



Catamount Energy Partners

**San Juan Basin
La Plata County CO
Elsa 34-6-19 #1**

Lateral #1

Plan: Plan #2

Standard Planning Report

22 May, 2016



WELL DETAILS

Elsa 34-6-19 #1

AWS 507 @ 6981.00usft (6970' GL + 11' KB)

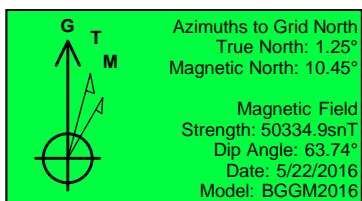
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1190683.53	2407471.06	37° 10' 21.477 N	107° 32' 1.417 W

SITE DETAILS:

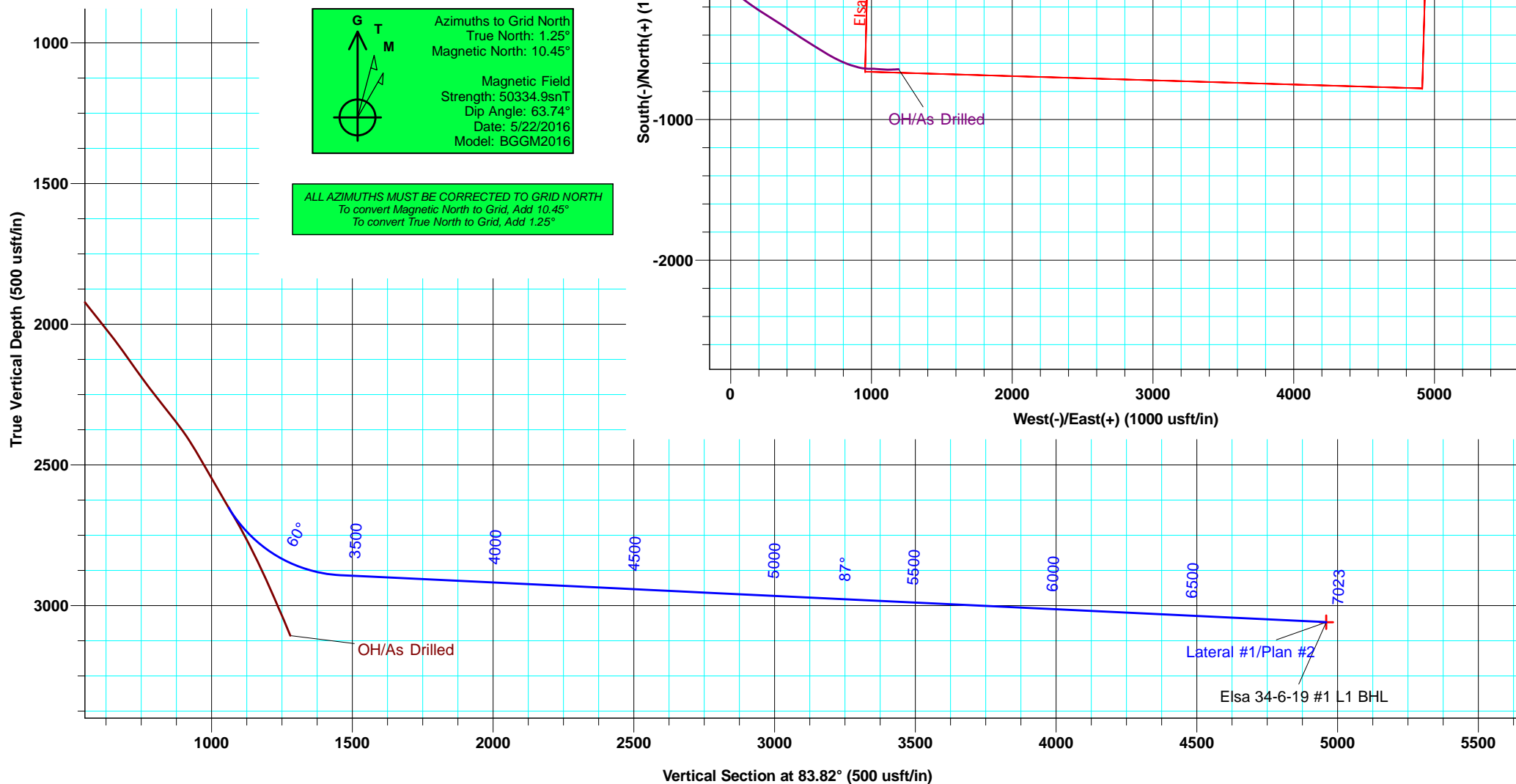
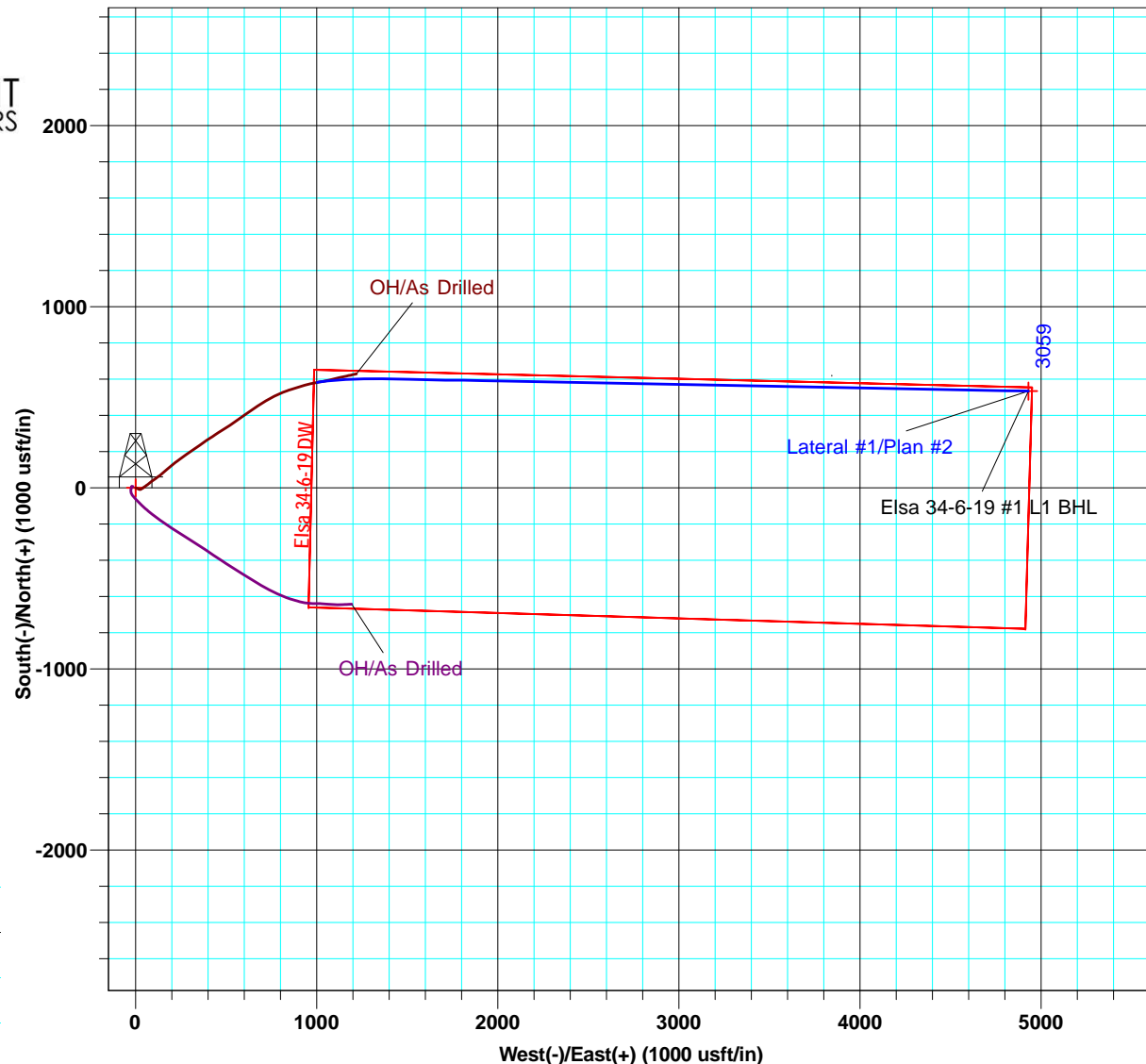
La Plata County CO
Site Centre Northing: 760788.19
Easting: 2556100.64
Positional Uncertainty: 0.00
Local North: Grid

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 1.25°



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Elsa 34-6-19 #1
Company:	Catamount Energy Partners	TVD Reference:	AWS 507 @ 6981.00usft (6970' GL + 11' KB)
Project:	San Juan Basin	MD Reference:	AWS 507 @ 6981.00usft (6970' GL + 11' KB)
Site:	La Plata County CO	North Reference:	Grid
Well:	Elsa 34-6-19 #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Plan #2		

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

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

Well	Elsa 34-6-19 #1, Pilot Hole Multi Lat CBM Well		
Well Position	+N-S 429,701.28 usft	Northing:	1,190,683.53 usft
	+E-W -148,562.50 usft	Easting:	2,407,471.06 usft
Position Uncertainty	1.50 usft	Wellhead Elevation:	0.00 usft
		Latitude:	37° 10' 21.477 N
		Longitude:	107° 32' 1.417 W
		Ground Level:	6,969.99 usft

Wellbore	Lateral #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	5/22/2016	9.20	63.74	50,335

Design	Plan #2		
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Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 3,004.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)
	0.00	0.00	0.00
			Direction (°) 83.82

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
3,004.00	30.70	79.72	2,651.57	582.00	1,004.01	0.00	0.00	0.00	0.00	
3,489.38	87.29	91.09	2,892.08	601.12	1,402.02	11.80	11.66	2.34	13.54	
7,022.64	87.29	91.09	3,059.00	533.80	4,930.69	0.00	0.00	0.00	0.00	Elsa 34-6-19 #1 L1

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Site:	La Plata County CO	North Reference:	Grid
Well:	Elsa 34-6-19 #1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
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
500.01	3.80	112.69	499.65	-6.39	15.29	14.52	0.76	0.76	0.00
515.01	4.02	110.79	514.61	-6.77	16.24	15.42	1.70	1.47	-12.67
546.01	4.08	111.97	545.54	-7.57	18.28	17.36	0.33	0.19	3.81
577.01	4.12	106.34	576.46	-8.30	20.37	19.36	1.30	0.13	-18.16
608.01	4.35	100.85	607.37	-8.83	22.60	21.51	1.50	0.74	-17.71
640.01	4.10	90.40	639.28	-9.07	24.93	23.81	2.53	-0.78	-32.66
671.01	4.56	73.55	670.20	-8.73	27.22	26.12	4.34	1.48	-54.35
701.01	5.36	65.26	700.09	-7.80	29.64	28.63	3.57	2.67	-27.63
733.01	6.21	60.12	731.92	-6.31	32.50	31.63	3.11	2.66	-16.06
765.01	7.41	57.55	763.70	-4.34	35.74	35.06	3.87	3.75	-8.03
795.01	8.20	56.32	793.42	-2.12	39.15	38.70	2.69	2.63	-4.10
825.01	9.16	53.26	823.07	0.49	42.85	42.65	3.55	3.20	-10.20
857.01	10.18	53.18	854.62	3.71	47.15	47.28	3.19	3.19	-0.25
888.01	11.44	52.73	885.07	7.22	51.79	52.27	4.07	4.06	-1.45
919.01	12.52	54.21	915.39	11.04	56.96	57.82	3.62	3.48	4.77
950.01	13.24	54.20	945.61	15.09	62.57	63.83	2.32	2.32	-0.03
980.01	14.16	52.44	974.76	19.33	68.26	69.95	3.37	3.07	-5.87
1,010.01	15.20	51.38	1,003.78	24.02	74.24	76.40	3.58	3.47	-3.53
1,041.01	16.01	52.78	1,033.64	29.15	80.82	83.49	2.88	2.61	4.52
1,072.01	16.87	52.13	1,063.37	34.49	87.78	90.98	2.84	2.77	-2.10
1,103.01	17.94	54.13	1,092.95	40.05	95.20	98.96	3.95	3.45	6.45
1,133.01	19.31	55.19	1,121.38	45.59	103.02	107.32	4.70	4.57	3.53
1,165.01	20.08	55.09	1,151.51	51.76	111.86	116.79	2.41	2.41	-0.31
1,197.01	21.46	53.84	1,181.43	58.35	121.10	126.67	4.53	4.31	-3.91
1,228.01	23.01	53.15	1,210.12	65.33	130.52	136.80	5.07	5.00	-2.23
1,259.01	24.84	50.82	1,238.45	73.08	140.42	147.47	6.64	5.90	-7.52
1,291.01	25.69	49.31	1,267.39	81.85	150.89	158.82	3.33	2.66	-4.72
1,322.01	26.47	48.65	1,295.24	90.80	161.17	170.01	2.68	2.52	-2.13
1,353.01	27.32	48.63	1,322.88	100.06	171.70	181.47	2.74	2.74	-0.06
1,385.01	27.97	49.38	1,351.23	109.80	182.90	193.66	2.30	2.03	2.34
1,417.01	28.24	50.81	1,379.46	119.47	194.47	206.20	2.27	0.84	4.47
1,449.01	28.92	51.02	1,407.56	129.12	206.35	219.05	2.15	2.13	0.66
1,480.01	29.53	51.88	1,434.61	138.55	218.19	231.83	2.39	1.97	2.77
1,512.01	29.90	53.15	1,462.40	148.20	230.77	245.39	2.28	1.16	3.97
1,544.01	30.45	53.64	1,490.07	157.79	243.69	259.26	1.88	1.72	1.53
1,575.01	31.62	53.41	1,516.63	167.30	256.54	273.05	3.79	3.77	-0.74
1,606.01	32.64	54.77	1,542.88	176.96	269.89	287.37	4.03	3.29	4.39
1,637.01	33.55	55.21	1,568.85	186.67	283.76	302.20	3.04	2.94	1.42
1,668.01	33.91	55.95	1,594.63	196.40	297.96	317.37	1.76	1.16	2.39
1,700.01	34.45	55.52	1,621.11	206.52	312.81	333.23	1.85	1.69	-1.34
1,732.01	35.13	55.69	1,647.39	216.84	327.88	349.31	2.15	2.13	0.53
1,763.01	35.72	55.40	1,672.65	227.00	342.69	365.14	1.98	1.90	-0.94
1,795.01	37.54	54.57	1,698.33	237.96	358.33	381.86	5.89	5.69	-2.59
1,827.01	38.79	55.16	1,723.49	249.34	374.50	399.16	4.07	3.91	1.84
1,858.01	39.33	55.96	1,747.56	260.39	390.61	416.37	2.38	1.74	2.58
1,890.01	39.31	56.72	1,772.31	271.63	407.49	434.36	1.51	-0.06	2.38
1,922.01	39.77	56.24	1,796.99	282.88	424.47	452.45	1.73	1.44	-1.50
1,953.01	40.69	56.27	1,820.66	294.00	441.12	470.20	2.97	2.97	0.10
1,985.01	41.39	56.82	1,844.79	305.58	458.65	488.88	2.46	2.19	1.72
2,017.01	41.59	57.38	1,868.77	317.09	476.45	507.81	1.32	0.63	1.75
2,049.01	41.10	56.01	1,892.79	328.70	494.12	526.63	3.22	-1.53	-4.28
2,112.01	41.84	56.39	1,940.00	351.91	528.78	563.59	1.24	1.17	0.60
2,175.01	42.22	55.80	1,986.79	375.44	563.79	600.93	0.87	0.60	-0.94

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Wellbore:	Lateral #1		
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)	
2,238.01	41.66	55.96	2,033.65	399.06	598.65	638.13	0.90	-0.89	0.25	
2,301.01	39.66	55.46	2,081.44	422.18	632.56	674.33	3.22	-3.17	-0.79	
2,333.01	39.44	55.31	2,106.12	433.75	649.33	692.25	0.75	-0.69	-0.47	
2,365.01	39.02	55.05	2,130.90	445.31	665.95	710.01	1.41	-1.31	-0.81	
2,378.82	38.88	55.10	2,141.64	450.28	673.06	717.62	1.06	-1.03	0.39	
Elsa 34-6-19 DW										
2,396.01	38.70	55.17	2,155.04	456.43	681.90	727.07	1.06	-1.03	0.39	
2,427.01	38.50	56.76	2,179.27	467.26	697.93	744.17	3.26	-0.65	5.13	
2,458.01	39.25	58.78	2,203.41	477.63	714.38	761.65	4.75	2.42	6.52	
2,489.01	39.85	60.80	2,227.31	487.56	731.44	779.67	4.58	1.94	6.52	
2,521.01	39.83	61.86	2,251.88	497.39	749.43	798.61	2.12	-0.06	3.31	
2,552.01	39.90	63.88	2,275.68	506.45	767.11	817.17	4.18	0.23	6.52	
2,584.01	39.85	66.19	2,300.24	515.11	785.71	836.59	4.63	-0.16	7.22	
2,615.01	39.29	67.92	2,324.13	522.81	803.89	855.49	3.99	-1.81	5.58	
2,647.01	38.51	68.87	2,349.04	530.21	822.57	874.86	3.07	-2.44	2.97	
2,677.01	36.93	69.84	2,372.77	536.69	839.75	892.63	5.63	-5.27	3.23	
2,709.01	34.91	71.16	2,398.68	542.96	857.44	910.90	6.76	-6.31	4.13	
2,740.01	32.38	72.56	2,424.49	548.31	873.76	927.70	8.54	-8.16	4.52	
2,770.01	31.66	72.25	2,449.92	553.12	888.92	943.29	2.46	-2.40	-1.03	
2,802.01	30.91	72.43	2,477.27	558.16	904.75	959.57	2.36	-2.34	0.56	
2,834.01	30.01	73.17	2,504.85	562.96	920.25	975.50	3.05	-2.81	2.31	
2,865.01	30.11	74.62	2,531.68	567.26	935.17	990.79	2.37	0.32	4.68	
2,897.01	29.95	76.48	2,559.39	571.26	950.67	1,006.64	2.95	-0.50	5.81	
2,929.01	30.17	77.99	2,587.08	574.80	966.30	1,022.56	2.46	0.69	4.72	
2,960.01	30.75	79.02	2,613.81	577.93	981.70	1,038.21	2.52	1.87	3.32	
2,991.01	30.92	79.65	2,640.42	580.87	997.32	1,054.05	1.18	0.55	2.03	
3,004.00	30.70	79.72	2,651.57	582.00	1,004.01	1,060.83	1.70	-1.68	0.51	
3,025.00	33.12	80.78	2,669.40	583.88	1,014.95	1,071.90	11.80	11.49	5.06	
3,050.00	36.00	81.88	2,689.99	586.01	1,028.97	1,086.07	11.80	11.53	4.39	
3,075.00	38.89	82.83	2,709.83	588.03	1,044.03	1,101.26	11.80	11.57	3.82	
3,100.00	41.79	83.67	2,728.88	589.92	1,060.10	1,117.44	11.80	11.60	3.37	
3,125.00	44.70	84.43	2,747.09	591.70	1,077.14	1,134.57	11.80	11.62	3.01	
3,150.00	47.60	85.11	2,764.41	593.34	1,095.09	1,152.59	11.80	11.64	2.72	
3,175.00	50.52	85.72	2,780.79	594.84	1,113.91	1,171.47	11.80	11.65	2.47	
3,200.00	53.43	86.29	2,796.19	596.21	1,133.56	1,191.15	11.80	11.66	2.28	
3,225.00	56.35	86.82	2,810.57	597.44	1,153.97	1,211.57	11.80	11.67	2.11	
3,250.00	59.27	87.31	2,823.88	598.52	1,175.10	1,232.69	11.80	11.68	1.97	
3,275.00	62.19	87.78	2,836.10	599.45	1,196.88	1,254.45	11.80	11.69	1.86	
3,300.00	65.12	88.22	2,847.20	600.24	1,219.27	1,276.79	11.80	11.69	1.76	
3,325.00	68.04	88.64	2,857.13	600.86	1,242.20	1,299.66	11.80	11.70	1.68	
3,350.00	70.97	89.04	2,865.88	601.34	1,265.61	1,322.98	11.80	11.70	1.61	
3,375.00	73.90	89.43	2,873.43	601.66	1,289.44	1,346.71	11.80	11.71	1.55	
3,400.00	76.82	89.80	2,879.75	601.82	1,313.62	1,370.77	11.80	11.71	1.51	
3,425.00	79.75	90.17	2,884.82	601.82	1,338.10	1,395.11	11.80	11.71	1.47	
3,450.00	82.68	90.53	2,888.64	601.67	1,362.80	1,419.65	11.80	11.71	1.45	
3,475.00	85.61	90.89	2,891.19	601.36	1,387.67	1,444.34	11.80	11.71	1.43	
3,489.38	87.29	91.09	2,892.08	601.12	1,402.02	1,458.58	11.80	11.71	1.42	
3,500.00	87.29	91.09	2,892.58	600.91	1,412.62	1,469.10	0.00	0.00	0.00	
3,600.00	87.29	91.09	2,897.31	599.01	1,512.49	1,568.18	0.00	0.00	0.00	
3,700.00	87.29	91.09	2,902.03	597.10	1,612.36	1,667.27	0.00	0.00	0.00	
3,800.00	87.29	91.09	2,906.76	595.20	1,712.23	1,766.35	0.00	0.00	0.00	
3,900.00	87.29	91.09	2,911.48	593.29	1,812.11	1,865.44	0.00	0.00	0.00	
4,000.00	87.29	91.09	2,916.20	591.39	1,911.98	1,964.52	0.00	0.00	0.00	

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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)
4,100.00	87.29	91.09	2,920.93	589.48	2,011.85	2,063.61	0.00	0.00	0.00
4,200.00	87.29	91.09	2,925.65	587.58	2,111.72	2,162.69	0.00	0.00	0.00
4,300.00	87.29	91.09	2,930.38	585.67	2,211.59	2,261.78	0.00	0.00	0.00
4,400.00	87.29	91.09	2,935.10	583.77	2,311.46	2,360.86	0.00	0.00	0.00
4,500.00	87.29	91.09	2,939.83	581.86	2,411.33	2,459.95	0.00	0.00	0.00
4,600.00	87.29	91.09	2,944.55	579.96	2,511.20	2,559.03	0.00	0.00	0.00
4,700.00	87.29	91.09	2,949.27	578.05	2,611.07	2,658.12	0.00	0.00	0.00
4,800.00	87.29	91.09	2,954.00	576.15	2,710.94	2,757.20	0.00	0.00	0.00
4,900.00	87.29	91.09	2,958.72	574.24	2,810.81	2,856.29	0.00	0.00	0.00
5,000.00	87.29	91.09	2,963.45	572.33	2,910.68	2,955.37	0.00	0.00	0.00
5,100.00	87.29	91.09	2,968.17	570.43	3,010.55	3,054.46	0.00	0.00	0.00
5,200.00	87.29	91.09	2,972.89	568.52	3,110.42	3,153.54	0.00	0.00	0.00
5,300.00	87.29	91.09	2,977.62	566.62	3,210.29	3,252.63	0.00	0.00	0.00
5,400.00	87.29	91.09	2,982.34	564.71	3,310.16	3,351.71	0.00	0.00	0.00
5,500.00	87.29	91.09	2,987.07	562.81	3,410.03	3,450.80	0.00	0.00	0.00
5,600.00	87.29	91.09	2,991.79	560.90	3,509.90	3,549.88	0.00	0.00	0.00
5,700.00	87.29	91.09	2,996.52	559.00	3,609.77	3,648.97	0.00	0.00	0.00
5,800.00	87.29	91.09	3,001.24	557.09	3,709.64	3,748.05	0.00	0.00	0.00
5,900.00	87.29	91.09	3,005.96	555.19	3,809.51	3,847.14	0.00	0.00	0.00
6,000.00	87.29	91.09	3,010.69	553.28	3,909.38	3,946.22	0.00	0.00	0.00
6,100.00	87.29	91.09	3,015.41	551.38	4,009.25	4,045.31	0.00	0.00	0.00
6,200.00	87.29	91.09	3,020.14	549.47	4,109.12	4,144.39	0.00	0.00	0.00
6,300.00	87.29	91.09	3,024.86	547.57	4,208.99	4,243.47	0.00	0.00	0.00
6,400.00	87.29	91.09	3,029.59	545.66	4,308.86	4,342.56	0.00	0.00	0.00
6,500.00	87.29	91.09	3,034.31	543.76	4,408.73	4,441.64	0.00	0.00	0.00
6,600.00	87.29	91.09	3,039.03	541.85	4,508.60	4,540.73	0.00	0.00	0.00
6,700.00	87.29	91.09	3,043.76	539.95	4,608.47	4,639.81	0.00	0.00	0.00
6,800.00	87.29	91.09	3,048.48	538.04	4,708.34	4,738.90	0.00	0.00	0.00
6,900.00	87.29	91.09	3,053.21	536.14	4,808.21	4,837.98	0.00	0.00	0.00
7,000.00	87.29	91.09	3,057.93	534.23	4,908.08	4,937.07	0.00	0.00	0.00
7,022.64	87.29	91.09	3,059.00	533.80	4,930.69	4,959.50	0.00	0.00	0.00
Elsa 34-6-19 #1 L1 BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Elsa 34-6-19 #1 L1 BHL	0.00	360.00	3,059.00	533.80	4,930.69	1,191,217.33	2,412,401.81	37° 10' 27.810 N	107° 31' 0.653 W
- plan hits target center									
- Point									