

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No. 1004-0136  
Expires November 30, 2000

5. Lease Serial No.  
**NMSF-078213**

6. If Indian, Allottee or Tribe Name

**N/A**

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

**N/A**

8. Lease Name and Well No.

**LAS COLINAS #101**

9. API Well No.

**30-045-31300**

10. Field and Pool, or Exploratory

**FULCHER KUTZ PIC. CLIFFS**

11. Sec., T., R., M., or Blk. and Survey or Area

**26-30n-13w NMPM**

12. County or Parish

**SAN JUAN**

13. State

**NM**

1a. Type of Work: ☒ DRILL ☐ REENTER

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

☒ Single Zone ☐ Multiple Zone

2. Name of Operator

**MARKWEST RESOURCES, INC.**

3a. Address **155 INVERNESS DR., SUITE 200  
ENGLEWOOD, CO. 80112**

3b. Phone No. (include area code)  
**(303) 290-8700**

4. Location of Well (Report location clearly and in accordance with any State requirements. \*)

At surface **2150' FSL & 1470' FEL**

At proposed prod. zone **SAME**

14. Distance in miles and direction from nearest town or post office\*

**3 AIR MILES NORTHEAST OF FARMINGTON POST OFFICE**

15. Distance from proposed\*  
location to nearest  
property or lease line, ft.  
(Also to nearest drig. unit line, if any)

**2,604'**

16. No. of Acres in lease

**2,480**

17. Spacing Unit dedicated to this well

**160 ACRES (SE4)**

18. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft.

**Completed: 1,242'  
Applied for: 21'**

19. Proposed Depth

**1,900'**

20. BLM/BIA Bond No. on file

**KA6084 (BLM - NATIONWIDE)**

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

**5,769' GL**

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

22. Approximate date work will start\*

**FEBRUARY 15, 2003**

23. Estimated duration

**5 DAYS TO DRILL**

24. Attachments

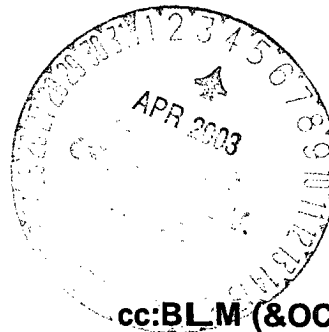
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form: DRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO COMPLIANCE WITH ATTACHED  
GENERAL REQUIREMENTS.

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the  
SUPO shall be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see  
Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be required by the  
authorized officer.

Comments

HOLD C104 FOR NSL



cc:BLM (&OCD), Pippin, Stowe

25. Signature

Name (Printed/Typed)

**BRIAN WOOD**

Date

**12-15-02**

Title

**CONSULTANT**

**PHONE: 505 466-8120**

**FAX: 505 466-9682**

Approved by (Signature)

**David J. Mankiewicz**

Name (Printed/Typed)

Date

**APR - 2 2003**

Title

Office

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

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make 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 II**  
**811 South First, Artesia, N.M. 88210**

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

**DISTRICT IV**  
**2040 South Pacheco, Santa Fe, NM 87505**

**OIL CONSERVATION DIVISION**

2040 South Pacheco  
Santa Fe, NM 87505

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

☐ **AMENDED REPORT**

# WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045- 31300		*Pool Code 77200	*Pool Name FULCHER KUTZ PICTURED CLIFFS	
*Property Code 32228	*Property Name LAS COLINAS		*Wall Number 101	
*OGRID No. 193195	*Operator Name MARKWEST RESOURCES, INC.		*Elevation 5769'	

## <sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	26	30-N	13-W		2150'	SOUTH	1470'	EAST	SAN JUAN

## 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
<sup>22</sup> Dedicated Acres <div style="font-size: 2em; text-align: center;">160</div>			<sup>23</sup> Joint or Infill		<sup>24</sup> Consolidation Code		<sup>25</sup> 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		<p>17 <b>OPERATOR CERTIFICATION</b></p> <p><i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</i></p> <p style="text-align: right;"><u>B. Wood</u></p> <p>Signature</p> <hr/> <p>Printed Name <b>BRIAN WOOD</b></p> <hr/> <p>Title <b>CONSULTANT</b></p> <hr/> <p>Date <b>DEC. 15, 2002</b></p>
<p style="text-align: right;">070 Farmington, NM</p> <p style="text-align: right;">2002 DEC 23 AM 8:51</p> <p style="text-align: right;">FD 3 1/4" B.L.M. BC 1952</p>	<p style="text-align: center;">26</p> <p style="text-align: center;">1160'</p> <p style="text-align: center;">498'</p> <p style="text-align: center;">155'</p> <p style="text-align: center;">1470'</p> <p style="text-align: center;">826'</p> <p style="text-align: center;">2150'</p> <p style="text-align: center;">S 89-35-57 W 2629.9' (M)</p>	<p>18 <b>SURVEYOR CERTIFICATION</b></p> <p><i>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.</i></p> <p style="text-align: right;"><u>DAVID A. JOHNS</u></p> <p style="text-align: right;">Date of Survey <b>DEC 2002</b></p> <p style="text-align: right;">Signature and Seal of Professional Surveyor:</p> <div style="text-align: center;"> </div> <p style="text-align: right;">Certificate Number</p>

MarkWest Resources, Inc.  
Las Colinas #101  
2150' FSL & 1470' FEL  
Sec. 26, T. 30 N., R. 13 W.  
San Juan County, New Mexico

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## Drilling Program

### 1. ESTIMATED FORMATION TOPS

<u>Formation Name</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Elevation</u>
Ojo Alamo Ss	000'	5'	+5,769'
Kirtland Sh	356'	361'	+5,413'
Fruitland Coal	1,404'	1,409'	+4,365'
Pictured Cliffs Ss	1,774'	1,779'	+3,995'
Total Depth (TD)*	1,900'	1,905'	+3,869'

\* all elevations reflect the ungraded ground level of 5,769'

### 2. NOTABLE ZONES

<u>Gas &amp; Oil Zones</u>	<u>Water Zones</u>	<u>Coal Zone</u>
Fruitland	Ojo Alamo	Fruitland
Pictured Cliffs	Kirtland	
	Fruitland	

Water zones will be protected with casing, cement, and weighted mud. Fresh water found while drilling will be recorded. Oil or gas shows will be tested for commercial potential based on the geologist's recommendations.

### 3. PRESSURE CONTROL

Maximum expected bottom hole pressure is  $\approx$ 300 psi. The drilling contract has not yet been awarded, thus the exact BOP model to be used is not yet known. A typical 2,000 psi model is on PAGE 3. The well head, casing head, and all pipe, tubing, fittings, valves, and unions placed on or connected with BOP equipment will have a minimum working pressure of 2,000 psi. BOP equipment and all accessories will meet or exceed BLM requirements in 43

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CFR Part 3160 and API RP 53 for a 2,000 psi system.

A 2,000 psi double ram hydraulic BOP will be used. There will be one set of pipe rams and one set of blind rams. Sufficient valves will be installed to permit fluid circulation at the surface. Accumulator system capacity will be sufficient to close all BOP equipment with a 50% safety factor.

Accessories will include upper and lower Kelly cocks with handles, stabbing valve to fit drill pipe on the floor at all times, string float at bit, choke manifold with 2" adjustable and 2" positive chokes, and pressure gauge.

Fill, kill, and choke manifold lines will be 2". Choke and kill lines will be anchored, tied, or otherwise secured to prevent whipping if pressure surges.

BOP equipment will be inspected daily. Pressure testing of each component of the BOP equipment will be conducted before drilling out any casing string. A preventer operating test will be performed on each round trip of the pipe, but not more than once every 24 hours. BOPs will be tested every 24 hours. Tests will be recorded on the daily report or I. A. D. C. log.

Drilling or completion operations will not proceed until BOP equipment is found, upon testing, to be serviceable. If the blind rams are closed for any purpose, then the valves on the choke lines or relief lines below the blind rams will be opened prior to opening the rams to bleed off any pressure.

#### 4. CASING & CEMENT

<u>Hole Size</u>	<u>O. D.</u>	<u>Weight (lb/ft)</u>	<u>Grade</u>	<u>Age</u>	<u>Connection</u>	<u>GL Setting Depth</u>
12-1/4"	8-5/8"	24	K-55	New	S T & C	<del>400'</del> 440'
6-1/4"	4-1/2"	10.5	K-55	New	S T & C	1,900'

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Surface casing will be cemented to the surface with  $\approx 330$  cubic feet ( $\approx 280$  sacks) Class B +  $1/4$  lb/sk cello-flake + 2%  $\text{CaCl}_2$ . Yield = 1.18 cubic feet per sack. Weight = 15.2 pounds per gallon. Volume = 100% excess. W. O. C. = 12 hours. Surface casing will be tested to 500 psi for 30 minutes.

An 8-5/8" notched regular pattern guide shoe with three centralizers will be used on the surface casing. Centralizers will be placed at 120' intervals, starting with the bottom joint. Will Baker Lock the collar to the pin or ring on the bottom joint. Will Baker Lock the shoe on the bottom. Will run a centralizer with a lock on the bottom joint and a centralizer on the second joint.

Production casing will be cemented to the surface. If cement does not circulate to surface, then a temperature survey will be run to determine the actual cement top as needed. W. O. C. = 12 hours. Test to 3,800 psi.

Lead cement will be  $\approx 290$  cubic feet ( $\approx 100$  sacks) Class B light cement with 3% sodium metasilicate + 3 pounds per sack gilsonite +  $1/4$  #/sack Flocele. Yield = 2.9 cubic feet per sack. Weight = 11.5 pounds per gallon. Volume is calculated at 100% excess.

Tail cement will be  $\approx 78$  cubic feet ( $\approx 50$  sacks) Class B with 4% gel + 2%  $\text{CaCl}_2$ . +  $1/4$  #/sk Flocele. Yield = 1.55 cubic feet per sack. Weight = 14.5 pounds per gallon. Used at 50% excess to cover 500' of formation.

The production casing will use a 4-1/2" cement nose guide shoe with a self fill insert float. The float will be placed one joint above the shoe. Five centralizers will be spaced on every other joint starting with the float collar. Turbulent will be placed at 120' intervals from 960' to the surface. A total of 13 centralizers will be used.