

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 ☐

2. NAME OF OPERATOR  
Richardson Operating Co. (303) 830-8000

3. ADDRESS AND TELEPHONE NO.  
1700 Lincoln St., Suite 1700, Denver, Co. 80203

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)  
At surface 890' FNL & 909' FWL  
At proposed prod. zone Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE  
2 air miles N of Kirtland

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.  
(Also to nearest drlg. unit line, if any) 909'

16. NO. OF ACRES OWNED BY APPLICANT 960

17. NO. OF ACRES ASSIGNED TO THIS WELL 160

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 2,646'

19. PROPOSED RIG TYPE 1,000

20. ROTARY OR CABLE TOOLS Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.) 5,360' ungraded

22. APPROX. DATE WORK WILL START\* Aug. 15, 2001

5. LEASE DESIGNATION AND SERIAL NO.  
NMNM-99003

6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
N/A

7. UNIT AGREEMENT NAME  
28838 N/A

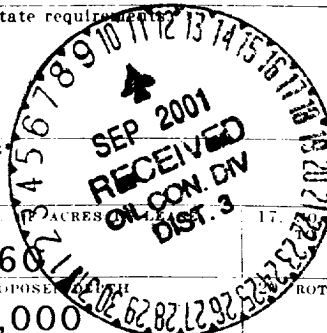
8. FARM OR LEASE NAME, WELL NO.  
WF Federal 31 #2

9. API WELL NO.  
30-045-30726

10. FIELD AND POOL, OR WILDCAT  
Twin Mounds P.C.

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
0 31-30n-14w NMPM

12. COUNTY OR PARISH 13. STATE  
San Juan NM



## PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
8-3/4"	K-55 7"	20	120'	≈36 cu. ft. & to surface
6-1/4"	K-55 4-1/2"	10.5	1,000'	≈185 cu. ft. & to surface

Archaeology report LAC-2001-28b filed 6-12-2001.

This activity is subject to automatic  
procedural review pursuant to 43 CFR 3106.3,  
and appeal pursuant to 43 CFR 3106.4.

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

cc: BLM, Colby, OCD (via BLM)

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 [Signature] TITLE Consultant (505) 466-8120 DATE 7-3-01  
(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE 9/5/01

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:

/s/ Joel Farrell

SEP - 5

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

\*See Instructions on Reverse Side

NMOCD

State of New Mexico  
Energy, Minerals & Mining Resources Department

Form C - 102

OIL CONSERVATION DIVISION  
2040 South Pacheco  
Santa Fe, NM 87505

☐ AMENDED REPORT

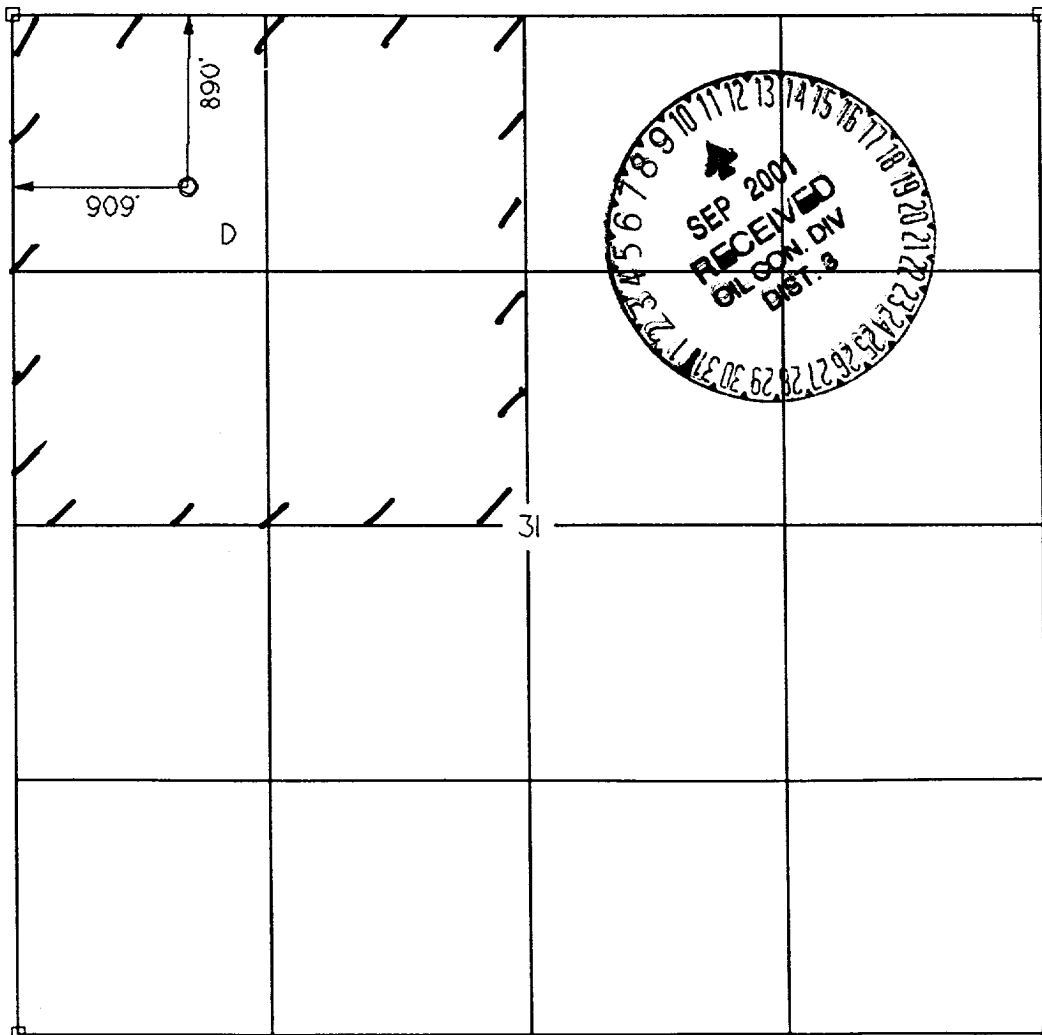
WELL LOCATION AND ACREAGE DEDICATION PLAT

APA Number <b>30045-30726</b>	Pool Code <b>86620</b>	Pool Name <b>TWIN MOUNDS PICTURE CLIFFS</b>
Property Code <b>28938</b>	Property Name <b>WF FEDERAL</b>	Well Number <b>31 - 2</b>
GRID No. <b>019219</b>	Operator Name <b>RICHARDSON OPERATING COMPANY</b>	Elevation <b>5360'</b>

Surface Location									
UL or Lot <b>D</b>	Sec. <b>31</b>	Twp. <b>30 N.</b>	Rge. <b>14 W.</b>	Lot lch.	Feet from >	North/South <b>NORTH</b>	Feet from >	East/West <b>WEST</b>	County <b>SAN JUAN</b>

Bottom Hole Location If Different From Surface									
UL or Lot	Sec.	Twp.	Rge.	Lot lch.	Feet from >	North/South	Feet from >	East/West	County
Dedication	Joint ?	Consolidation	Order No.						

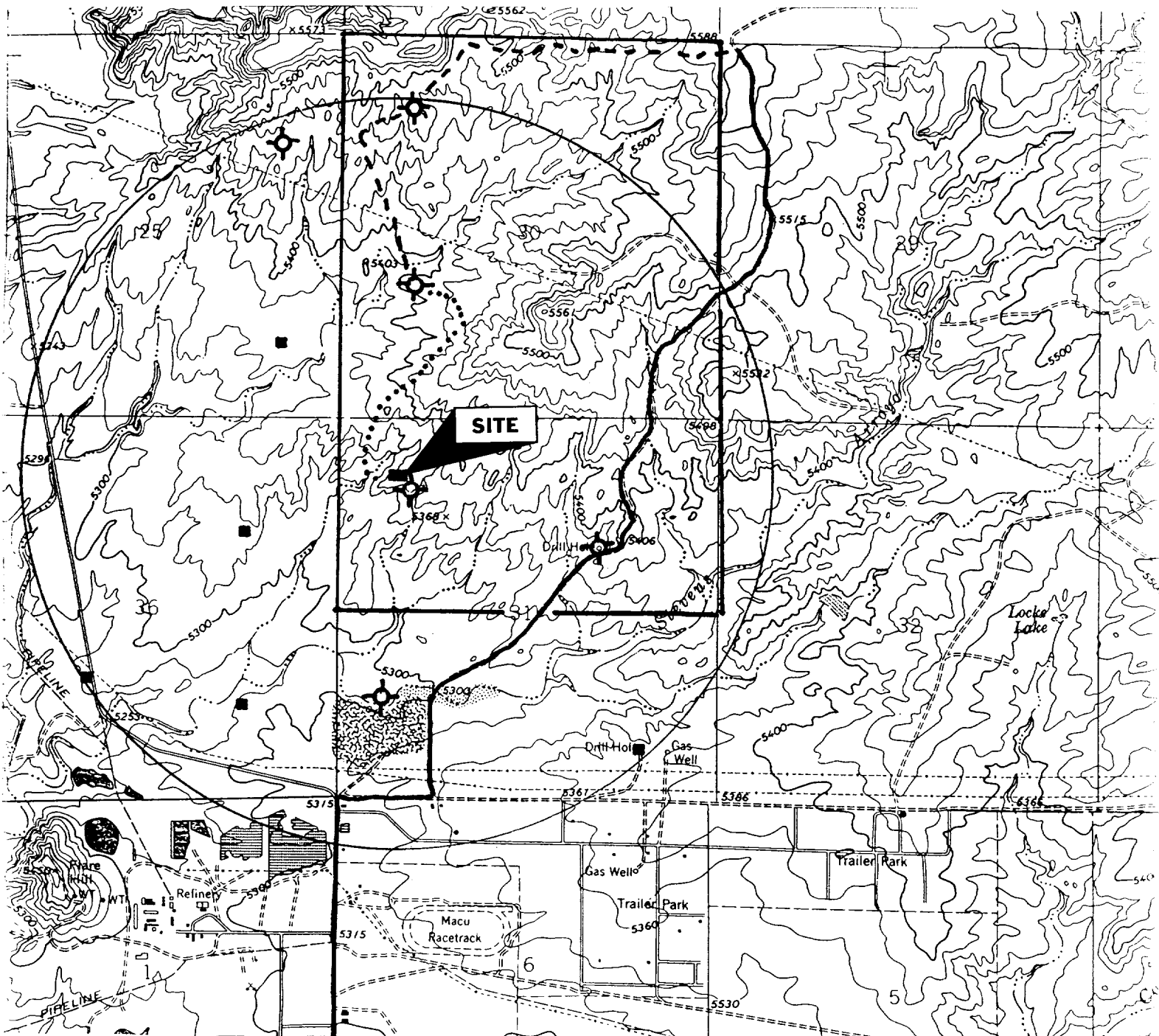
NO ALLOWABLE WILL ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



<b>OPERATOR CERTIFICATION</b> I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature <i>Brian Wood</i>	
Printed Name	<b>BRIAN WOOD</b>
Title	<b>CONSULTANT</b>
Date	<b>JULY 3, 2001</b>
<b>SURVEYOR CERTIFICATION</b> I hereby certify that the well location 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. Date of Survey	
Signature and Seal of Professional Surveyor 	

Richardson Operating Co.  
 WF Federal 31 #2  
 890' FNL & 909' FWL  
 Sec. 31, T. 30 N., R. 14 W.  
 San Juan County, New Mexico

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PROPOSED WELL: ■ LEASE: ┌  
 EXISTING WELL: ■ EXISTING ROAD: ~  
 P&A WELL: ★  
 31 #2 ROAD TO BE UPGRADED & PIPELINE: .....  
 30 #3 & 30 #4 ROAD TO BE UPGRADED & PIPELINE: ---

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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>
Kirtland Sh	000'	5'	+5,360'
Fruitland Fm	625'	630'	+4,735'
Pictured Cliffs Ss	720'	725'	+4,640'
Total Depth (TD)*	1,000'	1,005'	+4,360'

\* all elevations reflect the ungraded ground level of 5,360'

### 2. NOTABLE ZONES

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zones</u>
Fruitland Fm (625')	Fruitland Fm (625')	Fruitland Fm (625')
Pictured Cliffs (720')		

Water zones will be protected with casing, cement, and weighted mud. Fresh water encountered during drilling will be recorded by depth, cased, and cemented. Oil and gas shows will be tested for commercial potential based on the well site geologist's recommendations.

### 3. PRESSURE CONTROL

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.) Double ram or annular system with a rotating head will be used. All ram preventers and related equipment will be hydraulically tested at nipple up and after any use under pressure to 1000 psi.

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Blind rams will be hydraulically activated and checked for operational readiness each time pipe is pulled out of the hole. All checks of the BOP stack and equipment will be noted on the daily drilling report. BOP equipment will include a kelly cock, floor safety valve, and choke manifold all rated to 2000 psi. Maximum expected pressure is  $\approx 400$  psi.

#### 4. CASING & CEMENT

<u>Hole Size</u>	<u>O.D.</u>	<u>Weight (lb/ft)</u>	<u>Grade</u>	<u>Age</u>	<u>GL Setting Depth</u>
8-3/4"	7"	20	K-55	New	120'
6-1/4"	4-1/2"	10.5	K-55	New	1,000'

Surface casing will be cemented to surface with  $\approx 36$  cu. ft. ( $\approx 30$  sx) Class B + 2%  $\text{CaCl}_2$ . Volume is based on 100% excess, yield of 1.18 cu. ft./sk, and slurry weight of 15.6 PPG. WOC = 12 hours. Pressure test surface casing to 600 psi for 30 minutes.

Production casing hole will first be cleaned of rock chips by circulating at least 150% of hole volume with mud to the surface. Thirty barrels of fresh water will next be circulated. Lead with  $\approx 105$  cu. ft. ( $\approx 51$  sx) of Class B with 2% metasilicate (yield = 2.06 cu. ft./sk, slurry weight = 12.5 PPG). Tail with  $\approx 80$  cu. ft. ( $\approx 68$  sx) of Class B with 2%  $\text{CaCl}_2$  (yield = 1.18 cu. ft./sk, slurry weight = 15.6 PPG). Total cement volume is  $\approx 185$  cu. ft. based on 75% excess and circulating to surface.

Production casing will have 4-1/2" cement guide shoe and self fill float collar. Float will be placed one joint above the shoe. Four centralizers will be spaced on every other joint starting above the shoe. Four turbolizers will be placed on every other joint starting from the top of the well.