Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - *Other instructions on page 2*

RECEIVED
SEP 08 2010
Farmington Field Office
Bureau of Land Management

5. Lease Serial No.
USA NMNM 30015

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
Carracas 31B 16

2. Name of Operator
Energen Resources Corporation

9. API Well No.
30-039-30701

3a. Address
2010 Afton Place, Farmington, NM 87401

3b. Phone No. *(include area code)*
505-325-6800

10. Field and Pool, or Exploratory Area
Basin Fruitland Coal

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
SHL: 970'FSL 815'FEL; (P) SEC 30-T32N-R04W
BHL: 760'FSL 1600'FEL; (O) SEC 31-T32N-R04W

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	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recomplete 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.)

Energen Resources plans to make the following changes to the Carracas 31B #16 well:

* The bottom hole location(BHL) has changed from 760'FSL 760'FEL to 760'FSL 1600'FEL. See attached well plat for confirmation(C-102).
* Because of the change in BHL, the casing setting depths have changed also:
  Surface - Set @ 200'TVD.....no change
  Intermediate - Set @ 4846'MD; 3987'TVD.....changed from 4837'MD; 4002'TVD
  Prod. Liner - Set @ 9244'MD; 3987'TVD.....changed from 9296'MD; 4002'TVD
* Because the setting depths have changed, the cement volumes have changed as well:
  Surface - 106 sks.....changed from 110sks
  Intermediate - 493sks lead/100sks tail.....changed from 580sks lead/150sks tail

* Please see Operations & Directional Plans attached along with updated C-102 well plat

RCVD SEP 24'10
OIL CONS. DIV.
DIST. 3

Hold C104
for Directional Survey
and "As Drilled" plat

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)* Stephen Byers
Title Drilling Engineer
Signature Stephen Byers
Date 9/2/2010

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Troy L. Salyers
Title Petroleum Engineer
Date 9/17/2010
Office FFO

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.

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

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 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 October 12, 2005

Submit to Appropriate District Office
State Lease – 4 Copies
Fee Lease – 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-30701	71629	BASIN FRUITLAND COAL

[4] Property Code	[5] Property Name	[6] Well Number
35667	CARRACAS 31 B	16

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	7247'

[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
P	30	32N	4W		970'	SOUTH	815'	EAST	RIO ARRIBA

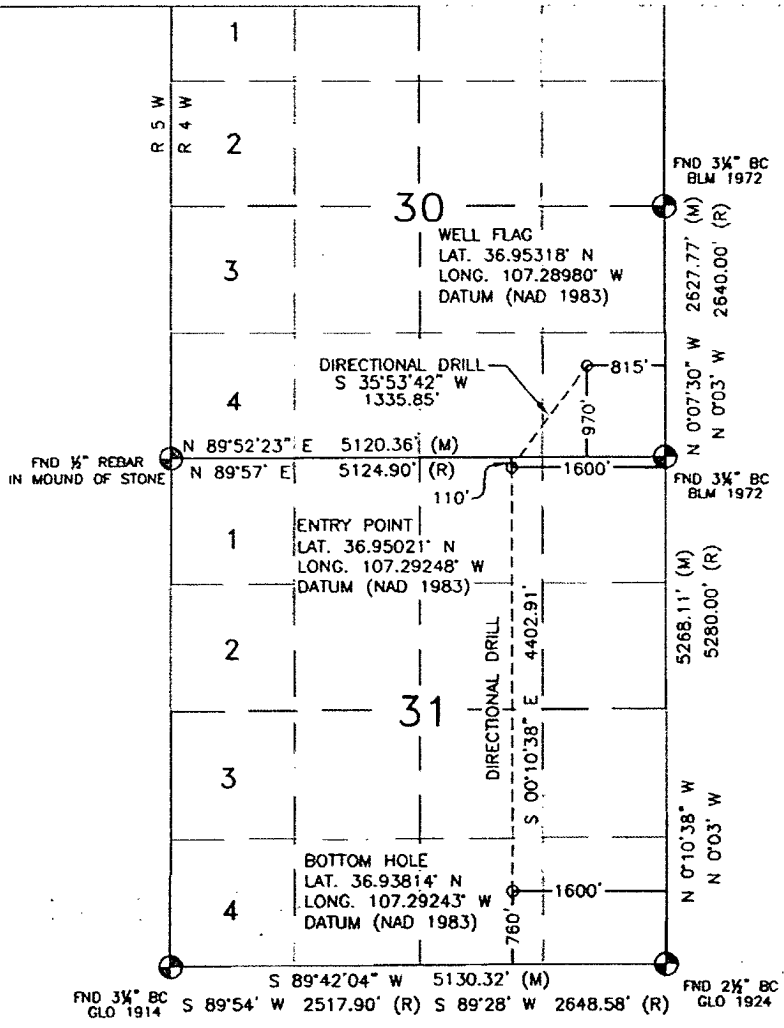
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	31	32N	4W		760'	SOUTH	1600'	EAST	RIO ARRIBA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320 E/2 Sec. 31			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

16



[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 or a compulsory pooling order heretofore entered by the division.

Stephen Byers 9-7-10
Signature Date

Stephen Byers
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.

JUNE 26, 2008
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID RUSSELL
NEW MEXICO
10201
REGISTERED PROFESSIONAL LAND SURVEYOR

DAVID RUSSELL
Certificate Number 10201

9/2/2010

ENERGEN RESOURCES

OPERATIONS PLAN

WELL NAME.....Carracas 31B #16
JOB TYPE.....Horizontal OPE FTC
DEPT.....Drilling and Completions
PREPARED BY.....Stephen Byers

GENERAL INFORMATION

Surface Location	970 FSL 815 FEL
S-T-R	(P) Sec.30, T32N, R04W
Bottom Hole Location	760 FSL 1600 FEL
S-T-R	(O) Sec.31, T32N, R04W
County, State	Rio Arriba, New Mexico
Elevations	7247' GL
Total Depth	9244' +/- (MD); 3987' (TVD)
Formation Objective	Basin Fruitland Coal

FORMATION TOPS

San Jose	Surface
Nacimiento	2282' (TVD)
Ojo Alamo Ss	3358' (TVD)
Kirtland Sh	3479' (TVD)
Fruitland Fm	3602' (TVD), 3727' (MD)
Top Target Coal	3977' (TVD), 4675' (MD)
Base Target Coal	3998' (TVD)
Total Depth	**3987' (TVD), 9244' (MD)**

DRILLING

Surface: 12-1/4" wellbore will be drilled with a fresh water mud system (spud mud).
Intermediate: 8-3/4" wellbore will be drilled with a LSND mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.5 ppg to 9.0 ppg.
Production: 6-1/8" wellbore will be drilled with a fresh water or brine water system depending on reservoir characteristics. Anticipated BHP can be as high as 1100 psi.

Projected KOP is 2800' TVD with 6.06°/100' doglegs.

Blowout Control Specifications:
A 3000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. A 2" nominal, 2000 psi minimum choke manifold will also be used. An upper Kelly Cock valve handle and drill string valve should be available to fit each drill string and be available on the rig floor during drilling operations. **Pressure test BOP to 250 psi for 10 min and 2000 psi for 10 min.**

Logging Program:
Open hole logs: None
Mudlogs: 3477' TVD, 3500' MD to TD
Surveys: Surface to KOP every 500' and a minimum of every 200' for directional.

9/2/2010

ENERGEN RESOURCES

CASING, TUBING & CASING EQUIPMENT

String	Start Depth	End Depth	Wellbore	Size	Wt	Grade
Surface	0	200	12-1/4"	9-5/8"	32.3 lb/ft	H-40 ST&C
Intermediate TVD	0 0	4846 3987	8-3/4"	7"	23 lb/ft	J-55 LT&C
Prod. Liner TVD	4746 3985	9244 3987	6-1/4"	4-1/2"	11.6 lb/ft	J-55 LT&C
Tubing	0	4550	none	2-3/8"	4.7 lb/ft	J-55

Surface Casing: Texas Pattern Guide Shoe on bottom of first joint and an insert float valve on top of first joint. Casing centralization with a minimum of 3 standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: Self fill float shoe with self fill float collar on bottom and top of first joint. Casing centralization with double bow spring and centralizers to optimize standoff.

Production Liner: Bull nose guide shoe on bottom of first joint, H-Latch liner drop off tool on top of last joint.

WELLHEAD

11" 3000 x 9 5/8" weld/slip on casing head. 9 5/8" x 7"x 2 3/8" 3000 psi Flanged Wellhead .

CEMENTING

Surface Casing: 106 sks Type V with 2.0 % $CaCl_2$ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk 125 ft^3 of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 750 psi for 30 min.

Intermediate Casing: Depending on wellbore conditions, cement may consist of 493 sks PRB II with 5 #/sk Gilsonite, and ¼ #/sk Flocele (12.3 ppg, 2.24 ft^3/sk) and a tail of 100 sks PRB II with ¼ #/sk Flocele and 5 #/sk Gilsonite (13.5 ppg, 1.81 ft^3/sk). (1285 ft^3 of slurry, 100% excess to circulate to surface). WOC 12 hours. Test casing to 1500 psi for 30 min.

Production Liner: NO CEMENT, Open Hole Completion

Set slips with full string weight
If cement does not circulate, run temperature survey in 8 hrs. to determine TOC.

OTHER INFORMATION

1) This well will be an open hole completion lined with an uncemented pre-drilled liner.
2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The intermediate string may need to be cemented in multiple stages with a slurry design deviated from that listed above.
3) If high reservoir pressures or water flows are encountered slurry design may need to be deviated to from those listed above to satisfy wellbore and formation conditions.
4) No abnormal temperatures or pressures are anticipated.
5) This gas is dedicated.

ENERGEN
RESOURCES

Energen Resources Corp.

Carson National Forest Sec 30-T32N-R04W
Carracas Mesa
Carracas 31B #16
Wellbore #1

Plan: Plan #3

DIRECTIONAL PLAN

01 September, 2010

Prepared By: **Stephen Byers**

ENERGEN RESOURCES

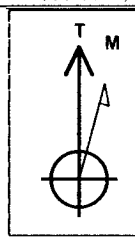
Project: Carson National Forest Sec 30-T32N-R04W
Site: Carracas Mesa
Well: Carracas 31B #16
Wellbore: Wellbore #1

PROJECT DETAILS:

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Central Zone

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2800.0	0.00	0.00	2800.0	0.0	0.0	0.00	0.00	0.0	KOP
3	3738.6	53.35	239.11	3608.7	-208.6	-348.7	5.68	239.11	255.9	
4	3761.8	53.35	239.11	3622.6	-218.1	-364.7	0.00	0.00	267.7	
5	4846.0	90.00	180.00	3987.0	-1080.0	-785.0	6.06	-70.35	1180.4	Land Curve
6	9244.1	90.00	180.00	3987.0	-5478.1	-785.0	0.00	0.00	5534.1	TD Lateral



Azimuths to True North
Magnetic North: 9.88°

Magnetic Field
Strength: 51088.2snT
Dip Angle: 63.78°
Date: 12/31/2009
Model: IGRF200510

Energen

DIRECTIONAL PLAN

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 31B #16
Project:	Carson National Forest Sec 30-T32N-R04W	**TVD Reference:**	KB @ 7262.0ft (KB)
Site:	Carracas Mesa	**MD Reference:**	KB @ 7262.0ft (KB)
Well:	Carracas 31B #16	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 2003.16 Single User Db

Project	Carson National Forest Sec 30-T32N-R04W		
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 Mesa				
Site Position:		**Northing:**	2,167,908.53 ft	**Latitude:**	36° 57' 11.448 N
From:	Lat/Long	**Easting:**	1,336,600.95 ft	**Longitude:**	107° 17' 23.280 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	-0.63 °

Well	Carracas 31B #16					
Well Position	**+N/-S**	0.0 ft	**Northing:**	2,167,908.53 ft	**Latitude:**	36° 57' 11.448 N
	+E/-W	0.0 ft	**Easting:**	1,336,600.95 ft	**Longitude:**	107° 17' 23.280 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	7,247.0 ft	**Ground Level:**	7,247.0 ft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	12/31/2009	9.88	63.78	51,088

Design	Plan #3				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.0	0.0	0.0	188.15	

Survey Tool Program **Date** 9/1/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,244.1	Plan #3 (Wellbore #1)	MWD	MWD - Standard

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	N/S (ft)	E/W (ft)	V. Sec (ft)
0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
100.0	100.0	0.00	0.00	0.00	0.0	0.0	0.0
200.0	200.0	0.00	0.00	0.00	0.0	0.0	0.0
300.0	300.0	0.00	0.00	0.00	0.0	0.0	0.0
400.0	400.0	0.00	0.00	0.00	0.0	0.0	0.0
500.0	500.0	0.00	0.00	0.00	0.0	0.0	0.0
600.0	600.0	0.00	0.00	0.00	0.0	0.0	0.0
700.0	700.0	0.00	0.00	0.00	0.0	0.0	0.0
800.0	800.0	0.00	0.00	0.00	0.0	0.0	0.0
900.0	900.0	0.00	0.00	0.00	0.0	0.0	0.0
1,000.0	1,000.0	0.00	0.00	0.00	0.0	0.0	0.0
1,100.0	1,100.0	0.00	0.00	0.00	0.0	0.0	0.0

Energen

DIRECTIONAL PLAN

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 31B #16
Project:	Carson National Forest Sec 30-T32N-R04W	**TVD Reference:**	KB @ 7262.0ft (KB)
Site:	Carracas Mesa	**MD Reference:**	KB @ 7262.0ft (KB)
Well:	Carracas 31B #16	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	N/S (ft)	E/W (ft)	V. Sec (ft)
1,200.0	1,200.0	0.00	0.00	0.00	0.0	0.0	0.0
1,300.0	1,300.0	0.00	0.00	0.00	0.0	0.0	0.0
1,400.0	1,400.0	0.00	0.00	0.00	0.0	0.0	0.0
1,500.0	1,500.0	0.00	0.00	0.00	0.0	0.0	0.0
1,600.0	1,600.0	0.00	0.00	0.00	0.0	0.0	0.0
1,700.0	1,700.0	0.00	0.00	0.00	0.0	0.0	0.0
1,800.0	1,800.0	0.00	0.00	0.00	0.0	0.0	0.0
1,900.0	1,900.0	0.00	0.00	0.00	0.0	0.0	0.0
2,000.0	2,000.0	0.00	0.00	0.00	0.0	0.0	0.0
2,100.0	2,100.0	0.00	0.00	0.00	0.0	0.0	0.0
2,200.0	2,200.0	0.00	0.00	0.00	0.0	0.0	0.0
2,282.0	2,282.0	0.00	0.00	0.00	0.0	0.0	0.0
			Nacimiento				
2,300.0	2,300.0	0.00	0.00	0.00	0.0	0.0	0.0
2,400.0	2,400.0	0.00	0.00	0.00	0.0	0.0	0.0
2,500.0	2,500.0	0.00	0.00	0.00	0.0	0.0	0.0
2,600.0	2,600.0	0.00	0.00	0.00	0.0	0.0	0.0
2,700.0	2,700.0	0.00	0.00	0.00	0.0	0.0	0.0
2,800.0	2,800.0	0.00	0.00	0.00	0.0	0.0	0.0
			KOP				
2,900.0	2,899.8	5.68	239.11	5.68	-2.5	-4.3	3.1
3,000.0	2,998.7	11.37	239.11	5.68	-10.2	-17.0	12.5
3,100.0	3,095.6	17.05	239.11	5.68	-22.7	-38.0	27.9
3,200.0	3,189.6	22.74	239.11	5.68	-40.2	-67.2	49.3
3,300.0	3,279.7	28.42	239.11	5.68	-62.4	-104.3	76.5
3,391.3	3,358.0	33.61	239.11	5.68	-86.5	-144.6	106.2
			Ojo Alamo SS				
3,400.0	3,365.2	34.10	239.11	5.68	-89.0	-148.8	109.2
3,500.0	3,445.1	39.79	239.11	5.68	-119.8	-200.3	147.0
3,545.0	3,479.0	42.35	239.11	5.68	-135.0	-225.7	165.7
			Kirtland Sh				
3,600.0	3,518.6	45.47	239.11	5.68	-154.6	-258.4	189.7
3,700.0	3,585.1	51.16	239.11	5.68	-192.9	-322.5	236.7
3,727.4	3,602.0	52.71	239.11	5.68	-204.0	-341.0	250.3
			Fruitland Fm				
3,738.6	3,608.7	53.35	239.11	5.68	-208.6	-348.7	255.9
3,761.8	3,622.6	53.35	239.11	0.00	-218.1	-364.7	267.7
3,800.0	3,645.2	54.16	236.43	2.12	-234.6	-390.7	287.6
3,850.0	3,674.0	55.30	232.99	2.29	-258.1	-424.0	315.7
3,900.0	3,702.1	56.54	229.66	2.48	-284.0	-456.3	345.9
3,950.0	3,729.1	57.87	226.42	2.65	-312.1	-487.6	378.1
4,000.0	3,755.2	59.28	223.27	2.81	-342.4	-517.7	412.3
4,050.0	3,780.2	60.76	220.22	2.96	-374.7	-546.5	448.4
4,100.0	3,804.1	62.30	217.26	3.10	-409.0	-574.0	486.2
4,150.0	3,826.7	63.91	214.38	3.22	-445.1	-600.1	525.7

Energen

DIRECTIONAL PLAN

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 31B #16
Project:	Carson National Forest Sec 30-T32N-R04W	**TVD Reference:**	KB @ 7262.0ft (KB)
Site:	Carracas Mesa	**MD Reference:**	KB @ 7262.0ft (KB)
Well:	Carracas 31B #16	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	N/S (ft)	E/W (ft)	V. Sec (ft)
4,200.0	3,848.0	65.58	211.58	3.33	-483.1	-624.7	566.8
4,250.0	3,868.0	67.29	208.86	3.43	-522.7	-647.7	609.2
4,300.0	3,886.6	69.05	206.20	3.52	-563.8	-669.2	653.0
4,350.0	3,903.7	70.85	203.61	3.60	-606.4	-689.0	698.0
4,400.0	3,919.4	72.69	201.07	3.67	-650.3	-707.0	744.0
4,450.0	3,933.5	74.55	198.59	3.73	-695.4	-723.3	791.0
4,500.0	3,946.0	76.45	196.14	3.79	-741.6	-737.7	838.8
4,550.0	3,956.9	78.36	193.74	3.83	-788.8	-750.3	887.2
4,600.0	3,966.2	80.30	191.37	3.87	-836.7	-761.0	936.2
4,650.0	3,973.7	82.25	189.03	3.91	-885.4	-769.7	985.6
4,675.9	3,977.0	83.27	187.82	3.93	-910.8	-773.5	1,011.3
			Top Target Coal				
4,700.0	3,979.6	84.22	186.71	3.94	-934.6	-776.5	1,035.3
4,750.0	3,983.8	86.19	184.40	3.95	-984.1	-781.3	1,085.0
4,800.0	3,986.3	88.17	182.11	3.96	-1,034.0	-784.2	1,134.8
4,846.0	3,987.0	90.00	180.00	3.97	-1,080.0	-785.0	1,180.4
			Land Curve				
4,900.0	3,987.0	90.00	180.00	0.00	-1,134.0	-785.0	1,233.9
5,000.0	3,987.0	90.00	180.00	0.00	-1,234.0	-785.0	1,332.9
5,100.0	3,987.0	90.00	180.00	0.00	-1,334.0	-785.0	1,431.8
5,200.0	3,987.0	90.00	180.00	0.00	-1,434.0	-785.0	1,530.8
5,300.0	3,987.0	90.00	180.00	0.00	-1,534.0	-785.0	1,629.8
5,400.0	3,987.0	90.00	180.00	0.00	-1,634.0	-785.0	1,728.8
5,500.0	3,987.0	90.00	180.00	0.00	-1,734.0	-785.0	1,827.8
5,600.0	3,987.0	90.00	180.00	0.00	-1,834.0	-785.0	1,926.8
5,700.0	3,987.0	90.00	180.00	0.00	-1,934.0	-785.0	2,025.8
5,800.0	3,987.0	90.00	180.00	0.00	-2,034.0	-785.0	2,124.8
5,900.0	3,987.0	90.00	180.00	0.00	-2,134.0	-785.0	2,223.7
6,000.0	3,987.0	90.00	180.00	0.00	-2,234.0	-785.0	2,322.7
6,100.0	3,987.0	90.00	180.00	0.00	-2,334.0	-785.0	2,421.7
6,200.0	3,987.0	90.00	180.00	0.00	-2,434.0	-785.0	2,520.7
6,300.0	3,987.0	90.00	180.00	0.00	-2,534.0	-785.0	2,619.7
6,400.0	3,987.0	90.00	180.00	0.00	-2,634.0	-785.0	2,718.7
6,500.0	3,987.0	90.00	180.00	0.00	-2,734.0	-785.0	2,817.7
6,600.0	3,987.0	90.00	180.00	0.00	-2,834.0	-785.0	2,916.7
6,700.0	3,987.0	90.00	180.00	0.00	-2,934.0	-785.0	3,015.7
6,800.0	3,987.0	90.00	180.00	0.00	-3,034.0	-785.0	3,114.6
6,900.0	3,987.0	90.00	180.00	0.00	-3,134.0	-785.0	3,213.6
7,000.0	3,987.0	90.00	180.00	0.00	-3,234.0	-785.0	3,312.6
7,100.0	3,987.0	90.00	180.00	0.00	-3,334.0	-785.0	3,411.6
7,200.0	3,987.0	90.00	180.00	0.00	-3,434.0	-785.0	3,510.6
7,300.0	3,987.0	90.00	180.00	0.00	-3,534.0	-785.0	3,609.6
7,400.0	3,987.0	90.00	180.00	0.00	-3,634.0	-785.0	3,708.6
7,500.0	3,987.0	90.00	180.00	0.00	-3,734.0	-785.0	3,807.6
7,600.0	3,987.0	90.00	180.00	0.00	-3,834.0	-785.0	3,906.6

Energen

DIRECTIONAL PLAN

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 31B #16
Project:	Carson National Forest Sec 30-T32N-R04W	**TVD Reference:**	KB @ 7262.0ft (KB)
Site:	Carracas Mesa	**MD Reference:**	KB @ 7262.0ft (KB)
Well:	Carracas 31B #16	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 2003.16 Single User Db

Planned Survey

MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	N/S (ft)	E/W (ft)	V. Sec (ft)
7,700.0	3,987.0	90.00	180.00	0.00	-3,934.0	-785.0	4,005.5
7,800.0	3,987.0	90.00	180.00	0.00	-4,034.0	-785.0	4,104.5
7,900.0	3,987.0	90.00	180.00	0.00	-4,134.0	-785.0	4,203.5
8,000.0	3,987.0	90.00	180.00	0.00	-4,234.0	-785.0	4,302.5
8,100.0	3,987.0	90.00	180.00	0.00	-4,334.0	-785.0	4,401.5
8,200.0	3,987.0	90.00	180.00	0.00	-4,434.0	-785.0	4,500.5
8,300.0	3,987.0	90.00	180.00	0.00	-4,534.0	-785.0	4,599.5
8,400.0	3,987.0	90.00	180.00	0.00	-4,634.0	-785.0	4,698.5
8,500.0	3,987.0	90.00	180.00	0.00	-4,734.0	-785.0	4,797.5
8,600.0	3,987.0	90.00	180.00	0.00	-4,834.0	-785.0	4,896.4
8,700.0	3,987.0	90.00	180.00	0.00	-4,934.0	-785.0	4,995.4
8,800.0	3,987.0	90.00	180.00	0.00	-5,034.0	-785.0	5,094.4
8,900.0	3,987.0	90.00	180.00	0.00	-5,134.0	-785.0	5,193.4
9,000.0	3,987.0	90.00	180.00	0.00	-5,234.0	-785.0	5,292.4
9,100.0	3,987.0	90.00	180.00	0.00	-5,334.0	-785.0	5,391.4
9,200.0	3,987.0	90.00	180.00	0.00	-5,434.0	-785.0	5,490.4
9,244.1	3,987.0	90.00	180.00	0.00	-5,478.1	-785.0	5,534.1
				TD Lateral			

Energen

DIRECTIONAL PLAN

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 31B #16
Project:	Carson National Forest Sec 30-T32N-R04W	**TVD Reference:**	KB @ 7262.0ft (KB)
Site:	Carracas Mesa	**MD Reference:**	KB @ 7262.0ft (KB)
Well:	Carracas 31B #16	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 2003.16 Single User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Land Curve - plan hits target - Point	0.00	0.00	3,987.0	-1,080.0	-785.0	2,166,837.15	1,335,804.21	36° 57' 0.769 N	107° 17' 32.951 W
TD Lateral - plan hits target - Point	0.00	0.00	3,987.0	-5,478.1	-785.0	2,162,439.31	1,335,756.22	36° 56' 17.283 N	107° 17' 32.949 W
KOP - plan hits target - Point	0.00	0.00	2,800.0	0.0	0.0	2,167,908.53	1,336,600.95	36° 57' 11.448 N	107° 17' 23.280 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
200.0	200.0	Surface	9-5/8	12-1/4
4,846.0	3,987.0	Intermediate	7	8-3/4
9,244.0	3,987.0	Liner	4-1/2	6-1/8

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,727.4	3,602.0	Fruitland Fm		0.00	
	3,998.0	Base Target Coal		0.00	
4,675.9	3,977.0	Top Target Coal		0.00	
3,391.3	3,358.0	Ojo Alamo SS		0.00	
3,545.0	3,479.0	Kirtland Sh		0.00	
2,282.0	2,282.0	Nacimiento		0.00	

Checked By: _____ Approved By: _____ Date: _____