

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 30 2011

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No
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.
10. Field and Pool, or Exploratory Area
Basin Fruitland Coal
11. County or Parish, State

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other
2. Name of Operator
Energen Resources Corporation
3a. Address
2010 Alameda Place Farmington NM 87401
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

3b. Phone No. (include area code)
505-325-

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

TYPE OF SUBMISSION	TYPE OF ACTION
☐ Notice of Intent	☐ Acidize ☐ Deepen ☐ Production (Start/Resume) ☐ Water Shut-Off
☒ Subsequent Report	☐ Alter Casing ☐ Fracture Treat ☐ Reclamation
☐ Final Abandonment Notice	☐ Casing Repair ☐ New Construction ☐ Recomplete ☒ Other <u>Production</u>
	☐ Change Plans ☐ Plug and Abandon ☐ Temporarily Abandon <u>Liner & Killstring</u>
	☐ Convert to Injection ☐ Plug Back ☐ Water Disposal <u>tubing</u>

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 recompleting 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 recompleting 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' PBD: 7,910' Drill 6 1/4" hole to 8,023'. Run 76 jts. of 4 1/2" J-55 11.6# 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.



ACCEPTED FOR RECORD
JUN 30 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 6/30/11

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

NMOCD

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

API Number
30-039-30701

Pool Code
71629

Pool Name
Basin Fruitland Coal

35667

Carracas 31B

16

OGRID No.
162928

Operator Name
ENERGEN RESOURCES CORPORATION

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

" Dedicated Acres " Joint or Infill " Consolidation Code " Order No.

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

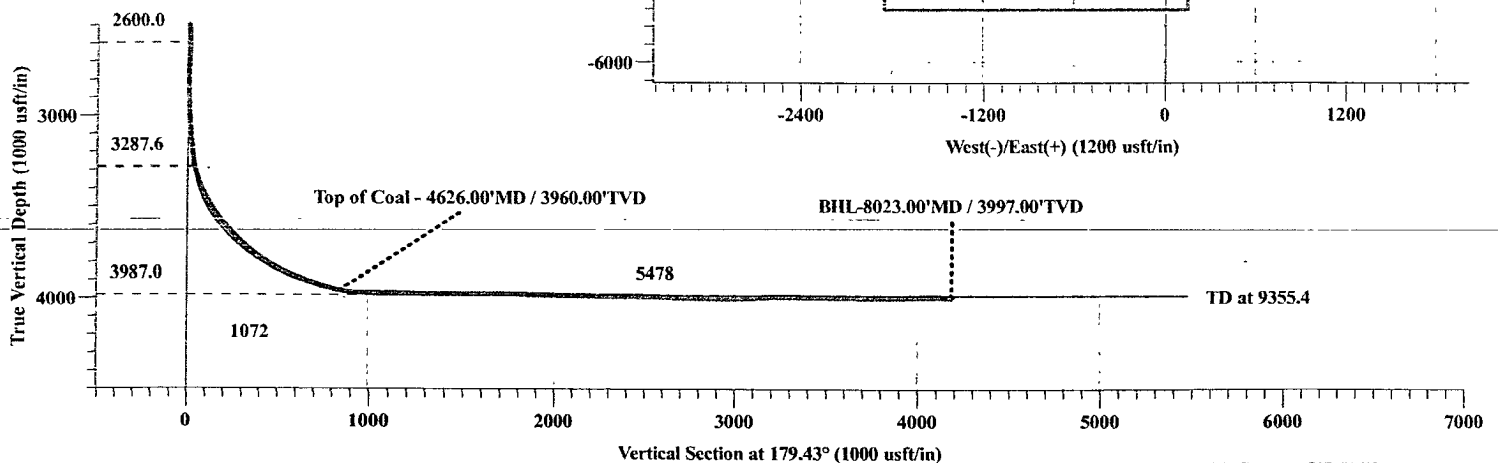
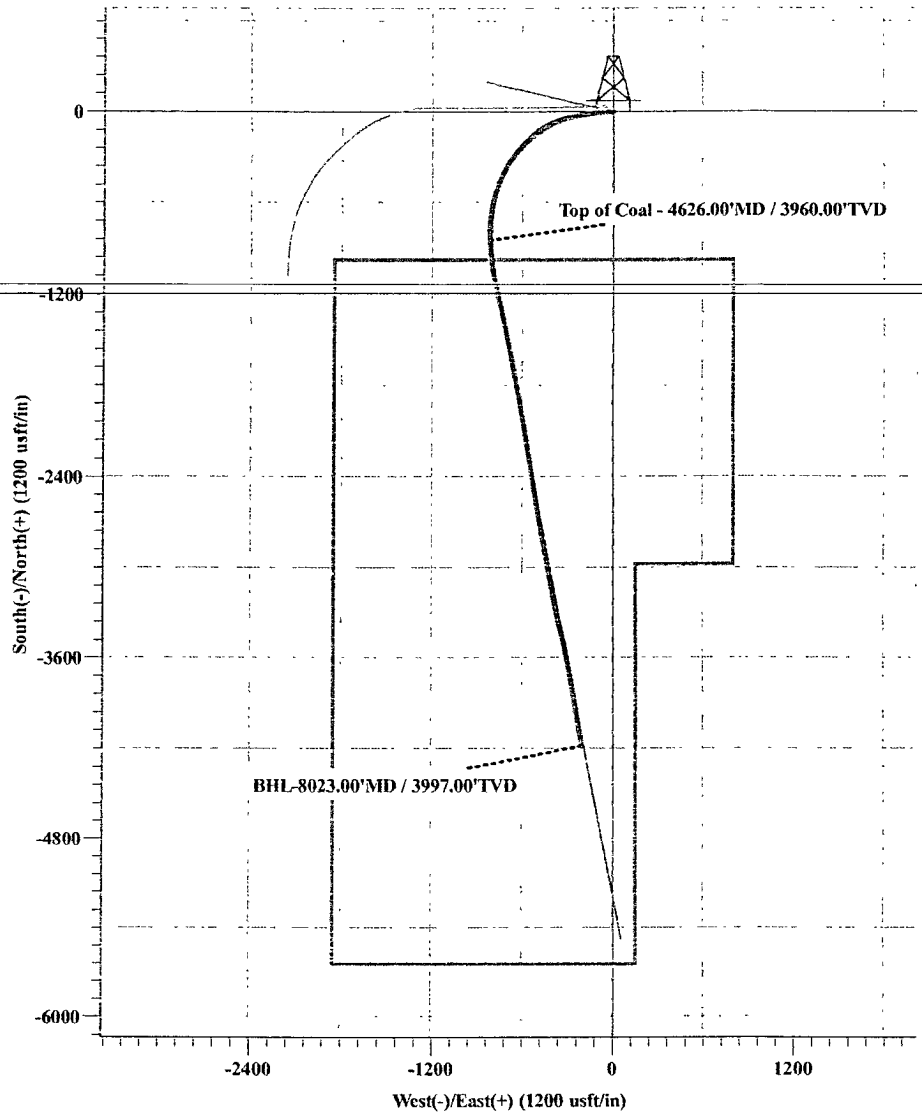
23 June, 2011

Carracas 31B #16
Carracas
Rio Arriba Co. NM

WELL DETAILS: Carracas 31B #16

North	East	7247.0	Lat	Long
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)

Created By: Frank C. Scardino

Date: 6/23/2011

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

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

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
		0.0 usft	Wellhead Elevation:	usft	Ground Level:	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	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) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.43	

Survey Program	Date	06/23/11			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
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

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 Wellbore: OH
 Design: OH

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 MD Reference: RKBoGL-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: RKBoGL-15' @ 7262.0usft (Original Well Elev)
 MD Reference: RKBoGL-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)
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	54.36	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

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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			
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		
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: _____