

"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 30-039-30822	² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 35654	⁵ Property Name Carracas 16 A	⁶ Well Number 2H
⁷ OGRID No. 162928	⁸ Operator Name Energen Resources Corporation	⁹ Elevation 7222'

¹⁰ Surface Location

UL or lot no. B	Section 16	Township 32N	Range 5W	Lot Idn	Feet from the 71'	North/South line North	Feet from the 2252'	East/West line East	County Rio Arriba
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. P	Section 16	Township 32N	Range 5W	Lot Idn	Feet from the 109'	North/South line South	Feet from the 506'	East/West line East	County Rio Arriba
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¹² Dedicated Acres 320 E/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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 Producing Interval: From milled window 3 @ 730'FNL, 809'FEL 355'FEL (BHL). 716'TVD in 7" casing to TD @ 111'FSL.	16	71' SHL 2252' Entry Point 800'	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. Signature Stephen Byers Date 10/4/2010 Printed Name Stephen Byers E-mail Address sbyers@energen.com
		Original Well Bore TD @ 7783' MD	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. Date of Survey November 24, 2008 Signature and Seal of Professional Surveyor: David Russell Certificate Number 10201
		Sidetrack Well Bore "As Drilled" to TD SHL 506'	

2643.41'



RCVD OCT 6 '10
OIL CONS. DIV.
DIST. 3

Energen Resources

Rio Arriba County
Carracas
Carracas 16A #2H
OH

Survey: MWD #1

Energen EOW

04 October, 2010

PATHFINDER®

A Schlumberger Company

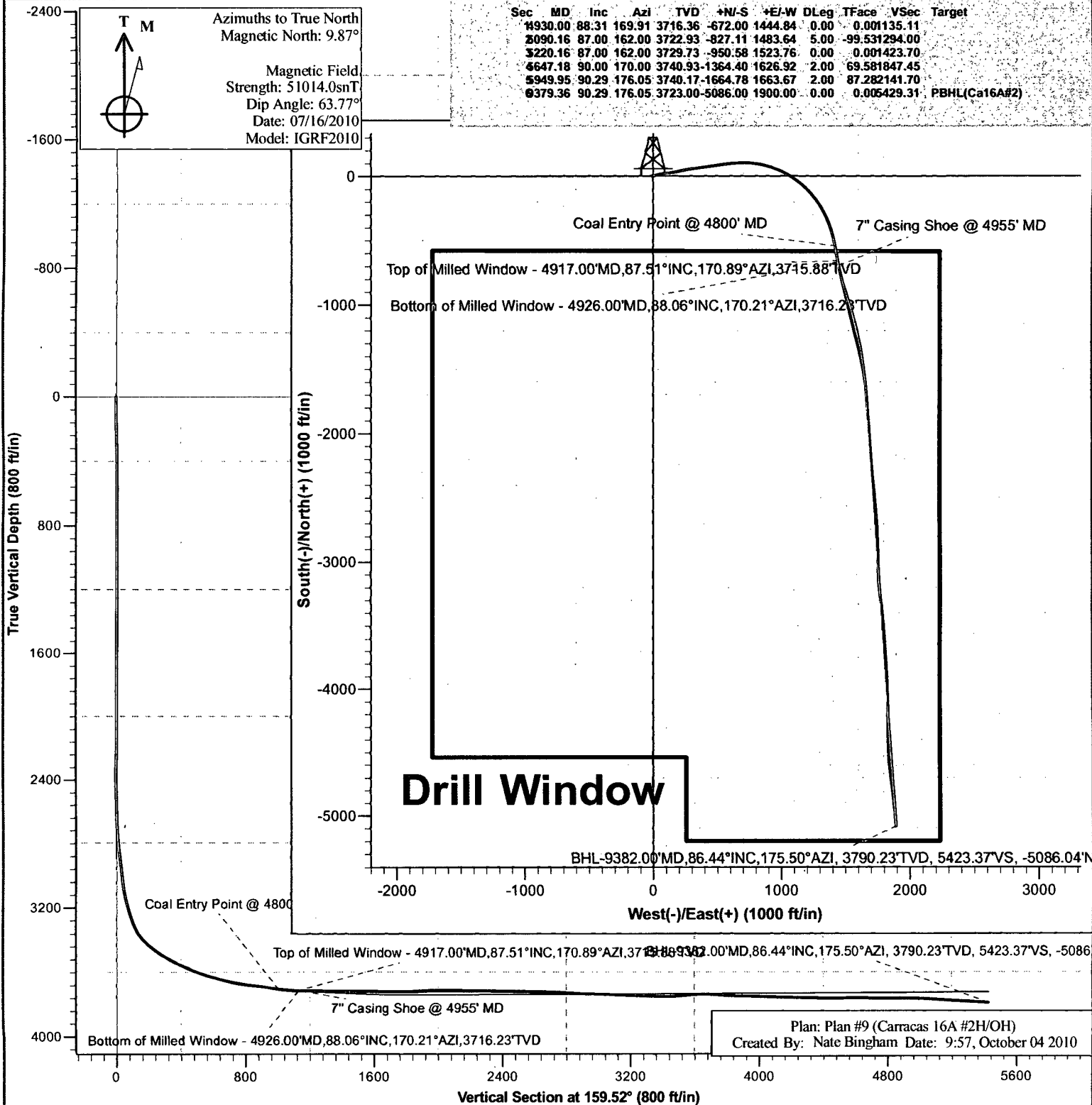
WELL DETAILS: Carracas 16A #2H

Ground Elevation: 7212.00
 RKB Elevation: WELL @ 7227.00ft (15' KB Correction)
 Rig Name: 15' KB Correction

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	2180573.437	1314346.618	36° 59' 14.172 N	107° 21' 59.256 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1930.00	88.31	169.91	3716.36	-672.00	1444.84	0.00	0.00	1135.11		
2090.16	87.00	162.00	3722.93	-827.11	1483.64	5.00	-99.53	1294.00		
3220.16	87.00	162.00	3729.73	-950.58	1523.76	0.00	0.00	1423.70		
4647.18	90.00	170.00	3740.93	-1364.40	1626.92	2.00	69.58	1847.45		
5949.95	90.29	176.05	3740.17	-1664.78	1663.67	2.00	87.28	2141.70		
6379.36	90.29	176.05	3723.00	-5086.00	1900.00	0.00	0.00	5429.31		PBHL(Ca16A#2)



Company: Energen Resources
Project: Rio Arriba County
Site: Carracas
Well: Carracas 16A #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Carracas 16A #2H
TVD Reference: WELL @ 7227.00ft (15' KB Correction)
MD Reference: WELL @ 7227.00ft (15' KB Correction)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Midland Database

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:		Northing:	2,163,390.790ft	Latitude:	36° 56' 25.836 N
From:	Lat/Long	Easting:	1,327,952.794ft	Longitude:	107° 19' 9.192 W
Position Uncertainty:	3.00 ft	Slot Radius:	"	Grid Convergence:	-0.64 °

Well	Carracas 16A #2H					
Well Position	+N/-S	0.00 ft	Northing:	2,180,573.437 ft	Latitude:	36° 59' 14.172 N
	+E/-W	0.00 ft	Easting:	1,314,346.618 ft	Longitude:	107° 21' 59.256 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	7,212.00 ft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	07/16/10	9.87	63.77	51,014

Design	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	162.01

Survey Program		Date 10/04/10		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
288.00	9,382.00	MWD #1 (OH)	MWD	MWD - Standard

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
288.00	1.32	164.67	287.97	-3.20	0.88	0.46	3.31
378.00	0.44	162.94	377.96	-4.53	1.25	0.98	4.69
438.00	0.00	149.36	437.96	-4.75	1.32	0.73	4.93
530.00	0.09	122.06	529.96	-4.79	1.38	0.10	4.98
621.00	0.09	160.80	620.96	-4.89	1.47	0.07	5.11
712.00	0.09	254.21	711.96	-4.98	1.42	0.14	5.18
801.00	0.18	110.63	800.96	-5.05	1.48	0.29	5.26
891.00	0.18	300.77	890.96	-5.03	1.49	0.40	5.24
981.00	0.09	212.50	980.96	-5.01	1.34	0.22	5.18
1,074.00	0.18	174.67	1,073.96	-5.22	1.31	0.13	5.37
1,165.00	0.18	206.87	1,164.96	-5.49	1.26	0.11	5.61

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas
Well: Carracas 16A #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Carracas 16A #2H
TVD Reference: WELL @ 7227.00ft (15' KB Correction)
MD Reference: WELL @ 7227.00ft (15' KB Correction)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
1,286.00	0.09	102.16	1,285.96	-5.68	1.27	0.18	5.79
1,379.00	0.18	148.51	1,378.96	-5.82	1.41	0.14	5.97
1,475.00	0.00	173.63	1,474.96	-5.95	1.49	0.19	6.12
1,570.00	0.09	121.05	1,569.96	-5.99	1.56	0.09	6.17
1,666.00	0.18	190.61	1,665.96	-6.17	1.59	0.18	6.36
1,762.00	0.09	9.85	1,761.96	-6.25	1.58	0.28	6.43
1,858.00	0.09	75.86	1,857.96	-6.16	1.66	0.10	6.37
1,953.00	0.18	272.97	1,952.96	-6.13	1.59	0.28	6.32
2,048.00	0.26	208.79	2,047.96	-6.31	1.33	0.26	6.41
2,143.00	0.35	295.45	2,142.96	-6.37	0.97	0.45	6.36
2,175.00	1.14	304.59	2,174.96	-6.15	0.62	2.49	6.04
2,207.00	2.11	311.12	2,206.94	-5.58	-0.09	3.08	5.28
2,239.00	2.37	316.36	2,238.92	-4.72	-0.99	1.03	4.18
2,271.00	2.73	336.89	2,270.89	-3.54	-1.74	3.05	2.83
2,302.00	2.73	4.00	2,301.85	-2.12	-1.98	4.13	1.41
2,334.00	2.64	36.23	2,333.82	-0.77	-1.49	4.66	0.27
2,366.00	2.64	62.32	2,365.79	0.17	-0.41	3.72	-0.29
2,398.00	3.52	76.97	2,397.74	0.73	1.20	3.67	-0.33
2,430.00	4.48	83.02	2,429.66	1.11	3.40	3.27	0.00
2,462.00	5.80	83.90	2,461.53	1.43	6.25	4.13	0.57
2,494.00	7.30	81.41	2,493.32	1.91	9.87	4.77	1.24
2,526.00	8.97	78.59	2,525.00	2.70	14.32	5.36	1.85
2,558.00	9.58	76.12	2,556.58	3.84	19.35	2.28	2.33
2,590.00	10.55	75.41	2,588.09	5.21	24.78	3.06	2.69
2,622.00	11.43	76.32	2,619.50	6.70	30.69	2.80	3.11
2,654.00	13.10	77.62	2,650.77	8.23	37.31	5.29	3.70
2,684.00	14.86	77.85	2,679.88	9.77	44.40	5.87	4.42
2,716.00	16.18	78.18	2,710.71	11.54	52.77	4.13	5.32
2,747.00	17.41	80.71	2,740.39	13.18	61.58	4.61	6.49
2,779.00	19.08	81.43	2,770.78	14.73	71.47	5.27	8.07
2,811.00	20.93	81.99	2,800.85	16.30	82.31	5.81	9.91
2,842.00	23.13	84.22	2,829.58	17.69	93.85	7.59	12.16
2,874.00	25.32	84.24	2,858.76	19.01	106.91	6.84	14.94
2,906.00	28.14	83.72	2,887.34	20.52	121.22	8.84	17.92
2,938.00	30.25	83.43	2,915.28	22.27	136.73	6.61	21.05
2,970.00	31.83	81.15	2,942.69	24.49	153.08	6.15	23.99
3,002.00	34.12	78.76	2,969.54	27.54	170.22	8.23	26.38
3,034.00	36.67	77.65	2,995.62	31.33	188.36	8.22	28.38
3,065.00	39.04	76.84	3,020.10	35.54	206.92	7.81	30.11
3,097.00	40.80	77.05	3,044.64	40.17	226.92	5.52	31.88
3,129.00	42.56	78.11	3,068.54	44.75	247.70	5.92	33.94
3,160.00	43.62	80.06	3,091.18	48.75	268.49	5.49	36.56
3,192.00	45.02	82.15	3,114.07	52.20	290.58	6.32	40.09
3,224.00	45.02	82.29	3,136.69	55.27	313.01	0.31	44.11

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TVD Reference: WELL @ 7227.00ft (15' KB Correction)
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Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
3,256.00	46.34	82.45	3,159.05	58.31	335.70	4.14	48.22
3,288.00	49.15	81.87	3,180.56	61.54	359.16	8.88	52.39
3,320.00	51.88	82.02	3,200.91	65.00	383.61	8.54	56.66
3,352.00	53.38	82.03	3,220.33	68.53	408.79	4.69	61.08
3,384.00	54.87	81.88	3,239.08	72.16	434.47	4.67	65.56
3,415.00	56.54	82.41	3,256.55	75.66	459.84	5.57	70.06
3,447.00	58.21	82.07	3,273.80	79.30	486.54	5.29	74.85
3,479.00	59.79	82.87	3,290.28	82.89	513.73	5.38	79.83
3,510.00	61.64	82.67	3,305.45	86.29	540.55	5.99	84.88
3,542.00	63.40	82.23	3,320.21	90.02	568.70	5.63	90.02
3,574.00	64.63	82.35	3,334.23	93.88	597.20	3.86	95.15
3,606.00	65.16	83.76	3,347.81	97.38	625.96	4.32	100.71
3,638.00	65.16	86.06	3,361.25	99.96	654.89	6.52	107.19
3,670.00	65.77	88.11	3,374.54	101.44	683.96	6.13	114.76
3,701.00	66.21	91.17	3,387.16	101.62	712.27	9.13	123.34
3,732.00	66.83	93.13	3,399.51	100.55	740.68	6.13	133.13
3,764.00	66.48	95.48	3,412.19	98.34	769.98	6.83	144.27
3,796.00	66.57	97.66	3,424.94	94.99	799.13	6.25	156.47
3,827.00	66.74	99.70	3,437.23	90.69	827.27	6.07	169.25
3,859.00	66.65	102.35	3,449.89	85.07	856.11	7.61	183.50
3,891.00	66.48	104.39	3,462.62	78.28	884.67	5.87	198.78
3,923.00	66.83	107.32	3,475.30	70.26	912.93	8.48	215.14
3,955.00	67.27	109.81	3,487.78	60.87	940.86	7.30	232.69
3,987.00	67.44	111.66	3,500.10	50.42	968.48	5.36	251.16
4,019.00	67.44	114.10	3,512.38	38.93	995.70	7.04	270.50
4,051.00	67.97	117.22	3,524.52	26.11	1,022.39	9.17	290.93
4,083.00	68.68	119.18	3,536.34	12.06	1,048.59	6.11	312.39
4,115.00	69.38	121.14	3,547.79	-2.96	1,074.42	6.12	334.65
4,147.00	69.73	123.39	3,558.97	-18.96	1,099.78	6.68	357.70
4,179.00	70.17	125.83	3,569.95	-36.03	1,124.51	7.29	381.58
4,210.00	70.35	128.47	3,580.42	-53.65	1,147.77	8.04	405.52
4,242.00	70.79	131.29	3,591.06	-73.00	1,170.92	8.42	431.07
4,274.00	71.23	133.90	3,601.48	-93.48	1,193.19	7.83	457.43
4,306.00	71.84	137.00	3,611.62	-115.11	1,214.48	9.38	484.57
4,338.00	72.72	139.20	3,621.36	-137.79	1,234.84	7.10	512.44
4,370.00	73.78	141.49	3,630.58	-161.38	1,254.39	7.61	540.91
4,401.00	75.27	143.71	3,638.85	-185.12	1,272.53	8.41	569.09
4,433.00	76.33	145.99	3,646.70	-210.48	1,290.39	7.66	598.73
4,465.00	76.77	147.67	3,654.15	-236.53	1,307.42	5.29	628.76
4,496.00	77.56	149.40	3,661.03	-262.31	1,323.19	6.01	658.16
4,560.00	80.72	154.45	3,673.10	-317.75	1,352.75	9.19	720.01
4,609.00	83.27	158.65	3,679.92	-362.25	1,372.04	9.96	768.30
4,641.00	82.66	161.21	3,683.84	-392.08	1,382.94	8.17	800.04
4,673.00	82.75	163.77	3,687.91	-422.35	1,392.49	7.94	831.77

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Site: Carracas
Well: Carracas 16A #2H
Wellbore: OH
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Local Co-ordinate Reference: Well Carracas 16A #2H
TVD Reference: WELL @ 7227.00ft (15' KB Correction)
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North Reference: True
Survey Calculation Method: Minimum Curvature
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Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
4,705.00	82.75	165.46	3,691.95	-452.95	1,400.91	5.24	863.48
4,737.00	82.13	166.91	3,696.16	-483.76	1,408.49	4.89	895.12
4,768.00	81.16	167.63	3,700.66	-513.67	1,415.25	3.88	925.66
4,800.00	81.78	167.55	3,705.41	-544.58	1,422.05	1.95	957.16
Coal Entry Point @ 4800' MD							
4,832.00	83.80	168.47	3,709.42	-575.63	1,428.64	6.93	988.73
4,864.00	85.38	170.03	3,712.44	-606.93	1,434.58	6.92	1,020.33
4,901.00	86.53	172.10	3,715.05	-643.39	1,440.31	6.39	1,056.77
4,917.00	87.51	170.89	3,715.88	-659.19	1,442.68	9.72	1,072.53
Top of Milled Window - 4917.00' MD, 87.51° INC, 170.89° AZI, 3715.88' TVD							
4,926.00	88.06	170.21	3,716.23	-668.06	1,444.15	9.72	1,081.43
Bottom of Milled Window - 4926.00' MD, 88.06° INC, 170.21° AZI, 3716.23' TVD							
4,955.00	89.84	168.02	3,716.76	-696.53	1,449.63	9.72	1,110.20
7" Casing Shoe @ 4955' MD							
4,957.00	89.96	167.87	3,716.77	-698.49	1,450.05	9.72	1,112.19
4,988.00	90.57	165.10	3,716.62	-728.62	1,457.29	9.15	1,143.09
5,019.00	89.78	165.86	3,716.53	-758.63	1,465.06	3.54	1,174.03
5,050.00	89.69	166.29	3,716.67	-788.72	1,472.52	1.42	1,204.95
5,080.00	89.60	166.31	3,716.86	-817.87	1,479.63	0.31	1,234.87
5,111.00	89.43	166.27	3,717.12	-847.98	1,486.97	0.56	1,265.78
5,141.00	89.43	166.29	3,717.42	-877.13	1,494.09	0.07	1,295.70
5,172.00	89.16	166.53	3,717.80	-907.26	1,501.37	1.17	1,326.60
5,202.00	88.72	167.09	3,718.35	-936.46	1,508.22	2.37	1,356.49
5,233.00	89.43	166.25	3,718.86	-966.62	1,515.36	3.55	1,387.38
5,264.00	90.22	165.92	3,718.95	-996.71	1,522.82	2.76	1,418.31
5,295.00	90.40	166.27	3,718.78	-1,026.80	1,530.27	1.27	1,449.23
5,325.00	89.69	166.69	3,718.76	-1,055.97	1,537.28	2.75	1,479.13
5,356.00	89.78	166.92	3,718.90	-1,086.15	1,544.36	0.80	1,510.03
5,387.00	90.04	167.12	3,718.95	-1,116.36	1,551.32	1.06	1,540.91
5,418.00	89.69	167.23	3,719.02	-1,146.59	1,558.20	1.18	1,571.78
5,449.00	89.08	167.14	3,719.36	-1,176.81	1,565.08	1.99	1,602.65
5,480.00	89.16	166.31	3,719.83	-1,206.98	1,572.19	2.69	1,633.54
5,511.00	88.99	166.03	3,720.33	-1,237.08	1,579.60	1.06	1,664.46
5,541.00	88.37	165.40	3,721.02	-1,266.14	1,587.00	2.95	1,694.39
5,572.00	89.69	165.35	3,721.55	-1,296.13	1,594.83	4.26	1,725.33
5,603.00	90.13	165.77	3,721.60	-1,326.15	1,602.56	1.96	1,756.27
5,633.00	92.51	166.91	3,720.91	-1,355.29	1,609.64	8.80	1,786.17
5,663.00	93.21	167.14	3,719.41	-1,384.49	1,616.37	2.46	1,816.02
5,693.00	92.68	167.28	3,717.87	-1,413.71	1,623.00	1.83	1,845.86
5,723.00	92.42	167.13	3,716.53	-1,442.93	1,629.64	1.00	1,875.70
5,754.00	91.71	167.81	3,715.42	-1,473.17	1,636.36	3.17	1,906.54
5,785.00	89.69	169.40	3,715.04	-1,503.56	1,642.48	8.29	1,937.33
5,816.00	89.69	169.80	3,715.21	-1,534.05	1,648.08	1.29	1,968.06
5,845.00	89.60	170.16	3,715.39	-1,562.61	1,653.13	1.28	1,996.78
5,876.00	89.96	172.46	3,715.50	-1,593.25	1,657.81	7.51	2,027.37

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas
Well: Carracas 16A #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Carracas 16A #2H
TVD Reference: WELL @ 7227.00ft (15' KB Correction)
MD Reference: WELL @ 7227.00ft (15' KB Correction)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
5,905.00	89.43	172.85	3,715.66	-1,622.01	1,661.52	2.27	2,055.87
5,936.00	89.34	174.04	3,715.99	-1,652.80	1,665.06	3.85	2,086.25
5,967.00	89.08	174.87	3,716.42	-1,683.66	1,668.05	2.81	2,116.52
5,996.00	89.96	175.67	3,716.66	-1,712.56	1,670.44	4.10	2,144.75
6,027.00	89.87	176.16	3,716.71	-1,743.48	1,672.65	1.61	2,174.84
6,057.00	89.43	176.10	3,716.89	-1,773.41	1,674.67	1.48	2,203.93
6,087.00	89.25	175.80	3,717.24	-1,803.33	1,676.79	1.17	2,233.05
6,117.00	88.90	175.83	3,717.72	-1,833.25	1,678.98	1.17	2,262.18
6,148.00	89.34	175.79	3,718.20	-1,864.16	1,681.25	1.43	2,292.28
6,179.00	88.90	175.86	3,718.67	-1,895.07	1,683.50	1.44	2,322.38
6,209.00	89.16	175.65	3,719.18	-1,924.99	1,685.72	1.11	2,351.51
6,238.00	89.16	175.36	3,719.61	-1,953.90	1,688.00	1.00	2,379.71
6,269.00	89.08	175.63	3,720.08	-1,984.80	1,690.43	0.91	2,409.85
6,300.00	88.90	175.34	3,720.63	-2,015.70	1,692.87	1.10	2,439.99
6,330.00	88.72	175.58	3,721.25	-2,045.59	1,695.25	1.00	2,469.16
6,359.00	89.08	175.71	3,721.81	-2,074.51	1,697.45	1.32	2,497.34
6,390.00	89.52	175.84	3,722.19	-2,105.42	1,699.73	1.48	2,527.45
6,420.00	89.43	176.11	3,722.46	-2,135.34	1,701.84	0.95	2,556.56
6,450.00	89.87	175.19	3,722.65	-2,165.26	1,704.11	3.40	2,585.71
6,481.00	89.25	174.53	3,722.88	-2,196.13	1,706.89	2.92	2,615.94
6,511.00	87.93	174.64	3,723.62	-2,225.99	1,709.72	4.42	2,645.21
6,542.00	87.23	174.62	3,724.93	-2,256.82	1,712.62	2.26	2,675.43
6,572.00	87.05	175.27	3,726.43	-2,286.67	1,715.26	2.25	2,704.63
6,603.00	87.85	175.30	3,727.81	-2,317.53	1,717.80	2.58	2,734.78
6,634.00	87.14	174.88	3,729.16	-2,348.39	1,720.45	2.66	2,764.94
6,665.00	87.05	174.66	3,730.73	-2,379.22	1,723.28	0.77	2,795.14
6,695.00	86.44	173.76	3,732.44	-2,409.02	1,726.30	3.62	2,824.41
6,726.00	87.85	173.71	3,733.98	-2,439.79	1,729.68	4.55	2,854.73
6,757.00	88.72	174.04	3,734.91	-2,470.60	1,732.98	3.00	2,885.05
6,786.00	89.34	174.57	3,735.40	-2,499.46	1,735.86	2.81	2,913.38
6,817.00	89.34	175.44	3,735.76	-2,530.34	1,738.56	2.81	2,943.58
6,848.00	88.72	175.71	3,736.28	-2,561.24	1,740.95	2.18	2,973.72
6,877.00	88.11	175.41	3,737.08	-2,590.14	1,743.19	2.34	3,001.90
6,907.00	87.85	175.31	3,738.14	-2,620.02	1,745.62	0.93	3,031.07
6,938.00	87.76	176.48	3,739.33	-2,650.92	1,747.84	3.78	3,061.14
6,968.00	87.49	176.67	3,740.57	-2,680.84	1,749.63	1.10	3,090.15
6,999.00	87.67	176.99	3,741.88	-2,711.77	1,751.34	1.18	3,120.09
7,029.00	87.58	176.96	3,743.12	-2,741.70	1,752.92	0.32	3,149.05
7,061.00	87.58	177.28	3,744.47	-2,773.63	1,754.53	1.00	3,179.92
7,092.00	87.76	177.58	3,745.73	-2,804.57	1,755.92	1.13	3,209.78
7,123.00	87.58	178.08	3,746.99	-2,835.53	1,757.09	1.71	3,239.58
7,155.00	87.58	178.49	3,748.35	-2,867.48	1,758.05	1.28	3,270.27
7,186.00	87.58	178.81	3,749.66	-2,898.45	1,758.78	1.03	3,299.94
7,217.00	88.46	178.95	3,750.73	-2,929.42	1,759.38	2.87	3,329.59

Company: Energen Resources
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North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
7,249.00	89.52	179.03	3,751.29	-2,961.41	1,759.95	3.32	3,360.19
7,280.00	89.96	179.16	3,751.43	-2,992.41	1,760.44	1.48	3,389.82
7,311.00	92.77	179.65	3,750.69	-3,023.39	1,760.76	9.20	3,419.39
7,343.00	93.39	180.37	3,748.97	-3,055.35	1,760.75	2.97	3,449.78
7,374.00	94.00	179.61	3,746.98	-3,086.28	1,760.76	3.14	3,479.21
7,406.00	94.97	177.57	3,744.47	-3,118.17	1,761.54	7.04	3,509.78
7,437.00	95.94	175.19	3,741.53	-3,148.97	1,763.49	8.26	3,539.67
7,468.00	94.88	174.36	3,738.60	-3,179.70	1,766.30	4.34	3,569.77
7,499.00	92.86	173.75	3,736.51	-3,210.46	1,769.50	6.81	3,600.02
7,529.00	90.40	173.09	3,735.66	-3,240.25	1,772.94	8.49	3,629.41
7,560.00	87.93	173.12	3,736.11	-3,271.02	1,776.66	7.97	3,659.82
7,591.00	85.47	172.83	3,737.89	-3,301.73	1,780.45	7.99	3,690.21
7,622.00	85.12	172.55	3,740.44	-3,332.38	1,784.38	1.44	3,720.57
7,653.00	85.47	172.65	3,742.98	-3,363.02	1,788.36	1.17	3,750.94
7,685.00	86.35	173.30	3,745.26	-3,394.69	1,792.26	3.42	3,782.27
7,716.00	87.23	173.80	3,747.00	-3,425.45	1,795.74	3.26	3,812.60
7,748.00	88.29	174.37	3,748.25	-3,457.25	1,799.03	3.76	3,843.86
7,779.00	87.58	174.51	3,749.36	-3,488.09	1,802.03	2.33	3,874.12
7,810.00	88.72	175.44	3,750.37	-3,518.95	1,804.75	4.74	3,904.31
7,841.00	89.69	176.23	3,750.80	-3,549.87	1,807.00	4.04	3,934.41
7,873.00	89.43	176.02	3,751.04	-3,581.79	1,809.16	1.04	3,965.44
7,904.00	88.99	175.98	3,751.47	-3,612.71	1,811.32	1.43	3,995.52
7,935.00	88.64	175.85	3,752.11	-3,643.63	1,813.53	1.20	4,025.60
7,966.00	88.37	175.91	3,752.92	-3,674.54	1,815.76	0.89	4,055.69
7,997.00	87.93	175.86	3,753.92	-3,705.44	1,817.98	1.43	4,085.77
8,028.00	87.85	176.14	3,755.06	-3,736.35	1,820.14	0.94	4,115.83
8,060.00	88.90	176.56	3,755.97	-3,768.27	1,822.18	3.53	4,146.82
8,091.00	88.81	176.83	3,756.59	-3,799.21	1,823.96	0.92	4,176.80
8,122.00	89.16	176.92	3,757.14	-3,830.16	1,825.65	1.17	4,206.76
8,153.00	88.72	176.82	3,757.71	-3,861.11	1,827.35	1.46	4,236.72
8,184.00	88.11	177.25	3,758.57	-3,892.05	1,828.95	2.41	4,266.65
8,216.00	88.81	177.65	3,759.43	-3,924.01	1,830.37	2.52	4,297.48
8,247.00	88.46	177.45	3,760.17	-3,954.97	1,831.70	1.30	4,327.34
8,277.00	88.11	177.62	3,761.06	-3,984.93	1,832.99	1.30	4,356.23
8,301.00	87.76	177.51	3,761.93	-4,008.89	1,834.01	1.53	4,379.34
8,332.00	87.58	177.79	3,763.19	-4,039.84	1,835.28	1.07	4,409.16
8,363.00	90.48	178.59	3,763.71	-4,070.82	1,836.26	9.70	4,438.93
8,394.00	92.33	180.00	3,762.95	-4,101.80	1,836.64	7.50	4,468.52
8,425.00	92.24	180.39	3,761.72	-4,132.78	1,836.53	1.29	4,497.94
8,457.00	91.01	179.95	3,760.81	-4,164.77	1,836.44	4.08	4,528.34
8,488.00	90.22	179.41	3,760.48	-4,195.76	1,836.61	3.09	4,557.87
8,519.00	89.96	179.11	3,760.43	-4,226.76	1,837.01	1.28	4,587.48
8,550.00	89.43	179.25	3,760.59	-4,257.76	1,837.45	1.77	4,617.10
8,581.00	89.08	179.60	3,761.00	-4,288.75	1,837.76	1.60	4,646.67
8,612.00	88.99	179.83	3,761.52	-4,319.75	1,837.92	0.80	4,676.20

Company: Energen Resources
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TVD Reference: WELL @ 7227.00ft (15' KB Correction)
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North Reference: True
Survey Calculation Method: Minimum Curvature
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Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	DLeg (°/100ft)	V. Sec (ft)
8,642.00	89.96	179.46	3,761.79	-4,349.75	1,838.10	3.46	4,704.79
8,674.00	90.22	179.46	3,761.74	-4,381.74	1,838.41	0.81	4,735.32
8,705.00	89.87	179.28	3,761.72	-4,412.74	1,838.75	1.27	4,764.90
8,735.00	90.13	178.14	3,761.72	-4,442.73	1,839.42	3.90	4,793.64
8,767.00	89.87	178.10	3,761.72	-4,474.72	1,840.47	0.82	4,824.38
8,798.00	89.78	177.89	3,761.81	-4,505.70	1,841.56	0.74	4,854.18
8,829.00	90.04	176.79	3,761.86	-4,536.66	1,843.00	3.65	4,884.08
8,860.00	90.75	175.90	3,761.65	-4,567.60	1,844.97	3.67	4,914.11
8,891.00	88.37	174.48	3,761.89	-4,598.49	1,847.57	8.94	4,944.29
8,922.00	87.14	173.59	3,763.10	-4,629.29	1,850.79	4.90	4,974.59
8,953.00	87.41	172.76	3,764.58	-4,660.04	1,854.47	2.81	5,004.97
8,984.00	87.05	172.56	3,766.07	-4,690.75	1,858.43	1.33	5,035.40
9,015.00	87.14	172.84	3,767.64	-4,721.46	1,862.36	0.95	5,065.82
9,046.00	86.79	173.13	3,769.29	-4,752.18	1,866.14	1.47	5,096.21
9,077.00	86.61	173.36	3,771.07	-4,782.92	1,869.78	0.94	5,126.57
9,109.00	86.26	173.90	3,773.06	-4,814.66	1,873.32	2.01	5,157.85
9,140.00	86.17	174.07	3,775.11	-4,845.42	1,876.56	0.62	5,188.11
9,171.00	86.00	174.12	3,777.22	-4,876.18	1,879.75	0.57	5,218.35
9,202.00	87.14	174.70	3,779.08	-4,906.98	1,882.76	4.12	5,248.57
9,234.00	86.09	174.99	3,780.97	-4,938.79	1,885.63	3.40	5,279.72
9,265.00	86.70	175.50	3,782.92	-4,969.63	1,888.20	2.56	5,309.83
9,296.00	86.17	175.61	3,784.84	-5,000.47	1,890.59	1.75	5,339.91
9,317.00	86.44	175.50	3,786.20	-5,021.37	1,892.22	1.39	5,360.29
9,378.00	86.44	175.50	3,789.98	-5,082.06	1,896.99	0.00	5,419.49
PBHL(Ca16A#2)							
9,382.00	86.44	175.50	3,790.23	-5,086.04	1,897.31	0.00	5,423.37

BHL-9382.00°MD,86.44°INC,175.50°AZI, 3790.23°TVD, 5423.37°VS, -5086.04°N, 1897.31°E

Company: Energen Resources
Project: Rio Arriba County
Site: Carracas
Well: Carracas 16A #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Carracas 16A #2H
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North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Targets
Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL(Ca16A#2)	0.00	0.00	3,723.00	-5,086.00	1,900.00	2,175,465.509	1,316,186.855	36° 58' 23.885 N	107° 21' 35.843 W
- survey misses target center by 67.17ft at 9378.00ft MD (3789.98 TVD, -5082.06 N, 1896.99 E) - Point									

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,800.00	3,705.41	-544.58	1,422.05	Coal Entry Point @ 4800' MD
4,917.00	3,715.88	-659.19	1,442.68	Top of Milled Window - 4917.00'MD,87.51°INC,170.89°AZI,3715.88'TVI
4,926.00	3,716.23	-668.06	1,444.15	Bottom of Milled Window - 4926.00'MD,88.06°INC,170.21°AZI,3716.23'
4,955.00	3,716.76	-696.53	1,449.63	7" Casing Shoe @ 4955' MD
9,382.00	3,790.23	-5,086.04	1,897.31	BHL-9382.00'MD,86.44°INC,175.50°AZI, 3790.23'TVD, 5423.37'VS, -51

Checked By: _____ Approved By: _____ Date: _____