

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED
OMB NO. 1004-0137
Expires July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

JUN 28 2011

Farmington Field Office
Bureau of Land Management

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

Energen Resources Corporation

3a Address

2010 Afton Place, Farmington, NM 87401

3b. Phone No. (include area code)

505-325-6800

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SHL: 970' FSL 815' FEL; (P) SEC 30-T32N-R04W

BHL: 2,063' FSL 1,020' FEL; (I) SEC 31-T32N-R04W

5. Lease Serial No.

USA NMNM 30015

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.

Carracas 31B 16

9. API Well No.

30-039-30761

10. Field and Pool, or Exploratory Area

Basin Fruitland Coal

11. County or Parish, State

Rio Arriba NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

☐ Notice of Intent
☒ Subsequent Report
☐ Final Abandonment Notice

TYPE OF ACTION

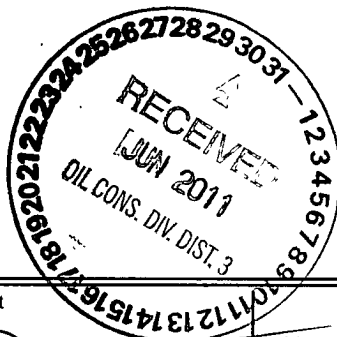
☐ Acidize ☐ Deepen ☐ Production (Start/Resume) ☐ Water Shut-Off
☐ Alter Casing ☐ Fracture Treat ☐ Reclamation ☐ Well Integrity
☐ Casing Repair ☐ New Construction ☐ Recomplete ☒ Other Production
☐ Change Plans ☐ Plug and Abandon ☐ Temporarily Abandon Liner & Killstring
☐ Convert to Injection ☐ Plug Back ☐ Water Disposal tubing

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the final site is ready for final inspection.)

6/20/11 TD: 8,023' PBTD: 7,910' Drill 6 1/4" hole to 8,023'. Run 76 jts. of 4 1/2" production liner. Set @ 7,910'. TOL: 4,701'. No Cement.

Run 146 jts. of 2 3/8" 4.7# J-55 killstring tubing, set @ 4,673'. ND BOP. Rig released @ 6:00am on 6/22/11.

Revise: Missing wt and grade of 4 1/2" casing



ACCEPTED FOR RECORD

JUN 28 2011

FARMINGTON FIELD OFFICE
BY SCV

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

Andrew Soto

Title Drilling Engineer

Signature

Date 6/27/11

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001, and Title 43 U.S.C. Section 1212, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NMOCDA

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. P	Section 30	Township 32N	Range 04W	Lot Idn	Feet from the 970'	North/South line South	Feet from the 815'	East/West line East	County Rio Arriba
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. I	Section 31	Township 32N	Range 04W	Lot Idn	Feet from the 2,063'	North/South line South	Feet from the 1,020'	East/West line East	County Rio Arriba
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¹² Dedicated Acres	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>[Signature]</i> 6/27/11 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. March 24, 2009 Date of Survey Original Survey Conducted and Recorded By: David R. Russell 10201 Certificate Number	

Energen Resources

Rio Arriba County

Carracas

Carracas 31B #16

OH

Design: OH

Standard Survey Report

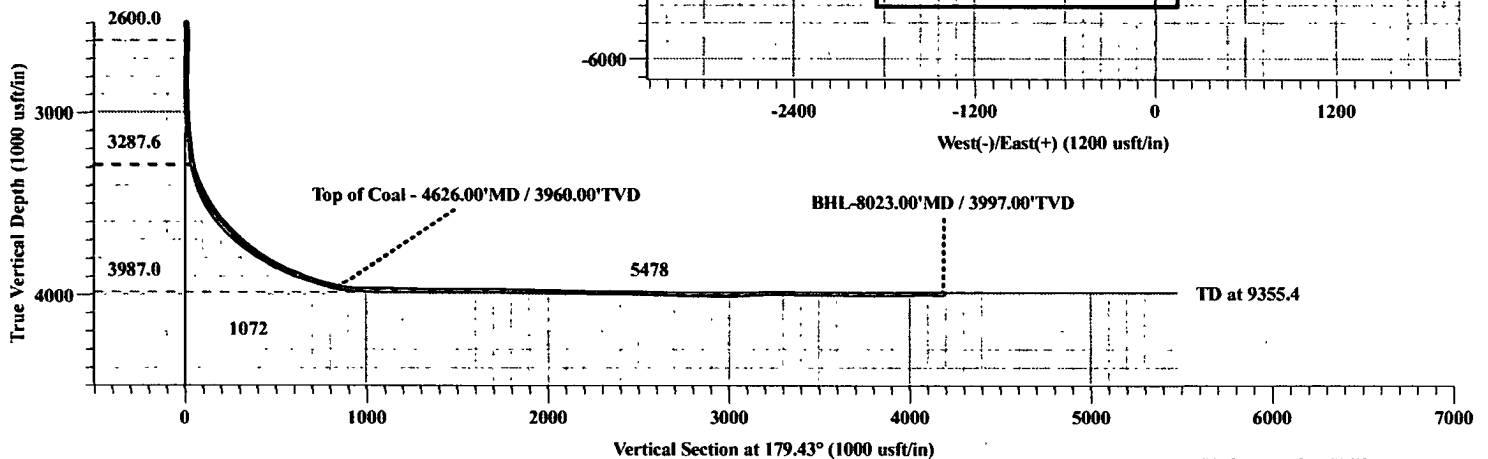
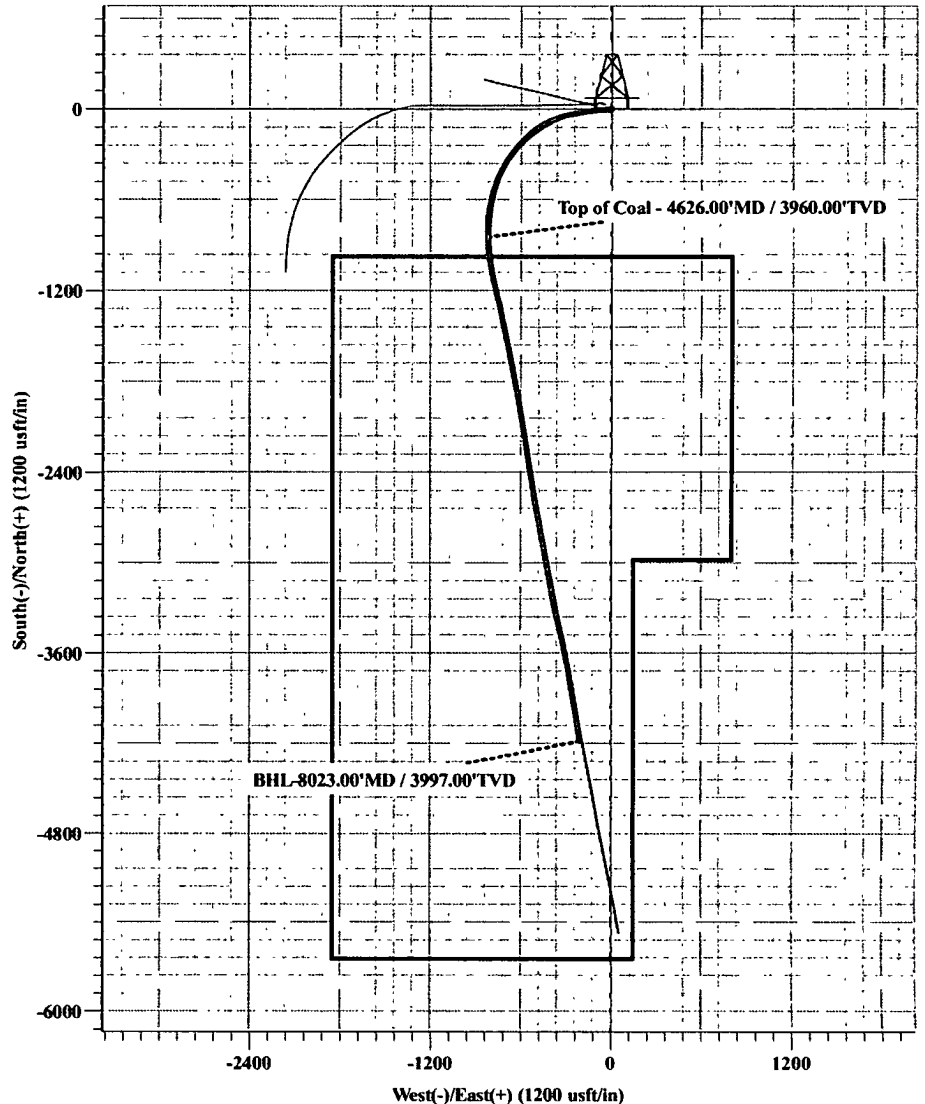
23 June, 2011

Carracas 31B #16
Carracas
Rio Arriba Co. NM

WELL DETAILS: Carracas 31B #16

Northing	Easting	Latitude	Longitude
2167908.53	1336600.95	36° 57' 11.448 N	107° 17' 23.280 W

EOW
No Hardline
Crossed



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

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

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

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

Well	Carracas 31B #16		
Well Position	+N-S	0.0 usft	Northing:
	+E-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	36° 57' 11.448 N
		Longitude:	107° 17' 23.280 W
		Ground Level:	7,247.0 usft

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

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

Survey Program	Date 06/23/11		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
335.0	8,023.0	MWD #1 (OH)	MWD
			Description
			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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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)
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 - 4826.00' MD / 3980.00' 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

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Wellbore: OH
Design: OH

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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
 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)
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		Comment
		+N/-S (usft)	+E/-W (usft)	
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: _____