

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.

(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

665' FSL & 665' FWL

At proposed prod. zone

Same

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

12 air miles S of Bloomfield

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drig. unit line, if any)

665'

16. NO. OF ACRES IN LEASE

2,560

17. NO. OF ACRES ASSIGNED

TO THIS WELL

50/4 160

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,

OR APPLIED FOR, ON THIS LEASE, FT.

1,393'

19. PROPOSED DEPTH

2,200'

20. ROTARY OR CABLE TOOLS

Rotary

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

6,393' ungraded

22. APPROX. DATE WORK WILL START*

Mar. 15, 2002

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	K-55 8-5/8"	24	160'	≈118 cu. ft. & to surface
7-7/8"	K-55 4-1/2"	10.5	2,200'	≈909 cu. ft. & to surface

RECEIVED

2001 SEP 24 PM 3:49

070 Farmington, NM



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

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

cc: BLM, 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

9-20-01

(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:

APPROVED BY

TITLE

DATE

*See Instructions on Reverse Side

NMOCO

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0135
Expires November 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

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

2. Name of Operator
MARKWEST RESOURCES, INC. 155 INVERNESS DRV. W, #200

3a. Address
ENGLEWOOD, CO. 80112

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

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SURFACE: 665' FSL & 665' FWL 23-27n-11w

5. Lease Serial No.
NMSF-078089

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA/Agreement, Name and/or No.
N/A

8. Well Name and No.
SCOTT FED. 27-11 23

9. API Well No.
30-045-30853

10. Field and Pool, or Exploratory Area
KUTZ PC WEST

11. County or Parish, State
SAN JUAN, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input checked="" type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Will change surface hole to 8-3/4" and surface casing to 7" 20# K-55 ST&C. Cement top and type will remain same, but volume will change to 50 cubic feet.

Long string hole will change to 6-1/4" hole. Casing, cement top & type will remain same. Cement volume will change to 235 cubic feet for Lead and 80 cubic feet for tail.

Will lay 1,255' long 4-1/2" OD buried welded steel low pressure gas pipeline.

14. I hereby certify that the foregoing is true and correct
Name (Printed/Typed)

BRIAN WOOD

Title CONSULTANT (505) 466-8120

Signature

Date 1-30-02

cc: BIA, BLM (&OCD), Pippin, Stowe, Tribe

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

/s/ David J. Montoya

Title

Date

JAN 28 2003

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

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

MarkWest Resources, Inc.
Scott Federal 27-11 #23
665' FSL & 665' FWL
Sec. 23, 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>Subsea Elevation</u>
Nacimiento Fm	000'	5'	+6,393'
Ojo Alamo Ss	939'	944'	+5,454'
Kirtland Sh	1,047'	1,052'	+5,346'
Fruitland Coal	1,505'	1,510'	+4,888'
Pictured Cliffs Ss	2,009'	2,014'	+4,384'
Total Depth (TD)*	2,200'	2,205'	+4,193'

* all elevations reflect the ungraded ground level of 6,393'

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 ≈ 200 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.

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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". 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, 3000# choke manifold with 2" adjustable and 2" positive chokes, 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>
12-1/4"	8-5/8"	24	K-55	New	ST&C	160'
7-7/8"	4-1/2"	10.5	K-55	Used	ST&C	2,200'

Surface casing will be cemented to the surface with ≈ 118 cubic feet (≈ 100 sacks) Class B + 1/4 lb/sack cello-flake + 2% CaCl_2 . Yield = 1.18 cubic feet per sack. Weight = 15.2 lb/gal. Volume = 100% excess. A guide shoe and insert float will be used. WOC = 12 hours. Surface casing will be tested to 1500 psi for 30 minutes.

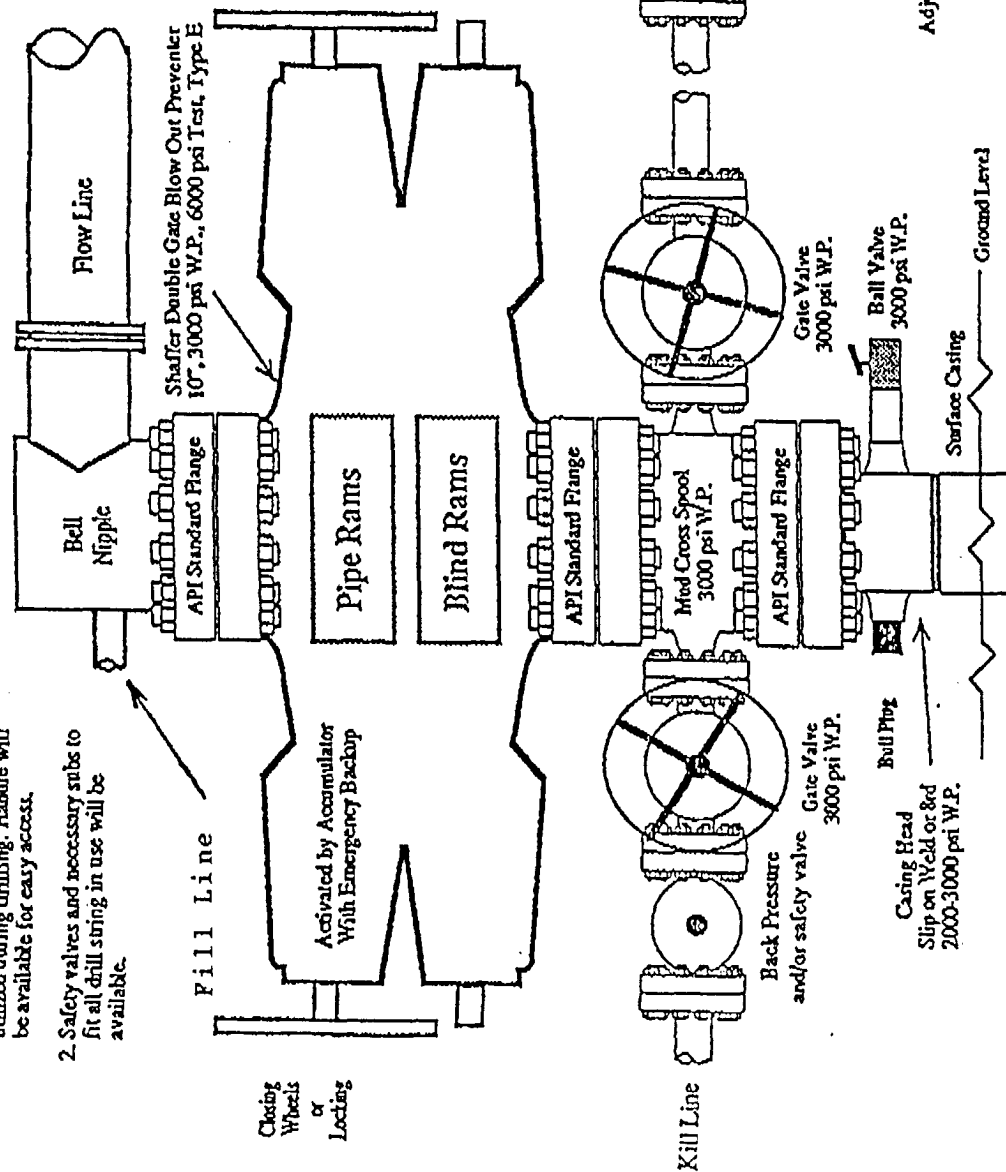
Production casing will be cemented to the surface. Volumes are calculated at 81% excess. If cement does not circulate to surface, then a temperature survey will be run to determine the actual cement top as needed. WOC = 12 hours. Test to 2000 psi.

Lead cement will be ≈ 646 cubic feet (≈ 325 sacks) Class B light cement (65% cement/35% POZ with 6% gel) with 5 #/sack gilsonite + 1/4 #/sack Flocele. Yield = 1.99 cubic feet per sack. Weight = 12.4 #/gal.

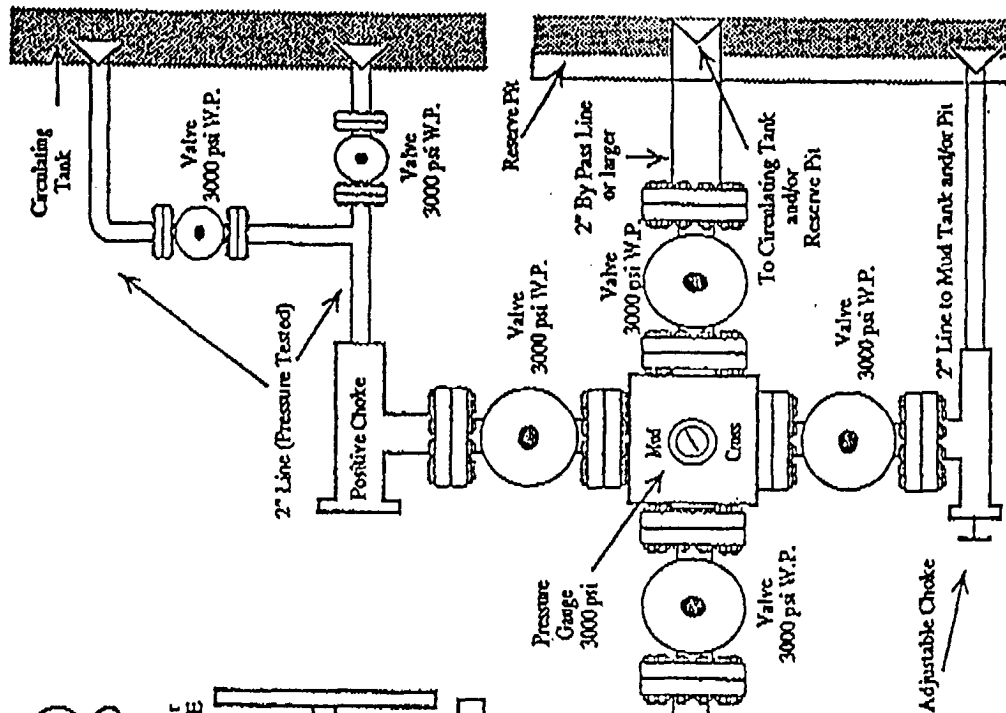
Tail cement will be ≈ 262 cubic feet (≈ 190 sacks) 50/50 Class B POZ with 2% gel + 1/4#/sack Flocele + 0.5% Halad-9. Yield = 1.38 cubic feet per sack. Weight = 13.5 #/gal. Total cement = 909 cubic feet.

Pressure Control Equipment

- Note: 1. An upper Kelly cock valve will be utilized during drilling. Handle will be available for easy access.
2. Safety valves and necessary subs to fit all drill string in use will be available.



Minimum 2" Choke Line.
Minimum 2" Kill Line.
At Least One 2" Minimum Kill Line Valve.



Note: This equipment is designed to meet requirements for a 2-M rating standard per 43 CFR part 3160 (amended). Proper operation and testing of equipment will be carried out per standard. 2,000 psi equipment can be substituted in the drawing to meet minimum requirements per standard.

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Cementing equipment will include guide shoe, float collar and ten centralizers (one each on the first five joints above the float and five at 160' intervals, starting at 960').

5. MUD PROGRAM

<u>RANGE</u>	<u>MUD TYPE</u>	<u>WEIGHT</u>
0' - 160'	Fresh-Spud	8.4
160' - TD	LSND	8.6

Lost circulation and absorption material will be on location.

6. CORING, TESTING, & LOGGING

No cores or DSTs are planned. Open hole logs will include GR, Neutron-Density, and Induction. The Neutron Density will be run from TD to 1,500'. The other logs will be run from TD to the base of the surface casing.

7. DOWNHOLE CONDITIONS

No abnormal pressures, temperatures, nor hydrogen sulfide are expected. Maximum pressure will be ≈ 200 psi.

8. OTHER INFORMATION

The anticipated spud date is March 15, 2002. It is expected it will take about six days to drill and eight days to complete the well. Completion will start about one month after the spud and will include hydraulic fracturing.