

ABOVE THIS LINE FOR DIVISION USE ONLY

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



**ADMINISTRATIVE APPLICATION CHECKLIST**

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

Application Acronyms:

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

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]  
 [A] Location - Spacing Unit - Simultaneous Dedication  
 NSL  NSP  SD  
 Check One Only for [B] or [C]  
 [B] Commingling - Storage - Measurement  
 DHC  CTB  PLC  PC  OLS  OLM  
 [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX  PMX  SWD  IPI  EOR  PPR  
 [D] Other: Specify \_\_\_\_\_

SWD  
 - MAKE ENERGY  
 13837

RECEIVED OGD  
 2014 AUG 12 P 2:56

well  
 - Hollow SWD #1  
 30-015-42529  
 Pool  
 SWD: Bell Canyon  
 Cherry Canyon  
 96802

- [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.

Deana Weaver Deana Weaver Production Clerk Aug 11, 2014  
 Print or Type Name Signature Title Date

dweaver@mec.com  
 e-mail Address

**APPLICATION FOR AUTHORIZATION TO INJECT**

I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance  \_\_\_\_\_ Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval?  Yes \_\_\_\_\_ No

II. OPERATOR: Mack Energy Corporation

ADDRESS: P.O. Box 960 Artesia, NM 88211-0960

CONTACT PARTY: Deana Weaver PHONE: (575)748-1288

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 freshwater from two or more freshwater 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: Deana Weaver TITLE: Production Clerk

SIGNATURE: Deana Weaver DATE: 8-6-14

\* 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: \_\_\_\_\_



**INJECTION WELL DATA SHEET**

Tubing Size: 2 7/8" Lining Material: Plastic Coated

Type of Packer: Halliburton Trump Packer

Packer Setting Depth: 2030'

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

Additional Data

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

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

\_\_\_\_\_

2. Name of the Injection Formation: Bell Canyon and Cherry Canyon

3. Name of Field or Pool (if applicable): \_\_\_\_\_

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. \_\_\_\_\_

\_\_\_\_\_

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Overlying- Lamar Limestone , Underlying- Brushy Canyon

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## VII. DATA SHEET: PROPOSED OPERATIONS

1. Proposed average and maximum daily rate and volume of fluids to be injected;  
**Respectively, 2000 BWPD and 4000 BWPD**
2. The system is closed or open;  
**Closed**
3. Proposed average and maximum injection pressure;  
**0-416#**
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than re-injected produced water;  
**We will be re-injecting produced water } 3**
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;  
**N/A**

## VIII. GEOLOGICAL DATA

1. Lithologic Detail; **Sandstone**
2. Geological Name; **SWD; Bell Canyon-Cherry Canyon**
3. Thickness; **1970'**
4. Depth; **2080-4050'**

## IX. PROPOSED STIMULATION PROGRAM

1. To be treated with 10000 gallons 15% acid

## X. LOGS AND TEST DATA

1. Well data will be filed with the OCD.

## XI. ANALYSIS OF FRESHWATER WELLS

1. Will be forwarded, when complete. **?**

Additional Information

Waters Injected: Delaware Sands and Bone Spring

## XII. AFFIRMATIVE STATEMENT

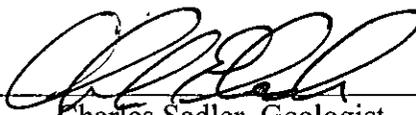
RE: Hollow SWD #1

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

Mack Energy Corporation

Date: \_\_\_\_\_

8/6/14



Charles Sadler, Geologist

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 Road, 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 & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office  
 AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number	<sup>2</sup> Pool Code 96802	<sup>3</sup> Pool Name SWD; Bell Canyon, Cherry Canyon
<sup>4</sup> Property Code	<sup>5</sup> Property Name <b>HOLLOW SWD</b>	
<sup>7</sup> OGRID No. 13837	<sup>8</sup> Operator Name <b>MACK ENERGY CORPORATION</b>	<sup>6</sup> Well Number <b>1</b>
		<sup>9</sup> Elevation <b>3188.5</b>

<sup>10</sup> Surface Location

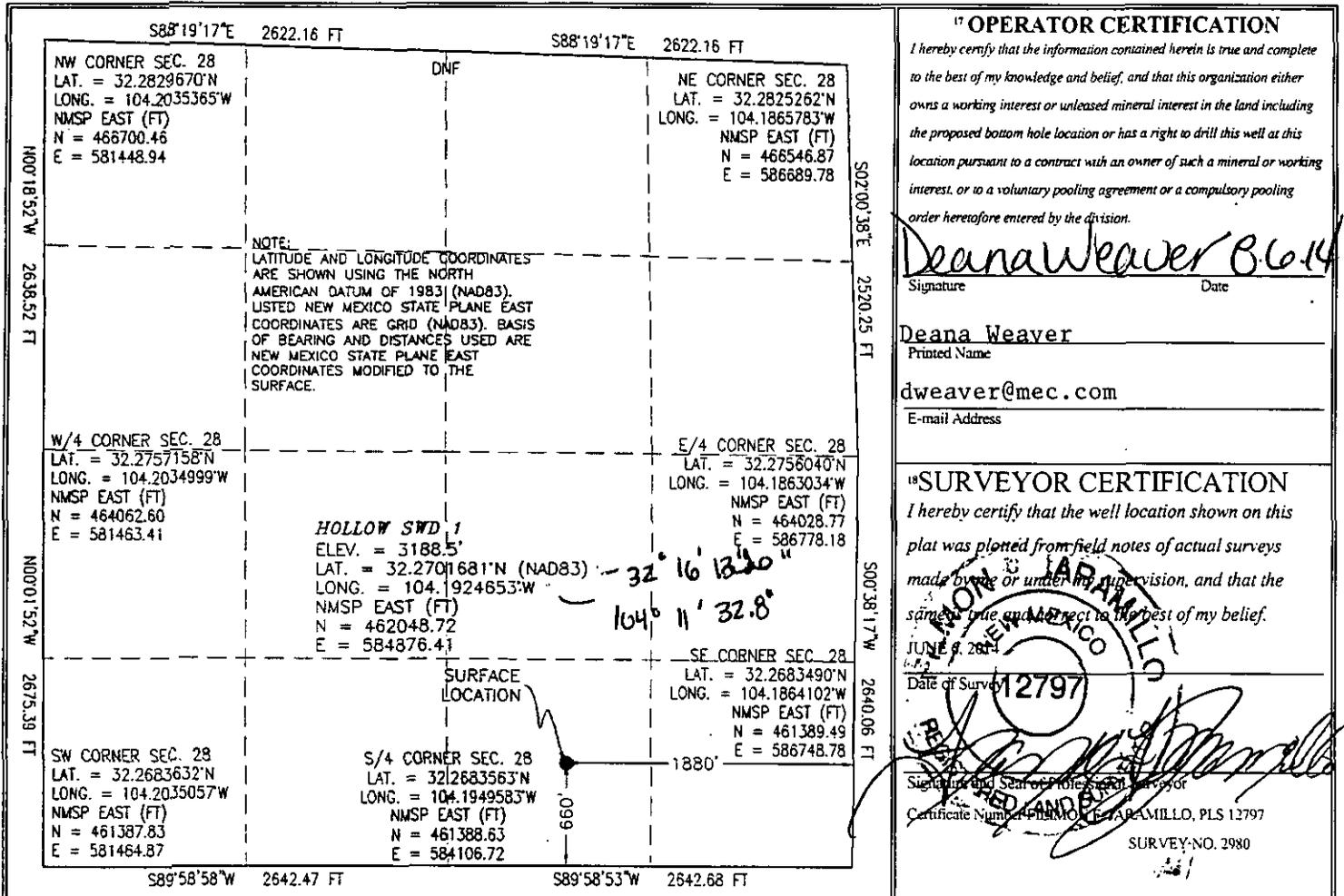
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	28	23 S	27 E		660	SOUTH	1880	EAST	EDDY

<sup>11</sup> 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

<sup>12</sup> Dedicated Acres 40	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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.





### AREA OF REVIEW WELL DATA

LEASE/API	WELL#	LOCATION	TD (PBSD)	TYPE & DATE DRILLED	HOLE SIZE	CASING SIZE & WEIGHT	SETTING DEPTH	SX CMT	TOC	PERFS
Hollow SWD	1	660' FSL 1880' FEL 28-23S-27E	4250'	SWD	12 1/4 7 7/8	8 5/8, 32# 5 1/2, 17#	1150 4250	670 620	0 0	2080-4050'
Forehand Ranch 27 State Com 30-015-39844	1H	252' FNL 1900' FEL 27-23S-27E	11,925' PBSD - 11,836'	Oil 9/26/2012	17 1/2 12 1/4 8 3/4 6 1/8	13 3/8, 54.5# 9 5/8, 36# 7, 26# 4 1/2, 11.6#	430 2077 7596 11925	450 712 1625 280 245	0 0 500' 3500'	surface BH - 7750-11,798'
Forehand Ranch 27 State 30-015-41530	5	500' FNL 1650' FEL 27-23S 27E	3545' PBSD- 3498'	Oil 10/29/2013	12 1/4 7 7/8	8 5/8, 24# 5 1/2, 17#	488 3545	256 805	0 0	3350-3370
Lone Ranger 33 State 30-015-41240	2H	1895' FSL 50' FEL 33-23S-27E	12,219 PBSD- 12,148	Oil 1/2/2014	17 1/2 12 1/4 8 3/4	13 3/8, 48# 9 5/8, 40# 5 1/2, 17#	365 2260 12181	895 1080 2665	0 0 6780	7599-12134
Pure Grace State 30-015-24119	1	1980 FSL 1980 FEL 34-23S-27E	12,703' PBSD- 10,914'	Oil 4/19/1982	20 14 3/4 9 1/2 6 1/2	16, 65# 10 3/4, 40.5# 7 5/8 7# & 39# 4 1/2, 13.5#	496 2280 9344 12702	600 2100 2000 550	0 0 0 0	10754-10764
Enfield/Terra Red #1 30-015-21230										
Caza/Forehand Ranch St. #6 30-015-43091										

*Distance From SWD*

*1.31 mile  
1.0 mile  
terminus*

*1.33 miles*

*0.85 mi*

*1.23 mi*

*0.69 mi*

*0.85 mi*

*Yates/Sabine 28 State #1  
30-015-22566 } P&A  
D-28-23S/27E*

*Caza/Forehand Ranch 27 State Com #2H } Cancelled  
30-015-39995*

*E-34-23S/27E } P&A TD 2338*

*} New/APD only*

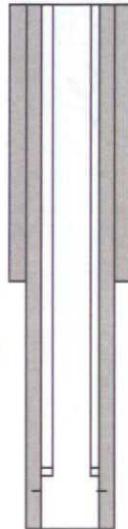
Hollow SWD #1  
Sec. 28 T23S R27E  
660 FSL 1880 FEL

8 5/8" csg @ 1,150'  
w/ 670sx, circ

5 1/2" csg @ 4250'  
w/ 620sx, circ

2 7/8" PC tubing @ 2030'  
set w/ 10K Nickel Plated PRK

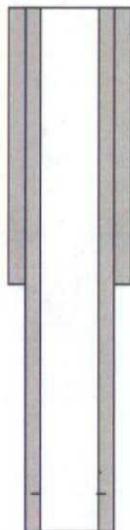
Perfs @ 2080-4050'



TD- 4250'

Forehand Ranch 27 State #5  
Sec. 27 T23S R27E  
500 FNL 1650 FEL  
30-015-41530

8 5/8" csg @ 488'  
w/ 256sx, circ



5 1/2" csg @ 3545'  
w/ 805sx, circ

Perf @ 3350-3370'

TD-3545'  
PBTD- 3498'

Forehand Ranch 27 State Com #1H  
Sec. 27 T23S R27E  
252 FNL 1900 FEL  
30-015-39844

13 3/8" csg @ 430'  
w/ 450sx, circ

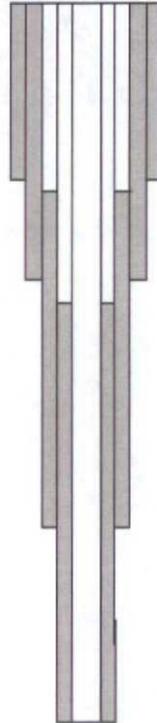
9 5/8" csg @ 2077'  
w/ 712sx, circ

7" csg @ 7596'  
w/ 1625sx, TOC 500'

4 1/2" csg @ 6537'  
w/ 245sx, TOC 3500'

4 1/2" csg @ 6537-11925'  
w/ 280sx, Circ

Perfs @ 7750-11798'



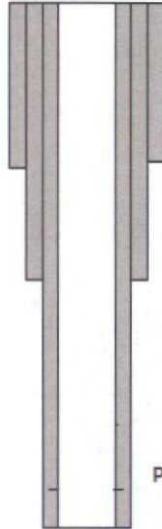
TD- 11,925'  
PBTD- 11,836'

Lone Ranger 33 State 2H  
Sec. 33 T23S R27E  
1895 FSL 50 FEL  
30-015-41240

13 3/8" csg @ 365'  
w/ 680sx, circ

9 5/8" csg @ 2260'  
w/ 895sx, circ

5 1/2" csg @ 12,181'  
w/ 2665', circ



Perfs 7599-12134'

TD- 12,219'  
PBTD- 12,148'

Pure Grace State #1  
Sec. 34 T23S R27E  
1980 FSL 1980 FEL  
30-015-24119

16" csg @ 496  
w/ 600sx, circ

10 3/4" csg @ 2280  
w/ 2100sx, circ

7 5/8" csg @ 9344  
w/ 2000sx, circ

Perfs @ 10040-10224  
Perfs @ 10744-10774

4 1/2" liner @ 12,702'  
Top of liner @ 8,834'  
w/ 550sx

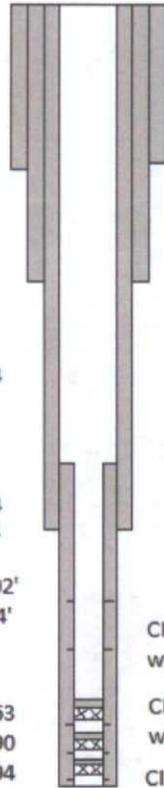
Perfs @ 12544-12563  
Perfs @ 12132-12190  
Perfs @ 11139-11194

CIBP @ 11,093'  
w/ 35' cmt

CIBP @ 12,000'  
w/ 35' cmt

CIBP @ 12,500'  
w/ 35' cmt

TD-12,703'



## Deana Weaver

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**From:** Travis Lanning  
**Sent:** Monday, July 28, 2014 12:48 PM  
**To:** Deana Weaver  
**Cc:** Jerry Sherrell  
**Subject:** RE: Hollow SWD #1

SE, 28-23S-27E  
COC & Kids

N/2, 28-23S-27E  
E2NE, 33-23S-27E  
NW, 34, 23S-27E  
Devon Energy Production Company, LP  
333 W. Sheridan Ave,  
Oklahoma City, OK 73102

W/2 of Section 27-T23S-R27E  
SW, 28-23S-27E  
Caza Petroleum, Inc.  
10077 Grogan's Mill Road, Suite 200  
The Woodlands, TX 77380

Gaedeke Holding VII, LTD  
3710 Rawlins Street, Suite 1100  
Dallas, TX 75219

O'Neill Properties, LTD  
410 W. Ohio Avenue  
Midland, TX 79701

Midland Energy Inc.  
PO Box 1091  
Midland, TX 79702

The Allar Company  
PO Box 1567  
Graham, TX 76450

EG3, Inc.  
PO Box 1567  
Graham, TX 76450

E2NE, 33-23S-27E  
ConocoPhillips

PO Box 2197  
Houston, TX 77252

Chevron USA, Inc.  
1400 Smith Street,  
Houston, TX 77027

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**From:** Deana Weaver  
**Sent:** Monday, July 21, 2014 10:31 AM  
**To:** Travis Lanning  
**Cc:** Jerry Sherrell  
**Subject:** RE: Hollow SWD #1

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**From:** Deana Weaver  
**Sent:** Monday, July 21, 2014 10:28 AM  
**To:** Travis Lanning  
**Cc:** Jerry Sherrell  
**Subject:** Hollow SWD #1

Travis

Attached is a map & plats for the Hollow SWD #1. I need offset operators with one-half mile of the wells location for the SWD application.

Thanks  
Deana

## **SURFACE USE AGREEMENT**

This Surface Use Agreement is by and between Leah Lewis Ruehle, Trustee of the Leah Lewis Ruehle Trust Agreement U/T/D 9/13/2000, of 303 Hillcrest Dr, Smithville, MO 64089 ("Owner"), and Mack Energy Corporation of P.O. Box 960, Artesia, New Mexico 88211("Mack").

WHEREAS, Owner is the owner of surface estate of lands in Eddy County, New Mexico ("Lands").

WHEREAS, Mack is preparing to conduct oil and gas operations on the Lands; and

WHEREAS, Owner and Mack desire to enter into an agreement governing the use of the Lands by Mack in its oil and gas operations.

NOW THEREFORE, for and in consideration of the sum of Ten and NO/100 Dollars (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, Owner and Mack agree to the following terms and conditions:

Prior to entry upon the Lands for any activity that does not disturb the surface (staking, surveys, inspections, etc.); Mack will provide not less than 24 hours notice by mail, telephone, or personal contact with Owner.

Prior to entry upon the Lands to commence any other operations for the exploration of oil and gas or preparation of the surface therefore, Mack will provide not less than 24 hours notice by mail, telephone, or personal contact with Owner.

Mack agrees to pay Owner for damages to the lands in accordance with the Damage Schedule attached hereto as Exhibit "A." Owner agrees that the damages paid hereunder will constitute all damages to which Owner is entitled to receive or claim and that in consideration of the amounts paid hereunder, Owner releases and waives any additional claims for damages as to the Lands outside of the terms and conditions of this Agreement.

Owner grants Mack the right to use and improve existing roads and well pads as Mack deems appropriate for its operations on the Lands.

Mack agrees to control water runoff, soil erosion, weeds, litter and dust to the best of its ability.

Mack agrees, upon cessation of oil and gas operations on said Lands, to restore, to the extent reasonably possible, the surface of the Lands to its condition as of the date hereof or as otherwise agreed to between Owner and Mack.

**Contact Information:**

Owner

Name: Leah Lewis Ruehle  
Address: 303 Hillcrest Drive  
Smithville, MO 64089  
Telephone 1:  
Telephone 2:

Mack

Name: Su'Ann Greenwood  
Address: P.O. Box 960  
Artesia, New Mexico 88211  
Telephone 1: 575-748-1288 Office  
Telephone 2: 575-703-6289 Cellular  
Facsimile: 575-748-7374  
Email: suanng@mec.com

Owner represents and warrants that it is entitled to receive all of the compensation for the damages to the Lands and agrees to indemnify and hold Mack harmless as to all claims by any other legal, equitable or beneficial owners of the Lands as may be shown in the records of the county in which the Lands are located.

As further consideration for the sums paid hereunder, Owner waives all rights, causes of action, claims or damages to which Owner might otherwise be entitled pursuant to the Surface Owners Protection Act, a copy of which is attached hereto as Exhibit "B." Owner and Mack agree that this Surface Use Agreement will be the exclusive remedy between the parties as to damages to the Lands attributable to Mack's oil and gas operations on the Lands.

Mack's rights under this Agreement shall be in addition to, and shall not diminish any rights under its oil and gas leases covering all or any portion of the Lands. Venue for cause of action hereunder shall be in accordance with the laws of the State of New Mexico and venue shall be the Fifth Judicial District Court, Eddy County, New Mexico.

The Information contained herein shall be kept confidential and shall not, without the prior written consent of Mack, be disclosed by you or your Representatives, in any manner whatsoever, in whole or in part, and shall not be used by you or your Representatives, directly or indirectly.

This Agreement may be amended in writing by mutual agreement of Owner and Mack at any time.

EXECUTED, this 19<sup>th</sup> day of MARCH 2014.

Owner

Mack

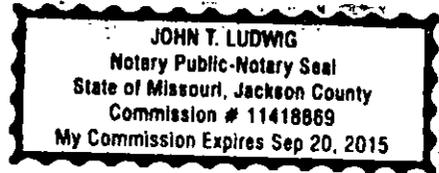
Leah Lewis Ruehle Trust Agreement  
U/T/D 9/13/2000

Mack Energy Corporation

Leah Lewis Ruehle TTEE  
Leah Lewis Ruehle  
Trustee

[Signature]  
Travis K. Lanning  
Attorney in Fact

STATE OF MISSOURI       §  
  §  
COUNTY OF JACKSON   §



The foregoing instrument was acknowledged before me this 19<sup>th</sup> day of MARCH 2014, by Leah Lewis Ruehle, Trustee of the Leah Lewis Ruehle Trust Agreement U/T/D 9/13/2000.

My Commission Expires: 9/20/15

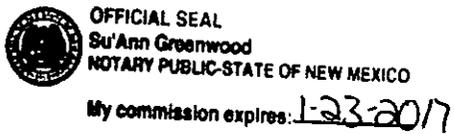
[Signature]  
Notary Public

STATE OF NEW MEXICO   §  
  §  
COUNTY OF EDDY       §

The foregoing instrument was acknowledged before me this 12th day of March 2014, by Travis K. Lanning, Attorney in Fact for Mack Energy Corporation, a New Mexico corporation.

[Signature]  
Notary Public

My Commission Expires: January 23, 2017



## EXHIBIT "A"

### Damage Schedule

New Location:	\$5,000.00 per location
Old Location:	\$2,500.00 per location
New Roads:	\$30.00 per rod
Old Roads:	\$20.00 per rod
Buried Pipelines:	\$30.00 per rod
Above Ground Pipelines:	\$10.00 per rod
Electric Lines:	\$10.00 per rod

## SURFACE LEASE AND SALT WATER DISPOSAL AGREEMENT

This SURFACE LEASE AND SALT WATER DISPOSAL AGREEMENT ("Agreement") is effective as of the 2nd day of May, 2014 ("Effective Date"), by and between Leah Lewis Ruehle, Trustee of the Leah Lewis Ruehle Trust Agreement U/T/D 9/13/2000, (collectively "Ruehle"), with a mailing address of 303 Hillcrest Dr. Smithville, Missouri 64089, and Mack Energy Corporation, a New Mexico Corporation, on behalf of itself and any of its subsidiary and affiliated companies, (collectively, "Mack"), with a mailing address of P.O. Box 960, Artesia, New Mexico 88211.

### RECITALS

- A. Ruehle hereby warrants and agrees to defend title in and to the surface of the following described land located in Eddy County, New Mexico and the right to inject produced water and other fluids associated with oil and gas production into the subsurface pore space ("Land");

Hollow SWD #1

Unit Letter O (SW/4SE/4), Section 28, T23S, R27E, Eddy County, New Mexico

- B. Mack desires to obtain from Ruehle the right to gather, accumulate and dispose of produced water and other fluids on, in and under the Land and from other lands in the vicinity of the Lands.
- C. In consideration of the mutual promises set out in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Ruehle and Mack agree to be bound by the terms of this Agreement, as follows:

### AGREEMENT

#### 1. GRANT.

1.1 **Salt Water Disposal.** Ruehle grants to Mack an easement in, to, over and across the Land to allow for the gathering, accumulation and disposal of produced saltwater, returned frac water and other fluids and oil and gas waste (as the term oil and gas waste is defined in the state statutes or rules and regulations of governmental authorities having jurisdiction over the disposal of such waste in the state of New Mexico), all of such fluids and wastes being hereinafter, collectively, referred to as "Produced Water", to the extent: (i) said Produced Water is from Mack owned and/or operated wells and activities located on or in the vicinity of the Land, and (ii) only to the extent, such activities are in connection with the operation of a disposal well or wells located on the Lands permitted in accordance with all applicable rules and regulations of regulatory bodies having jurisdiction over the disposal of Produced Water and/or disposal wells. As used herein, the term "on-lease" means on or from the oil and gas leasehold estate underlying the Land; and the term "off-lease" means on or from oil and gas leasehold estates to the extent such do not underlie the Land.

1.2 This Agreement is subject to all grants, conditions, limitations, reservations, and other agreements, if any, of record or arising by law, and the rights of any parties pursuant to same affecting the surface or subsurface of the Land. This Agreement shall include, and Ruehle grants to Mack, such rights, including rights of ingress and egress, over and across the Land and Ruehle's neighboring lands, as are reasonably necessary or convenient to Mack's enjoyment of the other rights expressly granted above.

1.3 The above grant includes but is not limited to the right to construct and maintain one or more pipelines for the transportation of Produced Water onto the Land from other lands located in the vicinity of the Land for the purpose of gathering Produced Water for disposal on the Land. Mack shall consult with Ruehle with regard to the location of pipelines, storage tanks and other facilities, and reasonably accommodate the interests of the surface estate relative to the placement of same.

2. **MAINTENANCE AND OPERATION OF DISPOSAL WELLS AND RELATED FACILITIES AND EQUIPMENT.** All disposal wells operated on the Land, and all related facilities and equipment, and all pipelines (collectively "Salt Water Disposal System") shall be constructed, maintained and operated in accordance with all applicable Federal, State, and Local laws, statutes and regulations.

3. **SURRENDER.** Mack may surrender this Agreement at any time, by providing not less than ninety (90) days prior written notice of termination to Ruehle. Upon surrender or termination, Mack will be relieved of all future obligations under this Agreement, but surrender will not relieve Mack of obligations that have accrued under this Agreement prior to the date of surrender or termination of obligations that are expressly stated to survive surrender or termination.
4. **ANNUAL PAYMENTS.** Mack shall pay to Ruehle One Cent (\$0.01) per barrel of Produced Water received by Ruehle into the Salt Water Disposal System. Mack shall prorate annual payments so that all damage payments located on the Land fall on the same date, which date shall be December 1 of each year.
5. **USE, MAINTENANCE, AND RESTORATION OF LAND.** Mack will maintain the Land and the Salt Water Disposal System during the term of this Agreement in good repair, clear of refuse and litter. Upon termination of this Agreement, Mack will conduct reclamation of the Land as is reasonably practicable and customary, consistent with the character and location of the Land. Ruehle shall permit Mack continued access to the Land for a reasonable period of time after termination of the Agreement for removal of its personal property, fixtures and equipment, including well casing, and to the extent required hereby, reclamation operations on the Land.
6. **REMOVAL OF PROPERTY; PLUGGING OF DISPOSAL WELLS.** Improvements, material, machinery, equipment and other property that may be constructed or placed on the Land by Mack incident hereto will not become part of the real property but will remain the personal property of Mack. Mack will remove all of its personal property on the Land within 180 days following termination of this Agreement. Provided, as to pipelines which are buried, Mack may flush, cap and abandon same in place rather than burden the surface estate with the activities necessary to remove same. In addition, within the aforesaid period of time, Mack shall plug and abandon any and all wells it has drilled or converted on the Lands for use in its disposal activities hereunder, all in accordance with the rules and regulations of any regulatory agency having jurisdiction.
7. **DISCHARGE OF LIENS ON OWNER'S INTEREST.** Mack may, at its option, discharge any tax, mortgage, or other lien on Ruehle's interest in the Land, in whole or in part, and be subrogated to same, with the right to enforce same and to apply all rentals thereafter accruing under this Agreement toward the satisfaction of same.
8. **COMPLIANCE WITH LAW.** In its use of the Land and in the conduct of its activities hereunder, Mack will comply with all applicable federal, state, tribal and local laws and with all rules, regulations and orders of all regulatory authorities having jurisdiction.
9. **INDEMNITY.** Mack will defend, indemnify and hold Ruehle harmless against all third party (both private and governmental) asserted and/or adjudicated claims, liabilities, penalties, fines, payments, judgments, damages, losses, costs and expenses (including without limitation attorneys' fees and court costs, costs of investigations, site assessments, testing and remedial actions) (collectively "Claims") arising from or on account of any act or omission by Mack, its employees, agents, invitees, contractors, and subcontractors, incident to acts or omissions relating to rights and entitlements granted by this Agreement. Mack's defense and indemnity obligation will not apply to Ruehle's own negligence or willful misconduct. The provisions of this section shall survive the surrender or termination of this Agreement.
10. **LIMITATION ON DAMAGES.** Under no circumstances shall either party hereunder have any obligation to compensate the other party for indirect or consequential loss arising under or pursuant to this Agreement, including loss of prospective economic advantage or benefit, loss of profit, loss of business opportunity, punitive or exemplary damages; and each party hereby waives its right to collect any such damages from the other party under this Agreement.
11. **ASSIGNMENT.** The rights of either party may be assigned in whole or in part, provided that this Agreement shall run with the parties' respective estates in and to the Land. The terms of this Agreement will be binding upon and inure to the benefit of the parties and their heirs, successors and assigns. No change of ownership of Ruehle's rights will operate to enlarge the obligations or diminish Mack's rights. No change in ownership of the Land will affect or bind Mack until Ruehle furnishes to Mack the original or certified copy of the conveying instrument. The evidence of ownership must be supplied at least sixty days before the next succeeding rental payment is due; otherwise, Mack's payment to the purchaser's predecessor in title will bind the purchaser. Unless and until provided with adequate evidence of an heir's or heirs' entitlement to payments due hereunder, Mack may make payments to the estate of a deceased, prior payee. If Mack assigns this Agreement in whole or part, it will provide Ruehle with written notice of such assignment within sixty (60) days after the date on which the assignment is made.

12. **THIRD PARTY RIGHTS.** No person or entity who is not a party to this Agreement has any rights under this Agreement or may enforce any provision of this Agreement; provided, however, that this Section 13 shall not prevent Mack from enjoying the benefits of this Agreement on behalf of any of its subsidiary or affiliated companies.

13. **NOTICES.**

13.1 All notices required or permitted under this Agreement must be in writing and delivered by mail (postage prepaid) or by hand delivery to the address of the receiving party set out in the signature page to this Agreement. Notice may also be email of the receiving party set out in the signature page to this Agreement.

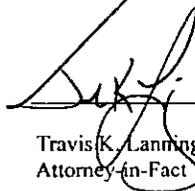
13.2 Notices which do not comply with the requirements of this Agreement are ineffective, and do not impart actual or any other kind of notice.

**GOVERNING LAW.** This Agreement is governed by and interpreted under the laws of the State of New Mexico, without regard to its choice of law rules. Notwithstanding the foregoing, under no circumstances shall any law, theory or public policy be given effect which would undermine, diminish or otherwise reduce the effectiveness of the waiver of consequential and other damages set forth in Section 11 above, it being the express intention, understanding and agreement of the parties hereto that such waiver is to be given its utmost effect, without regard to the negligence (whether sole, joint, concurrent, active, passive or gross), strict liability, willful misconduct, statutory liability or other fault of any party or the existence of any defect (whether patent, latent or otherwise).

**Leah Lewis Ruehle Trust Agreement**  
**U/T/D 9/13/2000**

**Mack Energy Corporation**

  
\_\_\_\_\_  
Leah Lewis Ruehle  
Trustee

  
\_\_\_\_\_  
Travis K. Laning  
Attorney-in-Fact

**ADDRESS FOR NOTICES:**

Leah Lewis Ruehle  
303 Hillcrest Dr.  
Smithville, MO 64089

**Telephone:** (816) 873-9800

**Email:** Leahruehle@yahoo.com

**ADDRESS FOR NOTICES:**

Mack Energy Corporation  
P.O. Box 960  
Artesia, NM 88211  
Attention: Su'Ann Greenwood

**Telephone:** (575) 748-1288

**Facsimile:** (575) 748-7374

**Email:** suanng@mec.com

ACKNOWLEDGMENTS

Attached to and made a part of that certain Surface Lease and Salt Water Disposal Agreement dated effective \_\_\_\_\_ day of \_\_\_\_\_, 2014, by and between Leah Lewis Ruchle, Trustee of the Leah Lewis Ruchle Trust Agreement U/T/D 9/13/2000 and Mack Energy Corporation.

STATE OF Missouri §  
COUNTY OF Clay §

The foregoing instrument was acknowledged before me this 6th day of May 2014, by Leah Lewis Ruchle, Trustee of the Leah Lewis Ruchle Trust Agreement U/T/D 9/13/2000.

Lisa L. Roseman  
Notary Public

My Commission Expires: Feb. 22 2015

LISA L. ROSEMAN  
Notary Public - Notary Seal  
STATE OF MISSOURI  
Clay County  
My Commission Expires: Feb. 22, 2015  
Commission # 11140642

STATE OF NEW MEXICO §  
COUNTY OF EDDY §

The foregoing instrument was acknowledged before me this 2nd day of May 2014 by Travis K. Lanning, Attorney in Fact for Mack Energy Corporation, a New Mexico corporation.

Su'Ann Greenwood  
Notary Public

My Commission Expires: January 23, 2017

OFFICIAL SEAL  
Su'Ann Greenwood  
NOTARY PUBLIC-STATE OF NEW MEXICO  
My commission expires: 1-23-2017



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3824**  
**RETURN RECEIPT REQUESTED**

Devon Energy Production Company, LP  
333 W. Sheridan Ave.  
Oklahoma City, OK 73102

Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

MACK ENERGY CORPORATION

A handwritten signature in black ink that reads "Deana Weaver". The signature is written in a cursive style with a long, sweeping underline.

Deana Weaver  
Production Clerk

DW

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3831**  
**RETURN RECEIPT REQUESTED**

*Caza Petroleum, Inc*  
10077 Grogan's Mill Road, Suite 200  
The Woodlands, TX 77380

Gentlemen:

*Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.*

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*Sincerely,*

MACK ENERGY CORPORATION

A handwritten signature in black ink that reads "Deana Weaver".

Deana Weaver  
Production Clerk

DW

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3848**  
**RETURN RECEIPT REQUESTED**

Gaedeke Holding VII, LTD  
3710 Rawlins Street, Suite 1100  
Dallas, TX 75219

Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

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Sincerely,

MACK ENERGY CORPORATION

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Deana Weaver  
Production Clerk

DW

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3855**  
**RETURN RECEIPT REQUESTED**

O'Neill Properties, LTD  
410 W. Ohio Avenue  
Midland, TX 79701

Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

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Sincerely,

MACK ENERGY CORPORATION

A handwritten signature in black ink that reads "Deana Weaver".

Deana Weaver  
Production Clerk

DWA

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3862**  
**RETURN RECEIPT REQUESTED**

Midland Energy Inc.  
P.O. Box 1091  
Midland, TX 79702

Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

MACK ENERGY CORPORATION

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Deana Weaver  
Production Clerk

DWM

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3879**  
**RETURN RECEIPT REQUESTED**

The Allar Company  
P.O. Box 1567  
Graham, TX 76450

Gentlemen:

*Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.*

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*Sincerely,*

MACK ENERGY CORPORATION

A handwritten signature in black ink that reads "Deana Weaver". The signature is written in a cursive, flowing style.

Deana Weaver  
Production Clerk

DW

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 3886**  
**RETURN RECEIPT REQUESTED**

EG3, Inc.  
P.O. Box 1567  
Graham, TX 76450

Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

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Sincerely,

MACK ENERGY CORPORATION

  
Deana Weaver  
Production Clerk

DW

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 4098**  
**RETURN RECEIPT REQUESTED**

ConocoPhillips  
P.O. Box 2197  
Houston, TX 77252

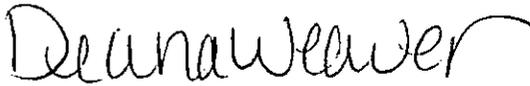
Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

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Sincerely,

MACK ENERGY CORPORATION

  
Deana Weaver  
Production Clerk

DW

Attachments



P.O. Box 960  
Artesia, NM 88211-0960  
Office (575) 748-1288  
Fax (575) 746-9539

August 5, 2014

**VIA CERTIFIED MAIL 7012 3460 0002 8734 4104**  
**RETURN RECEIPT REQUESTED**

Chevron USA, Inc.  
1400 Smith Street  
Houston, TX 77027

Gentlemen:

Enclosed for your review, is a copy of Mack Energy Corporation's application for a Bell Canyon-Cherry Canyon SWD well. Produced water will be injected at a proposed depth of 2080-4050'. The Hollow SWD #1 located 660 FSL & 1880 FEL, Sec. 28 T23S R27E, Eddy County.

This letter will serve as a notice that Mack Energy Corporation has requested administrative approval from the NMOCD to convert this well into a water disposal well. If you have any objections, you must notify the Oil Conservation Division in Santa Fe in writing at 1220 South St. Francis Drive, Santa Fe, NM 87505 within fifteen (15) days of receiving this letter.

Sincerely,

MACK ENERGY CORPORATION

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Deana Weaver  
Production Clerk

DW

Attachments

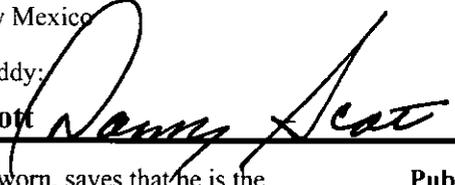
# Affidavit of Publication

No. 23117

State of New Mexico

County of Eddy:

**Danny Scott**



being duly sworn, says that he is the

**Publisher**

of the Artesia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto attached

## Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 Consecutive weeks/day on the same

day as follows:

First Publication July 30, 2014

Second Publication \_\_\_\_\_

Third Publication \_\_\_\_\_

Fourth Publication \_\_\_\_\_

Fifth Publication \_\_\_\_\_

Sixth Publication \_\_\_\_\_

Subscribed and sworn before me this

30th day of July 2014



OFFICIAL SEAL  
Latisha Romine  
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires: 5/12/2015



Latisha Romine

Notary Public, Eddy County, New Mexico

# Copy of Publication:

## LEGAL NOTICE

Mack Energy Corporation, Post Office Box 960, Artesia, NM 88211-0960, has filed an Application with the New Mexico Oil Conservation Division seeking authorization to inject produced water into the Hollow SWD #1 660 FSL & 1880 FEL of Section 28, T23S R27E, NMPM, Eddy County, New Mexico. The water will be injected into the Bell Canyon and Cherry Canyon formations at a disposal depth of 2080-4050'. Water will be injected at a maximum surface pressure of 416# pounds and a maximum injection rate of 4000 BWPD. Any interested party with questions or comments may contact Deana Weaver at Mack Energy Corporation, Post Office Box 960, Artesia, New Mexico 88211-0960 or call (575) 748-1288. Objections to this application or requests for hearing must be filed with the Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505, within fifteen days of the date of the publication of this notice.  
Published in the Artesia Daily Press, Artesia, N.M., July 30, 2014 Legal No. 23117.



C-108 Review Checklist: Received 08/12/14 Add. Request: \_\_\_\_\_ Reply Date: \_\_\_\_\_ Suspended: \* [Ver 16]

\*Suspended due to Case No. 15235

ORDER TYPE: WFX / PMX / SWD Number: 1577 Order Date: 09/09/15 Legacy Permits/Orders: \_\_\_\_\_

Adjacent PM case in Delaware (R-13957)

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

API: 30-0 15-42529 Spud Date: TBD New or Old: New (UIC Class II Primacy 03/07/1982)

Footages 660 FSL/1080 FEL Lot - or Unit 0 Sec 28 Tsp 23S Rge 27E County Eddy

General Location: 5 miles E of Loving Pool: SWD: Bell Canyon/Cherry Canyon Pool No.: 96802

BLM 100K Map: Carlsbad Operator: Mack Energy Corporation OGRID: 13837 Contact: Deanna Weaver

COMPLIANCE RULE 5.9: Total Wells: 469 Inactive: 1 Fincl Assur: OK Compl. Order? No IS 5.9 OK? Yes Date: 09/09/2015

WELL FILE REVIEWED  Current Status: APD approved at District

WELL DIAGRAMS: NEW: Proposed  or RE-ENTER: Before Conv.  After Conv.  Logs in Imaging: No logs

Planned Rehab Work to Well: New Construction

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement SX or Cf	Cement Top and Determination Method
Planned <input checked="" type="checkbox"/> or Existing <u>Surface</u>	<u>12 1/4 / 8 5/8</u>	<u>0 to 1150</u>	<u>670</u>	<u>Cir. to surface</u>
Planned <input checked="" type="checkbox"/> or Existing <u>Interm/Prod</u>	<u>7 1/8 / 5 1/2</u>	<u>0 to 4250</u>	<u>620</u>	<u>Cir. to surface</u>
Planned <input type="checkbox"/> or Existing <u>Interm/Prod</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Planned <input type="checkbox"/> or Existing <u>Prod/Liner</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Planned <input type="checkbox"/> or Existing <u>Liner</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Planned <input checked="" type="checkbox"/> or Existing <u>OH / PERF</u>	<u>5 1/2</u>	<u>2080 - 4050 3000</u>	<u>Inj Length 1970 1870</u>	<u>Completion/Operation Details:</u>

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Top (ft)	Drilled TD	PBTD
Adjacent Unit: <u>Litho</u> Struc. Por.	<u>-</u>	<u>Base of Salt</u>	<u>~1700</u>	<u>NEW TD 4250</u>	<u>NEW PBTD NA</u>
Confining Unit: <u>Litho</u> Struc. Por.	<u>+180'</u>	<u>Lamar ls</u>	<u>~1900</u>	<u>NEW Open Hole <input type="checkbox"/></u>	<u>or NEW Perfs <input checked="" type="checkbox"/></u>
Proposed Inj Interval TOP:	<u>2080</u>	<u>Bell Canyon</u>	<u>D ~2080</u>	<u>Tubing Size 2 7/8 in.</u>	<u>Inter Coated? <u>Yes</u></u>
Proposed Inj Interval BOTTOM:	<u>4050</u>	<u>Cherry Canyon</u>	<u>M ~3000</u>	<u>Proposed Packer Depth 2030 ft</u>	<u>Min. Packer Depth 1980 (100-ft limit)</u>
Confining Unit: <u>Litho</u> Struc. Por.	<u>into (reduce)</u>	<u>Brushy Canyon</u>	<u>G ~3900</u>	<u>Proposed Max. Surface Press. 416 psi</u>	<u>Admin. Inj. Press. 416 (0.2 psi per ft)</u>
Adjacent Unit: <u>Litho</u> Struc. Por.	<u>-</u>	<u>Bone Spring fm</u>	<u>~5400</u>		

**AOR: Hydrologic and Geologic Information**

POTASH: R-111-P NA Noticed? NA BLM Sec Ord NA WIPP NA Noticed? NA Salt/Salado T: 600 B: 700 NW: Cliff House fm NA

FRESH WATER: Aquifer: Pecos alluvials (bedrock) Max Depth: < 300' HYDRO AFFIRM STATEMENT By Qualified Person

NMOSE Basin: Carlsbad CAPITAN REEF: thru adj NA No. GW Wells in 1-Mile Radius? 1 FW Analysis? Not available

Disposal Fluid: Formation Source(s) Bone Spring (new wells) Analysis? No On Lease  Operator Only  or Commercial

Disposal Interval: Inject Rate (Avg/Max BWPD): 2000/4000 Protectable Waters? UW Source: Stipulate System: Closed or Open

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

AOR Wells: 1/2-M-Radius Map? Yes Well List? Yes Total No. Wells Penetrating Interval: 0 Horizontals? 0

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)? Application included wells Diagrams? -

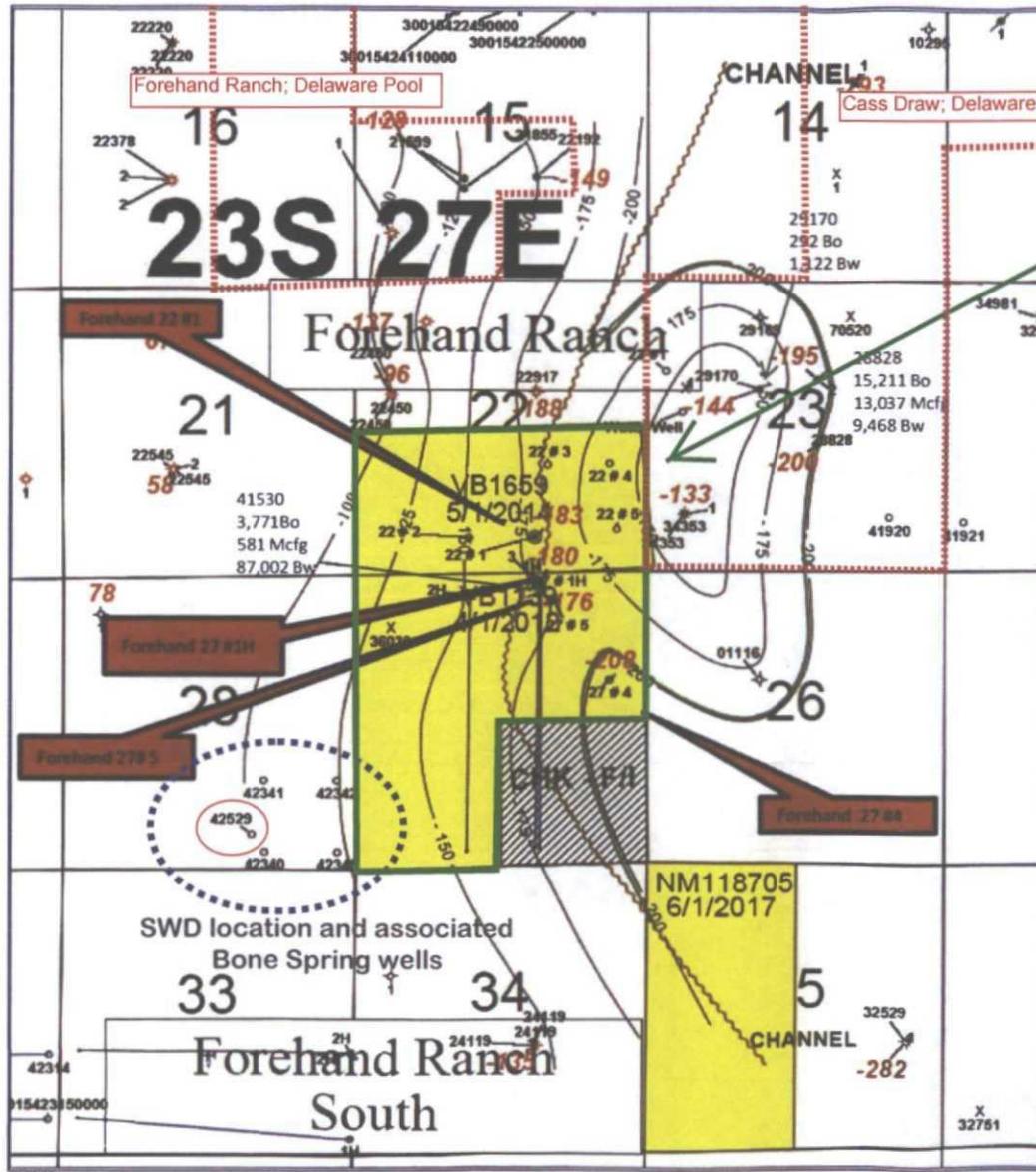
NOTICE: Newspaper Date 07/30/14 Mineral Owner Fee/under lease Surface Owner Private/Fee Agreement N. Date 08/13/14

RULE 26.7(A): Identified Tracts? 06 Affected Persons: Coza, Conrad Phillips, Allar Co., EG3, Midland Energy Date 08/15/14

Order Conditions: Issues: Adjacent to Coza's PM in adjacent section; top of Brushy Canyon

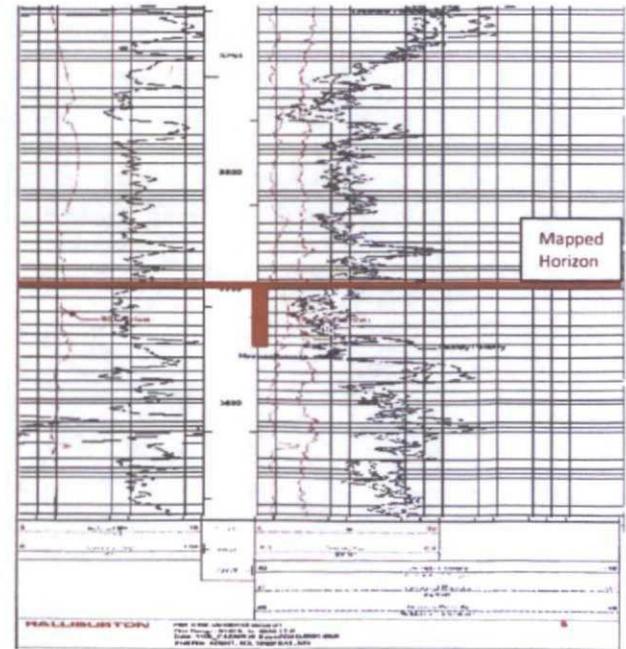
Add Order Cond: Bring bottom interval to 3900 ft;

# Cherry Canyon Structure Map



Area of Forehand Ranch  
Cherry Canyon Pressure  
Maintenance Project  
(R-13957)

Caza Forehand Rand 27#5

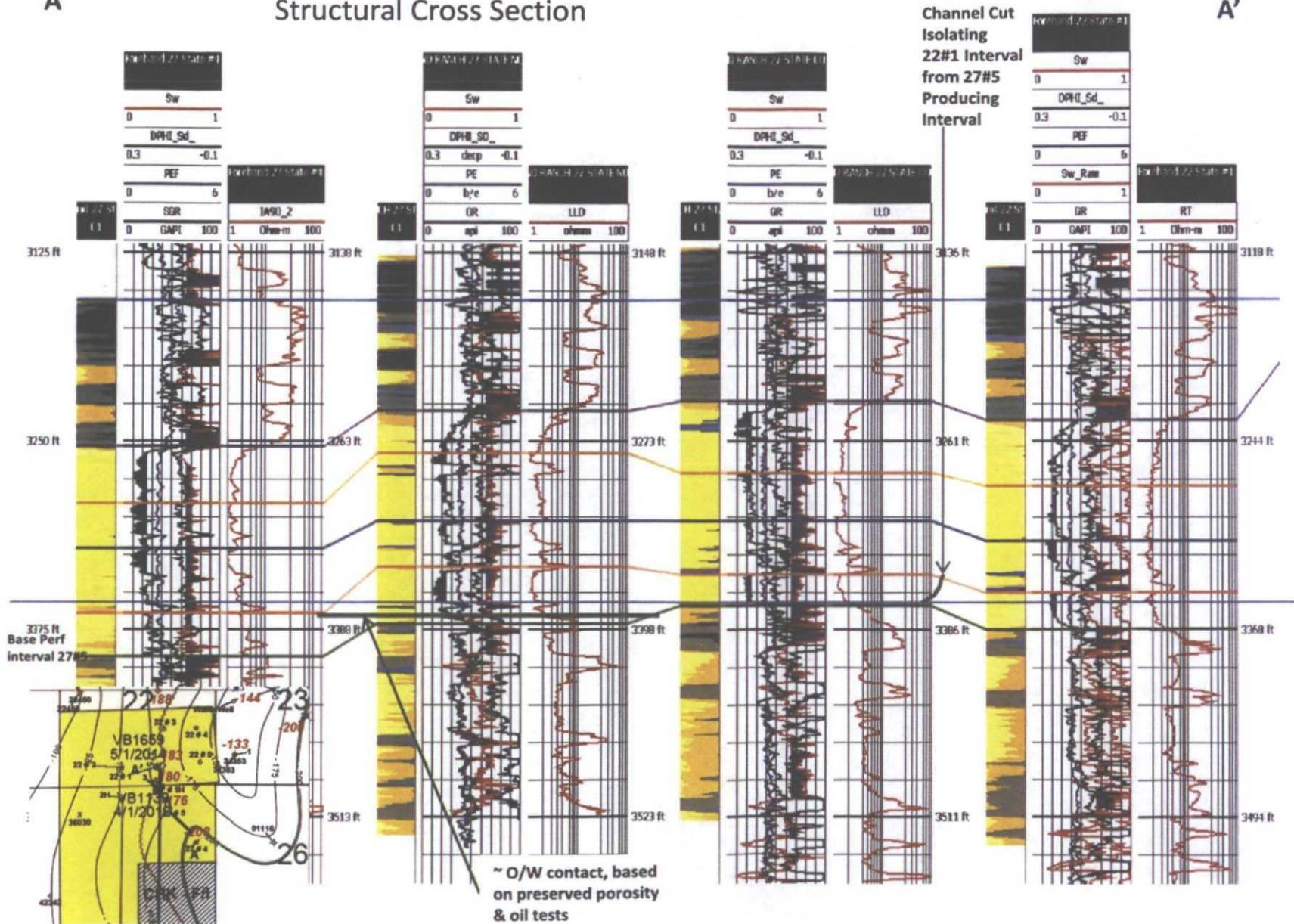


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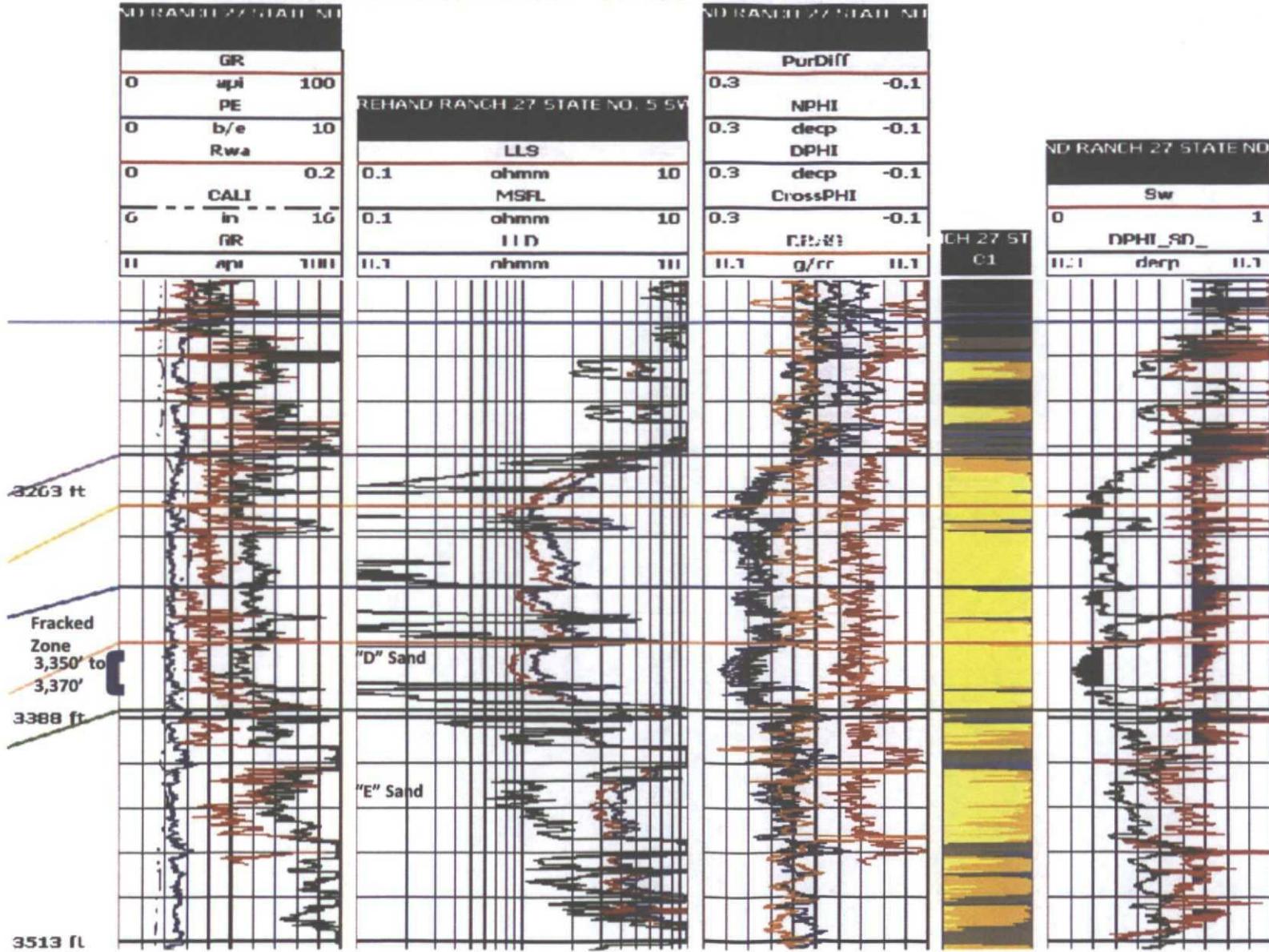
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# Structural Cross Section

A'



## Caza Forehand Ranch 27#5 – Oil Well



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY  
THE OIL CONSERVATION DIVISION FOR THE  
PURPOSE OF CONSIDERING:

CASE NO. 15235  
ORDER NO. R-13957

APPLICATION OF CAZA OPERATING, LLC FOR A LEASE PRESSURE  
MAINTENANCE PROJECT IN THE DELAWARE FORMATION, EDDY  
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on November 20, 2014, at Santa Fe, New Mexico, before Examiner Phillip R Goetze.

NOW, on this 17<sup>th</sup> day of February, 2015, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due notice has been given, and the Division has jurisdiction of the subject matter of this case.

(2) By this application, Caza Operating, LLC ("Applicant") seeks approval of a lease pressure maintenance project in the Cass Draw-Delaware Pool (Pool code: 10410) within the horizontal boundaries described below, in Eddy County, New Mexico.

Township 23 South, Range 27 East, NMPM  
Section 22: S/2  
Section 27: N/2 and SW/4

(3) Applicant proposes to inject produced water from Delaware wells on its Forehand Ranch Lease into the Cherry Canyon formation of the Delaware Mountain group at a depth interval from approximately 3315 feet to 3337 feet below the surface, through its Forehand Ranch 27 State Well No. 4 (API No. 30-015-42309), located 1980 feet from the North line and 660 feet from the East line (Unit letter H) of Section 27.

(4) The Commissioner of Public Lands appeared through counsel at the hearing. No other party appeared at the hearing or otherwise opposed the application.

(5) Applicant appeared through counsel and presented engineering testimony and exhibits to the effect that:

(a) The Forehand Ranch 27 State Well No. 4 (the "proposed injection well") is a recently completed vertical well in the Cherry Canyon formation with no history of production. Swab tests following completion of the well showed little or no hydrocarbons.

(b) The Cherry Canyon reservoir has been productive to the northwest of Forehand Ranch 27 Well No. 4. Cumulative production of the Forehand Ranch 27 State Well No. 5, another recent Cherry Canyon completion, was 3,200 barrels of oil (BO) along with 56,100 barrels of produced water.

(c) The primary drive mechanisms in this reservoir are solution-gas and water drive. Applicant contends the reservoir in this area is bounded by a paleochannel system with a permeability barrier. This barrier is modified within the project area by a structural high which impacts the Cherry Canyon formation in the SE/4 of Section 22 and NE/4 of Section 27. As a result of the structural feature, the three existing producing wells (the Forehand Ranch 27 State Well No. 1H, Forehand Ranch 27 State Well No. 5, and Forehand 22 State Well No. 1) are up dip from the proposed injection well.

(d) The injection of produced water into the proposed injection well will supplement the existing water drive mechanism and increase the recovery of oil in the three up-dip producing wells.

(e) The injection of produced water, in the opinion of Applicant's engineering witness, will increase the estimated ultimate recovery from approximately 39,400 BO to 80,000 BO within the pressure maintenance project.

(f) There are two producing wells that penetrate the injection interval and are within the one-half mile area of review. There are no plugged and abandoned wells that penetrate the injection interval and are within the one-half mile area of review. All of the producing wells are properly cemented.

(g) Applicant has discussed this project with the New Mexico State Land Office, who had objected to the project as originally proposed. Applicant agreed to the completion of a relief well with an approximate location in Unit letter A of Section 27. This relief well (designated the Forehand Ranch 27 State Well No. 6) is proposed to be completed in the Cherry Canyon formation to monitor the effectiveness of the project, to capture production of the pressure maintenance project and to protect correlative rights on adjoining acreage.

(h) The lease area for the project is south of the Capitan Reef. Applicant provided geologic testimony that there is no evidence of any hydrologic connection with the Reef and the proposed injection interval.

(6) Counsel for the New Mexico State Land Office provided testimony that affirmed the withdrawal of the objection to the project with the inclusion of the relief well in the final project plan.

The Division concludes that:

(7) All of the producing wells in the one-half mile area of review ("AOR") surrounding the proposed injection well appear to be adequately cased and cemented, so that none of them will become a conduit for the escape of injected fluid from the permitted injection formation. Accordingly, no remedial work on wells in the AOR need be required.

(8) Applicant should be authorized to inject fluids at a surface injection pressure not to exceed 663 pounds per square inch (psi) (0.2 psi per foot of depth to the uppermost perforation). Applicant may apply to the Division for a higher injection pressure upon satisfactorily demonstrating that an increase in injection pressure will not result in fracturing of the injection formation or confining strata.

(9) The proposed project will, in reasonable probability, result in production of substantially more hydrocarbons from the project area than would otherwise be produced therefrom, will prevent waste, and will not impair correlative rights.

(10) Accordingly, the application should be approved.

**IT IS THEREFORE ORDERED THAT:**

(1) Caza Operating, LLC ("Applicant" or "Operator") is hereby authorized to inject produced water into the Cherry Canyon formation of the Delaware Mountain group [Cass Draw-Delaware Pool (Pool code: 10410)], at a depth interval from 3315 to 3337 feet below the surface, through its Forehand Ranch 27 State No. 4 (API No. 30-015-42309), located 1980 feet from the North line and 660 feet from the East line (Unit letter H) of Section 27 (the "injection well").

(2) This project is hereby designated the **Forehand Ranch Cherry Canyon Pressure Maintenance Project**, and shall consist of the Cherry Canyon formation underlying the following lands in Eddy County, New Mexico:

Township 23 South, Range 27 East, NMPM  
Section 22: S/2  
Section 27: N/2 and SW/4

(3) Caza Operating, LLC (OGRID 249099) is designated operator of the project.

(4) Water from outside the Forehand Ranch lease shall not be injected into this well. The operator shall monitor the oil and water production from the producing area of review wells and shall report this production to the Division in a quarterly summary.

(5) The Operator shall complete a relief well (designated the Forehand Ranch 27 State Well No. 6) in the NE/4 of the NE/4 of Section 27 within one year of commencement of injection into the Forehand Ranch 27 State No. 4. The Operator shall notice the Oil, Gas and Minerals Division of the New Mexico State Land Office with the proposed location of the relief well prior to filing of the Application for Permit to Drill with Division's District II office. The Division Director shall have the authority to administratively grant an extension, for good cause, for the completion of this relief well, upon written request by the Operator filed prior to the expiration of the one-year time period.

(6) The Operator shall take all steps necessary to ensure that the injected fluid enters only the injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(7) The injection well shall use the existing construction with injection occurring through perforations from 3315 feet to 3337 feet below the surface.

(8) Injection shall be accomplished through plastic-lined steel tubing installed in a packer set in the casing below the top of the injection formation and within 100 feet of the uppermost injection perforations. The casing-tubing annulus shall be filled with an inert fluid, and a gauge or approved leak-detection device shall be attached to the annulus in order to detect leakage in the casing, tubing or packer.

(9) The injection well shall pass a mechanical integrity test prior to initial commencement of injection and prior to resumption of injection each time the packer is unseated. All testing procedures and schedules shall conform to the requirements of Division Rule 19.15.26.11.A NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths.

(10) The injection well shall be initially equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to no more than 663 pounds per square inch.

(11) The Division Director shall have the authority to administratively authorize an increase in injection pressure upon a showing by the operator that such higher pressure will not result in fracturing of the injection formation or confining strata. The operator shall give at least 72 hours advance notice to the supervisor of the Division's District II office of the date and time (i) injection equipment will be installed, and (ii) the mechanical integrity pressure test will be conducted, so these operations may be witnessed.

(12) The Operator shall provide written notice of the date of commencement of injection into the well to the Division's District II office.

(13) The Operator shall immediately notify the supervisor of the Division's District II office of the failure of the tubing, casing or packer in the injection well, or the leakage of water, oil, gas or other fluid from or around any producing or abandoned well within one-half mile of the injection well, and shall take all steps as may be timely and necessary to correct such failure or leakage.

(14) The Project shall be governed by Division Rules 19.15.26.8 through 26.15 NMAC. The operator shall submit monthly reports of the injection operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.28 NMAC.

(15) The injection authority granted herein shall terminate two years after the effective date of this order if the operator has not commenced injection operations; provided, however, the Division, upon written request by the Operator filed prior to the expiration of the two-year time period, may grant an extension for good cause.

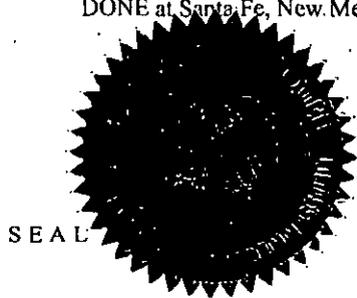
(16) The Operator shall provide written notice to the Division upon permanent cessation of injection into the Project.

(17) This Order does not relieve Operator of responsibility should its operations cause any actual damage or threat of damage to protectable fresh water, human health or the environment; nor does it relieve the operator of responsibility for complying with applicable Division rules or other state, federal or local laws or regulations.

(18) Upon failure of the operator to conduct operations (1) in such manner as will protect fresh water or (2) in a manner consistent with the requirements in this Order, the Division may, after notice and hearing (or without notice and hearing in event of an emergency, subject to the provisions of NMSA 1978 Section 70-2-23), terminate the injection authority granted herein.

(19) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

A handwritten signature in cursive script that reads "David R. Catanach".

DAVID R. CATANACH  
Director



# New Mexico Office of the State Engineer

## Active & Inactive Points of Diversion

(with Ownership Information)

(R=POD has been replaced and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)  
C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)

(acre ft per annum)

WR File Nbr	Sub	basin	Use	Diversion	Owner	County	POD Number	Code	Grant	Source	q	q	q	q	Sec	Tws	Rng	X	Y	Distance
C 02453	C	DOL			3 DAVID M. SQUIRES	ED	C 02453			Shallow	4	4	2	29	23S	27E	574876	3571372	1372	

Record Count: 1

POD Search:

POD Basin: Carlsbad

UTMNAD83 Radius Search (in meters):

Easting (X): 576054.52

Northing (Y): 3570668.44

Radius: 1609

Sorted by: Distance

185' - 205'  
DTW 175' 210' TD

\*UTM location was derived from PLSS - see Help

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