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

Oil Conservation Divsiion
1220 S. St. Francis Dr.
Santa Fe, NM 87505

Form C-101
June 16, 2008

Submit to appropriate District Office

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	[2] OGRID Number
ENERGEN RESOURCES CORPORATION 2010 Afton Place, Farmington NM 87401	162928 [3] API Number 30-039-30821

[4] Property Code	[5] Property Name	[6] Well No.
37888	Carracas 9B	16 H

[9] Proposed Pool 1	[10] Proposed Pool 2
Basin Fruitland Coal	

[7] 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	2043'	SOUTH	220'	WEST	Rio Arriba

[8] Proposed 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
I	9	32N	4W	5	1400'	SOUTH	760'	EAST	Rio Arriba

Additional Well Location

[11] Work Type Code	[12] Well Type Code	[13] Cable/Rotary	[14] Lease Type Code	[15] Ground Level Elevation
Drill	Gas	Rotary	State	6198'
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
NO	7001'MD	Fruitland		4/1/2010

[21] Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12-1/4"	9-5/8"	32.3	500	275	SURFACE
8-3/4"	7"	23	3855	660	SURFACE
6-1/4"	4-1/2"	11.6	7001	NONE	OPEN HOLE COMPL.

[22] Describe the proposed program If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary

RCVD OCT 21 '09
OIL CONS. DIV.
DIST. 3

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

[23] I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature:

Printed name: JASON KINCAID

Title: DRILLING ENGINEER

E-mail Address: JKINCAID@ENERGEN.COM

Date: 10/21/2009 Phone: 505-325-6800

OIL CONSERVATION DIVISION

Approved by:

Title: DEPUTY OIL & GAS INSPECTOR, DIST. III

Approval Date: OCT 27 2009 Expiration Date: OCT 27 2011

Conditions of Approval Attached ☐

Hold C104 for Directional Survey and "As Drilled" plat

OCT 27 2009

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
30-039-30821	71629	BASIN FRIUTLAND COAL

[4] Property Code	[5] Property Name	[6] Well Number
37888	CARRACAS 9B	16-H

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	6198'

[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	2043'	SOUTH	220'	WEST	RIO ARRIBA

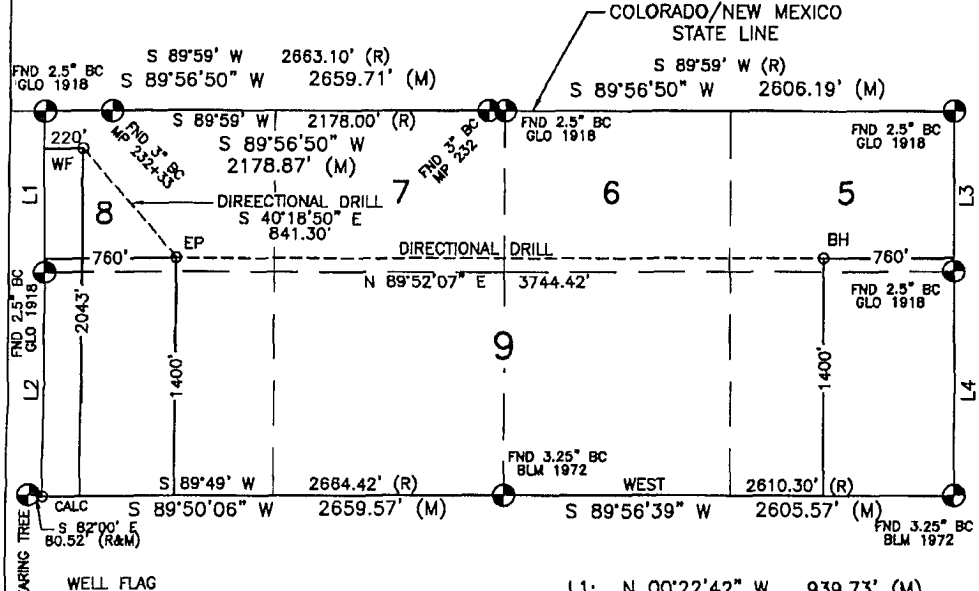
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	9	32N	4W	5	1400'	SOUTH	760'	EAST	RIO ARRIBA

[12] Dedicated Acres	[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

16



WELL FLAG
LAT. 36.99942° N
LONG. 107.26838° W
DATUM (NAD 1983)

ENTRY POINT
LAT. 36.99766° N
LONG. 107.26652° W
DATUM (NAD 1983)

BOTTOM HOLE
LAT. 36.99768° N
LONG. 107.25370° W
DATUM (NAD 1983)

L1: N 00°22'42" W 939.73' (M)
N 0°03' W 939.84' (R)

L2: N 00°06'33" W 1321.58' (M)
N 0°03' W 1327.92' (R)

L3: N 00°16'30" W 935.28' (M)
N 0°14' W 934.56' (R)

L4: N 00°09'02" W 1320.66' (M)
N 0°14' W 1319.34' (R)

[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.

Signature — Date: 10-21-09

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.

DECEMBER 4, 2008
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID R. RUSSELL NEW MEXICO 10201 REGISTERED PROFESSIONAL LAND SURVEYOR

DAVID RUSSELL
Certificate Number 10201

10/21/2009

ENERGEN RESOURCES

OPERATIONS PLAN

WELL NAME.....Carracas 9B #16 - H
JOB TYPE.....Horizontal OPE FTC
DEPT.....Drilling and Completions
PREPARED BY.....Jason Kincaid

GENERAL INFORMATION

Surface Location	2043 FSL 220 FWL
S-T-R	(L) Sec.9, T32N, R04W
Bottom Hole Location	1400 FSL 760 FEL
S-T-R	(I) Sec.9, T32N, R04W
County, State	Rio Arriba, New Mexico
Elevations	6198' GL
Total Depth	7001' +/- (MD); 3055' (TVD)
Formation Objective	Basin Fruitland Coal

FORMATION TOPS

San Jose	Surface
Nacimiento	953' (TVD)
Ojo Alamo Ss	2313' (TVD)
Kirtland Sh	2460' (TVD)
Fruitland Fm	2908' (TVD) 3215'MD
Top Target Coal	3043' (TVD) 3675'MD
Base Target Coal	3067' (TVD)
Total Depth	**3055' (TVD), 7001' (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 8.4 ppg to 9.0 ppg.
Production: 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.

Projected KOP is 1800' TVD with 5.0°/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 15 min and 2000 psi for 15 min.**

Logging Program:
Open hole logs: None
Mudlogs: 2843' TVD, 3100' MD to TD
Surveys: Surface to KOP every 500' and a minimum of every 200' for directional.

10/21/2009

ENERGEN RESOURCES

CASING, TUBING & CASING EQUIPMENT

String	Start Depth	End Depth	Wellbore	Size	Wt	Grade
Surface	0	500	12-1/4"	9-5/8"	32.3 lb/ft	H-40 ST&C
Intermediate TVD	0 0	3855 3055	8-3/4"	7"	23 lb/ft	J-55 LT&C
Prod. Liner TVD	3755 3053	7001 3055	6-1/4"	4-1/2"	11.6 lb/ft	J-55 LT&C
Tubing	0	3700	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: 275 sks Type V with 2.0 % $CaCl_2$ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk 313 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 510 sks 65/35 with 6.0 % Bentonite, 2.0 % $CaCl_2$, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.93 ft^3/sk) and a tail of 150 sks Class G with ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk). (1160 ft^3 of slurry, 100% excess to circulate to surface). WOC 12 hours. Test casing to 1200 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

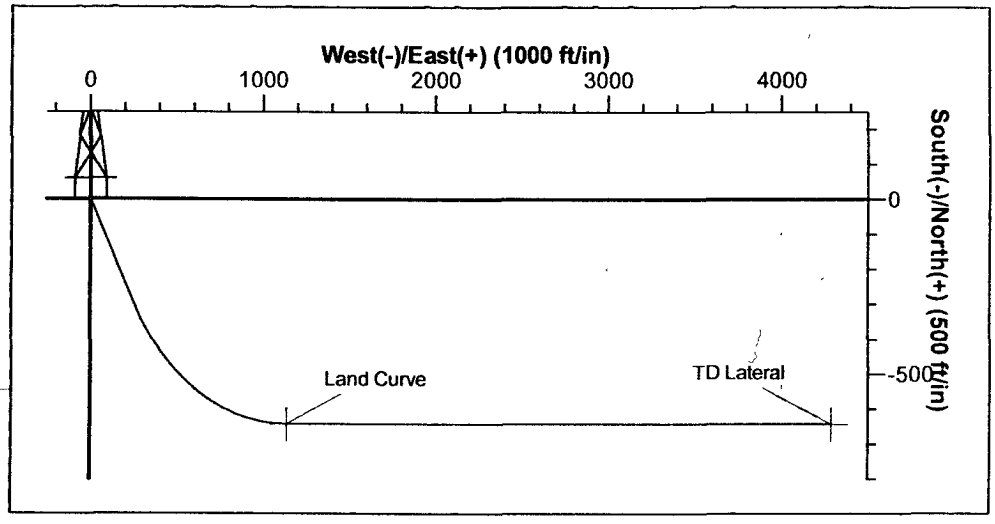
Project: Carson National Forest Sec.9-T32N-R04W
Site: Carracas Mesa
Well: Carracas 9B 316
Wellbore: Horizontal OPE FTC

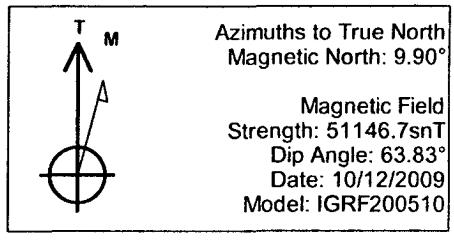
PROJECT DETAILS:

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	1800.0	0.00	0.00	1800.0	0.0	0.0	0.00	0.00	0.0	KOP
3	2780.2	49.01	139.70	2664.9	-300.7	255.0	5.00	139.70	296.8	
4	3855.8	90.00	90.00	3055.0	-643.0	1140.0	5.65	-60.91	1222.8	Land Curve
5	7001.7	90.00	90.00	3055.0	-643.0	4285.9	0.00	0.00	4333.9	TD Lateral





ENERGEN RESOURCES

Energen Resources

Directional Plan

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 9B 316
Project:	Carson National Forest Sec.9-T32N-R04W	**TVD Reference:**	KB @ 6213.0ft (Drilling Rig)
Site:	Carracas Mesa	**MD Reference:**	KB @ 6213.0ft (Drilling Rig)
Well:	Carracas 9B 316	**North Reference:**	True
Wellbore:	Horizontal OPE FTC	**Survey Calculation Method:**	Minimum Curvature
Design:	Preliminary Plan #1	**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	3,055.0	-643.0	1,140.0	2,184,020.72	1,344,172.83	36° 59' 51.554 N	107° 15' 52.115 W
KOP - plan hits target - Point	0.00	0.00	1,800.0	0.0	0.0	2,184,675 87	1,343,039.77	36° 59' 57 912 N	107° 16' 6.168 W
TD Lateral - plan hits target - Point	0.00	0.00	3,055 0	-643.0	4,285.9	2,183,987.06	1,347,318.55	36° 59' 51.551 N	107° 15' 13 336 W

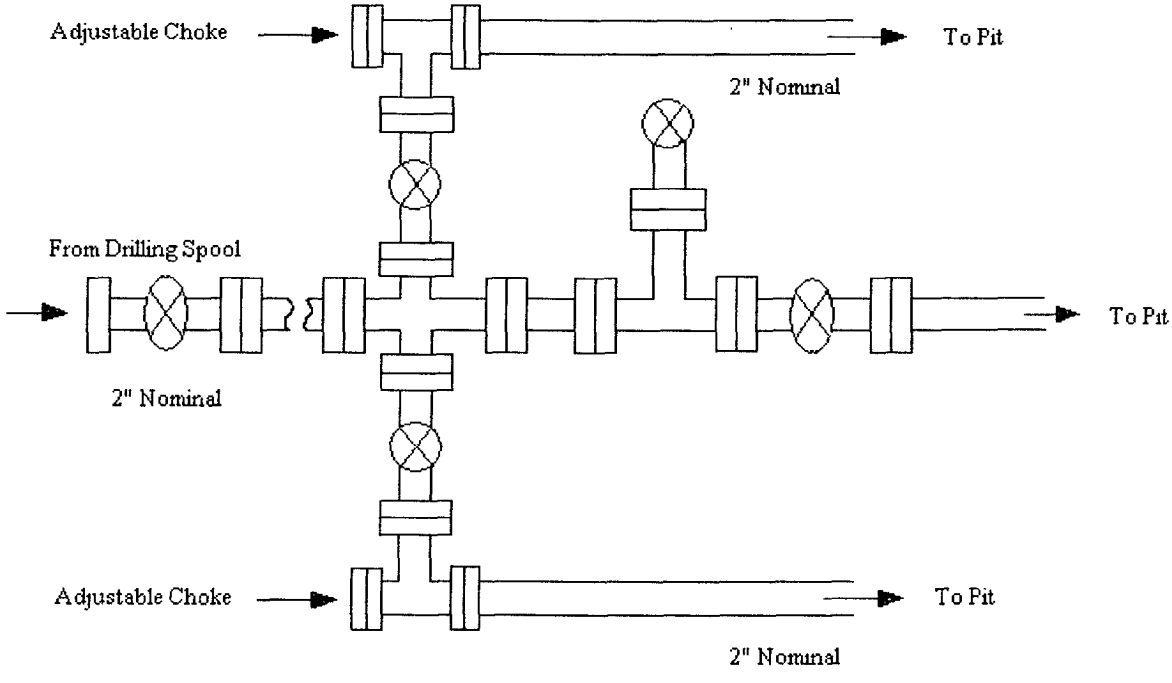
Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
953.0	953.0	Nacimiento		0.00	
2,503.3	2,460.0	Kirtland		0.00	
2,331.9	2,313.0	Ojo Alamo		0.00	
3,215.4	2,908.0	Fruitland		0.00	
3,675.6	3,043.0	Top Target Coal		0.00	
	3,067.0	Base Target Coal		0.00	

Checked By: _____ Approved By: _____ Date: _____

Energen Resources Corporation

Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD

Energen Resources Corporation

Typical BOP Configuration for Gas Drilling