

State of New Mexico
Energy, Minerals & Natural Resources

Form C-101
May 27, 2004

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

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

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 Energen Resources Corporation 2010 Afton Place Farmington, New Mexico 87401		² OGRID Number 162928
⁴ Property Code 21996	⁵ Property Name San Juan 32-5 Unit	³ API Number 30-39-20558
⁹ Proposed Pool 1 Basin Fruitland Coal		⁶ Well No. 110S
¹⁰ Proposed Pool 2		

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
K	23	32N	6W		1885	South	1500	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
B	22	32N	6W		760	North	1880	East	Rio Arriba

Additional Well Location

¹¹ Work Type Code New Well	¹² Well Type Code Gas	¹³ Cable/Rotary Rotary	¹⁴ Lease Type Code Fee	¹⁵ Ground Level Elevation 6338'
¹⁶ Multiple No	¹⁷ Proposed Depth 6750' MD	¹⁸ Formation Fruitland Coal	¹⁹ Contractor	²⁰ Spud Date 8/08
Depth to ground water 240'		Distance from nearest fresh water well >1000		Distance from nearest surface water 1000'
Pit: Liner: Synthetic <input checked="" type="checkbox"/> 20 mils thick Clay <input type="checkbox"/> Pit Volume 2000 bbls Drilling Method: Closed-Loop System <input type="checkbox"/> Fresh Water <input checked="" type="checkbox"/> Brine <input checked="" type="checkbox"/> Diesel/Oil-based <input type="checkbox"/> Gas/Air <input type="checkbox"/>				

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	550'	301	0'
8 3/4"	7"	23	4120'	730	0'
6 1/4"	4 1/2"	11.6	6750'	N/A	
					(505) 325-6800

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.

See attached Operations Plan.

RCVD AUG 1 '08

OIL CONS. DIV.

DIST. 3

**NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT**

Hold C104

for Directional Survey
and "As Drilled" plat

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOC guidelines ☒ a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Signature: Devin Mills

Printed name: Devin Mills

Title: Drilling Engineer

E-mail Address: Dmills@energen.com
Date: 7/29/2008

Phone: 505-793-6038

OIL CONSERVATION DIVISION

Approved by:

Title: DEPUTY OIL & GAS INSPECTOR, DIST. 3

Approval Date: AUG 05 2008 Expiration Date: AUG 05 2010

Conditions of Approval:

Attached ☐

AUG 05 2008

347

onsite oked
5-2-08

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

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised October 12, 2005

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

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

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30.039.30558		² Pool Code 71629		³ Pool Name BASIN FRUITLAND COAL	
⁴ Property Code 21996		⁵ Property Name 32-5 UNIT			⁶ Well Number 110 S
⁷ OGRID No. 162928		⁸ Operator Name ENERGEN RESOURCES CORPORATION			⁹ Elevation 6338'

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
K	23	32N	6W		1885'	SOUTH	1500'	WEST	RIO ARRIBA

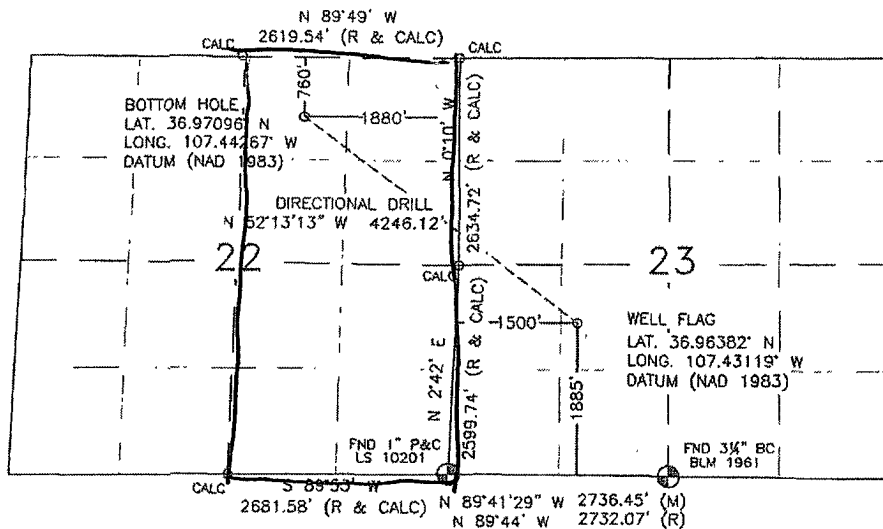
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	22	32N	6W		760'	NORTH	1880'	EAST	RIO ARRIBA

¹² Dedicated Acres 320 AC	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



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] 7/21/08
Signature Date

Printed Name

¹⁸ SURVEYOR CERTIFICATION

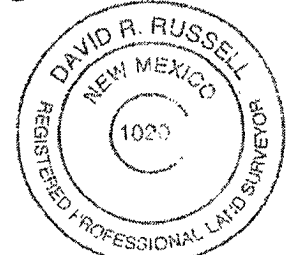
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 26, 2007

Date of Survey

Signature and Seal of Professional Surveyor

David R. Russell



DAVID RUSSELL

Certificate Number

10201

Operations Plan

April 11, 2008

San Juan 32-5 Unit #110S

General Information

Location	1885' fsl, 1500' fWI at surface Sec. 23, T 32N R 6W 760' fnl, 1880' fel at bottom Sec 22, T32N, R6W Rio Arriba, New Mexico
Elevations	6338' GL
Total Depth	6750' +/- (MD); 2961' +/- (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	1083' (TVD)
Ojo Alamo Ss	2253' (TVD), 2274' (MD)
Kirtland Sh	2383' (TVD), 2424' (MD)
Fruitland Fm	2803' (TVD), 3066' (MD)
Target Coal Top (1)	2935' (TVD), 4092' (MD)
Target Coal Base (1)	2961' (TVD), 6750' (MD)
Total Depth	3030' (TVD), 6750' (MD)

Drilling

The 12 1/4" 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 8.3 ppg to 11.0 ppg. Kick off point is anticipated to be at 1700 ft (TVD) with a build up rate of 4.65°/100 ft. This section will be landed in the coal.

The 6 1/4" wellbores will be drilled with a CaCl₂ brine as wellbore and formation pressures dictate to a measured depth of 6750'.

Blowout Control Specifications:

A 2000 psi minimum double ram or annulus BOP stack (figure 1) 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.

Logging Program:

Open hole logs: Gamma Ray MWD and mud logs.

Coring: None

Surveys: Every 500' to KOP. At least every 250' while directional drilling to TD.

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-550'	12 1/4"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	550'-4120' (MD) 2935' (TVD)	8 3/4"	7"	23.0 ppf	J-55 LT&C
Production	4090'-6750' (MD) 2961' (TVD)	6 1/4"	4 1/2"	11.6 ppf	J-55 LT&C
Tubing	0'- 3553' (MD)		2 3/8"	4.7 ppf	J-55

Casing Equipment:

Surface Casing: Depending on wellbore conditions, a Texas Pattern Guide Shoe on bottom. Casing centralization with standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: Depending on wellbore conditions, a Cement nose guide shoe with self fill insert float collar on top of bottom joint and casing centralization with standard bow spring centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

Production Liners: Bull nose guide shoe on the bottom of the first joint. Perforated liner to be run in producing interval.

Wellhead

3000 psi 11" x 9 5/8" casing head. 9 5/8" x 7" x 2 3/8" 5000psi Flanged wellhead.

Cementing

Surface Casing: 301 sks Std (class B) with 2.0 % CaCl₂ and 1/4 #/sk Flocele (15.6 ppg, 1.18 ft³/sk 355 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 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 428 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl₂, 10 #/sk Gilsonite, and 1/2 #/sk Flocele (12.3 ppg, 1.93 ft³/sk) and a tail of 302 sks of Type V cement with 5.0 #/sk Gilsonite, and 1/4 #/sk Flocele (15.4ppg, 1.18 ft³/sk). (1181 ft³ of slurry, 100 % excess to circulate to surface).

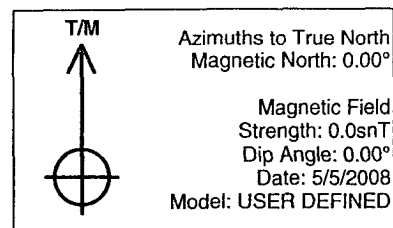
Production: Open Hole Completions – NO CEMENT

Other Information

- 1) This well will be an open hole completion
- 2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The production 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 for the region are anticipated.
BHP can be as high as 1250 psi.
- 5) This gas is dedicated.

Project: San Juan 32-5 Unit
 Site: Sec. 23 T32N R 6W
 Well: San Juan 32-5 Unit 110 S
 Wellbore: Preliminary
 Plan: Design #1 (San Juan 32-5 Unit 110 S/Preliminary)

PROJECT DETAILS: San Juan 32-5 Unit	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Central Zone
System Datum:	Mean Sea Level



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	1700.0	0.00	0.00	1700.0	0.0	0.0	0.00	0.00	0.0	
3	3636.9	90.02	293.89	2932.8	499.5	-1127.5	4.65	293.89	1196.3	
4	4091.2	89.44	315.00	2935.0	755.0	-1500.0	4.65	91.60	1647.2	Top Target 110S
5	6750.0	89.44	315.00	2961.0	2635.0	-3380.0	0.00	0.00	4285.7	Bottom Target 110S

