

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

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 August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT
"AS DRILLED"

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31059	² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 38596	⁵ Property Name Carracas 8B	⁶ Well Number 16H
⁷ OGRID No. 162928	⁸ Operator Name Energen Resources Corporation	⁹ Elevation 6183'

¹⁰ Surface Location

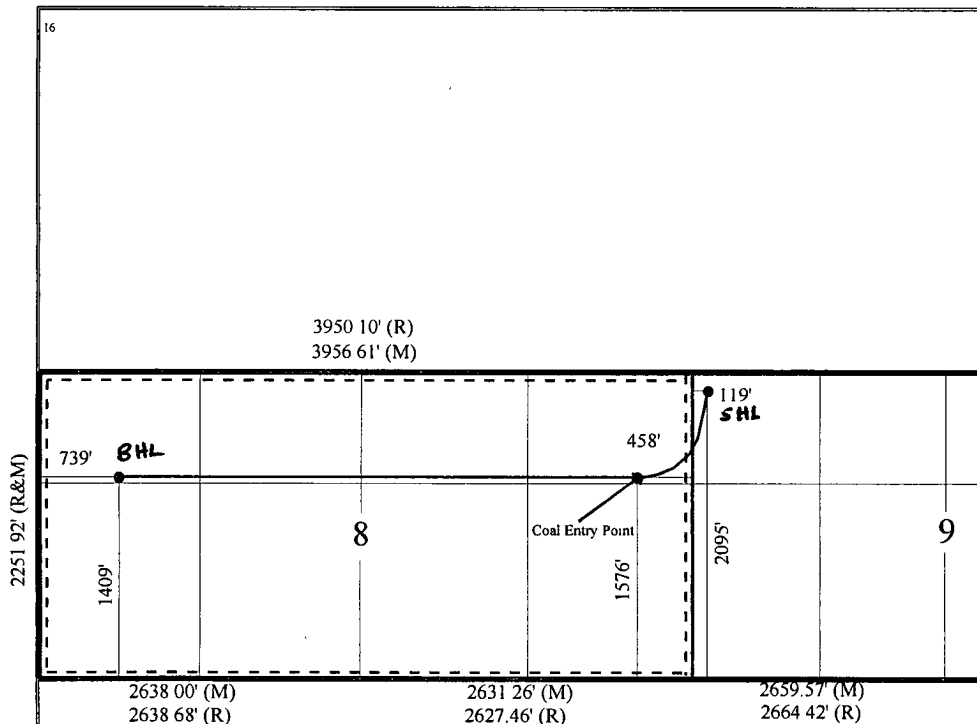
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	9	32N	4W	8	2095	South	119	West	Rio Arriba

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
L	8	32N	4W	8	1409	South	739	West	Rio Arriba

¹² Dedicated Acres 274.08/sec 8	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.



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.

Nathan Smith 10/19/2011
Signature Date

Nathan Smith
Printed Name

nsmith@energen.com
E-mail Address

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.

February 7, 2011
Date of Survey

Signature and Seal of Professional Surveyor:

Original survey conducted and recorded by:
David R. Russell

10201
Certificate Number

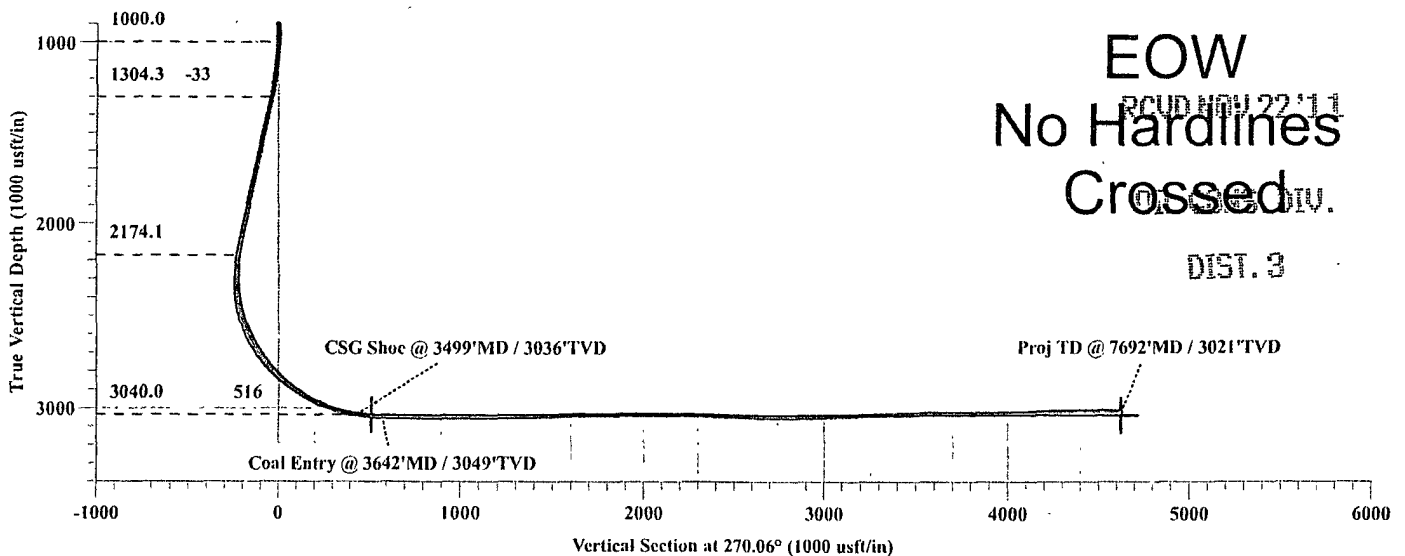
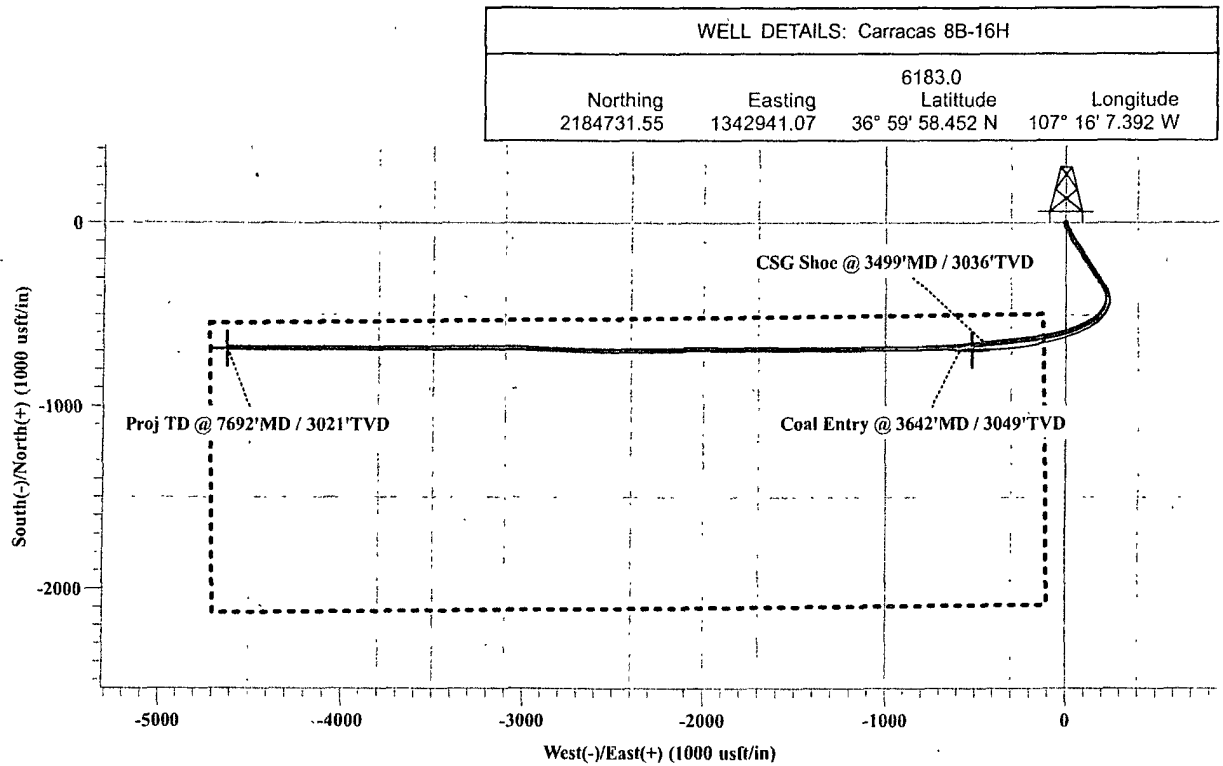
RECEIVED NOV 13 2011

DIST. 3

Carracas 8B-16H
Sec9 T32N-R04W - 16H
Rio Arriba Co. NM
GL: 6183' KB: 20'

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
LAND	3040.0	-695.4	-516.9	2184041.69	1342416.75	36° 59' 51.576 N	107° 16' 13.764 W	Point
TD-16H	3040.0	-691.4	-4625.9	2184089.68	1338307.99	36° 59' 51.612 N	107° 17' 4.416 W	Point



Plan: Design #2 (Carracas 8B-16H/Wellbore #1)

Energen Resources

Rio Arriba County

Sec9 T32N-R04W - 16H

Carracas 8B-16H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

20 October, 2011

RCVD NOV 22 '11

OIL CONS. DIV.

DIST. 3

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec9 T32N-R04W - 16H
Well: Carracas 8B-16H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Carracas 8B-16H
TVD Reference: RIG @ 6203.0usft
MD Reference: RIG @ 6203.0usft
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	Sec9 T32N-R04W - 16H		
Site Position:		Northing:	2,184,731.55 usft
From:	Lat/Long	Easting:	1,342,941.07 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	36° 59' 58.452 N
		Longitude:	107° 16' 7.392 W
		Grid Convergence:	-0.61 °

Well	Carracas 8B-16H		
Well Position	+N/-S	0.0 usft	Northing: 2,184,731.55 usft
	+E/-W	0.0 usft	Easting: 1,342,941.07 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	36° 59' 58.452 N
		Longitude:	107° 16' 7.392 W
		Ground Level:	6,183.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	09/20/11	(°)
			9.68
			63.77
			50,924

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
		Direction	(°)
			270.06

Survey Program	Date	10/20/11	
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
266.0	7,692.0	Survey #1 (Wellbore #1)	MWD
			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
	266.0	2.90	164.96	265.9	-6.5	1.7	-1.8	1.09	1.09	0.00
	329.0	2.64	168.38	328.8	-9.5	2.5	-2.5	0.49	-0.41	5.43
	393.0	1.41	179.93	392.8	-11.7	2.8	-2.8	2.02	-1.92	18.05
	456.0	0.62	187.61	455.8	-12.8	2.7	-2.7	1.27	-1.25	12.19
	520.0	0.44	179.69	519.8	-13.4	2.7	-2.7	0.30	-0.28	-12.38
	583.0	0.70	180.36	582.8	-14.0	2.7	-2.7	0.41	0.41	1.06
	647.0	0.53	183.62	646.8	-14.7	2.6	-2.7	0.27	-0.27	5.09
	710.0	0.53	200.17	709.7	-15.3	2.5	-2.5	0.24	0.00	26.27
	774.0	0.53	204.61	773.7	-15.8	2.3	-2.3	0.06	0.00	6.94

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Sec9 T32N-R04W - 16H
 Well: Carracas 8B-16H
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well Carracas 8B-16H
 TVD Reference: RIG @ 6203.0usft
 MD Reference: RIG @ 6203.0usft
 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)
837.0	0.70	196.12	836.7	-16.5	2.1	-2.1	0.31	0.27	-13.48
901.0	0.79	217.66	900.7	-17.2	1.7	-1.7	0.46	0.14	33.66
932.0	0.79	214.53	931.7	-17.5	1.4	-1.5	0.14	0.00	-10.10
964.0	1.32	172.79	963.7	-18.1	1.4	-1.4	2.81	1.66	-130.44
996.0	2.90	149.50	995.7	-19.1	1.8	-1.8	5.52	4.94	-72.78
1,027.0	4.92	149.70	1,026.6	-21.0	2.9	-2.9	6.52	6.52	0.65
1,059.0	7.12	152.53	1,058.5	-23.9	4.5	-4.5	6.94	6.88	8.84
1,091.0	9.15	152.32	1,090.1	-27.9	6.6	-6.6	6.34	6.34	-0.66
1,123.0	11.96	151.28	1,121.6	-33.1	9.4	-9.4	8.80	8.78	-3.25
1,154.0	14.07	150.66	1,151.8	-39.2	12.8	-12.8	6.82	6.81	-2.00
1,186.0	16.27	149.86	1,182.7	-46.4	16.9	-17.0	6.91	6.88	-2.50
1,218.0	18.11	151.65	1,213.2	-54.7	21.5	-21.6	5.98	5.75	5.59
1,250.0	19.79	153.57	1,243.5	-63.9	26.3	-26.4	5.60	5.25	6.00
1,281.0	20.93	153.50	1,272.6	-73.6	31.1	-31.2	3.68	3.68	-0.23
1,313.0	21.81	147.78	1,302.4	-83.7	36.8	-36.9	7.07	2.75	-17.88
1,345.0	21.90	145.59	1,332.1	-93.7	43.4	-43.5	2.56	0.28	-6.84
1,377.0	21.81	145.54	1,361.8	-103.5	50.1	-50.2	0.29	-0.28	-0.16
1,408.0	21.81	145.60	1,390.6	-113.0	56.6	-56.7	0.07	0.00	0.19
1,440.0	21.90	144.86	1,420.3	-122.8	63.4	-63.5	0.91	0.28	-2.31
1,472.0	21.81	145.17	1,450.0	-132.6	70.2	-70.4	0.46	-0.28	0.97
1,503.0	21.72	146.29	1,478.7	-142.1	76.7	-76.9	1.37	-0.29	3.61
1,535.0	21.37	147.63	1,508.5	-151.9	83.1	-83.3	1.89	-1.09	4.19
1,567.0	21.10	148.05	1,538.3	-161.7	89.3	-89.5	0.97	-0.84	1.31
1,599.0	21.02	148.54	1,568.2	-171.5	95.3	-95.5	0.60	-0.25	1.53
1,630.0	21.10	147.30	1,597.1	-180.9	101.2	-101.4	1.46	0.26	-4.00
1,662.0	21.19	145.20	1,627.0	-190.5	107.7	-107.9	2.38	0.28	-6.56
1,694.0	21.10	145.30	1,656.8	-200.0	114.2	-114.4	0.30	-0.28	0.31
1,726.0	21.46	146.07	1,686.6	-209.6	120.8	-121.0	1.42	1.13	2.41
1,757.0	21.81	146.53	1,715.5	-219.1	127.1	-127.4	1.25	1.13	1.48
1,789.0	21.54	146.28	1,745.2	-229.0	133.7	-133.9	0.89	-0.84	-0.78
1,821.0	21.46	146.15	1,775.0	-238.7	140.2	-140.4	0.29	-0.25	-0.41
1,852.0	21.98	147.01	1,803.8	-248.3	146.5	-146.8	1.97	1.68	2.77
1,884.0	22.34	147.50	1,833.4	-258.4	153.0	-153.3	1.26	1.13	1.53
1,916.0	22.25	147.74	1,863.0	-268.7	159.5	-159.8	0.40	-0.28	0.75
1,948.0	21.98	147.68	1,892.7	-278.9	166.0	-166.3	0.85	-0.84	-0.19
1,979.0	21.90	148.01	1,921.4	-288.7	172.1	-172.4	0.47	-0.26	1.06
2,011.0	21.63	148.13	1,951.1	-298.7	178.4	-178.7	0.86	-0.84	0.38
2,043.0	21.54	147.63	1,980.9	-308.7	184.7	-185.0	0.64	-0.28	-1.56
2,075.0	21.28	148.30	2,010.7	-318.6	190.9	-191.2	1.12	-0.81	2.09
2,106.0	21.90	148.49	2,039.5	-328.3	196.8	-197.2	2.01	2.00	0.61
2,138.0	22.25	149.13	2,069.2	-338.6	203.1	-203.4	1.33	1.09	2.00
2,170.0	22.34	149.99	2,098.8	-349.1	209.2	-209.6	1.06	0.28	2.69
2,202.0	22.34	150.32	2,128.4	-359.6	215.3	-215.7	0.39	0.00	1.03
2,233.0	21.72	152.13	2,157.1	-369.8	220.9	-221.3	2.97	-2.00	5.84

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec9 T32N-R04W - 16H
Well: Carracas 8B-16H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Carracas 8B-16H
TVD Reference: RIG @ 6203.0usft
MD Reference: RIG @ 6203.0usft
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)
2,265.0	20.49	157.35	2,187.0	-380.2	225.8	-226.2	7.02	-3.84	16.31
2,297.0	19.43	164.36	2,217.0	-390.5	229.4	-229.8	8.17	-3.31	21.91
2,329.0	19.08	171.93	2,247.2	-400.8	231.6	-232.0	7.87	-1.09	23.66
2,360.0	19.08	178.63	2,276.5	-410.9	232.4	-232.8	7.06	0.00	21.61
2,392.0	19.52	184.67	2,306.8	-421.5	232.1	-232.5	6.39	1.38	18.88
2,422.0	19.96	190.12	2,335.0	-431.5	230.8	-231.2	6.31	1.47	18.17
2,453.0	20.49	196.16	2,364.1	-441.9	228.3	-228.8	6.95	1.71	19.48
2,484.0	21.28	202.20	2,393.1	-452.4	224.7	-225.2	7.39	2.55	19.48
2,514.0	22.34	207.62	2,420.9	-462.5	220.0	-220.5	7.58	3.53	18.07
2,545.0	22.95	213.08	2,449.5	-472.7	214.0	-214.5	7.06	1.97	17.61
2,575.0	23.74	217.80	2,477.1	-482.4	207.1	-207.6	6.77	2.63	15.73
2,606.0	24.89	222.01	2,505.3	-492.2	198.9	-199.4	6.71	3.71	13.58
2,636.0	25.85	225.61	2,532.4	-501.5	190.0	-190.5	6.05	3.20	12.00
2,667.0	27.70	229.13	2,560.1	-510.9	179.7	-180.2	7.86	5.97	11.35
2,697.0	29.19	232.88	2,586.5	-519.9	168.6	-169.1	7.75	4.97	12.50
2,728.0	31.13	235.56	2,613.3	-529.0	156.0	-156.5	7.62	6.26	8.65
2,759.0	32.71	237.49	2,639.6	-538.0	142.3	-142.8	6.07	5.10	6.23
2,789.0	34.38	239.95	2,664.6	-546.6	128.1	-128.7	7.18	5.57	8.20
2,820.0	36.23	242.78	2,689.9	-555.2	112.4	-113.0	7.96	5.97	9.13
2,851.0	38.16	245.03	2,714.6	-563.4	95.6	-96.1	7.62	6.23	7.26
2,881.0	40.19	247.07	2,737.9	-571.1	78.2	-78.8	8.01	6.77	6.80
2,912.0	42.12	248.65	2,761.2	-578.8	59.3	-60.0	7.07	6.23	5.10
2,943.0	43.62	250.16	2,783.9	-586.2	39.6	-40.2	5.86	4.84	4.87
2,973.0	45.02	252.29	2,805.4	-592.9	19.8	-20.4	6.81	4.67	7.10
3,004.0	46.87	253.89	2,826.9	-599.4	-1.6	0.9	7.03	5.97	5.16
3,034.0	48.80	255.17	2,847.1	-605.3	-23.0	22.4	7.17	6.43	4.27
3,065.0	50.74	256.65	2,867.1	-611.1	-45.9	45.3	7.24	6.26	4.77
3,095.0	52.85	258.21	2,885.6	-616.2	-68.9	68.3	8.13	7.03	5.20
3,126.0	54.87	259.50	2,903.9	-621.1	-93.5	92.9	7.33	6.52	4.16
3,157.0	57.16	260.98	2,921.3	-625.4	-118.8	118.2	8.38	7.39	4.77
3,187.0	59.36	261.51	2,937.0	-629.3	-144.1	143.4	7.49	7.33	1.77
3,218.0	61.91	262.27	2,952.2	-633.1	-170.8	170.1	8.50	8.23	2.45
3,249.0	64.02	262.93	2,966.3	-636.7	-198.2	197.5	7.07	6.81	2.13
3,279.0	65.60	264.06	2,979.1	-639.7	-225.2	224.5	6.27	5.27	3.77
3,310.0	67.88	264.67	2,991.3	-642.5	-253.5	252.8	7.57	7.35	1.97
3,341.0	70.26	264.81	3,002.4	-645.2	-282.3	281.6	7.69	7.68	0.45
3,372.0	73.16	264.32	3,012.1	-648.0	-311.6	310.9	9.47	9.35	-1.58
3,402.0	76.06	264.03	3,020.1	-650.9	-340.4	339.7	9.71	9.67	-0.97
3,433.0	79.14	263.83	3,026.8	-654.1	-370.5	369.8	9.96	9.94	-0.65
3,463.0	81.51	263.59	3,031.8	-657.3	-399.9	399.2	7.94	7.90	-0.80
3,494.0	83.19	263.91	3,035.9	-660.7	-430.4	429.7	5.52	5.42	1.03
3,499.0	83.39	264.00	3,036.5	-661.2	-435.4	434.7	4.34	3.97	1.78

CSG Shoe @ 3499' MD / 3036' TVD

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec9 T32N-R04W - 16H
Well: Carracas 8B-16H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Carracas 8B-16H
TVD Reference: RIG @ 6203.0usft
MD Reference: RIG @ 6203.0usft
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)
3,525.0	84.42	264.46	3,039.3	-663.8	-461.1	460.4	4.34	3.97	1.77
3,555.0	84.68	264.38	3,042.1	-666.7	-490.8	490.1	0.91	0.87	-0.27
3,586.0	85.12	264.17	3,044.9	-669.8	-521.5	520.8	1.57	1.42	-0.68
3,617.0	85.47	263.93	3,047.4	-673.0	-552.3	551.6	1.37	1.13	-0.77
3,625.0	85.65	264.38	3,048.0	-673.8	-560.2	559.5	6.04	2.25	5.63
3,642.0	86.82	264.90	3,049.2	-675.4	-577.1	576.4	7.50	6.86	3.04
Coal Entry @ 3642' MD / 3049' TVD									
3,689.0	90.04	266.32	3,050.4	-679.0	-623.9	623.2	7.50	6.86	3.03
3,752.0	89.52	266.92	3,050.7	-682.7	-686.8	686.1	1.26	-0.83	0.95
3,816.0	89.34	267.80	3,051.3	-685.7	-750.7	750.0	1.40	-0.28	1.38
3,879.0	89.43	268.61	3,052.0	-687.6	-813.7	813.0	1.29	0.14	1.29
3,943.0	89.08	268.82	3,052.8	-689.1	-877.7	877.0	0.64	-0.55	0.33
4,006.0	91.19	270.75	3,052.7	-689.3	-940.7	940.0	4.54	3.35	3.06
4,070.0	89.87	269.43	3,052.1	-689.2	-1,004.7	1,003.9	2.92	-2.06	-2.06
4,133.0	90.04	268.60	3,052.1	-690.3	-1,067.7	1,066.9	1.34	0.27	-1.32
4,196.0	90.31	268.87	3,051.9	-691.7	-1,130.6	1,129.9	0.61	0.43	0.43
4,260.0	90.40	269.14	3,051.5	-692.8	-1,194.6	1,193.9	0.44	0.14	0.42
4,323.0	90.92	269.44	3,050.8	-693.6	-1,257.6	1,256.9	0.95	0.83	0.48
4,387.0	91.36	269.70	3,049.5	-694.0	-1,321.6	1,320.9	0.80	0.69	0.41
4,450.0	91.45	269.99	3,048.0	-694.2	-1,384.6	1,383.9	0.48	0.14	0.46
4,514.0	91.45	270.22	3,046.4	-694.1	-1,448.6	1,447.8	0.36	0.00	0.36
4,577.0	91.71	270.36	3,044.6	-693.8	-1,511.5	1,510.8	0.47	0.41	0.22
4,641.0	91.80	270.16	3,042.7	-693.5	-1,575.5	1,574.8	0.34	0.14	-0.31
4,704.0	91.63	269.89	3,040.8	-693.5	-1,638.5	1,637.8	0.51	-0.27	-0.43
4,768.0	90.40	269.95	3,039.7	-693.5	-1,702.5	1,701.7	1.92	-1.92	0.09
4,831.0	89.25	269.15	3,039.9	-694.0	-1,765.5	1,764.7	2.22	-1.83	-1.27
4,895.0	89.78	269.73	3,040.4	-694.7	-1,829.5	1,828.7	1.23	0.83	0.91
4,958.0	90.66	270.95	3,040.2	-694.3	-1,892.5	1,891.7	2.39	1.40	1.94
5,022.0	91.10	271.10	3,039.2	-693.2	-1,956.4	1,955.7	0.73	0.69	0.23
5,085.0	91.10	269.70	3,038.0	-692.7	-2,019.4	2,018.7	2.22	0.00	-2.22
5,149.0	89.43	267.91	3,037.7	-694.0	-2,083.4	2,082.7	3.83	-2.61	-2.80
5,212.0	89.25	268.45	3,038.4	-696.0	-2,146.4	2,145.6	0.90	-0.29	0.86
5,276.0	88.81	269.61	3,039.5	-697.1	-2,210.4	2,209.6	1.94	-0.69	1.81
5,339.0	88.37	268.59	3,041.0	-698.1	-2,273.3	2,272.6	1.76	-0.70	-1.62
5,402.0	88.90	269.94	3,042.5	-698.9	-2,336.3	2,335.6	2.30	0.84	2.14
5,466.0	89.08	269.93	3,043.7	-699.0	-2,400.3	2,399.6	0.28	0.28	-0.02
5,529.0	89.08	269.91	3,044.7	-699.1	-2,463.3	2,462.6	0.03	0.00	-0.03
5,593.0	88.72	270.15	3,045.9	-699.1	-2,527.3	2,526.5	0.68	-0.56	0.38
5,656.0	88.37	270.19	3,047.5	-698.9	-2,590.3	2,589.5	0.56	-0.56	0.06
5,720.0	89.60	270.93	3,048.6	-698.2	-2,654.2	2,653.5	2.24	1.92	1.16
5,783.0	89.69	271.35	3,049.0	-697.0	-2,717.2	2,716.5	0.68	0.14	0.67
5,847.0	90.31	271.46	3,049.0	-695.4	-2,781.2	2,780.5	0.98	0.97	0.17
5,910.0	89.87	271.78	3,048.9	-693.6	-2,844.2	2,843.5	0.86	-0.70	0.51
5,974.0	91.10	272.14	3,048.4	-691.4	-2,908.1	2,907.4	2.00	1.92	0.56

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec9 T32N-R04W - 16H
Well: Carracas 8B-16H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Carracas 8B-16H
TVD Reference: RIG @ 6203.0usft
MD Reference: RIG @ 6203.0usft
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)
6,037.0	91.36	271.95	3,047.0	-689.2	-2,971.1	2,970.4	0.51	0.41	-0.30
6,101.0	91.63	271.41	3,045.4	-687.3	-3,035.0	3,034.3	0.94	0.42	-0.84
6,164.0	91.19	271.41	3,043.8	-685.8	-3,098.0	3,097.3	0.70	-0.70	0.00
6,228.0	91.19	270.35	3,042.5	-684.8	-3,162.0	3,161.3	1.66	0.00	-1.66
6,290.0	91.36	269.69	3,041.1	-684.8	-3,224.0	3,223.2	1.10	0.27	-1.06
6,351.0	91.54	269.42	3,039.6	-685.2	-3,284.9	3,284.2	0.53	0.30	-0.44
6,413.0	91.89	269.34	3,037.7	-685.9	-3,346.9	3,346.2	0.58	0.56	-0.13
6,474.0	92.33	269.48	3,035.5	-686.5	-3,407.9	3,407.1	0.76	0.72	0.23
6,535.0	90.75	269.53	3,033.8	-687.1	-3,468.8	3,468.1	2.59	-2.59	0.08
6,597.0	90.66	269.71	3,033.1	-687.5	-3,530.8	3,530.1	0.32	-0.15	0.29
6,658.0	90.66	269.85	3,032.4	-687.7	-3,591.8	3,591.1	0.23	0.00	0.23
6,719.0	90.57	269.65	3,031.7	-688.0	-3,652.8	3,652.1	0.36	-0.15	-0.33
6,781.0	90.40	269.80	3,031.2	-688.3	-3,714.8	3,714.1	0.37	-0.27	0.24
6,842.0	90.04	269.75	3,030.9	-688.5	-3,775.8	3,775.1	0.60	-0.59	-0.08
6,903.0	89.69	269.79	3,031.1	-688.8	-3,836.8	3,836.1	0.58	-0.57	0.07
6,964.0	89.60	269.72	3,031.5	-689.0	-3,897.8	3,897.1	0.19	-0.15	-0.11
7,026.0	91.36	270.19	3,030.9	-689.1	-3,959.8	3,959.1	2.94	2.84	0.76
7,087.0	91.19	270.14	3,029.6	-688.9	-4,020.8	4,020.1	0.29	-0.28	-0.08
7,148.0	92.15	269.35	3,027.8	-689.2	-4,081.8	4,081.0	2.04	1.57	-1.30
7,210.0	92.59	269.94	3,025.2	-689.6	-4,143.7	4,143.0	1.19	0.71	0.95
7,271.0	92.86	270.36	3,022.3	-689.4	-4,204.6	4,203.9	0.82	0.44	0.69
7,332.0	90.84	269.82	3,020.4	-689.3	-4,265.6	4,264.9	3.43	-3.31	-0.89
7,393.0	90.92	270.41	3,019.4	-689.2	-4,326.6	4,325.9	0.98	0.13	0.97
7,455.0	90.57	270.37	3,018.6	-688.8	-4,388.6	4,387.9	0.57	-0.56	-0.06
7,516.0	90.75	270.74	3,017.9	-688.2	-4,449.6	4,448.9	0.67	0.30	0.61
7,577.0	89.43	270.64	3,017.8	-687.4	-4,510.6	4,509.9	2.17	-2.16	-0.16
7,636.0	88.29	270.90	3,019.0	-686.6	-4,569.6	4,568.8	1.98	-1.93	0.44
7,692.0	88.29	270.90	3,020.7	-685.8	-4,625.5	4,624.8	0.00	0.00	0.00

Proj TD @ 7692' MD / 3021'TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,499.0	3,036.5	-661.2	-435.4	CSG Shoe @ 3499'MD / 3036'TVD
3,642.0	3,049.2	-675.4	-577.1	Coal Entry @ 3642'MD / 3049'TVD
7,692.0	3,020.7	-685.8	-4,625.5	Proj TD @ 7692'MD / 3021'TVD

Checked By:

Approved By:

Date:

$$Y(2095 - 645.8) = 1409.2' \text{ FSL}$$

10/20/11 10:29:47AM

$$X_{FE} (577.1 - 119) = 458.1' \text{ FEL}$$

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COMPASS 5000.1 Build 38

$$X_{BWL} = 5269.26 - (4625.5 - 119) = 762.76' \text{ FWL}$$