Form 3160-3
(July 1992)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0136
Expires: February 28, 1995

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

5. LEASE DESIGNATION AND SERIAL NO.: NMNM-97841

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

1a. TYPE OF WORK: DRILL ☑ DEEPEN ☐

7. UNIT AGREEMENT NAME: N/A

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☑ OTHER — SINGLE ZONE ☑ MULTIPLE ZONE ☐

8. FARM OR LEASE NAME, WELL NO.: WF Federal 27 #2

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

9. API WELL NO.: 30-045-30689

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

10. FIELD AND POOL, OR WILDCAT: Harper Hill PC [redacted]t.

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1021' FNL & 1940' FWL

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 27-30n-14w NMPM

At proposed prod. zone: Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 6 air miles WNW of Farmington

12. COUNTY OR PARISH: San Juan | 13. STATE: NM

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
1021'	320	160
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
1829'	1,200'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 5,532' ungraded

22. APPROX. DATE WORK WILL START*: Aug. 1, 2001

23. 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	1,200'	≈220 cu. ft. & to surface

Archaeology report LAC-2000-73f filed 2-28-2001.

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4.

[redacted] ARE ATTACHED
[redacted] TO COMPLY WITH ATTACHED
"GENERAL REQUIREMENTS"

RECEIVED
070 FARMINGTON NM
AUG 2001
OIL CON. DIV.
DIST. 3

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 6-2-01

(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 2

APPROVED BY /s/ Joel Farrell TITLE _____ DATE _____

*See Instructions On Reverse Side

K1

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	Pool Code	Pool Name
30-045-30689	78160	HARPER HILL PICTURED CLIFFS [redacted].

Property Code	Property Name	Well Number
28632	WF FEDERAL	27 - 2
OGRID No. 019219	Operator Name: RICHARDSON OPERATING COMPANY	Elevation 5532'

Surface Location

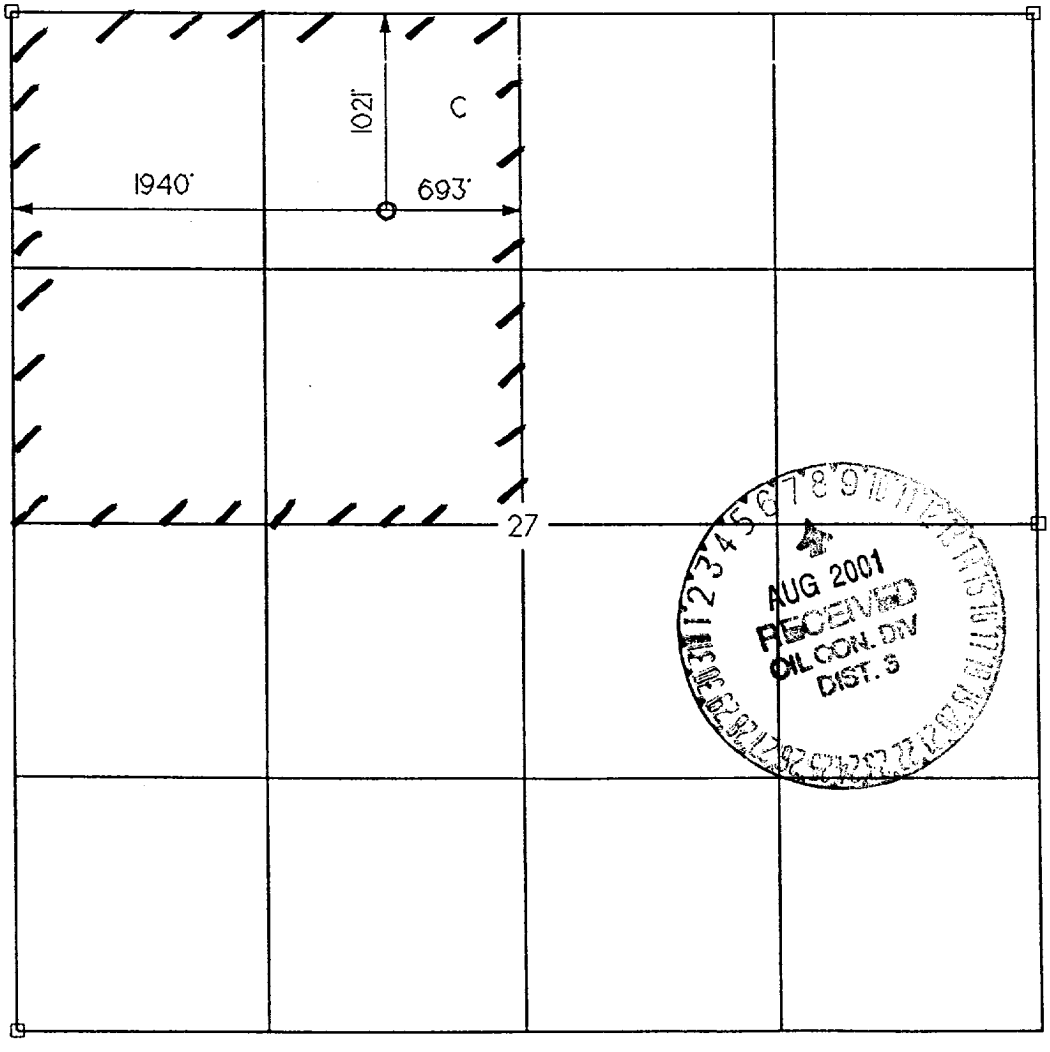
UL or Lot	Sec.	Twp.	Rge.	Lot Idn.	Feet from>	North/South	Feet from>	East/West	County
C	27	30-N.	14-W.		1021	NORTH	1940	WEST	SAN JUAN

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.

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



AUG 2001
RECEIVED
OIL CON. DIV.
DIST. 3

OPERATOR CERTIFICATION

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

Signature: Brian Wood

Printed Name: BRIAN WOOD

Title: CONSULTANT

Date: JUNE 2, 2001

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.

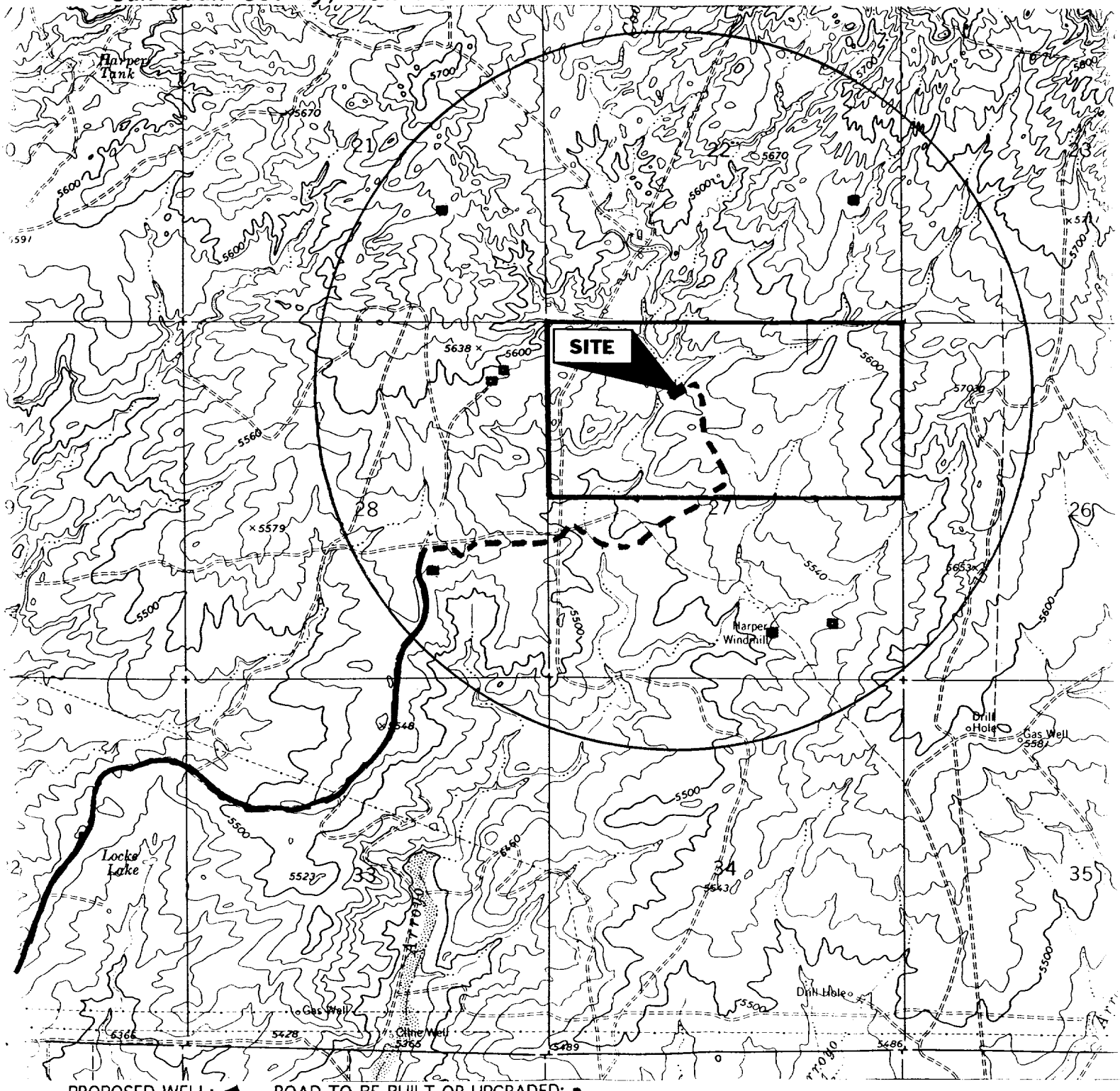
Date of Survey

17 JANUARY 2001

Signature and Seal of Professional Surveyor

GERALD G. HUDDLESTON
NEW MEXICO
6844
REGISTERED LAND SURVEYOR

Richardson Operating Co.
WF Federal 27 #2
1021' FNL & 1940' FWL
Sec. 27, T. 30 N., R. 14 W.
San Juan County, New Mexico



PROPOSED WELL: ● ROAD TO BE BUILT OR UPGRADED: ~ ~

EXISTING WELL: ■ EXISTING ROAD: ~~~

LEASE: ┌

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS

Richardson Operating Co.
WF Federal 27 #2
1021' FNL & 1940' FWL
Sec. 27, T. 30 N., R. 14 W.
San Juan County, New Mexico

Drilling Program

1. ESTIMATED FORMATION TOPS

Formation Name	GL Depth	KB Depth	Subsea Elevation
Kirtland Sh	000'	5'	+5,532'
Basal Fruitland Coal	1,060'	1,065'	+4,472'
Pictured Cliffs Ss	1,075'	1,080'	+4,457'
Total Depth (TD)*	1,200'	1,405'	+4,332'

* all elevations reflect the ungraded ground level of 5,532'

2. NOTABLE ZONES

Gas Zones	Water Zones	Coal Zones
Fruitland Coal (1,060')	Fruitland Coal (1,060')	Fruitland Coal (1,060')
Pictured Cliffs (1,075')		

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.

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 ≈480 psi.

4. CASING & CEMENT

Hole Size	O.D.	Weight (lb/ft)	Grade	Age	GL Setting Depth
8-3/4"	7"	20	K-55	New	120'
6-1/4"	4-1/2"	10.5	K-55	New	1,200'

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 pounds per gallon. 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 ≈125 cu. ft. (≈61 sx) of Class B with 2% metasilicate (yield = 2.06 cu. ft./sk, slurry weight = 12.5 pounds per gallon). Tail with ≈95 cu. ft. (≈85 sx) of Class B with 2% $CaCl_2$ (yield = 1.18 cu. ft./sk, slurry weight = 15.6 pounds per gallon). Total cement volume is ≈220 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.