

# **Catamount Energy Partners**

**San Juan Basin  
La Plata County CO  
Lynch 34-6-18U #2**

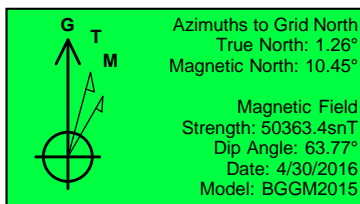
**Original Hole**

**Design: As Drilled**

## **Standard Survey Report**

**04 May, 2016**





Project: San Juan Basin  
 Site: La Plata County CO  
 Well: Lynch 34-6-18U #2  
 Wellbore: Original Hole  
 Design: As Drilled



### WELL DETAILS Lynch 34-6-18U #2

6858' GL + 11' DFE @ 6869.00usft (AWS 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1198427.65	2403023.83	37° 11' 37.064 N	107° 32' 58.450 W

### SITE DETAILS: La Plata County CO

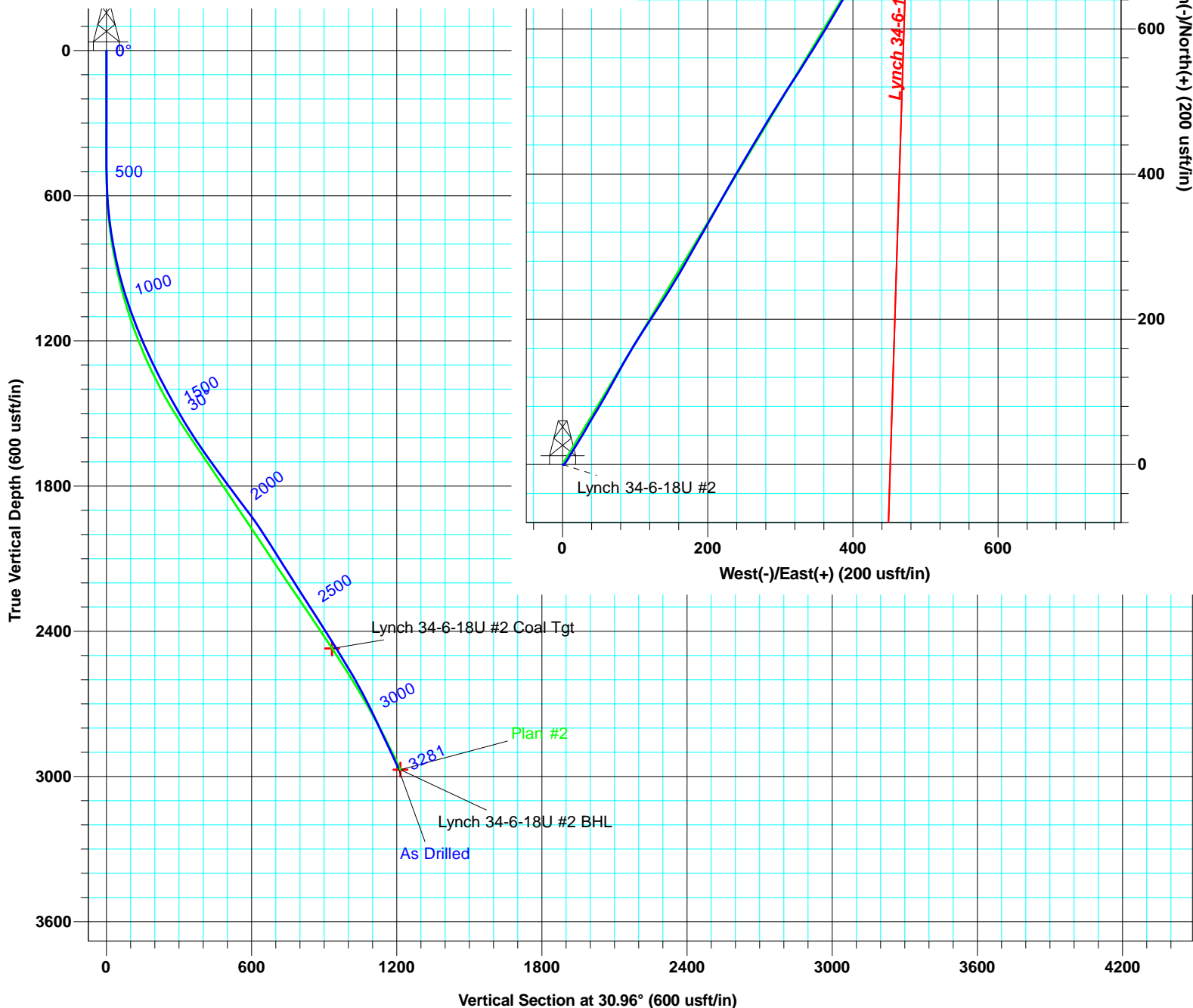
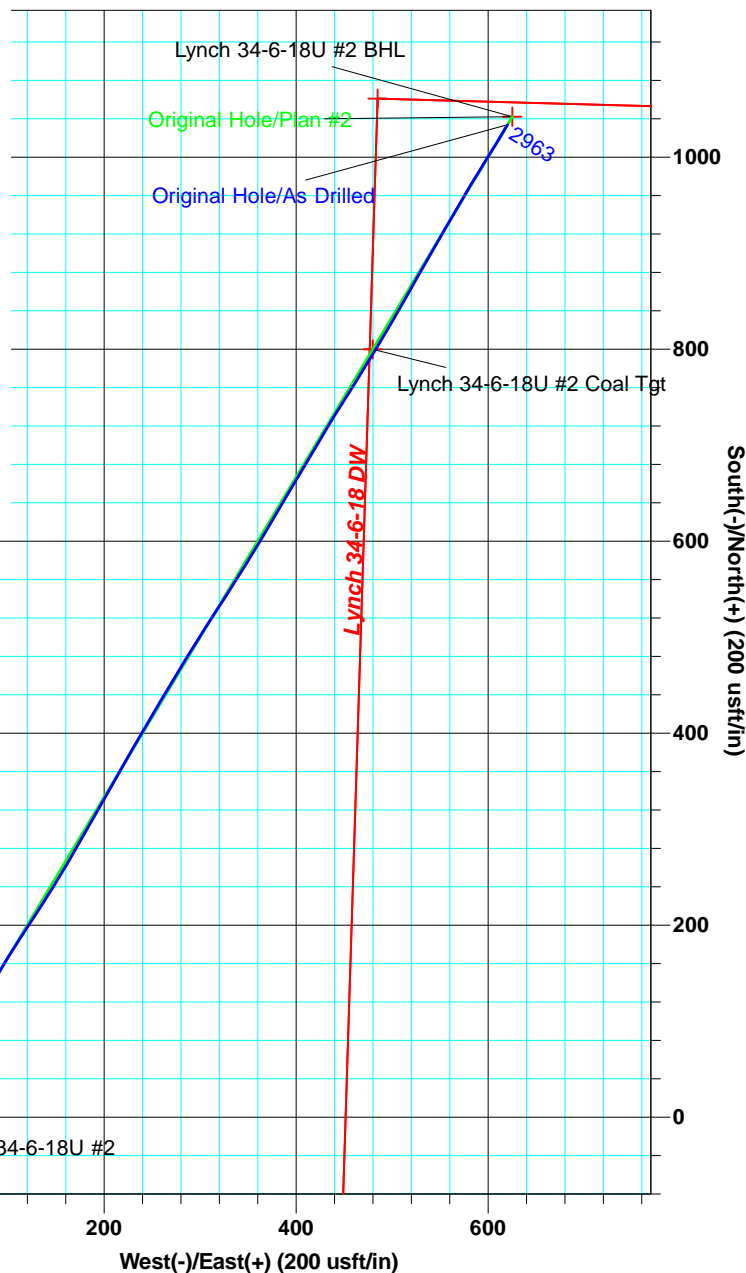
Site Centre Northing: 760788.19  
 Easting: 2556100.64  
 Positional Uncertainty: 0.00  
 Convergence: -0.92  
 Local North: Grid

### PROJECT DETAILS: San Juan Basin

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Southern Zone  
 System Datum: Mean Sea Level

**ALL AZIMUTHS MUST BE CORRECTED TO GRID NORTH**

To convert Magnetic North to Grid, Add 10.45°  
 To convert True North to Grid, Add 1.26°



## Survey Report



<b>Company:</b>	Catamount Energy Partners	<b>Local Co-ordinate Reference:</b>	Well Lynch 34-6-18U #2
<b>Project:</b>	San Juan Basin	<b>TVD Reference:</b>	6858' GL + 11' DFE @ 6869.00usft (AWS 507)
<b>Site:</b>	La Plata County CO	<b>MD Reference:</b>	6858' GL + 11' DFE @ 6869.00usft (AWS 507)
<b>Well:</b>	Lynch 34-6-18U #2	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Grand Junction District

<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>	La Plata County CO		
<b>Site Position:</b>		<b>Northing:</b>	760,788.19 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,556,100.64 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	6-1/8 "
		<b>Latitude:</b>	36° 0' 0.000 N
		<b>Longitude:</b>	107° 0' 0.000 W
		<b>Grid Convergence:</b>	-0.92 °

<b>Well</b>	Lynch 34-6-18U #2, FC HZ Well		
<b>Well Position</b>	<b>+N-S</b>	0.00 usft	<b>Northing:</b> 1,198,427.65 usft
	<b>+E-W</b>	0.00 usft	<b>Easting:</b> 2,403,023.83 usft
<b>Position Uncertainty</b>	1.50 usft	<b>Wellhead Elevation:</b>	usft
		<b>Latitude:</b>	37° 11' 37.064 N
		<b>Longitude:</b>	107° 32' 58.450 W
		<b>Ground Level:</b>	6,858.00 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2015	4/30/2016	9.20	63.77	50,363

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<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	30.96	

<b>Survey Program</b>	<b>Date</b> 5/4/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
452.00	3,281.00	SDI MWD (Original Hole)	MWD SDI	MWD - Standard ver 1.0.1

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
452.00	0.36	101.20	452.00	-0.28	1.39	0.48	0.08	0.08	0.00	
483.00	0.24	119.28	483.00	-0.33	1.55	0.51	0.49	-0.39	58.32	
514.00	0.77	54.35	514.00	-0.24	1.77	0.71	2.27	1.71	-209.45	
546.00	1.72	38.48	545.99	0.26	2.24	1.38	3.13	2.97	-49.59	
576.00	2.79	39.33	575.96	1.18	2.99	2.55	3.57	3.57	2.83	
607.00	3.49	37.78	606.92	2.51	4.04	4.23	2.27	2.26	-5.00	
639.00	4.63	34.34	638.84	4.35	5.37	6.49	3.64	3.56	-10.75	
669.00	5.73	32.12	668.71	6.62	6.85	9.20	3.73	3.67	-7.40	
699.00	6.62	30.42	698.54	9.38	8.52	12.42	3.03	2.97	-5.67	

## Survey Report



<b>Company:</b>	Catamount Energy Partners	<b>Local Co-ordinate Reference:</b>	Well Lynch 34-6-18U #2
<b>Project:</b>	San Juan Basin	<b>TVD Reference:</b>	6858' GL + 11' DFE @ 6869.00usft (AWS 507)
<b>Site:</b>	La Plata County CO	<b>MD Reference:</b>	6858' GL + 11' DFE @ 6869.00usft (AWS 507)
<b>Well:</b>	Lynch 34-6-18U #2	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Grand Junction District

## 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)
729.00	7.68	29.54	728.31	12.61	10.38	16.16	3.55	3.53	-2.93
761.00	8.78	30.34	759.98	16.58	12.67	20.74	3.46	3.44	2.50
792.00	9.81	31.81	790.57	20.87	15.26	25.74	3.41	3.32	4.74
822.00	10.56	32.57	820.10	25.35	18.09	31.05	2.54	2.50	2.53
852.00	11.47	32.30	849.54	30.19	21.16	36.78	3.04	3.03	-0.90
883.00	12.54	31.29	879.86	35.67	24.56	43.22	3.52	3.45	-3.26
915.00	13.65	29.82	911.03	41.92	28.24	50.47	3.62	3.47	-4.59
946.00	14.84	29.72	941.08	48.54	32.02	58.10	3.84	3.84	-0.32
976.00	15.98	30.02	970.00	55.45	36.00	66.07	3.81	3.80	1.00
1,007.00	17.10	30.50	999.72	63.07	40.44	74.89	3.64	3.61	1.55
1,038.00	17.92	30.99	1,029.28	71.09	45.21	84.22	2.69	2.65	1.58
1,070.00	18.97	31.05	1,059.63	79.77	50.43	94.34	3.28	3.28	0.19
1,101.00	19.79	30.41	1,088.88	88.61	55.69	104.63	2.73	2.65	-2.06
1,133.00	20.78	29.42	1,118.89	98.22	61.22	115.72	3.27	3.09	-3.09
1,164.00	21.94	29.00	1,147.76	108.08	66.72	127.01	3.77	3.74	-1.35
1,196.00	23.03	28.77	1,177.33	118.80	72.64	139.24	3.42	3.41	-0.72
1,227.00	23.85	28.79	1,205.77	129.60	78.57	151.56	2.65	2.65	0.06
1,258.00	24.43	29.35	1,234.06	140.68	84.73	164.23	2.01	1.87	1.81
1,290.00	25.13	30.42	1,263.11	152.31	91.42	177.64	2.60	2.19	3.34
1,322.00	25.77	31.88	1,292.01	164.08	98.53	191.39	2.80	2.00	4.56
1,354.00	25.84	32.21	1,320.82	175.89	105.92	205.32	0.50	0.22	1.03
1,385.00	26.61	32.70	1,348.63	187.44	113.27	219.01	2.58	2.48	1.58
1,417.00	27.43	33.05	1,377.13	199.65	121.17	233.54	2.61	2.56	1.09
1,448.00	28.11	33.25	1,404.56	211.75	129.06	247.97	2.21	2.19	0.65
1,480.00	28.55	32.71	1,432.73	224.48	137.33	263.15	1.59	1.38	-1.69
1,512.00	29.44	31.59	1,460.72	237.62	145.58	278.66	3.26	2.78	-3.50
1,543.00	30.08	30.97	1,487.63	250.77	153.57	294.04	2.29	2.06	-2.00
1,575.00	30.70	30.51	1,515.23	264.68	161.84	310.23	2.07	1.94	-1.44
1,638.00	32.61	29.56	1,568.86	293.31	178.39	343.29	3.13	3.03	-1.51
1,732.00	34.52	29.68	1,647.18	338.48	204.07	395.24	2.03	2.03	0.13
1,795.00	35.80	29.44	1,698.69	370.04	221.97	431.51	2.04	2.03	-0.38
1,826.00	36.07	29.84	1,723.79	385.85	230.97	449.70	1.15	0.87	1.29
1,857.00	36.18	30.33	1,748.83	401.67	240.13	467.97	1.00	0.35	1.58
1,889.00	36.29	30.97	1,774.64	417.94	249.77	486.89	1.23	0.34	2.00
1,919.00	36.54	30.67	1,798.78	433.23	258.89	504.69	1.02	0.83	-1.00
1,981.00	36.70	30.73	1,848.54	465.03	277.78	541.68	0.26	0.26	0.10
2,013.00	37.10	31.87	1,874.13	481.45	287.76	560.89	2.48	1.25	3.56
2,044.00	37.14	32.28	1,898.85	497.30	297.69	579.59	0.81	0.13	1.32
2,076.00	36.35	32.69	1,924.49	513.45	307.97	598.73	2.58	-2.47	1.28
2,107.00	35.32	32.60	1,949.62	528.73	317.76	616.87	3.33	-3.32	-0.29
2,138.00	33.77	32.48	1,975.16	543.55	327.22	634.44	5.00	-5.00	-0.39
2,169.00	32.89	32.53	2,001.06	557.92	336.37	651.47	2.84	-2.84	0.16
2,201.00	32.45	31.97	2,027.99	572.52	345.59	668.74	1.67	-1.38	-1.75
2,232.00	32.22	31.44	2,054.19	586.63	354.30	685.32	1.18	-0.74	-1.71

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<b>Site:</b>	La Plata County CO	<b>MD Reference:</b>	6858' GL + 11' DFE @ 6869.00usft (AWS 507)
<b>Well:</b>	Lynch 34-6-18U #2	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Grand Junction District

## 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)
2,263.00	32.01	30.96	2,080.44	600.73	362.84	701.80	1.07	-0.68	-1.55
2,295.00	32.56	30.63	2,107.50	615.41	371.59	718.89	1.80	1.72	-1.03
2,326.00	32.49	30.42	2,133.63	629.77	380.06	735.56	0.43	-0.23	-0.68
2,358.00	32.57	30.05	2,160.61	644.63	388.72	752.76	0.67	0.25	-1.16
2,390.00	32.38	30.77	2,187.61	659.45	397.42	769.95	1.35	-0.59	2.25
2,421.00	32.33	31.20	2,213.80	673.67	405.96	786.54	0.76	-0.16	1.39
2,452.00	32.81	30.86	2,239.92	687.97	414.56	803.22	1.66	1.55	-1.10
2,484.00	32.90	30.54	2,266.80	702.90	423.43	820.58	0.61	0.28	-1.00
2,514.00	32.88	30.40	2,292.00	716.94	431.69	836.87	0.26	-0.07	-0.47
2,545.00	32.49	31.67	2,318.09	731.29	440.32	853.61	2.54	-1.26	4.10
2,576.00	32.57	32.32	2,344.22	745.42	449.15	870.28	1.16	0.26	2.10
2,607.00	32.32	32.21	2,370.38	759.49	458.03	886.91	0.83	-0.81	-0.35
2,638.00	32.34	31.74	2,396.58	773.55	466.81	903.48	0.81	0.06	-1.52
2,669.00	32.02	31.37	2,422.82	787.62	475.45	919.99	1.21	-1.03	-1.19
2,700.00	32.14	30.97	2,449.08	801.71	483.97	936.46	0.79	0.39	-1.29
2,731.00	31.67	30.79	2,475.40	815.77	492.38	952.84	1.55	-1.52	-0.58
2,763.00	31.52	30.27	2,502.66	830.21	500.89	969.61	0.97	-0.47	-1.63
2,794.00	31.40	29.58	2,529.10	844.23	508.96	985.78	1.22	-0.39	-2.23
2,826.00	31.31	29.04	2,556.43	858.75	517.12	1,002.43	0.92	-0.28	-1.69
2,858.00	29.99	29.88	2,583.96	872.95	525.14	1,018.73	4.34	-4.13	2.63
2,889.00	28.97	29.95	2,610.94	886.18	532.74	1,033.98	3.29	-3.29	0.23
2,921.00	28.45	29.30	2,639.01	899.54	540.34	1,049.35	1.90	-1.63	-2.03
2,953.00	27.93	30.52	2,667.21	912.64	547.88	1,064.47	2.43	-1.63	3.81
2,984.00	27.08	30.58	2,694.71	924.97	555.16	1,078.78	2.74	-2.74	0.19
3,016.00	26.09	29.86	2,723.32	937.34	562.37	1,093.10	3.25	-3.09	-2.25
3,048.00	25.38	29.04	2,752.15	949.44	569.20	1,106.99	2.48	-2.22	-2.56
3,079.00	25.07	30.35	2,780.19	960.92	575.74	1,120.20	2.06	-1.00	4.23
3,110.00	25.06	31.63	2,808.28	972.18	582.50	1,133.33	1.75	-0.03	4.13
3,141.00	25.22	31.64	2,836.34	983.39	589.41	1,146.50	0.52	0.52	0.03
3,172.00	25.20	31.67	2,864.39	994.63	596.34	1,159.70	0.08	-0.06	0.10
3,224.00	24.83	31.23	2,911.51	1,013.39	607.81	1,181.69	0.80	-0.71	-0.85
3,281.00	24.83	31.23	2,963.24	1,033.85	620.22	1,205.63	0.00	0.00	0.00

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<b>Well:</b>	Lynch 34-6-18U #2	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Grand Junction District

## Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Lynch 34-6-18U #2 C	0.00	360.00	2,471.01	800.00	480.00	1,199,227.65	2,403,503.84	37° 11' 45.075 N	107° 32' 52.736 W
- actual wellpath misses target center by 14.81usft at 2716.76usft MD (2463.30 TVD, 809.33 N, 488.53 E)									
- Point									
Lynch 34-6-18U #2 B	0.00	360.00	2,972.01	1,042.27	625.36	1,199,469.93	2,403,649.20	37° 11' 47.502 N	107° 32' 51.005 W
- actual wellpath misses target center by 13.20usft at 3281.00usft MD (2963.24 TVD, 1033.85 N, 620.22 E)									
- Point									

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_