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[jamesbruc@aol.com](mailto:jamesbruc@aol.com)

RECEIVED OCD

2013 APR 29 P 4: 23

April 29, 2013

Hand delivered

*Case 14994*

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

Dear Florene:

Enclosed for filing, on behalf of Cimarex Energy Co. of Colorado, are an original and one copy of an application reinstate a salt water disposal well order, together with a proposed advertisement. The advertisement has also been e-mailed to the Division. Please set this matter for the May 30, 2013 Examiner hearing.

Very truly yours,

  
James Bruce

Attorney for Cimarex Energy Co. of Colorado

Parties Being Notified

New Mexico Oil Conservation Division  
District 2 – Artesia  
811 S. First  
Artesia, NM 8210

Bureau of Land Management  
P.O. BOX 27115  
Santa Fe, NM 87502-0115

**Surface owner:**

George Ross Ranch LLC.  
3710 Rawlins Street, Ste. 850  
Dallas, TX 75219  
Attn: Mr. David Meyer

**Offset Operators within ½ Mile**

Cimarex Energy Co.  
600 N. Marienfeld, Ste. 600  
Midland, TX 79702

JC Williamson  
c/o Mary Jane Williamson  
P.O. Box 16  
Midland, TX 79702

RKI Exploration & Production, Inc.  
3817 NW Expressway, Ste 950  
Oklahoma City, OK 73112

Ralph E. Williamson  
8202 IH 35 North. Ste. 490  
San Antonio, TX 78239

GP II Energy, Inc.  
P.O. Box 50682  
Midland, TX 79710

Quantum Resources Management LLC.  
3817 NW Expressway, Ste. 950  
Oklahoma City, OK 73112

Shenandoah Petroleum Corporation  
731 W. Wadley, Bldg O, Suite 100  
Midland, TX 79702

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION OF CIMAREX ENERGY CO.  
OF COLORADO TO REINSTATE INJECTION  
AUTHORITY, EDDY COUNTY, NEW MEXICO.

RECEIVED OOD  
2013 APR 29 4:23  
Case No. 14994

APPLICATION

Cimarex Energy Co. of Colorado applies for an order reinstating the injection authority for a salt water disposal well, and in support thereof, states:

1. Division Administrative Order SWD-380, dated October 27, 1989, approved the administrative application of Mallon Oil Company ("Mallon") to inject produced water at depths of 4022-4208 feet subsurface into the Amoco Fed. Well No. 1 (API No. 30-015-24666), located in the NE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 27, Township 26 South, Range 29 East, N.M.P.M.

2. Applicant is a successor operator of the Amoco Fed. Well No. 1.

3. Written notice of Mallon's administrative injection application was not given to the surface owner.

4. By Order No. R-13699, the Division rescinded Administrative Order SWD-380.

5. Applicant requests that the injection authority granted by Administrative Order SWD-380 to dispose of produced water into the Amoco Fed. Well No. 1 in the Delaware formation at depths of 4022-4208 feet subsurface be reinstated, effective as of October 27, 1989.

3. A Form C-108 for the subject well is attached hereto.

4. The granting of this application will prevent waste and protect correlative rights.

**WHEREFORE**, applicant requests that, after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

A handwritten signature in cursive script that reads "James Bruce". The signature is written in black ink and is positioned above a horizontal line.

---

James Bruce  
Post Office Box 1056  
Santa Fe, New Mexico 87504  
(505) 982-2043

Attorney for Cimarex Energy Co. of  
Colorado

APPLICATION FOR AUTHORIZATION TO INJECT

*Case 14994*

- I. PURPOSE: Secondary Recovery Pressure Maintenance  Disposal  Storage   
Application qualifies for administrative approval?  Yes  No
- II. OPERATOR: Cimarex Energy of Colorado  
ADDRESS: 600 N. Marienfeld Street, Suite 600, Midland, Texas 79701  
CONTACT PARTY: Scott Gengler PHONE: 432-571-7800
- 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: Scott Gengler TITLE: Engineer  
SIGNATURE: *Scott Gengler* DATE: April 29, 2013  
E-MAIL ADDRESS: sgengler@cimarex.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: \_\_\_\_\_

### 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.**

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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.

INJECTION WELL DATA SHEET

OPERATOR: Cimarex Energy of Colorado

WELL NAME & NUMBER: Amoco Federal #1 SWD

WELL LOCATION: 1665' FSL, 330' FEL      I      27      T26S      R29E  
FOOTAGE LOCATION      UNIT LETTER      SECTION      TOWNSHIP      RANGE

WELLBORE SCHEMATIC

See Attached

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12 1/4"      Casing Size: 8 5/8"

Cemented with: 280 sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: Surface      Method Determined: \_\_\_\_\_

Intermediate Casing

Hole Size: \_\_\_\_\_      Casing Size: \_\_\_\_\_

Cemented with: \_\_\_\_\_ sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: \_\_\_\_\_      Method Determined: \_\_\_\_\_

Production Casing

Hole Size: 7 7/8"      Casing Size: 4 1/2"

Cemented with: 450 sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: 2720'      Method Determined: CBL

Total Depth: 6150'

Injection Interval

4022' feet to 4208'

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8" 4.7#, J-55 Lining Material: PVC Lined

Type of Packer: Elder Model T

Packer Setting Depth: 3994'

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

Additional Data

1. Is this a new well drilled for injection? \_\_\_\_\_ Yes X No

If no, for what purpose was the well originally drilled? Producer from Williamson  
(Delaware) Sand

2. Name of the Injection Formation: Delaware

3. Name of Field or Pool (if applicable): Brushy Draw

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. 4300' sqz with 250 sx.  
4984-5004' CIBP ; 5350-5358' CIBP

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Underlying #1 : "Williamson" (Delaware) Oil Sand @ 4915- 5022' (Amoco Fed #1)

Underlying #2 : "Getty Sand" (Delaware) Oil Sand @ 5265-5425'

Underlying #3 : "Pecos Sand" (Delaware) Oil Sand @ 4820-4836'

Overlying #1 : "Upper Bell Canyon" (Delaware) Oil Sand @ 2950-3030'



Cimarex Energy Co. of Colorado

Amoco Federal #1 SWD

1665 FSL & 330 FEL

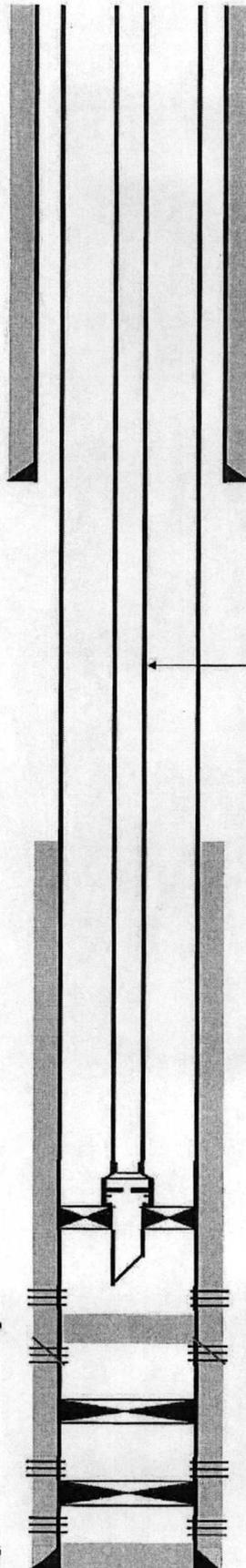
Sec. 27, T-26-S, R-29-E, Eddy Co., NM

Ty Daws

07/11/2012

api 30-015-24466

KB - 8' above GL



8-5/8", 24# J-55 @ 450'  
cmt w/ 280 sx, cmt circ.

125 jts 2-3/8" 4.7# PVC Lined J-55 Tbg

TOC @ 2720'

Elder model T packer @ 3994'

PBTD @ 4283'

Delaware perfs (4022' - 4208')

Cmt retainer @ 4283'

Delaware perfs @ 4300', sqz w/ 250 sx

CIBP @ 4800'

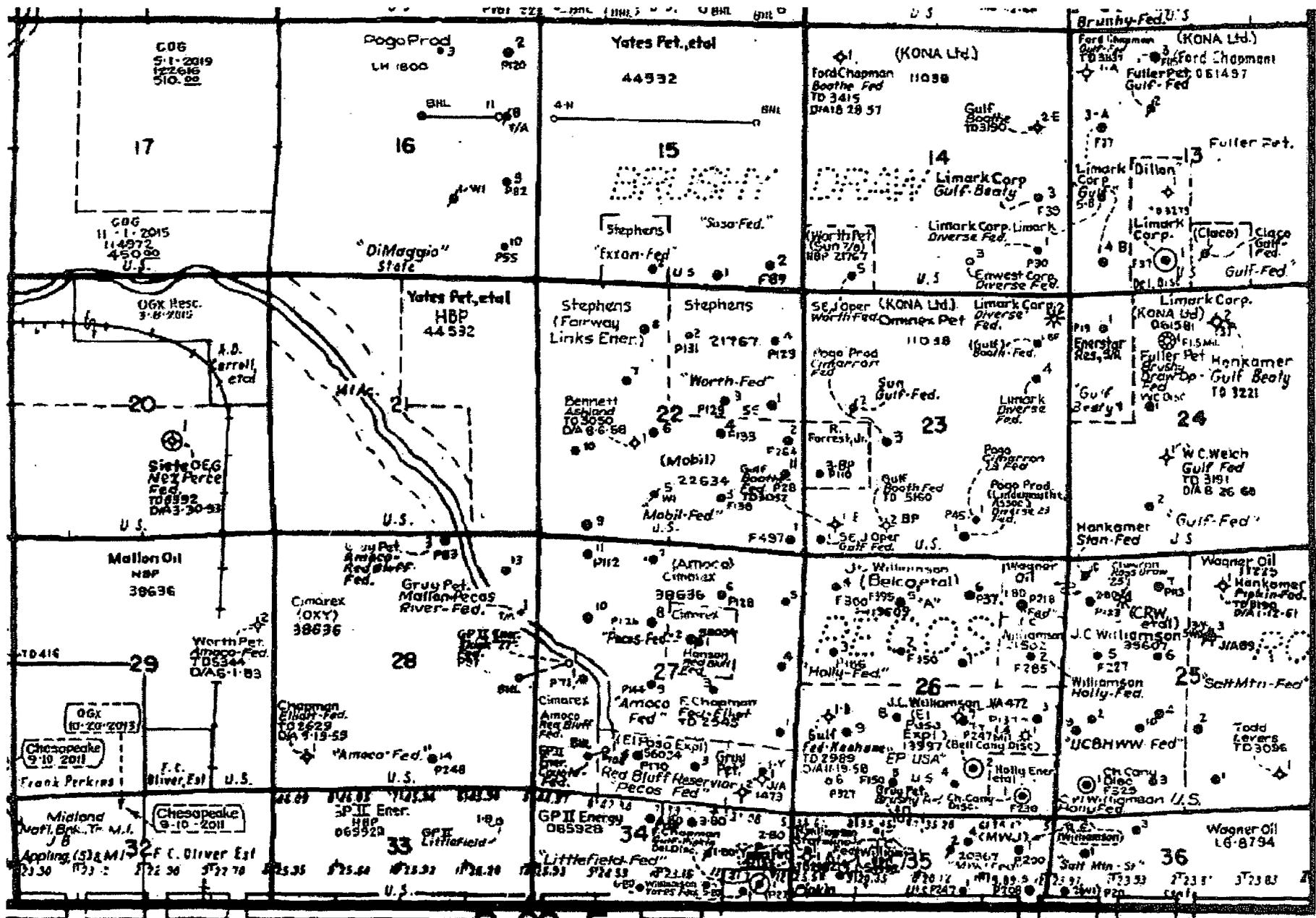
4-1/2" 11.6# J-55 @ 5820'  
cmt w/ 450 sx, TOC @ 2720'

Williamson Perfs (4984' - 5004')

CIBP @ 5300'

Getty Perfs @ (5350' - 5358')

TD @ 6150'

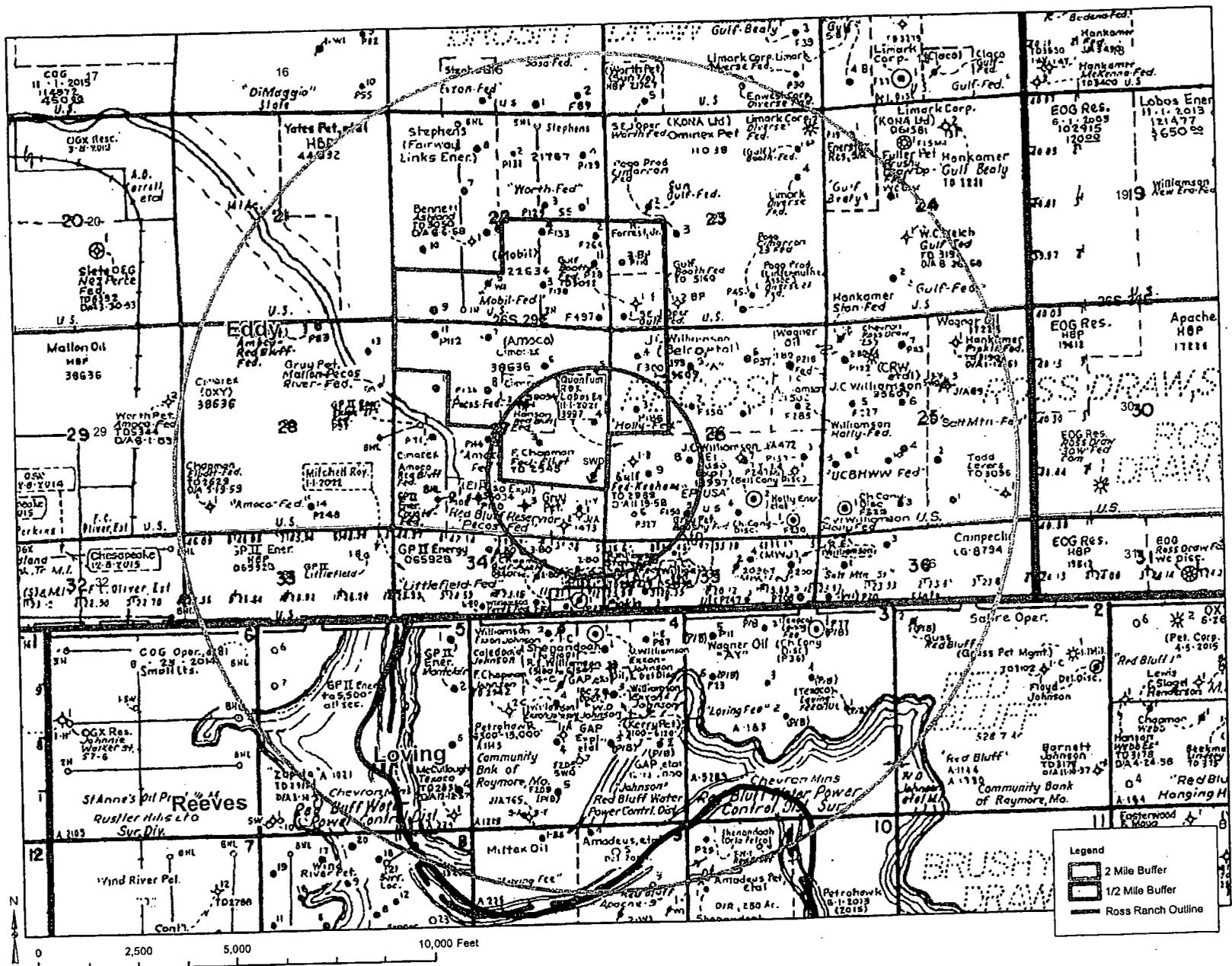


REEVES, North



LOVING County





III A.

1. Amoco Federal #1 : 1665' FSL, 330' FEL, Sec. 27, T26S, R29E, Eddy Co., NM.
2. Surface Casing: 8 5/8", 24# J-55 set in 12 1/4" hole at 450' with 280 sx, calculated cement top at surface.
3. Injection tubing: 2 3/8" 4.7#/ft. PVC lined J-55.
4. Injection packer: Elder Model T set at 3994'

III B.

1. Injection Formation: Delaware  
Field and Pool Name: Brushy Draw
2. Injection Interval: 4022-34', 4036-40', 4050-60', 4092-4102', 4106-24', 4134-54', 4165-4208' (KB) perforated (2spf).
3. Well was originally drilled 4-13-83 as a producing well.
4. Other perforations: "Williamson Sd." Member, Cherry Canyon Formation original perforations 4950-59 (1spf), 4969-5039' (1 shot/10') squeezed with two 100 sx squeeze jobs. Re-perfed 4984-90', 5000-04' (2spf). "Getty Sd" Member, Brushy Canyon Formation tested through perforations 5352-60'. Well presently has a CIBP set at 5300' topped with 20' cement. A permanent BP is set at 4800'. Squeeze perforations were shot at 4300' and squeezed with 250 sx cement. Top of cement is at 2720' calculated by CBL.
5. Next oil and gas producing zone uphole from proposed injection zone within field:  
Olds Sd. Mbr. Bell Canyon  
Formation 2959-3031' (KB)  
Next oil and gas producing zone downhole from proposed injection zone within field:  
Abbey Sd. Mbr. Cherry Canyon  
Formation (approx.) 4315-62' (KB)

VI. Wells Penetrating Proposed Disposal Zone within One Half Mile of Proposed:

1. Well Name and Number: #1Y Pecos Federal  
Operator: RKI Exploration & Production LLC  
Location: 860' FSL, 2810' FWL (SE SE), Sec 27, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud date: 5-2-1984  
Completion Date: 7-11-1984 ; 12/20/1990  
Total Depth: 6000'  
PBTD: 5909'  
Casing Data: Surface 9 5/8", set at 2854' with 1025 sx  
Production 4 1/2", set at 5970' with 760 sx; calculated cement top 3287'  
Completion Data: Perforated 4945-5006', fraced 24,000 gal wtr + N2 34,000# sd;  
12-20-1990 Perforated 2948-3018' (2spf - 112 holes) acidized with 3400 gal 2% KCl water & 168 BS. Fraced with 23,000 gal N2 foam and 89,000# sand.

2. Well Name and Number: #2 Pecos Federal

Operator: Quantum Resources Management LLC  
Location: 1980' FNL, 2030' FEL, (SW NE) Sec. 27, T26S, R29E, Eddy Co., NM  
Type well: Oil / P&A 8-25-2008  
Spud Date: 10-22-1985  
Completion Date: 11-13-1985  
Total Depth: 5509'  
PBD: 5470'  
Casing Data: Surface 13 3/8", set at 366' with 350 sx cement.  
Intermediate 8 5/8" set at 2860' with 1500 sx cement.  
Production 4 1/2", set at 5509' with 3500 sx; calculated cement top 2692'  
Completion Data: Perforated 4901-90'. Acidized with 4000 gal 15% HCl, fraced with unreported vol gelled water + 78,500# sd.

P&A 8-25-2008 See attached Sundry Notice

3. Well Name and Number: #3 Pecos Federal

Operator: Quantum Resources Management LLC  
Location: 760' FSL, 1980' FEL, (SW SE) Sec. 27, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 11-05-1985  
Completion Date: 12-11-1985 ; 12-23-1990  
Total Depth: 5505'  
PBD: 5457'  
Casing Data: Surface 13 3/8", set at 396' with 420 sx cement.  
Intermediate 8 5/8" set at 2845' with 775 sx cement.  
Production 4 1/2", set at 5500' with 375 sx; temperature log cement top 3850' KB  
Completion Data: Perforated 4883-4979' with 46 shots, acidized with 3800 gal 15% NEFE acid (No frac record)  
12-23-1990 Add perforations 4804-4820' (2spf - 32 Holes) with 1000 gal treated 2% KCl water & 54 BS. Fraced with 11,000 gal & 20,500# sand.

P&A 01-15-2009 See attached Sundry Notices

4. Well Name and Number: #2 BO, Littlefield Federal

Operator: George H. Mitchell (GP II Energy Inc.)  
Location: 724' FNL, 660' FEL, Sec. 34, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 05-29-1984  
Completion Date: 08-06-1984  
Total Depth: 5900'  
Casing Data: Surface 9 5/8", set at 350' with 485 sx cement.  
Intermediate 7" set at 2880' with 200 sx cement.  
Production 4 1/2", set at 5900' with 356 sx; calculated cement top 2512'

Completion Data: Perforated 4950', 4953', 4957', 4961', 4964', 4967', 4973', 4976', 4979', 4983', 4989', 4992', 4995', 4998', acidized with 1500 gal 7 1/2% MSR acid, frac with 24,000 gal foamed, gelled water + 34,000# sd.

5. Well Name and Number: #1 Stateline Federal

Operator: Ralph E Williamson (originally New Tex Oil)

Location: 740' FNL, 330' FWL, Sec. 35, T26S, R29E, Eddy Co., NM

Type well: Oil

Spud Date: 06-04-1983

Completion Date: 08-07-1983

Total Depth: 6750'

PBTD: 6708'

Casing Data: Surface 13 3/8", set at 455' with 450 sx cement.

Intermediate 8 5/8" set at 2901' with 650 sx cement.

Production 5 1/2", set at 6750' with 1800 sx; calculated cement top at surface

Completion Data: Perforated 6442-6565' (22 holes) squeezed off with 150 sx.

Perforated 5863-5892' (15 holes), acidized with 1500 gal HCl, fraced with 12,000 gal + 17,000# sd. Perforated 5308-30' (1 spf); acidized with 2000 gallons fraced

with 15,000 gallons + 23,000# sd.; Perforated 5103-07', 5129-35' (2 spf).

Acidized with 1500 gallons fraced with 12,000 gallons + 19,000# sd.; Perf 4935

-5005', acidized with 3000 gallons, fraced with 20,000 gallons + 25,000# sd.

6. Well Name and Number: #5 EP-USA

Operator: J.C. Williamson

Location: 660' FSL, 1980' FWL, (SE SW), Sec. 26, T26S, R29E, Eddy Co., NM

Type well: Oil

Spud Date: 01-31-1985

Completion Date: 02-26-1985

Total Depth: 6250'

PBTD: 6208'

Casing Data: Surface 13 3/8", set at 452' with 500 sx cement.

Intermediate 8 5/8" set at 2770' with 150 sx cement.

Production 4 1/2", set at 6250' with 1150 sx; calculated cement top 2195'

Completion Data: Perforated 4985-5057' (28 holes) acidized with 3000 gal 7 1/2% NEFE, frac with 55,700 gallons gelled water + 100,000# sd.

7. Well Name and Number: #6 EP-USA

Operator: J.C. Williamson

Location: 660' FSL, 660' FWL, (SW SW), Sec. 26, T26S, R29E, Eddy Co., NM

Type well: Oil

Spud Date: 03-19-1985

Completion Date: 04-23-1985

Total Depth: 6200'

PBTD: 6160'

Casing Data: Surface 12 3/4", set at 425' with 450 sx cement.  
Intermediate 8 5/8" set at 2810' with 150 sx cement.  
Production 4 1/2", set at 6200' with 1150 sx; calculated cement top 2145'  
Completion Data: Perforated 4958-5042'. Acidized with 3000 gal 7 1/2%  
NEFE, fraced with 58,256 gallons + 99,000# sd.

8. Well Name and Number: #9 EP-USA

Operator: J.C. Williamson  
Location: 1650' FSL, 990' FWL, (NW SW), Sec. 26, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 03-14-1985  
Completion Date: 04-16-1985  
Total Depth: 6220'  
PBSD: 6178'

Casing Data: Surface 13 3/8", set at 425' with 450 sx cement.  
Intermediate 8 5/8" set at 2764' with 150 sx cement.  
Production 5 1/2", set at 6220' with 1300 sx; calculated cement top 178'  
Completion Data: Perforated 4961-5024' (25 shots). Acidized with 3000 gal 7 1/2%  
HCl, fraced with 56,000 gallons + 82,450# sd.

9. Well Name and Number: #8 EP-USA

Operator: J.C. Williamson  
Location: 1980' FSL, 1980' FWL, Sec. 26, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 02-28-1985  
Completion Date: 03-27-1985  
Total Depth: 6250'  
PBSD: 6208'

Casing Data: Surface 13 3/8", set at 425' with 450 sx cement.  
Intermediate 8 5/8" set at 2775' with 150 sx cement.  
Production 5 1/2", set at 6250' with 1000 sx; calculated cement top 1602'  
Completion Data: Perforated 4983-5065' Acidized with 3000 gallons, fraced with  
57,496 gallons + 100,000# sd.

10. Well Name and Number: #3 Holly "A" Federal

Operator: J.C. Williamson  
Location: 1980' FNL, 660' FWL, (SW NW), Sec. 26, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 12-17-1984  
Completion Date: 01-17-1985  
Total Depth: 5452'  
PBSD: 5412'

Casing Data: Surface 13 3/8", set at 472' with 500 sx cement.  
Intermediate 8 5/8" set at 5432' with 900 sx cement.

Production 5 ½", set at 6250' with 1000 sx; calculated cement top 2259'  
Completion Data: Perforated 4935-5026' Acidized with 3000 gallons 7 ½% NEFE,  
fraced with 55,000 gallons gelled water + 89,000# sd.

11. Well Name and Number: Amoco-Federal #3

Operator: Cimarex Energy of Colorado  
Location: 2310' FSL, 1681' FEL, (NW SE), Sec. 27, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 08-16-1983  
Completion Date: 10-14-1983  
Total Depth: 5075'  
PBSD: 5035'  
Casing Data: Surface 8 5/8", set at 445' with 280 sx cement.  
Production 5 ½", set at 5070' with 400 sx; Cement top (CBL) 3219'  
Completion Data: Perforated 4909-4974' (1spf). Acidized with 1500 gallons,  
fraced with 30,000 gallons + 64,000# sd.

12. Well Name and Number: Amoco-Federal #4

Operator: Cimarex Energy of Colorado  
Location: 2310' FNL, 330' FEL, (SE NE), Sec. 27, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 11-28-1983  
Completion Date: 02-27-1984  
Total Depth: 5052'  
PBSD: 5037'  
Casing Data: Surface 8 5/8", set at 517' with 1275 sx cement.  
Production 5 ½", set at 5046' with 450 sx; Cement top (CBL) 3180'  
Completion Data: Perforated 4962-5017' (18 shots). Acidized with 2500 gallons  
HCl, fraced with 30,000 gallons + 50,000# sd.

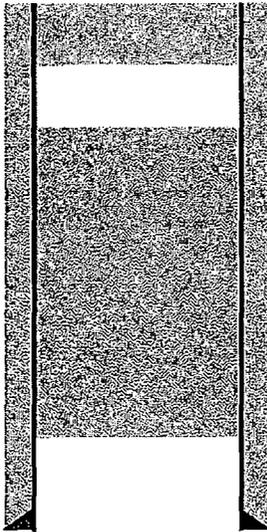
13. Well Name and Number: #3 BO, Littlefield Federal

Operator: George H. Mitchell (GP II Energy Inc.)  
Location: 400' FNL, 1980' FEL, Sec. 34, T26S, R29E, Eddy Co., NM  
Type well: Oil  
Spud Date: 12-15-1986  
Completion Date: 01-12-1987  
Total Depth: 5200'  
PBSD: 5127'  
Casing Data: Surface 9 5/8", set at 354' with 170 sx cement.  
Production 4 ½", set at 5200' with 615 sx; cement top surface  
Completion Data: Perforated 4817-4955' (20 holes) acidized with 2500 gal 15%  
NEFE acid.

Completed: Nov 13, 1985  
Original Operator: Ex Paso Expl

Pecos Federal #2  
1980 FNL & 2030 FEL  
Sec. 27, T-26-S, R-29-E, Eddy Co., NM

Spot 25 sacks to surface



TOC Surf

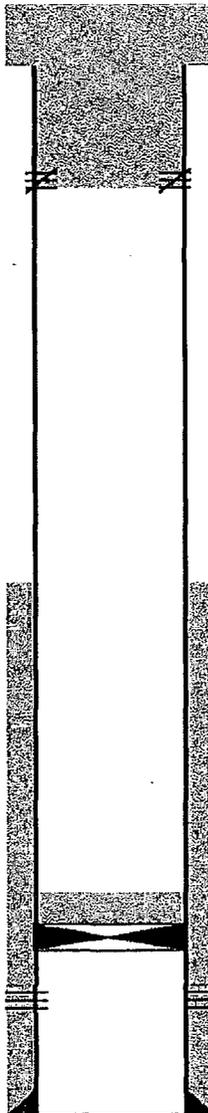
api 30-015-25376

13 3/8" @ 366'; cmt 420 sx to surf

65 sacks @ 547'  
Respot 73 sacks @ 547'  
Tag @ 62'

8 5/8" @ 2860'; cmt 870 sx to surf

40 sack cement plug from 2569 - 2765'  
90 sack cement plug from 2765 - 2966'



4-1/2" casing cut and pulled @2906'

53 Sack cement plug spotted & Squeezed  
from 2966 - 3213  
Hole in casing @ 3213'

Top of cement unknown

CIBP @ 4827' capped with 25 sx cement (8/19/2008)

Delaware perms 4901-4990'

4 1/2" @ 5509'; cmt 500 sx

Original PBTD: 5470'  
TD @ 5509'

Completed: Dec 11, 1985  
Original Operator: Ex Paso Expl

Pecos Federal #3  
760 FSL & 1980 FEL  
Sec. 27, T-26-S, R-29-E, Eddy Co., NM

api 30-015-25435

13 3/8" @ 396'; cmt 420 sx to surf

40 sack cement plug from 3'-557'

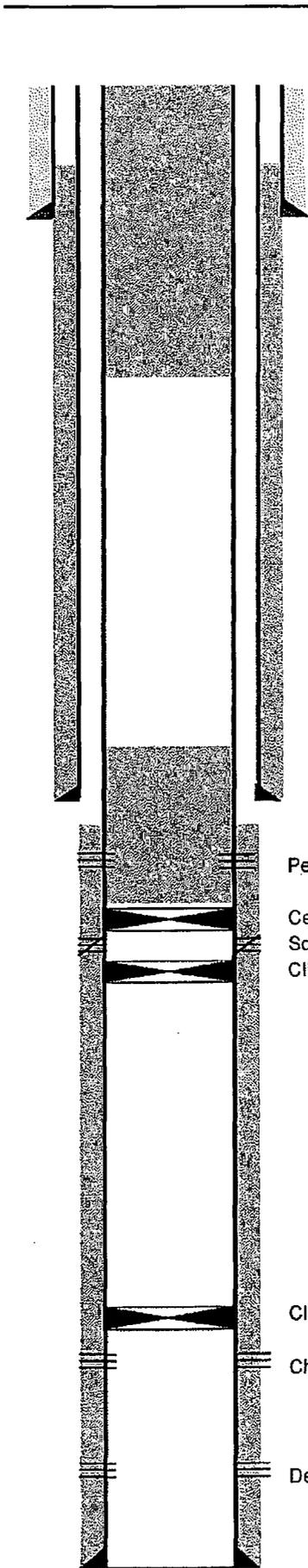
8 5/8" @ 2845'; cmt 775 sx to 365'  
Top of cement 2900'  
25 sack cement plug at 2656-2949'

Perfs 2885-2904'  
Cement Retainer @ 2998'  
Sqz hole in csg @ 3050'  
CIBP @ 3105'

CIBP @ 4775'  
Cherry Canyon perfs 4804-4820'

Delaware perfs 4883-4979'

4 1/2" @ 5500'; cmt 375 sx



Original PBTD: 5457'  
TD @ 5505'

**VII. Proposed Injection Operation:**

1. Proposed Average Daily Injection Rate: 800 BWPD.  
Proposed Maximum Daily Injection Rate: 1600 BWPD.
2. Closed system.
3. Average Surface Injection Pressure: 640 psi.  
Proposed Maximum Surface Injection Pressure: 804 psi.
4. All injected fluid will be water produced from the Cherry Canyon Fm. (analysis attached). No water from the proposed injection zone is available for analysis.
5. The apparent water resistivity back calculated from the open hole logs indicates a sodium chloride equivalent concentration of 60,000 PPM (mg/L). There are no wells producing from proposed disposal zone within one mile.

**VIII. Proposed Injection Zone:**

Ross Sands, Cherry Canyon Fm., Delaware Mountain Group.  
Fine to medium grained sandstone bounded by areally continuous shales above & below  
Net sand thickness (porosity greater than 18% (20 FDC)) 74' (4024-4206', Gross).

**Drinking Water Zone:**

"Dewey Lake" 150-200'+ (KB), no other known fresh water zones in area.

**IX. Proposed Stimulation:**

The proposed injection zone was previously acidized with 2500 gals of acid. No additional stimulation is anticipated

**X. Logs previously submitted.**

**XI. See attachments for water analyses from the two known fresh water wells in the area.**  
Well #1 SW SW Sec, 22, T26S, R29E, "Challenger Fresh", sampled 5-27-1988.

Well #2 NW SW Sec. 26, T26S, R29E, "Williamson Fresh", sampled 5-27-1988.

**XII. Statement regarding hydrologic connection between fresh water aquifer and proposed disposal zone:**

Detailed mapping of the Williamson Sd (Cherry Canyon Formation) which lies approximately 700' below the proposed disposal zone shows no indication of faulting or other potential conduits for fluid flow between the proposed disposal zone and the aquifer in the Dewey Lake Formation. Further, no indications have been observed during drilling of the wells to make such geologic phenomena seem likely.

North Permian Basin Region  
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Sundown, TX 79372-0740  
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Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## Water Analysis Report by Baker Petrolite

|                     |                |                  |                            |
|---------------------|----------------|------------------|----------------------------|
| Company:            | CIMAREX ENERGY | Sales RDT:       | 33500.33                   |
| Region:             | PERMIAN BASIN  | Account Manager: | DUSTIN POLK (575) 513-8405 |
| Area:               | ARTESIA, NM    | Sample #:        | 636799                     |
| Lease/Platform:     | AMOCO FEDERAL  | Analysis ID #:   | 131572                     |
| Entity (or well #): | 8              | Analysis Cost:   | \$90.00                    |
| Formation:          | UNKNOWN        |                  |                            |
| Sample Point:       | WELLHEAD       |                  |                            |

| Summary                         |              | Analysis of Sample 636799 @ 75 °F |          |         |                |         |         |
|---------------------------------|--------------|-----------------------------------|----------|---------|----------------|---------|---------|
| Sampling Date:                  | 4/19/2013    | <b>Anions</b>                     | mg/l     | meq/l   | <b>Cations</b> | mg/l    | meq/l   |
| Analysis Date:                  | 4/24/2013    | Chloride:                         | 175303.0 | 4944.66 | Sodium:        | 60359.4 | 2625.49 |
| Analyst:                        | STACEY SMITH | Bicarbonate:                      | 36.6     | 0.6     | Magnesium:     | 5012.0  | 412.31  |
| TDS (mg/l or g/m3):             | 281286.5     | Carbonate:                        | 0.0      | 0.0     | Calcium:       | 36347.0 | 1813.72 |
| Density (g/cm3, tonne/m3):      | 1.209        | Sulfate:                          | 188.0    | 3.91    | Strontium:     | 2285.0  | 52.16   |
| Anion/Cation Ratio:             | 1            | Phosphate:                        |          |         | Barium:        | 5.5     | 0.08    |
| Carbon Dioxide:                 | 330 PPM      | Borate:                           |          |         | Iron:          | 35.0    | 1.26    |
| Oxygen:                         | 0 PPM        | Silicate:                         |          |         | Potassium:     | 1687.0  | 43.14   |
| Comments:                       |              | Hydrogen Sulfide:                 |          | 0 PPM   | Aluminum:      |         |         |
| RESISTIVITY 0.12 OHM-M @ 250° F |              | pH at time of sampling:           |          | 6       | Chromium:      |         |         |
|                                 |              | pH at time of analysis:           |          |         | Copper:        |         |         |
|                                 |              | pH used in Calculation:           |          | 6       | Lead:          |         |         |
|                                 |              |                                   |          |         | Manganese:     | 28.000  | 1.02    |
|                                 |              |                                   |          |         | Nickel:        |         |         |

| Conditions |                        | Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl |        |  |        |                                |        |                                |        |                             |        |                                 |
|------------|------------------------|---|--------|--|--------|--------------------------------|--------|--------------------------------|--------|-----------------------------|--------|---------------------------------|
| Temp<br>°F | Gauge<br>Press.<br>psi | Calcite<br>CaCO <sub>3</sub>  |        | Gypsum<br>CaSO <sub>4</sub> ·2H <sub>2</sub> O |        | Anhydrite<br>CaSO <sub>4</sub> |        | Celestite<br>SrSO <sub>4</sub> |        | Barite<br>BaSO <sub>4</sub> |        | CO <sub>2</sub><br>Press<br>psi |
|            |                        | Index   | Amount | Index  | Amount | Index                          | Amount | Index                          | Amount | Index                       | Amount |                                 |
| 80         | 0                      | -0.25   | 0.00   | -0.41  | 0.00   | -0.35                          | 0.00   | -0.06                          | 0.00   | 0.39                        | 1.64   | 0.15                            |
| 100        | 0                      | -0.17   | 0.00   | -0.48  | 0.00   | -0.36                          | 0.00   | -0.08                          | 0.00   | 0.20                        | 1.08   | 0.17                            |
| 120        | 0                      | -0.09   | 0.00   | -0.54  | 0.00   | -0.34                          | 0.00   | -0.08                          | 0.00   | 0.04                        | 0.27   | 0.2                             |
| 140        | 0                      | 0.00  | 0.00   | -0.59  | 0.00   | -0.30                          | 0.00   | -0.07                          | 0.00   | -0.09                       | 0.00   | 0.22                            |

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

HALLIBURTON DIVISION LABORATORY  
 HALLIBURTON SERVICES  
 MIDLAND DIVISION  
 HOBBS, NEW MEXICO 88240

RECEIVED JUN 03 1988

LABORATORY WATER ANALYSIS

No. \_\_\_\_\_

To Mallon Oil

Date 5-25-88

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

Submitted by \_\_\_\_\_ Date Rec. \_\_\_\_\_

Well No. \_\_\_\_\_ Depth \_\_\_\_\_ Formation \_\_\_\_\_

County \_\_\_\_\_ Field \_\_\_\_\_ Source \_\_\_\_\_

|                                  | <u>Williamson Fresh</u> | <u>Amoco Production</u> | <u>Challenger Fresh</u> |
|----------------------------------|-------------------------|-------------------------|-------------------------|
| Resistivity                      | <u>.854 @ 70°</u>       | <u>.059 @ 70°</u>       | <u>1.75 @ 70°</u>       |
| Specific Gravity                 | <u>1.005</u>            | <u>1.205.</u>           | <u>1.000</u>            |
| pH                               | <u>7.2</u>              | <u>6.7</u>              | <u>7.1</u>              |
| Calcium (Ca)                     | <u>1350</u>             | <u>32,500</u>           | <u>450 *MPL</u>         |
| Magnesium (Mg)                   | <u>90</u>               | <u>5100</u>             | <u>Nil</u>              |
| Chlorides (Cl)                   | <u>4000</u>             | <u>189,000</u>          | <u>1600</u>             |
| Sulfates (SO <sub>4</sub> )      | <u>1800</u>             | <u>100</u>              | <u>1700</u>             |
| Bicarbonates (HCO <sub>3</sub> ) | <u>180</u>              | <u>24</u>               | <u>193</u>              |
| Soluble Iron (Fe)                | <u>Nil</u>              | <u>25</u>               | <u>nil</u>              |
|                                  |                         |                         |                         |
|                                  |                         |                         |                         |
|                                  |                         |                         |                         |

Remarks: \_\_\_\_\_ \*Milligrams per liter

Respectfully submitted,

Analyst: \_\_\_\_\_  
 cc: \_\_\_\_\_

HALLIBURTON COMPANY

By \_\_\_\_\_  
 CHEMIST

NOTICE

THIS REPORT IS LIMITED TO THE DESCRIBED SAMPLE TESTED. ANY USER OF THIS REPORT AGREES THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER CAUSED BY NEGLIGENCE OR OTHERWISE.

PROPOSED ADVERTISEMENT

Case No. 141994 :

*Application of Cimarex Energy Co. of Colorado to reinstate injection authority, Eddy County, New Mexico.* Applicant seeks an order reinstating the injection authority approved by Division Administrative Order SWD-380 for the injection of produced water into the Delaware formation at depths of 4022-4208 feet subsurface in the Amoco Fed. Well No. 1, located in the NE/4SE/4 of Section 27, Township 26 South, Range 29 East, NMPM, effective as of October 27, 1989. The well is located approximately 4 miles east-northeast of the intersection of U.S. Highway 285 with the Texas state line.

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