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

5. Lease Serial No.

2	M	300	14			
6.	If In	dian,	Allottee	or	Trıbe	Name

Do not use this form for abandoned well. Use For			0 2008	6. If Indian, Allottee or Tribe Name	
SUBMIT IN TRIPLICA	TE - Other instruction	ons on page 2	۵	7. If Unit or CA/Agreement, Name and/o	or N
1 Type of Well Oil Well X Gas Well Other 2. Name of Operator				8. Well Name and No. Carracas 21B # 1	
Energen Resources Corporation		T		9. API Well No	_
3a Address	E404	3b. Phone No. (include area	, , , , , , , , , , , , , , , , , , ,	30-039-30473	
2010 Afton Place, Farmington, NM 8 4. Location of Well (Footage, Sec., T., R., M., or Survey I	7401 Description)	(505) 325-6800		10. Field and Pool, or Exploratory Area	
	T32N,. ROĐŴ Y			Basin Fruitland Coal Il County or Parish, State Rio Arriba NM	_
12. CHECK APPROPRIATI	E BOX(ES) TO INI	DICATE NATURE OF NO	OTICE, REPOI	RT, OR OTHER DATA	
TYPE OF SUBMISSION		TYP	E OF ACTION		
Subsequent Report Subsequent Report Final Abandonment Notice 13. Describe Proposed or Completed Operation (clearly If the proposal is to deepen directionally or recomp Attach the Bond under which the work will be per following completion of the involved operations I testing has been completed. Final Abandonment N determined that the final site is ready for final inspections of the involved operations of the involved operations. It is standard that the final site is ready for final inspections of the involved operations.	lete horizontally, give s formed or provide the I f the operation results in lotices shall be filed or ction.)	ils, including estimated startin ubsurface locations and meast Bond No. on file with BLM/B n a multiple completion or rec ally after all requirements, incl	Reclamation Recomplete Temporarily Water Disp g date of any pro ired and true vert IA. Required su ompletion in a n uding reclamation	Other y Abandon osal posed work and approximate duration ther tical depths of all pertinent markers and zo bisequent reports shall be filed within 30 ew interval, a Form 3160-4 shall be filed on, have been completed, and the operator	ones day: onc
-Change the setting depth of the Coal with footages of 1513 fnl, followed by 150 sks Class G cemen	7" intermediate 1698 fwl. The ' t with additive	casing from 5000' 1 7" will be cemented s.	4D to 4650' with 650 si	MD and enter the Fruitland ks 65/35 with additives	l
-Attached is a revised drilling/o	perations plan	and directional plan	ı.		
and was approved on 9/8/08.24 H	IRS.	"2 or a riessure on	zervaulou W	RCVD OCT 22'08	
NOTIFY AZIEU OUD 271	CNIT	NDITIONS OF APP	ROVAL	OIL COMS. DIV.	
PRIOR TO CASING & CENT	dictival COI tonal Survey Adhe Drilled" plat	NDITIONS OF AFT	ipulations.	DIST. 3	

14 Thereby certify that the foregoing is true and correct
Name (Printed/Typed)
Nathan Smith

Title Drilling Engineer

Date /0/10/08

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Conditions of approval, if any are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equilable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Operations Plan

Revises October 10, 2008

Carracas 21 B #1

General Information

Location 1655 fnl, 1165 fwl at surface

760 fnl, 760 fel at bottom

nese 21, T32N, R4W

Rio Arriba County, New Mexico

Elevations 7335' GL

Total Depth 6892' (MD), 4075' (TVD) Formation Objective Basin Fruitland Coal

Formation Tops

San Jose Surface
Nacimiento 2320' (TVD)
Ojo Alamo Ss 3514' (TVD)

 Kirtland Sh
 3667' (TVD), 3669' (MD)

 Fruitland Fm
 3766' (TVD), 3773' (MD)

 Top Coal
 4180' (TVD), 4447' (MD)

Bottom Coal 4204' (TVD)

Total Depth 4204' (TVD), 7380' (MD)

Drilling

The 12 1/2" wellbore will be drilled with a fresh water mud system.

The 8 3/4" wellbore will be drilled with a low solids fresh water/polymer mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.9 ppg to 9.5 ppg.

Projected KOP is 3500' TVD with 8.24°/100' doglegs.

The 6 1/4" 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.

Blowout Control Specifications:

A 3000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. BOP will be tested to 250 psi for 15 minutes and 1500 psi for 15 minutes following the nipple up after each casing string is set. A 2" nominal, 2000 psi minimum choke manifold will also be used. Choke manifold will be tested to 1500 psi for 30 minutes. 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.

Logging Program:

Open hole logs: None

Mud logs: From 3766' (TVD), 3773' (MD) to TD.

Surveys: Surface to KOP every 500' and a minimum of every 250' for directional.

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval V	Vellbore	Casing	Csg Wt	Grade
Surface	0'-200' 419}	12 1⁄4"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	0'-4975'(TVD) 4650' (MD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	4180'-4204' (TVE 4600'-7380' (MD)		4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'-4550'(MD)		2 3/8"	4.7 ppf	J-55

Casing Equipment:

Surface Casing: A Texas Pattern Guide Shoe on bottom and a Insert Float Valve on top of the first joint. Casing centralization with a minimum of three (3) standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: A Self Fill Float Shoe on the bottom of the first joint with Self Fill Float Collar on top of first joint. Casing centralization with double bow spring and rigid centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

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

Wellhead

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

Cementing

Surface Casing: 125 sks Type V with 2.0 % CaCl₂ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk 148 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 750 psi for 30 min.

Intermediate Casing: Before cementing, circulate hole at least 1 $\frac{1}{2}$ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 650 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and $\frac{1}{2}$ #/sk Flocele (12.3 ppg, 1.93 ft³/sk) and a tail of 150 sks Class G with $\frac{1}{4}$ #/sk Flocele (15.6 ppg, 1.18 ft³/sk). (1431 ft³ of slurry to circulate to surface). Test casing to 1500 psi for 30 min.

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. This gas is dedicated.

Energen Resources Carson Nat'l Forest - NE S21, T32N, R4W

Carson Nat'l Forest - NE S21, T32N, R4W Carracas Mesa Carracas 21 B #1 Final Plan

Plan: Plan #2

Planned Wellpath

09 October, 2008

Project: Carson Nat'l Forest - NE S21, T32N, R4W

Site: Carracas Mesa Well: Carracas 21 B #1

Wellbore: Final Plan

Plan: Plan #2 (Carracas 21 B #1/Final Plan)

PROJECT DETAILS: Carson Nat'l Forest - NE S21, T32N, R4W

Geodetic System: US State Plane 1983

Datum: North American Datum 1983 Ellipsoid: GRS 1980
Zone: New Mexico Central Zone

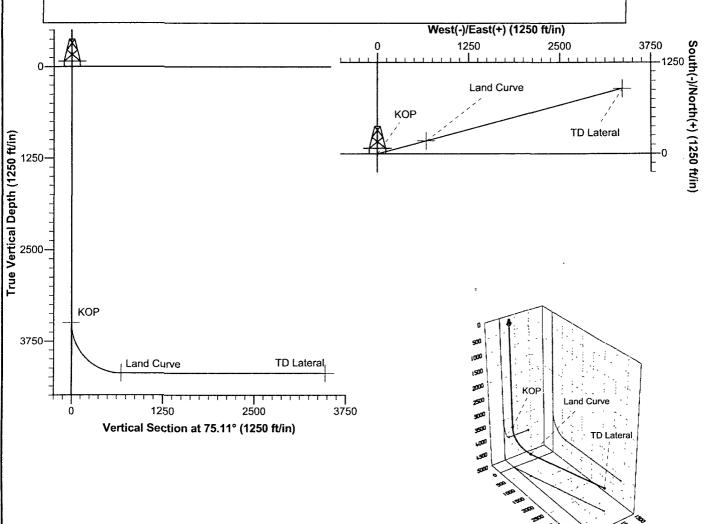
System Datum: Mean Sea Level



Azimuths to True North Magnetic North: 10.12°

Magnetic Field Strength: 51292.4snT Dip Angle: 63.85° Date: 1/11/2008 Model: IGRF200510

SECTION DETAILS										
Sec	MD		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	Ū
2	3500.0	0.00	0.00	3500.0	0.0	0.0	0.00	0.00	0.0	KOP
3	4591.7	90.00	75.11	4195.0	178.6	671.7	8.24	75.11	695.0	Land Curve
4	7379.7	90.00	75.11	4195.0	895.0	3366.0	0.00	0.00	3483.0	TD Lateral



Planned Wellpath

Company:

Energen Resources

Project:

Carson Nat'l Forest - NE S21, T32N, R4W

Site: Well: Carracas Mesa Carracas 21 B #1

Wellbore: Design:

Final Plan Plan #2

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference: **Survey Calculation Method:**

Database:

Well Carracas 21 B #1

KB @ 7348.0ft (Drilling Rig) KB @ 7348.0ft (Drilling Rig)

True

Minimum Curvature

EDM 2003.16 Single User Db

Project

Carson Nat'l Forest - NE S21, T32N, R4W

Map System:

US State Plane 1983

Geo Datum: Map Zone:

North American Datum 1983 New Mexico Central Zone

System Datum:

Mean Sea Level

Site

Carracas Mesa

Site Position: From:

Lat/Long

Northing: Easting:

2,175,713.03ft

Latitude:

Longitude:

36° 58' 29.388 N

107° 15' 54.432 W -0.61 °

Position Uncertainty:

Slot Radius:

1,343,896.31ft

Grid Convergence:

Well **Well Position** Carracas 21 B #1

+N/-S +E/-W

0.0 ft

0.0 ft

Northing: Easting:

2,175,713.03 ft 1,343,896.31 ft

Latitude: Longitude: 36° 58' 29.388 N

Position Uncertainty

0.0 ft

IGRF200510

0.0 ft

Wellhead Elevation:

1/11/2008

7,335.0 ft

10.12

Ground Level:

107° 15' 54.432 W 7,335.0 ft

Wellbore

Final Plan

Magnetics **Model Name** Sample Date

Declination (°)

Dip Angle (°).

Field Strength

(nT) 51.292

Design

Plan #2

Audit Notes:

Version:

Phase:

PROTOTYPE

Tie On Depth:

63.85

Vertical Section:

Depth From (TVD) (ft)

0.0

+N/-S (ft) 0.0

+E/-W (ft) 0.0

0.0 Direction

· (°) 75.11

Survey Tool F	Program		Date	10/9/2008
From (ft)	•	To (ft)		Maralina and
(11)		114	Survey	(Wellbore)
	0.0	7,379.7	Plan #2	(Final Plan)

Tool Name MWD

Description MWD - Standard

Planned Survey									
MD (ft)	TVD (ft)	Inc (°)	Azi (°)	Build (°/100ft)	V. Sec (ft)	N/S (ft)	E/W (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		
0.008	0.008	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		

Planned Wellpath

Company:

Energen Resources

Project:

Site: Well: Carracas Mesa Carracas 21 B #1

Wellbore: Final Plan Plan #2 Design:

Carson Nat'l Forest - NE S21, T32N, R4W

Local Co-ordinate Reference: TVD Reference:

MD Reference: North Reference:

Survey Calculation Method:

Database:

Well Carracas 21 B #1

KB @ 7348.0ft (Drilling Rig) KB @ 7348.0ft (Drilling Rig)

True

Minimum Curvature

EDM 2003.16 Single User Db

anned Survey						~ <u>,</u>	
MD (ft)	TVD (ft)	Inc (°)	Ázi (°)	Build (°/100 ft)	V. Sec (ft)	N/S (ft)	E/W (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
2,300.0	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
2,900.0	2,900.0	0.00	0.00	0,00	0.0	0.0	0.0
3,000.0	3,000.0	0.00	0.00	0.00	0.0	0.0	0.0
3,100.0	3,100.0	0.00	0.00	0.00	0.0	0.0	0.0
3,200.0	3,200.0	0.00	0.00	0.00	0.0	0.0	0.0
3,300.0	3,300.0	0.00	0.00	0.00	0.0	0.0	0.0
3,400.0	3,400.0	0.00	0.00	0.00	0.0	0.0	0.0
3,500.0	3,500.0	0.00	0.00	0.00	0.0	0.0	0 0
КОР							
3,550.0	3,550.0	4.12	75.11	8.24	1.8	0.5	1.7
3,600.0	3,599.7	8.24	75.11	8.24	7.2	1.8	6.9
3,650.0	3,648.8	12.37	75.11	8.24	16.1	4.1	15.6
3,700.0	3,697.3	16.49	75.11	8.24	28.6	7.3	27.6
3,750.0	3,744.6	20.61	75.11	8.24	44.5	11,4	43.0
3,800.0	3,790.8	24.73	75.11	8.24	63.7	16.4	61.6
3,850.0	3,835.4	28.85	75.11	8.24	86.3	22.2	83,4
3,900.0	3,878.3	32.98	75.11	8.24	112.0	28.8	108.2
3,950.0	3,919.2	37.10	75.11	8.24	140 7	36 1	135.9
4,000.0	3,958.0	41.22	75.11	8.24	172.2	44.3	166.4
4,050.0	3,994.4	45.34	75.11	8.24	206.5	53.1	199.6
4,100.0	4,028.2	49.46	75.11	8.24	243.3	62.5	235,1
4,150.0	4,059.3	53.59	75.11	8.24	282.4	72.6	273.0
4,200.0	4,087.5	57.71	75.11	8.24	323.7	83.2	312.8
4,250.0	4,112.7	61.83	75.11	8.24	366.9	94.3	354.6
4,300.0	4,134.7	65.95	75.11	8.24	411.8	105.8	398.0
4,350.0	4,153.4	70.07	75.11	8.24	458.1	117.7	442.8
4,400.0	4,168.7	74.20	75.11	8 24	505.7	130.0	488.7
4,450.0	4,180.6	78.32	75.11	8.24	554.3	142.4	535.7

Planned Wellpath

Company:

Energen Resources

Project:

Carson Nat'l Forest - NE S21, T32N, R4W

Site: Well: Carracas Mesa Carracas 21 B #1

Wellbore: Design: Final Plan Plan #2 Local Co-ordinate Reference:

TVD Reference:

MD Reference: North Reference:

Survey Calculation Method:

Database:

Well Carracas 21 B #1
KB @ 7348 Off (Drilling Rig

KB @ 7348.0ft (Drilling Rig) KB @ 7348.0ft (Drilling Rig)

True

Minimum Curvature

EDM 2003.16 Single User Db

MD	TVD	Inc .	Azi	Build	V. Sec	N/S	E/W
(ft)	(ft)	(°)	(°)	(°/100ft)	v. Sec (ft)	(ft)	, (ft)
4,500 0	4,189.0	82.44	75.11	8.24	603.6	155.1	583.3
4,550.0	4,193.7	86.56	75.11	8.24	653.3	167.9	631.4
4,591.7	4,195.0	90.00	75.11	8.24	695.0	178.6	671.7
Land Curve							
4,600.0	4,195.0	90.00	75.11	0.00	703.3	180.7	679.7
4,700.0	4,195.0	90.00	75 11	0.00	803.3	206.4	776.3
4,800.0	4,195.0	90.00	75.11	0.00	903.3	232.1	873.0
4,900 0	4,195.0	90.00	75.11	0.00	1,003.3	257.8	969.6
5,000.0	4,195.0	90.00	75.11	0.00	1,103 3	283.5	1,066.2
5,100.0	4,195.0	90.00	75 11	0.00	1,203.3	309 2	1,162.9
5,200.0	4,195.0	90.00	75.11	0.00	1,303.3	334.9	1,259.5
5,300 0	4,195.0	90.00	75.11	0.00	1,403.3	360.6	1,356.2
5,400.0	4,194.9	90.01	75.11	0.00	1,503.3	386.3	1,452.8
5,500.0	4,194.9	90.01	75.11	0.00	1,603.3	412.0	1 ,54 9.5
5,600.0	4,194.9	90.01	75.11	0.00	1,703.3	437.7	1,646.1
5,700.0	4,194.9	90.01	75.11	0.00	1,803.3	463.4	1,742.7
5,800.0	4,194.9	90.01	75.11	0.00	1,903.3	489.1	1,839 4
5,900.0	4,194.9	90.01	75.11	0.00	2,003.3	514.8	1,936.0
6,000 0	4,194.9	90.01	75 11	0.00	2,103.3	540.5	2,032.7
6,100.0	4,194.9	90.01	75.11	0.00	2,203.3	566.2	2,129.3
6,200 0	4,194.9	90.01	75.11	0.00	2,303.3	591.9	2,226.0
6,300.0	4,194.8	90.01	75.11	0.00	2,403.3	617.6	2,322.6
6,400.0	4,194.8	90.01	75.11	0.00	2,503.3	643.3	2,419.2
6,500.0	4,194.8	90.01	75.11	0.00	2,603.3	669.0	2,515.9
6,600.0	4,194.8	90.01	75 11	0.00	2,703.3	694.7	2,612.5
6,700.0	4,194.8	90.01	75.11	0.00	2,803.3	720.3	2,709.2
6,800.0	4,194.8	90.01	75.11	0.00	2,903.3	746.0	2,805.8
6,900.0	4,194.8	90.01	75 11	0.00	3,003.3	771.7	2,902.4
7,000.0	4,194.7	90.01	75.11	0.00	3,103.3	797.4	2,999.1
7,100 0	4,194.7	90.01	75 11	0.00	3,203.3	823.1	3,095.7
7,200.0	4,194.7	90.01	75.11	0.00	3,303.3	848.8	3,192.4
7,300.0	4,194.7	90.01	75.11	0.00	3,403.3	874.5	3,289.0
7,379.7	4,195.0	90.00	75.11	-0.02	3,483.0	895 0	3,366 (

Planned Wellpath

Company:

Energen Resources

Project:

Carson Nat'l Forest - NE S21, T32N, R4W

Site: Well: Carracas Mesa Carracas 21 B #1

Wellbore: Design:

Final Plan Plan #2

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well Carracas 21 B #1

KB @ 7348.0ft (Drilling Rig) KB @ 7348.0ft (Drilling Rig)

True

Minimum Curvature

EDM 2003.16 Single User Db

Targets 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
KOP - plan hits target - Point	0.00	0.00	3,500.0	0 0	0.0	2,175,713.03	1,343,896.31	36° 58' 29.388 N	107° 15' 54.432 W
TD Lateral - plan hits target - Point	0.00	0.00	4,195.0	895.0	3,366.0	2,176,572.11	1,347,271 66	36° 58' 38.235 N	107° 15' 12.950 W
Land Curve - plan hits target - Point	0.00	0.00	4,195.0	178.6	671.7	2,175,884.46	1,344,569 88	36° 58' 31.154 N	107° 15' 46.154 W

Casing Points					
	Measured Depth (ft)	Vertical Depth (ft)	• .	Name	Casing Hole Diameter Diameter (") ("')
	200.0	200.0	9 5/8"		9-5/8 12-1/4
	4,650.0	4,195.0	Intermediate Casing		7 8-3/4
	7,375.0	4,194.7	Production Liner		4-1/2 6-1/4

1	Checked By:	Approved By:	Date:	
1	ı ,			