#### Form 3160-3 (April 2004)

# UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED OMB NO. 1004-0137 Expires March 313 2007

5. Lease Serial No.

APPLICATION FOR PERMIT TO DRILL OR REENTER				SF 078204	e Au	G 2008
la. Type of Work			6.	6. If Indian, Allotee or Tribe Name		
1b. Type of Well Oil Well X Gas Well Other		Single Zone JIM Multiple Zone		Unit or CA Agreen	<u>[                                    </u>	<u>~ \$.</u> 4. <b>№</b> . 3
2. Name of Operator		2000 0011 20 7111		Lease Name and W	ell No	
Energen Resources Corporation		RECEIVE	٥.	Sunray D #22	No. 2 107 5	Jages :
3a. Address		3b. Phone No. (include area cod	le) , 9.	API Well No.	77(100	<u> </u>
2198 Bloomfield Highway Farmington, New Mex			QR A.	30-043-	338UU	
4. Location of Well (Report location clearly and in accordance with	any State eq	uirements)*	10.	Field and Pool, or I		
At surface 965' fnl, 940' fwl				Basin Fruitland Coal		
At proposed prod. zone			111.	11. Sec., T., R., M., or Blk. and Survey or Area		
14 Disassis is all additional formation for the first formation of t	,		12	D S21 T30N, R10W		
14. Distance in miles and direction from nearest town or post office*			ŀ	•		
Approximately 6 miles r				n Juan	NM	
15. Distance from proposed* location to nearest	16	.No. of Acres in lease	17. Spacir	ng Unit dedicated to	this well	
property or lease line, ft. 940' (Also to nearest drg. unit line, if any)		645.32	324	24.88 N 1/2		
18. Distance from proposed location* to nearest well, drilling, completed,	19	19. Proposed Depth 20. BLM/BIA Bond N		/BIA Bond No. on	No. on file	
applied for, on this lease, ft.  Approx. 1100'		2960 +/-				
21. Elevations (Show whether DF, KDB, RT, GL, etc.	2:	2. Approximate date work will star	t*	23. Estimated dur	ation	
GL 6380'		10/15/06		14 days		
<b>/</b> ₩	24. A	ttachments				
The following, completed in accordance with the requirements of Onsh	hore Oil and	Gas Order No. 1, shall be attached	to this for	rm:		
Well plat certified by a registered surveyor.     A Drilling Plan     A Surface New Plan (State Installar in an National Found Survey Installar in an National Found Survey Installar in an National Found Survey Ins		4. Bond to cover the operation Item 20 above).	ons unless	covered by an exist	ing bond on fil	e (see
<ol> <li>A Surface Use Plan (if the location is on National Forest System L SUPO shall be filed with the appropriate Forest Service Office).</li> </ol>	ands, the	Operator certification.     Such other site specific infauthorized officer.	formation	and/or plans as may	be required by	the
25. Signuature	Name	(Printed/Typed)	-	Date		
1 Ste 12		Wathan Smith		6/12/06		
Title						
Drilling Engineer						
Approved by (Signature)	Name	(Printed/Typed)		Date	2/18/6	7
Title AFM	Office	FFO				
Application approval does not warrant or certify that the applicant he conduct operations thereon.  Conditions of approval, if any, are attached.	olds legal or	equitable title to those rights in the	he subject	lease which would	entitle the app	plicant to

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowlingly and willfully to make to any department or agency of the United

\*(Instructions on page 2)

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

MMOCD

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

N87°49'00"W

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 API Number 045-Property Name Well Number roperty Code SUNRAY D 226S OGRID No. Operator Name Elevation ENERGEN RESOURCES CORPORATION 6380 10 Surface Location North/South line UL or lot no. Township Lot Idn Feet from the East/West line Section Feet from the County 10W 21 NORTH WEST D 30N 965 940 SAN JUAN Bottom Hole Location If Different From Surface Feet from the North/South line East/West line UL or lot no. Section Township Rapge Lot Idn Feet from the County 13 Joint or Infill 12 Dedicated Acres 14 Consolidation Code 5 Order No. N/2324.8

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. S89°07'20"E 2622.44' (M) N89°08'00"W 2624,82' (R) N89°08'00"W 2624.82' (R) FD. 3 1/4" **OPERATOR CERTIFICATION** FD. 3 1/4" BRASS CAP **BRASS CAP** BLM 1967 BLM 1967 £ 3 LOT 1 LOT 3 LOT 2 2626.80' 940 LOT 4 N00°13'00"E S00°12'24"W LOT 5 LOT 6 LOT 7 LOT 8 FD. 3 1/4" FD. 3 1/4" BRASS CAP BRASS CAP BLM. 1967 18SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys œ 0 **LOT 12 LOT 11 LOT 10** LOT 9 made by me or under my supervision, and that the 52 2628.78 same is true and correct to the best of my belief. 2611 Date o N01°22'00"E N00°32'00"F **LOT 13 LOT 14 LOT 15 LOT 16** FD. 3 1/4" NM #14287 BRASS CAP BLM 1967

5347.32' (R)

Submit 3 Copies To Appropriate District State of New Mexico Form C-103 Office Energy, Minerals and Natural Resources May 27, 2004 District I 1625 N. French Dr., Hobbs, NM 87240 45-33800 District II OIL CONSERVATION DIVISION 1301 W. Grand Ave., Artesia, NM 88210 5. Indicate Type of Lease 1220 South St. Francis Dr. District III STATE | FEE 1000 Rio Brazos Rd., Aztec, NM 87410 Santa Fe, NM 87505 District IV 6. State Oil & Gas Lease No. 1220 S. St. Francis Dr., Santa Fe, NM 87505 SUNDRY NOTICES AND REPORTS ON WELLS 7. Lease Name or Unit Agreement Name: (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A Sunray D DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 8. Well Number 1. Type of Well: Gas Well X Oil Well Other 226S 2. Name of Operator 9. OGRID Number Energen Resources Corporation 162928 10. Pool name or Wildcat 3. Address of Operator 2198 Bloomfield Highway, Farmington, NM 87401 Basin Fruitland Coal 4. Well Location Unit Letter \_\_\_\_ D : 965' 940' North feet from the line and feet from the West Township **NMPM** County Section 30N Range 10W 21 San Juan 11. Elevation (Show whether DR, RKB, RT, GR, etc.) 6380' GL Pit or Below-grade Tank Application X or Closure Pit type Drill Depth to Groundwater >100' Distance from nearest fresh water well >1000' Distance from nearest surface water >250' Below-Grade Tank: Volume\_\_\_\_\_bbls; Construction Material \_ Pit Liner Thickness: \_ 12. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data NOTICE OF INTENTION TO: SUBSEQUENT REPORT OF: PERFORM REMEDIAL WORK PLUG AND ABANDON REMEDIAL WORK ALTERING CASING *TEMPORARILY ABANDON* CHANGE PLANS COMMENCE DRILLING OPNS. PLUG AND **ABANDONMENT** CASING TEST AND PULL OR ALTER CASING **MULTIPLE** COMPLETION **CEMENT JOB** OTHER: Build drilling pit  $\mathbf{x}$ OTHER: 13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion. Energen Resources plans to build a lined pit according to "OCD Pit and Below-grade Tank Guidelines", as issued on November 1,2004. Energen anticipates the submittal of a C-144 for closure of this pit in accordance with BIM and "OCD Pit and Below-grade Tank Guidelines".

hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines , a general permit or an (attached) alternative OCD-approved plan

\_ TITLE\_

TITLE

Type or print name Nathan Smith

Conditions of Approval, if any:

For State Use Only

APPROVED BY

E-mail address:

Drilling Engineer

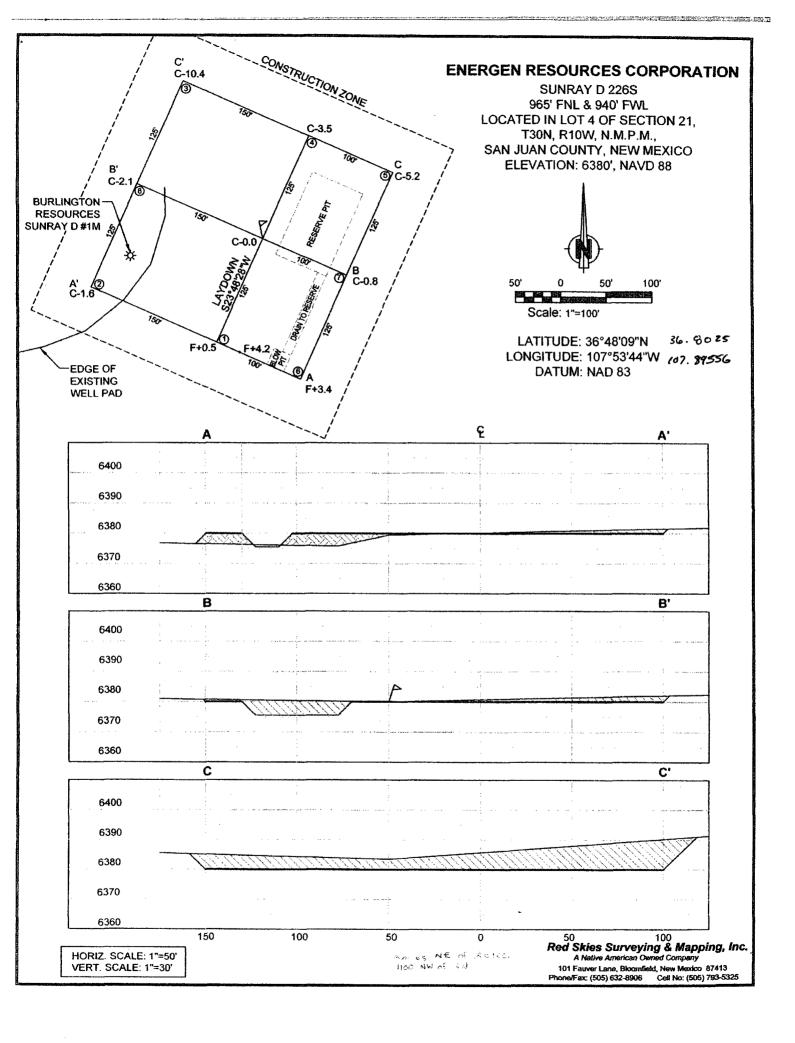
GAS INSPECTOR, DIST, FO

nsmith@energen.com

Telephone No. 505.325.6800

\_DATE

AUG 1 4 2006



## **Operations Plan**

June 7, 2006

#### **Sunray D # 226S**

#### **General Information**

Location 0965' fnl, 0940' fwl

nwnw S21, T30N, R10W

San Juan County, New Mexico

Elevations 6380' GL **Total Depth** 2959' (MD)

**Formation Objective Basin Fruitland Coal** 

### **Formation Tops**

Nacimiento	Surface
Ojo Alamo Ss	1627'
Kirtland Sh	1736'
Fruitland Fm	2637'
Top Coal	2718'
Bottom Coal	2779'
Pictured Cliffs Ss	2929'
Total Depth	2959'

#### Drilling

The 12 1/4" wellbore will be drilled with a fresh water mud system.

The 7 7/8" 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 8.9 ppg. **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: Induction/Gamma Ray and Density Logs

Coring: None

Surveys: Surface and/or every 500' to TD

#### **Tubulars**

### Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-300'	12 ¼"	8 5/8"	24.0 ppf	J-55 ST&C
Production	300'-2959'	7 7/8"	5 ½"	15.5 ppf	J-55 LT&C
Tubing	0'-2900'		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.

Production 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.

#### Wellhead

8 5/8" 2000 x 5 1/2" Larkin casing head. 5 1/2" 2000 x 2" tubing head.

#### Cementing

Surface Casing: 225 sks Std (class B) with 2.0 % CaCl<sub>2</sub> and ¼ #/sk Flocele (15.6 ppg, 1.18 ft³/sk 247 ft³ of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 1000 psi for 30 min.

Production Casing: Before cementing, circulate hole at least 1 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 450 sks 65/35 with 6.0 % Bentonite, 2.0 % CaCl<sub>2</sub>, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.96 ft³/sk) and a tail of 145 sks of Standard (Class B) cement with 5.0 #/sk Gilsonite, and ¼ #/sk Flocele (15.2ppg, 1.24 ft³/sk). (1062 ft³ of slurry, 100 % excess to circulate to surface).

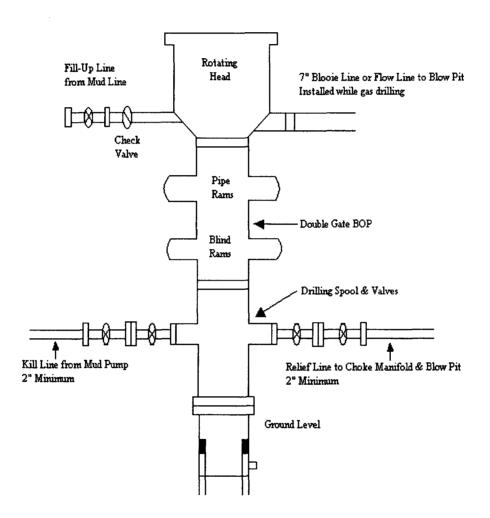
Pump 20 bbls gelled water and 10 bbls fresh water spacer ahead of lead cement.

#### Other Information

- 1) This well will be cased and the Basin Fruitland Coal fracture stimulated.
- 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 are anticipated.
- 5) This gas is dedicated.

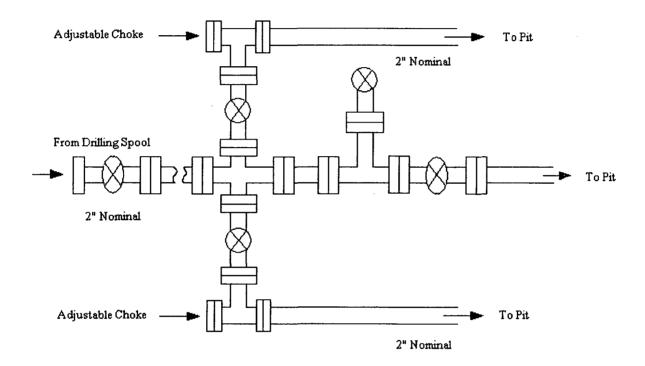
## **Energen Resources Corporation**

Typical BOP Configuration for Gas Drilling



## **Energen Resources Corporation**

Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD