

District I
1625 N. French Dr., Hobbs, NM 88240

District II
1301 W. Grand Avenue, Artesia, NM 88210

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505



Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies
☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30701		² Pool Code 71629		³ Pool Name Basin Fruitland Coal	
⁴ Property Code 35667		⁵ Property Name Carracas 31B			⁶ Well Number 16
⁷ OGRID No. 162928		⁸ Operator Name ENERGEN RESOURCES CORPORATION			⁹ Elevation 7,247'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	30	32N	04W		970'	South	815'	East	Rio Arriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	31	32N	04W		2,063'	South	1,020'	East	Rio Arriba

¹² Dedicated Acres 320 E/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Andrew Soto</i> 7/11/11 Signature Date Andrew Soto Printed Name
	¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. June 26, 2008 Date of Survey Original Survey Conducted and Recorded By: David R. Russell 10201 Certificate Number

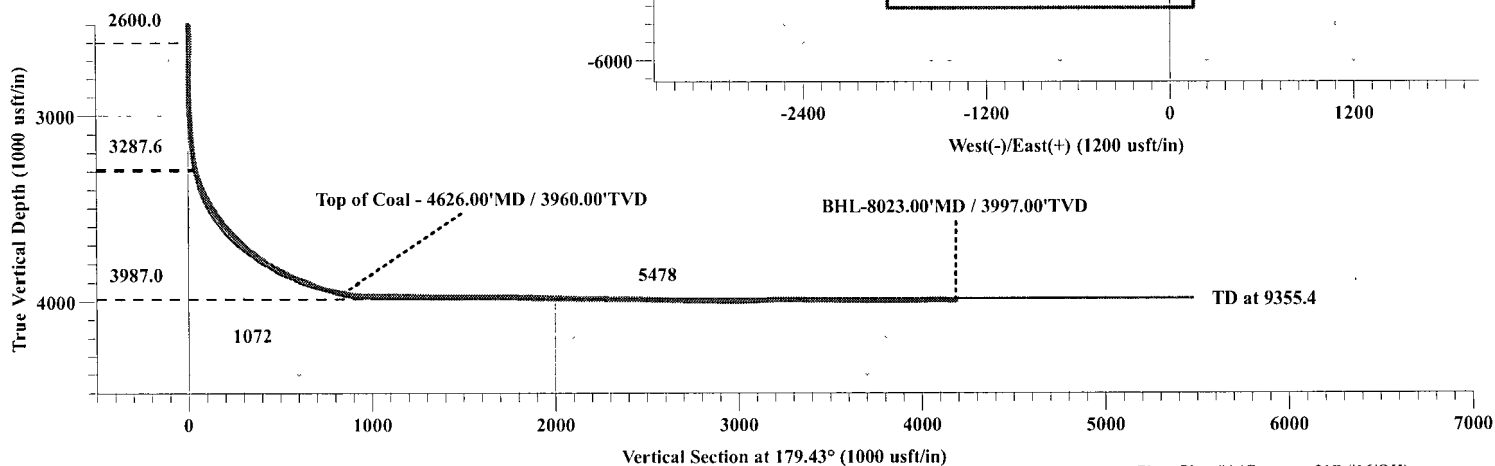
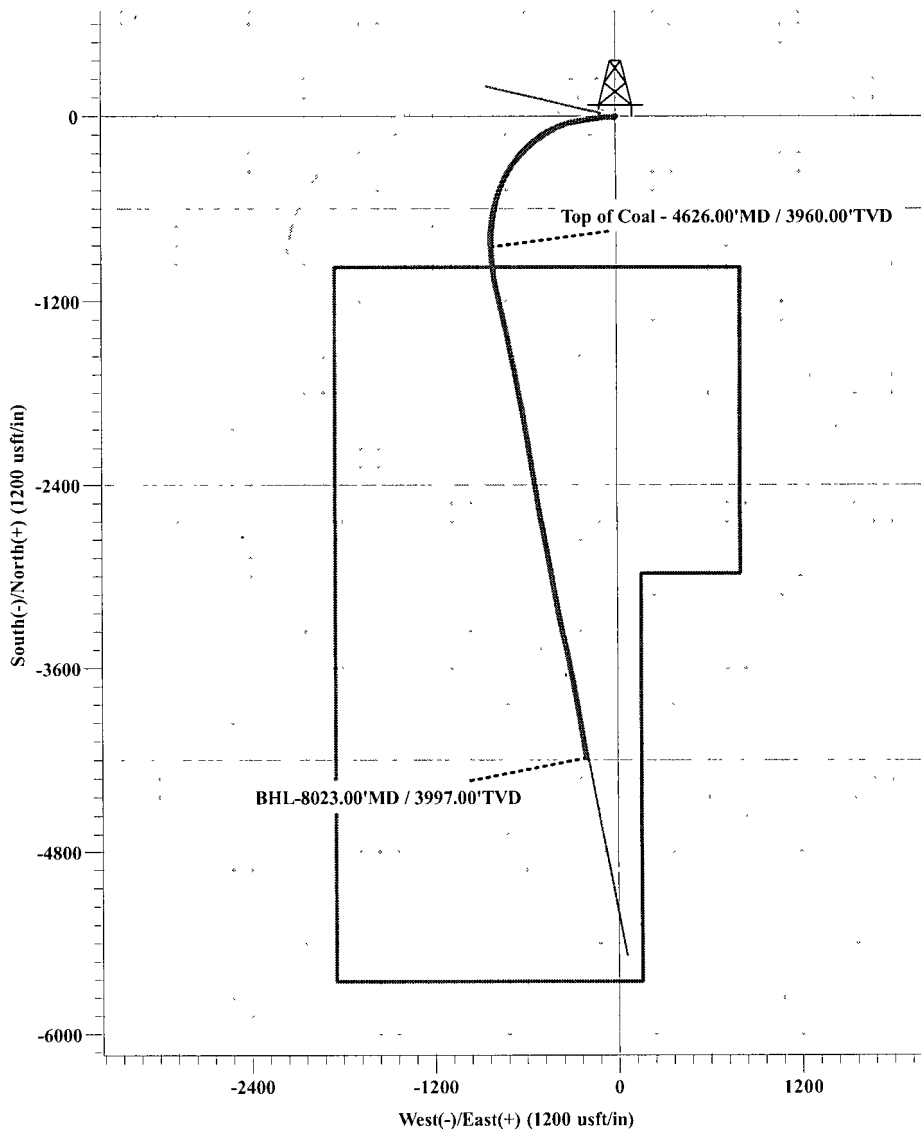
A

Carracas 31B #16
Carracas
Rio Arriba Co. NM



EOW
No Hardline
Crossed

WELL DETAILS Carracas 31B #16			
Northing	Easting	7247 0 Latitude	Longitude
2167908 53	1336600 95	36° 57' 11 448 N	107° 17' 23.280 W



Plan: Plan #4 (Carracas 31B #16/Oil)

Created By: Frank C. Scardino

Date: 6/23/2011

Energen Resources

Rio Arriba County

Carracas

Carracas 31B #16

OH

Design: OH

Standard Survey Report

23 June, 2011

Survey Report

Company:	Energen Resources	Local Co-ordinate Reference:	Well Carracas 31B #16
Project:	Rio Arriba County	TVD Reference:	RKBtoGL-15' @ 7262.0usft (Original Well Elev)
Site:	Carracas	MD Reference:	RKBtoGL-15' @ 7262.0usft (Original Well Elev)
Well:	Carracas 31B #16	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 1 Single User Db

Project:	Rio Arriba County	System Datum:	Mean Sea Level
Map System:	US State Plane 1983		
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site:	Carracas				
Site Position:		Northing:	2,163,390.79 usft	Latitude:	36° 56' 25.836 N
From:	Lat/Long	Easting:	1,327,952.79 usft	Longitude:	107° 19' 9.192 W
Position Uncertainty:	3.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.64 °

Well	Carracas 31B #16					
Well Position	+N/-S	0.0 usft	Northing:	2,167,908 52 usft	Latitude:	36° 57' 11.448 N
	+E/-W	0 0 usft	Easting:	1,336,600 95 usft	Longitude:	107° 17' 23.280 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	7,247.0 usft

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	09/09/10	9.81	63.75	50,990

Design:	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	179.43	

Survey Program	Date	06/23/11			
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
335.0	8,023.0	MWD #1 (OH)	MWD	MWD - Standard	

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
335.0	0.26	355.71	335.0	0.8	-0.1	-0.8	0.08	0.08	0.00
384.0	0.09	330.08	384.0	0.9	-0.1	-0.9	0.37	-0.35	-52.31
477.0	0.09	234.45	477.0	0.9	-0.2	-0.9	0.14	0.00	-102.83
569.0	0.09	1.71	569.0	1.0	-0.2	-1.0	0.18	0.00	138.33
661.0	0.09	325.32	661.0	1.1	-0.3	-1.1	0.06	0.00	-39.55
752.0	0.00	0.00	752.0	1.1	-0.3	-1.1	0.10	-0.10	0.00
843.0	0.09	257.01	843.0	1.1	-0.4	-1.1	0.10	0.10	0.00
935.0	0.09	193.94	935.0	1.0	-0.5	-1.0	0.10	0.00	-68.55
1,027.0	0.09	38.53	1,027.0	1.0	-0.4	-1.0	0.19	0.00	-168.92

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas
 Well: Carracas 31B #16
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well Carracas 31B #16
 TVD Reference: RKBtoGL-15' @ 7262 0usft (Original Well Elev)
 MD Reference: RKBtoGL-15' @ 7262 0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 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)
1,119.0	0.09	358.06	1,119.0	1.2	-0.4	-1.2	0.07	0.00	-43.99
1,213.0	0.09	270.22	1,213.0	1.2	-0.5	-1.2	0.13	0.00	-93.45
1,305.0	0.00	348.14	1,305.0	1.2	-0.6	-1.2	0.10	-0.10	0.00
1,381.0	0.26	274.07	1,381.0	1.2	-0.7	-1.3	0.34	0.34	0.00
1,471.0	0.26	177.23	1,471.0	1.1	-0.9	-1.1	0.43	0.00	-107.60
1,561.0	0.09	292.90	1,561.0	0.9	-1.0	-0.9	0.34	-0.19	128.52
1,651.0	0.00	0.00	1,651.0	0.9	-1.0	-0.9	0.10	-0.10	0.00
1,741.0	0.09	251.34	1,741.0	0.9	-1.1	-0.9	0.10	0.10	0.00
1,831.0	0.09	85.42	1,831.0	0.9	-1.1	-0.9	0.20	0.00	-184.36
1,921.0	0.09	40.09	1,921.0	0.9	-1.0	-0.9	0.08	0.00	-50.37
2,011.0	0.00	93.90	2,011.0	1.0	-0.9	-1.0	0.10	-0.10	0.00
2,101.0	0.09	347.29	2,101.0	1.0	-1.0	-1.1	0.10	0.10	0.00
2,190.0	0.00	347.19	2,190.0	1.1	-1.0	-1.1	0.10	-0.10	0.00
2,280.0	0.09	157.67	2,280.0	1.1	-0.9	-1.1	0.10	0.10	0.00
2,325.0	0.44	172.40	2,325.0	0.8	-0.9	-0.9	0.79	0.78	32.73
2,370.0	1.49	167.40	2,370.0	0.1	-0.8	-0.1	2.34	2.33	-11.11
2,415.0	2.46	174.25	2,415.0	-1.4	-0.5	1.4	2.21	2.16	15.22
2,460.0	2.73	188.71	2,459.9	-3.4	-0.6	3.4	1.57	0.60	32.13
2,505.0	2.73	196.79	2,504.9	-5.5	-1.1	5.5	0.85	0.00	17.96
2,549.0	2.37	207.22	2,548.8	-7.3	-1.8	7.3	1.33	-0.82	23.70
2,594.0	2.29	255.04	2,593.8	-8.4	-3.1	8.4	4.20	-0.18	106.27
2,639.0	3.52	297.39	2,638.7	-8.0	-5.2	7.9	5.31	2.73	94.11
2,685.0	6.16	294.07	2,684.6	-6.3	-8.7	6.3	5.77	5.74	-7.22
2,731.0	9.15	283.39	2,730.2	-4.5	-14.5	4.3	7.17	6.50	-23.22
2,776.0	11.52	272.54	2,774.4	-3.5	-22.5	3.2	6.79	5.27	-24.11
2,821.0	14.16	266.86	2,818.3	-3.6	-32.5	3.2	6.50	5.87	-12.62
2,866.0	16.97	266.34	2,861.6	-4.3	-44.5	3.8	6.25	6.24	-1.16
2,911.0	19.35	266.23	2,904.4	-5.2	-58.5	4.6	5.29	5.29	-0.24
2,956.0	21.90	263.45	2,946.5	-6.6	-74.3	5.9	6.07	5.67	-6.18
3,000.0	24.89	262.85	2,986.9	-8.7	-91.6	7.8	6.82	6.80	-1.36
3,045.0	27.44	262.77	3,027.3	-11.2	-111.3	10.1	5.67	5.67	-0.18
3,091.0	30.07	262.90	3,067.6	-14.0	-133.3	12.6	5.72	5.72	0.28
3,136.0	32.71	261.80	3,106.0	-17.1	-156.5	15.5	6.00	5.87	-2.44
3,181.0	34.29	261.00	3,143.5	-20.8	-181.1	19.0	3.65	3.51	-1.78
3,225.0	36.58	260.65	3,179.4	-24.9	-206.2	22.8	5.22	5.20	-0.80
3,271.0	39.66	261.12	3,215.6	-29.4	-234.3	27.1	6.73	6.70	1.02
3,316.0	41.94	260.32	3,249.6	-34.1	-263.3	31.5	5.20	5.07	-1.78
3,361.0	44.05	257.44	3,282.5	-40.1	-293.4	37.1	6.40	4.69	-6.40
3,405.0	44.41	252.56	3,314.1	-48.0	-323.0	44.8	7.78	0.82	-11.09
3,429.0	44.32	250.03	3,331.2	-53.4	-338.9	50.0	7.38	-0.38	-10.54
3,460.0	44.41	247.00	3,353.4	-61.3	-359.1	57.7	6.84	0.29	-9.77
3,490.0	44.85	245.24	3,374.8	-69.9	-378.3	66.1	4.37	1.47	-5.87
3,535.0	45.37	242.16	3,406.5	-84.0	-406.9	79.9	4.98	1.16	-6.84
3,580.0	45.99	239.67	3,438.0	-99.6	-435.0	95.3	4.19	1.38	-5.53

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas
 Well: Carracas 31B #16
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well Carracas 31B #16
 TVD Reference: RKBtoGL-15' @ 7262.0usft (Original Well Elev)
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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)
3,625.0	47.04	237.66	3,468.9	-116.6	-462.9	112.0	3.99	2.33	-4.47
3,670.0	47.92	235.83	3,499.3	-134.8	-490.7	129.9	3.58	1.96	-4.07
3,715.0	49.15	234.38	3,529.1	-154.1	-518.3	148.9	3.65	2.73	-3.22
3,760.0	50.47	231.02	3,558.2	-174.9	-545.6	169.5	6.41	2.93	-7.47
3,805.0	51.44	228.46	3,586.5	-197.5	-572.3	191.8	4.92	2.16	-5.69
3,850.0	52.50	226.20	3,614.3	-221.5	-598.4	215.6	4.60	2.36	-5.02
3,895.0	53.55	222.64	3,641.3	-247.2	-623.5	241.0	6.74	2.33	-7.91
3,940.0	53.38	219.70	3,668.1	-274.4	-647.3	268.0	5.26	-0.38	-6.53
3,985.0	53.64	216.27	3,694.9	-302.9	-669.6	296.3	6.15	0.58	-7.62
4,030.0	54.35	212.93	3,721.3	-332.9	-690.2	326.0	6.21	1.58	-7.42
4,074.0	56.10	210.36	3,746.4	-363.7	-709.2	356.6	6.23	3.98	-5.84
4,119.0	58.04	206.87	3,770.9	-396.8	-727.2	389.6	7.81	4.31	-7.76
4,164.0	59.79	204.37	3,794.1	-431.6	-743.9	424.1	6.14	3.89	-5.56
4,209.0	61.55	201.15	3,816.2	-467.7	-759.1	460.2	7.36	3.91	-7.16
4,254.0	63.84	198.57	3,836.8	-505.3	-772.6	497.6	7.20	5.09	-5.73
4,299.0	65.69	196.04	3,856.0	-544.2	-784.7	536.4	6.54	4.11	-5.62
4,344.0	67.53	194.32	3,873.9	-584.1	-795.5	576.1	5.39	4.09	-3.82
4,389.0	68.76	192.16	3,890.6	-624.7	-805.1	616.7	5.23	2.73	-4.80
4,409.0	69.03	191.18	3,897.8	-643.0	-808.9	634.9	4.77	1.35	-4.90
4,453.0	70.52	188.09	3,913.1	-683.7	-815.8	675.5	7.41	3.39	-7.02
4,498.0	72.19	184.84	3,927.4	-726.0	-820.6	717.8	7.78	3.71	-7.22
4,543.0	74.13	181.80	3,940.5	-769.0	-823.1	760.8	7.77	4.31	-6.76
4,588.0	76.41	178.44	3,951.9	-812.5	-823.2	804.3	8.82	5.07	-7.47
4,626.0	78.93	176.93	3,960.0	-849.6	-821.7	841.4	7.69	6.64	-3.96
Top of Coal - 4626.00'MD / 3960.00'TVD									
4,633.0	79.40	176.66	3,961.4	-856.5	-821.3	848.3	7.69	6.65	-3.92
4,678.0	82.92	175.46	3,968.3	-900.8	-818.2	892.7	8.25	7.82	-2.67
4,723.0	86.97	175.00	3,972.2	-945.5	-814.5	937.4	9.06	9.00	-1.02
4,768.0	90.48	173.42	3,973.2	-990.3	-809.9	982.2	8.55	7.80	-3.51
4,803.0	90.31	170.83	3,973.0	-1,024.9	-805.2	1,016.9	7.42	-0.49	-7.40
4,872.0	90.13	168.66	3,972.7	-1,092.8	-792.9	1,084.9	3.16	-0.26	-3.14
4,903.0	88.81	167.64	3,973.0	-1,123.2	-786.5	1,115.3	5.38	-4.26	-3.29
4,935.0	88.37	166.33	3,973.8	-1,154.3	-779.3	1,146.5	4.32	-1.38	-4.09
4,967.0	88.72	165.84	3,974.6	-1,185.4	-771.6	1,177.6	1.88	1.09	-1.53
4,999.0	88.99	166.01	3,975.3	-1,216.4	-763.8	1,208.7	1.00	0.84	0.53
5,031.0	88.72	166.73	3,975.9	-1,247.5	-756.3	1,239.9	2.40	-0.84	2.25
5,062.0	88.64	166.57	3,976.6	-1,277.7	-749.1	1,270.1	0.58	-0.26	-0.52
5,094.0	88.64	167.36	3,977.4	-1,308.8	-741.9	1,301.4	2.47	0.00	2.47
5,126.0	89.08	168.53	3,978.0	-1,340.1	-735.2	1,332.7	3.91	1.38	3.66
5,158.0	88.99	168.41	3,978.5	-1,371.5	-728.8	1,364.1	0.47	-0.28	-0.38
5,189.0	89.60	167.79	3,978.9	-1,401.8	-722.4	1,394.5	2.81	1.97	-2.00
5,221.0	90.04	167.82	3,979.0	-1,433.1	-715.7	1,425.9	1.38	1.38	0.09
5,253.0	91.19	167.84	3,978.7	-1,464.3	-708.9	1,457.2	3.59	3.59	0.06

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas
 Well: Carracas 31B #16
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well Carracas 31B #16
 TVD Reference: RKBtoGL-15' @ 7262.0usft (Original Well Elev)
 MD Reference: RKBtoGL-15' @ 7262.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 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)
5,285.0	91.01	167.35	3,978.1	-1,495.6	-702.1	1,488.5	1.63	-0.56	-1.53
5,316.0	91.10	168.53	3,977.5	-1,525.9	-695.6	1,518.9	3.82	0.29	3.81
5,348.0	89.87	168.97	3,977.2	-1,557.3	-689.4	1,550.3	4.08	-3.84	1.38
5,380.0	89.16	169.02	3,977.5	-1,588.7	-683.2	1,581.8	2.22	-2.22	0.16
5,412.0	88.90	168.80	3,978.0	-1,620.1	-677.1	1,613.3	1.06	-0.81	-0.69
5,444.0	89.25	168.13	3,978.6	-1,651.4	-670.7	1,644.7	2.36	1.09	-2.09
5,476.0	89.87	168.28	3,978.8	-1,682.8	-664.1	1,676.1	1.99	1.94	0.47
5,507.0	90.04	168.52	3,978.8	-1,713.1	-657.9	1,706.5	0.95	0.55	0.77
5,539.0	90.04	168.26	3,978.8	-1,744.5	-651.5	1,737.9	0.81	0.00	-0.81
5,570.0	90.22	167.93	3,978.7	-1,774.8	-645.1	1,768.3	1.21	0.58	-1.06
5,602.0	89.08	168.94	3,978.9	-1,806.2	-638.7	1,799.7	4.76	-3.56	3.16
5,634.0	89.16	169.48	3,979.4	-1,837.6	-632.7	1,831.2	1.71	0.25	1.69
5,666.0	88.64	169.86	3,980.0	-1,869.1	-626.9	1,862.7	2.01	-1.63	1.19
5,698.0	88.64	170.17	3,980.8	-1,900.6	-621.4	1,894.3	0.97	0.00	0.97
5,729.0	88.20	170.47	3,981.7	-1,931.1	-616.2	1,924.9	1.72	-1.42	0.97
5,761.0	88.37	170.79	3,982.6	-1,962.7	-611.0	1,956.5	1.13	0.53	1.00
5,793.0	88.37	170.43	3,983.5	-1,994.2	-605.8	1,988.1	1.12	0.00	-1.13
5,824.0	88.29	170.73	3,984.4	-2,024.8	-600.7	2,018.7	1.00	-0.26	0.97
5,856.0	88.37	170.65	3,985.4	-2,056.4	-595.5	2,050.3	0.35	0.25	-0.25
5,888.0	88.55	170.34	3,986.2	-2,087.9	-590.2	2,081.9	1.12	0.56	-0.97
5,919.0	88.90	170.01	3,986.9	-2,118.5	-584.9	2,112.5	1.55	1.13	-1.06
5,951.0	89.52	169.72	3,987.3	-2,150.0	-579.3	2,144.1	2.14	1.94	-0.91
5,983.0	89.52	169.66	3,987.6	-2,181.4	-573.6	2,175.6	0.19	0.00	-0.19
6,015.0	89.25	170.49	3,988.0	-2,213.0	-568.1	2,207.2	2.73	-0.84	2.59
6,047.0	89.43	170.72	3,988.3	-2,244.5	-562.8	2,238.8	0.91	0.56	0.72
6,078.0	89.78	171.08	3,988.5	-2,275.1	-557.9	2,269.5	1.62	1.13	1.16
6,110.0	89.96	170.58	3,988.6	-2,306.7	-552.8	2,301.1	1.66	0.56	-1.56
6,142.0	89.96	170.25	3,988.6	-2,338.3	-547.5	2,332.7	1.03	0.00	-1.03
6,172.0	89.96	170.24	3,988.7	-2,367.8	-542.4	2,362.3	0.03	0.00	-0.03
6,202.0	89.78	170.03	3,988.7	-2,397.4	-537.3	2,391.9	0.92	-0.60	-0.70
6,232.0	88.81	170.74	3,989.1	-2,427.0	-532.3	2,421.6	4.01	-3.23	2.37
6,263.0	88.29	171.30	3,989.9	-2,457.6	-527.4	2,452.2	2.46	-1.68	1.81
6,294.0	87.93	171.60	3,990.9	-2,488.2	-522.8	2,482.9	1.51	-1.16	0.97
6,324.0	88.55	170.97	3,991.8	-2,517.9	-518.3	2,512.6	2.95	2.07	-2.10
6,355.0	88.72	170.31	3,992.6	-2,548.4	-513.3	2,543.2	2.20	0.55	-2.13
6,386.0	88.64	169.87	3,993.3	-2,579.0	-507.9	2,573.8	1.44	-0.26	-1.42
6,417.0	88.55	170.11	3,994.0	-2,609.5	-502.5	2,604.4	0.83	-0.29	0.77
6,447.0	88.81	169.49	3,994.7	-2,639.0	-497.2	2,633.9	2.24	0.87	-2.07
6,478.0	88.55	169.29	3,995.4	-2,669.5	-491.5	2,664.4	1.06	-0.84	-0.65
6,508.0	88.29	169.03	3,996.3	-2,698.9	-485.9	2,694.0	1.23	-0.87	-0.87
6,539.0	88.20	169.05	3,997.2	-2,729.3	-480.0	2,724.4	0.30	-0.29	0.06
6,570.0	88.29	169.21	3,998.2	-2,759.8	-474.1	2,754.9	0.59	0.29	0.52
6,599.0	88.37	169.37	3,999.0	-2,788.3	-468.8	2,783.5	0.62	0.28	0.55
6,630.0	88.55	168.72	3,999.8	-2,818.7	-462.9	2,813.9	2.17	0.58	-2.10

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas
 Well: Carracas 31B #16
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well Carracas 31B #16
 TVD Reference: RKBtoGL-15' @ 7262.0usft (Original Well Elev)
 MD Reference: RKBtoGL-15' @ 7262.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 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)
6,661.0	89.08	169.18	4,000.5	-2,849.1	-456.9	2,844.4	2.26	1.71	1.48
6,691.0	89.69	169.37	4,000.8	-2,878.6	-451.3	2,873.9	2.13	2.03	0.63
6,722.0	89.78	169.90	4,001.0	-2,909.1	-445.8	2,904.5	1.73	0.29	1.71
6,752.0	89.96	170.59	4,001.0	-2,938.6	-440.7	2,934.1	2.38	0.60	2.30
6,781.0	89.52	170.13	4,001.2	-2,967.2	-435.8	2,962.7	2.19	-1.52	-1.59
6,812.0	89.87	169.10	4,001.3	-2,997.7	-430.2	2,993.3	3.51	1.13	-3.32
6,843.0	91.10	169.04	4,001.1	-3,028.1	-424.4	3,023.8	3.97	3.97	-0.19
6,873.0	92.15	169.57	4,000.2	-3,057.6	-418.8	3,053.3	3.92	3.50	1.77
6,904.0	93.30	170.26	3,998.7	-3,088.1	-413.4	3,083.8	4.32	3.71	2.23
6,934.0	93.47	170.82	3,997.0	-3,117.6	-408.4	3,113.4	1.95	0.57	1.87
6,964.0	93.03	170.65	3,995.3	-3,147.2	-403.6	3,143.0	1.57	-1.47	-0.57
6,995.0	92.07	170.46	3,993.9	-3,177.8	-398.5	3,173.6	3.16	-3.10	-0.61
7,025.0	91.71	169.68	3,992.9	-3,207.3	-393.4	3,203.2	2.86	-1.20	-2.60
7,056.0	90.75	168.48	3,992.2	-3,237.7	-387.5	3,233.7	4.96	-3.10	-3.87
7,086.0	89.78	167.07	3,992.1	-3,267.0	-381.1	3,263.1	5.70	-3.23	-4.70
7,117.0	89.69	167.09	3,992.2	-3,297.2	-374.2	3,293.4	0.30	-0.29	0.06
7,147.0	89.43	167.05	3,992.5	-3,326.5	-367.5	3,322.7	0.88	-0.87	-0.13
7,176.0	89.16	166.33	3,992.8	-3,354.7	-360.8	3,351.0	2.65	-0.93	-2.48
7,207.0	89.16	166.56	3,993.3	-3,384.8	-353.6	3,381.2	0.74	0.00	0.74
7,237.0	89.34	167.09	3,993.7	-3,414.0	-346.7	3,410.4	1.87	0.60	1.77
7,268.0	89.43	167.42	3,994.0	-3,444.3	-339.9	3,440.7	1.10	0.29	1.06
7,298.0	89.08	167.31	3,994.4	-3,473.6	-333.3	3,470.1	1.22	-1.17	-0.37
7,328.0	89.08	168.00	3,994.9	-3,502.9	-326.9	3,499.4	2.30	0.00	2.30
7,359.0	88.99	168.33	3,995.4	-3,533.2	-320.6	3,529.8	1.10	-0.29	1.06
7,390.0	89.43	168.90	3,995.8	-3,563.6	-314.4	3,560.3	2.32	1.42	1.84
7,421.0	89.60	169.04	3,996.1	-3,594.0	-308.5	3,590.8	0.71	0.55	0.45
7,451.0	89.43	169.15	3,996.3	-3,623.5	-302.8	3,620.3	0.67	-0.57	0.37
7,482.0	89.43	168.65	3,996.6	-3,653.9	-296.9	3,650.7	1.61	0.00	-1.61
7,513.0	89.34	169.35	3,997.0	-3,684.3	-291.0	3,681.2	2.28	-0.29	2.26
7,543.0	89.16	169.20	3,997.4	-3,713.8	-285.4	3,710.8	0.78	-0.60	-0.50
7,574.0	89.96	169.57	3,997.6	-3,744.3	-279.7	3,741.3	2.84	2.58	1.19
7,604.0	90.75	170.48	3,997.4	-3,773.8	-274.5	3,770.9	4.02	2.63	3.03
7,634.0	90.31	170.62	3,997.1	-3,803.4	-269.5	3,800.5	1.54	-1.47	0.47
7,664.0	89.87	170.46	3,997.1	-3,833.0	-264.6	3,830.2	1.56	-1.47	-0.53
7,695.0	90.22	170.22	3,997.1	-3,863.5	-259.4	3,860.8	1.37	1.13	-0.77
7,726.0	90.66	170.67	3,996.8	-3,894.1	-254.3	3,891.4	2.03	1.42	1.45
7,756.0	90.13	170.59	3,996.6	-3,923.7	-249.4	3,921.0	1.79	-1.77	-0.27
7,785.0	90.40	170.24	3,996.5	-3,952.3	-244.5	3,949.7	1.52	0.93	-1.21
7,816.0	90.92	170.47	3,996.1	-3,982.9	-239.4	3,980.3	1.83	1.68	0.74
7,847.0	90.66	170.58	3,995.7	-4,013.4	-234.2	4,010.9	0.91	-0.84	0.35
7,878.0	90.92	170.69	3,995.3	-4,044.0	-229.2	4,041.5	0.91	0.84	0.35
7,909.0	90.84	170.56	3,994.8	-4,074.6	-224.2	4,072.2	0.49	-0.26	-0.42
7,940.0	89.34	170.47	3,994.8	-4,105.2	-219.0	4,102.8	4.85	-4.84	-0.29

Survey Report

Company:	Energen Resources	Local Co-ordinate Reference:	Well Carracas 31B #16
Project:	Rio Arriba County	TVD Reference:	RKBtoGL-15' @ 7262 0usft (Original Well Elev)
Site:	Carracas	MD Reference:	RKBtoGL-15' @ 7262 0usft (Original Well Elev)
Well:	Carracas 31B #16	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
7,970 0	88 29	170 20	3,995 4	-4,134 7	-214.0	4,132 4	3.61	-3.50	-0 90
8,023 0	88 29	170 20	3,997.0	-4,186 9	-205.0	4,184 7	0.00	0.00	0 00
BHL-8023.00'MD / 3997.00'TVD									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
4,626.0	3,960 0	-849 6	-821.7	Top of Coal - 4626 00'MD / 3960 00'TVD	
8,023 0	3,997 0	-4,186 9	-205 0	BHL-8023.00'MD / 3997 00'TVD	

Checked By: _____	Approved By: _____	Date: _____
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