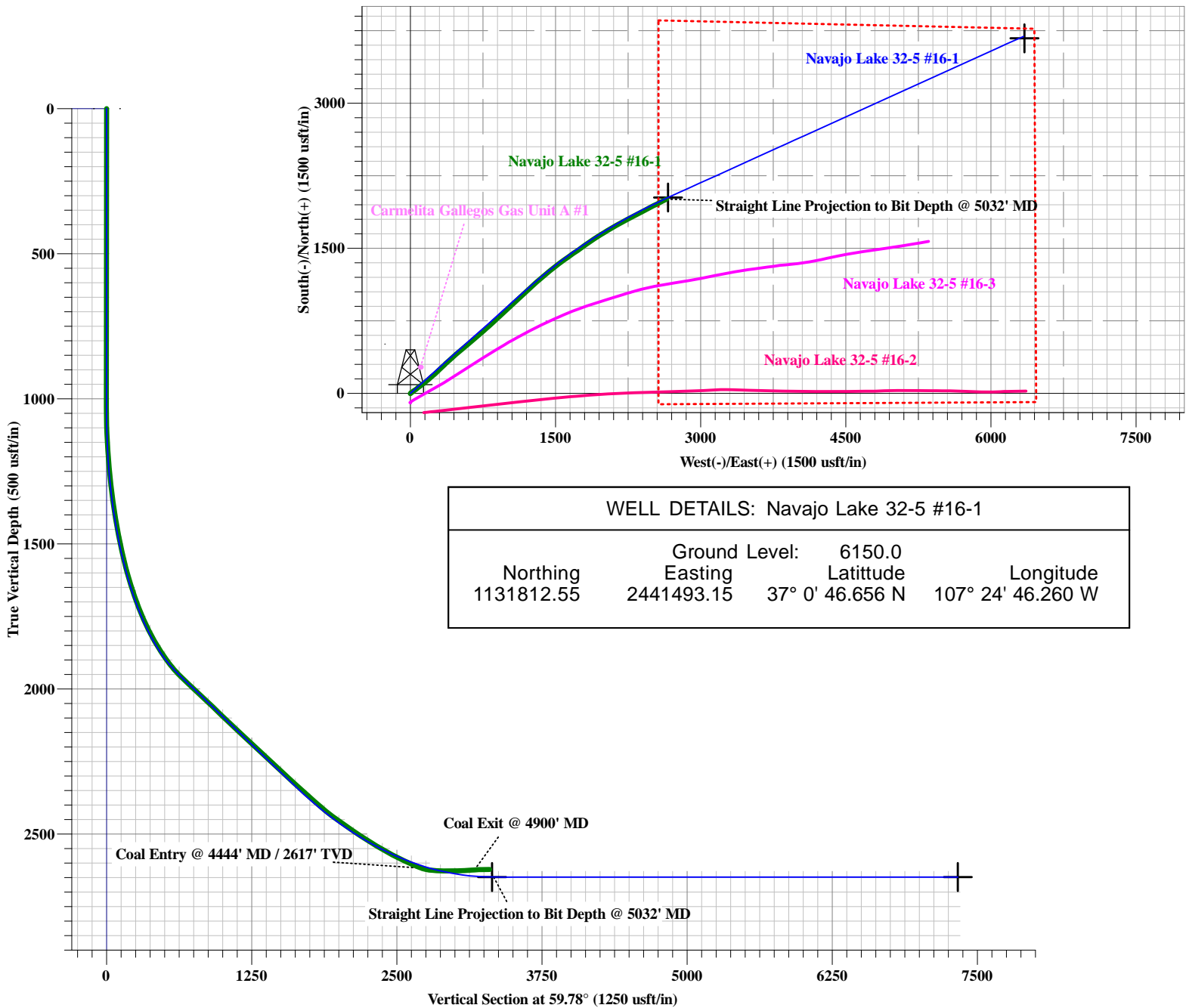


WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
CP_A 16-1	2648.0	2025.0	2662.8	1133782.60	2444196.86	Point
BHL 16-1	2648.0	3671.1	6347.2	1135352.87	2447914.14	Point



WELL DETAILS: Navajo Lake 32-5 #16-1

Ground Level: 6150.0		Latitude		Longitude	
Northing	Easting	Latitude	Longitude		
1131812.55	2441493.15	37° 0' 46.656 N	107° 24' 46.260 W		

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1050.0	0.00	0.00	1050.0	0.0	0.0	0.00	0.00	0.0	
2206.2	69.37	48.21	1943.7	412.2	461.1	6.00	48.21	605.9	
3319.2	69.37	48.21	2335.9	1106.4	1237.7	0.00	0.00	1626.4	
5058.9	90.00	65.60	2648.0	2025.0	2662.8	1.54	41.65	3320.2	CP_A 16-1
9091.9	90.00	65.60	2648.0	3690.8	6335.6	0.00	0.00	7332.3	BHL 16-1



Energen Resources Corp

**Archuleta County, CO
Sec 17 T32N R05W
Navajo Lake 32-5 #16-1**

Wellbore #1

Design: Wellbore #1

Standard Survey Report

16 June, 2012

Company:	Energen Resources Corp	Local Co-ordinate Reference:	Well Navajo Lake 32-5 #16-1
Project:	Archuleta County, CO	TVD Reference:	WELL @ 6170.0usft (Original Well Elev)
Site:	Sec 17 T32N R05W	MD Reference:	WELL @ 6170.0usft (Original Well Elev)
Well:	Navajo Lake 32-5 #16-1	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Archuleta County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Southern Zone		

Site		Sec 17 T32N R05W			
Site Position:		Northing:	1,131,605.30 usft	Latitude:	37° 0' 44.604 N
From:	Lat/Long	Easting:	2,441,477.23 usft	Longitude:	107° 24' 46.404 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.17 °

Well	Navajo Lake 32-5 #16-1					
Well Position	+N/-S	0.0 usft	Northing:	1,131,812.55 usft	Latitude:	37° 0' 46.656 N
	+E/-W	0.0 usft	Easting:	2,441,493.15 usft	Longitude:	107° 24' 46.260 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	6,150.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/21/12	9.69	63.74	50,863

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	59.78	

Survey Program	Date	06/16/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
965.0	4,940.0	Survey #2 (Wellbore #1)	MWD	MWD - Standard	
4,962.0	5,032.0	Survey #3 (Wellbore #1)	MWD	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
965.0	0.35	194.04	965.0	-2.9	-0.7	-2.1	0.04	0.04	0.00	
1,029.0	0.35	91.74	1,029.0	-3.1	-0.6	-2.0	0.85	0.00	-159.84	
1,092.0	4.48	50.77	1,091.9	-1.5	1.5	0.6	6.70	6.56	-65.03	
1,155.0	8.35	49.19	1,154.5	3.0	6.9	7.5	6.15	6.14	-2.51	
1,219.0	11.61	49.84	1,217.5	10.2	15.3	18.4	5.10	5.09	1.02	
1,282.0	14.68	51.52	1,278.9	19.3	26.4	32.6	4.91	4.87	2.67	
1,346.0	18.20	53.78	1,340.3	30.2	40.9	50.5	5.59	5.50	3.53	
1,409.0	21.90	53.92	1,399.4	43.0	58.3	72.0	5.87	5.87	0.22	
1,473.0	25.32	53.13	1,458.1	58.2	78.9	97.5	5.37	5.34	-1.23	

Company:	Energen Resources Corp	Local Co-ordinate Reference:	Well Navajo Lake 32-5 #16-1
Project:	Archuleta County, CO	TVD Reference:	WELL @ 6170.0usft (Original Well Elev)
Site:	Sec 17 T32N R05W	MD Reference:	WELL @ 6170.0usft (Original Well Elev)
Well:	Navajo Lake 32-5 #16-1	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)
1,536.0	28.75	52.98	1,514.2	75.4	101.8	125.9	5.45	5.44	-0.24
1,599.0	32.62	52.07	1,568.3	95.0	127.3	157.8	6.19	6.14	-1.44
1,663.0	36.84	50.74	1,620.9	117.8	155.8	193.9	6.70	6.59	-2.08
1,727.0	40.10	49.22	1,671.0	143.4	186.2	233.1	5.30	5.09	-2.38
1,790.0	44.41	49.03	1,717.6	171.1	218.2	274.7	6.84	6.84	-0.30
1,854.0	49.15	48.21	1,761.5	201.9	253.2	320.4	7.46	7.41	-1.28
1,917.0	52.76	46.00	1,801.1	235.2	289.0	368.2	6.34	5.73	-3.51
1,980.0	55.66	46.53	1,838.0	270.6	326.0	417.8	4.65	4.60	0.84
2,044.0	58.92	47.72	1,872.6	307.2	365.4	470.4	5.33	5.09	1.86
2,107.0	61.91	46.98	1,903.7	344.3	405.7	523.9	4.85	4.75	-1.17
2,171.0	65.33	48.72	1,932.1	382.8	448.2	580.0	5.87	5.34	2.72
2,234.0	69.29	49.46	1,956.4	420.8	492.1	637.1	6.38	6.29	1.17
2,298.0	69.56	49.91	1,978.9	459.6	537.8	696.1	0.78	0.42	0.70
2,361.0	69.47	50.06	2,000.9	497.5	583.0	754.2	0.26	-0.14	0.24
2,425.0	69.47	49.70	2,023.4	536.2	628.9	813.3	0.53	0.00	-0.56
2,488.0	69.56	48.98	2,045.4	574.6	673.6	871.3	1.08	0.14	-1.14
2,552.0	69.38	49.59	2,067.9	613.7	719.1	930.2	0.94	-0.28	0.95
2,615.0	69.38	49.39	2,090.1	652.0	763.9	988.2	0.30	0.00	-0.32
2,676.0	69.56	47.40	2,111.5	689.9	806.6	1,044.2	3.07	0.30	-3.26
2,738.0	69.82	47.55	2,133.0	729.2	849.5	1,101.1	0.48	0.42	0.24
2,799.0	70.00	46.68	2,153.9	768.2	891.4	1,156.9	1.37	0.30	-1.43
2,860.0	70.00	47.36	2,174.8	807.3	933.4	1,212.9	1.05	0.00	1.11
2,921.0	70.08	46.92	2,195.6	846.3	975.4	1,268.8	0.69	0.13	-0.72
2,982.0	70.00	47.24	2,216.4	885.3	1,017.4	1,324.7	0.51	-0.13	0.52
3,044.0	70.00	47.14	2,237.6	924.9	1,060.1	1,381.6	0.15	0.00	-0.16
3,105.0	69.91	47.14	2,258.6	963.9	1,102.1	1,437.5	0.15	-0.15	0.00
3,166.0	69.91	46.48	2,279.5	1,003.1	1,143.9	1,493.3	1.02	0.00	-1.08
3,227.0	70.52	46.86	2,300.2	1,042.5	1,185.7	1,549.2	1.16	1.00	0.62
3,288.0	70.52	48.33	2,320.5	1,081.3	1,228.1	1,605.4	2.27	0.00	2.41
3,349.0	70.17	47.81	2,341.0	1,119.7	1,270.9	1,661.7	0.99	-0.57	-0.85
3,410.0	70.00	48.29	2,361.8	1,158.0	1,313.5	1,717.9	0.79	-0.28	0.79
3,472.0	70.79	49.26	2,382.6	1,196.5	1,357.4	1,775.2	1.95	1.27	1.56
3,533.0	71.58	50.16	2,402.3	1,233.8	1,401.5	1,832.0	1.90	1.30	1.48
3,594.0	72.63	50.18	2,421.0	1,271.0	1,446.1	1,889.3	1.72	1.72	0.03
3,654.0	73.34	51.58	2,438.6	1,307.2	1,490.6	1,945.9	2.53	1.18	2.33
3,716.0	74.13	53.45	2,455.9	1,343.4	1,537.8	2,005.0	3.16	1.27	3.02
3,777.0	74.48	54.98	2,472.4	1,377.8	1,585.4	2,063.4	2.48	0.57	2.51
3,838.0	74.48	54.63	2,488.8	1,411.6	1,633.5	2,122.0	0.55	0.00	-0.57
3,900.0	75.53	55.28	2,504.8	1,446.0	1,682.5	2,181.7	1.97	1.69	1.05
3,961.0	75.80	55.06	2,519.9	1,479.8	1,731.0	2,240.6	0.56	0.44	-0.36
4,022.0	75.80	54.65	2,534.9	1,513.8	1,779.4	2,299.5	0.65	0.00	-0.67
4,083.0	77.12	55.44	2,549.2	1,547.8	1,828.0	2,358.6	2.50	2.16	1.30
4,145.0	78.00	56.08	2,562.5	1,581.9	1,878.0	2,419.0	1.74	1.42	1.03

Company:	Energen Resources Corp	Local Co-ordinate Reference:	Well Navajo Lake 32-5 #16-1
Project:	Archuleta County, CO	TVD Reference:	WELL @ 6170.0usft (Original Well Elev)
Site:	Sec 17 T32N R05W	MD Reference:	WELL @ 6170.0usft (Original Well Elev)
Well:	Navajo Lake 32-5 #16-1	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)	
4,206.0	77.82	56.44	2,575.3	1,615.0	1,927.6	2,478.5	0.65	-0.30	0.59	
4,267.0	79.40	58.22	2,587.3	1,647.3	1,978.0	2,538.3	3.86	2.59	2.92	
4,328.0	79.67	59.35	2,598.4	1,678.4	2,029.3	2,598.2	1.87	0.44	1.85	
4,389.0	79.84	59.82	2,609.3	1,708.8	2,081.0	2,658.3	0.81	0.28	0.77	
4,444.0	82.30	60.58	2,617.8	1,735.8	2,128.2	2,712.6	4.68	4.47	1.38	
Coal Entry @ 4444' MD / 2617' TVD										
4,450.0	82.57	60.66	2,618.6	1,738.7	2,133.3	2,718.5	4.69	4.50	1.33	
4,511.0	87.23	61.32	2,624.0	1,768.1	2,186.5	2,779.3	7.71	7.64	1.08	
4,572.0	88.55	62.20	2,626.3	1,797.0	2,240.2	2,840.2	2.60	2.16	1.44	
4,634.0	89.60	62.38	2,627.3	1,825.8	2,295.1	2,902.1	1.72	1.69	0.29	
4,695.0	90.13	62.24	2,627.4	1,854.1	2,349.1	2,963.1	0.90	0.87	-0.23	
4,756.0	90.75	62.18	2,626.9	1,882.6	2,403.0	3,024.0	1.02	1.02	-0.10	
4,817.0	91.28	62.50	2,625.9	1,910.9	2,457.0	3,084.9	1.01	0.87	0.52	
4,878.0	91.89	62.31	2,624.2	1,939.1	2,511.1	3,145.8	1.05	1.00	-0.31	
4,900.0	91.42	62.70	2,623.5	1,949.3	2,530.6	3,167.8	2.78	-2.14	1.77	
Coal Exit @ 4900' MD										
4,937.7	90.62	63.38	2,622.9	1,966.4	2,564.2	3,205.4	2.78	-2.12	1.80	
Interpolated Survey Point: Drilling Window @ 4937.7										
4,940.0	90.57	63.42	2,622.8	1,967.4	2,566.2	3,207.7	2.78	-2.13	1.80	
4,962.0	90.48	63.06	2,622.6	1,977.3	2,585.9	3,229.7	1.69	-0.41	-1.64	
5,032.0	90.48	63.06	2,622.0	2,009.0	2,648.3	3,299.6	0.00	0.00	0.00	
Straight Line Projection to Bit Depth @ 5032' MD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,444.0	2,617.8	1,735.8	2,128.2	Coal Entry @ 4444' MD / 2617' TVD	
4,900.0	2,623.5	1,949.3	2,530.6	Coal Exit @ 4900' MD	
4,937.7	2,622.9	1,966.4	2,564.2	Interpolated Survey Point: Drilling Window @ 4937.7	
5,032.0	2,622.0	2,009.0	2,648.3	Straight Line Projection to Bit Depth @ 5032' MD	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------