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Form 3160-3  
(September 2001)

2004 APR 29 PM 3:36

FORM APPROVED  
OMB No. 1004-0136  
Expires January 31, 2004

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM-101552
6. If Indian, Allottee or Tribe Name N/A
7. If Unit or CA Agreement, Name and No. N/A
8. Lease Name and Well No. Salty Dog #4
9. API Well No. 30-045- 32334
10. Field and Pool, or Exploratory SWD; Mesa Verde
11. Sec., T., R., M., or Blk. and Survey or Area K Sec. 1-T30N-R14W
12. County or Parish San Juan
13. State NM

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		
2. Name of Operator Richardson Operating Company		
3a. Address 3100 La Plata Highway, Farm., NM	3b. Phone No. (include area code) 564-3100	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2580' FSL & 1890' FWL At proposed prod. zone Same		
14. Distance in miles and direction from nearest town or post office* 7 miles NW of Farmington, NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 750'	16. No. of Acres in lease 635.16	17. Spacing Unit dedicated to this well N/A Disposal Well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 735'	19. Proposed Depth 4400'	20. BLM/BIA Bond No. on file BLM Nationwide #158293308
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 5726' GL	22. Approximate date work will start* Upon approval	23. Estimated duration One month

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 4/28/04
Title Petroleum Landman		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 5-20-04
Title AFM	Office FFO	

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.

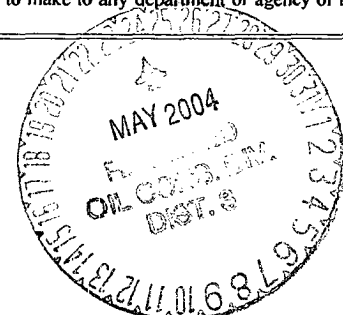
Conditions of approval, if any, are attached.

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)

HOLD ON FOR SWD order

NMOCD



DRILLING OPERATIONS AUTHORIZED ARE  
SUBJECT TO THE REQUIREMENTS 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

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- <b>32334</b>	Pool Code 96160	Pool Name SWD; Mesa Verde
Property Code <b>24806</b>	Property Name SALTY DOG <b>SWD</b>	Well Number 4
OGRD No. 19219	Operator Name RICHARDSON OPERATING COMPANY	Elevation 5726'

Surface Location

UL or Lot	Sec.	Twp.	Rge.	Lot Id.	Feet from >	North/South	Feet from >	East/West	County
K	1	30 N.	14 W.		2580'	SOUTH	1890'	WEST	SAN JUAN

Bottom Hole Location If Different From Surface

UL or Lot	Sec.	Twp.	Rge.	Lot Id.	Feet from >	North/South	Feet from >	East/West	County

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

N 89°58' E

5310'

- from BLM/GLO
- \*\* calculated

WGS 84  
36 50°33.83' N  
108 15°46.63' W

1890'

2580'

East •

5238' •



**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

Paul Lehrman

Title

Landman

Date

4/27/04

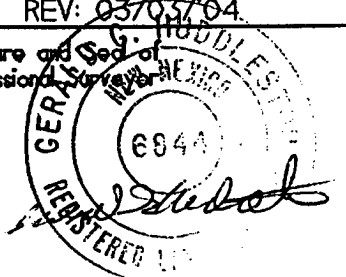
**SURVEYOR CERTIFICATION**

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

REV: 037037'04.

Signature and Seal of Professional Surveyor



**Richardson Operating Company  
Salty Dog #4 Disposal Well  
2580' FSL & 1890' FWL  
Section 1, T30N, R14W, 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>
Ojo Alamo	448'	460'	+5,278'
Kirtland Shale	623'	635''	+5,103'
Fruitland Fm	1048'	1060'	+4,678'
Fruitland Coal	1433'	1445'	+4,293'
Pictured Cliffs	1448'	1460'	+4,278'
Lewis Shale	1668'	1680'	+4,058'
Cliff House	3088'	3100'	+2,638'
Menefee	3228'	3240'	+2,498'
Point Lookout	3928'	3940'	+1,798'
Mancos Shale	4,298'	4310'	+1,428'
Total Depth (TD)*	4400'	4412'	+1,326'

\*All elevations reflect the ungraded ground level of 5,726'

**2. NOTABLE ZONES:**

<u>Gas Zones</u>	<u>Water Zones</u>	<u>Coal Zones</u>
Fruitland	Fruitland Coal/Pictured Cliffs	Fruitland Coal
Pictured Cliffs	Mesa Verde	Menefee

Water zones will be protected with casing, cement, and fresh water mud. Fresh water encountered during drilling will be recorded by depth. Centralizers will be run through usable water zones to ensure that the casing is centralized through these zones. Number of centralizers will be based on API standards. A turbulizing centralizer will be run to ensure an adequate cement procedure across the Ojo Alamo and the Fruitland Coal formation.

**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, kelly cock and choke manifold rated to 2000 psi. Maximum expected pressure is less than 1400 psi.

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

Page Two

**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>
12 1/4"	8 5/8"	24	J-55	New	200'
7 7/8"	5 1/2"	15.5	J-55	New	4400'

Surface casing will be cemented to surface with <sup>177</sup>≈165 cu.ft. (≈150 sx) Class B containing 1/4#/sk cello flake + 2% CaCl. Yield = 1.18 cu. ft/sk; slurry weight = 15.6 ppg. Volume is based on 100% excess. WOC = 12 hours. Pressure test surface casing to 600 psi for 30 minutes.

Production casing hole will first be cleaned by circulating at least 150% of hole volume with drilling fluid to surface. Preced cement with 20 bbl's of Poz slurry with 2% Kcl. Lead with ≈800 cu.ft. (≈410 sx) Halliburton light cement 65:35 Poz with 1/4#/sk cello flake, 5#/sx Gilsonite, 12.4 ppg, yield of 1.96. Tail in with <sup>363</sup>≈345 cu.ft. (≈275 sx) 50:50 Poz with 2% CaCl, 1/4#/sk cello flake, 5#/sx Gilsonite, 13.5 ppg, yield 1.32. Total cement volume is <sup>1165</sup>≈1145 cu.ft. based on 100% excess and circulating to surface. Production casing will be cemented to surface.

**5. MUD PROGRAM:**

Surface casing hole will be drilled a fresh water mud. 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 9.3 ppg. Sufficient material to maintain mud properties, control lost circulation, and contain a blowout will be available at the well while drilling.

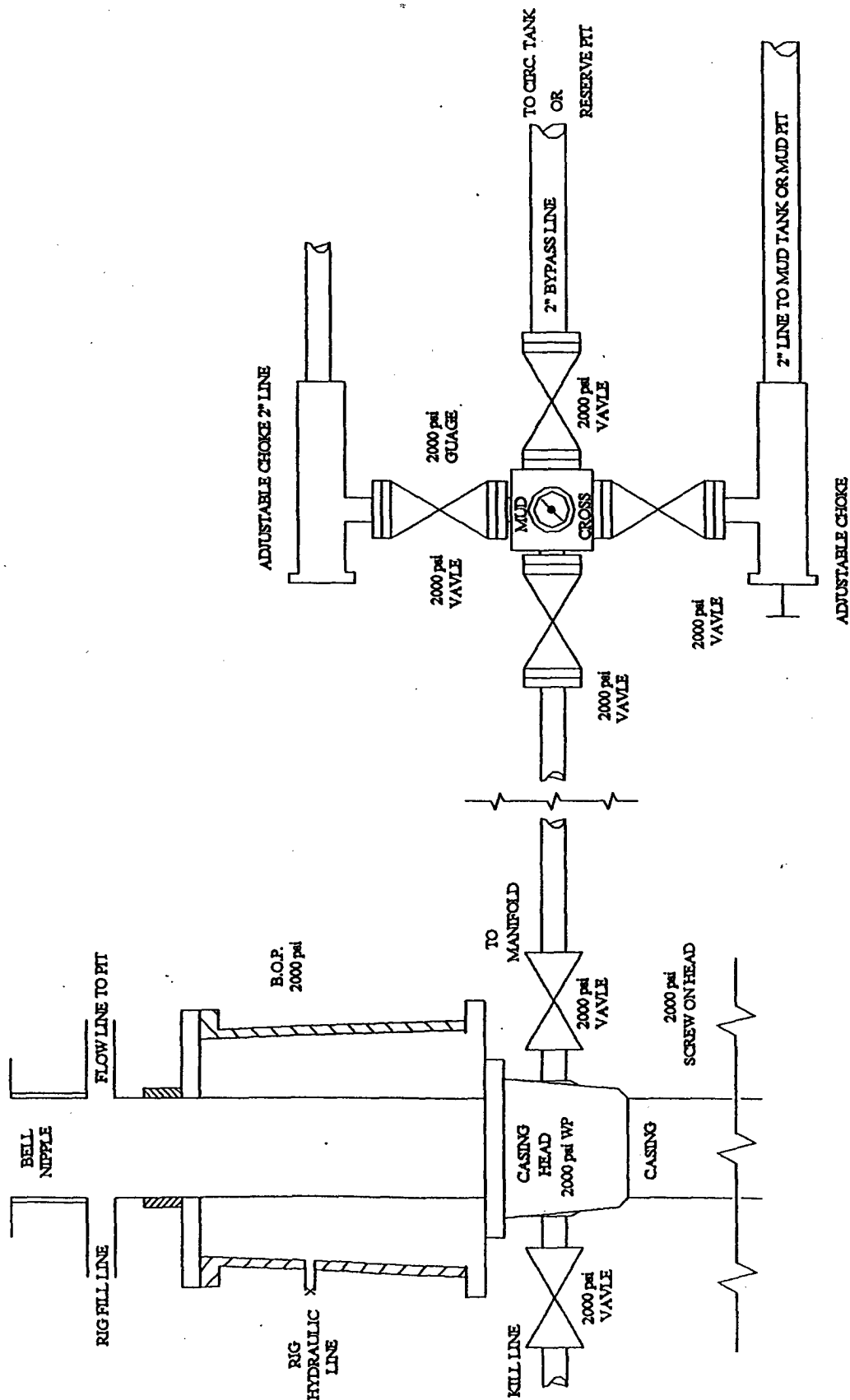
**6. CORING, TESTING, & LOGGING:**

No cores or DSTs are planned. An open hole SP/Induction log will be run. A cased hole suite of CCL/CBL/CNL/GR will be run from TD to surface. The water in the Mesa Verde formation will be tested to assure compatibility with the proposed injection fluids.

**7. DOWNHOLE CONDITIONS:**

No abnormal pressures, temperatures, nor hydrogen sulfide are expected. Although no hydrogen sulfide is expected while drilling, if encountered appropriate safety measures will be instituted. Maximum pressure will be approximately ≈1400 psi.

# BLOW OUT PREVENTER (B.O.P.)



Submit 3 Copies To Appropriate District  
Office  
**District I**  
1625 N. French Dr., Hobbs, NM 88240  
**District II**  
1301 W. Grand Ave., Artesia, NM 88210  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
**District IV**  
1220 S. St. Francis Dr., Santa Fe, NM  
87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-103  
March 4, 2004

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-045-
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Disposal Well <input type="checkbox"/>		5. Indicate Type of Lease Federal <input checked="" type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/> N/A <input type="checkbox"/>
2. Name of Operator Richardson Operating Company		6. State Oil & Gas Lease No. N/A Federal Lease 101552
3. Address of Operator 3100 La Plata Highway, Farm., NM 87401		7. Lease Name or Unit Agreement Name Salty Dog
4. Well Location Unit Letter <u>K</u> :2580 feet from the <u>South</u> line and <u>1890</u> feet from the <u>West</u> line Section <u>1</u> Township <u>30 North</u> Range <u>14 West</u> NMPM <u>San Juan</u> County <u>NM</u>		8. Well Number #4
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 5726 GR		9. OGRID Number 19219
		10. Pool name or Wildcat 96160 SWD Mesaverde

Pit or Below-grade Tank Application (For pit or below-grade tank closures, a form C-144 must be attached)

Pit Location: UL K Sect 1 Twp 30N Rng 14W Pit type Drilling Depth to Groundwater >100' Distance from nearest fresh water well >1 mile  
Distance from nearest surface water >1000' Below-grade Tank Location UL  Sect  Twp  Rng  ;  
feet from the  line and  feet from the  line

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐  
PULL OR ALTER CASING ☐ MULTIPLE COMPLETION ☐  
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ PLUG AND ABANDONMENT ☐  
CASING TEST AND CEMENT JOB ☐  
OTHER: Pit Permit ☒

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

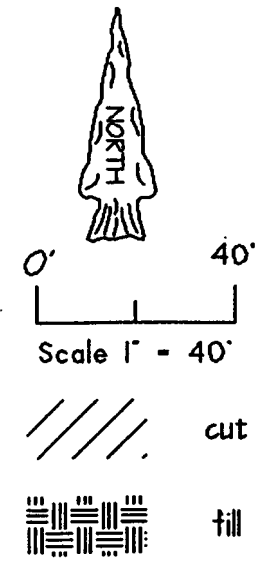
SIGNATURE [Signature] TITLE Landman DATE 4/28/04

Type or print name \_\_\_\_\_ E-mail address: \_\_\_\_\_ Telephone No. \_\_\_\_\_

(This space for State use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
Conditions of approval, if any: \_\_\_\_\_

Salty Dog # 4  
well pad and section



- ▣ set stake & pin flag

