

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

JUN 21 2011

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

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)

Sec. 12, T32N, R05W - 1900' FSL, 350' FEL
(I) NE/SE

5. Lease Serial No.

NMNM 29342

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.

Carracas 12A # 1H

9. API Well No.

30-039-30825

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 Abandonliner & kill☐ Convert to Injection☐ Plug Back☐ Water Disposalstring 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 recompletion 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.)

06-11-11 TD: 7940' MD PBTD: 7035' MD Drill 6-1/4" hole to 7940' MD. Run 56 joints of 4-1/2" 11.6 #/ft. J-55 LT&C pre perforated liner and 2 joints of blank 4-1/2" 11.6 #/ft. J-55 ST&C 8RD, production liner set @ 7035' MD. TOL: 4584' MD. No cement.

Ran 126 joints of 2-3/8" 4.7 #/ft. J-55 kill string tubing, set @ 3985' MD.
ND BOP. Rig released @ 06:00 on 06-12-2011.

Notify NMOCD 24 hrs
prior to beginning
operations

ACCEPTED FOR RECORD

JUN 22 2011

FARMINGTON FIELD OFFICE
BY scw

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

Name (Printed/Typed)

Stephen Byers

Title Drilling Engineer

Signature

Stephen Byers

Date 06/17/11

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

"As Drilled"

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 July 16, 2010

Submit one copy to appropriate

District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30825		² Pool Code 71629		³ Pool Name Basin Fruitland Coal	
⁴ Property Code 35658		⁵ Property Name Carracas 12 A			⁶ Well Number 1 H
⁷ OGRID No. 162928		⁸ Operator Name Energen Resources Corporation			⁹ Elevation 7238'

¹⁰ Surface Location

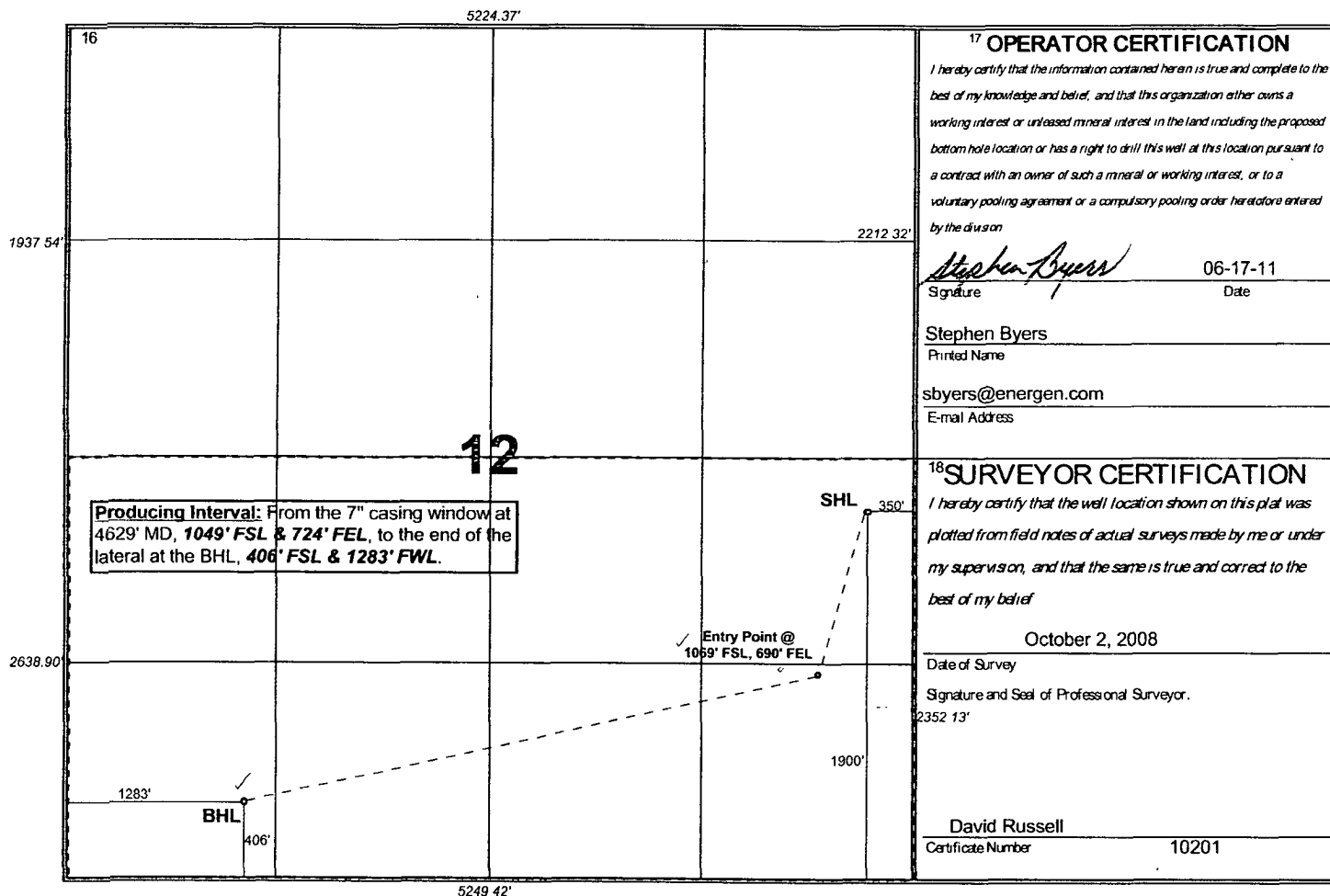
UL or lot no. I	Section 12	Township 32N	Range 5W	Lot Idn	Feet from the 1900	North/South line South	Feet from the 350	East/West line East	County Rio Arriba
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. M	Section 12	Township 32N	Range 5W	Lot Idn	Feet from the 406	North/South line South	Feet from the 1283	East/West line West	County Rio Arriba
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¹² Dedicated Acres 318.5 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.



Energen Resources

Rio Arriba County

Carracas

Carracas 12A #1H

Sidetrack 02

Design: Sidetrack 02

Standard Survey Report

15 June, 2011

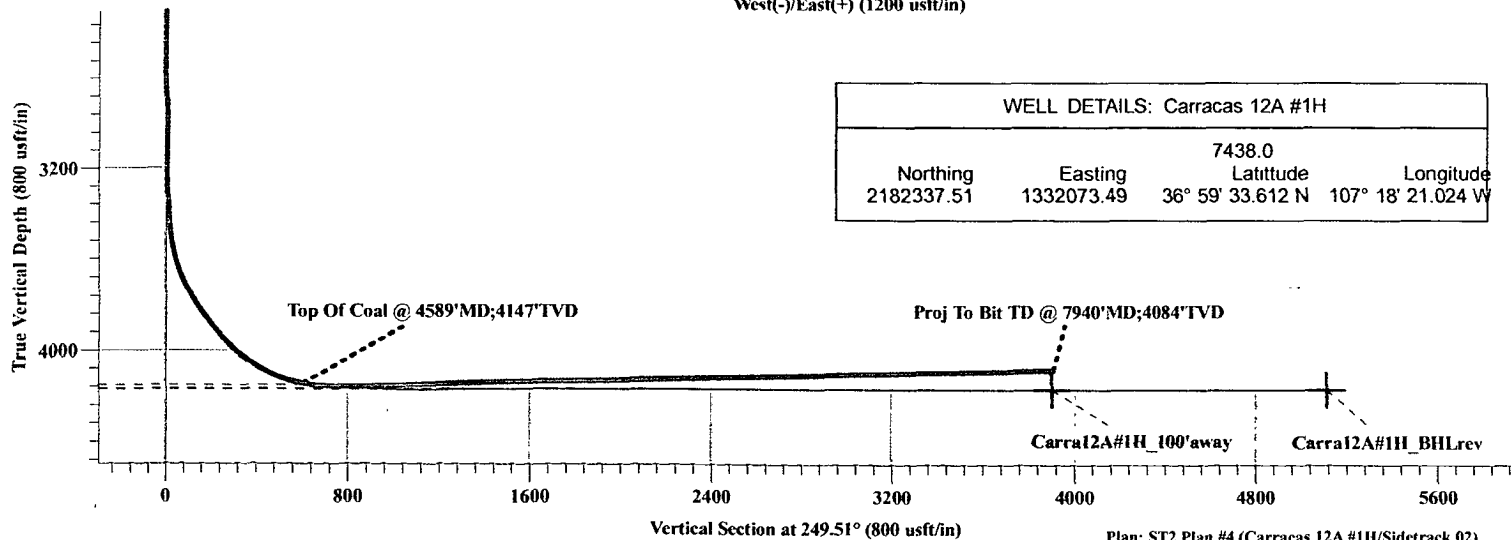
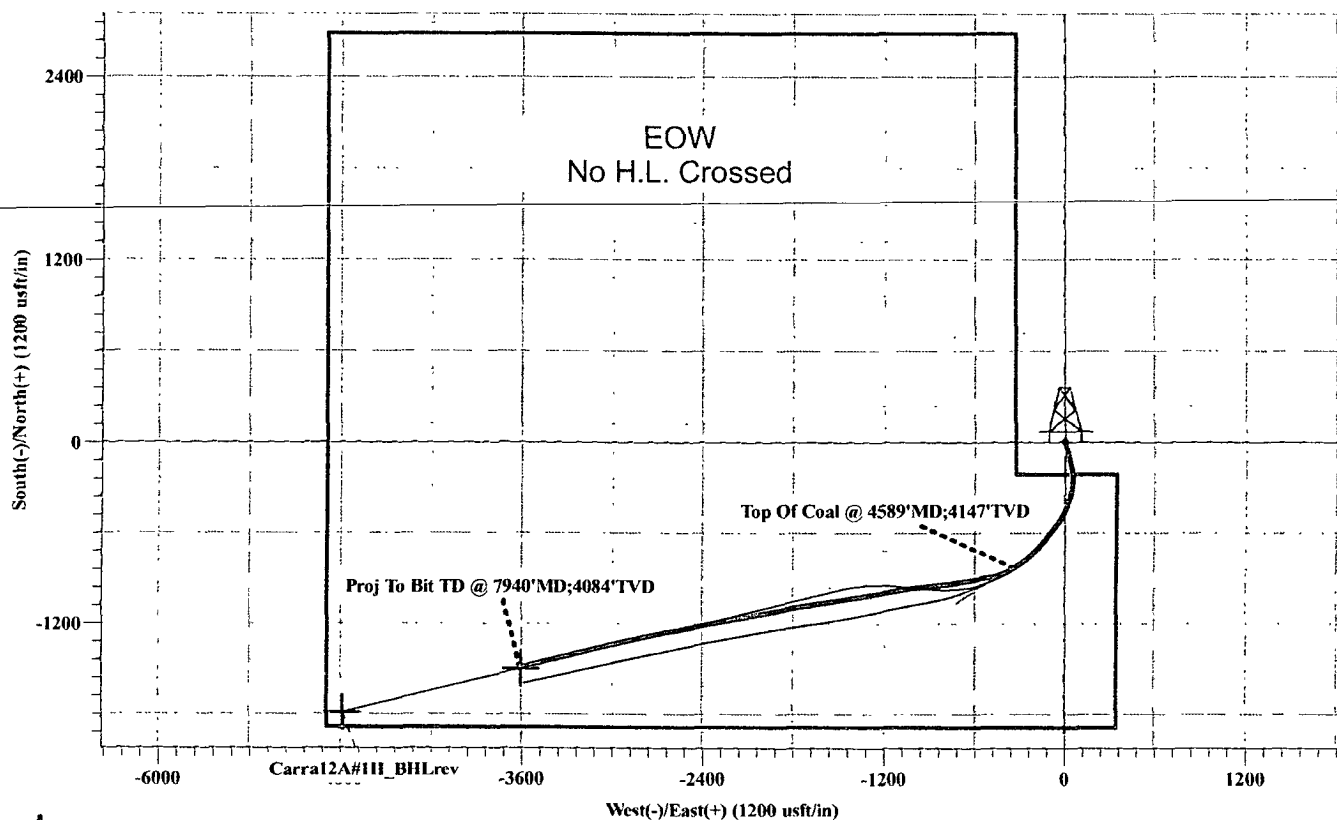
Carracas 12A #1H ST02

Rio Arriba Co., NM

GL: 7438' / KB: 15'

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Carra12A#1H_100'away	4170.0	-1498.0	-3606.0	2180879.59	1328451.10	Point
Carra12A#1H_BHLrev	4170.0	-1790.0	-4789.4	2180600.73	1327264.52	Point



WELL DETAILS: Carracas 12A #1H

Northing	Easting	7438.0	Latitude	Longitude
2182337.51	1332073.49		36° 59' 33.612 N	107° 18' 21.024 W

Carra12A#1H_100'away Carra12A#1H_BHLrev

Plan: ST2 Plan #4 (Carracas 12A #1H/Sidetrack 02)

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas
Well: Carracas 12A #1H
Wellbore: Sidetrack 02
Design: Sidetrack 02

Local Co-ordinate Reference: Well Carracas 12A #1H
TVD Reference: RKBtoGL-15' @ 7453.0usft (Original Well Elev)
MD Reference: RKBtoGL-15' @ 7453.0usft (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 12A #1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	36° 59' 33.612 N
		Longitude:	107° 18' 21.024 W
		Ground Level:	7,438.0 usft

Wellbore	Sidetrack 02		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	03/29/11	(°)
			9.76
			Dip Angle
			(°)
			63.77
			Field Strength
			(nT)
			50,954

Design	Sidetrack 02		
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
			(°)
			249.51

Survey Program	Date 06/15/11		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
318.0	7,940.0	Survey #1 (Sidetrack 02)	MWD
			Description
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
318.0	0.88	56.84	318.0	1.3	2.0	-2.4	0.28	0.28	0.00
407.0	0.44	41.47	407.0	2.0	2.8	-3.4	0.53	-0.49	-17.27
498.0	0.00	177.13	498.0	2.2	3.1	-3.7	0.48	-0.48	0.00
589.0	0.09	196.46	589.0	2.2	3.1	-3.6	0.10	0.10	0.00
680.0	0.09	97.90	680.0	2.1	3.1	-3.6	0.15	0.00	-108.31
770.0	0.18	195.79	770.0	1.9	3.1	-3.6	0.24	0.10	108.77
861.0	0.00	202.43	861.0	1.8	3.1	-3.5	0.20	-0.20	0.00
952.0	0.18	30.84	952.0	1.9	3.2	-3.6	0.20	0.20	0.00
1,043.0	0.09	92.59	1,043.0	2.0	3.3	-3.8	0.17	-0.10	67.86

Survey Report

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 Project: Rio Arriba County
 Site: Carracas
 Well: Carracas 12A #1H
 Wellbore: Sidetrack 02
 Design: Sidetrack 02

Local Co-ordinate Reference: Well Carracas 12A #1H
 TVD Reference: RKBtoGL-15' @ 7453.0usft (Original Well Elev)
 MD Reference: RKBtoGL-15' @ 7453.0usft (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)
1,136.0	0.09	329.30	1,136.0	2.1	3.4	-3.9	0.17	0.00	-132.57
1,227.0	0.18	188.14	1,227.0	2.0	3.3	-3.8	0.28	0.10	-155.12
1,317.0	0.09	304.34	1,317.0	1.9	3.2	-3.7	0.26	-0.10	129.11
1,412.0	0.09	281.02	1,412.0	2.0	3.1	-3.6	0.04	0.00	-24.55
1,507.0	0.09	330.47	1,507.0	2.1	3.0	-3.5	0.08	0.00	52.05
1,603.0	0.09	329.21	1,603.0	2.2	2.9	-3.5	0.00	0.00	-1.31
1,697.0	0.09	137.54	1,697.0	2.2	2.9	-3.5	0.19	0.00	179.07
1,792.0	0.09	260.74	1,792.0	2.1	2.9	-3.4	0.17	0.00	129.68
1,888.0	0.09	80.73	1,888.0	2.1	2.9	-3.4	0.19	0.00	187.49
1,984.0	0.09	274.64	1,984.0	2.1	2.9	-3.5	0.19	0.00	-173.01
2,080.0	0.18	210.58	2,080.0	2.0	2.7	-3.3	0.17	0.09	-66.73
2,175.0	0.26	194.07	2,175.0	1.7	2.6	-3.0	0.11	0.08	-17.38
2,271.0	0.18	64.08	2,271.0	1.5	2.7	-3.1	0.42	-0.08	-135.41
2,366.0	0.44	37.54	2,366.0	1.9	3.0	-3.5	0.31	0.27	-27.94
2,462.0	0.09	297.25	2,462.0	2.2	3.2	-3.8	0.48	-0.36	-104.47
2,557.0	0.18	301.99	2,557.0	2.3	3.0	-3.6	0.10	0.09	4.99
2,588.0	0.18	335.69	2,588.0	2.4	2.9	-3.6	0.34	0.00	108.71
2,620.0	0.44	325.44	2,620.0	2.5	2.9	-3.6	0.83	0.81	-32.03
2,652.0	1.06	341.45	2,652.0	2.9	2.7	-3.5	2.03	1.94	50.03
2,684.0	2.02	345.95	2,684.0	3.8	2.5	-3.6	3.02	3.00	14.06
2,716.0	2.64	339.08	2,715.9	5.0	2.1	-3.7	2.12	1.94	-21.47
2,748.0	2.90	324.04	2,747.9	6.3	1.3	-3.5	2.40	0.81	-47.00
2,779.0	3.25	310.21	2,778.9	7.5	0.2	-2.8	2.64	1.13	-44.61
2,811.0	3.43	291.34	2,810.8	8.5	-1.4	-1.7	3.46	0.56	-58.97
2,843.0	3.87	279.56	2,842.7	9.0	-3.4	0.0	2.71	1.38	-36.81
2,875.0	3.87	258.92	2,874.7	9.0	-5.5	2.0	4.33	0.00	-64.50
2,907.0	3.87	230.04	2,906.6	8.1	-7.4	4.1	6.03	0.00	-90.25
2,937.0	4.04	194.51	2,936.5	6.4	-8.4	5.6	8.06	0.57	-118.43
2,969.0	4.04	165.46	2,968.4	4.2	-8.4	6.4	6.33	0.00	-90.78
3,001.0	5.19	155.90	3,000.3	1.8	-7.5	6.4	4.31	3.59	-29.88
3,032.0	7.03	156.02	3,031.2	-1.2	-6.2	6.2	5.94	5.94	0.39
3,064.0	9.15	157.79	3,062.8	-5.4	-4.4	6.0	6.67	6.63	5.53
3,096.0	11.26	158.31	3,094.3	-10.6	-2.3	5.9	6.60	6.59	1.63
3,128.0	13.19	157.92	3,125.6	-16.9	0.2	5.7	6.04	6.03	-1.22
3,160.0	14.95	158.33	3,156.7	-24.1	3.1	5.5	5.51	5.50	1.28
3,192.0	16.62	160.08	3,187.4	-32.3	6.2	5.5	5.43	5.22	5.47
3,224.0	18.64	160.59	3,217.9	-41.4	9.5	5.6	6.33	6.31	1.59
3,256.0	20.84	162.43	3,248.1	-51.6	12.9	6.0	7.14	6.88	5.75
3,288.0	23.21	163.35	3,277.7	-63.1	16.4	6.7	7.48	7.41	2.88
3,320.0	25.41	165.11	3,306.9	-75.8	20.0	7.8	7.24	6.88	5.50
3,352.0	27.17	165.63	3,335.6	-89.5	23.5	9.3	5.55	5.50	1.63
3,384.0	28.93	166.27	3,363.8	-104.1	27.2	11.0	5.58	5.50	2.00
3,416.0	30.69	166.10	3,391.6	-119.5	31.0	12.8	5.51	5.50	-0.53
3,448.0	32.10	166.74	3,418.9	-135.7	34.9	14.8	4.53	4.41	2.00

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Carracas
 Well: Carracas 12A #1H
 Wellbore: Sidetrack 02
 Design: Sidetrack 02

Local Co-ordinate Reference: Well Carracas 12A #1H
 TVD Reference: RKBtoGL-15' @ 7453.0usft (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)
3,480.0	33.06	166.16	3,445.9	-152.5	38.9	16.9	3.15	3.00	-1.81
3,512.0	34.29	168.50	3,472.5	-169.8	42.8	19.3	5.59	3.84	7.31
3,544.0	35.70	169.35	3,498.7	-187.8	46.4	22.3	4.66	4.41	2.66
3,575.0	36.49	172.00	3,523.7	-205.8	49.3	25.9	5.64	2.55	8.55
3,607.0	36.84	175.97	3,549.4	-224.8	51.3	30.6	7.49	1.09	12.41
3,639.0	37.20	179.08	3,575.0	-244.1	52.1	36.6	5.96	1.13	9.72
3,671.0	37.99	182.67	3,600.3	-263.6	51.8	43.7	7.27	2.47	11.22
3,702.0	38.43	185.66	3,624.7	-282.7	50.4	51.7	6.13	1.42	9.65
3,734.0	38.95	189.41	3,649.7	-302.5	47.8	61.1	7.50	1.63	11.72
3,766.0	40.01	191.68	3,674.4	-322.5	44.1	71.6	5.60	3.31	7.09
3,798.0	41.06	193.73	3,698.7	-342.8	39.5	83.0	5.30	3.28	6.41
3,830.0	41.59	195.91	3,722.7	-363.2	34.1	95.2	4.79	1.66	6.81
3,862.0	42.47	197.62	3,746.5	-383.7	27.9	108.2	4.51	2.75	5.34
3,894.0	43.18	199.22	3,770.0	-404.4	21.0	121.8	4.06	2.22	5.00
3,926.0	44.05	201.57	3,793.1	-425.1	13.4	136.3	5.75	2.72	7.34
3,958.0	44.41	203.37	3,816.1	-445.7	4.8	151.5	4.08	1.13	5.63
3,989.0	44.67	205.44	3,838.2	-465.5	-4.2	166.8	4.76	0.84	6.68
4,021.0	45.11	207.79	3,860.8	-485.7	-14.3	183.4	5.36	1.38	7.34
4,053.0	46.25	210.05	3,883.2	-505.7	-25.4	200.8	6.18	3.56	7.06
4,085.0	46.96	212.53	3,905.2	-525.6	-37.4	219.0	6.05	2.22	7.75
4,117.0	47.92	215.37	3,926.8	-545.1	-50.6	238.2	7.19	3.00	8.88
4,148.0	48.80	217.52	3,947.4	-563.8	-64.4	257.6	5.91	2.84	6.94
4,180.0	50.39	218.68	3,968.2	-582.9	-79.4	278.4	5.68	4.97	3.63
4,212.0	52.32	218.80	3,988.1	-602.4	-95.0	299.9	6.04	6.03	0.38
4,244.0	53.64	218.74	4,007.4	-622.3	-111.0	321.9	4.13	4.13	-0.19
4,291.0	55.49	219.14	4,034.7	-652.1	-135.1	354.8	4.00	3.94	0.85
4,322.0	57.95	220.05	4,051.7	-672.1	-151.6	377.3	8.31	7.94	2.94
4,354.0	60.50	221.90	4,068.0	-692.8	-169.7	401.4	9.39	7.97	5.78
4,386.0	63.05	224.34	4,083.2	-713.4	-188.9	426.7	10.42	7.97	7.63
4,418.0	65.60	226.99	4,097.0	-733.6	-209.6	453.1	10.92	7.97	8.28
4,450.0	67.97	229.73	4,109.7	-753.1	-231.5	480.5	10.81	7.41	8.56
4,482.0	70.96	232.11	4,120.9	-772.0	-254.8	508.9	11.65	9.34	7.44
4,514.0	73.78	234.29	4,130.6	-790.2	-279.2	538.2	10.95	8.81	6.81
4,546.0	76.85	235.66	4,138.7	-808.0	-304.6	568.1	10.45	9.59	4.28
4,578.0	79.14	237.76	4,145.3	-825.2	-330.7	598.6	9.61	7.16	6.56
4,589.0	80.05	238.32	4,147.3	-830.9	-339.9	609.2	9.64	8.24	5.09
Top Of Coal @ 4589' MD; 4147' TVD									
4,610.0	81.78	239.38	4,150.6	-841.6	-357.6	629.6	9.64	8.25	5.05
4,628.9	83.86	239.65	4,153.0	-851.2	-373.8	648.1	11.07	10.98	1.43
4,706.0	85.82	255.11	4,160.0	-880.6	-444.5	724.6	20.14	2.54	20.06
4,738.0	86.88	257.44	4,162.0	-888.1	-475.5	756.3	7.99	3.31	7.28
4,770.0	88.99	261.01	4,163.2	-894.1	-506.9	787.8	12.95	6.59	11.16
4,801.0	91.28	259.29	4,163.1	-899.4	-537.4	818.3	9.24	7.39	-5.55

Survey Report

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Wellbore: Sidetrack 02
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Local Co-ordinate Reference: Well Carracas 12A #1H
TVD Reference: RKBtoGL-15' @ 7453.0usft (Original Well Elev)
MD Reference: RKBtoGL-15' @ 7453.0usft (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)
4,833.0	92.07	260.12	4,162.2	-905.1	-568.9	849.8	3.58	2.47	2.59
4,865.0	92.68	260.83	4,160.8	-910.4	-600.4	881.1	2.92	1.91	2.22
4,897.0	92.86	260.70	4,159.3	-915.6	-632.0	912.5	0.69	0.56	-0.41
4,929.0	92.95	260.26	4,157.7	-920.8	-663.5	943.9	1.40	0.28	-1.38
4,961.0	92.95	260.74	4,156.0	-926.1	-695.0	975.2	1.50	0.00	1.50
4,993.0	93.03	260.46	4,154.4	-931.3	-726.6	1,006.6	0.91	0.25	-0.88
5,024.0	92.51	260.91	4,152.9	-936.4	-757.1	1,037.0	2.22	-1.68	1.45
5,056.0	92.51	262.20	4,151.5	-941.0	-788.7	1,068.2	4.03	0.00	4.03
5,088.0	92.07	262.99	4,150.2	-945.2	-820.4	1,099.4	2.82	-1.38	2.47
5,120.0	91.80	263.25	4,149.1	-949.0	-852.2	1,130.5	1.17	-0.84	0.81
5,152.0	91.71	264.02	4,148.1	-952.5	-884.0	1,161.5	2.42	-0.28	2.41
5,183.0	92.15	264.07	4,147.1	-955.8	-914.8	1,191.5	1.43	1.42	0.16
5,215.0	92.51	265.09	4,145.8	-958.8	-946.6	1,222.3	3.38	1.13	3.19
5,247.0	91.89	264.43	4,144.5	-961.7	-978.5	1,253.2	2.83	-1.94	-2.06
5,279.0	91.19	262.39	4,143.7	-965.4	-1,010.2	1,284.2	6.74	-2.19	-6.38
5,310.0	91.19	260.42	4,143.0	-970.0	-1,040.9	1,314.6	6.35	0.00	-6.35
5,342.0	91.10	259.35	4,142.4	-975.6	-1,072.4	1,346.0	3.35	-0.28	-3.34
5,373.0	91.10	259.45	4,141.8	-981.3	-1,102.8	1,376.6	0.32	0.00	0.32
5,405.0	91.10	259.50	4,141.2	-987.2	-1,134.3	1,408.1	0.16	0.00	0.16
5,437.0	91.19	259.36	4,140.6	-993.0	-1,165.7	1,439.6	0.52	0.28	-0.44
5,469.0	91.19	259.74	4,139.9	-998.8	-1,197.2	1,471.1	1.19	0.00	1.19
5,501.0	91.28	260.36	4,139.2	-1,004.4	-1,228.7	1,502.6	1.96	0.28	1.94
5,533.0	91.28	260.94	4,138.5	-1,009.6	-1,260.3	1,533.9	1.81	0.00	1.81
5,564.0	91.45	261.48	4,137.7	-1,014.3	-1,290.9	1,564.3	1.83	0.55	1.74
5,596.0	91.45	261.58	4,136.9	-1,019.0	-1,322.6	1,595.6	0.31	0.00	0.31
5,628.0	91.36	261.79	4,136.2	-1,023.6	-1,354.2	1,626.9	0.71	-0.28	0.66
5,660.0	90.92	261.66	4,135.5	-1,028.2	-1,385.9	1,658.1	1.43	-1.38	-0.41
5,692.0	90.75	261.29	4,135.1	-1,033.0	-1,417.5	1,689.4	1.27	-0.53	-1.16
5,724.0	91.36	260.92	4,134.5	-1,037.9	-1,449.1	1,720.8	2.23	1.91	-1.16
5,756.0	90.92	260.29	4,133.8	-1,043.2	-1,480.7	1,752.2	2.40	-1.38	-1.97
5,787.0	90.57	259.86	4,133.4	-1,048.5	-1,511.2	1,782.6	1.79	-1.13	-1.39
5,819.0	90.48	259.87	4,133.1	-1,054.1	-1,542.7	1,814.1	0.28	-0.28	0.03
5,850.0	90.66	259.83	4,132.8	-1,059.6	-1,573.2	1,844.6	0.59	0.58	-0.13
5,881.0	91.10	260.43	4,132.3	-1,064.9	-1,603.8	1,875.1	2.40	1.42	1.94
5,912.0	91.19	261.08	4,131.7	-1,069.9	-1,634.4	1,905.5	2.12	0.29	2.10
5,942.0	91.63	261.49	4,131.0	-1,074.4	-1,664.0	1,934.8	2.00	1.47	1.37
5,972.0	91.45	261.71	4,130.2	-1,078.8	-1,693.7	1,964.2	0.95	-0.60	0.73
6,003.0	91.80	260.87	4,129.3	-1,083.5	-1,724.3	1,994.5	2.93	1.13	-2.71
6,034.0	91.19	259.94	4,128.5	-1,088.7	-1,754.9	2,024.9	3.59	-1.97	-3.00
6,064.0	91.36	259.48	4,127.8	-1,094.0	-1,784.4	2,054.4	1.63	0.57	-1.53
6,095.0	91.36	258.63	4,127.1	-1,099.9	-1,814.8	2,085.0	2.74	0.00	-2.74
6,126.0	91.01	258.71	4,126.4	-1,106.0	-1,845.2	2,115.6	1.16	-1.13	0.26
6,156.0	91.28	258.59	4,125.8	-1,111.9	-1,874.6	2,145.2	0.98	0.90	-0.40
6,187.0	91.19	259.34	4,125.2	-1,117.8	-1,905.0	2,175.8	2.44	-0.29	2.42

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas
Well: Carracas 12A #1H
Wellbore: Sidetrack 02
Design: Sidetrack 02

Local Co-ordinate Reference: Well Carracas 12A #1H
TVD Reference: RKBtoGL-15' @ 7453.0usft (Original Well Elev)
MD Reference: RKBtoGL-15' @ 7453.0usft (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)
6,217.0	91.01	259.71	4,124.6	-1,123.3	-1,934.5	2,205.3	1.37	-0.60	1.23
6,247.0	90.92	260.01	4,124.1	-1,128.6	-1,964.0	2,234.8	1.04	-0.30	1.00
6,278.0	91.54	260.04	4,123.4	-1,133.9	-1,994.6	2,265.3	2.00	2.00	0.10
6,308.0	91.45	260.40	4,122.7	-1,139.0	-2,024.1	2,294.8	1.24	-0.30	1.20
6,339.0	91.54	260.06	4,121.8	-1,144.3	-2,054.7	2,325.2	1.13	0.29	-1.10
6,370.0	91.89	259.43	4,120.9	-1,149.8	-2,085.1	2,355.7	2.32	1.13	-2.03
6,400.0	92.15	259.17	4,119.9	-1,155.4	-2,114.6	2,385.3	1.23	0.87	-0.87
6,431.0	91.28	259.19	4,118.9	-1,161.2	-2,145.0	2,415.8	2.81	-2.81	0.06
6,461.0	91.28	259.32	4,118.3	-1,166.8	-2,174.5	2,445.4	0.43	0.00	0.43
6,492.0	91.28	259.46	4,117.6	-1,172.5	-2,205.0	2,475.9	0.45	0.00	0.45
6,522.0	91.45	259.70	4,116.9	-1,177.9	-2,234.5	2,505.4	0.98	0.57	0.80
6,552.0	91.19	259.71	4,116.2	-1,183.3	-2,264.0	2,534.9	0.87	-0.87	0.03
6,583.0	91.36	258.21	4,115.5	-1,189.2	-2,294.4	2,565.5	4.87	0.55	-4.84
6,614.0	92.07	257.18	4,114.5	-1,195.8	-2,324.7	2,596.2	4.03	2.29	-3.32
6,644.0	91.54	257.89	4,113.6	-1,202.3	-2,353.9	2,625.9	2.95	-1.77	2.37
6,674.0	91.45	258.52	4,112.8	-1,208.4	-2,383.3	2,655.5	2.12	-0.30	2.10
6,704.0	91.28	258.88	4,112.1	-1,214.3	-2,412.7	2,685.1	1.33	-0.57	1.20
6,735.0	91.45	259.16	4,111.4	-1,220.2	-2,443.1	2,715.7	1.06	0.55	0.90
6,766.0	91.54	259.62	4,110.6	-1,225.9	-2,473.6	2,746.2	1.51	0.29	1.48
6,797.0	91.01	259.51	4,109.9	-1,231.5	-2,504.1	2,776.7	1.75	-1.71	-0.35
6,827.0	91.36	258.66	4,109.2	-1,237.2	-2,533.5	2,806.3	3.06	1.17	-2.83
6,858.0	91.89	258.31	4,108.4	-1,243.4	-2,563.9	2,836.9	2.05	1.71	-1.13
6,888.0	91.45	258.13	4,107.5	-1,249.5	-2,593.2	2,866.6	1.58	-1.47	-0.60
6,919.0	91.54	258.21	4,106.7	-1,255.8	-2,623.6	2,897.2	0.39	0.29	0.26
6,949.0	91.54	258.09	4,105.9	-1,262.0	-2,652.9	2,926.8	0.40	0.00	-0.40
6,980.0	91.71	257.85	4,105.0	-1,268.5	-2,683.2	2,957.5	0.95	0.55	-0.77
7,011.0	91.54	258.46	4,104.1	-1,274.8	-2,713.6	2,988.1	2.04	-0.55	1.97
7,041.0	91.28	258.19	4,103.4	-1,280.9	-2,742.9	3,017.8	1.25	-0.87	-0.90
7,072.0	90.92	258.01	4,102.8	-1,287.3	-2,773.3	3,048.4	1.30	-1.16	-0.58
7,102.0	91.54	258.02	4,102.1	-1,293.5	-2,802.6	3,078.1	2.07	2.07	0.03
7,132.0	91.98	257.19	4,101.2	-1,300.0	-2,831.9	3,107.8	3.13	1.47	-2.77
7,163.0	91.71	256.73	4,100.2	-1,306.9	-2,862.1	3,138.5	1.72	-0.87	-1.48
7,193.0	91.80	256.93	4,099.3	-1,313.8	-2,891.3	3,168.2	0.73	0.30	0.67
7,224.0	91.28	256.40	4,098.5	-1,320.9	-2,921.4	3,199.0	2.39	-1.68	-1.71
7,254.0	91.28	256.18	4,097.8	-1,328.0	-2,950.6	3,228.8	0.73	0.00	-0.73
7,285.0	91.45	256.12	4,097.1	-1,335.4	-2,980.6	3,259.5	0.58	0.55	-0.19
7,316.0	91.54	255.80	4,096.3	-1,343.0	-3,010.7	3,290.3	1.07	0.29	-1.03
7,346.0	91.28	255.94	4,095.5	-1,350.3	-3,039.8	3,320.1	0.98	-0.87	0.47
7,377.0	91.10	256.43	4,094.9	-1,357.7	-3,069.9	3,350.9	1.68	-0.58	1.58
7,407.0	90.92	256.63	4,094.3	-1,364.7	-3,099.1	3,380.7	0.90	-0.60	0.67
7,438.0	90.75	256.51	4,093.9	-1,371.9	-3,129.2	3,411.5	0.67	-0.55	-0.39
7,469.0	91.10	256.68	4,093.4	-1,379.1	-3,159.4	3,442.2	1.26	1.13	0.55
7,499.0	90.40	256.16	4,093.0	-1,386.1	-3,188.5	3,472.0	2.91	-2.33	-1.73

Survey Report

Company: Energen Resources
 Project: Rio Amba County
 Site: Carracas
 Well: Carracas 12A #1H
 Wellbore: Sidetrack 02
 Design: Sidetrack 02

Local Co-ordinate Reference: Well Carracas 12A #1H
 TVD Reference: RKBtoGL-15' @ 7453.0usft (Original Well Elev)
 MD Reference: RKBtoGL-15' @ 7453.0usft (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)
7,530.0	90.31	256.33	4,092.8	-1,393.5	-3,218.6	3,502.8	0.62	-0.29	0.55
7,561.0	90.66	256.24	4,092.5	-1,400.8	-3,248.7	3,533.6	1.17	1.13	-0.29
7,592.0	91.36	256.21	4,092.0	-1,408.2	-3,278.8	3,564.3	2.26	2.26	-0.10
7,623.0	91.54	256.27	4,091.2	-1,415.6	-3,309.0	3,595.1	0.61	0.58	0.19
7,653.0	91.71	256.20	4,090.4	-1,422.7	-3,338.1	3,624.9	0.61	0.57	-0.23
7,682.0	91.28	255.98	4,089.6	-1,429.7	-3,366.2	3,653.7	1.67	-1.48	-0.76
7,713.0	91.19	255.97	4,088.9	-1,437.2	-3,396.3	3,684.5	0.29	-0.29	-0.03
7,744.0	91.54	255.61	4,088.2	-1,444.8	-3,426.3	3,715.3	1.62	1.13	-1.16
7,775.0	91.80	255.63	4,087.3	-1,452.5	-3,456.3	3,746.1	0.84	0.84	0.06
7,805.0	91.63	255.73	4,086.4	-1,459.9	-3,485.4	3,775.9	0.66	-0.57	0.33
7,836.0	90.84	255.97	4,085.7	-1,467.5	-3,515.5	3,806.7	2.66	-2.55	0.77
7,867.0	90.84	255.27	4,085.3	-1,475.2	-3,545.5	3,837.5	2.26	0.00	-2.26
7,940.0	90.84	255.27	4,084.2	-1,493.7	-3,616.1	3,910.2	0.00	0.00	0.00
Proj To Bit TD @ 7940'MD;4084'TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
4,589.0	4,147.3	-830.9	-339.9	Top Of Coal @ 4589'MD;4147'TVD
7,940.0	4,084.2	-1,493.7	-3,616.1	Proj To Bit TD @ 7940'MD;4084'TVD

Checked By: _____ Approved By: _____ Date: _____