

123346240 SWD



RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

11/11

August 17, 2001

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RECEIVED
AUG 23 11 09 AM
NEW MEXICO

Re: Application for Authorization to Inject
San Juan County, New Mexico

Gentlemen:

Richardson Operating Company is requesting administrative approval for salt water disposal into the Salty Dog No. 2 well. This well is not yet drilled, but is scheduled to spud near the end of August. The well will be completed in the Blanco Mesaverde field, and will be located in the NW/4SE/4 of Section 5, Township 29 North, Range 14 West, San Juan County, New Mexico. Richardson owns the surface and 100% leasehold interest, surface to base of Pictured Cliffs formation. Conoco Inc. owns 100% leasehold interest below the base of the Pictured Cliffs formation.

Enclosed are two copies of Application for Authorization to Inject (Form C-108). An additional copy has been forwarded to the District Office in Aztec.

There is only one well which penetrates the proposed injection zone within one half mile of the Salty Dog No. 2 location. The plugged and abandoned Pubco-Carr Russell Federal No. 1 well is located in the NE/4NE/4 of Section 8, T29N, R14W. Pertinent well records are attached as Exhibit 2.

Information from the State Engineer's Office in Aztec indicates there are no shallow fresh water wells within one mile of the Salty Dog No. 2 location.

If you have any questions or if you need additional information, please call John Durham, Operations Manager, (505) 564-3100.

Sincerely,

RICHARDSON OPERATING COMPANY

Cathleen Colby
Cathleen Colby
Land Manager

cc: Oil Conservation Division
1000 Rio Brazos Road
Aztec, NM 87410

New Mexico Oil Conservation Division
August 17, 2001
Page 2

List of Exhibits to Application for Authorization to Inject C-108:

- Exhibit 1 Well and Lease Plat - 2 mile radius
- Exhibit 2 Well Records - Pubco-Carr Russell Federal No. 1
- Exhibit 3 Operations Plan
- Exhibit 4 BOP Diagram
- Exhibit 5 Injection Well Data Sheet
- Exhibit 6 Wellbore Diagram
- Exhibit 7 Survey Plat and Well Pad
- Exhibit 8 Water Analysis: Mesaverde
- Exhibit 9 Water Analysis: Fruitland Coal and Pictured Cliffs
- Exhibit 10 Affidavit of Publication
- Exhibit 11 Proof of Notice

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

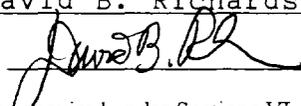
Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance Disposal _____ Storage
Application qualifies for administrative approval? _____ Yes _____ No
- II. OPERATOR: Richardson Operating Company
ADDRESS: 1700 Lincoln, Suite 1700, Denver, CO 80203
CONTACT PARTY: John Durham PHONE: (505) 564-3100
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? _____ Yes No
If yes, give the Division order number authorizing the project: _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: David B. Richardson TITLE: President
SIGNATURE:  DATE: August 17, 2001
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

III. WELL DATA

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- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

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- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

Form 9-382a
(Feb. 1951)

To: Cathy 1-303-930-8009
From: Ken at CHouse 334-9471

Budget provided by USGSA
Approval expired 12-31-50.

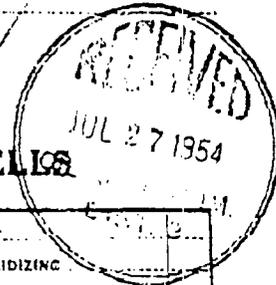
(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office

Lease No.

Unit



SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	X	SUBSEQUENT REPORT OF WATER SHUT-OFF
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY
NOTICE OF INTENTION TO ABANDON WELL		

(INDICATE ABOVE BY CHECKING NUMBER, NATURE OF REPORT, NOTICE, OR OTHER DATA)

July 22, 1954

Putco-Carr Petroleum Federal

Well No. is located 250 ft. from $\left\{ \begin{matrix} N \\ S \end{matrix} \right\}$ line and 200 ft. from $\left\{ \begin{matrix} E \\ W \end{matrix} \right\}$ line of sec. 1

NE 1/4 Sec. 6
(Twp. and Sec. No.)

R2N
(Twp.)

10W
(Range)

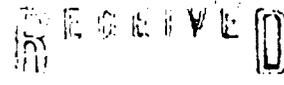
R. 10 E. 13 N
(Meridian)

Blair County, West Virginia
(Field)

C. H. J. 1000
(County or subdivision)

West Virginia
(State or Territory)

The elevation of the ~~surface~~ ^{ground level} above sea level is 5332.4 ft.



DETAILS OF WORK

JUL 23 1954

(State names of and approximate depths to objects the reader should check, and lengths of proposed sections, indicate and locate all important proposed work)

It is proposed to drill with rotary tools to the top of the ~~surface~~ ^{scale}, estimated to be at a depth of 3000 feet. It is proposed to core and drill stem test the Pictured Cliff formation and several possible zones in the Beaverside formation. Tentative casing program as follows:

- 10-3/4" surface casing 250 feet
- Production string

Drilling Unit: NE 1/4 of Section 6 - ~~Blair~~ ^{Blair} Beaverside 1000.

A Blanket Drilling Bond has heretofore been filed and approved by the Commission.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company: Putco Development, Inc.

Address: Post Office Box 1366

Albuquerque, New Mexico

By: *Frank D. Carlson, Jr.*

Title: Vice-President

Company PUBCO DEVELOPMENT CO.

Tract PUBCO-CARR-RUSSELL FEDERAL Well No. 1

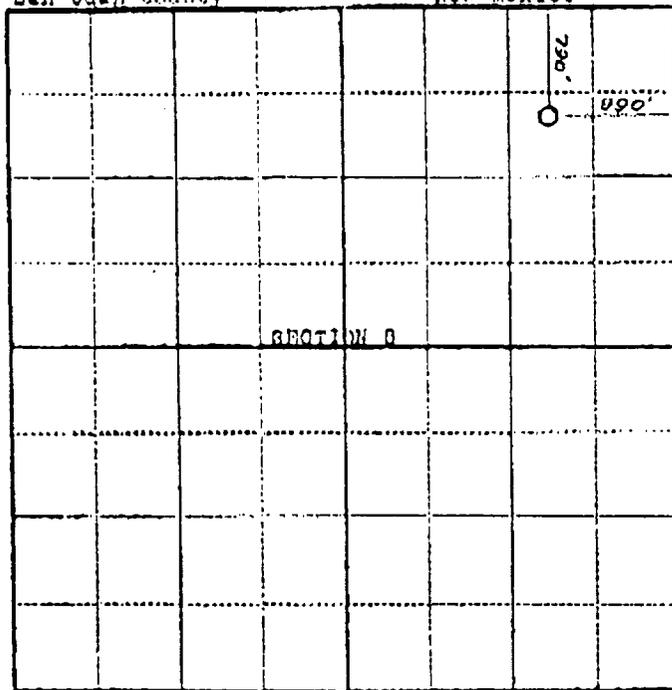
Sec. 8 T. 29 N R. 14 W N.M.P.M.

LOCATION 700 feet from north line; 890 feet from east line.

Elevation: 6832.4 OL

San Juan County

New Mexico



Scale—4 inches equal 1 mile.

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

Stephen H. Kinney
 STEPHEN H. KINNEY
 Registered Professional
 Engineer and Land Surveyor

Surveyed July 19, 1954.

Seal:

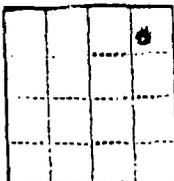
RECEIVED

JUL 23 1954

U. S. GEOLOGICAL SURVEY
FARMINGTON, N. M.

Budget Bureau No. 43-10480
Approval expires 12-31-60.

Form 7-881A
(Feb. 1961)



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office... Santa Fe
Lease No. 079960

RECEIVED

JAN 27 1960

SUNDRY NOTICES AND REPORTS ON WELLS

U.S. GEOLOGICAL SURVEY
WASHINGTON, NEW MEXICO

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....	X
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

ARIZO, New Mexico January 26, 1960

Fedco Carr-McConnell Federal Well No. 1 is located 790 ft. from [N] line and 990 ft. from [E] line of sec. 1, T22N, R10E, S12E, section 8, Twin Mounds Area, San Juan County, New Mexico.

T22N, R10E, S12E, section 8 (Twp. and Sec. No.)
San Juan (Twp.)
New Mexico (State or Territory)

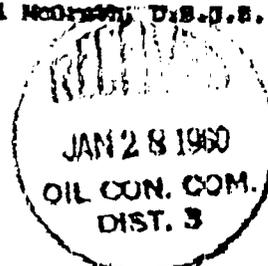
The elevation of the surface above sea level is 5112.4 ft.

DETAILS OF WORK

(State nature of and reported depths to objectives, casing sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Plugging has been accomplished as verbally approved by Mr. Phil McGrath, D.S.G.S., on August 26, 1954.

Rings left:
3187-3100
2900-2800
2150-1000
860-890
610-350
Surface



Total, 300 wgs, spotted by Howco; installed 8' of 4" 60 steel pipe for abandonment marker; pits filled and location cleaned up.

I understand that this plan of work must receive approval by writing by the Geological Survey before operations may be commenced.

Company... FEDCO PETROLEUM CORPORATION

Address... 108 West Chuska

Arizo, New Mexico

By... R. E. Maxwell, Jr.

Title... Mgr. Prod. Dept.

Exhibit 3

RICHARDSON OPERATING COMPANY
OPERATIONS PLAN

SALTY DOG No. 2

August 17, 2001

I. Location: Section 5, Township 29 North, Range 14 West, NMPM
1495' FSL and 1477' FEL
San Juan County, New Mexico

Field: Blanco Mesaverde Elevation: 5297'
Surface: Fee - Richardson Production Company
Minerals: Federal SF-079968

II. Geology:

<u>Formation Tops</u>	<u>Depths</u>
Fruitland Coal	600 feet
Basal Coal	790 feet
Pictured Cliffs	800 feet
Lewis	930 feet
Cliff House	2200 feet
Menefee	2440 feet
Point Lookout	3310 feet
Total Depth	3700 feet

Estimated depths of anticipated water, oil, gas and other mineral bearing formations which are expected to be encountered:

Water and gas:	600 feet	Fruitland Coal
	790 feet	Basal Coal
	800 feet	Pictured Cliffs

Water:	2200 feet	Cliff House
	3310 feet	Point Lookout

A. Logging Program: Induction /GR and Density Logs at TD

B. The maximum expected bottom hole pressure is 400 psi. This pressure will be contained as specified in III B. and C. below. No overpressured zones are expected in this well. No H₂S zones are anticipated in this well.

III. Drilling:

- A. Contractor: To be determined
- B. Mud Program: The surface hole will be drilled with a fresh water mud. The production hole will be drilled with a fresh water polymer mud. The weighting material will be drill solids, or if conditions dictate, barite. The maximum mud weight expected is 8.7 ppg.
- C. Minimum Blowout Control Specifications:

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 (see attached Exhibit 4) or comparable model will be used. Double ram type 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.

The 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. The BOP equipment will include a kelly cock, floor safety valve, and choke manifold all rated to 2000 psi.

IV. Materials:

- A. Casing Program:

Hole Size	Depth	Casing Size	Wt. & Grade
9 7/8"	200'	8 5/8"	24# J-55
6 3/4"	3700'	5 1/2"	15.5# K-55

- B. Float Equipment:

- a) Surface Casing: None
- b) Production Casing: 5 1/2" cement guide shoe and self fill insert float collar. Place float one joint above shoe. Five centralizers spaced every other joint above shoe and five turbolizers every other joint from the top of the well.

V. Cementing:

Surface casing: 8 5/8", use 43 sx (50 cu ft) of Cl "B" with 2% CaCl₂ (Yield = 1.18 cu ft/sx; slurry weight = 15.6 ppg). 100% excess to circulate cement to surface. WOC 12 hrs. Pressure test surface casing to 600 psi for 30 min.

Production casing: 5 1/2", before cementing circulate hole with at least 1 1/2 hole volumes of mud. Precede cement with 30 bbls of fresh water. Lead with 185 sx (382 cu ft) of Cl "B" with 2% metasilicate (Yield = 2.06 cu ft/sx; slurry weight = 12.5 ppg). Tail with 130 sx (160 cu ft) of Cl "B" with 2% CaCl₂ (Yield = 1.18 cu ft/sx slurry weight = 15.6 ppg). Total cement volume is 542 cu ft. (75% excess to circulate cement to surface).

VI. Stimulation: If stimulation is required, 4000 gal 15% HCl acid will be pumped into Mesaverde perforations.

VII. Operations: Average Daily Rate: 1000 bwpd
Maximum Daily Rate: 1000 bwpd
System is closed.
Average Injection Pressure: 600 psi
Maximum Injection Pressure: 740 psi

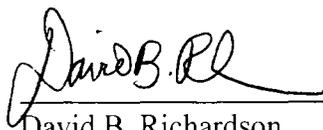
Source of water to be injected is from Fruitland Coal and Pictured Cliffs wells in the area. Representative samples of this water are included in this report.

A water sample from the Mesaverde taken from the Stella Needs A Com #1E well, located in the NE/4SW/4 of Section 36, Township 30 North, Range 14 West, is also included in this report.

Geological data for the disposal zone is presented in Administrative Order SWD-595.

There are no fresh water wells within one mile of this location.

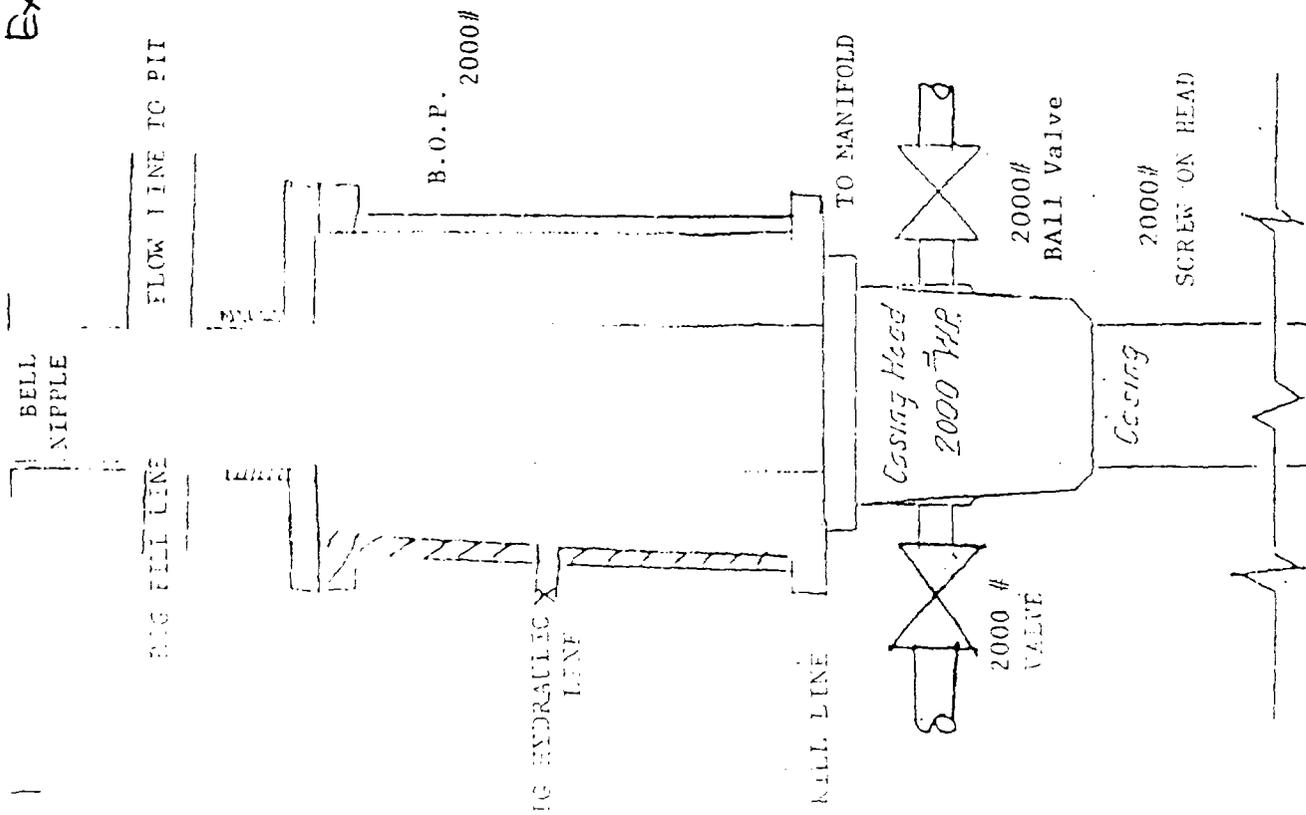
I have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.



David B. Richardson
President

Exhibit 4

- Notes:
1. Length of Kelly does not allow enough room for a Kelly Cock.
 2. All Fittings will be screw on fitting types. (Valves, Nipples and T's)
 3. All Fittings, B.O.P. & Surface Casing will be pressure tested to 500 pds. prior to drilling from surface pipe.



** 2000# Rubber hose will be used from Well Head to Manifold & from Well Head to Kill Line.

INJECTION WELL DATA SHEET

OPERATOR: Richardson Operating Company

WELL NAME & NUMBER: Salty Dog No. 2

WELL LOCATION: 1495' FSL, 1477' FEL UNIT LETTER J SECTION 5 TOWNSHIP 29N RANGE 14W

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 9 7/8 Casing Size: 8 5/8, 24#

Cemented with: 43 sx. or 50 ft³

Top of Cement: Surface Method Determined: _____

Intermediate Casing

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. or _____ ft³

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: 6 3/4 Casing Size: 5 1/2, 15.5#

Cemented with: 185 + 130 sx. or 542 ft³

Top of Cement: Surface Method Determined: _____

Total Depth: 3700'

Injection Interval

MV perms: 2200' - 3580ft to perforated

(Perforated or Open Hole; indicate which)

Exhibit G

Salty Dog SWD #2
1495' FSL and 1477' FEL
Sec.5-T29N-R14W
San Juan County, NM
Blanco Mesaverde

Elev: 5297' GR

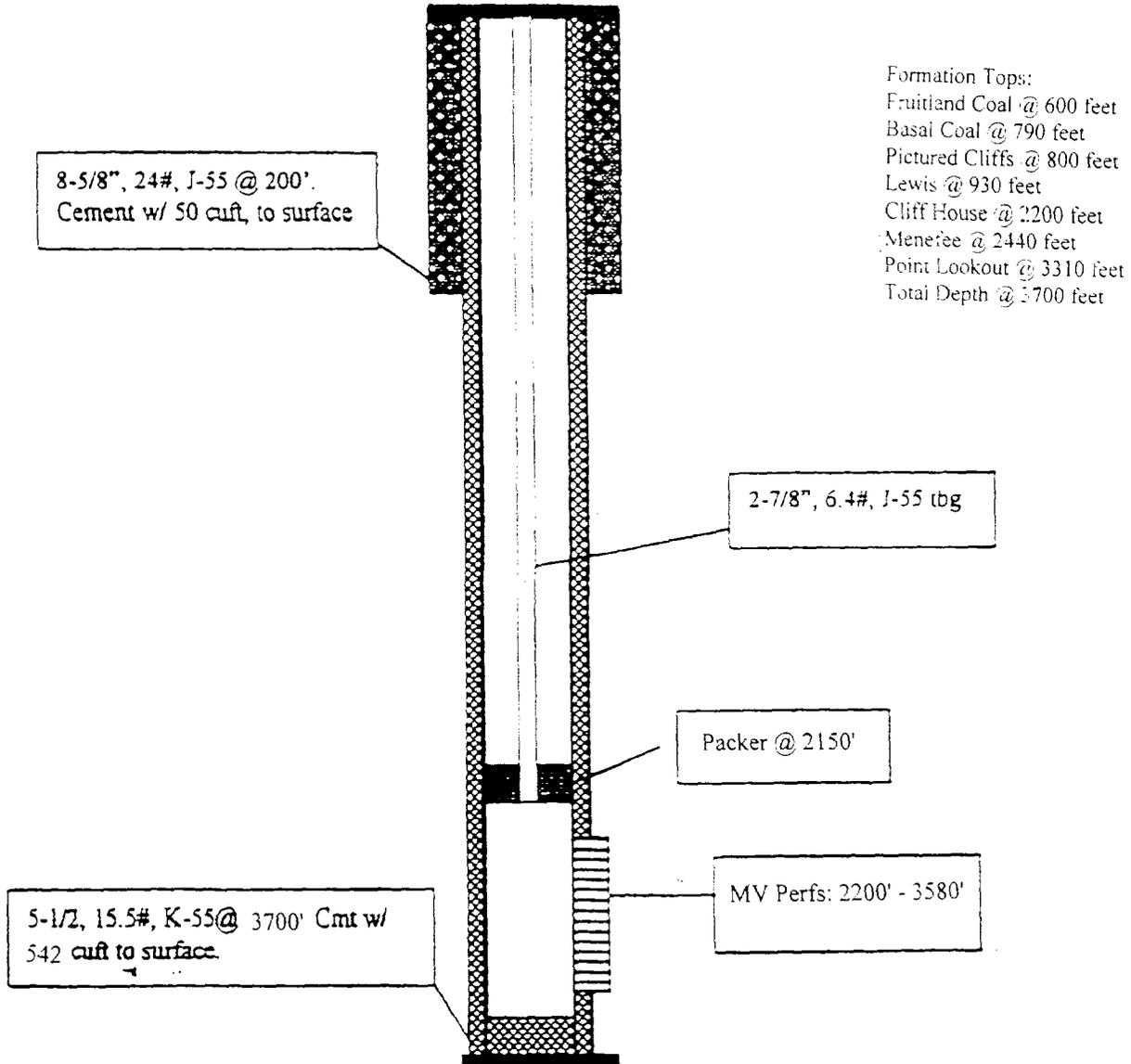


Exhibit 7

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

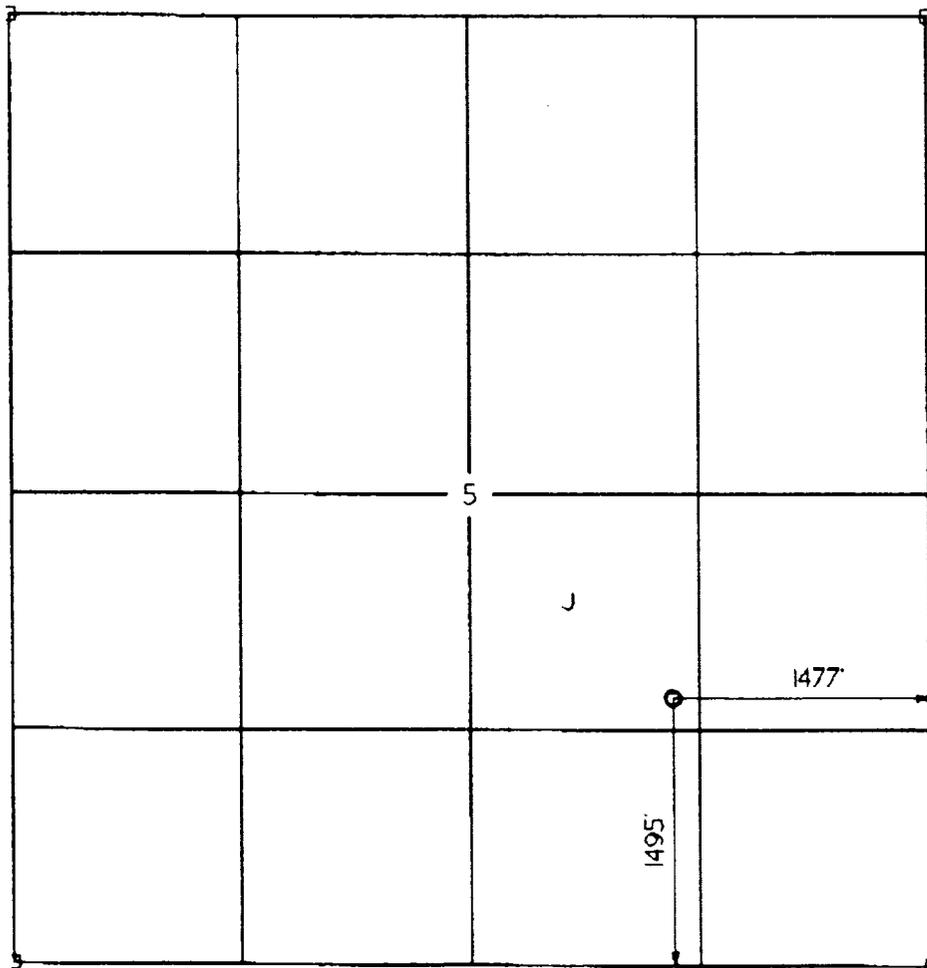
APA Number	Pool Code	Pool Name
Property Code	Property Name SALTY DOG	
OCRD No.	Operator Name RICHARDSON OPERATING COMPANY	
		Well Number 2
		Elevation 5297'

Surface Location									
UL or Lot	Sec.	Twp.	Rge.	Lot Id.	Feet from >	North/South	Feet from >	East/West	County
J	5	29 N.	14 W.		1495	SOUTH	1477	EAST	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	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 _____

Printed Name _____

Title _____

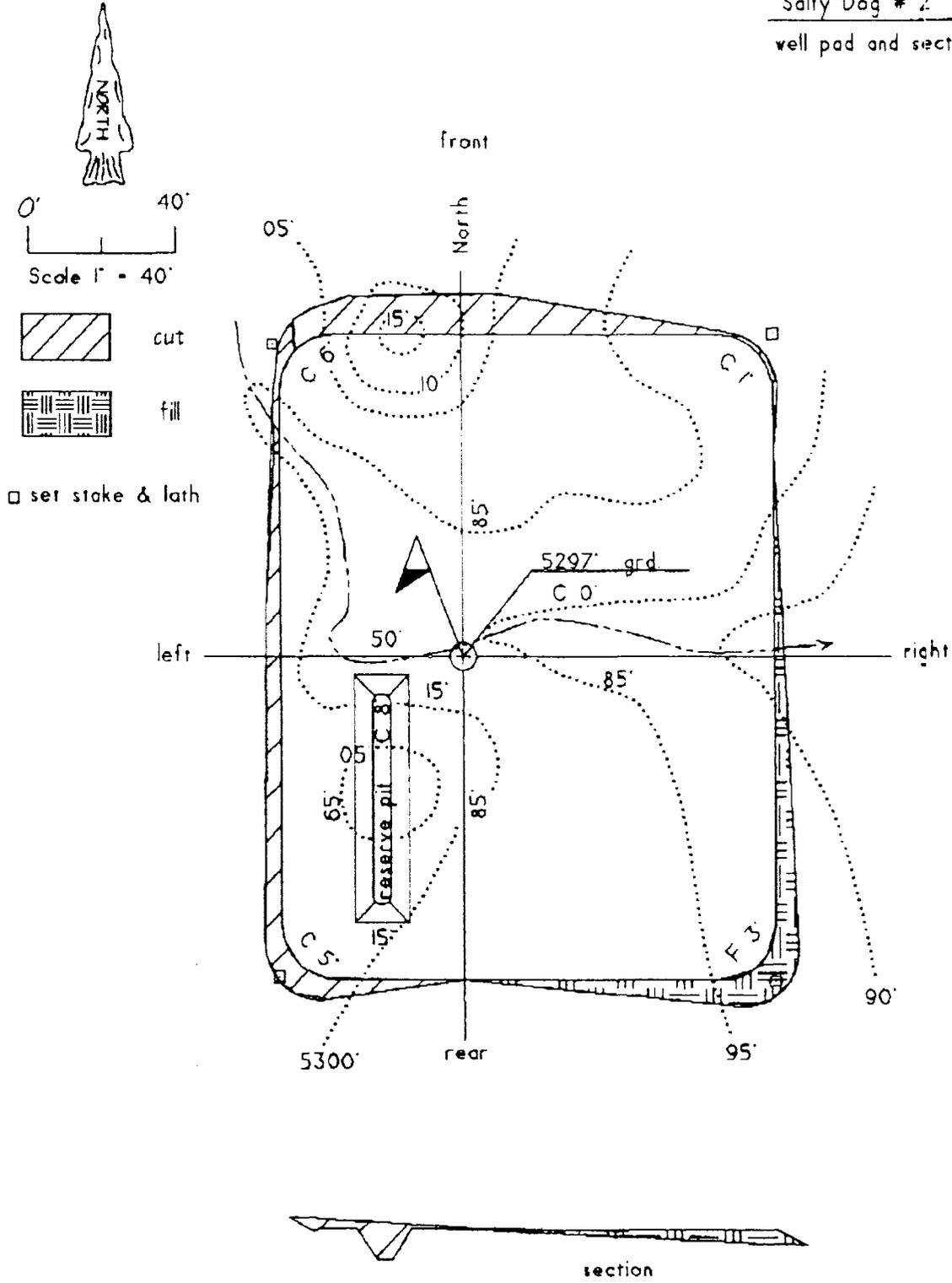
Date _____

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 _____

Signature and Title of Professional Surveyor _____

Salty Dog # 2
well pad and section



Stella Needs A Com No. 1 - Conversion to SWD

API WATER ANALYSIS

Company: DUGAN PROD.

W.C.N.A. Sample No.: S106695

Field:

Legal Description:

Well: STELLA NEEDS A COM #1E

Lease or Unit:

Depth:

Water.B/D:

Formation: POINT LOOKOUT/MESA VERDE

Sampling Point: SWAB

State: N.M.

Sampled By: J. ALEXANDER

County:

Date Sampled: 04/24/95

Type of Water(Produced,Supply, ect.):

PROPERTIES

pH: 6.30
Specific Gravity: 1.050
Resistivity (ohm-meter): .13
Temperature: 78F

Iron, Fe(total): 250
Sulfide as H2S: 0
Total Hardness: (see below)

DISSOLVED SOLIDS

CATIONS mg/l me/l

Sodium, Na: 20470 : 890
Calcium, Ca: 2084 : 104
Magnesium, Mg: 170 : 14
Barium, Ba: N/A : N/A
Potassium, K: :

Sample(ml): 1.0 ml of EDTA: 5.20
Sample(ml): 1.0 ml of EDTA: .70

ANIONS mg/l me/l

Chloride, Cl: 31905 : 900
Sulfate, SO4: 3750 : 78
Carbonate, CO3: :
Bicarbonate, HCO3: 1830 : 30

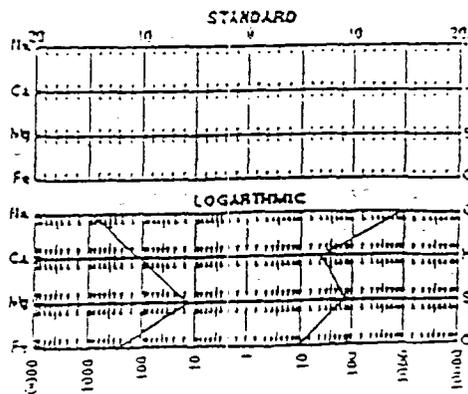
Sample(ml): 1.0 ml of AgNO3: 1.80
Sample(ml): 1.0 ml of H2SO4:
Sample(ml): 1.0 ml of H2SO4: .30

Total Dissolved Solids (calculated): 60209
Total Hardness: 5900

Sample(ml): 1.0 ml of EDTA:

REMARKS AND RECOMMENDATIONS:

WATER PATTERNS-me/l



Analyst: DC
Date Analyzed: 4/24/95

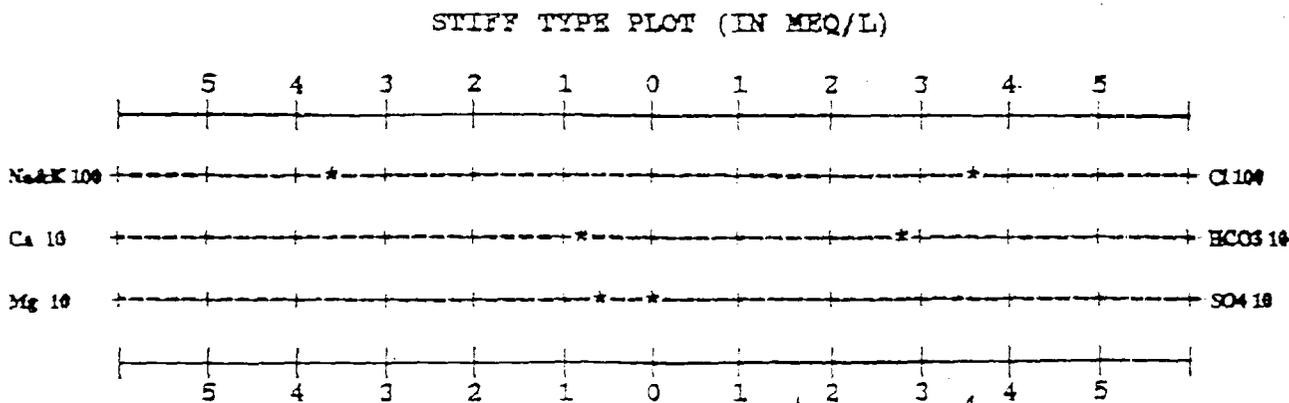
BJ SERVICES COMPANY
WATER ANALYSIS #FW01W266
FARMINGTON LAB

GENERAL INFORMATION			
OPERATOR:	RICHARDSON OPERATING	DEPTH:	
WELL:	BUSHMAN FEDERAL 6-1	DATE SAMPLED:	10/19/98
FIELD:	SEC06/T29N/R14W	DATE RECEIVED:	10/20/98
SUBMITTED BY:	BRAD SALZMAN	COUNTY:	SAN JUAN STATE: NM
WORKED BY:	D. SHEPHERD	FORMATION:	FC/PC
PHONE NUMBER:			

SAMPLE DESCRIPTION
SAMPLE FOR ANALYSIS

PHYSICAL AND CHEMICAL DETERMINATIONS			
SPECIFIC GRAVITY:	1.015	@ 74°F	PH: 7.49
RESISTIVITY (MEASURED):	0.280	ohms @ 76°F	
IRON (FE++) :	0 ppm	SULFATE:	39 ppm
CALCIUM:	158 ppm	TOTAL HARDNESS	710 ppm
MAGNESIUM:	77 ppm	BICARBONATE:	1,719 ppm
CHLORIDE:	12,574 ppm	SODIUM CHLORIDE (Calc)	20,685 ppm
SODIUM+POTASS:	8,493 ppm	TOT. DISSOLVED SOLIDS:	23,536 ppm
H2S: NO TRACE		POTASSIUM (PPM):	110 PPM

REMARKS
SAMPLED FROM SEPERATOR



ANALYST *D. Shepherd*
 D. SHEPHERD

AFFIDAVIT OF PUBLICATION

Ad No. 44869

STATE OF NEW MEXICO County of San Juan:

CONNIE PRUITT, being duly sworn says:
That she is the Classified Manager of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the meeting of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication on the following day(s):

Wednesday, August 15, 2001.

And the cost of the publication is \$20.56.

Connie Pruitt

ON 8/17/01 CONNIE PRUITT appeared before me, whom I know personally to be the person who signed the above document.

Dennis Beck
My Commission Expires April 02, 2004

COPY OF PUBLICATION

918 Legal
LEGAL NOTICE

Richardson Operating Company will file an application on August 17, 2001, for approval to inject water, produced from oil and gas wells, into the Mecaverde formation in the Salty Dog No. 2, located in the NW/4SE/4 of Section 5, Township 29 North, Range 14 West, San Juan County, New Mexico, at a depth from 2000 to 3700 feet with surface injection pressure up to 600 pounds per square inch.

Surface owners and offset operators must file any objections or request for public hearing with the New Mexico Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, New Mexico 87504, within 15 days of the date of this notice. The Richardson Operating Company contact person is John Durham, 2100 La Plata Hwy, Farmington, NM 87401, telephone (505) 684-3100.

Legal No. 44869, published in The Daily Times, Farmington, New Mexico, Wednesday, August 15, 2001.



RICHARDSON OPERATING COMPANY

1700 Lincoln, Suite 1700
Denver, Colorado 80203 (303) 830-8000
FAX (303) 830-8009

August 17, 2001

Mr. William W. Franklin
Conoco Inc.
Mail Code DU 3092
600 North Dairy Ashford
Houston, TX 77079

Certified Mail Return Receipt
7000 1670 0006 8579 3524

Re: Application for Authorization to Inject
Salty Dog No. 2
NW/4SE/4-Section 5-T29N-R14W
San Juan County, New Mexico

Gentlemen:

As a leasehold owner within one-half mile of the proposed Salty Dog No. 2 disposal well, you are being notified of our Application for Authorization to Inject. Richardson Operating Company seeks to dispose of water produced from the Fruitland Coal and Pictured Cliffs formations into the Mesaverde formation. Objections, or a request for hearing, must be filed within 15 days with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505,

Enclosed is a copy of our Form C-108 and associated Exhibits. If you need additional information, please do not hesitate to call.

Sincerely,

RICHARDSON OPERATING COMPANY

Cathleen Colby
Land Manager

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Conoco Inc. - Attn: Bill Franklin
 Mail Code DU 3092
 600 North Dairy Ashford
 Houston, TX 77079

2. Article Number (Copy from service label)

7000 1670 0006 8579 3524

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) B. Date of Delivery

C. Signature

X

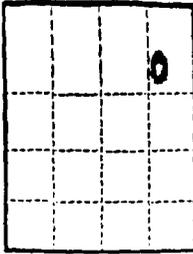
 Agent AddresseeD. Is delivery address different from item 1? YesIf YES, enter delivery address below: No

3. Service Type

 Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D.

4. Restricted Delivery? (Extra Fee)

 Yes



(SUBMIT IN TRIPPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Santa Fe

Lease No. SP 079968

Unit _____

RECEIVED

JAN 27 1960

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF	SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE	SUBSEQUENT REPORT OF ABANDONMENT	XX
NOTICE OF INTENTION TO PULL OR ALTER CASING	SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		

U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Astec, New Mexico January 26, 1960

Fusco Carr-Russell Federal
Well No. 1 is located 790 ft. from [N] line and 990 ft. from [E] line of sec. _____

NE 1/4, Section 8 29N 14W N.M.P.M.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Twin Mounds Area San Juan New Mexico
(Field) (County or Subdivision) (State or Territory)

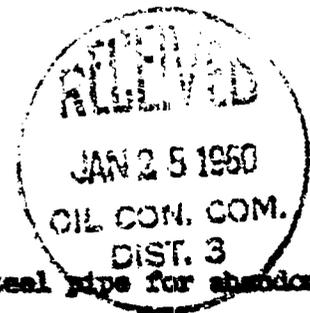
The elevation of the ~~surface~~ ^{Ground} above sea level is 5332.4 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Plugging has been accomplished as verbally approved by Mr. Phil McGrath, U.S.G.S. on August 26, 1954.

Plugs left: 3327-3100
2400-2200
1150-1000
860-650
410-350
Surface



Total, 300 sax, spotted by Hosco; installed 3' of 4" OD steel pipe for abandonment marker; pits filled and location cleaned up.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company FUSCO PETROLEUM CORPORATION

Address 108 West Chuska

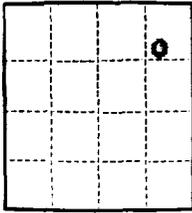
Astec, New Mexico

By E. E. Maxwell, Jr.

Title Mgr. Prod. Dept.

As per Steve Hayden, No
objection to this application

8/27/01



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Santa Fe

Lease No. FF 079968

Unit _____

SUNDRY NOTICES AND REPORTS ON WELLS

RECEIVED

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
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NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	<input checked="" type="checkbox"/>		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

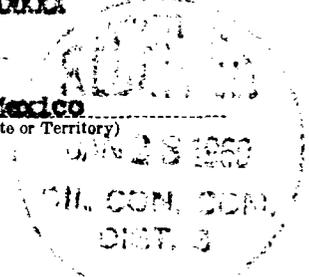
Astec, New Mexico January 26, 1960

Pubco Carr-Russell Federal
Well No. 1 is located 790 ft. from (N) line and 990 ft. from (E) line of sec. 8

NE 1/4 section 8 (1/4 Sec. and Sec. No.) 29N (Twp.) 14W (Range) H.M.P.M. (Meridian)

Twin Mounds Area (Field) San Juan (County or Subdivision) New Mexico (State or Territory)

The elevation of the ~~ground~~ Ground above sea level is 2332.4 ft.



DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

It is proposed to plug Pubco Carr-Russell #1; TD 3396; E-log to TD and DET information indicate a dry hole to TD.

DET #1: 727-773 Pictured Cliffs If 15%, FF 60%, Paip 215, rec. 150' all, Com. No gts.

DET #2: 2932-2963 Menafee If 30%, FF 180, Paip 1170, rec. 365' w/m, no gas or oil.

CORE ANALYSIS: 724-772 water productive, Pictured Cliff; 3223-3227 water productive Menafee.

Plugs to be run as designated by Mr. Phil McGrath, U.S.G.S., 8-26-54; 3327-3100, 2400-2200, 1150-1000, 860-650, 410-350, 300 sex.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company PUBCO PETROLEUM CORPORATION

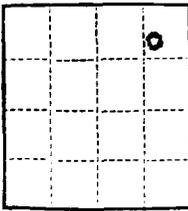
Address 108 West Chuska

Astec, New Mexico

By _____

H. E. Maxwell, Jr.

Title Mgr. Prod. Dept.



(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Santa Fe

Lease No. BF 079968

Unit _____

RECEIVED

JAN 27 1950

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....	
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....	
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NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....	
NOTICE OF INTENTION TO ABANDON WELL.....		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Artec, New Mexico January 26, 1950

Pubco Carr-Russell Federal
Well No. 1 is located 790 ft. from (N) line and 950 ft. from (E) line of sec. _____

NE-NE-1/4, Section 8 29N 14W N.M.P.M.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Twin Hounds Area San Juan New Mexico
(Field) (County or Subdivision) (State or Territory)

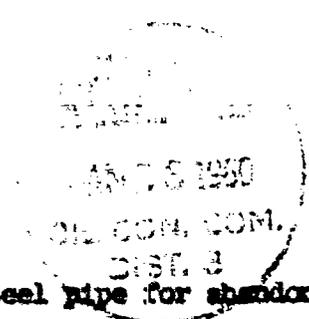
The elevation of the ~~corner~~ ^{Ground} floor above sea level is 5332.4 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Plugging has been accomplished as verbally approved by Mr. Phil McGrath, U.S.G.S. on August 26, 1954.

Plugs Left: 3327-3100
2400-2200
1150-1000
860-650
410-350
Surface



Total, 300 sax, spotted by Howco; installed 8' of 4" OD steel pipe for abandonment marker; pits filled and location cleaned up.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company PUBCO PETROLEUM CORPORATION

Address 108 West Chuska

Artec, New Mexico

By F. E. Maxwell, Jr.
Title Mgr. Prod. Dept.

New Mexico Oil Conservation Division---Engineering Bureau
Administrative Application Process Documentation

Date Application Received:

7-20

Date of Preliminary Review:

(Note: Must be within 10-days of received date)

7-20

Results: Application Complete Application Incomplete

Date Incomplete Letter Sent:

Deadline to Submit Requested Information:

Phone Call Date:

(Note: Only applies if requested data is not submitted within the 7-day deadline)

Phone Log Completed? Yes No

Date Application Processed:

Date Application Returned:

(Note: Only as a last resort & only after repeated attempts by the Division to obtain the necessary information to process the application)
