

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

SINGLE
ZONE ☒

MULTIPLE
ZONE ☐

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

1975' FSL & 670' FEL

At proposed prod. zone

Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

6 air miles SW of Farmington

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drig. unit line, if any)

670'

16. NO. OF ACRES IN LEASE

1,431.12

17. NO. OF ACRES ASSIGNED
TO THIS WELL

SE 1/4 160

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

1,537'

19. PROPOSED DEPTH

1,200'

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

5,572' ungraded

22. APPROX. DATE WORK WILL START*

Upon Approval

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'	≈225 cu. ft. & to surface

Well name & number have changed from Notice of Staking ("Navajo 20 #4")
etc. to correspond with Richardson's new nomenclature ("NV Navajo 20 #4")

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: BIA, BLM, OCD (via BLM), Tribe, Van Blaricom

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

TITLE

DATE

Consultant (505) 466-8120

3-31-02

(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:

/s/ David J. Mankiewicz

APPROVED BY

TITLE

DATE

MAR 27 2003

*See Instructions On Reverse Side

NMOC

State of New Mexico
Energy, Minerals & Mining Resources Department
OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Form C - 102

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

APA Number 30-045-31056	Pool Code 79680	Pool Name WEST KUTZ PICTURED CLIFFS EXTEN.
Property Code 32175	Property Name NV NAVAJO 20	Well Number 4
OGRIID No. 019219	Operator Name RICHARDSON OPERATING COMPANY	Elevation 5572'

Surface Location

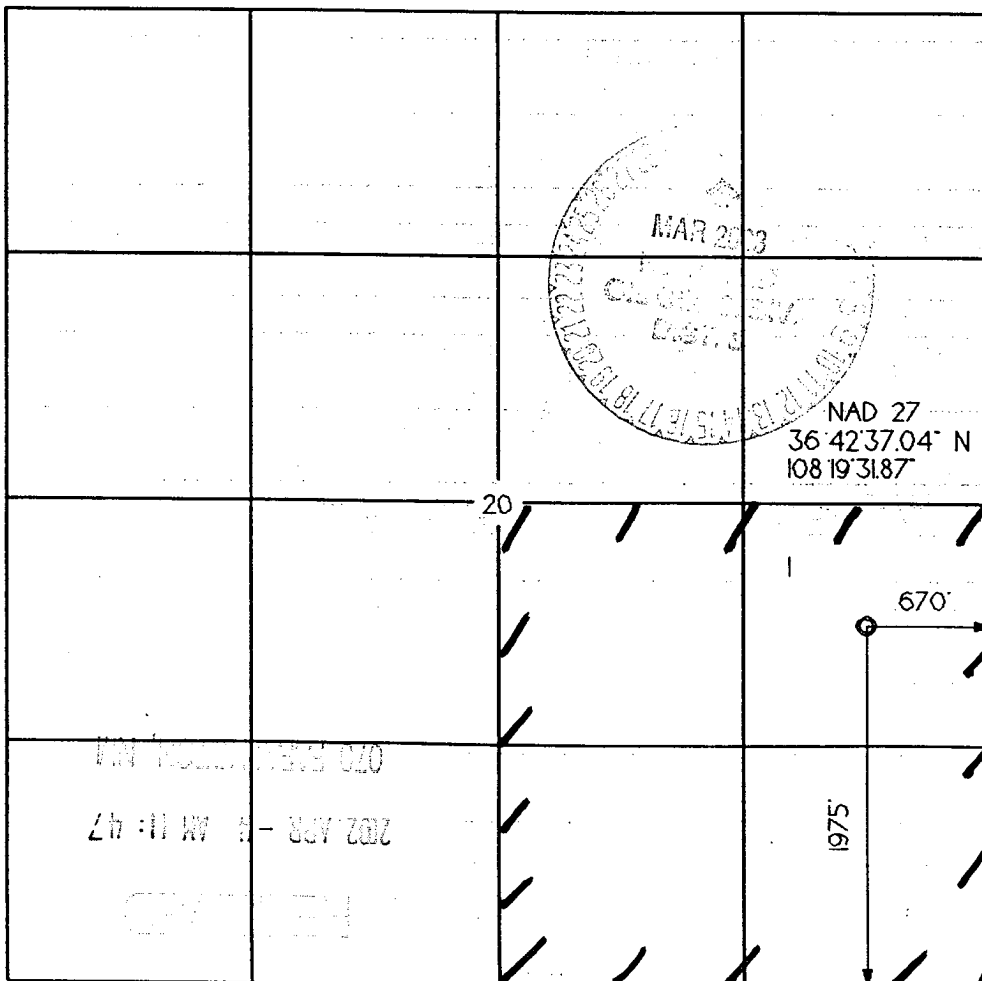
UL or Lot	Sec.	Twp.	Rge.	Lot Idh.	Feet from	North/South	Feet from	East/West	County
1	20	29, N.	14, W.		1975'	SOUTH	670'	EAST	SAN JUAN.

Bottom Hole Location if Different From Surface

UL or Lot	Sec.	Twp.	Rge.	Lot Idh.	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



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 **MAR. 31, 2002**

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
0-14-'02

Signature and Seal of Professional Surveyor

Gerald G. Huddleston
GERALD G. HUDDLESTON
NEW MEXICO
6844
REGISTERED LAND SURVEYOR

Richardson Operating Co.
NV Navajo 20 #4
1975' FSL & 670' FEL
Sec. 20, T. 29 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>Elevation</u>
Kirtland Shale	000'	5'	+5,572'
Fruitland	675'	680'	+4,897'
Pictured Cliffs Ss	937'	942'	+4,635'
Total Depth (TD)*	1,200'	1,205'	+4,390'

* all elevations reflect the ungraded ground level of 5,572 '

2. NOTABLE ZONES

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zones</u>
Fruitland (675')	Fruitland (675')	Kirtland Shale (000')
Pictured Cliffs (937')		Fruitland (675')

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	1,200'

Surface casing will be cemented to surface with \approx 36 cubic feet (\approx 30 sacks) Class B + 2% CaCl_2 . Volume is based on 100% excess, yield of 1.18 cubic feet per sack, and a slurry weight of 15.6 pounds per gallon. W.O.C. = 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 140 cubic feet (\approx 68 sacks) Class B with 2% metasilicate (yield = 2.06 cubic feet per sack, slurry weight = 12.5 pounds per gallon). Tail with \approx 85 cubic feet (\approx 72 sacks) of Class B with 2% CaCl_2 (yield = 1.18 cubic feet per sack, slurry weight = 15.6 pounds per gallon). Total cement volume is \approx 225 cubic feet 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.