

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

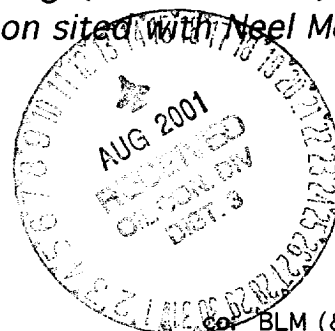
**MULTIPLE
ZONE**

23. PROPOSED CASING AND CEMENTING PROGRAM

This action is subject to technical and procedural review pursuant to 43 CFR 3105.3 and appeal pursuant to 43 CFR 3105.4.

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

Archaeology report LAC 2000-31h submitted Sept. 8, 2000.



24

10-6-00

(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:

AUG - 8

APPROVED BY

/s/ Joel Farrell

1171 F

DATE _____

***See Instructions On Reverse Side**

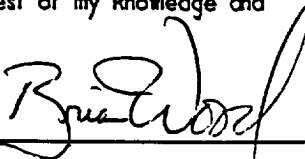
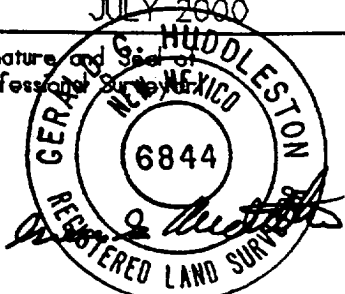
Title 18 U.S.C. § 1001 - false information knowingly and willfully to make in any statement required by the

Form C - 102

Santa Fe, NM 87505

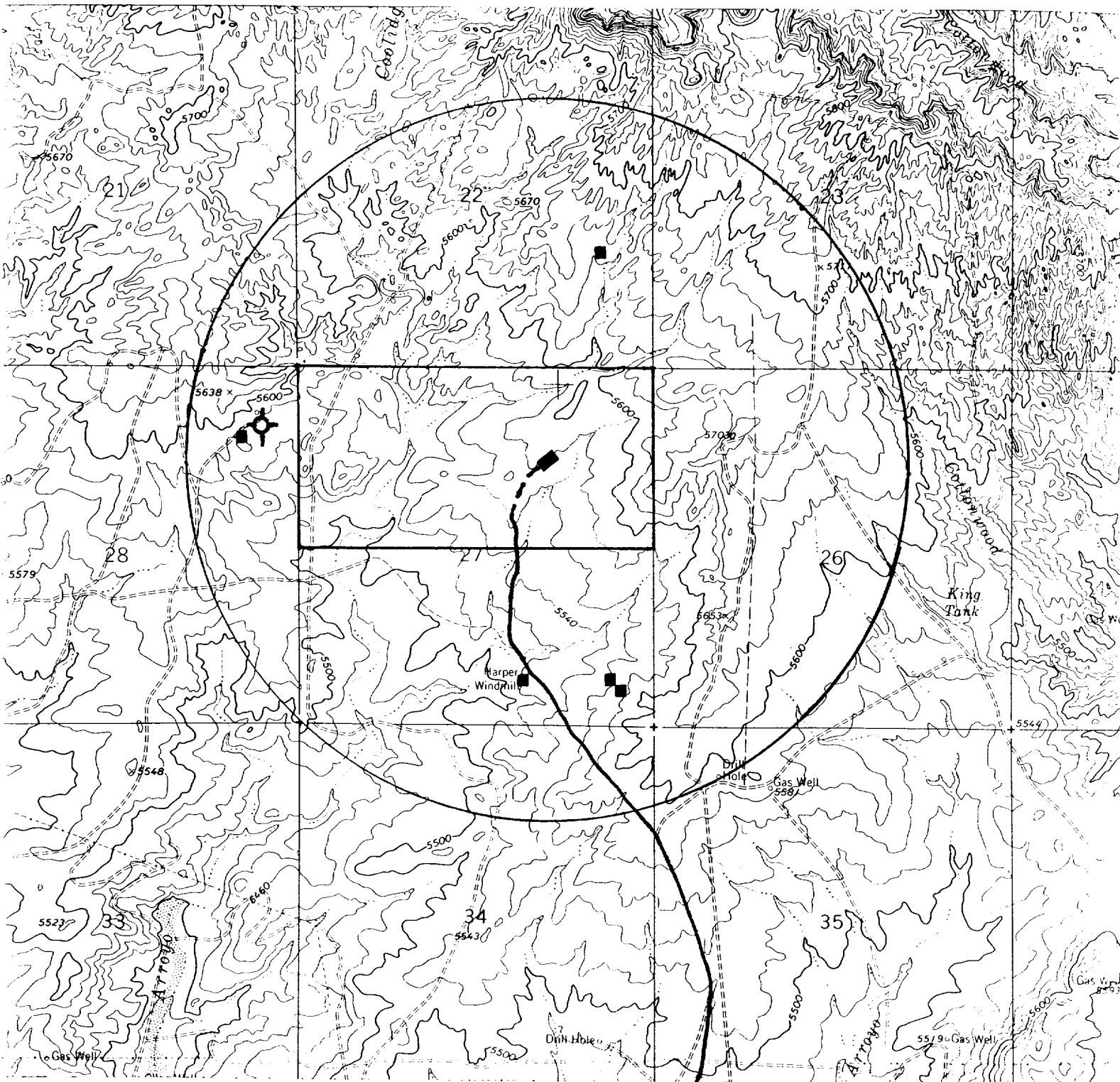
250 OCT 12 PM 3:03 ☒ AMENDED REPORT

Dedication 160 HP 320 BPC	Joint ?	Consolidation	Order No.
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OPERATOR CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
Signature	
Printed Name	BRIAN WOOD
Title	CONSULTANT
Date	OCT. 6, 2000
SURVEYOR CERTIFICATION	
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	
JULY 2000	
Signature and Seal of Professional Surveyor	

Richardson Operating Co.
 WF Federal 27 #1
 1350' FNL & 1540' FEL
 Sec. 27, T. 30 N., R. 14 W.
 San Juan County, New Mexico

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PROPOSED WELL: ■

EXISTING WELL: ●

LEASE: ┘

ROAD TO BE BUILT: - - -

EXISTING ROAD: ~~~~~

P&A WELL: ⊕

PERMITS WEST INC.
 PROVIDING PERMITS FOR LAND USERS

Richardson Operating Co.
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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'	+5,580'
Fruitland Coal	1,000'	1,005'	+4,580'
Pictured Cliffs Ss	1,100'	1,105'	+4,480'
Total Depth (TD)*	1,400'	1,405'	+4,180'

* all elevations reflect the ungraded ground level of 5,580'

2. NOTABLE ZONES

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zones</u>
Fruitland Coal (1,000')	Fruitland Coal (1,000')	Fruitland Coal (1,000')
Pictured Cliffs (1,100')		

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. It, or a comparable model, will be used.) 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 ≈ 560 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	1,400'

Surface casing will be cemented to surface with ≈ 36 cu. ft. (≈ 30 sx) Class B + 2% 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 ≈ 145 cu. ft. (≈ 70 sx) of Class B with 2% metasilicate (yield = 2.06 cu. ft./sk, slurry weight = 12.5 PPG). Tail with ≈ 110 cu. ft. (≈ 95 sx) of Class B with 2% CaCl_2 (yield = 1.18 cu. ft./sk, slurry weight = 15.6 PPG). Total cement volume is ≈ 240 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.