

"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

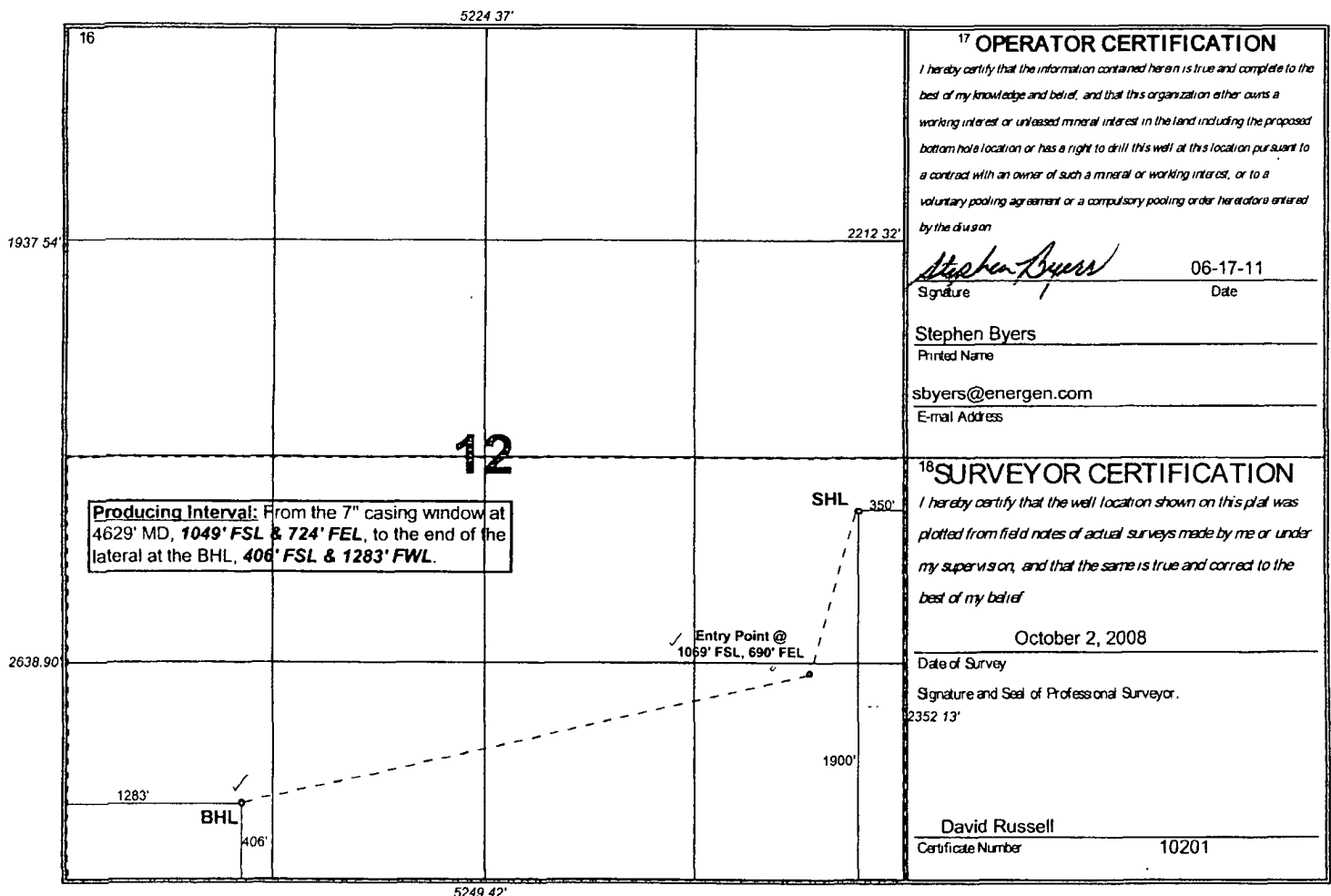
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	12	32N	5W		1900	South	350	East	Rio Arriba

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
M	12	32N	5W		406	South	1283	West	Rio Arriba

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

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.



RECEIVED

JUL 15 2011

Farmington Field Office
Bureau of Land Management

Energen Resources

Rio Arriba County

Carracas

Carracas 12A #1H

Sidetrack 02

Design: Sidetrack 02

Standard Survey Report

15 June, 2011



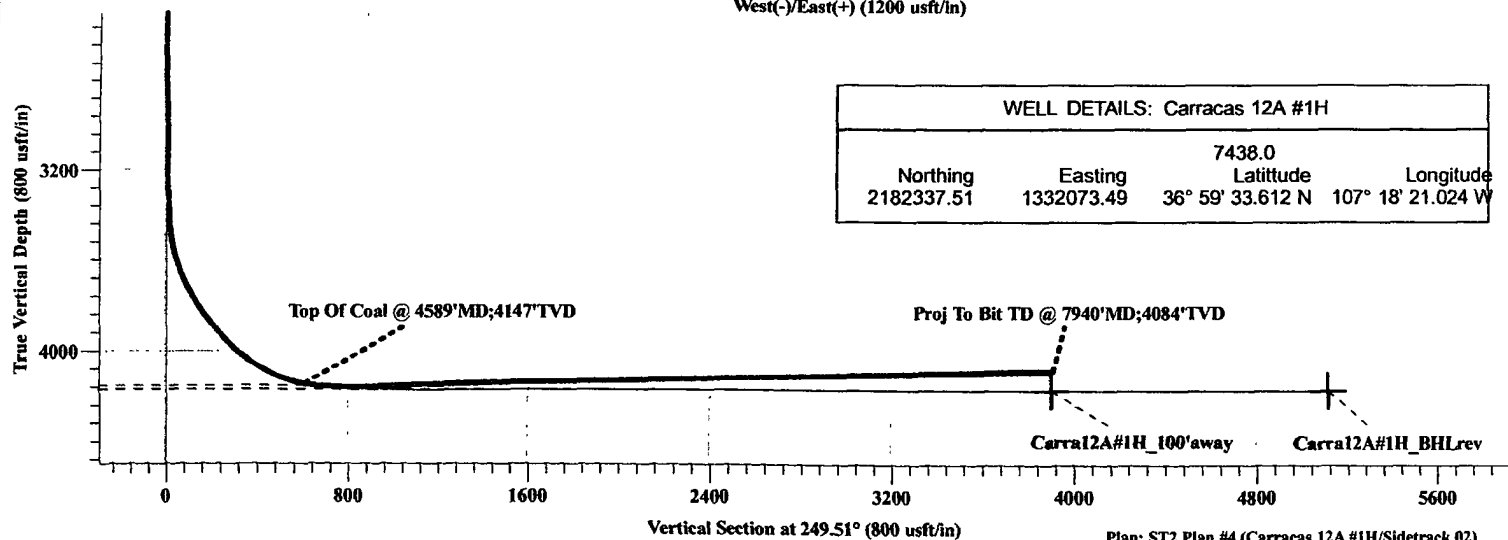
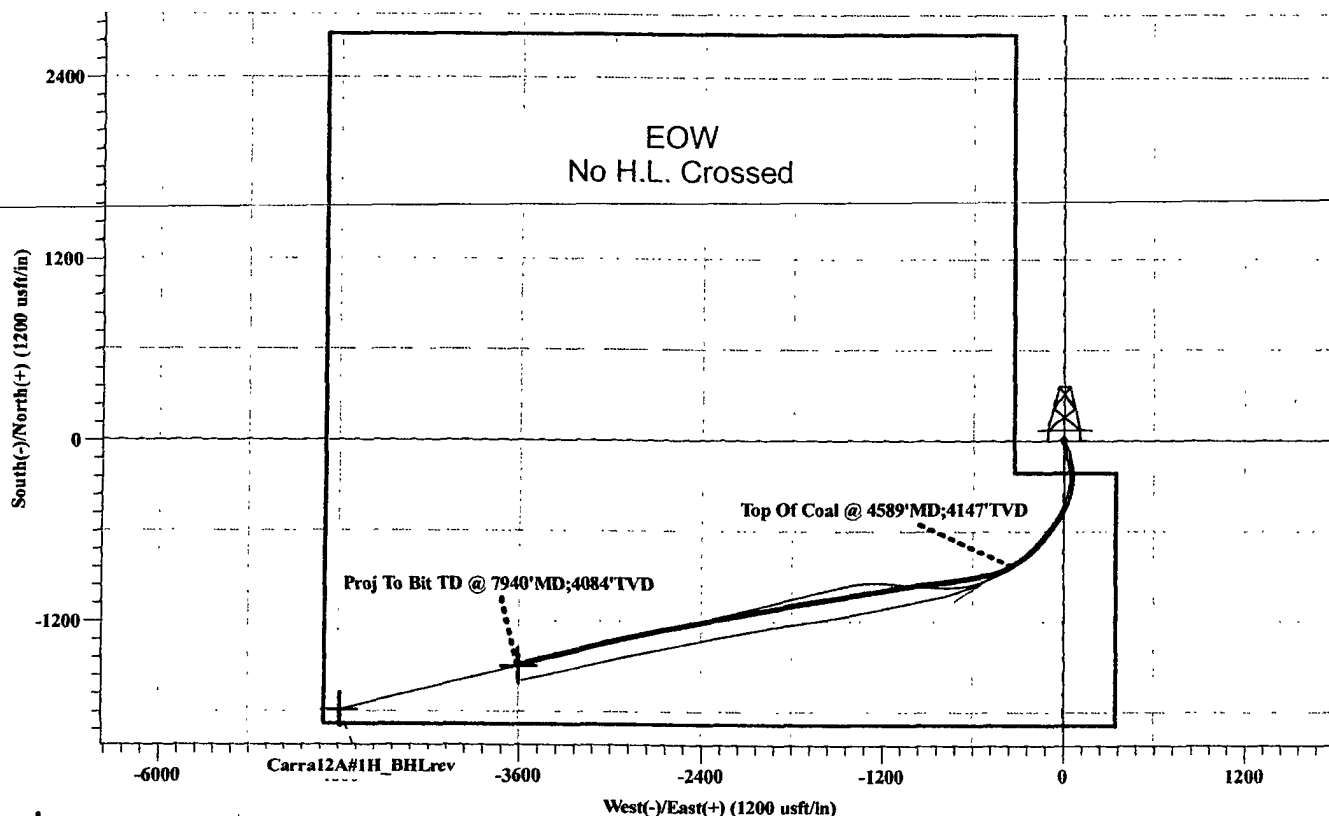
Carracas 12A #1H ST02

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

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

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

Created By: Frank C. Scardino

Date: 6/15/2011

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

Site Carracas

Site Position:
From: Lat/Long
Position Uncertainty: 3.0 usft
Northing: 2,163,390.79 usft
Easting: 1,327,952.79 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
+E-W 0.0 usft
Position Uncertainty 0.0 usft
Northing: 2,182,337.51 usft
Easting: 1,332,073.49 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 (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/29/11	9.76	63.77	50,954

Design Sidetrack 02

Audit Notes:
Version: 1.0
Phase: ACTUAL
Tie On Depth: 0.0
Vertical Section:
Depth From (TVD) (usft) 0.0
+N-S (usft) 0.0
+E-W (usft) 0.0
Direction (°) 249.51

Survey Program Date 06/15/11

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
318.0	7,940.0	Survey #1 (Sidetrack 02)	MWD	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
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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Site: Carracas
Well: Carracas 12A #1H
Wellbore: Sidetrack 02
Design: Sidetrack 02

Local Co-ordinate Reference: Well Carracas 12A #1H
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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

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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	-508.9	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

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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 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)
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: _____