

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

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

SEP 16 2011

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.

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: 990' FSL, 820' FWL Sec. 21, T32N, R04W (M) SW/SW

EHL: 708' FSL, 503' FWL Sec. 20, T32N, R04W (M) SW/SW

5. Lease Serial No.

NM 28277

6. If Indian, Allottee or Tribe Name

NM

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

8. Well Name and No.

Arboles 20A # 10

9. API Well No.

30-039-30291

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 <u>Revised</u> |
| ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | <u>Plat</u> |
| ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | |

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.)

Energen Resources would like to cancel the revised As Drilled Plat previously submitted on 6/16/11 for the Arboles 20 A #10 and submit the attached revised As Drilled Plat.

Corrected Producing Interval is at:

736' FSL 718 FEL Sec. 20 T32N R04W (P)



14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed)

Anna Stotts

Title Regulatory Analyst

Signature

Date 9/16/11

ACCEPTED FOR RECORD

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

SEP 19 2011

Approved by

Title

Date
FARMINGTON FIELD OFFICE
BY SA

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 A

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

RECEIVED
State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr. Farmington Field Office
Santa Fe, NM 87505 Bureau of Land Management

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT
"AS DRILLED"

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30291	² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 32864	⁵ Property Name Arboles 20 A	
⁷ OGRID No. 162928		⁶ Well Number 10
⁸ Operator Name Energen Resources Corporation		⁹ Elevation 7,396'

¹⁰ Surface Location

UL or lot no. M	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
	21	32N	4W		990	South	820	West	Rio Arriba

¹¹ Bottom Hole Location If Different From Surface

UL or lot no. M	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
	20	32N	4W		708	South	503	West	Rio Arriba

¹² Dedicated Acres 320.0 - S/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13119
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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.

16 5271.04' (M), 12380.00' (R) 2646.04' (M), 2634.72' (R) 2605.81' (M), 2634.72' (R) 2639.87' (M), 2648.25' (R)	¹⁷ OPERATOR CERTIFICATION <i>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> <i>[Signature]</i> 9/16/2011 _____ Signature Date Nathan Smith Printed Name nsmith@energen.com E-mail Address ¹⁸ SURVEYOR CERTIFICATION <i>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</i> September 24, 2010 _____ Date of Survey Signature and Seal of Professional Surveyor: Original survey conducted and recorded by: David R. Russell 10201 _____ Certificate Number
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Energen Resources

Rio Arriba County

Carracas Mesa

Arboles 20A #10

Wellbore #1

Design: Wellbore #1

Standard Survey Report

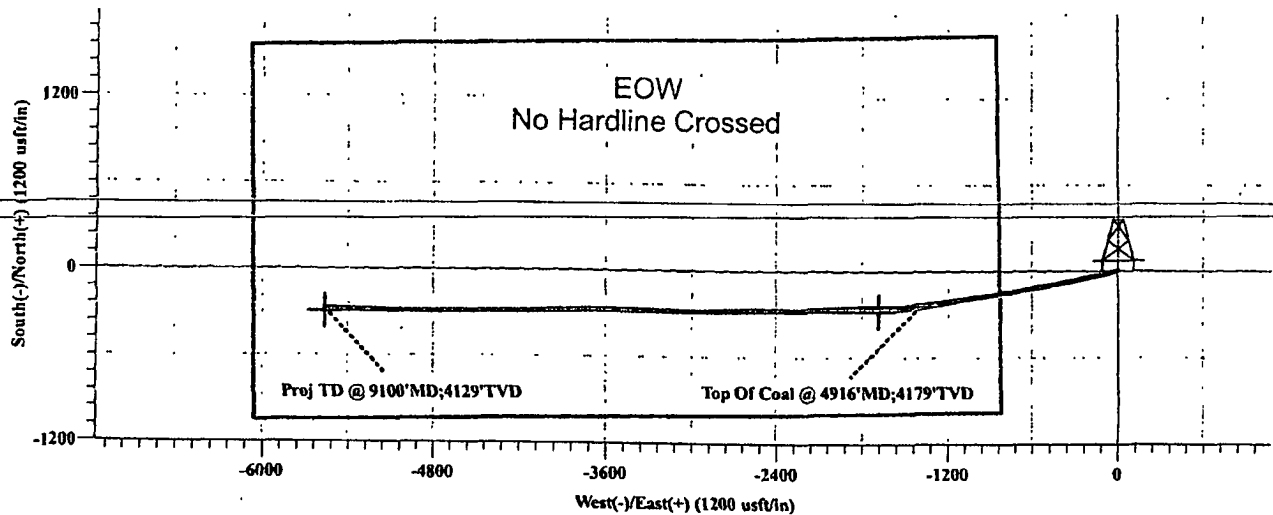
16 June, 2011

Arboles 20A #10
Rio Arriba Co. NM

GL: 7395' / KB: 15'

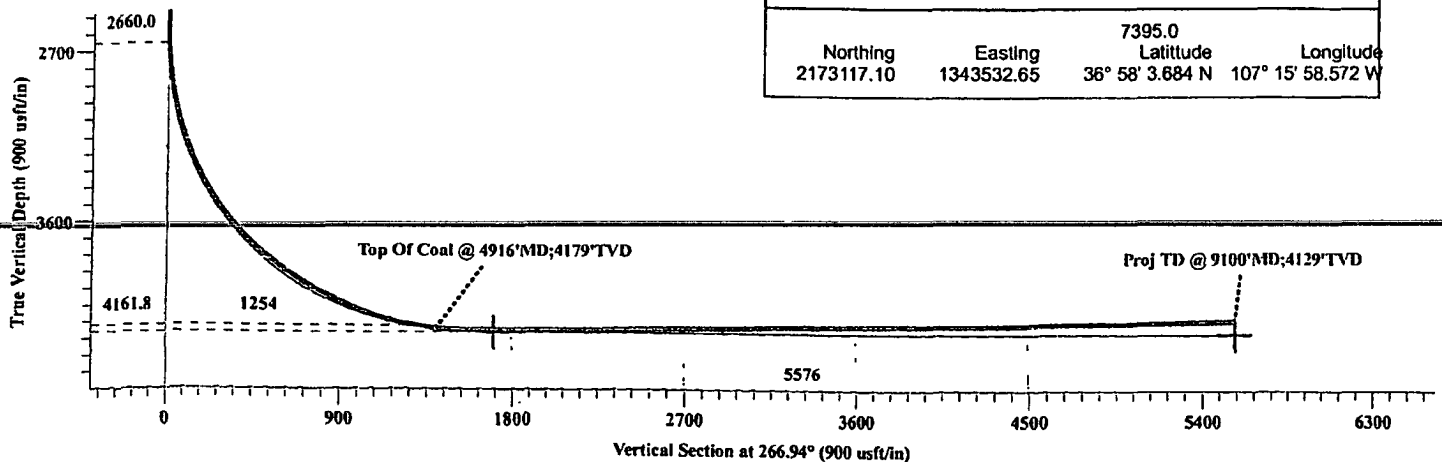
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
LAND-20A	4200.0	-284.2	-1688.6	2172832.85	1341844.09	Point
TD-20A	4200.0	-297.8	-5568.6	2172819.31	1337964.07	Point



WELL DETAILS: Arboles 20A #10

Northing	Easting	7395.0 Latitude	Longitude
2173117.10	1343532.65	36° 58' 3.684 N	107° 15' 58.572 W



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
2660.0	0.00	0.00	2660.0	0.0	0.0	0.00	0.00	0.0	
4794.8	80.28	259.03	4161.8	-241.0	-1243.2	3.76	259.03	1254.3	
5245.1	90.00	269.80	4200.0	-284.2	-1688.6	3.21	48.41	1701.3	LAND-20A
9124.9	90.00	269.80	4200.0	-297.8	-5568.4	0.00	0.00	5576.3	

Plan: Design #1 (Arboles 20A #10/Wellbore #1)

Created By: Frank C. Scardino

Date: 6/16/2011

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas Mesa
 Well: Arboles 20A #10
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
 TVD Reference: WELL @ 7410.0usft (Original Well Elev)
 MD Reference: WELL @ 7410.0usft (Original Well Elev)
 North Reference: Gnd
 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 Mesa		
Site Position:		Northing:	2,173,117.10 usft
From:	Map	Easting:	1,343,532.65 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	36° 58' 3.684 N
		Longitude:	107° 15' 58.572 W
		Grid Convergence:	-0.61 °

Well	Arboles 20A #10		
Well Position	+N/-S	0.0 usft	Northing: 2,173,117.10 usft
	+E/-W	0.0 usft	Easting: 1,343,532.65 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	36° 58' 3.684 N
		Longitude:	107° 15' 58.572 W
		Ground Level:	-7,395.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	06/16/11	9.71
		Dip Angle	63.75
		Field Strength	50,923

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
		Direction	266.94

Survey Program	Date 06/16/11		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
272.0	9,100.0	Survey #1 (Wellbore #1)	MWD
			Description
			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	
272.0	0.44	296.73	272.0	0.5	-0.9	0.9	0.16	0.16	0.00	
363.0	0.06	139.49	363.0	0.6	-1.2	1.2	0.54	-0.42	-172.79	
456.0	0.09	214.88	456.0	0.5	-1.2	1.2	0.10	0.03	81.06	
547.0	0.10	165.88	547.0	0.4	-1.2	1.2	0.09	0.01	-53.85	
636.0	0.11	208.81	636.0	0.2	-1.3	1.3	0.09	0.01	48.24	
727.0	0.14	33.05	727.0	0.2	-1.2	1.2	0.27	0.03	-193.14	
819.0	0.04	195.65	819.0	0.3	-1.2	1.2	0.19	-0.11	176.96	
909.0	0.14	7.99	909.0	0.4	-1.2	1.2	0.20	0.11	191.27	
1,000.0	0.12	343.08	1,000.0	0.6	-1.2	1.2	0.07	-0.02	-27.37	

Survey Report

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 Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
 TVD Reference: WELL @ 7410.0usft (Original Well Elev)
 MD Reference: WELL @ 7410.0usft (Original Well Elev)
 North Reference: Grid
 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)
1,094.0	0.06	291.79	1,094.0	0.7	-1.3	1.2	0.10	-0.06	-54.56
1,183.0	0.10	339.08	1,183.0	0.8	-1.3	1.3	0.08	0.04	53.13
1,274.0	0.09	174.77	1,274.0	0.8	-1.4	1.3	0.21	-0.01	-180.56
1,367.0	0.09	118.23	1,367.0	0.7	-1.3	1.3	0.09	0.00	-60.80
1,461.0	0.09	179.74	1,461.0	0.6	-1.2	1.2	0.10	0.00	65.44
1,557.0	0.03	213.48	1,557.0	0.5	-1.2	1.2	0.07	-0.06	35.15
1,652.0	0.09	197.51	1,652.0	0.4	-1.3	1.3	0.06	0.06	-16.81
1,748.0	0.12	160.52	1,748.0	0.2	-1.3	1.3	0.08	0.03	-38.53
1,842.0	0.06	93.87	1,842.0	0.1	-1.2	1.2	0.12	-0.06	-70.90
1,938.0	0.10	15.16	1,938.0	0.2	-1.1	1.1	0.11	0.04	-81.99
2,033.0	0.15	224.49	2,033.0	0.2	-1.2	1.2	0.25	0.05	-158.60
2,128.0	0.23	128.21	2,128.0	0.0	-1.1	1.1	0.30	0.08	-101.35
2,224.0	0.06	137.19	2,224.0	-0.2	-0.9	0.9	0.18	-0.18	9.35
2,320.0	0.09	27.27	2,320.0	-0.2	-0.9	0.9	0.13	0.03	-114.50
2,415.0	0.06	301.38	2,415.0	-0.1	-0.9	0.9	0.11	-0.03	-90.41
2,511.0	0.06	284.14	2,511.0	0.0	-1.0	1.0	0.02	0.00	-17.96
2,607.0	0.84	264.40	2,607.0	-0.1	-1.7	1.7	0.82	0.81	-20.56
2,671.0	3.47	258.55	2,670.9	-0.5	-4.1	4.1	4.12	4.11	-9.14
2,734.0	4.84	256.59	2,733.8	-1.5	-8.5	8.6	2.19	2.17	-3.11
2,797.0	6.73	253.31	2,796.4	-3.2	-14.7	14.8	3.04	3.00	-5.21
2,861.0	9.50	250.11	2,859.8	-6.1	-23.2	23.5	4.38	4.33	-5.00
2,925.0	11.48	250.23	2,922.7	-10.0	-34.2	34.7	3.09	3.09	0.19
2,988.0	12.87	251.14	2,984.3	-14.4	-46.7	47.4	2.23	2.21	1.44
3,020.0	14.28	254.15	3,015.4	-16.6	-53.9	54.7	4.93	4.41	9.41
3,052.0	15.41	256.52	3,046.3	-18.7	-61.8	62.7	4.01	3.53	7.41
3,116.0	17.92	260.03	3,107.7	-22.4	-79.8	80.9	4.22	3.92	5.48
3,180.0	20.77	259.32	3,168.0	-26.2	-100.6	101.9	4.47	4.45	-1.11
3,212.0	21.60	259.15	3,197.9	-28.4	-112.0	113.4	2.60	2.59	-0.53
3,244.0	22.70	257.96	3,227.5	-30.8	-123.8	125.3	3.71	3.44	-3.72
3,276.0	23.62	257.20	3,256.9	-33.5	-136.1	137.7	3.02	2.88	-2.38
3,306.0	24.51	256.84	3,284.3	-36.2	-148.0	149.8	3.01	2.97	-1.20
3,338.0	26.12	256.55	3,313.3	-39.4	-161.4	163.2	5.05	5.03	-0.91
3,369.0	27.65	256.78	3,340.9	-42.6	-175.0	177.0	4.94	4.94	0.68
3,401.0	28.58	256.54	3,369.1	-46.1	-189.7	191.9	2.92	2.91	-0.69
3,433.0	29.76	256.95	3,397.1	-49.7	-204.8	207.2	3.74	3.69	1.28
3,465.0	30.51	257.08	3,424.7	-53.3	-220.5	223.0	2.35	2.34	0.41
3,497.0	31.69	257.08	3,452.1	-57.0	-236.6	239.3	3.69	3.69	0.00
3,529.0	32.59	257.56	3,479.2	-60.7	-253.2	256.1	2.92	2.81	1.50
3,561.0	33.37	257.78	3,506.1	-64.4	-270.2	273.3	2.47	2.44	0.69
3,592.0	34.71	257.63	3,531.8	-68.1	-287.2	290.4	4.33	4.32	-0.48
3,624.0	36.46	258.65	3,557.8	-71.9	-305.4	308.8	5.77	5.47	3.19
3,656.0	38.12	259.18	3,583.2	-75.7	-324.4	328.0	5.28	5.19	1.66
3,688.0	39.49	259.94	3,608.2	-79.3	-344.2	347.8	4.53	4.28	2.38
3,720.0	41.00	260.01	3,632.6	-82.9	-364.5	368.4	4.72	4.72	0.22

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas Mesa
Well: Arboles 20A #10
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
TVD Reference: WELL @ 7410.0usft (Original Well Elev)
MD Reference: WELL @ 7410.0usft (Original Well Elev)
North Reference: Grid
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)
3,752.0	42.70	260.10	3,656.4	-86.6	-385.5	389.6	5.32	5.31	0.28
3,784.0	44.14	259.77	3,679.7	-90.4	-407.2	411.4	4.56	4.50	-1.03
3,816.0	45.43	259.43	3,702.4	-94.5	-429.4	433.8	4.10	4.03	-1.06
3,848.0	46.65	259.20	3,724.6	-98.8	-452.0	456.6	3.85	3.81	-0.72
3,880.0	47.89	258.91	3,746.3	-103.2	-475.1	479.9	3.93	3.88	-0.91
3,912.0	49.13	259.44	3,767.5	-107.7	-498.6	503.7	4.07	3.88	1.66
3,943.0	50.46	259.73	3,787.5	-112.0	-521.9	527.1	4.35	4.29	0.94
3,975.0	51.46	259.78	3,807.7	-116.4	-546.4	551.8	3.13	3.13	0.16
4,007.0	52.23	260.09	3,827.5	-120.8	-571.1	576.8	2.52	2.41	0.97
4,038.0	52.97	260.39	3,846.3	-125.0	-595.4	601.2	2.51	2.39	0.97
4,070.0	53.69	260.77	3,865.4	-129.2	-620.7	626.7	2.44	2.25	1.19
4,096.0	54.31	261.61	3,880.7	-132.4	-641.5	647.7	3.54	2.38	3.23
4,128.0	55.37	261.27	3,899.1	-136.3	-667.4	673.7	3.42	3.31	-1.06
4,160.0	56.79	261.79	3,917.0	-140.2	-693.7	700.2	4.64	4.44	1.63
4,192.0	57.86	261.91	3,934.2	-144.0	-720.3	727.0	3.36	3.34	0.38
4,224.0	59.47	262.12	3,950.9	-147.8	-747.4	754.2	5.06	5.03	0.66
4,256.0	60.05	261.81	3,967.0	-151.7	-774.8	781.8	2.00	1.81	-0.97
4,288.0	60.70	261.17	3,982.8	-155.8	-802.3	809.4	2.67	2.03	-2.00
4,319.0	61.73	260.38	3,997.7	-160.2	-829.1	836.5	4.00	3.32	-2.55
4,351.0	63.18	260.15	4,012.5	-165.0	-857.1	864.6	4.58	4.53	-0.72
4,383.0	63.93	260.62	4,026.8	-169.8	-885.3	893.1	2.69	2.34	1.47
4,415.0	64.62	260.98	4,040.7	-174.4	-913.8	921.8	2.38	2.16	1.13
4,447.0	65.48	261.05	4,054.2	-178.9	-942.4	950.6	2.63	2.63	0.22
4,479.0	66.73	261.09	4,067.2	-183.4	-971.3	979.7	3.97	3.97	0.13
4,510.0	67.82	261.18	4,079.1	-187.8	-999.6	1,008.2	3.53	3.52	0.29
4,542.0	68.88	261.50	4,090.9	-192.3	-1,029.0	1,037.8	3.44	3.31	1.00
4,574.0	69.81	261.81	4,102.2	-196.7	-1,058.6	1,067.6	3.04	2.91	0.97
4,606.0	70.73	261.93	4,113.0	-200.9	-1,088.4	1,097.6	2.90	2.88	0.38
4,638.0	71.73	262.27	4,123.3	-205.1	-1,118.4	1,127.8	3.28	3.13	1.06
4,670.0	73.13	262.43	4,133.0	-209.2	-1,148.7	1,158.2	4.40	4.38	0.50
4,702.0	74.81	262.89	4,141.8	-213.1	-1,179.2	1,188.9	5.43	5.25	1.44
4,734.0	76.61	263.22	4,149.7	-216.8	-1,209.9	1,219.8	5.71	5.63	1.03
4,766.0	78.11	262.95	4,156.7	-220.6	-1,240.9	1,250.9	4.76	4.69	-0.84
4,798.0	79.54	262.63	4,162.9	-224.5	-1,272.1	1,282.3	4.58	4.47	-1.00
4,829.0	81.22	262.76	4,168.1	-228.4	-1,302.4	1,312.7	5.44	5.42	0.42
4,861.0	83.22	263.13	4,172.4	-232.3	-1,333.9	1,344.4	6.35	6.25	1.16
4,893.0	83.66	263.04	4,176.1	-236.1	-1,365.4	1,376.1	1.40	1.38	-0.28
4,916.0	83.84	262.69	4,178.6	-239.0	-1,388.1	1,398.9	1.73	0.80	-1.54
Top Of Coal @ 4916MD; 4179'TVD									
4,928.0	83.94	262.50	4,179.9	-240.5	-1,399.9	1,410.8	1.73	0.80	-1.54
4,957.0	85.44	262.50	4,182.5	-244.3	-1,428.6	1,439.6	5.17	5.17	0.00
4,984.0	87.08	263.12	4,184.3	-247.7	-1,455.3	1,466.4	6.49	6.07	2.30
5,078.0	89.96	266.98	4,186.7	-255.8	-1,548.9	1,560.3	5.12	3.06	4.11

Δ 36'

1548.9 - 36' = 1513
255.8 - 36' = 220

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Canacas Mesa
 Well: Arboles 20A #10
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
 TVD Reference: WELL @ 7410.0usft (Original Well Elev)
 MD Reference: WELL @ 7410.0usft (Original Well Elev)
 North Reference: Gnd
 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)
5,110.0	90.13	269.75	4,186.7	-256.7	-1,580.9	1,592.3	8.67	0.53	8.66
5,142.0	90.92	271.75	4,186.4	-256.3	-1,612.9	1,624.2	6.72	2.47	6.25
5,173.0	89.87	269.83	4,186.2	-255.8	-1,643.9	1,655.2	7.06	-3.39	-6.19
5,205.0	90.48	268.46	4,186.1	-256.3	-1,675.9	1,687.1	4.69	1.91	-4.28
5,237.0	90.31	268.01	4,185.9	-257.3	-1,707.8	1,719.1	1.50	-0.53	-1.41
5,269.0	89.60	268.26	4,185.9	-258.3	-1,739.8	1,751.1	2.35	-2.22	0.78
5,301.0	89.43	268.39	4,186.2	-259.3	-1,771.8	1,783.1	0.67	-0.53	0.41
5,333.0	89.96	268.77	4,186.4	-260.1	-1,803.8	1,815.1	2.04	1.66	1.19
5,364.0	90.57	269.19	4,186.2	-260.6	-1,834.8	1,846.1	2.39	1.97	1.35
5,396.0	90.75	268.76	4,185.8	-261.2	-1,866.8	1,878.1	1.46	0.56	1.34
5,428.0	90.66	267.71	4,185.4	-262.2	-1,898.8	1,910.0	3.29	-0.28	-3.28
5,460.0	90.22	266.41	4,185.2	-263.8	-1,930.7	1,942.0	4.29	-1.38	-4.06
5,491.0	89.34	265.26	4,185.3	-266.1	-1,961.6	1,973.0	4.67	-2.84	-3.71
5,523.0	89.87	265.54	4,185.5	-268.6	-1,993.5	2,005.0	1.87	1.66	0.88
5,555.0	90.31	267.55	4,185.5	-270.6	-2,025.5	2,037.0	6.43	1.38	6.28
5,584.0	90.31	267.56	4,185.3	-271.8	-2,054.4	2,066.0	0.03	0.00	0.03
5,615.0	90.48	268.15	4,185.1	-273.0	-2,085.4	2,097.0	1.98	0.55	1.90
5,645.0	90.04	268.01	4,185.0	-274.0	-2,115.4	2,127.0	1.54	-1.47	-0.47
5,675.0	89.69	267.93	4,185.1	-275.0	-2,145.4	2,157.0	1.20	-1.17	-0.27
5,707.0	89.87	267.91	4,185.2	-276.2	-2,177.4	2,189.0	0.57	0.56	-0.06
5,738.0	89.52	267.72	4,185.3	-277.4	-2,208.3	2,220.0	1.28	-1.13	-0.61
5,768.0	89.52	268.10	4,185.6	-278.5	-2,238.3	2,250.0	1.27	0.00	1.27
5,799.0	90.22	269.21	4,185.7	-279.2	-2,269.3	2,281.0	4.23	2.26	3.58
5,829.0	90.84	269.95	4,185.4	-279.4	-2,299.3	2,310.9	3.22	2.07	2.47
5,860.0	91.89	271.29	4,184.6	-279.1	-2,330.3	2,341.9	5.49	3.39	4.32
5,891.0	92.51	271.42	4,183.5	-278.3	-2,361.3	2,372.8	2.04	2.00	0.42
5,922.0	91.98	270.77	4,182.2	-277.7	-2,392.2	2,403.7	2.70	-1.71	-2.10
5,952.0	92.24	270.84	4,181.1	-277.3	-2,422.2	2,433.6	0.90	0.87	0.23
5,982.0	92.15	270.46	4,180.0	-277.0	-2,452.2	2,463.5	1.30	-0.30	-1.27
6,013.0	91.71	270.06	4,178.9	-276.8	-2,483.2	2,494.4	1.92	-1.42	-1.29
6,043.0	90.92	268.82	4,178.3	-277.1	-2,513.2	2,524.4	4.90	-2.63	-4.13
6,073.0	91.10	269.41	4,177.7	-277.6	-2,543.2	2,554.3	2.06	0.60	1.97
6,104.0	91.45	269.57	4,177.0	-277.9	-2,574.1	2,585.3	1.24	1.13	0.52
6,134.0	91.54	269.61	4,176.3	-278.1	-2,604.1	2,615.3	0.33	0.30	0.13
6,165.0	91.10	269.32	4,175.5	-278.4	-2,635.1	2,646.2	1.70	-1.42	-0.94
6,196.0	90.40	269.05	4,175.1	-278.8	-2,666.1	2,677.2	2.42	-2.26	-0.87
6,227.0	90.22	268.18	4,175.0	-279.8	-2,697.1	2,708.2	2.87	-0.58	-2.81
6,257.0	89.52	267.04	4,175.0	-280.8	-2,727.1	2,738.2	4.46	-2.33	-3.80
6,288.0	90.31	267.15	4,175.1	-282.4	-2,758.0	2,769.2	2.57	2.55	0.35
6,318.0	90.75	266.78	4,174.8	-284.0	-2,788.0	2,799.2	1.92	1.47	-1.23
6,348.0	90.75	266.92	4,174.4	-285.6	-2,817.9	2,829.2	0.47	0.00	0.47
6,379.0	90.92	268.19	4,174.0	-287.0	-2,848.9	2,860.2	4.13	0.55	4.10
6,409.0	90.66	269.53	4,173.5	-287.5	-2,878.9	2,890.2	4.55	-0.87	4.47
6,439.0	90.92	269.58	4,173.1	-287.8	-2,908.9	2,920.1	0.88	0.87	0.17

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas Mesa
 Well: Arboles 20A #10
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
 TVD Reference: WELL @ 7410.0usft (Original Well Elev)
 MD Reference: WELL @ 7410.0usft (Original Well Elev)
 North Reference: Grid
 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)	
6,470.0	90.92	269.29	4,172.6	-288.1	-2,939.9	2,951.1	0.94	0.00	-0.94	
6,500.0	91.36	270.26	4,172.0	-288.2	-2,969.9	2,981.0	3.55	1.47	3.23	
6,531.0	91.71	270.56	4,171.2	-288.0	-3,000.9	3,012.0	1.49	1.13	0.97	
6,562.0	91.80	270.41	4,170.3	-287.7	-3,031.9	3,042.9	0.56	0.29	-0.48	
6,592.0	91.80	269.75	4,169.3	-287.7	-3,061.8	3,072.8	2.20	0.00	-2.20	
6,622.0	91.89	270.53	4,168.4	-287.6	-3,091.8	3,102.8	2.62	0.30	2.60	
6,653.0	91.28	270.65	4,167.5	-287.3	-3,122.8	3,133.7	2.01	-1.97	0.39	
6,684.0	90.84	271.64	4,166.9	-286.7	-3,153.8	3,164.6	3.49	-1.42	3.19	
6,715.0	90.75	271.64	4,166.5	-285.8	-3,184.8	3,195.5	0.29	-0.29	0.00	
6,744.0	90.92	272.24	4,166.1	-284.8	-3,213.8	3,224.4	2.15	0.59	2.07	
6,775.0	91.45	271.88	4,165.4	-283.7	-3,244.7	3,255.3	2.07	1.71	-1.16	
6,806.0	91.63	272.32	4,164.6	-282.5	-3,275.7	3,286.1	1.53	0.58	1.42	
6,835.0	91.36	272.17	4,163.8	-281.4	-3,304.7	3,315.0	1.08	-0.93	-0.52	
6,865.0	91.36	271.26	4,163.1	-280.5	-3,334.7	3,344.9	3.03	0.00	-3.03	
6,895.0	90.40	270.61	4,162.7	-280.0	-3,364.6	3,374.8	3.86	-3.20	-2.17	
6,925.0	89.87	270.29	4,162.6	-279.8	-3,394.6	3,404.7	2.06	-1.77	-1.07	
6,956.0	90.22	270.23	4,162.6	-279.6	-3,425.6	3,435.7	1.15	1.13	-0.19	
6,987.0	90.48	270.31	4,162.4	-279.5	-3,456.6	3,466.6	0.88	0.84	0.26	
7,016.0	90.75	270.39	4,162.1	-279.3	-3,486.6	3,495.6	0.97	0.93	0.28	
7,047.0	90.84	270.12	4,161.6	-279.2	-3,516.6	3,526.5	0.92	0.29	-0.87	
7,078.0	90.84	269.96	4,161.2	-279.2	-3,547.6	3,557.5	0.52	0.00	-0.52	
7,108.0	91.36	270.66	4,160.6	-279.0	-3,577.6	3,587.4	2.91	1.73	2.33	
7,139.0	91.45	270.63	4,159.8	-278.7	-3,608.6	3,618.4	0.31	0.29	-0.10	
7,169.0	90.92	270.96	4,159.2	-278.2	-3,638.6	3,648.3	2.08	-1.77	1.10	
7,200.0	90.92	270.59	4,158.7	-277.8	-3,669.6	3,679.2	1.19	0.00	-1.19	
7,229.0	91.01	269.70	4,158.2	-277.7	-3,698.6	3,708.2	3.08	0.31	-3.07	
7,260.0	90.84	269.87	4,157.7	-277.9	-3,729.6	3,739.1	0.78	-0.55	0.55	
7,291.0	91.01	269.44	4,157.2	-278.0	-3,760.6	3,770.1	1.49	0.55	-1.39	
7,321.0	90.57	268.65	4,156.8	-278.5	-3,790.6	3,800.0	3.01	-1.47	-2.63	
7,353.0	89.69	267.93	4,156.8	-279.5	-3,822.6	3,832.0	3.55	-2.75	-2.25	
7,383.0	90.75	267.69	4,156.6	-280.7	-3,852.5	3,862.0	3.62	3.53	-0.80	
7,414.0	90.57	268.10	4,156.3	-281.8	-3,883.5	3,893.0	1.44	-0.58	1.32	
7,446.0	91.19	268.24	4,155.8	-282.8	-3,915.5	3,925.0	1.99	1.94	0.44	
7,476.0	90.75	267.99	4,155.3	-283.8	-3,945.5	3,955.0	1.69	-1.47	-0.83	
7,508.0	89.87	267.48	4,155.1	-285.1	-3,977.5	3,987.0	3.18	-2.75	-1.59	
7,538.0	90.22	267.78	4,155.1	-286.3	-4,007.4	4,017.0	1.54	1.17	1.00	
7,569.0	89.78	267.76	4,155.1	-287.5	-4,038.4	4,048.0	1.42	-1.42	-0.06	
7,601.0	90.04	267.96	4,155.1	-288.7	-4,070.4	4,080.0	1.03	0.81	0.63	
7,632.0	90.04	267.95	4,155.1	-289.8	-4,101.4	4,111.0	0.03	0.00	-0.03	
7,663.0	89.78	267.90	4,155.2	-290.9	-4,132.3	4,142.0	0.85	-0.84	-0.16	
7,693.0	89.96	267.88	4,155.2	-292.0	-4,162.3	4,172.0	0.60	0.60	-0.07	
7,724.0	89.78	268.13	4,155.3	-293.1	-4,193.3	4,203.0	0.99	-0.58	0.81	
7,755.0	90.40	270.08	4,155.3	-293.6	-4,224.3	4,233.9	6.60	2.00	6.29	

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas Mesa
Well: Arboles 20A #10
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
TVD Reference: WELL @ 7410.0usft (Original Well Elev)
MD Reference: WELL @ 7410.0usft (Original Well Elev)
North Reference: Gnd
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)
7,786.0	90.13	269.88	4,155.1	-293.6	-4,255.3	4,264.9	1.08	-0.87	-0.65
7,817.0	90.04	269.50	4,155.1	-293.8	-4,286.3	4,295.9	1.26	-0.29	-1.23
7,848.0	90.13	269.53	4,155.0	-294.0	-4,317.3	4,326.8	0.31	0.29	0.10
7,878.0	90.22	269.38	4,154.9	-294.3	-4,347.3	4,356.8	0.58	0.30	-0.50
7,909.0	90.48	269.82	4,154.7	-294.5	-4,378.3	4,387.8	1.65	0.84	1.42
7,940.0	92.33	271.18	4,154.0	-294.3	-4,409.3	4,418.7	7.41	5.97	4.39
7,970.0	92.42	271.06	4,152.7	-293.7	-4,439.3	4,448.6	0.50	0.30	-0.40
8,001.0	91.80	270.28	4,151.6	-293.3	-4,470.2	4,479.5	3.21	-2.00	-2.52
8,032.0	91.36	270.00	4,150.7	-293.2	-4,501.2	4,510.5	1.68	-1.42	-0.90
8,064.0	91.36	269.72	4,150.0	-293.3	-4,533.2	4,542.4	0.87	0.00	-0.88
8,096.0	91.80	270.03	4,149.1	-293.4	-4,565.2	4,574.3	1.68	1.38	0.97
8,128.0	91.54	270.06	4,148.2	-293.4	-4,597.2	4,606.3	0.82	-0.81	0.09
8,160.0	91.45	270.23	4,147.3	-293.3	-4,629.2	4,638.2	0.60	-0.28	0.53
8,192.0	91.10	269.94	4,146.6	-293.2	-4,661.2	4,670.2	1.42	-1.09	-0.91
8,224.0	91.01	269.17	4,146.0	-293.5	-4,693.2	4,702.1	2.42	-0.28	-2.41
8,255.0	91.28	269.24	4,145.4	-293.9	-4,724.1	4,733.1	0.90	0.87	0.23
8,287.0	90.66	269.64	4,144.9	-294.2	-4,756.1	4,765.1	2.31	-1.94	1.25
8,319.0	90.75	269.32	4,144.5	-294.5	-4,788.1	4,797.0	1.04	0.28	-1.00
8,351.0	90.92	269.58	4,144.0	-294.8	-4,820.1	4,829.0	0.97	0.53	0.81
8,382.0	91.19	269.52	4,143.4	-295.1	-4,851.1	4,860.0	0.89	0.87	-0.19
8,414.0	91.36	269.61	4,142.7	-295.3	-4,883.1	4,891.9	0.60	0.53	0.28
8,446.0	91.28	269.62	4,142.0	-295.5	-4,915.1	4,923.9	0.25	-0.25	0.03
8,478.0	91.36	269.45	4,141.2	-295.8	-4,947.1	4,955.8	0.59	0.25	-0.53
8,510.0	91.10	270.69	4,140.6	-295.8	-4,979.1	4,987.8	3.96	-0.81	3.88
8,541.0	90.75	270.99	4,140.1	-295.3	-5,010.1	5,018.7	1.49	-1.13	0.97
8,573.0	90.75	272.01	4,139.6	-294.5	-5,042.1	5,050.6	3.19	0.00	3.19
8,604.0	91.19	272.44	4,139.1	-293.3	-5,073.0	5,081.5	1.98	1.42	1.39
8,636.0	90.84	271.88	4,138.6	-292.1	-5,105.0	5,113.3	2.06	-1.09	-1.75
8,668.0	91.71	271.95	4,137.8	-291.0	-5,137.0	5,145.2	2.73	2.72	0.22
8,700.0	92.07	271.73	4,136.8	-290.0	-5,169.0	5,177.1	1.32	1.13	-0.69
8,732.0	91.63	271.44	4,135.8	-289.1	-5,200.9	5,208.9	1.65	-1.38	-0.91
8,764.0	91.19	271.43	4,135.0	-288.3	-5,232.9	5,240.8	1.38	-1.38	-0.03
8,795.0	90.57	271.56	4,134.5	-287.5	-5,263.9	5,271.7	2.04	-2.00	0.42
8,827.0	90.40	271.63	4,134.2	-286.6	-5,295.9	5,303.6	0.57	-0.53	0.22
8,859.0	91.80	271.54	4,133.6	-285.7	-5,327.9	5,335.5	4.38	4.38	-0.28
8,891.0	91.98	270.61	4,132.5	-285.1	-5,359.8	5,367.4	2.96	0.56	-2.91
8,923.0	92.33	270.80	4,131.3	-284.7	-5,391.8	5,399.3	1.24	1.09	0.59
8,954.0	92.42	270.88	4,130.1	-284.2	-5,422.8	5,430.2	0.39	0.29	0.26
8,986.0	90.75	270.22	4,129.2	-283.9	-5,454.8	5,462.1	5.61	-5.22	-2.06
9,018.0	90.22	271.14	4,128.9	-283.6	-5,486.8	5,494.1	3.32	-1.66	2.88
9,040.0	90.31	271.35	4,128.8	-283.1	-5,508.8	5,516.0	1.04	0.41	0.95
9,100.0	90.31	271.35	4,128.5	-281.7	-5,568.7	5,575.8	0.00	0.00	0.00
Proj TD @ 9100MD, 4128TVD									

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas Mesa
Well: Arboles 20A #10
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Arboles 20A #10
TVD Reference: WELL @ 7410.0usft (Original Well Elev)
MD Reference: WELL @ 7410.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
4,916.0	4,178.6	-239.0	-1,388.1	Top Of Coal @ 4916'MD,4179'TVD
9,100.0	4,128.5	-281.7	-5,568.7	Proj TD @ 9100'MD,4129'TVD

Checked By: _____ Approved By: _____ Date: _____