mm
2/12/2018

| DATE IN | SUSPENSE | ENGINEER | LOGGED IN | TYPE | APP NO |
|---|---|---|---|---|---|
| 1/11/2018 | | | 2/12/2018 | SWD | pMAM1802509CC |

RECEIVED OCD
2018 JAN 11 P 3:21

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]

SWD
- Delaware Energy, 371195

[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

well
- Moomaw SWD #1
30-025-Pending
Pod
- SWD, Devonian-Silurian 97869

[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.**

| Michael McCurdy | | Vice-President | 1/11/2018 |
|---|---|---|---|
| Print or Type Name | Signature | Title | Date |

m.mccurdy@delawareenergy.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

## APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: ___Secondary Recovery___ ___Pressure Maintenance___ ___xxx___Disposal ___Storage
Application qualifies for administrative approval? ___xxx___Yes ___No

II. OPERATOR: ___Delaware Energy LLC___

ADDRESS: ___405 N. Marienfeld St. Suite 250, Midland TX 79701___

CONTACT PARTY: ___Michael McCurdy___ PHONE: ___432-312-5251___

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).

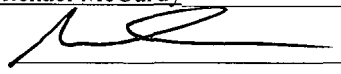
*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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: ___Michael McCurdy___ TITLE: ___Vice-President___

SIGNATURE:  DATE: ___1/11/2018___

E-MAIL ADDRESS: ___m.mccurdy@Delawareenergy.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

Side 2

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.

Side 1

# INJECTION WELL DATA SHEET

OPERATOR: Delaware Energy LLC

WELL NAME & NUMBER: Moomaw SWD #1

WELL LOCATION: 1,646' FNL, 2,294' FEL G 25 24S 34E
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

***WELLBORE SCHEMATIC*** *See Attached Wellbore schematic*

***WELL CONSTRUCTION DATA***

Surface Casing

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. *or* _____ $ft^3$

Top of Cement: _____ Method Determined:

Total Depth: 420'

Intermediate Casing

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. *or* _____ $ft^3$

Top of Cement: _____ Method Determined:

Total Depth:

Liner

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. *or* _____ $ft^3$

Top of Cement: Method Determined:

Total Depth: _____

Production Casing

Hole Size: _____ Casing Size:___

Cemented with: ___ *or* _____ $ft^3$

Top of Cement: Method Determined:

Total Depth: _____

Injection Interval

17,400' feet to 19,200'

**Open Hole**

# INJECTION WELL DATA SHEET

Tubing Size: 5.5" & 5.0" Lining Material: Internally plastic coated

Type of Packer: Weatherford Arrow Set 1X Injection Packer

Packer Setting Depth: 50-100ft above perforations

Other Type of Tubing/Casing Seal (if applicable): NONE

## Additional Data

1. Is this a new well drilled for injection? XXX Yes No

   If no, for what purpose was the well originally drilled?

2. Name of the Injection Formation: Devonian-Fusselman

3. Name of Field or Pool (if applicable): SWD: Devonian-Fusselman

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.

   N/A

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

   BELOW: None

   ABOVE: Wolfcamp 12,000'-12,500', Morrow 13,500'-13,700', Bone Springs 10,800'-12,000', Delaware 9,000'-9,500'

Additional Questions on C-108

**VII.**

1. **Proposed average and maximum daily rate and volume of fluids to be injected;**
   Average 20,000 BWPD, Max 30,000 BWPD

2. **Whether the system is open or closed;**
   Open System, Commercial SWD

3. **Proposed average and maximum injection pressure;**
   Average 1,800 PSI, Max 3,480 PSI

4. **Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,**
   Bone Spring, Delaware, and Wolfcamp produced water. no known incompatibility exists with injected water into the Devonian. Water is compatible with Devonian formation and is used as a disposal interval through the Delaware Basin for Wolfcamp, Bone Springs, and Delaware produced water. See attached water analysis from Bone Spring, Wolfcamp, and Delaware produced water.

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.).**
   See attached Lea County Devonian water samples

***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.**

The proposed disposal interval is in the Devonian-Fusselman formations 17,400'-19,200'. There are no fresh water zones underlying the proposed injection zone. Devonian is an impermeable Shale at the very top (Woodford Shale) followed by permeable dolomite and Lime. Mud logs and Electric logs will be used to confirm the estimated depths of the Woodford and Devonian Dolomite along with other significant tops. Usable water depth is from surface to a max of +/- 300ft based on data from State Engineers office. No water wells are present in section 25, one well is present in section 30 fo T24S, R35E, to a depth of 175'. Source rock for fresh water in this area is Santa Rosa.

**X.** A mud log and Gamma/Neutron log will be run to confirm the estimated depths of the Woodford Shale and Devonian Dolomite. These logs and cased hole logs will be filed with the commission following drilling operations.

**XI.** No Active water wells exist in section 25. 1 water wells are known in section 30, T24S, R35E, to a depth of 175'. Could not located fresh water well in section 30, so no water well was taken.

**IX. Describe the proposed stimulation program, if any.**
60,000 gallons 20% HCL acid job with packer

→ see attachment; can be located - access to water sample not determined

**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.**

Delaware Energy, L.L.C. has reviewed and examined available geologic and engineering data in the area of interest for the Moomaw SWD #1 and have found no evidence of faults or other hydrologic connections between Devonian disposal zones and the underground sources of drinking water.

Mike McCurdy Title VP Operations Date 1/11/2018

**III. WELL DATA**

**(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.**

Moomaw SWD #1, Sec. 25-T24S-R34E, 1,646' FNL & 2,294' FEL, UL G, Lea County, New Mexico

**(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.**

| Casing Size | Setting Depth | Sacks of Cement | Hole Size | Top of Cement | Determined |
|---|---|---|---|---|---|
| 13-3/8" | 1,000' | 1,000 | 17.5" | Surface | CIRC |
| 9-5/8" | 12,700' | 3,000 | 12-1/4" | Surface | CIRC |
| 7-5/8" FJ | 12,500'-17,400' | 1,000 | 8-1/2" | 12,500' | CIRC |

**(3) A description of the tubing to be used including its size, lining material, and setting depth.**

5.5" (0-12,300') X 5.0" (12,300-17,350) OD, Internally Plastic Coated Tubing set 50 to 100ft above Open Hole

**(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.**

Weatherford Arrow set 1X injection packer, nickel plated with on/off tool

**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.**

Devonian-Fusselman Formations
Pool Name: SWD (Devonian-Fusselman)

**(2) The injection interval and whether it is perforated or open-hole.**

17,400' to 19,200' (OH)

**(3) State if the well was drilled for injection or, if not, the original purpose of the well.**

New well drilled for injection

**(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.**

**N/A**

**(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.**

Next Higher: Wolfcamp 12,000'-12,500', Morrow 13,500'-13,700', Bone Springs/Avalon 10,800'-12,000', Delaware 9,000'-9,500'

Next Lower: None

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

# OIL CONSERVATION DIVISION

*1220 South St. Francis Dr.*
*Santa Fe, New Mexico 87505*

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

| API Number | Pool Code | Pool Name |
|---|---|---|
| | | |

| Property Code | Property Name | Well Number |
|---|---|---|
| | MOOMAW SWD | 1 |
| **OGRID No.** | **Operator Name** | **Elevation** |
| | DELAWARE ENERGY | 3380' |

### Surface Location

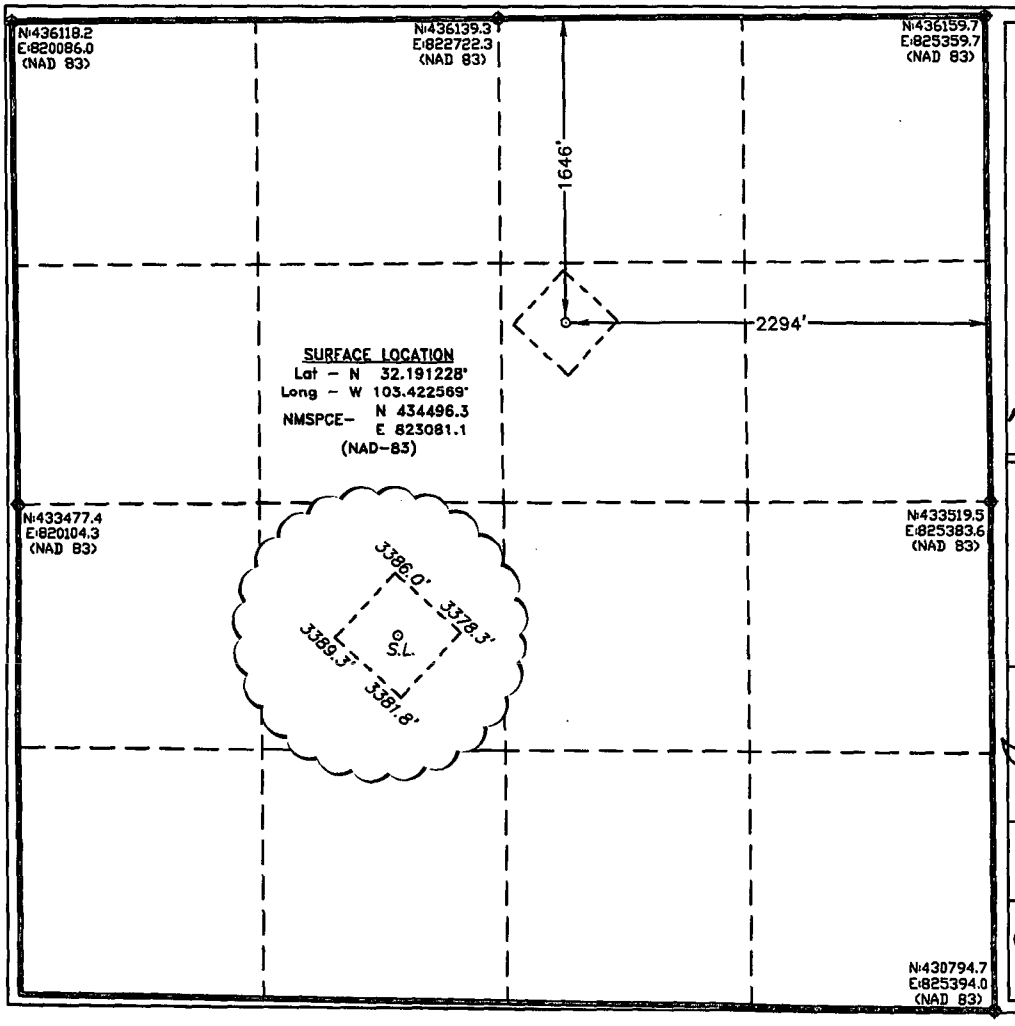
| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| G | 25 | 24 S | 34 E | | 1646 | NORTH | 2294 | EAST | EDDY |

### Bottom Hole Location If Different From Surface

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|---|---|---|---|
| | | | |

NO ALLOWABLE WILL BE 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, and that this organization either owns a working interest or unLEAsed mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

Signature 1/2/2018 Date

Mike McCurdy
Printed Name

m.mccurdy@delawareenergy.com
Email Address

### SURVEYOR CERTIFICATION

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.*

DECEMBER 15, 2017
Date Surveyed

Signature & Seal of Professional Surveyor

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

0' 1000' 2000' 3000' 4000'

SCALE: 1" = 2000'
WO Num.: 33432

North Permian Basin Region
P.O. Box 740
Sundown, TX 79372-0740
(806) 229-8121
Lab Team Leader - Sheila Hernandez
(432) 495-7240

Bone Spring

# Water Analysis Report by Baker Petrolite

| | | | |
|---|---|---|---|
| Company: | | Sales RDT: | 33514.1 |
| Region: | PERMIAN BASIN | Account Manager: | TONY HERNANDEZ (575) 910-7135 |
| Area: | ARTESIA, NM | Sample #: | 534665 |
| Lease/Platform: | PINOCHLE 'BPN' STATE COM | Analysis ID #: | 106795 |
| Entity (or well #): | 2 H | Analysis Cost: | $90.00 |
| Formation: | UNKNOWN | | |
| Sample Point: | WELLHEAD | | |

| Summary | |
|---|---|
| Sampling Date: | 03/10/11 |
| Analysis Date: | 03/18/11 |
| Analyst: | SANDRA GOMEZ |
| TDS (mg/l or g/m3): | 184911.1 |
| Density (g/cm3, tonne/m3): | 1.113 |
| Anion/Cation Ratio: | 1 |
| Carbon Dioxide: | 0 50 PPM |
| Oxygen: | |
| Comments: | |

Analysis of Sample 534665 @ 75 °F

| Anions | mg/l | meq/l | Cations | mg/l | meq/l |
|---|---|---|---|---|---|
| Chloride: | 109619.0 | 3091.92 | Sodium: | 70275.7 | 3056.82 |
| Bicarbonate: | 2135.0 | 34.99 | Magnesium: | 195.0 | 16.04 |
| Carbonate: | 0.0 | 0. | Calcium: | 844.0 | 42.12 |
| Sulfate: | 747.0 | 15.55 | Strontium: | 220.0 | 5.02 |
| Phosphate: | | | Barium: | 0.8 | 0.01 |
| Borate: | | | Iron: | 6.5 | 0.23 |
| Silicate: | | | Potassium: | 869.0 | 22.22 |
| | | | Aluminum: | | |
| Hydrogen Sulfide: | | 0 PPM | Chromium: | | |
| pH at time of sampling: | | 7 | Copper: | | |
| pH at time of analysis: | | | Lead: | | |
| pH used in Calculation: | | 7 | Manganese: | 0.100 | 0. |
| | | | Nickel: | | |

| Conditions | | Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp | Gauge Press. | Calcite $CaCO_3$ | | Gypsum $CaSO_4 \cdot 2H_2O$ | | Anhydrite $CaSO_4$ | | Celestite $SrSO_4$ | | Barite $BaSO_4$ | | $CO_2$ Press |
| °F | psi | Index | Amount | Index | Amount | Index | Amount | Index | Amount | Index | Amount | psi |
| 80 | 0 | 1.08 | 188.52 | -1.20 | 0.00 | -1.18 | 0.00 | -0.11 | 0.00 | 0.58 | 0.29 | 1.72 |
| 100 | 0 | 1.10 | 206.05 | -1.29 | 0.00 | -1.20 | 0.00 | -0.15 | 0.00 | 0.35 | 0.29 | 2.35 |
| 120 | 0 | 1.12 | 224.17 | -1.36 | 0.00 | -1.19 | 0.00 | -0.17 | 0.00 | 0.16 | 0.00 | 3.17 |
| 140 | 0 | 1.13 | 243.17 | -1.42 | 0.00 | -1.18 | 0.00 | -0.18 | 0.00 | 0.00 | 0.00 | 4.21 |

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

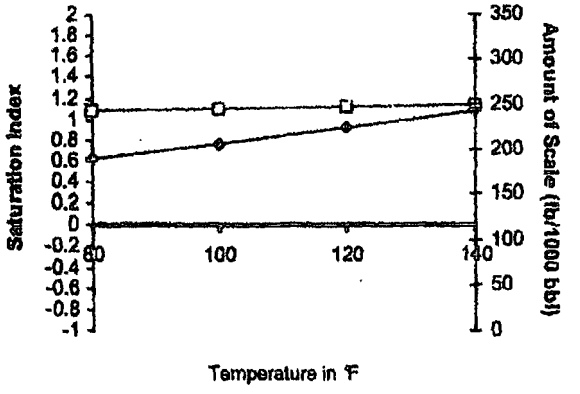
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

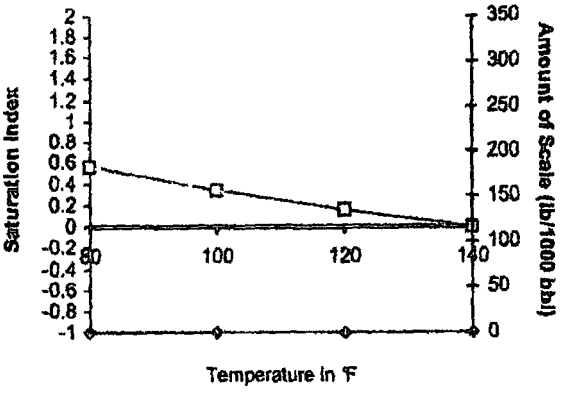
# Scale Predictions from Baker Petrolite

Analysis of Sample 534665 @ 75 °F for 03/18/11

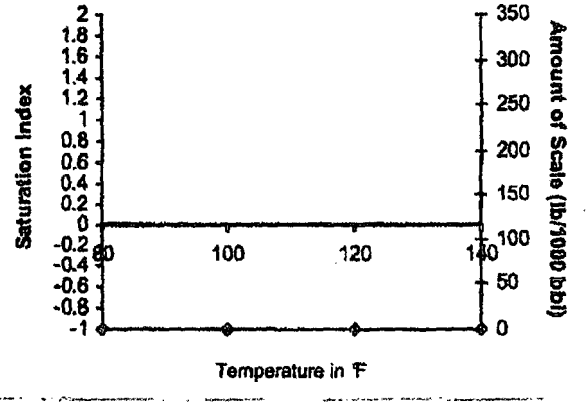
## Calcite - CaCO3



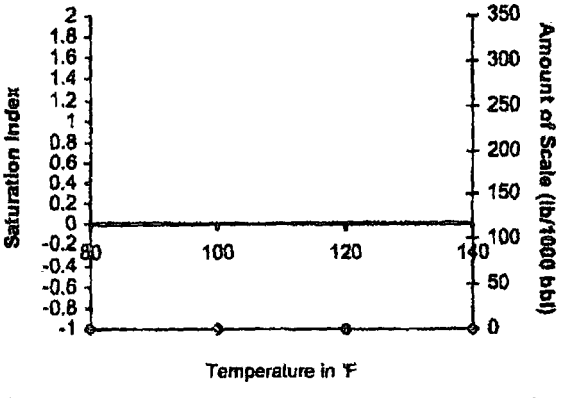

## Barite - BaSO4



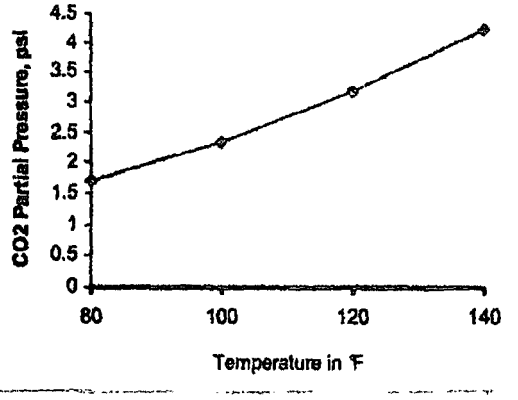

## Gypsum - CaSO4*2H20



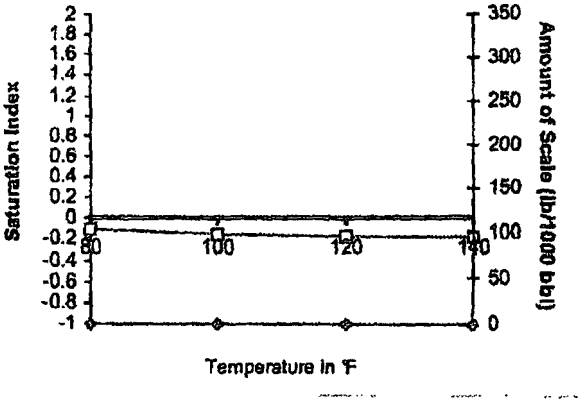

## Anhydrite - CaSO4




## Carbon Dioxide Partial Pressure




## Celestite - SrSO4



Wolfcamp

BAKER HUGHES

# Water Analysis

Date: 23-Aug-11

2708 West County Road, Hobbs NM 88240
Phone (575) 392-5556 Fax (575) 392-7307

**Analyzed For** Brushy Draw 1 #1

| Company | Well Name | County | State |
|---|---|---|---|
| | BD | ~~Lea~~ Eddy | New Mexico |

**Sample Source** Swab Sample **Sample #** 1

**Formation** **Depth**

| | | | |
|---|---|---|---|
| Specific Gravity | 1.170 | SG @ 60 °F | 1.172 |
| pH | 6.30 | Sulfides | Absent |
| Temperature (°F) | 70 | Reducing Agents | |

## Cations

| | | | | |
|---|---|---|---|---|
| Sodium (Calc) | in Mg/L | 77,962 | in PPM | 66,520 |
| Calcium | in Mg/L | 4,000 | in PPM | 3,413 |
| Magnesium | in Mg/L | 1,200 | in PPM | 1,024 |
| Soluable Iron (FE2) | in Mg/L | 10.0 | in PPM | 9 |

## Anions

| | | | | |
|---|---|---|---|---|
| Chlorides | in Mg/L | 130,000 | in PPM | 110,922 |
| Sulfates | in Mg/L | 250 | in PPM | 213 |
| Bicarbonates | in Mg/L | 127 | in PPM | 108 |

| | | | | |
|---|---|---|---|---|
| Total Hardness (as CaCO3) | in Mg/L | 15,000 | in PPM | 12,799 |
| Total Dissolved Solids (Calc) | in Mg/L | 213,549 | in PPM | 182,209 |
| Equivalent NaCl Concentration | in Mg/L | 182,868 | in PPM | 156,031 |

## Scaling Tendencies

*Calcium Carbonate Index 507,520

Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable

*Calcium Sulfate (Gyp) Index 1,000,000

Below 500,000 Remote / 500,000 - 10,000,00 Possible / Above 10,000,000 Probable

*This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.

**Remarks** RW=.048@70F

**Report #** 3188

MCI
CHEMICALS and CONSULTING

PRODUCTION DEPARTMENT

**MILLER CHEMICALS, INC.**
Post Office Box 298
Artesia, N.M. 88211-0298
(505) 746-1919 Artesia Office
(505) 392-2893 Hobbs Office
(505) 746-1918 Fax
mci@plateautel.net

Delaware Brushy Canyon

## WATER ANALYSIS REPORT

Company :
Address :
Lease : LOVING "AIB"
Well : #15
Sample Pt. : WELLHEAD

Date : MARCH 17, 2008
Date Sampled : MARCH 17, 2008
Analysis No. :

| | ANALYSIS | | mg/L | | * meq/L |
|---|---|---|---|---|---|
| 1. | pH | 6.0 | | | |
| 2. | H2S | 0 | | | |
| 3. | Specific Gravity | 1.070 | | | |
| 4. | Total Dissolved Solids | | 304684.9 | | |
| 5. | Suspended Solids | | NR | | |
| 6. | Dissolved Oxygen | | NR | | |
| 7. | Dissolved CO2 | | NR | | |
| 8. | Oil In Water | | NR | | |
| 9. | Phenolphthalein Alkalinity (CaCO3) | | | | |
| 10. | Methyl Orange Alkalinity (CaCO3) | | | | |
| 11. | Bicarbonate | HCO3 | 927.0 | HCO3 | 15.2 |
| 12. | Chloride | Cl | 187440.0 | Cl | 5287.4 |
| 13. | Sulfate | SO4 | 500.0 | SO4 | 10.4 |
| 14. | Calcium | Ca | 37200.0 | Ca | 1856.3 |
| 15. | Magnesium | Mg | 996.3 | Mg | 82.0 |
| 16. | Sodium (calculated) | Na | 77586.6 | Na | 3374.8 |
| 17. | Iron | Fe | 35.0 | | |
| 18. | Barium | Ba | NR | | |
| 19. | Strontium | Sr | NR | | |
| 20. | Total Hardness (CaCO3) | | 97000.0 | | |

## PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

| | | |
|---|---|---|
| 1856 | *Ca <----- *HCO3 | 15 |
| | /-------> | |
| 82 | *Mg -----> *SO4 | 10 |
| | <---------/ | |
| 3375 | *Na -----> *Cl | 5287 |

Saturation Values Dist. Water 20 C

| | |
|---|---|
| CaCO3 | 13 mg/L |
| CaSO4 * 2H2O | 2090 mg/L |
| BaSO4 | 2.4 mg/L |

| Compound | Equiv wt | X meq/L | = mg/L |
|---|---|---|---|
| Ca(HCO3)2 | 81.0 | 15.2 | 1231 |
| CaSO4 | 68.1 | 10.4 | 709 |
| CaCl2 | 55.5 | 1830.7 | 101584 |
| Mg(HCO3)2 | 73.2 | | |
| MgSO4 | 60.2 | | |
| MgCl2 | 47.6 | 82.0 | 3902 |
| NaHCO3 | 84.0 | | |
| Na2SO4 | 71.0 | | |
| NaCl | 58.4 | 3374.8 | 197223 |

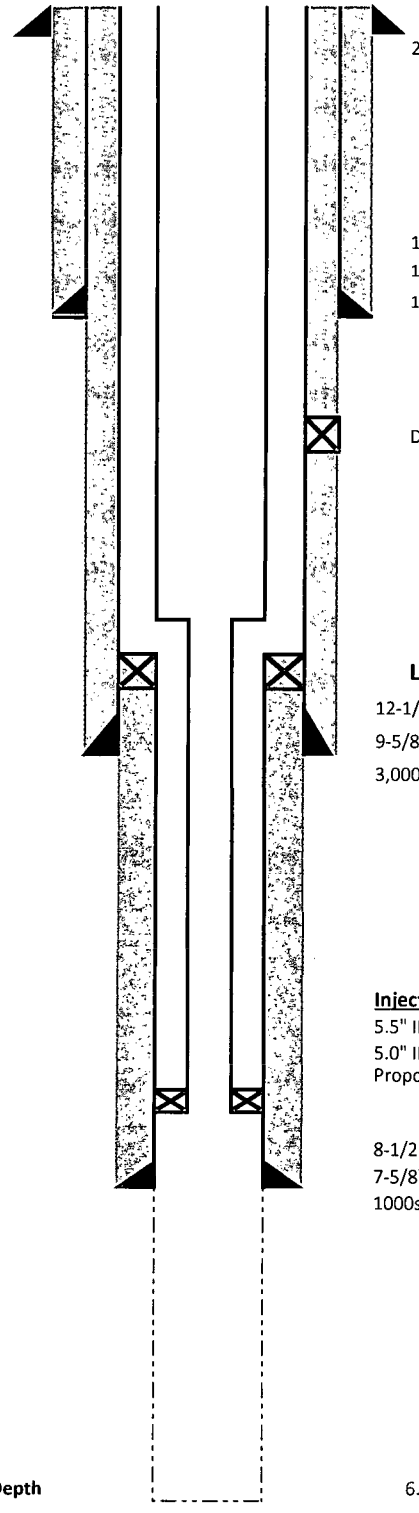
REMARKS:

**Moomaw SWD No 1**

**1,646' FNL & 2,294 FEL, UL G, SEC. 25, T-24S R-34E, Lea County, NM**

**API # 30-025-**

| | |
|---|---|
| GL | 3380 |
| KB | |
| KB+GL | 3380 |



20" Conductor @ 80'-120

17-1/2" Hole

13-3/8", 54.5# J-55 BTC @ 1000'

1000 sx cmt, will circulate, 100% excess

**1,000'**

DV Tool 5,000ft

**12,300'**

**12,500'** **Liner Top**

**12,700'**

12-1/4" Hole

9-5/8" 53.5#, Q-125, BTC to 12,700 ft

3,000 sx plan to circulate 75% excess

**Injection String & Packer**

5.5" IPC Casing to 12,300' (20#/ft, P-110, BTC)

5.0" IPC Casing BTC: 12,300'-17,350' (18#/ft, P

Proposed packer @ 17,350' Weatherford Arro

8-1/2" Hole

**17,400'**

7-5/8" 39# P-110 UFJ to 12,500' (Baker ZXP Lin

1000sx plan to circulate 50% excess

**19,200' Total Depth**

6.375" Hole Open Hole

*New Mexico Office of the State Engineer*

# Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

**PLSS Search:**

**Section(s):** 25 **Township:** 24S **Range:** 34E



12/26/17 2:24 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

# *New Mexico Office of the State Engineer*
# Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

| POD Number | POD Code | Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Depth Well | Depth Water | Water Column |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 00839 POD1 | | CP | LE | 4 | 3 | | 30 | 24S | 35E | 650017 | 3561833* | 175 | | |

Average Depth to Water: –

Minimum Depth: –

Maximum Depth: –

**Record Count:** 1

**PLSS Search:**

**Section(s):** 30 **Township:** 24S **Range:** 35E

***UTM location was derived from PLSS - see Help**



12/26/17 2:25 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

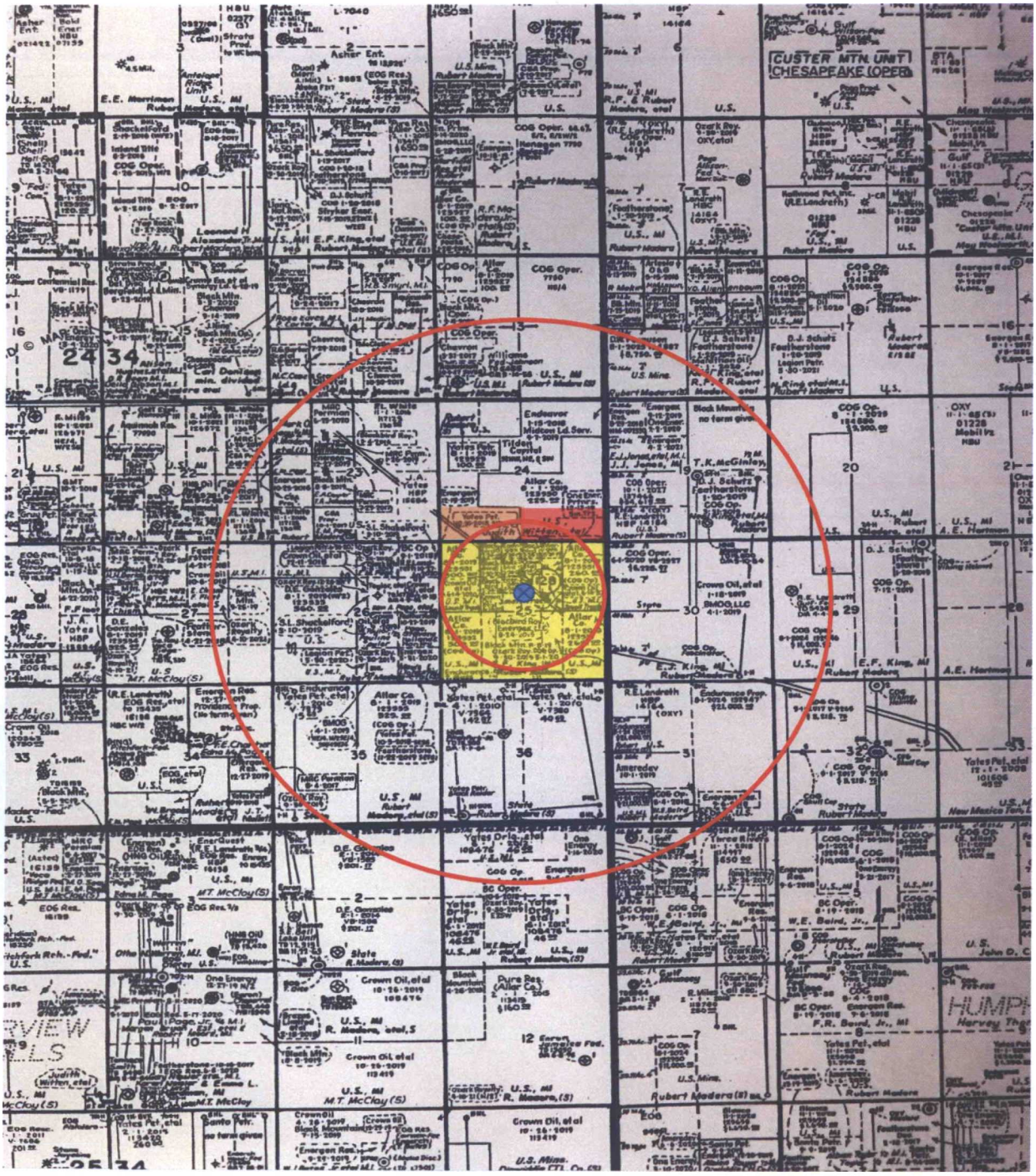
*New Mexico Office of the State Engineer*

# Point of Diversion Summary

| Well Tag | POD Number | (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64 | Q16 | Q4 | Sec | Tws | Rng | (NAD83 UTM in meters) X | Y |
|---|---|---|---|---|---|---|---|---|---|
| | CP 00839 POD1 | 4 | 3 | | 30 | 24S | 35E | 650017 | 3561833* |

| | | | | | |
|---|---|---|---|---|---|
| **Driller License:** | 122 | **Driller Company:** | UNKNOWN | | |
| **Driller Name:** | OTIS PRUIT | | | | |
| **Drill Start Date:** | | **Drill Finish Date:** | 01/01/1963 | **Plug Date:** | |
| **Log File Date:** | | **PCW Rcv Date:** | | **Source:** | Shallow |
| **Pump Type:** | | **Pipe Discharge Size:** | | **Estimated Yield:** | 9 GPM |
| **Casing Size:** | 6.00 | **Depth Well:** | 175 feet | **Depth Water:** | |

***UTM location was derived from PLSS - see Help**




COG Operating

Endeavor Energy

Allar Co.

**Delaware Energy, L.L.C.**
405 N. Marienfeld St. Suite 250
Midland, TX 79701
Office: (432) 312-5251

December 26, 2017

**Surface Owner / Offset Operators**

Re: Notification of Application for Authorization to Inject into the Moomaw SWD #1 Well

Ladies and Gentlemen:

Delaware Energy, LLC is seeking administrative approval to utilize the Moomaw SWD #1 (new drill) as a Salt Water Disposal well. As required by the New Mexico Oil Conservation Division Rules, we are notifying you of the following proposed salt water disposal well. This letter is a notice only. No action is required unless you have questions or objections.

| | |
|---|---|
| Well: | Moomaw #1 SWD |
| Proposed Disposal Zone: | Devonian Formation (from 17,400'-19,200') |
| Location: | 1,646' FNL & 2,294' FEL, Sec. 25, UL G, T24S, R34E, Lea Co., NM |
| Applicants Name: | Delaware Energy, L.L.C. |
| Applicants Address: | 405 N. Marienfeld, Suite 250, Midland, TX 79701 |

This application for water disposal well will be filed with the New Mexico Oil Conservation Division. If they determine the application complies with the applicable regulations, then it will be approved. The New Mexico Conservation Division address is 1220 South St. Francis Dr., Santa Fe, NM 87505. And their phone number is 505-476-3460.

Please call Mike McCurdy with Delaware Energy, LLC if you have any questions at 432-312-5251.

Sincerely,

Mike McCurdy

DISTRIBUTION LIST

Surface Owner:
James Moomaw
PO BOX 341
Tremonton, UT 84337

New Mexico Oil Conservation Division
1220 S. St. Francis Dr.
Santa Fe, NM 87505

New Mexico Oil Conservation Division – Hobbs Field Office
1625 N. French Drive
Hobbs, NM 88240

COG Operating, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, TX 79701

Endeavor Energy Resource LP
110 N. Marienfeld Suite 200
Midland, TX 79701

Allar Company
P.O. Box 1567
Graham, TX

**Affidavit of Publication**

State of New Mexico,
County of Eddy, ss.

**Danny Fletcher**, being first duly sworn, on oath says:

That he is the Publisher of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

December 30 2017

That the cost of publication is **$60.82** and that payment thereof has been made and will be assessed as court costs.

Subscribed and sworn to before me this 2 day of January 2018

Cynthia Arredondo

My commission Expires 2/13/21

Notary Public

OFFICIAL SEAL
CYNTHIA ARREDONDO
Notary Public
State of New Mexico
My Commission Expires 2/13/21

wrong county

***December 30, 2017***

Delaware Energy, L.L.C., 405 N. Marienfeld St. Suite 250, Midland, TX 79701, has filed a form C-108 (Application for Authorization to Inject) with the Oil Conservation Division seeking administrative approval to utilize the Moomaw SWD #1 as a Salt Water Disposal well.
The Moomaw SWD #1 is located at 1,646' FNL and 2,294' FEL, Unit Letter G, Section 25, Township 24 South, Range 34 East, Lea County, New Mexico.
The well will dispose of water produced from oil and gas wells into the Devonian-Fusselman Formations from 17,400' to 19,200' at a maximum rate of 30,000 barrels of water per day at a maximum pressure of 3,480 psi.
Interested parties must file objections or requests for hearing with the Oil Conservations Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.
Additional information can be obtained by contacting Delaware Energy, L.L.C. at (432) 685-7005.

# Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
February 08, 2018
and ending with the issue dated
February 08, 2018.

Publisher

Sworn and subscribed to before me this 8th day of February 2018.

Business Manager

My commission expires
January 29, 2019
(Seal)

OFFICIAL SEAL
GUSSIE BLACK
Notary Public
State of New Mexico
My Commission Expires 1-29-19

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

LEGALS

**LEGAL NOTICE**
**February 8, 2018**

Delaware Energy, L.L.C., 405 N. Marienfeld St. Suite 250, Midland, TX 79701, has filed a form C-108 (Application for Authorization to Inject) with the Oil Conservation Division seeking administrative approval to utilize the Moomaw SWD #1 as a Salt Water Disposal well.
The Moomaw SWD #1 is located at 1,646' FNL and 2,294' FEL, Unit Letter G, Section 25, Township 24 South, Range 34 East, Lea County, New Mexico. The well will dispose of water produced from oil and gas wells into the Devonian-Fusselman Formations from 17,400' to 19,200' at a maximum rate of 30,000 barrels of water per day at a maximum pressure of 3,460 psi.

Interested parties must file objections or requests for hearing with the Oil Conservations Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

Additional information can be obtained by contacting Delaware Energy, L.L.C. at (432) 685-7005.
#32498

FEB 12 2018 PM12:55

67114908

00206861

MIKE MCCURDY
DELAWARE ENERGY
405 N. MARIENFELD, STE 250
MIDLAND, TX 79701

Delaware Energy, L.L.C., 405 N. Marienfeld St. Suite 250, Midland, TX 79701, has filed a form C-108 (Application for Authorization to Inject) with the Oil Conservation Division seeking administrative approval to utilize the Moomaw SWD #1 as a Salt Water Disposal well.

The Moomaw SWD #1 is located at 1,646' FNL and 2,294' FEL, Unit Letter G, Section 25, Township 24 South, Range 34 East, Lea County, New Mexico. The well will dispose of water produced from oil and gas wells into the Devonian-Fusselman Formations from 17,400' to 19,200' at a maximum rate of 30,000 barrels of water per day at a maximum pressure of 3,480 psi.

Interested parties must file objections or requests for hearing with the Oil Conservations Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

Additional information can be obtained by contacting Delaware Energy, L.L.C., at (432) 685-7005.

**Moomaw SWD #1**
**Location: Sec. 25, T-24S, R-34E, UL G**

**Estimated Pre-Drill Formation Tops**

| | |
|---|---|
| Rustler | 915' |
| Top of Salt | 1,412' |
| Base Salt | 5,210' |
| Delaware sands | 5,550' |
| Cherry Canyon | 6,500' |
| Bone Springs Lime | 9,425' |
| Wolfcamp | 12,700' |
| Strawn | 13,200' |
| Atoka | 13,600' |
| Morrow | 14,000' |
| Mississippian Lime | 15,240' |
| Woodford Shale | 17,100' |
| Devonian | 17,350' |
| Montoya | 19,100' |

25
2

01386

**NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.**

# MEMORANDUM OF SALT WATER DISPOSAL AGREEMENT

THE STATE OF NEW MEXICO §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF LEA §

This Memorandum of Salt Water Disposal Agreement is made and entered into as of the 16 day of SEPTEMBER, 2016, between **James H. Moomaw,** whose address is P.O. Box 341, Tremonton, UT 84337 ("Lessor"), and **DELAWARE ENERGY, LLC**, whose address is 3001 W. Loop 250 North, Suite C-105-318, Midland, Texas 79705 ("Lessee"):

WITNESSETH:

Lessor and Lessee have this day entered into a Salt Water Disposal Agreement, dated effective as of the date first-written above, covering the following described lands in **Lea** County, New Mexico, to-wit:

**Section 25, Township 24 South, Range 34 East,**

Said Salt Water Disposal Agreement, subject to certain termination provisions, contains a primary term of five (5) years and shall remain in force as long thereafter, subject to the further conditions and limitations stated in the terms and provisions of said Salt Water Disposal Agreement.

Lessor and Lessee are executing this Memorandum of Salt Water Disposal Agreement for the purpose of placing the same of record in Lea County, New Mexico, and in order to constitute constructive notice of said Salt Water Disposal Agreement in lieu of recording of said Salt Water Disposal Agreement in its entirety. A full and complete copy of said Salt Water Disposal Agreement will be maintained in the office of both Lessor and Lessee at the address shown above.

IN WITNESS WHEREOF, this Memorandum of Salt Water Disposal Agreement is executed as of the day, month and year first hereinabove written.

**LESSOR: James H. Moomaw,**

James H Moomaw

BY: JAMES H. MOOMAW

Its: _____

**ACKNOWLEDGMENT**

**STATE OF ~~NEW MEXICO~~** Utah §
§
**COUNTY OF** Box Elder §

This instrument was acknowledged before me on the 16th of September, 2016 by James H. Moomaw.

My Commission Expires: 8/7/17

NOTARY PUBLIC
ALEX PETERSEN
669315
COMMISSION EXPIRES
AUGUST 7, 2017
STATE OF UTAH

Notary Public, State of ~~New Mexico~~ Utah

**AFTER RECORDING, RETURN TO:**

**DELAWARE ENERGY, LLC**
**3001 W. Loop 250 North, Suite C-105-318**
**Midland, Texas 79705**

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
At 10:38 o'clock A M
FEB 06 2017
Recorded in Book 2081 Page 401
Keith Manes, Lea County Clerk
By CSandoval Deputy

COUNTY CLERK SEAL LEA COUNTY, NEW MEXICO

01386

U.S. Postal Service
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

GRAHAM, TX 76450 OFFICIAL USE

| | |
|---|---|
| Certified Mail Fee | $3.35 |
| Extra Services & Fees (check box, add fee as appropriate) | $2.75 |
| ☐ Return Receipt (hardcopy) | $0.00 |
| ☐ Return Receipt (electronic) | $0.00 |
| ☐ Certified Mail Restricted Delivery | $0.00 |
| ☐ Adult Signature Required | $0.00 |
| ☐ Adult Signature Restricted Delivery | $ |
| Postage | $1.82 |
| Total Postage and Fees | $7.92 |

0702 07

Postmark Here

01/08/2018

Sent To: Allar Company
Street and Apt. No., or PO Box No.: P.O. Box 1567
City, State, ZIP+4®: Graham, TX 76450 Moomaw SWD

7017 1450 0000 5855 8680

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

MIDLAND, TX 79701 OFFICIAL USE

| | |
|---|---|
| Certified Mail Fee | $3.35 |
| Extra Services & Fees (check box, add fee as appropriate) | $2.75 |
| ☐ Return Receipt (hardcopy) | $0.00 |
| ☐ Return Receipt (electronic) | $0.00 |
| ☐ Certified Mail Restricted Delivery | $0.00 |
| ☐ Adult Signature Required | $0.00 |
| ☐ Adult Signature Restricted Delivery | $ |
| Postage | $1.82 |
| Total Postage and Fees | $7.92 |

0702 07

JAN – Postmark Here

01/08/2018

Sent To: Concho
Street and Apt. No., or PO Box No.: 600 W. Illinois Ave.
City, State, ZIP+4®: Midland, TX 79701 Moomaw SWD

7017 1450 0000 5855 8673

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

MIDLAND, TX 79701 OFFICIAL USE

| | |
|---|---|
| Certified Mail Fee | $3.35 |
| Extra Services & Fees (check box, add fee as appropriate) | $2.75 |
| ☐ Return Receipt (hardcopy) | $0.00 |
| ☐ Return Receipt (electronic) | $0.00 |
| ☐ Certified Mail Restricted Delivery | $0.00 |
| ☐ Adult Signature Required | $0.00 |
| ☐ Adult Signature Restricted Delivery | $ |
| Postage | $1.82 |
| Total Postage and Fees | $7.92 |

0702 07

Postmark Here

JAN – 8

01/08/2018

Sent To: Endeavor Energy Resources LP
Street and Apt. No., or PO Box No.: 110 N. Marienfeld, Suite 200
City, State, ZIP+4®: Midland, TX 79701 Moomaw SWD

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

TREMONTON, UT 84337 OFFICIAL USE

| | |
|---|---|
| Certified Mail Fee | $3.35 |
| Extra Services & Fees (check box, add fee as appropriate) | $2.75 |
| ☐ Return Receipt (hardcopy) | $0.00 |
| ☐ Return Receipt (electronic) | $0.00 |
| ☐ Certified Mail Restricted Delivery | $0.00 |
| ☐ Adult Signature Required | $0.00 |
| ☐ Adult Signature Restricted Delivery | $ |
| Postage | $1.82 |
| Total Postage and Fees | $7.92 |

0702 07

JAN Postmark Here

01/08/2018

Sent To: James Moomaw
Street and Apt. No., or PO Box No.: P.O. Box 341
City, State, ZIP+4®: Tremonton, UT 84337 Moomaw SWD

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Additional Questions on C-108 (Moomaw; Revised 2—27-2018)

**VII.**

1. **Proposed average and maximum daily rate and volume of fluids to be injected;**
   Average 15,000-20,000 BWPD, Max 25,000 BWPD

2. **Whether the system is open or closed;**
   Open System, Commercial SWD

3. **Proposed average and maximum injection pressure;**
   Average 1,800 PSI, Max 3,480 PSI

4. **Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,**
   Bone Spring, Delaware, and Wolfcamp produced water. no known incompatibility exists with injected water into the Devonian. Water is compatible with Devonian formation and is used as a disposal interval through the Delaware Basin for Wolfcamp, Bone Springs, and Delaware produced water. See attached water analysis from Bone Spring, Wolfcamp, and Delaware produced water.

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.).**
   See attached Lea County Devonian water samples

***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.**

The proposed disposal interval is in the Devonian-Fusselman formations 17,400'-19,200'. There are no fresh water zones underlying the proposed injection zone. Devonian is an impermeable Shale at the very top (Woodford Shale) followed by permeable dolomite and Lime. Mud logs and Electric logs will be used to confirm the estimated depths of the Woodford and Devonian Dolomite along with other significant tops. Usable water depth is from surface to a max of +/- 300ft based on data from State Engineers office. No water wells are present in section 25, one well is present in section 30 fo T24S, R35E, to a depth of 175'. Source rock for fresh water in this area is Santa Rosa.

**X.** A mud log and Gamma/Neutron log will be run to confirm the estimated depths of the Woodford Shale and Devonian Dolomite. These logs and cased hole logs will be filed with the commission following drilling operations.

**XI.** No Active water wells exist in section 25. 1 water wells are known in section 30, T24S, R35E, to a depth of 175'. Could not located fresh water well in section 30, so no water well was taken.

**IX. Describe the proposed stimulation program, if any.**
60,000 gallons 20% HCL acid job with packer

**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.**

Delaware Energy, L.L.C. has reviewed and examined available geologic and engineering data in the area of interest for the Moomaw SWD #1 and have found no evidence of faults or other hydrologic connections between Devonian disposal zones and the underground sources of drinking water.

Mike McCurdy Title VP Operations Date 2/27/2018

**III. WELL DATA**

**(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.**

Moomaw SWD #1, Sec. 25-T24S-R34E, 1,646' FNL & 2,294' FEL, UL G, Lea County, New Mexico

**(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.**

| Casing Size | Setting Depth | Sacks of Cement | Hole Size | Top of Cement | Determined |
|---|---|---|---|---|---|
| 13-3/8" | 1,000' | 1,000 | 17.5" | Surface | CIRC |
| 9-5/8" | 12,700' | 3,000 | 12-1/4" | Surface | CIRC |
| 7-5/8" FJ | 12,500'-17,400' | 1,000 | 8-1/2" | 12,500' | CIRC |

**(3) A description of the tubing to be used including its size, lining material, and setting depth.**

5.5" (0-12,300') X 5.0" (12,300-17,350) OD, Internally Plastic Coated Tubing set 50 to 100ft above Open Hole

**(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.**

Weatherford Arrow set 1X injection packer, nickel plated with on/off tool

**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.**

Devonian-Fusselman Formations
Pool Name: SWD (Devonian-Fusselman)

**(2) The injection interval and whether it is perforated or open-hole.**

17,400' to 19,200' (OH)

**(3) State if the well was drilled for injection or, if not, the original purpose of the well.**

New well drilled for injection

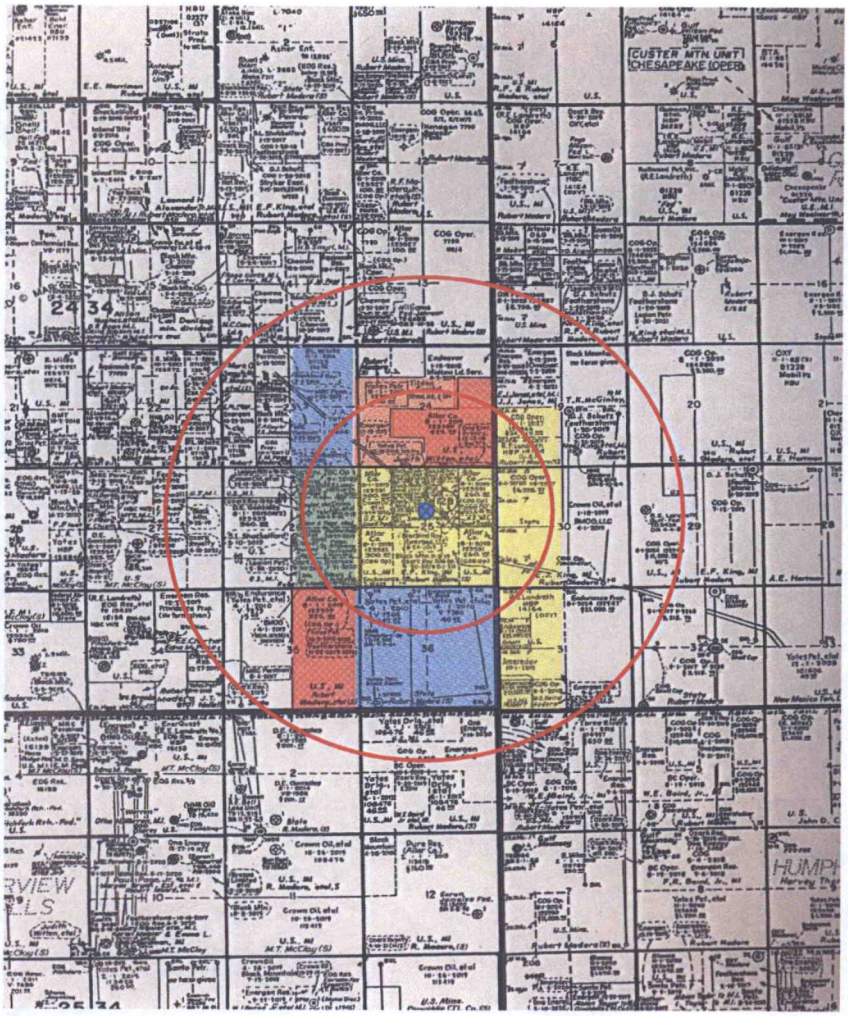
**(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.**

**N/A**

**(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.**

Next Higher: Wolfcamp 12,000'-12,500', Morrow 13,500'-13,700', Bone Springs/Avalon 10,800'-12,000', Delaware 9,000'-9,500'

Next Lower: None




COG Operating

Endeavor Energy

Allar Co.

Marathon Oil Permian

EOG Resources

## Statements Regarding Seismicity and Well Location (MooMaw SWD #1)

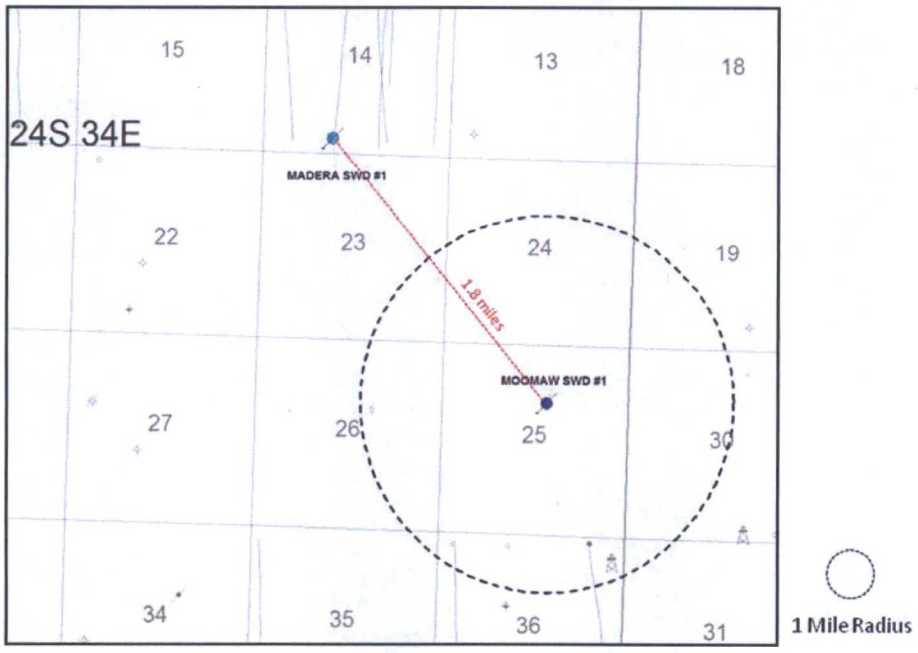
Historically, the area near the proposed MooMaw SWD has not seen any major seismic activity. There have been four seismic events (as per public data available on the USGS database) in the area. All events are over 10 miles from the proposed SWD location and occurred prior to 2005. The closest activity (10 miles to the NW) measured 2.9.

Delaware Energy does not own 2D or 3D seismic data near the proposed SWD location therefore the fault interpretations are based on data obtained from the USGS New Mexico Faults Database dated January 1, 2005. Based on these sources the closest fault would be approximately 2.15 miles north of the location. A recent technical paper written by Snee and Zoback, "State of Stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity", was published in the February 2018 edition of The Leading Edge. The study evaluates the strike-slip probability of known faults using FSP analysis. The study predicts that fault activity nearest this well should have a low probability (<10%) of being critically stressed resulting in an induced seismicity event. This is due to the relationship of the strike of the faults and the regional Shmax orientation (approx. N 75 deg E) in the area.

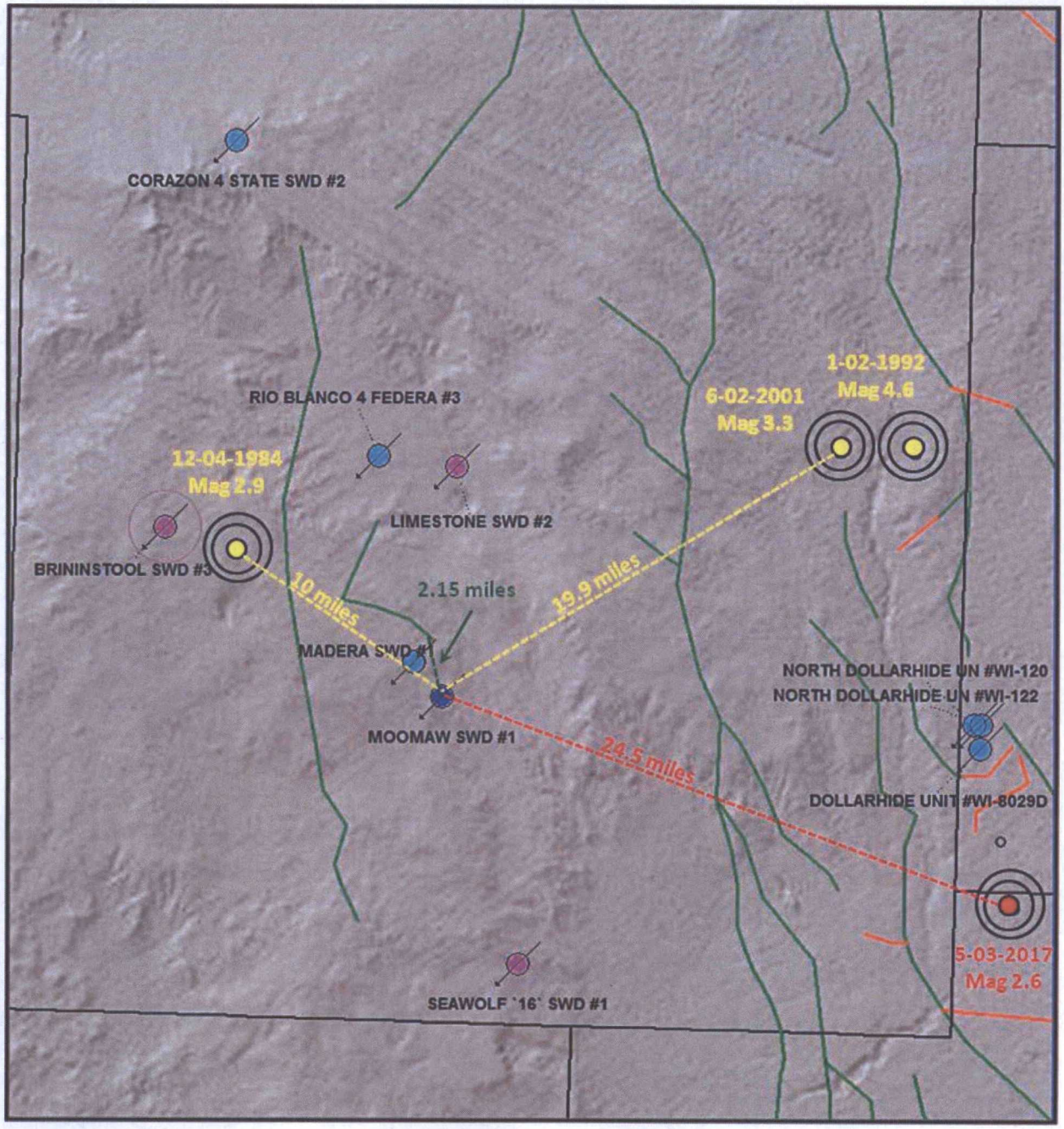
The proposed MooMaw SWD #1 location is located 1.8 miles away from the nearest active Devonian SWD well (see map below) and meets current OCD and Industry recommended practices.

Kevin J. Schepel
Petrophysical Advisor
kevin.schepel@att.net
214-212-6540

Well Activity and Closest SWD



# Proximity to Historic Earthquake Activity and Faults



## Goetze, Phillip, EMNRD

**From:** Sarah Presley <s.presley@delawareenergy.com>
**Sent:** Wednesday, March 14, 2018 12:52 PM
**To:** Goetze, Phillip, EMNRD; McMillan, Michael, EMNRD
**Cc:** Mike McCurdy
**Subject:** Delaware Energy, LLC - Moomaw SWD #1 - Statement of Seismicity
**Attachments:** MooMaw SWD #1.docx

Mr. Goetz & Mr. McMillan,

Attached is Kevin Schepel's statements/findings regarding seismicity for the Moomaw SWD #1. Please let us know if we have the commission's approval for the Moomaw SWD #1.

***Mr. Schepel is widely regarded as one of the industry's leading experts in advanced geoscience, engineering and formation evaluation methodologies for oil and gas exploration, field development and improved reservoir management. Prior to joining Talon III, Mr. Schepel served as Chief Geoscience and Technology Officer for ZaZa Energy Corporation. He began his career in 1980 with Exxon Company U.S.A. in Midland, Texas, and later with Exxon Production Research Company in Houston, where he served as a Lead Technical Advisor focused on domestic and international research applications. After leaving Exxon, Mr. Schepel served as Vice President of Worldwide Exploitation for Pioneer Natural Resources from 1998-2008, where he lead a multidisciplinary reservoir characterization team that provided advanced technical support for evaluating, developing and managing Pioneer's petroleum assets in South Texas, East Texas and the Permian Basin.***

***Mr. Schepel has been involved in numerous industry forums and is an active member of the American Association of Petroleum Geologists and the Society of Petroleum Engineers, presenting and chairing several forums and annual meetings for each organization. He has served on the Board of Directors for the Louisiana Independent Oil & Gas Association and the Advisory Council for the Energy Forum Unconventional Resource Series. Mr. Schepel received a Bachelor of Science degree in geology from Michigan State University and is licensed by the Texas Board of Professional Geoscientists.***

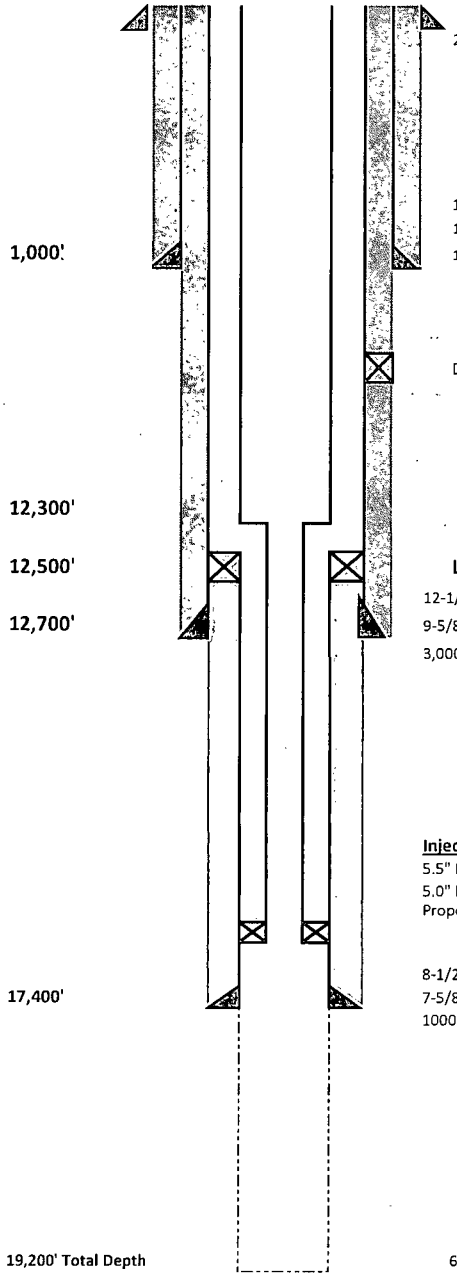
**The paragraph above is copied from his bio of his last job. As you can see Mr. Schepel has decades of experience and is very highly regarded his field.**

Thank you,

Sarah Presley
Delaware Energy
432-685-7005

**Moomaw SWD No 1**
**1,646' FNL & 2,294 FEL, UL G, SEC. 25, T-24S R-34E, Lea County, NM**
**API # 30-025-**

| | |
|---|---|
| GL | 3380 |
| KB | |
| KB+GL | 3380 |



20" Conductor @ 80'-120

17-1/2" Hole
13-3/8", 54.5# J-55 BTC @ 1000'
1000 sx cmt, will circulate, 100% excess

1,000'

DV Tool 5,000ft

12,300'

12,500' **Liner Top**

12,700'

12-1/4" Hole
9-5/8" 53.5#, Q-125, BTC to 12,700 ft
3,000 sx plan to circulate 75% excess

**Injection String & Packer**
5.5" IPC Casing to 12,300' (20#/ft, P-110, BTC)
5.0" IPC Casing BTC: 12,300'-17,350' (18#/ft, P110, BTC)
Proposed packer @ 17,350' Weatherford Arrow Set 1X

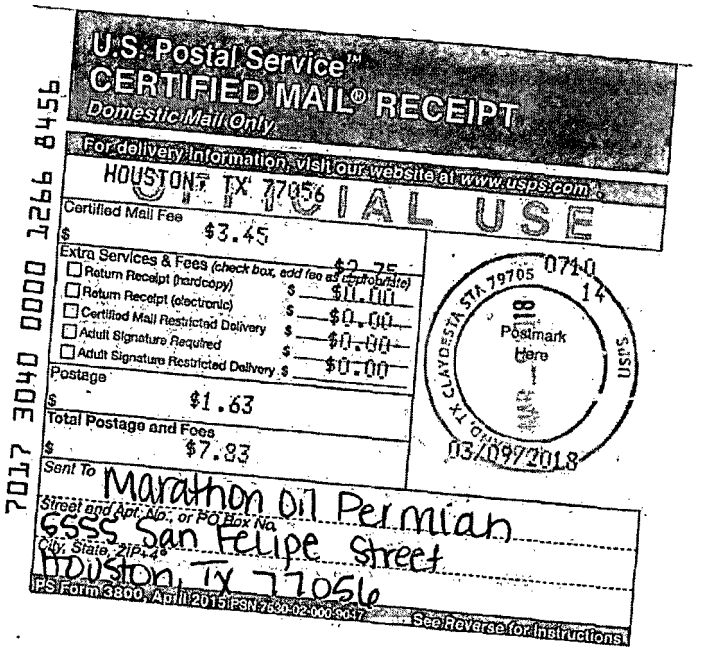
8-1/2" Hole
17,400' 7-5/8" 39# P-110 UFJ to 12,500' (Baker ZXP Liner Hanger) to 17,400'
1000sx plan to circulate 50% excess

**19,200' Total Depth**

6.375" Hole Open Hole

**Estimated Pre-Drill Geologic Tops:**

| | |
|---|---|
| Rustler | 915 |
| top salt | 1,412 |
| base salt | 5,210 |
| Lamar lime | 5,500 |
| Delaware Sand/Bell Cyn | 5,550 |
| Cherry Canyon | 6,500 |
| Brushy Canyon | 8,125 |
| Bone Spring Lime | 9,425 |
| Wolfcamp | 12,700 |
| Strawn | 13,200 |
| Atoka | 13,600 |
| Morrow | 14,000 |
| Mississippian | 15,240 |
| Woodford | 17,100 |
| Devonian | 17,350 |
| Montoya | 19,100 |



U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.
HOUSTON, TX 77056

OFFICIAL USE

Certified Mail Fee $3.45
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $2.75
- Return Receipt (electronic) $1.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

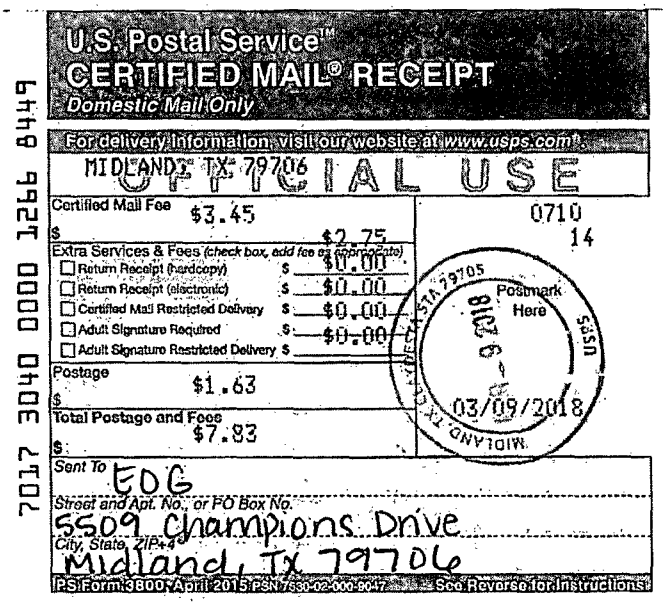
Postage $1.63
Total Postage and Fees $7.83

Postmark Here
CLAYDESTA STA 79705 TX
03/09/2018
0710 14 118

Sent To Marathon Oil Permian
Street and Apt. No., or PO Box No. 6555 San Felipe Street
City, State, ZIP+4 Houston, TX 77056

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 3040 0000 1266 8456



U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.
MIDLAND, TX 79706

OFFICIAL USE

Certified Mail Fee $3.45
Extra Services & Fees (check box, add fee as appropriate)
- Return Receipt (hardcopy) $2.75
- Return Receipt (electronic) $0.00
- Certified Mail Restricted Delivery $0.00
- Adult Signature Required $0.00
- Adult Signature Restricted Delivery $0.00

Postage $1.63
Total Postage and Fees $7.83

Postmark Here
MIDLAND TX 79705
03/09/2018
0710 14

Sent To EOG
Street and Apt. No., or PO Box No. 5509 Champions Drive
City, State, ZIP+4 Midland, TX 79706

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 3040 0000 1266 8449

# Delaware Energy, LLC

## Application for Injection/SWD

## Moomaw SWD #1

RECEIVED OCD
2018 JAN 11 P 3:21

UL G, Sec. 25, T-24-S, R-34-E, 1646' FNL & 2294' FEL, Lea Co., NM

January 2018

---

**Contents:**

# FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V16.2]

**DATE RECORD**: First Rec: 1/11/18 Admin Complete: Second Submittal or Suspended: 4/12/18 Protest * Add. Request/Reply: 5/1/18 Protest WD

**ORDER TYPE**: WFX / PMX / SWD Number: 1730 Order Date: 5/14/18 Legacy Permits/Orders:

2nd: 2/12/2018 2/27/18

Well No. 1 Well Name(s): Moomaw SWD

API : 30-0 25-44661 Spud Date: TBD New or Old (EPA): New (*UIC Class II Primacy 03/07/1982*)

Footages 1646 FNL / 2294 FEL Lot – or Unit G Sec 25 Tsp 24S Rge 34E County Lea

General Location: ~13 mi. W of Jal / S of NM128 Pool: SWD; Devonian-Silurian Pool No.: 97869

BLM 100K Map: Jal Operator: Delaware Energy LLC Resolved OGRID:: 371195 Contact: M.M

**COMPLIANCE RULE 5.9**: Total Wells: 9 Inactive: 0 Fincl Assur: Yes Compl. Order? NO IS 5.9 OK? ✓ Date: 5/14/18

05-07-2018: Violation of FA/ bonding for Portale

**WELL FILE REVIEWED** ✓ Current Status: APD filed

**WELL DIAGRAMS: NEW:** Proposed ✓ or **RE-ENTER:** Before Conv. ○ After Conv. ○ Logs in Imaging:

Planned Rehab Work to Well: NA

| Well Construction Details | Sizes (in) Borehole / Pipe | Setting Depths (ft) | Stage Tool | Cement Sx or Cf | Cement Top and Determination Method |
|---|---|---|---|---|---|
| Planned ✓ or Existing Surface | 17½ / 13⅜ | 0 to 1000 | Stage Tool | 1000 | Circulated to Surface |
| Planned ✓ or Existing Interm/Prod | 12¼ / 9⅝ | 0 to 12,700 | DV at 5000 | 3000 | Circulated to Surface |
| Planned or Existing Interm/Prod | – | – | – | – | – |
| Planned ✓ or Existing Prod/Liner | 8½ / 7⅝ | 12,300 to 17400 | None | 1000 | Top of liner - Calculated |
| Planned or Existing Liner | – | – | – | – | – |
| Planned or Existing OH / PERF | 6¾ | 17400 to 19200 | Inj Length | | |

| Injection Lithostratigraphic Units: | Depths (ft) | Injection or Confining Units | Tops |
|---|---|---|---|
| Adjacent Unit: Litho. Struc. Por. | | Mississippian | 15240 |
| Confining Unit: Litho. Struc. Por. | 0 | Woodford | 17100 |
| Proposed Inj Interval TOP: | 17400 | Devonian | 17350 |
| Proposed Inj Interval BOTTOM: | 19200 | Silurian | |
| Confining Unit: Litho. Struc. Por. | -100 | Montoya | 19100 |
| Adjacent Unit: Litho. Struc. Por. | | – | |

**Completion/Operation Details:**

Drilled TD – PBTD –

NEW TD 19200 NEW PBTD –

NEW Open Hole ✓ or NEW Perfs ○

Tubing Size 5 x 5.5 (Tapered) in. Inter Coated? Y

Proposed Packer Depth 17350 ft

Min. Packer Depth 17300 (100-ft limit)

Proposed Max. Surface Press. 3480 psi

Admin. Inj. Press. 3480 (0.2 psi per ft)

## AOR: Hydrologic and Geologic Information

**POTASH**: R-111-P No Noticed? No BLM Sec Ord No WIPP No Noticed? – Salt/Salado T: 1412 B: 3210 **NW**: Cliff House fm NA

**FRESH WATER**: Aquifer Alluvial / Rustler / SR Max Depth < 250 **HYDRO AFFIRM STATEMENT By Qualified Person** ✓

**NMOSE Basin**: Carlsbad & Capitan (Sec. 19 & 30) **CAPITAN REEF**: thru adj NA ✓ **No. GW Wells in 1-Mile Radius?** 1 FW Analysis? No

**Disposal Fluid**: Formation Source(s) Permian / Del-WC-BS Analysis? Yes On Lease ○ Operator Only ○ or Commercial ✓

**Disposal Interval**: Inject Rate (Avg/Max BWPD): 20000 / 30000 Protectable Waters? No Source: Historical System: Closed or Open

**HC Potential**: Producing Interval? No Formerly Producing? No Method: Logs/DST/P&A/Other Mudlog 2-Mi Radius Pool Map No

**AOR Wells**: 1/2-M Radius Map and Well List? Yes **No. Penetrating Wells**: 0 [AOR Horizontals: – AOR SWDs: – ]

**Penetrating Wells: No. Active Wells** 0 Num Repairs? on which well(s)? Diagrams? –

**Penetrating Wells: No. P&A Wells** 0 Num Repairs? on which well(s)? Diagrams? –

**NOTICE**: Newspaper Date 02/08/18 Mineral Owner Fee Surface Owner Fee N. Date 1/8/18

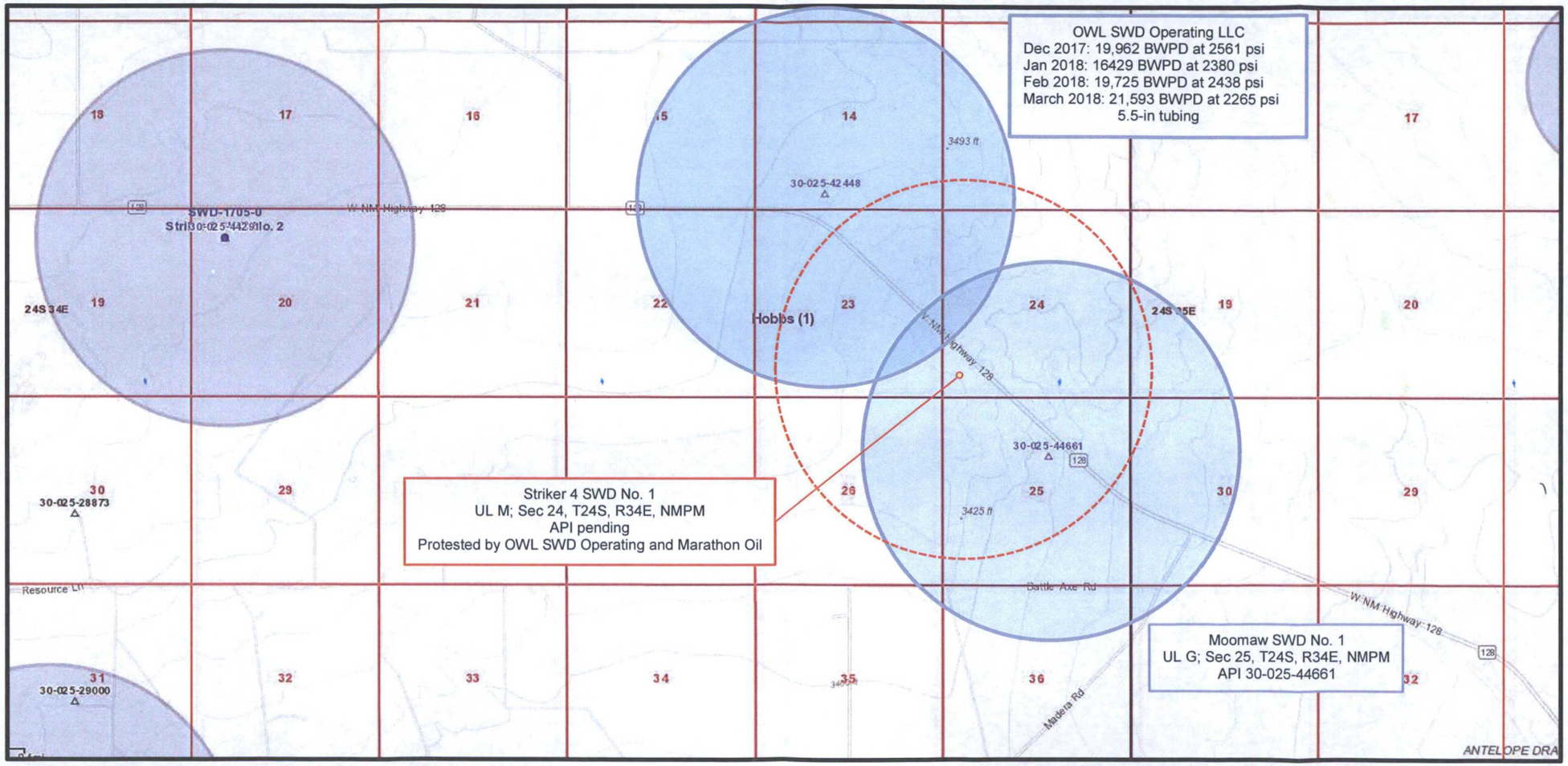
Re-advertised Hobbs-News Sun

**RULE 26.7(A)**: Identified Tracts? Yes Affected Persons: Increased notice for one mile / COG / Endeavor Energy / Allar / EOG / Marathon * N. Dates 1/8/18 & 5/9/18

**Order Conditions**: Issues: Cmt on tie & DV tool; formation control; IS assessment provided

**Additonal COAs**: Mudlog - formation picks; CBL for liner; Hobbs cmt requirement

**Resolution of Pending Applications for High-Volume Devonian Disposal Wells**
**C-108 Application for Moomaw SWD No. 1 - Delaware Energy LLC**
**and**
**C-108 Application for Striker 4 SWD No. 1 - NGL Water Solutions Permian LLC**




**Striker 4 SWD No. 1; NGL Water Solutions Permian LLC**
API 30-015-pending; Application No. pMAM1727658584; Rcvd 10.3.2017
Proposed interval: Devonian-Silurian interval; 17,100' to 18,600'
Proposed construction: tapered tubing; 4.5-inch in liner and 5.5-inch above the line
Protested by OWL and Marathon: suspended: 10.03.2017; no resolution of protests as of 5.1.2018
**Recommendation:** cannot approve administratively due to: 1. Significant overlap of both an active Devonian SWD and pending SWD application; 2. No resolution of two protests

**Moomaw SWD No. 1; Delaware Energy LLC**
API 30-025-44661; Application No. pMAM1801250966; Rcvd 02.12.2018 (2nd notice)
Proposed interval: Devonian-Silurian interval; 17,400' to 19,200'
Proposed Construction: tapered tubing; 5-inch in liner and 5.5-inch above the liner
Protested by Marathon (due to induced seismicity issues); Marathon withdrew protest
**Recommendation:** administrative order drafted

# Inactive Well Additional Financial Assurance Report

**371195 DELAWARE ENERGY, LLC**
**Total Well Count: 6**
**Printed On: Monday, May 14 2018**

| Property | Well Name | Lease Type | ULSTR | OCD Unit Letter | API | Well Type | Last Prod/Inj | Inactive Additional Bond Due | Measured Depth | Required Bond Amount | Bond Required Now | Covered By Blanket TA Bond | Bond In Place | In Violation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 320535 | CALDERON FARMS SWD #001 | P | O-09-24S-28E | O | 30-015-44262 | S | 03/2018 | 04/01/2020 | 14900 | 19900 | | | 0 | |
| 319508 | FIKES SWD #001 | P | E-17-24S-28E | E | 30-015-44419 | S | | | 14765 | | | | 0 | |
| 318048 | ICEMAN STATE SWD #001 | S | M-17-23S-27E | M | 30-015-44265 | S | | | 13897 | | | | 0 | |
| 321170 | MOOMWA SWD #001 | P | G-25-24S-34E | G | 30-025-44661 | S | | | Unknown | | | | 0 | |
| 319815 | PARDUE FARMS 21 SWD #001 | P | B-21-24S-28E | B | 30-015-23809 | O | 01/2004 | 02/01/2006 | 11850 | 16850 | Y | | 20,025 | |
| 321154 | RUEHLE SWD #001 | P | P-28-23S-27E | P | 30-015-44853 | S | | | Unknown | | | | 0 | |

WHERE Ogrid:371195

## Goetze, Phillip, EMNRD

**From:** Goetze, Phillip, EMNRD
**Sent:** Monday, May 7, 2018 2:43 PM
**To:** 'Mike McCurdy'
**Cc:** McMillan, Michael, EMNRD; Sanchez, Daniel J., EMNRD; Marks, Allison, EMNRD; Sharp, Karen, EMNRD
**Subject:** Delaware Energy and Financial Assurance
**Attachments:** Delaware Energy FA_05_07_18.pdf

Mr. McCurdy:

While processing the C-108 application for the Moomaw SWD No. 1, it came to my attention that Delaware Energy is currently in violation with regards to the financial assurance for one of its wells. A review of financial assurance status shows the Pardue Farms 21 SWD No. 1 (30-015-23809) requiring additional bonding in the amount of $16,850 (see attachment). With this, I am unable to provide a draft to the Director for any pending application until this is addressed. I suggest you contact Mr. Daniel Sanchez (505.476.3493) for further consultation and resolution. Meanwhile, I will continue with the review of the applications. PRG

Phillip Goetze, PG
Engineering Bureau, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive, Santa Fe, NM 87505
Direct: 505.476.3466
E-mail: phillip.goetze@state.nm.us

# Inactive Well Additional Financial Assurance Report

**371195 DELAWARE ENERGY, LLC**
**Total Well Count: 6**
**Printed On: Monday, May 07 2018**

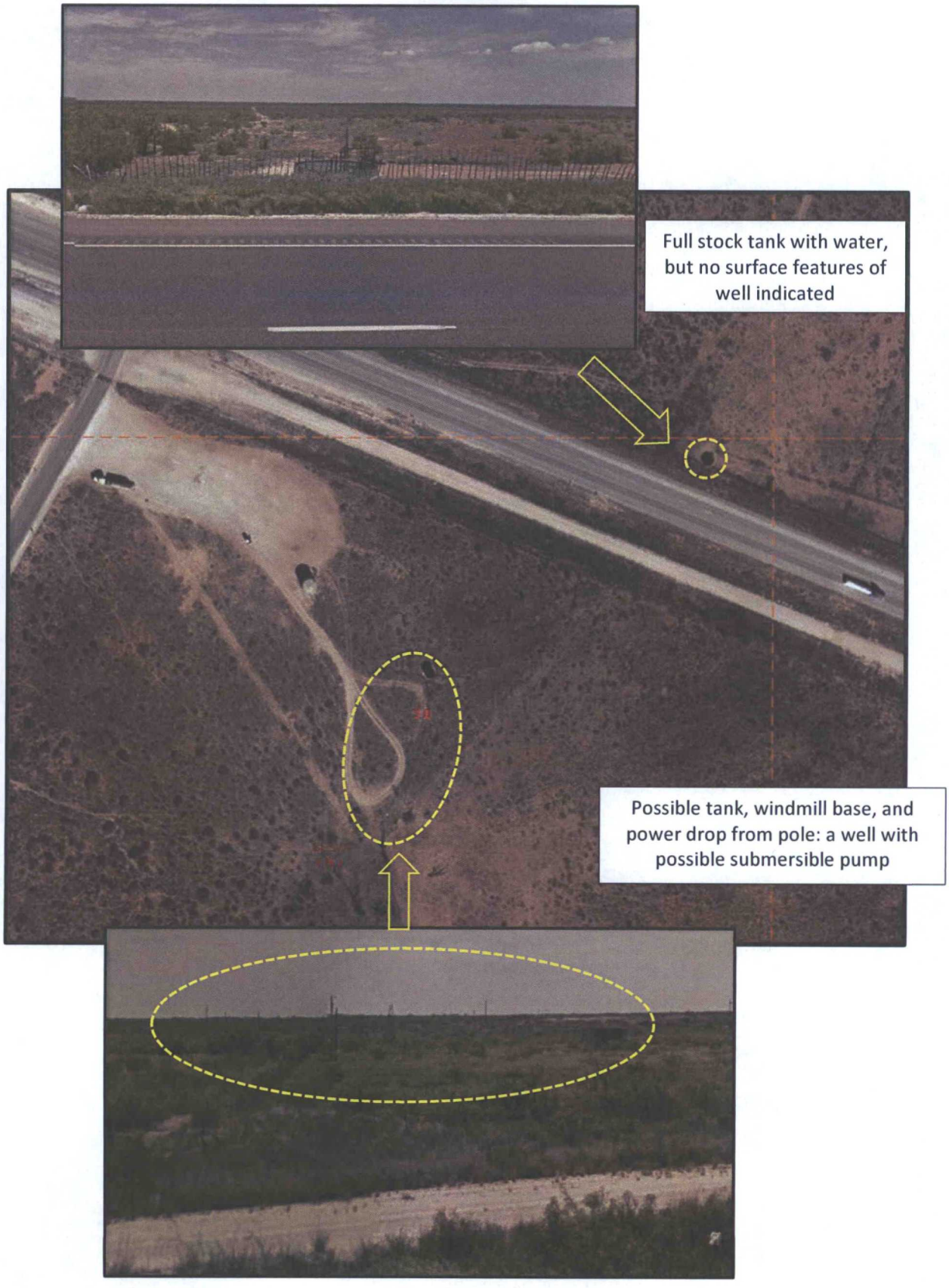
| Property | Well Name | Lease Type | ULSTR | OCD Unit Letter | API | Well Type | Last Prod/Inj | Inactive Additional Bond Due | Measured Depth | Required Bond Amount | Bond Required Now | Covered By Blanket TA Bond | Bond In Place | In Violation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 320535 | CALDERON FARMS SWD #001 | P | O-09-24S-28E | O | 30-015-44262 | S | 03/2018 | 04/01/2020 | 14900 | 19900 | | | 0 | |
| 319508 | FIKES SWD #001 | P | E-17-24S-28E | E | 30-015-44419 | S | | | Unknown | | | | 0 | |
| 318048 | ICEMAN STATE SWD #001 | S | M-17-23S-27E | M | 30-015-44265 | S | | | Unknown | | | | 0 | |
| 321170 | MOOMWA SWD #001 | P | G-25-24S-34E | G | 30-025-44661 | S | | | Unknown | | | | 0 | |
| 319815 | PARDUE FARMS 21 SWD #001 | P | B-21-24S-28E | B | 30-015-23809 | O | 01/2004 | 02/01/2006 | 11850 | 16850 | Y | | 0 | Y |
| 321154 | RUEHLE SWD #001 | P | P-28-23S-27E | P | 30-015-44853 | S | | | Unknown | | | | 0 | |

WHERE Ogrid:371195

# Moomaw C-108 Application: Water Wells Within One-Mile Radius

CP-839: SE/4 SW/4 S30/T24S/R35E

Rubert Madera; May 1963; DTW 155 feet; Well TD 175 feet; "electric under water pump"



## McMillan, Michael, EMNRD

**From:** McMillan, Michael, EMNRD
**Sent:** Wednesday, February 7, 2018 12:11 PM
**To:** 'Jason Goss'; Mike McCurdy
**Cc:** Goetze, Phillip, EMNRD; Jones, William V, EMNRD
**Subject:** Moomaw SWD Well No. 1 Affidavit of Publication

Jason and Mike:
After looking at the affidavit of publication, it was ran in the Carlsbad Current- Argus, Eddy County, New Mexico.

Your proposed SWD is in Lea County.

Therefore, Delaware Energy, LLC must re-run your newspaper and corresponding affidavit of publication in a newspaper of general circulation in Lea County, New Mexico.

As a result, your application has been suspended.

Thank you

Mike

Michael McMillan
1220 South St. Francis
Santa Fe, New Mexico
505-476-3448
Michael.mcmillan@state.nm.us

## McMillan, Michael, EMNRD

**From:** McMillan, Michael, EMNRD
**Sent:** Monday, February 12, 2018 12:31 PM
**To:** 'Jason Goss'
**Cc:** Goetze, Phillip, EMNRD; Jones, William V, EMNRD; Mike McCurdy; Scott Grifo
**Subject:** RE: Moomaw SWD Well No. 1 Affidavit of Publication

Thanks
Your 15-day clock will start today
Mike

---

**From:** Jason Goss [mailto:j.goss@delawareenergy.com]
**Sent:** Monday, February 12, 2018 12:30 PM
**To:** McMillan, Michael, EMNRD <Michael.McMillan@state.nm.us>
**Cc:** Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Jones, William V, EMNRD <WilliamV.Jones@state.nm.us>; Mike McCurdy <m.mccurdy@delawareenergy.com>; Scott Grifo <s.grifo@delawareenergy.com>
**Subject:** RE: Moomaw SWD Well No. 1 Affidavit of Publication

Mr. McMillan,

Please see attached affidavit of publication for the Moomaw SWD #1. As requested this was run in a newspaper in Lea County.

Thanks you!!!

Jason Goss

---

**From:** McMillan, Michael, EMNRD [mailto:Michael.McMillan@state.nm.us]
**Sent:** Wednesday, February 7, 2018 1:11 PM
**To:** Jason Goss <j.goss@delawareenergy.com>; Mike McCurdy <m.mccurdy@delawareenergy.com>
**Cc:** Goetze, Phillip, EMNRD <Phillip.Goetze@state.nm.us>; Jones, William V, EMNRD <WilliamV.Jones@state.nm.us>
**Subject:** Moomaw SWD Well No. 1 Affidavit of Publication

Jason and Mike:
After looking at the affidavit of publication, it was ran in the Carlsbad Current- Argus, Eddy County, New Mexico.

Your proposed SWD is in Lea County.

Therefore, Delaware Energy, LLC must re-run your newspaper and corresponding affidavit of publication in a newspaper of general circulation in Lea County, New Mexico.

As a result, your application has been suspended.

Thank you

Mike

Michael McMillan
1220 South St. Francis
Santa Fe, New Mexico
505-476-3448
Michael.mcmillan@state.nm.us

## Goetze, Phillip, EMNRD

**From:** Jennifer L. Bradfute <jlb@modrall.com>
**Sent:** Tuesday, May 1, 2018 11:30 AM
**To:** McMillan, Michael, EMNRD; Goetze, Phillip, EMNRD; Jones, William V, EMNRD; Brooks, David K, EMNRD; Dawson, Scott, EMNRD
**Cc:** Davidson, Florene, EMNRD; Adam Rankin (AGRankin@hollandhart.com)
**Subject:** Case No. 16158 - Moomaw SWD #!

All: Marathon has determined that it can withdraw its protest to Delaware Energy's application in Case No. 16158, which is currently set on the May 17th docket. Marathon was the only party protesting this application that I am aware of, and I believe that now that the protest has been resolved, the application may be decided administratively by the Division.

Thanks!
Jennifer

MODRALL SPERLING
Jennifer L. Bradfute
Modrall Sperling | www.modrall.com
P.O. Box 2168 | Albuquerque, NM 87103-2168
500 4th St. NW, Ste. 1000 | Albuquerque, NM 87102
D: 505.848.1845 | O: 505.848.1800 | F: 505.848.1891

---

**From:** Perry, Ethan R. (MRO) [mailto:erperry@marathonoil.com]
**Sent:** Tuesday, May 01, 2018 10:50 AM
**To:** Scott Grifo
**Cc:** Mike McCurdy; Jason Goss; Sarah Presley; Kevin Schepel; Wilty, Roy H. (MRO); Jennifer L. Bradfute
**Subject:** RE: Moomaw Protest

***

Scott,

After completing an internal technical evaluation of the Moomaw SWD proposal, we have determined that we are willing to withdraw our protest. Thanks for your patience as we have worked through our technical evaluation.

Regards,
Ethan

Ethan Perry
Geologist
Permian Subsurface Team

Marathon Oil
5555 San Felipe Road ▪ Houston, TX 77056

erperry@marathonoil.com
713-296-3066 (o)
832-993-9324 (c)

MarathonOil

**From:** Scott Grifo <s.grifo@delawareenergy.com>
**Sent:** Monday, April 30, 2018 11:50 AM
**To:** Perry, Ethan R. (MRO) <erperry@marathonoil.com>
**Cc:** Mike McCurdy <m.mccurdy@delawareenergy.com>; Jason Goss <j.goss@delawareenergy.com>; Sarah Presley <s.presley@delawareenergy.com>; Kevin Schepel <kevin.schepel@att.net>
**Subject:** [External] RE: Moomaw Protest

Beware of links/attachments.
Ethan,

Please provide me an update on Marathon's Moomaw protest.

Thanks

Scott Grifo
VP of Business Development
Delaware Energy Services
405 N. Marienfeld, Suite 250
Midland, Texas 79701
O:432-685-7005
C: 512-569-9213
DELAWARE ENERGY SERVICES

**From:** Scott Grifo
**Sent:** Thursday, April 26, 2018 7:51 AM
**To:** Perry, Ethan R. (MRO) <erperry@marathonoil.com>
**Cc:** Mike McCurdy <m.mccurdy@delawareenergy.com>; Jason Goss <j.goss@delawareenergy.com>; Sarah Presley <s.presley@delawareenergy.com>; Kevin Schepel <kevin.schepel@att.net>
**Subject:** Moomaw Protest

Ethan,

Thank you for calling me back yesterday. Per our conversation, your team is in the final review process and should get to a decision point on withdrawing the protest this week.

I look forward to hearing from you.

Thanks,

Scott Grifo | VP of Business Development
405 N. Marienfeld, Suite 250
Midland, TX 79701

O: 432.685.7005 | C: 512.569.9213
DELAWARE
ENERGY
SERVICES

## Goetze, Phillip, EMNRD

**From:** Scott Grifo <s.grifo@delawareenergy.com>
**Sent:** Monday, March 26, 2018 10:25 AM
**To:** Goetze, Phillip, EMNRD; McMillan, Michael, EMNRD
**Cc:** Sarah Presley; Mike McCurdy; jlb@modrall.com; Jason Goss
**Subject:** Moomaw SWD No. -Marathon's Protest of Modified Application to Inject

Mr. Goetze,

Delaware Energy Services will be reaching out to Marathon to try to resolve this protest. Marathon is concerned that our proposed SWD well is too close to a fault. We think our petro physical advisor, Kevin Schepel, will be able to alleviate their concerns. I will keep everyone informed of the outcome of our meetings.

Best regards,

Scott Grifo
512-569-9213

Sent from Mail for Windows 10

## Goetze, Phillip, EMNRD

| | |
|---|---|
| **From:** | Goetze, Phillip, EMNRD |
| **Sent:** | Friday, March 23, 2018 10:13 AM |
| **To:** | 'Sarah Presley' |
| **Cc:** | Jennifer L. Bradfute (jlb@modrall.com); Jones, William V, EMNRD; McMillan, Michael, EMNRD; Lowe, Leonard, EMNRD; Dawson, Scott, EMNRD |
| **Subject:** | Protest of Modified Application to Inject - Moomaw SWD No. 1 |
| **Attachments:** | Delaware Energy, LLC - Moomaw SWD #1 - Statement of Seismicity.pdf; Induced Seismicity Assessment MooMaw SWD #1.pdf |

RE: Moomaw SWD Well No. 1 (API 30-025-Pending; Admin. Appl. No. pMAM1801250966) Unit G; Sec 25, T24S, R34E, NMPM, Lea County

Ms. Presley:

OCD was notified through legal counsel that Marathon Oil Permian LLC is protesting this application following the request by Delaware Energy, LLC to increase tubing size and, correspondingly, the injection capacity of the proposed well. This party is identified as an affected person for the location being considered for the application with the tubing modification. This party has stated in their protest *"Marathon's current records show that the proposed injection interval and the well location may be located near a fault of concern."* The Division has attached the report submitted by Delaware Energy, LLC regarding the assessment of the potential for induced seismicity as a result of the proposed increased injection capacity.

You are being notified that if Delaware Energy, LLC wishes for this application to be considered, they must either go to hearing or may be reviewed administratively if the protest is withdrawn as a result of a negotiated resolution with this party. The application will be retained pending resolution of the protest. Please continue to provide OCD with information regarding the standing of this application. Please me call with any questions on this matter. PRG

Contact Information for Marathon's Counsel:

Jennifer L. Bradfute
Modrall Sperling
P.O. Box 2168
Albuquerque, NM 87103-2168
D: 505.848.1845 | O: 505.848.1800 | F: 505.848.1891
E-mail: Jennifer L. Bradfute (jlb@modrall.com)

Attachments: Transmittal e-mail and Delaware Energy IS Report for the Moomaw SWD No. 1

Phillip Goetze, PG
Engineering Bureau, Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive, Santa Fe, NM 87505
Direct: 505.476.3466
E-mail: phillip.goetze@state.nm.us

## Goetze, Phillip, EMNRD

**From:** Jennifer L. Bradfute <jlb@modrall.com>
**Sent:** Monday, April 2, 2018 11:39 AM
**To:** Goetze, Phillip, EMNRD; Brooks, David K, EMNRD
**Cc:** McMillan, Michael, EMNRD
**Subject:** Objection: White River SWD#1
**Attachments:** [Untitled].pdf

Phil,

Marathon Oil Permian LLC objects to the attached (undated) application that it received from BTA Oil Producers, LLC for the White River SWD #1 well. Marathon believes that the proposed well may impact its correlative rights. Marathon received a copy of the application on or around 3/27/2018; however, the notice for this application itself fails to include a date when the application was sent and likewise fails to provide a deadline for filing objections with the Division. The application also specifies that BTA seeks to inject up-to 60,000 BWPD, but does not include any data concerning seismicity or the potential impact on reservoir pressures. Please let me know if you have any questions concerning this objection.

Thank you,
Jennifer

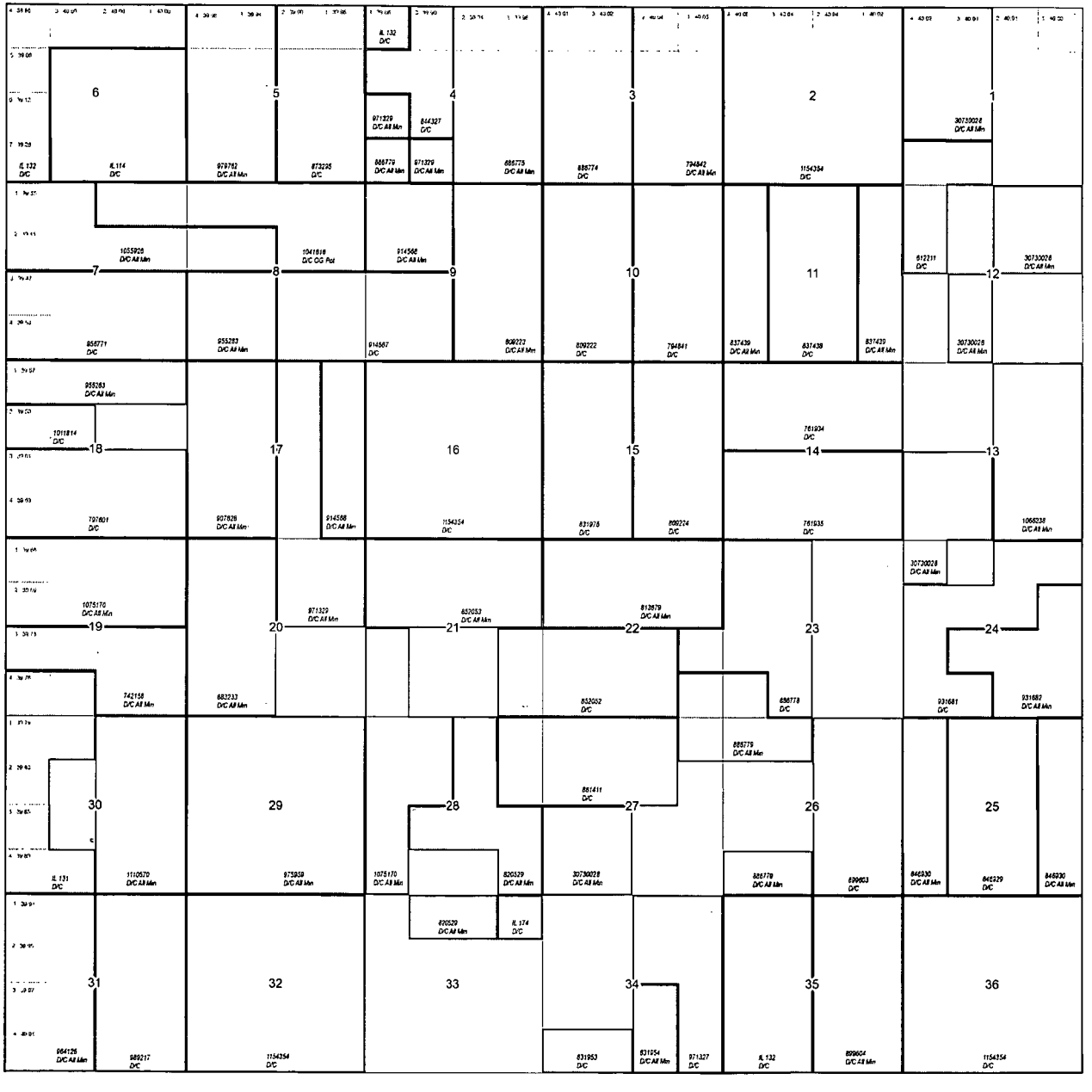
MODRALL SPERLING
Jennifer L. Bradfute
Modrall Sperling | www.modrall.com
P.O. Box 2168 | Albuquerque, NM 87103-2168
500 4th St. NW, Ste. 1000 | Albuquerque, NM 87102
D: 505.848.1845 | O: 505.848.1800 | F: 505.848.1891

# Township 24 South Range 34 East of the New Mexico Principal Meridian, New Mexico

**County: Lea - 025**

**BLM Field Office: Carlsbad**

BUREAU OF LAND MANAGEMENT
STATUS OF PUBLIC DOMAIN
LAND AND MINERALS




## MTP

**T24S R 34E**

Entire Township included in:
EO Wdl NM 1 Pot Res 6 (3/11/1926)

NOTE: The Serial Numbers displayed are in the Bureau's LR2000 system format.
If there is a zero in the 7th position (from the right), the serial number has a "prefix" zero;
example NM 0012345.
If there is not a zero in the 7th position (from the right) then the serial number does not have a "prefix" zero;
example NM 012345.

0 0.25 0.5 1 Mile

1 inch = 30 chains

1 : 23,760

**CAVEAT STATEMENT**

This plat is the Bureau's Record of Title, and should be used only as a graphic display of the township survey data. Records hereon do *not* reflect title changes which may have been affected by lateral movements of rivers or other bodies of water. Refer to the cadastral surveys for official survey information.

**T 24 S**
**R 34 E**
**NMPM**