

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
At surface 1755' FNL & 2145' FEL

At proposed prod. zone Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*
12 air miles SSE of Bloomfield

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.
(Also to nearest drilg. unit line, if any)
1,755' 2,560'
DISTANCE FROM PROPOSED* LOCATION TO NEAREST WELL DRILLING COMPLETED OR APPLIED FOR ON THIS LEASE, FT.
849' 1,850'

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
6,160' ungraded

LEASE DESIGNATION AND SERIAL NO.
NMSF-078089
IF INDIAN, ALLOTTEE OR TRIBE NAME
N/A

UNIT AGREEMENT NAME
N/A

FARM OR LEASE NAME WELL NO.
29109
Scott Fed. 27-11 25

AS WELL NO.
30-045-30872

10. FIELD AND POOL OR WILDLAND
Bas. Fruit. Coal

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
25-27n-11w NMPM

12. COUNTY OR PARISH 13. STATE
San Juan NM

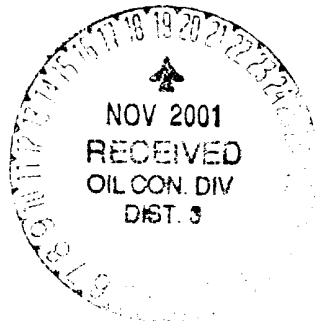
16. NO. OF ACRES IN LEASE
320

17. NO. OF ACRES ASSIGNED TO THIS WELL
A/ 320

22. APPROX. DATE WORK WILL START*
Nov. 15, 2001

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 | 1,850' | ≈ 768 cu. ft. & to surface |



cc: BLM, OCD (via BLM), Pippin, Stowe

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposing to deepen, give data on present productive zone and proposed new productive zone. If proposing to install deepening device, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program, if any.

24. CONSULTANT (505) 466-8120 9-29-01

DATE
(This space for Federal or State office use)

APPROVAL PAGE 11/16/01

Any person who signs a warrant or certifies that the applicant is not liable for the above rights in the subject lands shall be liable for the same as if the applicant had signed the warrant or certificate.

See Instructions On Reverse Side
11/16/01

DISTRICT I
1625 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

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 30-045-30872 | | Pool Code 71629 | Pool Name BASIN FRUITLAND COAL GAS |
| Property Code 29109 | Property Name SCOTT FEDERAL 27-11 | | Well Number 25 |
| OGRID No. 193195 | Operator Name MARKWEST RESOURCES, INC. | | Elevation 6160' |

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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| G. | 25 | 27-N | 11-W | | .1755' | . NORTH | . 2145' | . 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 |
|-----------------|---------|----------|-----------------|---------|--------------------|------------------|---------------|----------------|--------|
| | | | | | | | | | |
| Dedicated Acres | | | 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

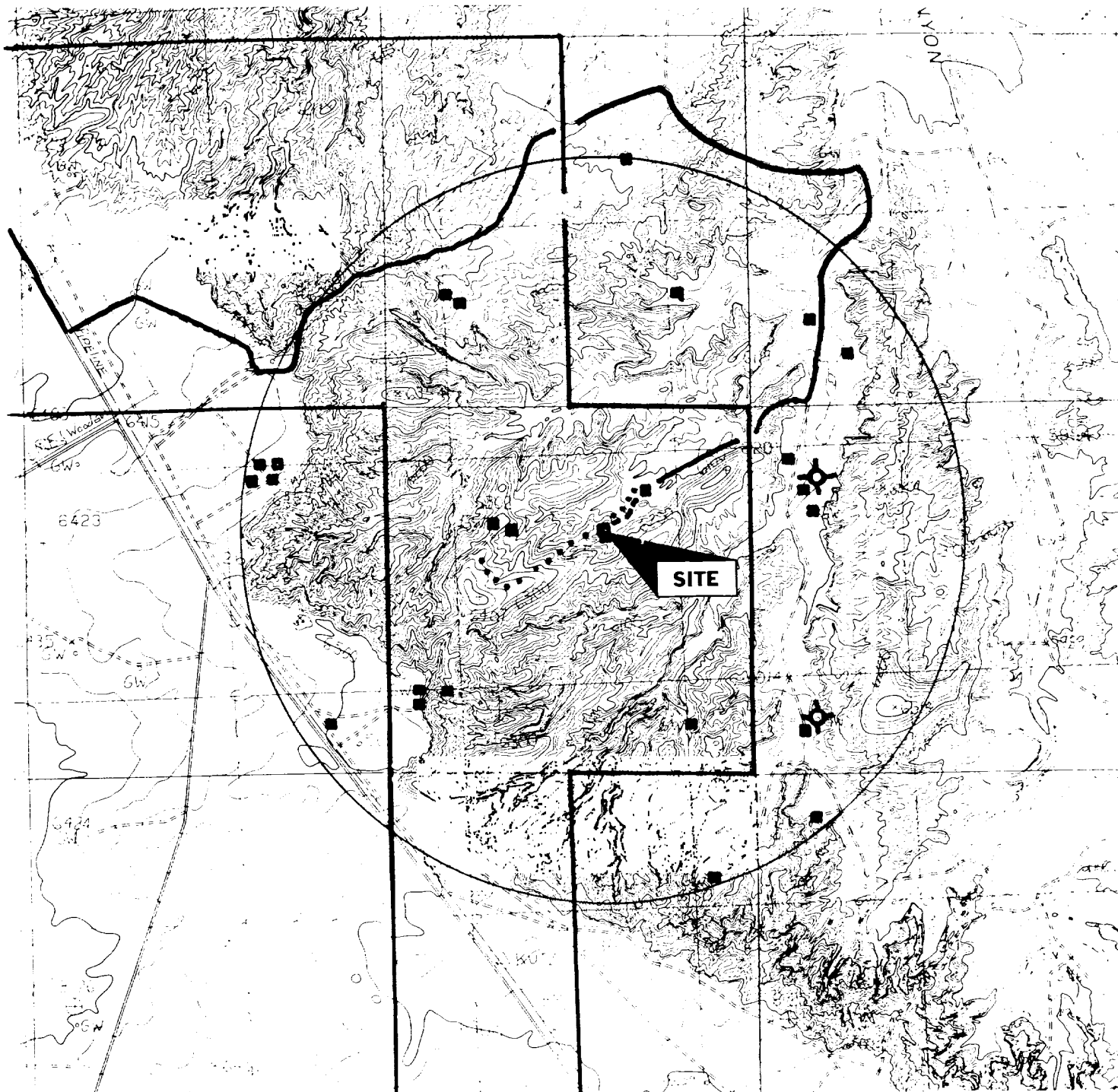
| | | | |
|---|---|--|---|
| <p>16</p> <p>FD 3 1/4"</p> <p>G.L.O. BC</p> <p>1913</p> | <p>S 89-50-34 W</p> <p>5295.20' (M)</p> | <p>CALC'D CORNER</p> | <p>17</p> <p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.</p> <p>Signature <i>Brian Wood</i></p> <p>Printed Name <u>BRIAN WOOD</u></p> <p>Title <u>CONSULTANT</u></p> <p>Date <u>SEPT. 29, 2001</u></p> |
| <p>LAT. 36°32'55"N</p> <p>LONG. 107°57'13"W</p> | <p>25</p> | <p>503'</p> <p>435'</p> <p>2145'</p> <p>821'</p> <p>886'</p> <p>S 00-00-21 W</p> <p>5282.10' (M)</p> | <p>18</p> <p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p>Date of Survey <u>8-27-01</u></p> <p>Signature and Seal of Professional Surveyor <i>Roy A. Rush</i></p> <p>Certificate Number <u>8894</u></p> |

NOV 2001
RECEIVED
OIL CON. DIV
DIST. 3

FD 3 1/4"
G.L.O. BC
1913

MarkWest Resources, Inc.
 Scott Federal 27-11 25
 1755' FNL & 2145' FEL
 Sec. 25, T. 27 N., R. 11 W.
 San Juan County, New Mexico

PAGE 11



PROPOSED WELL: ■ PROPOSED ROAD: - - - LEASE: L
 EXISTING WELL: ■ EXISTING ROAD: ~~~~~
 P & A WELL: ★ PROPOSED GAS LINE:

PERMITS WEST INC.
 PROVIDING PERMITS TO LAND OWNERS

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' | +6,160' |
| Ojo Alamo Ss | 741' | 746' | +5,419' |
| Kirtland Sh | 859' | 864' | +5,301' |
| Fruitland Coal | 1,301' | 1,306' | +4,859' |
| Pictured Cliffs Ss | 1,779' | 1,784' | +4,381' |
| Total Depth (TD)* | 1,850' | 1,855' | +4,310' |

* all elevations reflect the ungraded ground level of 6,160'

2. NOTABLE ZONES

| <u>Gas & Oil Zones</u> | <u>Water Zones</u> | <u>Coal Zone</u> |
|----------------------------|--------------------|------------------|
| Fruitland | Nacimiento | Fruitland |
| Pictured Cliffs | Ojo Alamo | |
| | 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 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.

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 | 1,850' |

Surface casing will be cemented to the surface with ≈118 cu. ft. (≈100 sx) Class B + 1/4 lb/sk cello-flake + 2% CaCl₂. Yield = 1.18 cu. ft./sk. 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. Total cement =768 cu ft. Volumes are calculated at 82% 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 ≈275 sx Class B light cement (65% cement/35% POZ with 6% gel) with 5 #/sack gilsonite + 1/4 #/sack Flocele. Yield = 1.99 cu ft/sk. Weight = 12.4 #/gal.

Tail cement will be ≈160 sx 50/50 Class B POZ with 2% gel + 1/4#/sk Flocele + 0.5% Halad-9. Yield = 1.38 cu ft/sk. Weight = 13.5 #/gal.

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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 Neuron 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 November 15, 2001. 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.