

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐

b. TYPE OF WELL

OIL
WELL ☐GAS
WELL ☒OTHER ☐SINGLE
ZONE ☒MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

MarkWest Resources, Inc. *X+O* (303) 290-8700

3. ADDRESS AND TELEPHONE NO.

155 Inverness Dr. W, Suite 200, Englewood, Co. 80112

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)

At surface

1970' FNL & 725' FWL

At proposed prod. zone Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

10 air miles S of Bloomfield

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any)

725'

16. NO. OF ACRES IN LEASE

2,560

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

1,066'

19. PROPOSED DEPTH

2,150'

17. NO. OF ACRES ASSIGNED
TO THIS WELL

320

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

6,345' ungraded

22. APPROX. DATE WORK WILL START*

Nov. 1, 2002

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
11"	K-55 8-5/8"	24	160'	~118 cu. ft. & to surface
6-1/4"	K-55 4-1/2"	10.5	2,150'	~376 cu. ft. & to surface

DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS".This action is subject to technical and
procedural review pursuant to 43 CFR 3165.3
and appeal pursuant to 43 CFR 3165.4

cc: BIA, BLM, NAPI, OCD (via BLM), Pippin, Stowe, Tribe

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

TITLE

DATE

Consultant (505) 466-8120

5-4-02

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

Application approval does not warrant or certify that 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

David J. Mendewicz

APPROVED BY

NMOCD

TITLE

DATE

MAR 12 2004

*See Instructions On Reverse Side

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 15, 2000

DISTRICT II
811 South First, 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
2040 South Pacheco
Santa Fe, NM 87505

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-3117		*Pool Code 71629	*Pool Name BASIN FRUITLAND COAL
*Property Code 32621	*Property Name SCOTT FEDERAL 22		*Well Number 222 325
*OGRID No. 193195	*Operator Name MARKWEST RESOURCES, INC.		*Elevation 6345'

¹⁰ Surface Location

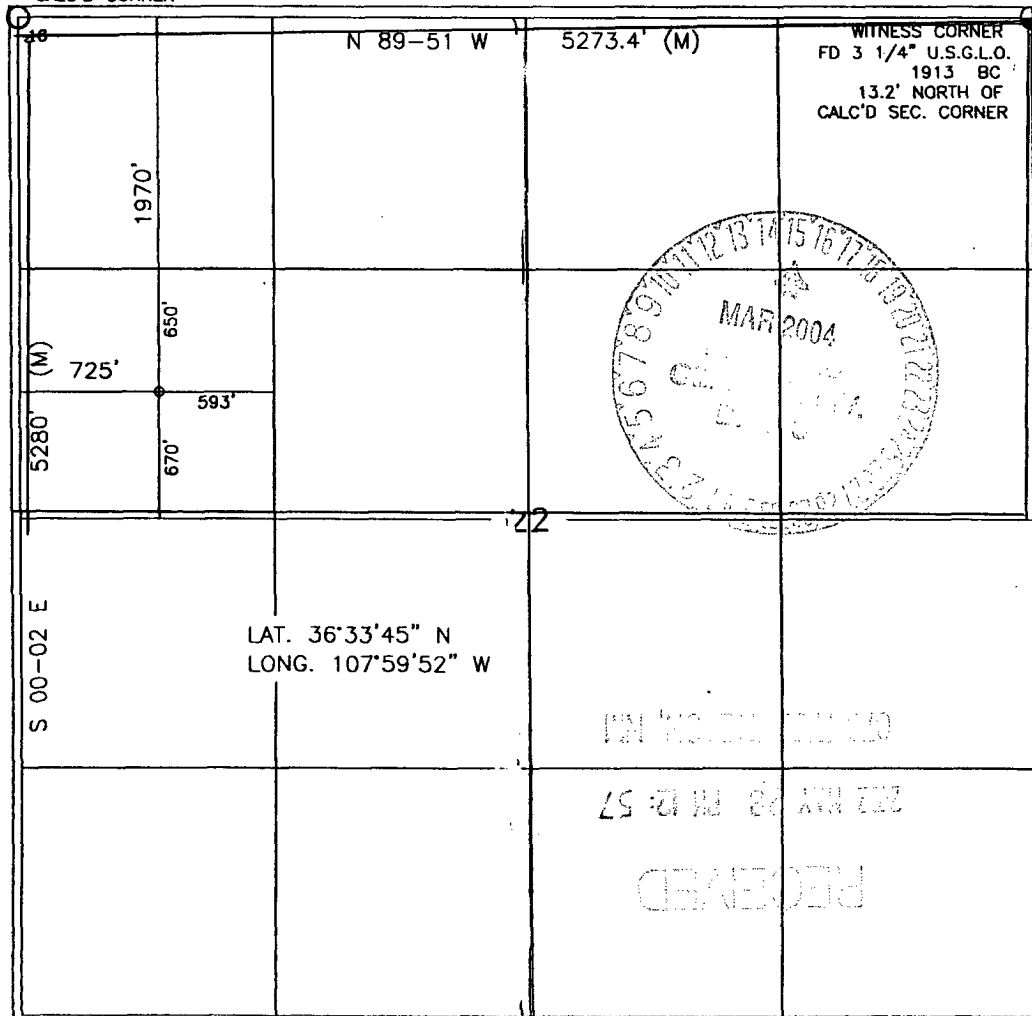
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	22	27-N	11-W		1970	NORTH	725	WEST	SAN JUAN

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
Dedicated Acres 320 N2					Joint or Infill		Consolidation Code		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

CALC'D CORNER



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature
Brian Wood

Printed Name

BRIAN WOOD

Title

CONSULTANT

Date

MAY 4, 2002

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.

2-
Date of Survey
Signature and Seal of Professional Surveyor

8894
Certificate Number

MarkWest Resources, Inc.
Scott Federal #222
1970' FNL & 725' FWL
Sec. 22, T. 27 N., R. 11 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>
Nacimiento Fm	000'	5'	+6,345'
Ojo Alamo Ss	866'	871'	+5,479'
Kirtland Sh	976'	981'	+5,369'
Fruitland Coal	1,493'	1,498'	+4,852'
Pictured Cliffs Ss	1,982'	1,987'	+4,363'
Total Depth*	2,150'	2,155'	+4,195'

* all elevations reflect the ungraded ground level of 6,345'.

2. NOTABLE ZONES

Gas & Oil Zones
Fruitland
Pictured Cliffs

Water Zones
Nacimiento
Ojo Alamo
Kirtland
Fruitland

Coal Zone
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 pressure is \approx 200 psi. The drilling contract has not yet been awarded, thus the exact BOP model to be used is not yet known. A typical 8" double ram 2,000 psi model is on PAGE 3.

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BOP equipment and all accessories will meet or exceed BLM requirements in 43 CFR Part 3160 for a 2000 psi system. A 2000 psi double ram hydraulic BOP will be used. Accumulator system capacity will be sufficient to close all BOPE with a 50% safety factor. Fill, kill, and choke manifold lines will be 2" screw connections. Accessories will include upper and lower Kelly cocks with handles, stabbing valve to fit drill pipe on floor at all times, string float at bit, 2000 psi choke manifold with 2" adjustable choke with screw connections, and pressure gauge. BOPs will be tested every 24 hours. Tests will be recorded on IADC log.

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>
11"	8-5/8"	24	K-55	New	ST & C	160'
6-1/4"	4-1/2"	10.5	K-55	New	ST & C	2,150'

Surface casing will be cemented to the surface with ≈118 cubic feet (≈100 sacks) Class B + 1/4 lb/sack cello-flake + 2% CaCl₂. Yield = 1.18 cubic feet per sack. Weight = 15.6 pounds per gallon. Volume = 100% excess. A guide shoe and insert float will be used with 3 centralizers. W.O.C. = 12 hours. Surface casing will be tested to 500 psi for 30 minutes.

Production casing will be cemented to the surface. Total cement = 376 cubic feet. Volumes are calculated at 80% excess. 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 = 299 cubic feet (≈145 sacks) Class B cement with 2% SM, 3 pounds per sack gilsonite + 1/4 pound per sack cello-flake. Yield = 2.06 cubic feet per sack. Weight = 12.5 pounds per gallon.

Tail cement = 77 cubic feet (≈50 sacks) Class B + 4% gel + 1/4#/sack cello-flake + 2% CaCl₂. Yield = 1.55 cubic feet per sack. Weight = 14.5 #/gal.