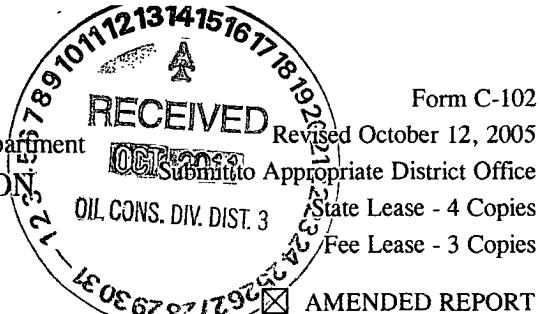


District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505



WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31056	² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 35664	⁵ Property Name Carracas 27B	⁶ Well Number 16H
⁷ OGRID No. 162928	⁸ Operator Name ENERGEN RESOURCES CORPORATION	⁹ Elevation 7,058'

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
M	26	32N	04W		1,044'	South	748'	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
M	27	32N	04W		982'	South	570'	West	Rio Arriba

¹² Dedicated Acres 320 ac S/2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
---	-------------------------------	----------------------------------	-------------------------

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 and compulsory pooling order heretofore entered by the division. Signature: <i>Andrew Soto</i> Date: 10/10/11 Andrew Soto Printed Name
					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. August 3, 2009 Date of Survey Original Survey Conducted and Recorded By: David R. Russell 10201 Certificate Number

D & J DRILLING, LLC
P. O. BOX 49
FARMINGTON, NM 87499

ORIGINAL

DATE: 08/23/11

TO: ENERGEN RESOURCES CORPORATION
2010 AFTON PLACE
FARMINGTON, NM 87401

ATTN: MR. DOUG THOMAS

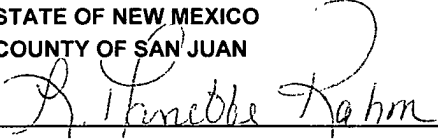
THIS LETTER IS TO CERTIFY THAT D & J DRILLING, DID RUN DEVIATION SURVEYS AT
THE LISTED DEPTH ON YOUR CARRACAS 27B #16H, IN SEC26-T32N-R04W, IN RIO ARRIBA COUNTY,
NEW MEXICO. API WELL NUMBER - 30-039-30165

DEPTH	DEGREE DEVIATION
106 '	1
199 '	1



TO THE BEST OF MY KNOWLEDGE, I SWEAR THIS INFORMATION TO BE TRUE.

STATE OF NEW MEXICO
COUNTY OF SAN JUAN


NOTARY PUBLIC, L. NANETTE RAHM

SINCERELY,


OWNER/PARTNER- CLARENCE D. KEENOM



Ar

Q

Energen Resources

Rio Arriba County

Sec27 T32N-R4W - 27B16

Carracas 27B #16

Wellbore #1

Design: Wellbore #1

Standard Survey Report

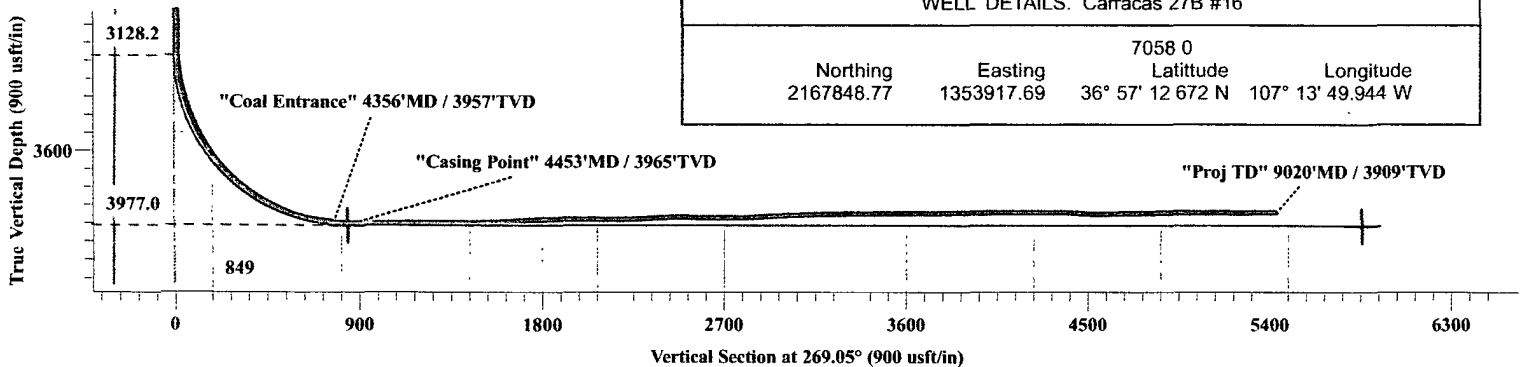
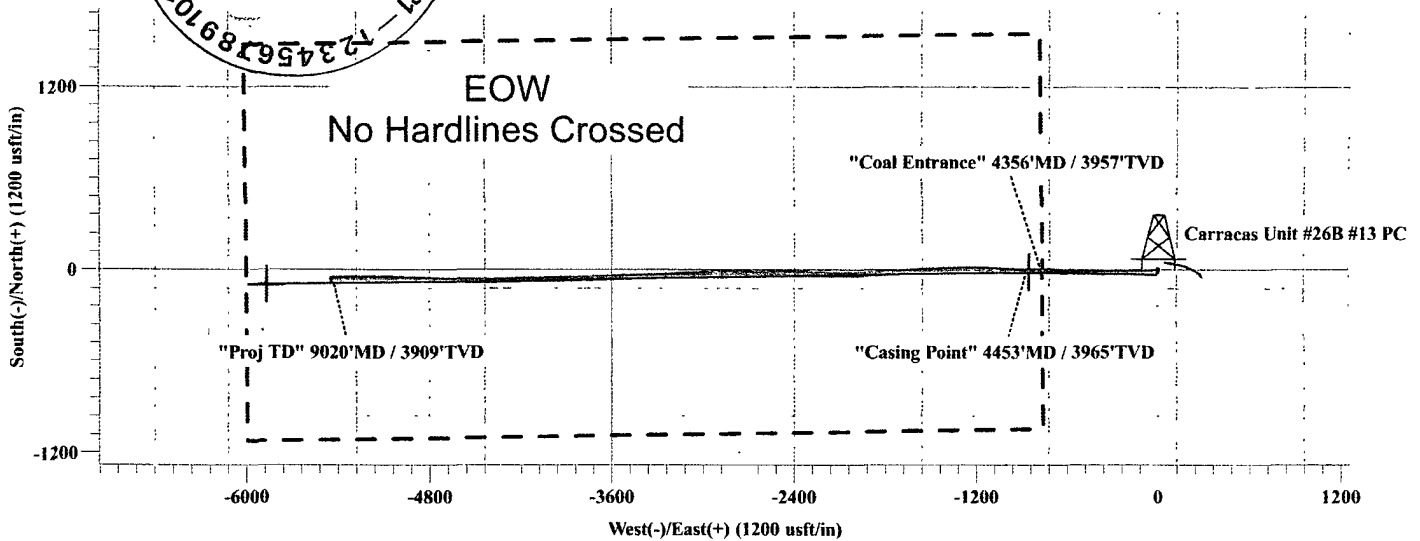
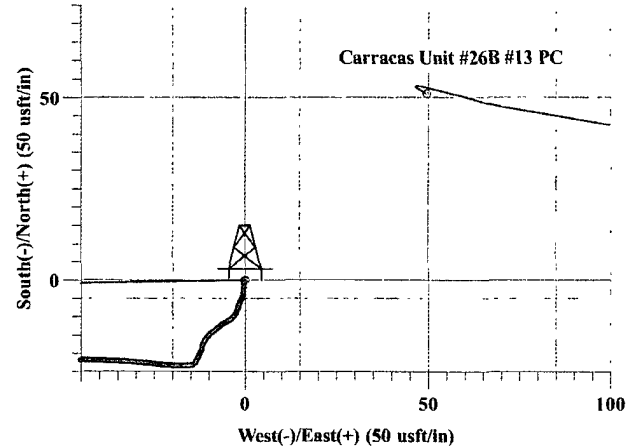
18 August, 2011



Carracas 27B #16
Sec27 T32N-R4W - 27B16
GL: 7058' KB: 15'.

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
LAND-27B	3977.0	-14.1	-848.7	2167843.40	1353068.89	Point
TD-27B	3977.0	-97.7	-5861.7	2167811.39	1348055.27	Point



WELL DETAILS. Carracas 27B #16

Northing	Easting	7058.0	Latitude	Longitude
2167848.77	1353917.69	36° 57' 12.672 N	107° 13' 49.944 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
3128.2	0.00	0.00	3128.2	0.0	0.0	0.00	0.00	0.0	
4461.5	90.00	269.05	3977.0	-14.1	-848.7	6.75	269.05	848.8	
9475.2	90.00	269.05	3977.0	-97.7	-5861.7	0.00	0.00	5862.5	TD-27B

Plan: Design #3 (Carracas 27B #16/Wellbore #1)

Created By: Frank C. Scardino

Date: 7/25/2011

Survey Report

Company:	Energen Resources	Local Co-ordinate Reference:	Site Sec27 T32N-R4W - 27B16
Project:	Rio Arriba County	TVD Reference:	WELL @ 7073.0usft (Original Well Elev)
Site:	Sec27 T32N-R4W - 27B16	MD Reference:	WELL @ 7073.0usft (Original Well Elev)
Well:	Carracas 27B #16	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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		Sec27 T32N-R4W - 27B16			
Site Position:		Northing:	2,167,848.76 usft	Latitude:	36° 57' 12.672 N
From:	Lat/Long	Easting:	1,353,917.69 usft	Longitude:	107° 13' 49.944 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.59 °

Well	Carracas 27B #16					
Well Position	+N/-S	0 0 usft	Northing:	2,167,848.76 usft	Latitude:	36° 57' 12.672 N
	+E/-W	0 0 usft	Easting:	1,353,917.69 usft	Longitude:	107° 13' 49.944 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	7,058.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	07/13/11	9.68	63.74	50,915

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	269.05	

Survey Program	Date 08/18/11			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
267.0	9,020.0	Survey #1 (Wellbore #1)	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	
267.0	0.44	186.56	267.0	-1.0	-0.1	0.1	0.16	0.16	0.00	
362.0	0.53	184.24	362.0	-1.8	-0.2	0.2	0.10	0.09	-2.44	
458.0	0.62	184.08	458.0	-2.8	-0.3	0.3	0.09	0.09	-0.17	
553.0	0.70	188.61	553.0	-3.9	-0.4	0.4	0.10	0.08	4.77	
649.0	0.79	205.11	649.0	-5.0	-0.8	0.8	0.24	0.09	17.19	
744.0	0.79	201.45	744.0	-6.2	-1.3	1.4	0.05	0.00	-3.85	
840.0	0.88	202.65	840.0	-7.5	-1.8	1.9	0.10	0.09	1.25	
934.0	0.97	203.64	933.9	-8.9	-2.4	2.5	0.10	0.10	1.05	
1,028.0	0.53	225.99	1,027.9	-10.0	-3.0	3.2	0.55	-0.47	23.78	

Survey Report

Company: Energen Resources

Project: Rio Arriba County

Site: Sec27 T32N-R4W - 27B16

Well: Carracas 27B #16

Wellbore: Wellbore #1

Design: Wellbore #1

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Site Sec27 T32N-R4W - 27B16

WELL @ 7073.0usft (Original Well Elev)

WELL @ 7073.0usft (Original Well Elev)

True

Minimum Curvature

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)
1,121.0	0.44	223.12	1,120.9	-10.5	-3.6	3.8	0.10	-0.10	-3.09
1,213.0	0.53	233.09	1,212.9	-11.0	-4.2	4.3	0.13	0.10	10.84
1,301.0	0.70	247.71	1,300.9	-11.5	-5.0	5.2	0.26	0.19	16.61
1,394.0	0.79	239.96	1,393.9	-12.0	-6.1	6.3	0.15	0.10	-8.33
1,485.0	0.97	223.06	1,484.9	-12.9	-7.1	7.3	0.35	0.20	-18.57
1,576.0	0.62	240.21	1,575.9	-13.7	-8.1	8.3	0.46	-0.38	18.85
1,667.0	0.79	233.60	1,666.9	-14.3	-9.0	9.3	0.21	0.19	-7.26
1,756.0	0.88	220.19	1,755.9	-15.2	-10.0	10.2	0.24	0.10	-15.07
1,848.0	1.14	216.57	1,847.9	-16.5	-11.0	11.2	0.29	0.28	-3.93
1,939.0	0.62	189.68	1,938.9	-17.7	-11.6	11.9	0.71	-0.57	-29.55
2,030.0	0.44	185.48	2,029.9	-18.5	-11.7	12.0	0.20	-0.20	-4.62
2,121.0	0.53	209.79	2,120.8	-19.2	-11.9	12.3	0.24	0.10	26.71
2,215.0	0.62	195.36	2,214.8	-20.1	-12.3	12.6	0.18	0.10	-15.35
2,310.0	0.88	210.82	2,309.8	-21.2	-12.8	13.1	0.34	0.27	16.27
2,406.0	0.35	210.92	2,405.8	-22.1	-13.3	13.7	0.55	-0.55	0.10
2,501.0	0.09	60.85	2,500.8	-22.3	-13.4	13.8	0.45	-0.27	-157.97
2,596.0	0.18	206.04	2,595.8	-22.4	-13.4	13.8	0.27	0.09	152.83
2,691.0	0.26	235.54	2,690.8	-22.7	-13.7	14.0	0.14	0.08	31.05
2,787.0	0.18	221.11	2,786.8	-22.9	-13.9	14.3	0.10	-0.08	-15.03
2,882.0	0.18	225.33	2,881.8	-23.1	-14.1	14.5	0.01	0.00	4.44
2,978.0	0.09	221.73	2,977.8	-23.3	-14.3	14.7	0.09	-0.09	-3.75
3,074.0	0.35	284.14	3,073.8	-23.3	-14.6	15.0	0.33	0.27	65.01
3,105.0	1.14	269.31	3,104.8	-23.3	-15.0	15.4	2.60	2.55	-47.84
3,137.0	2.73	265.15	3,136.8	-23.3	-16.1	16.5	4.98	4.97	-13.00
3,168.0	5.10	270.45	3,167.7	-23.4	-18.2	18.6	7.73	7.65	17.10
3,200.0	7.83	275.44	3,199.5	-23.2	-21.8	22.2	8.70	8.53	15.59
3,232.0	10.02	275.54	3,231.1	-22.7	-26.8	27.1	6.84	6.84	0.31
3,264.0	11.70	274.08	3,262.6	-22.2	-32.8	33.1	5.32	5.25	-4.56
3,296.0	13.45	271.44	3,293.8	-21.9	-39.7	40.1	5.75	5.47	-8.25
3,328.0	15.12	270.33	3,324.8	-21.8	-47.6	48.0	5.29	5.22	-3.47
3,360.0	16.97	269.87	3,355.6	-21.7	-56.5	56.8	5.79	5.78	-1.44
3,391.0	18.99	269.99	3,385.0	-21.8	-66.0	66.4	6.52	6.52	0.39
3,423.0	21.02	270.88	3,415.1	-21.7	-77.0	77.3	6.41	6.34	2.78
3,455.0	23.04	271.70	3,444.8	-21.4	-89.0	89.3	6.39	6.31	2.56
3,487.0	24.97	272.38	3,474.0	-20.9	-102.0	102.3	6.09	6.03	2.13
3,519.0	26.82	272.75	3,502.8	-20.3	-115.9	116.3	5.80	5.78	1.16
3,551.0	28.05	273.03	3,531.2	-19.6	-130.7	131.0	3.86	3.84	0.88
3,582.0	30.16	272.85	3,558.3	-18.8	-145.7	146.0	6.81	6.81	-0.58
3,614.0	32.45	271.80	3,585.6	-18.1	-162.3	162.6	7.36	7.16	-3.28
3,646.0	34.73	270.55	3,612.3	-17.8	-180.0	180.3	7.45	7.13	-3.91
3,678.0	36.84	270.19	3,638.2	-17.6	-198.7	199.0	6.63	6.59	-1.13
3,709.0	38.87	270.40	3,662.7	-17.5	-217.8	218.0	6.56	6.55	0.68
3,741.0	41.15	270.34	3,687.2	-17.4	-238.3	238.6	7.13	7.13	-0.19
3,773.0	43.88	270.18	3,710.8	-17.3	-260.0	260.2	8.54	8.53	-0.50

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec27 T32N-R4W - 27B16
Well: Carracas 27B #16
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Site Sec27 T32N-R4W - 27B16
TVD Reference: WELL @ 7073.0usft (Original Well Elev)
MD Reference: WELL @ 7073.0usft (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)
3,804.0	46.60	270.35	3,732.6	-17.2	-282.0	282.2	8.78	8.77	0.55
3,835.0	48.89	270.55	3,753.5	-17.0	-304.9	305.2	7.40	7.39	0.65
3,867.0	51.09	270.38	3,774.0	-16.8	-329.4	329.7	6.89	6.88	-0.53
3,899.0	53.11	270.39	3,793.7	-16.7	-354.7	354.9	6.31	6.31	0.03
3,931.0	55.31	270.11	3,812.4	-16.5	-380.6	380.8	6.91	6.88	-0.88
3,963.0	57.24	269.43	3,830.2	-16.7	-407.2	407.5	6.28	6.03	-2.13
3,995.0	59.53	269.82	3,846.9	-16.8	-434.5	434.7	7.23	7.16	1.22
4,027.0	61.64	270.20	3,862.7	-16.8	-462.4	462.6	6.67	6.59	1.19
4,059.0	63.05	270.98	3,877.5	-16.5	-490.7	490.9	4.91	4.41	2.44
4,090.0	64.90	271.57	3,891.1	-15.9	-518.5	518.7	6.21	5.97	1.90
4,122.0	66.83	272.29	3,904.2	-14.9	-547.7	547.9	6.37	6.03	2.25
4,154.0	69.47	272.53	3,916.1	-13.7	-577.4	577.6	8.28	8.25	0.75
4,186.0	72.63	272.32	3,926.5	-12.4	-607.6	607.8	9.89	9.88	-0.66
4,218.0	75.97	271.81	3,935.2	-11.3	-638.4	638.5	10.55	10.44	-1.59
4,250.0	79.49	271.23	3,941.9	-10.5	-669.7	669.8	11.14	11.00	-1.81
4,281.0	82.13	270.88	3,946.9	-9.9	-700.3	700.3	8.59	8.52	-1.13
4,313.0	82.31	270.47	3,951.2	-9.5	-732.0	732.0	1.39	0.56	-1.28
4,345.0	81.95	270.03	3,955.6	-9.4	-763.7	763.7	1.77	-1.13	-1.38
4,356.0	82.61	269.91	3,957.1	-9.4	-774.6	774.6	6.12	6.03	-1.09
"Coal Entrance" 4356' MD / 3957' TVD									
4,380.0	84.06	269.65	3,959.9	-9.5	-798.4	798.5	6.12	6.03	-1.08
4,453.0	88.47	270.03	3,964.6	-9.7	-871.2	871.3	6.06	6.04	0.52
"Casing Point" 4453' MD / 3965' TVD									
4,485.0	90.40	270.19	3,964.9	-9.6	-903.2	903.3	6.06	6.04	0.51
4,517.0	90.04	269.96	3,964.8	-9.6	-935.2	935.3	1.33	-1.13	-0.72
4,549.0	90.04	269.73	3,964.8	-9.7	-967.2	967.3	0.72	0.00	-0.72
4,580.0	90.57	271.67	3,964.6	-9.3	-998.2	998.2	6.49	1.71	6.26
4,612.0	90.84	274.77	3,964.2	-7.5	-1,030.2	1,030.2	9.72	0.84	9.69
4,644.0	91.28	275.18	3,963.7	-4.7	-1,062.0	1,062.0	1.88	1.38	1.28
4,676.0	91.01	274.22	3,963.0	-2.1	-1,093.9	1,093.8	3.12	-0.84	-3.00
4,707.0	91.28	272.78	3,962.4	-0.2	-1,124.9	1,124.7	4.73	0.87	-4.65
4,739.0	90.66	271.62	3,961.9	1.0	-1,156.8	1,156.7	4.11	-1.94	-3.63
4,771.0	90.13	269.72	3,961.6	1.4	-1,188.8	1,188.6	6.16	-1.66	-5.94
4,803.0	90.13	268.94	3,961.6	1.0	-1,220.8	1,220.6	2.44	0.00	-2.44
4,835.0	90.22	269.09	3,961.5	0.5	-1,252.8	1,252.6	0.55	0.28	0.47
4,866.0	89.52	268.70	3,961.5	-0.1	-1,283.8	1,283.6	2.58	-2.26	-1.26
4,898.0	90.13	269.10	3,961.6	-0.7	-1,315.8	1,315.6	2.28	1.91	1.25
4,930.0	90.04	269.74	3,961.6	-1.1	-1,347.8	1,347.6	2.02	-0.28	2.00
4,962.0	89.78	268.94	3,961.6	-1.4	-1,379.8	1,379.6	2.63	-0.81	-2.50
4,994.0	89.52	268.08	3,961.8	-2.3	-1,411.8	1,411.6	2.81	-0.81	-2.69
5,025.0	90.04	267.69	3,961.9	-3.4	-1,442.8	1,442.6	2.10	1.68	-1.26
5,057.0	91.54	267.90	3,961.5	-4.6	-1,474.7	1,474.6	4.73	4.69	0.66
5,089.0	91.80	267.69	3,960.6	-5.9	-1,506.7	1,506.6	1.04	0.81	-0.66

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Sec27 T32N-R4W - 27B16
 Well: Carracas 27B #16
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Site Sec27 T32N-R4W - 27B16
 TVD Reference: WELL @ 7073.0usft (Original Well Elev)
 MD Reference: WELL @ 7073.0usft (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)
5,121.0	92.15	267.21	3,959.5	-7.3	-1,538.7	1,538.6	1.86	1.09	-1.50
5,152.0	92.15	266.75	3,958.3	-8.9	-1,569.6	1,569.5	1.48	0.00	-1.48
5,184.0	92.15	266.31	3,957.1	-10.9	-1,601.5	1,601.5	1.37	0.00	-1.38
5,216.0	93.03	266.76	3,955.7	-12.8	-1,633.4	1,633.4	3.09	2.75	1.41
5,248.0	92.86	266.47	3,954.0	-14.7	-1,665.3	1,665.3	1.05	-0.53	-0.91
5,280.0	92.68	266.20	3,952.5	-16.7	-1,697.2	1,697.3	1.01	-0.56	-0.84
5,312.0	93.30	265.67	3,950.8	-19.0	-1,729.1	1,729.2	2.55	1.94	-1.66
5,343.0	93.21	265.57	3,949.0	-21.4	-1,760.0	1,760.1	0.43	-0.29	-0.32
5,375.0	93.21	265.37	3,947.2	-23.9	-1,791.8	1,792.0	0.62	0.00	-0.63
5,407.0	92.33	267.17	3,945.7	-26.0	-1,823.7	1,823.9	6.26	-2.75	5.63
5,438.0	91.19	268.47	3,944.7	-27.1	-1,854.7	1,854.9	5.58	-3.68	4.19
5,470.0	90.92	267.90	3,944.2	-28.1	-1,886.6	1,886.8	1.97	-0.84	-1.78
5,501.0	91.01	267.58	3,943.6	-29.4	-1,917.6	1,917.8	1.07	0.29	-1.03
5,533.0	90.04	267.39	3,943.3	-30.8	-1,949.6	1,949.8	3.09	-3.03	-0.59
5,565.0	89.69	268.15	3,943.4	-32.0	-1,981.6	1,981.8	2.61	-1.09	2.38
5,597.0	89.34	269.48	3,943.7	-32.7	-2,013.5	2,013.8	4.30	-1.09	4.16
5,629.0	89.52	270.36	3,944.0	-32.7	-2,045.5	2,045.8	2.81	0.56	2.75
5,660.0	89.08	270.71	3,944.4	-32.4	-2,076.5	2,076.8	1.81	-1.42	1.13
5,692.0	89.43	270.89	3,944.8	-32.0	-2,108.5	2,108.8	1.23	1.09	0.56
5,723.0	89.60	270.72	3,945.1	-31.6	-2,139.5	2,139.8	0.78	0.55	-0.55
5,753.0	90.04	270.37	3,945.2	-31.3	-2,169.5	2,169.7	1.87	1.47	-1.17
5,782.0	90.40	270.55	3,945.0	-31.0	-2,198.5	2,198.7	1.39	1.24	0.62
5,813.0	90.66	270.75	3,944.8	-30.7	-2,229.5	2,229.7	1.06	0.84	0.65
5,844.0	92.33	271.42	3,944.0	-30.1	-2,260.5	2,260.7	5.80	5.39	2.16
5,875.0	94.00	272.32	3,942.2	-29.1	-2,291.4	2,291.6	6.12	5.39	2.90
5,905.0	93.74	271.90	3,940.2	-28.0	-2,321.3	2,321.5	1.64	-0.87	-1.40
5,936.0	93.21	271.33	3,938.3	-27.1	-2,352.3	2,352.4	2.51	-1.71	-1.84
5,966.0	93.12	271.09	3,936.7	-26.5	-2,382.2	2,382.3	0.85	-0.30	-0.80
5,997.0	92.86	270.81	3,935.1	-26.0	-2,413.2	2,413.3	1.23	-0.84	-0.90
6,028.0	91.98	269.98	3,933.8	-25.8	-2,444.2	2,444.2	3.90	-2.84	-2.68
6,058.0	90.22	269.32	3,933.2	-25.9	-2,474.1	2,474.2	6.27	-5.87	-2.20
6,089.0	89.08	269.44	3,933.4	-26.3	-2,505.1	2,505.2	3.70	-3.68	0.39
6,119.0	87.93	269.38	3,934.2	-26.6	-2,535.1	2,535.2	3.84	-3.83	-0.20
6,150.0	87.67	269.58	3,935.3	-26.9	-2,566.1	2,566.2	1.06	-0.84	0.65
6,181.0	88.81	269.98	3,936.3	-27.0	-2,597.1	2,597.2	3.90	3.68	1.29
6,211.0	89.34	270.15	3,936.8	-26.9	-2,627.1	2,627.2	1.86	1.77	0.57
6,241.0	89.96	270.25	3,937.0	-26.8	-2,657.1	2,657.2	2.09	2.07	0.33
6,271.0	90.48	270.54	3,936.8	-26.6	-2,687.1	2,687.2	1.98	1.73	0.97
6,301.0	90.22	270.35	3,936.7	-26.4	-2,717.1	2,717.1	1.07	-0.87	-0.63
6,332.0	90.31	269.55	3,936.5	-26.4	-2,748.1	2,748.1	2.60	0.29	-2.58
6,394.0	91.54	269.79	3,935.5	-26.8	-2,810.1	2,810.1	2.02	1.98	0.39
6,456.0	93.12	269.82	3,933.0	-27.0	-2,872.0	2,872.1	2.55	2.55	0.05
6,517.0	94.79	269.87	3,928.8	-27.2	-2,932.9	2,932.9	2.74	2.74	0.08
6,579.0	92.77	268.38	3,924.7	-28.1	-2,994.7	2,994.8	4.05	-3.26	-2.40

Survey Report

Company: Energen Resources
 Project: Rio Arriba County
 Site: Sec27 T32N-R4W - 27B16
 Well: Carracas 27B #16
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Site Sec27 T32N-R4W - 27B16
 TVD Reference: WELL @ 7073.0usft (Original Well Elev)
 MD Reference: WELL @ 7073.0usft (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)
6,641.0	92.33	267.22	3,921.9	-30.5	-3,056.6	3,056.7	2.00	-0.71	-1.87
6,702.0	91.01	266.48	3,920.2	-33.8	-3,117.5	3,117.6	2.48	-2.16	-1.21
6,765.0	90.22	266.45	3,919.5	-37.7	-3,180.4	3,180.6	1.25	-1.25	-0.05
6,827.0	91.19	267.46	3,918.7	-41.0	-3,242.3	3,242.5	2.26	1.56	1.63
6,889.0	91.36	267.93	3,917.3	-43.5	-3,304.2	3,304.5	0.81	0.27	0.76
6,951.0	91.63	268.11	3,915.7	-45.6	-3,366.2	3,366.4	0.52	0.44	0.29
7,012.0	90.84	268.06	3,914.4	-47.7	-3,427.1	3,427.4	1.30	-1.30	-0.08
7,071.0	90.31	267.53	3,913.8	-50.0	-3,486.1	3,486.4	1.27	-0.90	-0.90
7,133.0	90.22	267.42	3,913.5	-52.7	-3,548.0	3,548.4	0.23	-0.15	-0.18
7,193.0	90.04	267.56	3,913.4	-55.3	-3,607.9	3,608.4	0.38	-0.30	0.23
7,254.0	90.04	268.08	3,913.4	-57.6	-3,668.9	3,669.3	0.85	0.00	0.85
7,316.0	89.69	268.40	3,913.5	-59.5	-3,730.9	3,731.3	0.76	-0.56	0.52
7,378.0	91.80	269.45	3,912.7	-60.7	-3,792.8	3,793.3	3.80	3.40	1.69
7,439.0	90.48	269.17	3,911.5	-61.4	-3,853.8	3,854.3	2.21	-2.16	-0.46
7,499.0	89.78	269.26	3,911.3	-62.3	-3,913.8	3,914.3	1.18	-1.17	0.15
7,559.0	90.57	269.22	3,911.2	-63.1	-3,973.8	3,974.3	1.32	1.32	-0.07
7,621.0	91.36	269.18	3,910.1	-63.9	-4,035.8	4,036.3	1.28	1.27	-0.06
7,683.0	90.31	268.49	3,909.2	-65.2	-4,097.8	4,098.3	2.03	-1.69	-1.11
7,742.0	90.48	268.23	3,908.8	-66.9	-4,156.8	4,157.3	0.53	0.29	-0.44
7,803.0	89.34	267.91	3,908.9	-68.9	-4,217.7	4,218.3	1.94	-1.87	-0.52
7,865.0	90.40	268.24	3,909.0	-71.0	-4,279.7	4,280.3	1.79	1.71	0.53
7,925.0	89.69	268.77	3,909.0	-72.6	-4,339.7	4,340.3	1.48	-1.18	0.88
7,987.0	87.32	268.86	3,910.6	-73.9	-4,401.6	4,402.2	3.83	-3.82	0.15
8,047.0	86.61	269.13	3,913.8	-74.9	-4,461.5	4,462.2	1.27	-1.18	0.45
8,107.0	87.49	269.35	3,916.9	-75.7	-4,521.4	4,522.1	1.51	1.47	0.37
8,169.0	91.98	271.76	3,917.2	-75.1	-4,583.4	4,584.0	8.22	7.24	3.89
8,230.0	91.71	272.30	3,915.2	-72.9	-4,644.3	4,644.9	0.99	-0.44	0.89
8,289.0	90.84	271.97	3,913.9	-70.7	-4,703.3	4,703.8	1.58	-1.47	-0.56
8,349.0	90.84	271.58	3,913.0	-68.9	-4,763.3	4,763.7	0.65	0.00	-0.65
8,411.0	91.10	272.46	3,912.0	-66.7	-4,825.2	4,825.6	1.48	0.42	1.42
8,472.0	90.84	271.33	3,910.9	-64.7	-4,886.2	4,886.6	1.90	-0.43	-1.85
8,534.0	89.96	271.51	3,910.5	-63.1	-4,948.1	4,948.5	1.45	-1.42	0.29
8,596.0	89.52	271.37	3,910.8	-61.6	-5,010.1	5,010.5	0.74	-0.71	-0.23
8,656.0	90.40	271.22	3,910.8	-60.2	-5,070.1	5,070.4	1.49	1.47	-0.25
8,718.0	90.22	270.70	3,910.5	-59.2	-5,132.1	5,132.4	0.89	-0.29	-0.84
8,778.0	89.43	269.89	3,910.7	-58.9	-5,192.1	5,192.4	1.89	-1.32	-1.35
8,840.0	90.40	269.65	3,910.8	-59.1	-5,254.1	5,254.4	1.61	1.56	-0.39
8,900.0	90.66	268.21	3,910.2	-60.3	-5,314.1	5,314.3	2.44	0.43	-2.40
8,957.0	90.48	269.23	3,909.6	-61.5	-5,371.1	5,371.3	1.82	-0.32	1.79
9,020.0	90.48	269.23	3,909.1	-62.4	-5,434.1	5,434.3	0.00	0.00	0.00

"Proj TD" 9020°MD / 3909°TVD

Survey Report

Company: Energen Resources
Project: Rio Arriba County
Site: Sec27 T32N-R4W - 27B16
Well: Carracas 27B #16
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Site Sec27 T32N-R4W - 27B16
TVD Reference: WELL @ 7073.0usft (Original Well Elev)
MD Reference: WELL @ 7073.0usft (Original Well Elev)
North Reference: True
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)	
4,356.0	3,957.1	-9.4	-774.6	"Coal Entrance" 4356'MD / 3957'TVD
4,453.0	3,964.6	-9.7	-871.2	"Casing Point" 4453'MD / 3965'TVD
9,020.0	3,909.1	-62.4	-5,434.1	"Proj TD" 9020'MD / 3909'TVD

Checked By: _____ Approved By: _____ Date: _____