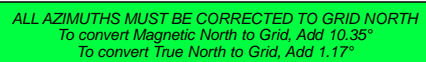
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1152541.71	2443521.11	37° 4' 11.971 N	107° 24' 26.481 W

Site Centre Northing: 1152541.71

Easting: 2443521.11  
 Positional Uncertainty: 0.00  
 Local North: Grid

## Geodetic System: US State Plane 1983

Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Southern Zone  
System Datum: Mean Sea Level



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #1		

<b>Project</b>	San Juan Basin, Southern Colorado, Fruitland Coal HZ		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Southern Zone		Using geodetic scale factor

<b>Site</b>	Archuleta County CO		
<b>Site Position:</b>		<b>Northing:</b>	1,152,541.71 usft
<b>From:</b>	Map	<b>Easting:</b>	2,443,521.11 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	6-1/8 "
		<b>Latitude:</b>	37° 4' 11.971 N
		<b>Longitude:</b>	107° 24' 26.481 W
		<b>Grid Convergence:</b>	-1.17 °

<b>Well</b>	Lamke 33-5-29 #1, Multi HZ FC Well		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 1,152,541.71 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 2,443,521.11 usft
<b>Position Uncertainty</b>		1.00 usft	<b>Wellhead Elevation:</b> 6,129.99 usft
			<b>Ground Level:</b> 6,118.99 usft

<b>Wellbore</b>	Lateral #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2015	12/14/2015	9.18	63.70	50,349

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	3,189.99	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	186.14	

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
3,189.99	49.74	200.00	2,599.85	-1,201.27	-908.47	0.00	0.00	0.00	0.00	
3,409.90	89.83	180.13	2,674.97	-1,399.92	-938.93	20.00	18.23	-9.03	-29.30	
3,509.90	89.83	180.13	2,675.26	-1,499.92	-939.16	0.00	0.00	0.00	0.00	
4,359.89	89.83	154.63	2,677.79	-2,322.56	-755.03	3.00	0.00	-3.00	-90.00	
4,579.89	89.83	154.63	2,678.44	-2,521.34	-660.78	0.00	0.00	0.00	0.00	
5,084.35	89.83	179.86	2,679.95	-3,009.38	-550.30	5.00	0.00	5.00	90.03	
7,143.35	89.83	179.86	2,685.99	-5,068.37	-545.12	0.00	0.00	0.00	0.00	Lamke 33-5-29 #1

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	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
100.00	0.00	360.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	360.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	360.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	360.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
440.00	0.00	360.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	1.80	219.18	499.99	-0.73	-0.60	0.79	3.00	3.00	0.00
600.00	4.80	219.18	599.81	-5.19	-4.23	5.62	3.00	3.00	0.00
700.00	7.80	219.18	699.20	-13.70	-11.16	14.81	3.00	3.00	0.00
800.00	10.80	219.18	797.87	-26.22	-21.37	28.36	3.00	3.00	0.00
900.00	13.80	219.18	895.57	-42.74	-34.83	46.22	3.00	3.00	0.00
1,000.00	16.80	219.18	992.01	-63.19	-51.49	68.34	3.00	3.00	0.00
1,100.00	19.80	219.18	1,086.94	-87.53	-71.33	94.65	3.00	3.00	0.00
1,200.00	22.80	219.18	1,180.10	-115.69	-94.27	125.10	3.00	3.00	0.00
1,300.00	25.80	219.18	1,271.23	-147.58	-120.26	159.60	3.00	3.00	0.00
1,400.00	28.80	219.18	1,360.08	-183.13	-149.23	198.04	3.00	3.00	0.00
1,500.00	31.80	219.18	1,446.41	-222.24	-181.10	240.33	3.00	3.00	0.00
1,600.00	34.80	219.18	1,529.98	-264.80	-215.78	286.35	3.00	3.00	0.00
1,700.00	37.80	219.18	1,610.57	-310.69	-253.17	335.98	3.00	3.00	0.00
1,800.00	40.80	219.18	1,687.94	-359.78	-293.18	389.07	3.00	3.00	0.00
1,900.00	43.80	219.18	1,761.90	-411.95	-335.68	445.48	3.00	3.00	0.00
2,000.00	46.80	219.18	1,832.23	-467.05	-380.58	505.07	3.00	3.00	0.00
2,108.74	50.06	219.18	1,904.37	-530.11	-431.97	573.26	3.00	3.00	0.00
2,200.00	50.06	219.18	1,962.95	-584.35	-476.17	631.92	0.00	0.00	0.00
2,300.00	50.06	219.18	2,027.15	-643.79	-524.60	696.20	0.00	0.00	0.00
2,400.00	50.06	219.18	2,091.34	-703.23	-573.04	760.47	0.00	0.00	0.00
2,500.00	50.06	219.18	2,155.54	-762.67	-621.47	824.75	0.00	0.00	0.00
2,600.00	50.06	219.18	2,219.73	-822.10	-669.91	889.03	0.00	0.00	0.00
2,700.00	50.06	219.18	2,283.93	-881.54	-718.34	953.31	0.00	0.00	0.00
2,790.76	50.06	219.18	2,342.19	-935.49	-762.30	1,011.64	0.00	0.00	0.00
2,800.00	50.02	218.70	2,348.13	-941.00	-766.75	1,017.60	4.00	-0.42	-5.19
2,900.00	49.73	213.48	2,412.60	-1,002.75	-811.77	1,083.81	4.00	-0.29	-5.22
3,000.00	49.67	208.23	2,477.30	-1,068.18	-850.86	1,153.04	4.00	-0.06	-5.24
3,100.00	49.85	203.00	2,541.92	-1,136.97	-883.84	1,224.97	4.00	0.18	-5.24
3,157.61	50.06	200.00	2,578.99	-1,178.00	-900.00	1,267.49	4.00	0.36	-5.20
3,189.99	49.74	200.00	2,599.85	-1,201.27	-908.47	1,291.53	1.00	-1.00	0.00
3,200.00	51.49	198.75	2,606.20	-1,208.57	-911.03	1,299.06	20.00	17.51	-12.51
3,225.00	55.92	195.87	2,621.00	-1,227.80	-917.01	1,318.82	20.00	17.72	-11.51
3,250.00	60.41	193.28	2,634.19	-1,248.35	-922.34	1,339.83	20.00	17.96	-10.36
3,275.00	64.94	190.91	2,645.66	-1,270.06	-926.99	1,361.91	20.00	18.15	-9.47
SEC 29-T33N-R5W DW									
3,300.00	69.52	188.71	2,655.34	-1,292.77	-930.91	1,384.91	20.00	18.28	-8.79
3,325.00	74.11	186.64	2,663.14	-1,316.30	-934.07	1,408.64	20.00	18.39	-8.28
3,350.00	78.73	184.67	2,669.00	-1,340.48	-936.46	1,432.93	20.00	18.46	-7.91
3,375.00	83.36	182.75	2,672.90	-1,365.11	-938.06	1,457.60	20.00	18.51	-7.66
3,400.00	87.99	180.87	2,674.78	-1,390.02	-938.85	1,482.45	20.00	18.54	-7.52
3,409.90	89.83	180.13	2,674.97	-1,399.92	-938.93	1,492.30	20.00	18.55	-7.47
3,509.90	89.83	180.13	2,675.26	-1,499.92	-939.16	1,591.75	0.00	0.00	0.00
3,600.00	89.83	177.43	2,675.53	-1,589.99	-937.25	1,681.10	3.00	0.00	-3.00
3,700.00	89.83	174.43	2,675.83	-1,689.73	-930.15	1,779.50	3.00	0.00	-3.00
3,800.00	89.83	171.43	2,676.13	-1,788.95	-917.85	1,876.85	3.00	0.00	-3.00
3,900.00	89.83	168.43	2,676.42	-1,887.40	-900.36	1,972.86	3.00	0.00	-3.00
4,000.00	89.83	165.43	2,676.72	-1,984.80	-877.75	2,067.28	3.00	0.00	-3.00
4,100.00	89.83	162.43	2,677.02	-2,080.88	-850.07	2,159.85	3.00	0.00	-3.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	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)	
4,200.00	89.83	159.43	2,677.31	-2,175.38	-817.40	2,250.32	3.00	0.00	-3.00	
4,300.00	89.83	156.43	2,677.61	-2,268.04	-779.84	2,338.43	3.00	0.00	-3.00	
4,359.89	89.83	154.63	2,677.79	-2,322.56	-755.03	2,389.98	3.00	0.00	-3.00	
4,400.00	89.83	154.63	2,677.91	-2,358.79	-737.85	2,424.17	0.00	0.00	0.00	
4,500.00	89.83	154.63	2,678.20	-2,449.15	-695.01	2,509.43	0.00	0.00	0.00	
4,579.89	89.83	154.63	2,678.44	-2,521.34	-660.78	2,577.55	0.00	0.00	0.00	
4,600.00	89.83	155.64	2,678.50	-2,539.59	-652.32	2,594.78	5.00	0.00	5.00	
4,700.00	89.83	160.64	2,678.80	-2,632.36	-615.10	2,683.05	5.00	0.00	5.00	
4,800.00	89.83	165.64	2,679.10	-2,728.03	-586.10	2,775.07	5.00	0.00	5.00	
4,900.00	89.83	170.64	2,679.40	-2,825.87	-565.56	2,870.14	5.00	0.00	5.00	
5,000.00	89.83	175.64	2,679.70	-2,925.12	-553.61	2,967.55	5.00	0.00	5.00	
5,084.35	89.83	179.86	2,679.95	-3,009.38	-550.30	3,050.97	5.00	0.00	5.00	
5,100.00	89.83	179.86	2,680.00	-3,025.03	-550.26	3,066.53	0.00	0.00	0.00	
5,200.00	89.83	179.86	2,680.29	-3,125.03	-550.01	3,165.93	0.00	0.00	0.00	
5,300.00	89.83	179.86	2,680.59	-3,225.03	-549.76	3,265.33	0.00	0.00	0.00	
5,400.00	89.83	179.86	2,680.88	-3,325.03	-549.50	3,364.73	0.00	0.00	0.00	
5,500.00	89.83	179.86	2,681.17	-3,425.03	-549.25	3,464.13	0.00	0.00	0.00	
5,600.00	89.83	179.86	2,681.47	-3,525.03	-549.00	3,563.53	0.00	0.00	0.00	
5,700.00	89.83	179.86	2,681.76	-3,625.03	-548.75	3,662.93	0.00	0.00	0.00	
5,800.00	89.83	179.86	2,682.05	-3,725.03	-548.50	3,762.32	0.00	0.00	0.00	
5,900.00	89.83	179.86	2,682.35	-3,825.03	-548.25	3,861.72	0.00	0.00	0.00	
6,000.00	89.83	179.86	2,682.64	-3,925.03	-548.00	3,961.12	0.00	0.00	0.00	
6,100.00	89.83	179.86	2,682.93	-4,025.03	-547.74	4,060.52	0.00	0.00	0.00	
6,200.00	89.83	179.86	2,683.23	-4,125.03	-547.49	4,159.92	0.00	0.00	0.00	
6,300.00	89.83	179.86	2,683.52	-4,225.03	-547.24	4,259.32	0.00	0.00	0.00	
6,400.00	89.83	179.86	2,683.81	-4,325.03	-546.99	4,358.72	0.00	0.00	0.00	
6,500.00	89.83	179.86	2,684.11	-4,425.02	-546.74	4,458.12	0.00	0.00	0.00	
6,600.00	89.83	179.86	2,684.40	-4,525.02	-546.49	4,557.52	0.00	0.00	0.00	
6,700.00	89.83	179.86	2,684.69	-4,625.02	-546.24	4,656.91	0.00	0.00	0.00	
6,800.00	89.83	179.86	2,684.99	-4,725.02	-545.98	4,756.31	0.00	0.00	0.00	
6,900.00	89.83	179.86	2,685.28	-4,825.02	-545.73	4,855.71	0.00	0.00	0.00	
7,000.00	89.83	179.86	2,685.57	-4,925.02	-545.48	4,955.11	0.00	0.00	0.00	
7,100.00	89.83	179.86	2,685.87	-5,025.02	-545.23	5,054.51	0.00	0.00	0.00	
7,143.35	89.83	179.86	2,685.99	-5,068.37	-545.12	5,097.60	0.00	0.00	0.00	
Lamke 33-5-29 #1 L1 BHL										

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Lateral #1		
<b>Design:</b>	Plan #1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
SEC 29-T33N-R5W D	0.00	360.00	2,578.99	-1,141.54	-1,806.09	1,151,400.13	2,441,714.96	37° 4' 0.321 N	107° 24' 48.472 W
- plan misses target center by 890.94usft at 3275.00usft MD (2645.66 TVD, -1270.06 N, -926.99 E)									
- Polygon									
Point 1			2,578.99	0.00	0.00	1,151,400.13	2,441,714.96		
Point 2			2,578.99	-31.36	1,322.57	1,151,368.76	2,443,037.58		
Point 3			2,578.99	-3,961.82	1,295.97	1,147,438.17	2,443,010.98		
Point 4			2,578.99	-3,942.44	-33.48	1,147,457.55	2,441,681.48		
Point 5			2,578.99	-3,286.32	-41.55	1,148,113.69	2,441,673.41		
Point 6			2,578.99	-2,013.39	-19.84	1,149,386.67	2,441,695.12		
Point 7			2,578.99	0.00	0.00	1,151,400.13	2,441,714.96		
Lamke 33-5-29 #1 L1	0.00	360.00	2,685.99	-5,068.37	-545.12	1,147,473.17	2,442,975.97	37° 3' 21.759 N	107° 24' 31.928 W
- plan hits target center									
- Point									