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Form 3160-3  
(September 2001)FORM APPROVED  
OMB No. 1004-0136  
Expires January 31, 2004UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

070 Farmington, NM

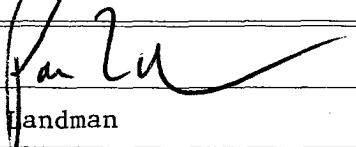
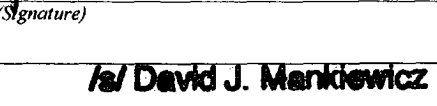
## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-10758	
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A	
2. Name of Operator Richardson Operating Company		7. If Unit or CA Agreement, Name and No. N/A 33032	
3a. Address 3100 La Plata Highway, Farmington, NM 87401	3b. Phone No. (include area code) 505/564-3100	8. Lease Name and Well No. Western Gas #2	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1863 FSL 844 FEL At proposed prod. zone Same		9. API Well No. 30-045-31887	
10. Field and Pool, or Exploratory Basin, Fruitland, Coal Twin Mounds PC Ext.		11. Sec., T., R., M., or Blk. and Survey or Area 1 Sec. 1-T29N, R15W, NMPM	
14. Distance in miles and direction from nearest town or post office* 1 mile north of Kirtland, NM		12. County or Parish San Juan	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 844'	16. No. of Acres in lease 1676.88	17. Spacing Unit dedicated to this well SE/4- PC 160.00 Acres E/2-FC 320.32 Acres	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 2182'	19. Proposed Depth 750'	20. BLM/BIA Bond No. on file #158293308 (BLM Nationwide)	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 5296' GR	22. Approximate date work will start* 10-15-03	23. Estimated duration 2 Weeks	

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

- |   |  |
|---|--|
| 1. Well plat certified by a registered surveyor.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification.   |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Paul Lehrman	Date 9/5/03
Title Landman		
Approved by (Signature) 	Name (Printed/Typed) David J. Mankiewicz	Date SEP 29 2003
Title /s/ David J. Mankiewicz	Office	

Application approval does not warrant or certify the 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, are attached.

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.

\*(Instructions on reverse)

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

NMOC

## Form C - 102

☐ AMENDED REPORT

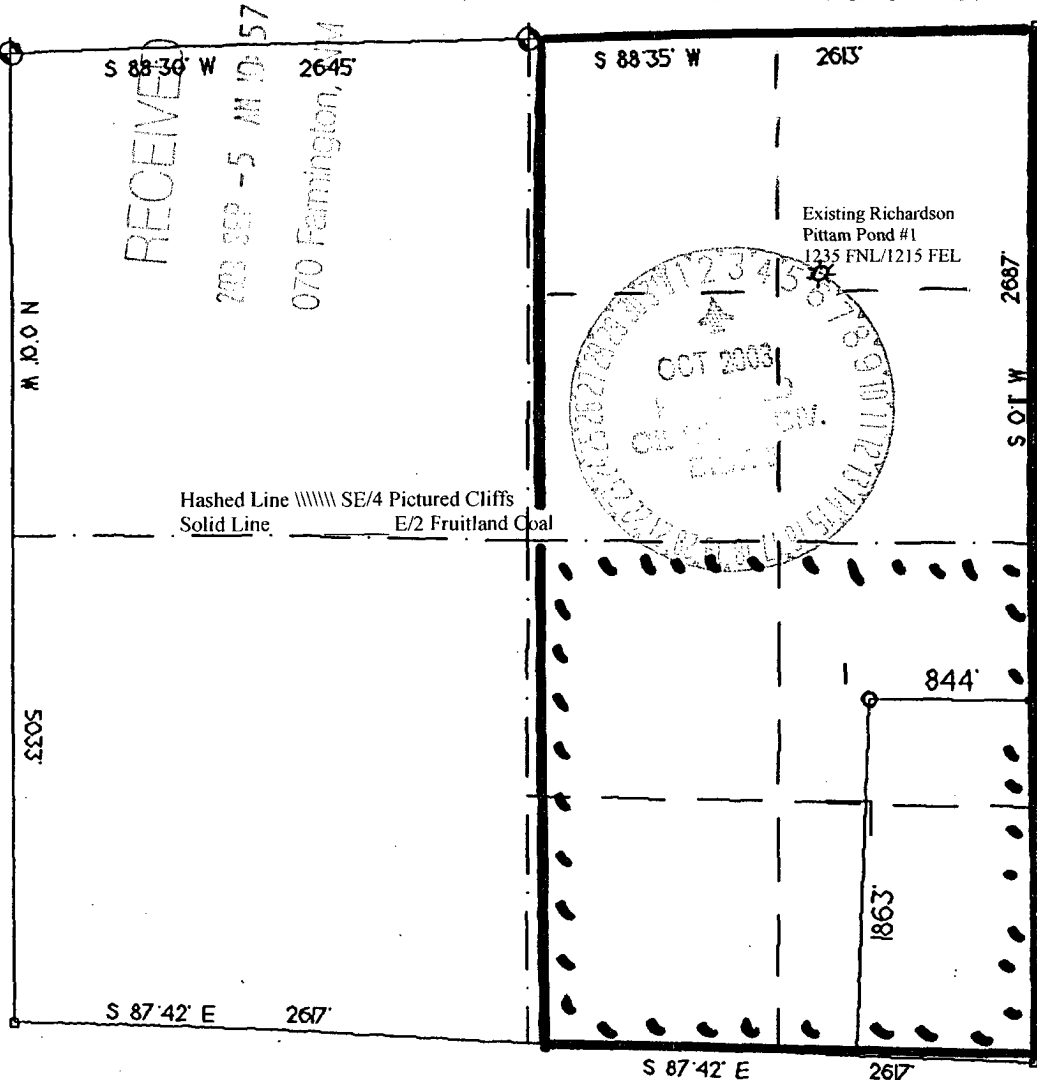
APA Number 30-045- 31887	Pool Code 71629/86620	Pool Name Basin Fruitland Coal/Twin Mounds PC Ext.
Property Code 33032	Property Name Western Gas	Well Number 2
OGRD No. 019219	Operator Name RICHARDSON OPERATING COMPANY	Elevation 5296'

Surface Location									
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from>	North/South	Feet from>	East/West	County
1	1	29 N.	15 W.		1863'	SOUTH	844'	EAST	SAN JUAN

Bottom Hole Location If Different From Surface									
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from >	North/South	Feet from >	East/West	County

Dedication	Joint ?	Consolidation	Order No.
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NO ALLOWABLE WILL ASSIGNED TO THIS COMPLETION UNTL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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

Signature \_\_\_\_\_

Printed Name

Paul Lerhman

**Title**

Landman

Date \_\_\_\_\_

9/5/03

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 Professional Seal

6844

**Richardson Operating Company  
Western Gas # 2  
1863' FSL & 844' FEL  
Section 1, T29N, R15W, NMPM  
San Juan County, New Mexico**

**DRILLING PROGRAM**

**1. ESTIMATED FORMATION TOPS:**

<u>Formation</u>	<u>GL Depth</u>	<u>KB Depth</u>	<u>Subsea Elevation</u>
Kirtland Sh	000'	5'	+5,301'
Fruitland Fm	425'	430'	+4,876'
Pictured Cliffs Ss	546'	551'	+4,755'
Total Depth (TD)*	750'	755'	+4,551'

\*All elevations reflect the ungraded ground level of 5,296'

**2. NOTABLE ZONES:**

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zones</u>
Fruitland Fm (425')	Fruitland Fm (425')	Fruitland Fm (425')
Pictured Cliffs (546')		

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 representatives recommendations.

**3. PRESSURE CONTROL:**

The drilling contract has not yet been awarded, thus the exact BOP model to be used is unknown. (A typical 2,000 psi model has been attached to the end of the drilling program.) 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.

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 floor safety valve and choke manifold rated to 2000 psi. Maximum expected pressure is 520 psi.

**Drilling Program**  
**Richardson Operating Company**

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**4. CASING AND CEMENTING PROGRAM:**

<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"	17	J-55	New	120'
6 1/4"	4 1/2"	10.5	J-55	New	750'

Surface casing will be cemented to surface with  $\approx 36$  cu.ft. ( $\approx 30$  sx) Class B + 2% CaCl. 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 drilling fluid to surface. Thirty barrels of fresh water will then be circulated. Lead with  $\approx 90$  cu.ft. ( $\approx 45$  sx) Class B with 2% metasilicate (yield = 2.06 cu.ft./sk, slurry weight = 12.5 ppg). Tail in with  $\approx 70$  cu.ft. ( $\approx 60$  sx) Class B with 2% CaCl (yield = 1.18 cu.ft./sk, weight = 15.6 ppg). Total cement volume is  $\approx 160$  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 every other joint starting above the shoe. Four turbolizers will be placed every other joint starting from the top of the well.

**5. MUD PROGRAM:**

Surface casing hole will be drilled with fresh water. Production casing hole will be drilled with a fresh water polymer mud. Weighting material will be drill solids or, if needed, barite. Maximum expected mud weight will be 8.7 ppg. Sufficient material to maintain mud properties, control lost circulation, and contain a blowout will be available at the well while drilling.

**6. CORING, TESTING, & LOGGING:**

No cores or DSTs are planned. A cased hole CNL/GR will be run from TD to surface.

**7. DOWNHOLE CONDITIONS:**

No abnormal pressures, temperatures, nor hydrogen sulfide are expected. Maximum pressure will be approximately  $\approx 520$  psi.

**8. OTHER INFORMATION:**

The anticipated spud date is October 15, 2003. It should take 5 days to drill and 1 week to complete the well.