

HOLLAND & HART LLP



Michael H. Feldewert  
Recognized Specialist in the Area of  
Natural Resources – oil and gas law –  
New Mexico Board of Legal  
Specialization

mfeldewert@hollandhart.com

April 15, 2008

**HAND-DELIVERED**

Mark E. Fesmire, P.E.  
Director  
Oil Conservation Division  
New Mexico Energy, Minerals and  
Natural Resources Department  
1220 South Saint Francis Drive  
Santa Fe, New Mexico 87505

**Re: Application of Pecos Operating Company for approval of a  
non-commercial salt water disposal well, Lea County, New  
Mexico.**

Dear Mr. Fesmire, P.E.:

Pursuant to Rule 701, enclosed is the Form C-108 comprising the application of Pecos Operating Company for approval of a salt water disposal well, as well as a copy of a legal advertisement. Pecos Operating submitted this application for administrative approval, but a protest was filed requiring that this matter to be set for a hearing. Pecos Operating therefore requests that this matter be placed on the docket for the May 15, 2008, Examiner hearings.

Sincerely,

Michael H. Feldewert

Enclosures

BEFORE THE OIL CONSERVATION DIVISION  
Santa Fe, New Mexico  
Case No. 14122 Exhibit No. 2  
Submitted by:  
**PECOS OPERATING COMPANY**  
Hearing Date: May 15, 2008

Holland & Hart LLP

Phone [505] 988-4421 Fax [505] 983-6043 [www.hollandhart.com](http://www.hollandhart.com)

110 North Guadalupe Suite 1 Santa Fe, NM 87501 Mailing Address P.O. Box 2208 Santa Fe, NM 87504-2208

Denver Aspen Boulder Colorado Springs Denver Tech Center Billings Boise Cheyenne Jackson Hole Las Vegas Salt Lake City Santa Fe Washington, D.C. ☐

DATE IN 2/25/08	SUSPENSE W Jones	ENGINEER 3/25/08	LOGGED IN SWB	TYPE SWB	APP NO. PKURO808542019
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ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
**- Engineering Bureau -**  
 1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]  
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]  
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]  
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]  
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]  
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

- [A] Location - Spacing Unit - Simultaneous Dedication  
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement  
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

- [D] Other: Specify \_\_\_\_\_

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply

- [A] ☐ Working, Royalty or Overriding Royalty Interest Owners  
 [B] ☒ Offset Operators, Leaseholders or Surface Owner  
 [C] ☒ Application is One Which Requires Published Legal Notice  
 [D] ☐ Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office  
 [E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,  
 [F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note:** Statement must be completed by an individual with managerial and/or supervisory capacity.

Steve Gray  
 Print or Type Name

Steve Gray  
 Signature

Manager  
 Title

3-17-08  
 Date

stevegray@pcoscompany.com  
 e-mail Address

RECEIVED  
 2008 MAR 25 PM 7 25  
 PROPOSED 4/12/08  
 CANCELLED 4/12/08  
 SIDE GA  
 OPERATING



RECEIVED

2008 MAR 25 AM 7 24

400 W. Illinois, Suite 1210, Midland, Texas 79701 (432) 620-8480 Office (432) 682-2197 Fax

March 18, 2008

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Dear Sirs:

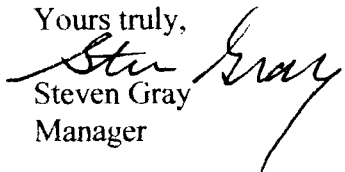
Pecos Operating Company hereby makes application for administrative approval for a saltwater disposal well in Lea County, NM, as shown on the enclosed form C-108 and associated documents. Pecos is proposing to re-enter the former producer, the State GA #7 well that was drilled by Shell Oil Company in 1956 and plugged in 1965. The GA #7 produced from the Caudill Devonian field and is situated on a downdip eastern flank of the field. The proposed name of the new re-entry well will be the Caudill SWD No.1.

Pecos currently has one Devonian producer on the lease that is producing at a high water cut and is planning the re-activation of several more wells that are situated higher on the structure than the proposed disposal well. The Devonian reservoir in Caudill field was a strong water drive, however many of the producers that were plugged as uneconomic in the 1960's would be considered profitable in today's economic environment, provided that there is adequate and affordable water disposal capacity on the lease. For this reason we are permitting this well for non-commercial use.

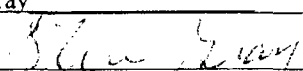
There is already one commercial saltwater disposal well in the Devonian in this field. Based on the performance of that well, and the known high permeability in the Devonian, this proposed disposal well should take significant volumes of water at relatively low injection pressures. The Devonian is normally pressured based on static fluid levels observed on our producer (fluid level at approx 3000 ft)

Copies of this application have been sent to the landowner, Wanda Alexander, who owns the entirety of section 16, as well as offset operators. Proof of mailing and notice are included with this package. Please let us know if any additional information is needed to process this application.

Yours truly,

  
Steven Gray  
Manager

## APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance XXX Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval? \_\_\_\_\_ Yes \_\_\_\_\_ No
- II. OPERATOR: Pecos Operating Company  
ADDRESS: 400 W. Illinois Ave., Suite 1210, Midland, TX 79701  
CONTACT PARTY: Steven Gray PHONE: 432-620-8480
- 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 XXX 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: Steven Gray TITLE: Manager  
SIGNATURE:  DATE: 3/12/08  
E-MAIL ADDRESS: steveg@pecoscompanies.com
- \* 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:

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

# Current Wellbore Condition

Shell Oil Company

State 'GA' #7

660' FNL + 2310' FEL

Sec. 16, T15S, R36E

Lea County, NM

Drilled: 1956

P&A'd: 1965

API: 30-025-03688

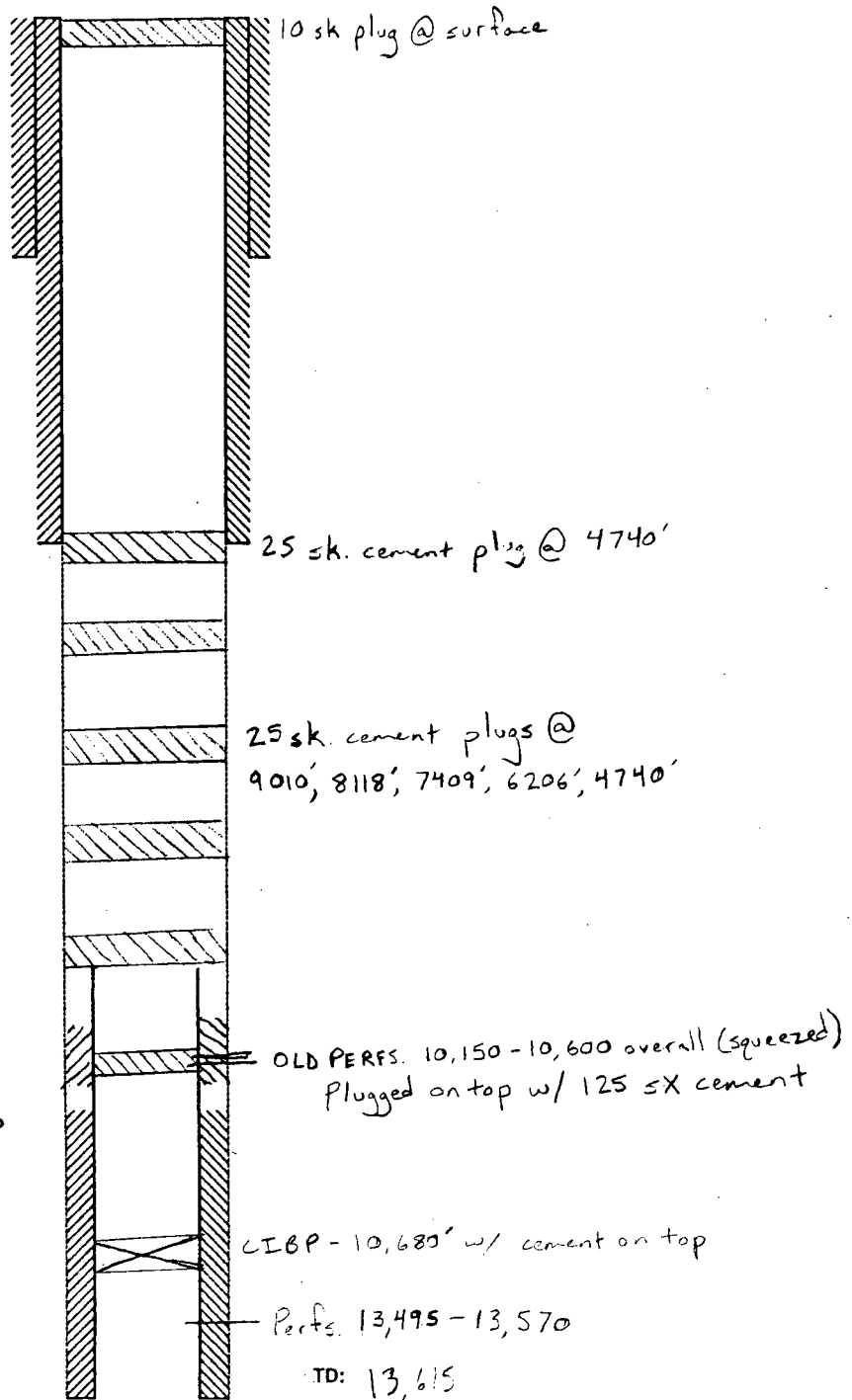
SURFACE CASING: 13 $\frac{3}{8}$ "
DEPTH: 336'
CEMENT: 400 sx.
circulated

INTERM. CASING: 8 $\frac{5}{8}$ "
DEPTH: 4,734'
CEMENT: 1,650 sx.
circulated

5 $\frac{1}{2}$ " casing cut  
& pulled @ 9,010'

Toe 12,040

PROD CASING: 5 $\frac{1}{2}$ "
DEPTH: 13,615'
CEMENT: 250 sx



## INJECTION WELL DATA SHEET

OPERATOR: Pecos Operating CompanyWELL NAME & NUMBER: Caudill SWD No. 1 (Formerly Shell Oil Company State 'GA' No. 7) 30-625-03644WELL LOCATION: 660' FNL & 2310' FEL

B

16

15.5

36E

FOOTAGE LOCATION

UNIT LETTER

SECTION

TOWNSHIP

RANGE

WELLBORE SCHEMATIC - ProposedWELL CONSTRUCTION DATASurface CasingHole Size: 17 1/2"Casing Size: 13 3/8"Cemented with: 350 sx.

or

ft<sup>3</sup>Top of Cement: circulatedMethod Determined: Intermediate CasingHole Size: 11"Casing Size: 8 5/8"Cemented with: 350 sx.

or

ft<sup>3</sup>Top of Cement: circulatedMethod Determined: Production Casing

1 1/2" & 2 1/8" tubing @ 13,400'

5 1/2" casing tied back together @ 9015' and cemented to tie back in 8 5/8" OLD PERFS 10,150 - 10,600 overall (squeezed)

Toc 12,040

Perfs 13,495 - 13,570

5 1/2" @ 13,629

Proposed TD: 13,900'

Total Depth: old: 13,630' proposed: 13,800Injection Interval13,495 feetTo 13,800

(old perfs 13495-13570 and new openhole 13630-13800)

Pecos Operating Company  
Caudill SWD No. 1  
660' FNL & 2310' FEL  
Section 16 - T15S - R36E

Form C-108 (cont'd)

V - See map attached, Exhibit 1

VI - See attached list of wells and wellbore sketches, Exhibit 2A and 2B

VII -

1. Proposed avg daily injection - 4000 bwpd Maximum - 8000 bwpd
2. The system will be closed
3. Avg injection pressure 100 psi. Maximum pressure - 1500 psi.
4. Water will be Devonian water - reinjected into Devonian formation

VIII - The injection zone is the Devonian. The Devonian is a 300 foot section of limestone and dolomite. This reservoir has excellent permeability and should be capable of taking significant volume of water at low pressure. Surface water in the area is located at a depth less than 200 ft from surface.

IX - We propose to deepen the old well by about 200 feet and inject in to the old perforations and openhole completion. Stimulation will include acid wash only.

X - Logs were previously filed under the original operator and well name: The Shell Oil Company - State "GA" No. 7 well

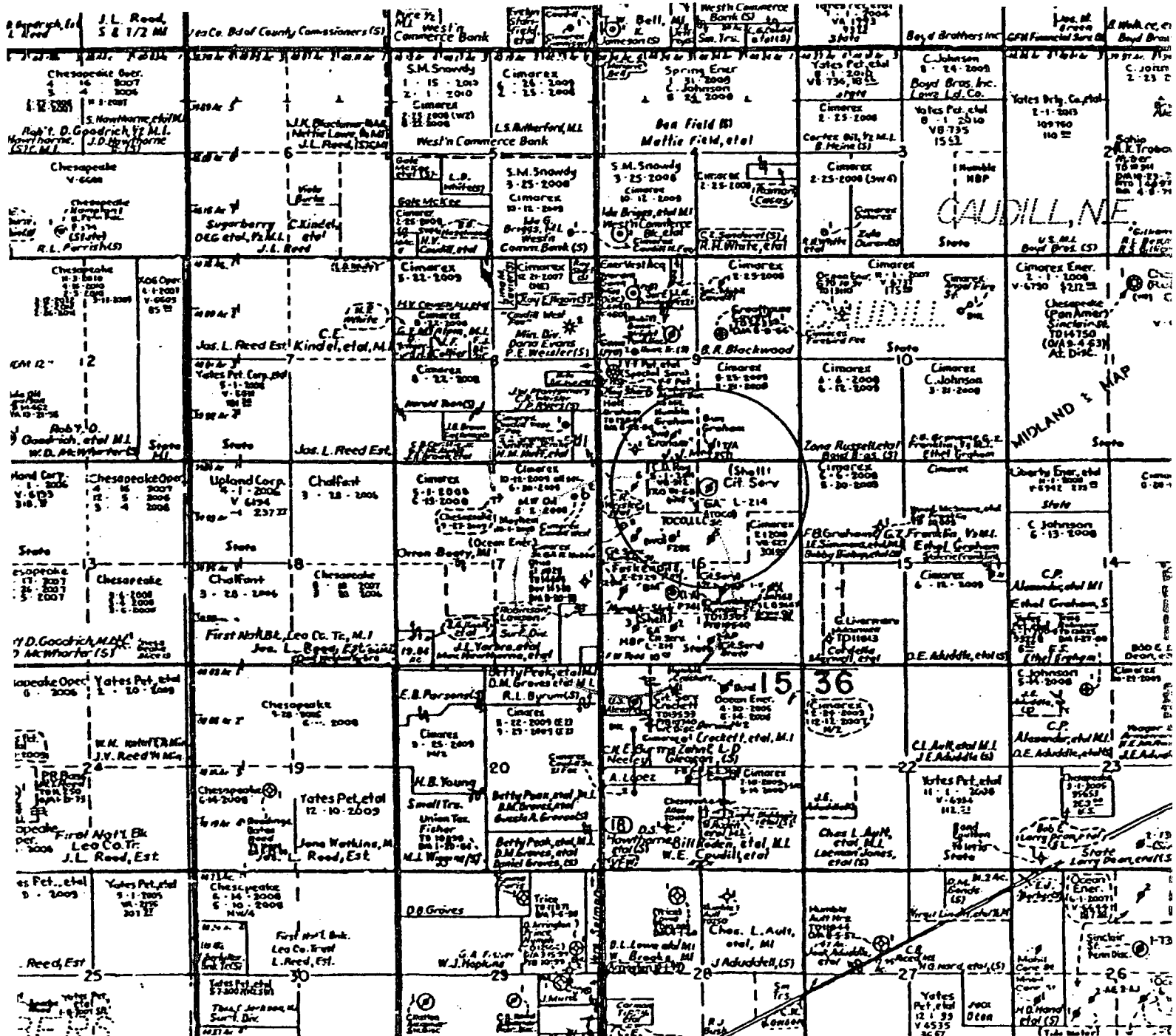
XI - Fresh water analysis from two area water wells was obtained in 2002 and submitted along with a previous permit to inject that was never completed. These two samples are attached as Exhibit 3.

XII - Affirmative statement attached and labeled as Exhibit 4.

XIII - Proof of notice is attached as Exhibit 5

# Exhibit 1

## Pecos Operating Company Caudill SWD No. 1 (Formerly Shell Oil Company State 'GA' No. 1) 660 FNL, 2310 FEL Sec 16, T15S, R36E Caudill Field Lea County, New Mexico





## Exhibit 2A

### WELLS WITHIN ½ MILE RADIUS OF STATE GA #7-SWD

**1. J. D. Graham**

Unit O Sec 9, T15S-R36E      API No. 30-025-03676  
Drilled: 1956      Plugged: 1975  
Surface Casing:      13 3/8" @ 374'      w/400 sx      circulated  
Intermediate Casing: 8 5/8" @ 4749'      w/ 2300 sx      TOC: 500'  
Production Casing:      5 1/2" @ 13,630' w/ 450 sx      TOC: 12,000'  
See attached wellbore diagram for plugging details

**2. Maymie Graham #1**

Unit N Sec 9, T15S-R36E      API No. 30-025-03673  
Status: Active SWD well - Devonian  
Surface Casing:      11 3/4" @ 309'      w/ 300 sx      circulated  
Intermediate Casing: 8 5/8" @ 4900' w/2100 sx      est TOC 880'  
Production Casing:      5 1/2" @ 13,600' w/ 1320 sx      TOC unknown  
TD: 13600'

**3. Graham #1**

Unit M Sec 9, T15S-R36E      API No. 30-025-03672  
Status: D&A in 1956  
Surface Casing:      13 3/8" @ 320'      w/ 300 sx      circulated  
Intermediate Casing: 8 5/8" @ 4750'      w/500 sx  
Production Casing:      none  
See attached wellbore diagram for plugging details

**4. State GA #6**

Unit D Sec 16, T15S-R36E      API No. 30-025-03687  
Status: Drilled : 1955      P & A'd in 1967.  
Surface Casing:      13 3/8" @ 352'      w/400 sx      circulated  
Intermediate Casing:      8 5/8" @ 4749'      w/1700 sx      circulated  
Production Casing:      5 1/2" @ 13,682'      w/200 sx      TOC--12,300  
TD 13,682'  
See attached wellbore diagram for plugging details

**5. State GA #4**

Unit E Sec 16, T15S-R36E      API No. 30-025-03685  
Status: P & A'd in 1967. Drilled in 1955.  
Surface Casing:      13 3/8" @ 336'      w/400 sx      circulated  
Intermediate Casing: 8 5/8" @ 4739'      w/1700 sx      circulated  
Production Casing:      5 1/2" @ 13,700'      w/300 sx      TOC—11,872'  
TD 13,700'  
See attached schematic for plugging details.

**6. State GA #1**

Unit F Sec 16, T15S-R36E

API No. 30-025-03682

Status: Producing Devonian Well. Drilled in 1955. P&A'd in 1967. Re-entered 1976.

Surface Casing: 13 3/8" @ 353' w/400 sx circulated  
Intermediate Casing: 8 5/8" @ 4738' w/1750 sx circulated  
Production Casing: 5 1/2" @ 14,078' w/1250 sx TOC—6725'  
Producing Devonian Perfs: 13,366' to 13,438'

**7. State GA #5**

Unit G Sec 16, T15S-R36E

API No. 30-025-03686

Status: Drilled in 1955. P&A'd in 1964

Surface Casing: 13 3/8" @ 338' w/ 400 sx circulated  
Intermediate Casing: 8 5/8" @ 4747' w/ 2700 sx circulated  
Production Casing: 5 1/2" @ 13,656' w/ 200 sx est. TOC—12,300'  
TD 13,656'  
See attached schematic for plugging details.

**8. State AP #1**

Unit J Sec 16, T15S-R36E

API No. 30-025-03678

Status: P & A'd in 1974. Drilled in 1955.

Surface Casing: 13 3/8" @ 315' w/ 300 sx circulated  
Intermediate Casing: 8 5/8" @ 4659' w/ 3250 sx circulated  
Production Casing: 5 1/2" @ 13,536' w/ 425 sx est. TOC 10,690'  
TD 13,657'  
See attached schematic for plugging details.

**9. State GB #1**

Unit C Sec 16, T15S-R36E

API No. 30-025-03689

Status: Inactive producer Drilled: 1955. P & A'd:1973. Re-entered : 2000

Surface Casing: 13 3/8" @354' w/ 350 sx circulated  
Intermediate Casing: 8 5/8" @ 4748' w/ 2200 sx circulated  
Production Casing: 5 1/2" @ 13,674' w/ 200 sx est. TOC 12,250'  
TD 13,674'

**Exhibit 2B**

**Wellbore Sketches of plugged wells within one half mile  
of proposed re-entry**

Suncray Midcontinent Oil Co  
J. D. Graham #1  
330 FSL & 2310 FEL  
SEC 9- T155- R36E  
Lea County, NM  
 API No. : 30-025-03676

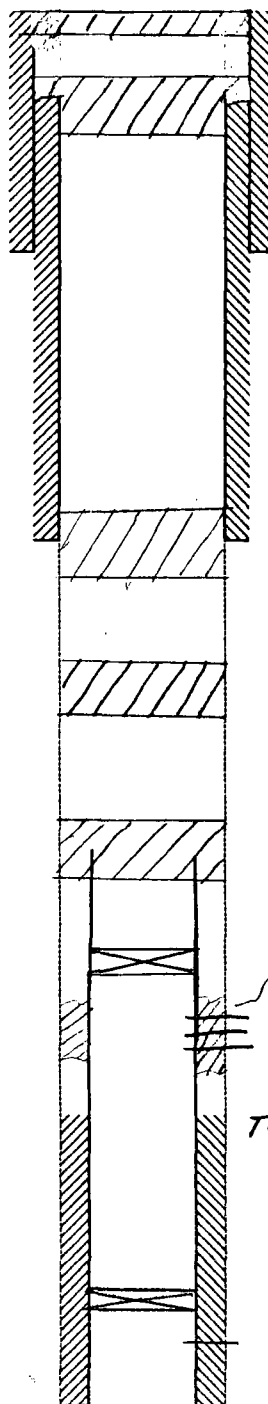
SURFACE CASING: 13 3/8
DEPTH: 374'
CEMENT: 400 SK

INTERM. CASING: 8 5/8"
DEPTH: 4749'
CEMENT: 2300 SK
TOC: 500'

Cut off & pulled 500'

5 1/2" cut & pulled @  
8603'

PROD CASING: 5 1/2"
DEPTH: 13,630
CEMENT: 450 SK
Est TOC = 12,000'



20 SK cement plug - surface

125 SK cement plug 300'-543'

160 SK cement plug 4749-4543

50 SK Cement Plug 5946-6124

40 SK cement plug 8468-8603'

CIBP @ 10,150'

squeeze perfs 10190-11265 Overall

Perfs 10,204-11,252 overall

TOC 12,000

Plug @ 13,532'

Perf 13542-13605

TD: 13,631

# Columbia Carbon Company

Graham #1

330' FSL & 990 FWL

Sec 9 - T155 - R36E

Lea County, NM

Drilled & abandoned in 1956

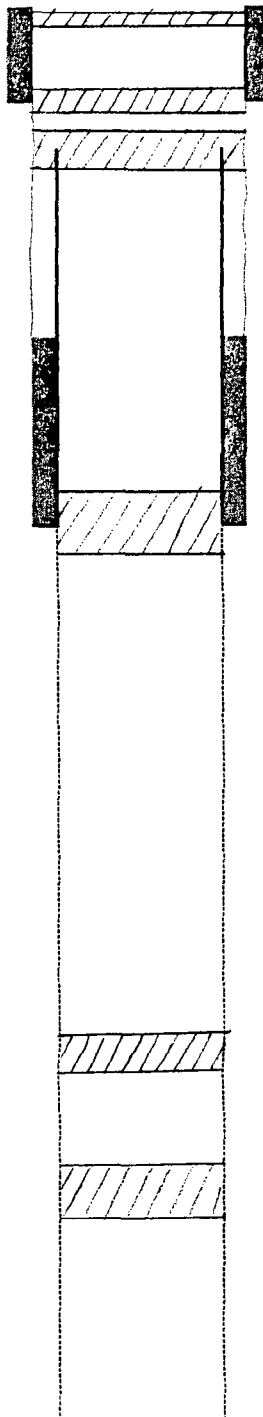
API No: 30-025-03672

SURFACE CASING:	13 $\frac{3}{8}$
DEPTH:	312'
CEMENT:	400 sk
	circulated

INTERM. CASING:	8 $\frac{5}{8}$
DEPTH:	4750'
CEMENT:	300 sk
	TOC - ?

Pulled 900 ft

PROD CASING:	None
DEPTH:	
CEMENT:	



10 sk cement plug - surface

25 sk cement plug 285-320

30 sk cement plug 860-940

100 sk cement plug 4700-5020

25 sk Cement Plug 9605-9655

25 sk cement Plug 10,355-10,405

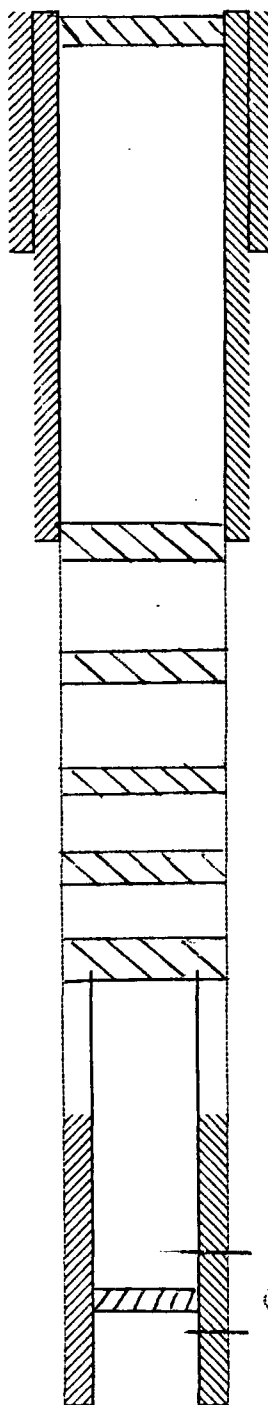
TD: 13,547

Shell Oil Company  
STATE "GA" #6  
660' FNL & 990' FWL  
Sec 16. T155-R36E  
Lea County, NM

Drilled: 1955      P4'd: 1967      API No. 30-029-03687

SURFACE CASING: 13 3/8
DEPTH: 352'
CEMENT: 400 sk
Circulated

INTERM. CASING: 8 5/8"
DEPTH: 4749'
CEMENT: 1700 sk
Circulated



10 sk plug @ surface

25 sack cement plugs @  
 9006', 8100', 7408', 6146', 4748'

5 1/2" casing cut  
 & Pulled @ 9006'

EST TDC 12,159'

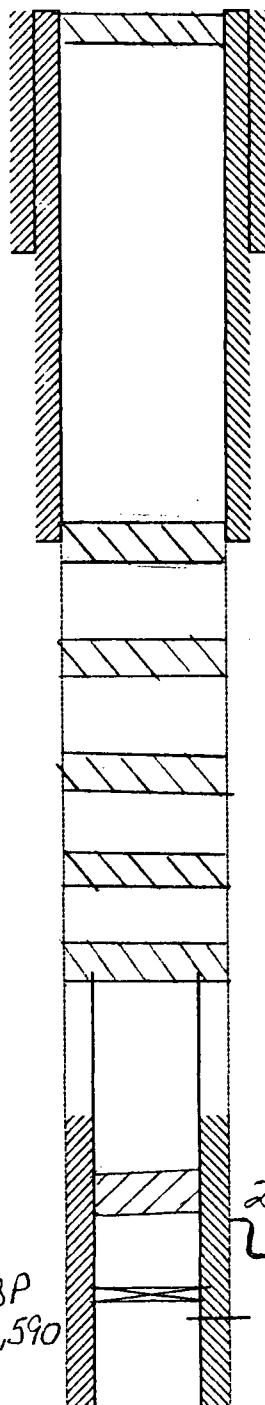
PROD CASING: 5 1/2
DEPTH: 13682
CEMENT: 200 sk

Perfs 13370-13510  
 CIBP - 13538 w/ CMT ON TOP  
 Perfs 13548-13606  
 TD: 13,682'

SHELL Oil COMPANY  
 STATE 'GA' #4  
 1980' FNL & 990' FWL  
 SEC 16 - T15S - R36E  
 Lea County, NM  
 Drilled: 1955 Plugged: 1967 API No: 30-025-03685

SURFACE CASING:	13 3/8
DEPTH:	336'
CEMENT:	400 SX
	Circulated

INTERM. CASING:	8 5/8
DEPTH:	4739'
CEMENT:	1700 SX
	Circulated



10 SK Cement plug @ surface

25 sack cement plugs @  
 9025', 8098', 7408', 6616', 4740'

5 1/2" casing cut  
 + pulled @ 9025'

EST TOC 11,415'

25 SX CMT PLUG 13454-13564  
 Perfs 13454-13564  
 Perfs 13614-13624

PROD CASING:	5 1/2
DEPTH:	13,700'
CEMENT:	300 SX

CIBP  
 @ 13,590

TD:

Shell Oil Company  
STATE 'GA' #5  
1980 FNL & 2310 FEL  
Sec 16. T155. R36E  
Lea County, NM  
 Drilled: 1955      PAD: 1964      API No.: 30-025-03686

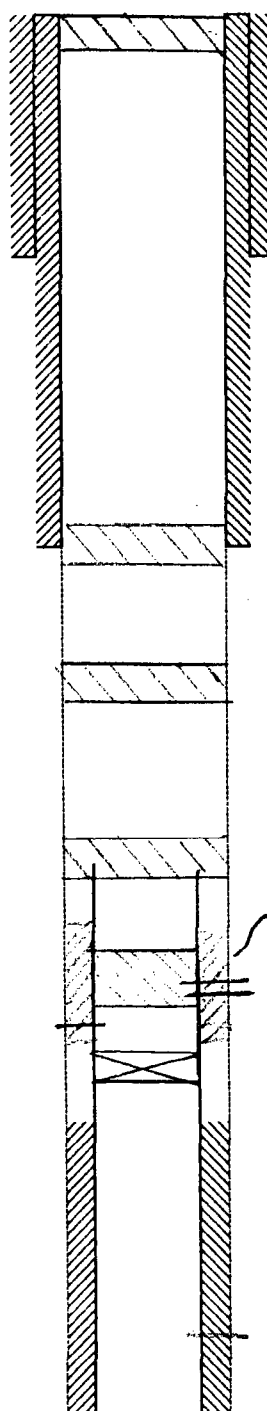
SURFACE CASING:	13 7/8'
DEPTH:	338'
CEMENT:	400 SX
Circulated	

INTERM. CASING:	8 5/8
DEPTH:	4747
CEMENT:	2700 SX
Circulated	

5 1/2" casing cut  
 & pulled @ 8224'

Perf 10650 + 3Q2  
 w/ 255 SX

PROD CASING:	5 1/2
DEPTH:	13,656
CEMENT:	200 SX



15 sack cement plug @ surface

25 sack cement plug @ 4800'

25 sack cement plug @ 6200'

50 sack cement plug @ 8224'

100 sack cement plug 10,560-10,189

Perfs 10,189 - 548 - SQUEEZED w/ 150 SX

61BP @ 10,690 w/ CMT on TOP  
 EST TOC - 12,134'

Perfs 13496 - 13560'

TD: 13,656



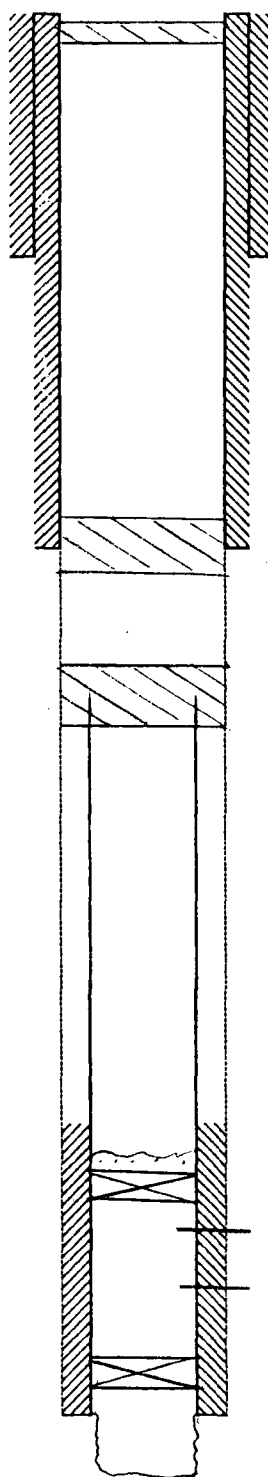
Cities Service Oil Company  
 STATE 'AP' #1  
 1980 FSL & 1980 FEL  
 SEC 16 - T15S - R36E  
 Lea County, NM  
 Drilled: 1955 P&AD: 1974 APINo: 30-025-03678

SURFACE CASING:	13 3/8
DEPTH:	315'
CEMENT:	300 SK
circulated	

INTERM. CASING:	8 5/8
DEPTH:	4659'
CEMENT:	3250 SK
circulated	

5 1/2" casing cut &  
 pulled at 5430'

PROD CASING:	5 1/2
DEPTH:	13,550
CEMENT:	425 SK



10 sack cement plug @ surface

30 sk cement plug 4600 - 4700

30 sk cement plug 5478' - 5378'

EST TOC @ 10,690'

CIBP @ 10,260 w/ 5 sk cement cap

Perfs 10,290 - 10,310

Perfs 10,504 - 10,582

CIBP @ 13,500

TD: 13,657

Devonian openhole 13,550 - 13,657

Oilfield Solutions, Inc.  
2814 S.C.R. 1257, Midland, TX 79708

WATER ANALYSIS REPORT

Company: C.W. TRAMER  
Location: FRESH WATER SAMPLE #1  
Source: 0  
Date Sampled: 0

Sampled By: L-CHEM  
Analysis Date: 02/18/93  
Solvent: 0

ANALYSIS

	mg/L	EQ. WT.	MEQ/L
1. pH	7.50		
2. Specific Gravity @60°F	1.000		
3. Hydrogen Sulfide			
4. Carbon Dioxide			
5. Dissolved Oxygen			
6. Hydroxy (OH <sup>-</sup> )			
7. Carbonate (CO <sub>3</sub> <sup>=</sup> )	196 /	61.1	0.00
8. Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	1,000 /	35.5	28.17
9. Chloride (Cl <sup>-</sup> )	1,580 /	48.8	31.87
10. Sulfate (SO <sub>4</sub> <sup>=</sup> )			
11. Calcium (Ca <sup>++</sup> )	0 /	20.1	0.00
12. Magnesium (Mg <sup>++</sup> )	0 /	12.2	0.00
13. Sodium (Na <sup>+</sup> )	1,467 /	23.0	62.33
14. Barium (Ba <sup>++</sup> )			
15. Total Iron (Fe)			
16. Dissolved Solids	4,212		
17. Filterable Solids	4,212		
18. Total Solids	0		
19. Total Total Hardness As CaCO <sub>3</sub>			
20. Suspended Solids			
21. Volume Filtered (ml)	2,106 /ml		
22. Resiliency @ 75 F. (unadjusted)			
23. CaCO <sub>3</sub> Saturation Index			
24. Calcium Sulfate solubility @ 90 F.	1,580 mg/L		

PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X	MEQ/L	mg/L
Ca(HCO <sub>3</sub> ) <sub>2</sub>	81.04	0.00		0
CaSO <sub>4</sub>	68.07	0.00		0
CaCl <sub>2</sub>	55.50	0.00		0
Mg(HCO <sub>3</sub> ) <sub>2</sub>	73.17	0.00		0
MgSO <sub>4</sub>	60.19	0.00		0
MgCl <sub>2</sub>	47.52	0.00		0
NaHCO <sub>3</sub>	64.00	3.18		2,271
NaSO <sub>4</sub>	71.03	31.87		1,947
NaCl	58.46	28.17		1,647

C-H

Chemist: \_\_\_\_\_

Oilfield Solutions, Inc.  
2614 S.C.R. 1257, Midland, TX 79706

WATER ANALYSIS REPORT

GA

Company: C.W. TULLER  
Location: FRODO WATER SAMPLE #2  
Source: #  
Date Sampled: 0

Sampled By: L. CHESN  
Analysis Date: 8/21/82  
Collection: 1

ANALYSIS

mg/L EQ. WT. MEQ/L

1. pH	7.60		
2. Specific Gravity 60/60 F	1.003		
3. Hydrogen Sulfide			
4. Carbon Dioxide			
5. Dissolved Oxygen			
6. Hydroxyl (OH-)	0 /	17.0 =	0.00
7. Carbonate (CO3=)	0 /	30.0 =	0.00
8. Bicarbonate (HCO3-)	186 /	61.1 =	3.18
9. Chloride (Cl-)	1,000 /	35.5 =	28.17
10. Sulfate (SO4=)	800 /	48.3 =	12.30

11. Calcium (Ca++)	0 /	20.1 =	0.00
12. Magnesium (Mg++)	0 /	12.2 =	0.00
13. Sodium (Na+)	1,004 /	23.0 =	43.58
14. Barium (Ba++)			
15. Total Iron (Fe)			

16. Dissolved Solids	2,790		
17. Filterable Solids	2,780		
18. Total Solids	2,780		

19. Total Total Hardness As CaCO3	0		
20. Suspended Sol			
21. Volume Filtered (ml)			
22. Residue @ 75 F. (calculated)	3.182 Acn.		


23. CaCO3 Saturation Index	ERR		
@ 80 F.	ERR		
@ 100 F.	ERR		
@ 120 F.	ERR		
@ 140 F.	ERR		
@ 160 F.	ERR		
24. Calcium Sulfate Solubility @ 80 F.	1.961 mg/L		

COMPOUND	EQ. WT.	X	MEQ/L	= mg/L
Ca(HCO3)2	81.04		0.00	0
CaSO4	88.07		0.00	0
CaCl2	86.60		0.00	0
Mg(HCO3)2	73.17		0.00	0
MgSO4	60.18		0.00	0
MgCl2	47.82		0.00	0
NaHCO3	84.00		3.18	268
Na2SO4	71.03		12.30	874
NaCl	58.46		28.17	1,647



## Exhibit 4

Per instructions on form C-108, item XII – Pecos Operating Company have examined the 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.

  
Steven Gray, manager

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City, State, ZIP+4 *Midland, TX 79705*

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## AFFIDAVIT OF PUBLICATION

State of New Mexico,  
County of Lea.

I, KATHI BEARDEN

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of 1 weeks.

Beginning with the issue dated

March 15 2008

and ending with the issue dated

March 15 2008

Kathi Bearden  
PUBLISHER

Sworn and subscribed to before

me this 17th day of

March 2008  
Dora Montz  
Notary Public.

My Commission expires  
February 07, 2009  
(Seal)



OFFICIAL SEAL  
DORA MONTZ  
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My Commission Expires

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

Legal Notice  
March 15, 2008

Pecos Operating Company, 400 W. Illinois Ave., Suite 1210, Midland, TX 79701, has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division, seeking administrative approval for a salt water disposal well. The proposed well, the Caudin SWD No. 1, which is located 660' FNL & 2310' FEL of Section 18, T15S, R38E, Lea County, New Mexico, will be used for saltwater disposal only. Produced waters will be injected in to the Devonian formation at a depth of 13,495 to 13,800 feet with a proposed maximum pressure of 1500 psi and maximum rate of 8000 barrels of water per day. Interested parties must file any objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Drive, Santa Fe, NM, 87505, within 15 days of this notice. Additional information may be obtained by contacting Steve Gray at 432-620-8480, #23812

02108548000

02598930

PECOS OPERATING COMPANY, LLC  
400 W. ILLINOIS AVE. SUITE 1210  
MIDLAND, TX 79701

**CASE \_\_\_\_\_: Application of Pecos Operating Company for approval of a non-commercial salt water disposal well, Lea County, New Mexico.** Applicant seeks approval to deepen and utilize the State GA Well No. 7 (API No. 30-025-03688) located 660 feet from the North line and 2310 feet from the East line in Unit B of Section 16, Township 15 South, Range 36 East, NMPM, to dispose of up to 8,000 barrels of produced water per day, at a maximum pressure of 1,500 psi, into the Caudill Devonian Pool in the Devonian Formation, at an approximate depth of 13,495 feet to 13,900 feet. Applicant may be contacted through its representative, Steve Gray, 400 W. Illinois Ave., Suite 1210, Midland, TX 79701, Phone 432-620-8480. Said well is located approximately 3 miles north of Lovington and one-half mile off of Highway 206 (Tatum Hwy).