

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK  
 DRILL  DEEPEN  200 MAR 28 PM 2:41

b. TYPE OF WELL  
 OIL WELL  GAS WELL  OTHER  SINGLE ZONE  MULTIPLE ZONE

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

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)\*  
 At surface 830' FSL & 1130' FEL  
 At proposed prod. zone Same

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

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any) 1,130'  
 16. NO. OF ACRES IN LEASE 960  
 17. NO. OF ACRES ASSIGNED TO THIS WELL 160 SE 1/4

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 2,881'  
 19. PROPOSED DEPTH 1,300'  
 20. ROTARY OR CABLE TOOLS Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.) 5,470' ungraded ground  
 22. APPROX. DATE WORK WILL START\* May 1, 2000

5. LEASE DESIGNATION AND SERIAL NO.  
 NMNM-99003

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

7. UNIT AGREEMENT NAME  
 N/A

8. FARM OR LEASE NAME, WELL NO.  
 WF Fed. 30 #2

9. API WELL NO.  
 30-045-30201

10. FIELD AND POOL, OR WILDCAT  
 Twin Mounds PC Ext. *Kirtland field*

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
 P 30-30n-14w NMMP

12. COUNTY OR PARISH  
 San Juan

13. STATE  
 NM

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
8-3/4"	7" (K-55)	20#	120'	~36 cu ft & to surface
6-1/4"	4-1/2" (K-55)	10.5#	1,300'	~235 cu ft & to surface

On sited with Neel McBride  
 Archaeology report# LAC 9976i



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: BLM (& OCD), Colby

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 *Jim Lovato* TITLE Consultant (505) 466-8120 DATE 3-26-00

(This space for Federal or State office use)

PERMIT NO. /s/ Jim Lovato 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 MAY 24 2000

\*See Instructions On Reverse Side

*OK* *CTP*

District I  
 PO Box 980, Hobbs, NM 88241-1980  
 District II  
 PO Drawer DD, Artesia, NM 88211-0719  
 District III  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV  
 PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
 Energy, Minerals & Natural Resources Department

Form C-102  
 Revised February 21, 1994  
 Instructions on back  
 Submit to Appropriate District Office  
 State Lease - 4 Copies  
 Fee Lease - 3 Copies

OIL CONSERVATION DIVISION  
 PO Box 2088  
 Santa Fe, NM 87504-2088

200 MAR 23 PM 2:41

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-045-30201		Pool Code 86620	Well Name TWIN MOUNDS PC EX
Property Code 23339	Property Name WF Federal		Well Number 30-2
OCRID No. 019219	Operator Name RICHARDSON OPERATING COMPANY		Elevation 5470

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
P	30	30 N	14 W		830	South	1130	East	San Juan

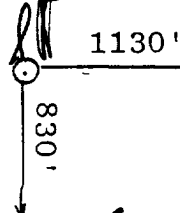
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres 160 SEA	13 Joint or Infill	14 Consolidation Code	15 Order No.
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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			17 OPERATOR CERTIFICATION 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: BRIAN WOOD Title: CONSULTANT Date: MAR. 26, 2000
			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. Date of Survey: 3-22-00 Signature: <i>Gerald S. Huddleston</i> 
			Certificate Number



Richardson Operating Co.  
WF Federal 30 #2  
830' FSL & 1130' FEL  
Sec. 30, T. 30 N., R. 14 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>
Kirtland Sh	000'	5'	+5,470'
Fruitland Fm	500'	505'	+4,970'
Pictured Cliffs Ss	750'	755'	+4,720'
Total Depth (TD)*	1,300'	1,305'	+4,170'

\* all elevations reflect the ungraded ground level of 5,470'

### 2. NOTABLE ZONES

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zones</u>
Fruitland Fm (500')	Fruitland Fm (500')	Fruitland Fm (500')
Pictured Cliffs (750')		

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  $\approx$ 520 psi.

#### 4. CASING & CEMENT

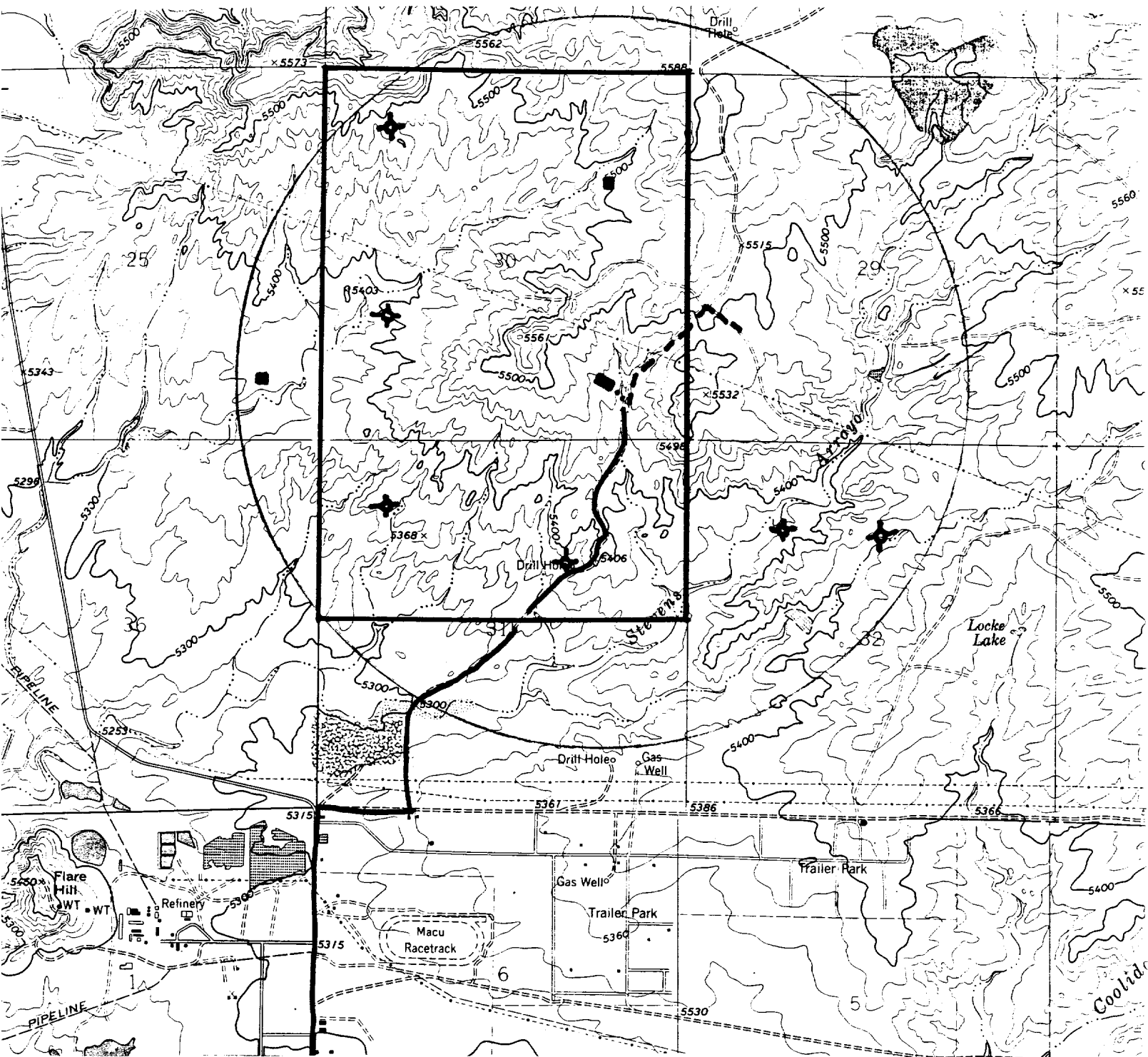
<u>Hole Size</u>	<u>O.D.</u>	<u>Weight (lb/ft)</u>	<u>Grade</u>	<u>Age</u>	<u>GL Setting Depth</u>
8-3/4"	7"	20	K-55	New	120'
6-1/4"	4-1/2"	10.5	K-55	New	1,300'

Surface casing will be cemented to surface with  $\approx$ 36 cu. ft. ( $\approx$ 30 sx) Class B + 2% CaCl<sub>2</sub>. 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  $\approx$ 135 cu. ft. ( $\approx$ 65 sx) of Class B with 2% metasilicate (yield = 2.06 cu. ft./sk, slurry weight = 12.5 PPG). Tail with  $\approx$ 100 cu. ft. ( $\approx$ 85 sx) of Class B with 2% CaCl<sub>2</sub> (yield = 1.18 cu. ft./sk, slurry weight = 15.6 PPG). Total cement volume is  $\approx$ 235 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. Five centralizers will be spaced on every other joint starting above the shoe. Five turbolizers will be placed on every other joint starting from the top of the well.

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PROPOSED WELL:      EXISTING WELL:      LEASE:

NEW ROAD:      EXISTING ROAD:

PROPOSED PIPELINE ROUTE:  
 (not to be authorized by APD)