LIME ROCK RESOURCES II-A, L.P.
Mike Pippin PE
3104 N. Sullivan Avenue
Farmington, NM 87401
505-327-4573 (phone) mike@pippinllc.com

February 6, 2019

Mike McMillan NMOCD 1220 South St. Francis Drive Santa Fe, NM 87505

RE: REVISED C-108, SWD APPLICATION

CHOATE DAVIS 13 STATE #3- API#: 30-015-45444

Unit Letter "D" Section 13 T18S R27E

Eddy County, New Mexico

Dear Mr. McMillan.

LIME ROCK RESOURCES II-A, L.P. as operator of the above-referenced well, is submitting this revised application to permit the referenced well for produced water disposal in only the Wolfcamp-Cisco (97967).

An APD (C-101) for this well was approved by the State on November 15, 2018.

On December 19, 2018, V-F Petroleum Inc. notified the NMOCD of their objection to the original SWD application. Since then, Lime Rock Resources II-A, L.P. and Jerry Gahr with V-F Petroleum Inc. have agreed that Lime Rock would not perforate above the top of the Wolfcamp at about 6500', and V-F Petroleum's objection would be withdrawn. This eliminates the Lower Abo from any injection water.

Attached is the Revised C-108 information and wellbore diagram for the application.

Should you have any questions, please contact me at 505-327-4573.

Very truly yours,

Mike Pippin

Petroleum Engineer

# CHOATE DAVIS 13 STATE SWD #3

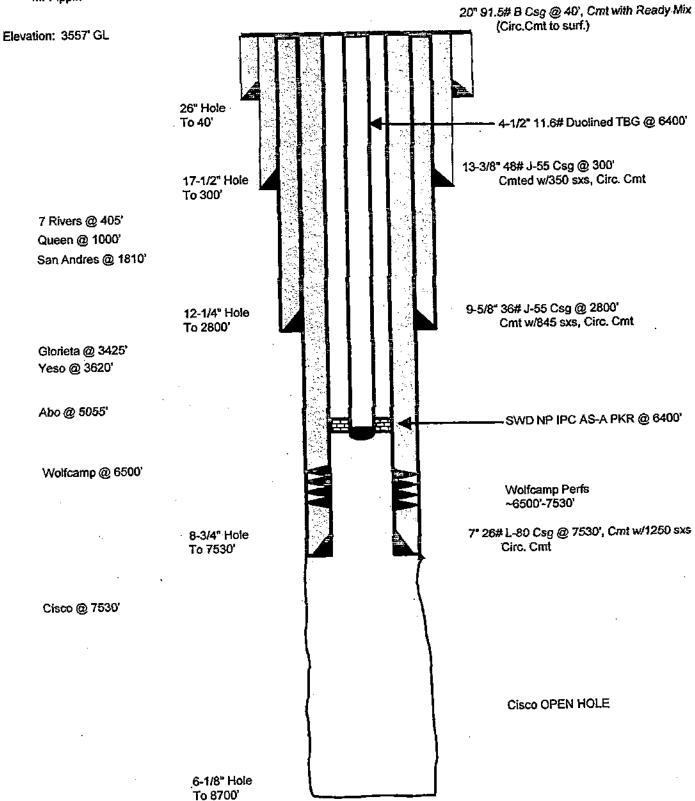
#### Proposed new SWD Well

#### Wolfcamp & Cisco

(D) Section 13, T-18-S, R-27-E, Eddy County, NM

Revised: 2/6/19 M. Pippin

Lat N 32.7528547 / Long W 104.2387836



TD 8700'

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 REVISED

I.	PURPOSE: Secondary Recovery Pressure Maintenance X Disposal Storage Application qualifies for administrative approval? X Yes No
II.	OPERATOR: LIME ROCK RESOURCES II-A, L.P.
	ADDRESS: 1111 Bagby Street, Houston, TX 77002
	CONTACT PARTY: Mike Pippin PHONE: 505-327-4573
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 X 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. <b>SEE ATTACHED</b>
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. There are no wells in the area of review that penetrate this well's proposed injection zones.
VII.	<ol> <li>Attach data on the proposed operation, including: SEE ATTACHED</li> <li>Proposed average and maximum daily rate and volume of fluids to be injected;</li> <li>Whether the system is open or closed;</li> <li>Proposed average and maximum injection pressure;</li> <li>Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,</li> <li>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.).</li> </ol>
*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. <b>SEE ATTACHED</b>
IX.	Describe the proposed stimulation program, if any. SEE ATTACHED
<b>*</b> 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. <b>SEE ATTACHED</b>
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 or drinking water. <b>SEE ATTACHED</b>
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: Mike Pippin TITLE: Petroleum Engineer
	SIGNATURE: Mike Typein DATE: 6/2/19
*	E-MAIL ADDRESS: mike@pippinIlc.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

#### ЦІ. 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 SH	EET		
<del></del>	LIME ROCK RESOURCES II-A				
WELL NAME & NU					DATE
WELL LOCATION:	660' FNL 600' FWL	D	13	T18S	R27E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE
WELLBORE SCHEM	<u>ATIC</u> (SEE ATTACHED)		WELL CONSTI	RUCTION DATA Casing	
		Hole Size:17	'-1/2"	Casing Size: <u>13-3/8"</u>	
		Cemented with: _	350 sx.	or	fl³
		Top of Cement:	SURFACE	Method Determine	d: Observation
			<u>Intermedia</u>	te Casing	
		Hole Size:12-	1/4"	Casing Size: 9	-5/8"
		Cemented with: _	845 sx.	or	ft³
·		Top of Cement:	SURFACE	Method Determine	d: <u>Observation</u>
			<u>Production</u>	n Casing	
		Hole Size: 8-3	/4"	Casing Size:7	29
		Cemented with:	1250sx.	or	ft³
		Top of Cement: SURFACE		Method Determine	d: Observation
		Total Depth:	3700'		·
			Injection Interv	al Perforations	
•		<u>6500°</u>			erfs
		7530	fee	t to 8700' Oper	<u> Hole</u>
			(Perforated or Open)	Hole; indicate which)	

INJECTION WELL DATA SHEET

bing Si	ize: 4-1/2" 11.6# Lining Material: IPC duolined
Тур	De of Packer:
Pac	ker Setting Depth: 6400'
Oth	er Type of Tubing/Casing Seal (if applicable):
	Additional Data
1.	Is this a new well drilled for injection? X Yes No
	If no, for what purpose was the well originally drilled?
2.	Name of the Injection Formation: Wolfcamp-Cisco
3.	Name of Field or Pool (if applicable): <u>SWD; WOLFCAMP-CISCO</u>
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. NO
5.	Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
	ka-Morrow at 10,000 yburg at 2000'

#### **CHOATE DAVIS 13 STATE #3** APPLICATION FOR INJECTION Form C-108 Section III

III Well Data-On Injection Well

#### A. Injection Well Information

(1) Lease

**CHOATE DAVIS 13 STATE** 

Well No

Cntv, State

Location Sec.Twn.Rnge 660' FNL & 600' FWL

Sec 13, T18S-R27E, Unit Letter D Eddy County, New Mexico

(2) Casing

13-3/8", 48# J-55 @ 300' in 17-1/2" hole. Cmt w/ 350 sx

9-5/8", 36#, J-55 @ 2800'. Cmt w/ 845 sx.

7", 26#, L-80 @ 7530'. Cmt w/1250 sx

**OPEN HOLE 7530'-8700'** 

(3) Injection Tubing

4-1/2", 11.6#, Duolined coated tubing at 6400'.

(4) Packer

7" IPC Packer set at 6400'

#### B. Other Well Information

(1) Injection Formation:

Field Name:

Wolfcamp and Cisco

SWD WOLFCAMP-CISCO (97967)

(2) Injection Interval:

6500' - 8700'

(3) Original Purpose of Wellbore:

(4) Other Perforated intervals: NONE

(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.

The top of the Atoka-Morrow zone is noted at 10,000'.

The next lower oil zone top is the Grayburg at 2000'.

Atoka-Morrow 10,000' Grayburg 2000'

# CHOATE DAVIS 13 STATE #3 APPLICATION FOR PRODUCED WATER DISPOSAL

Form C-108 Section VII to XII

#### VII Attach data on the proposed operation, including:

- Proposed average injection rate: 8,000 BWPD Proposed maximum injection rate: 10,000 BWPD
- (2) The system will be a closed system.
- (3) Proposed average injection pressure: 1200 psi Proposed max injection pressure: 1506 psi
- (4) The proposed injection fluid is produced water from the San Andres and Yeso that will be re-injected into the Wolfcamp and Cisco zones (6500'-8700'). Attached is a water analysis of San Andres and Yeso produced water that will go into this SWD well. No water compatibility issues have occurred in the other SWD wells injecting into the same zones.
- (5) We plan to submit an analysis of the disposal zone formation water during drilling operations.

#### VIII Geologic Injection Zone Data

The proposed injection zones are the Wolfcamp (6500'-7530') and Cisco (7530'-8700') formations. These zones are porous dolomitic carbonates interbedded with tight limestones & shales intersparsed. The targeted disposal zones are basically all dolomitic porosity with porosities ranging from 4%-12% on a dolomite matrix scaling. The proposed injection interval is 2200' thick. See the attached wellbore diagram.

The proposed saltwater disposal zone, the non-productive Wolfcamp, & Cisco formations, are present between the vertical depths of 6500' and 8700' open hole TD in the subject well.

No sources of underground drinking water exist below the Cisco Formation and the deepest potential sources of underground drinking water above the Wolfcamp are less than 250' deep.

The top of the Wolfcamp Formation is approximately 6500' below the lowest possible source of underground drinking water and is separated from that potential underground source of drinking water by thousands of feet of interbedded shales, sandstones, anhydrites, salts, limestones, and dolomites.

The average depth of water report notes aquifers at an average depth of 90'. Surface casing will be set at 300' and cemented to surface.

#### IX Proposed Stimulation

20,000 gal 15% HCL

#### X Log Data

No logging program is scheduled for this well.

#### XI Fresh Water Analysis

Only one fresh water well was listed within one mile using the office of the State Engineer website. Stanley Jones drilled a fresh water well on 11/5/1947, but after an extensive field search, the well could not be found, and nearby current surface owners had never seen or heard of the well. We assume the well has been P&Aed.

#### XII Geologic / Engineering Statement

An examination of this area has determined there are no open faults or other hydrologic connection between the disposal zone and any underground drinking water. SEE ATTACHED SIGNED AFFIRMATION

#### XIII Proof of Notice

Proof of notice to surface owner, leasehold operators, and public legal notification is attached

# LIME ROCK RESOURCES II-A, L.P. Mike Pippin PE 3104 N. Sullivan Avenue Farmington, NM 87401 505-327-4573 (phone) mike@pippinllc.com

February 6, 2019

Jerry Gahr V-F Petroleum Inc. 500 W. Texas, Suite 350 Midland, Texas 79701

RE: REVISED C-108, SWD APPLICATION

CHOATE DAVIS 13 STATE #3\_- API#: 30-015-45444

Unit Letter "D" Section 13 T18S R27E

Eddy County, New Mexico

Dear Mr. Gahr.

As you requested, LIME ROCK RESOURCES II-A, L.P. as operator of the above-referenced well, is submitting this revised application to permit the referenced well for produced water disposal in only the Wolfcamp-Cisco (97967).

On December 19, 2018, the NMOCD was notified of your objection and protest to our original SWD application. Since then, a compromise was achieved between our two companies. We have agreed that Lime Rock will not perforate above the top of the Wolfcamp at about 6500', and your objection to the revised SWD application will be withdrawn. This eliminates the Lower Abo from any injection water. Attached is the Revised C-108 information and wellbore diagram for the application.

If you agree, please sign the attached, Notice of Objection Withdrawal, and send it to Mike McMillan with the NMOCD in Santa Fe.

Should you have any questions, please contact me at 505-327-4573.

Very truly yours,

Mike Pippin

Petroleum Engineer

#### V-F Petroleum Inc. 500 W. Texas, Suite 350 Midland, Texas 79701

Mike McMillan NMOCD 1220 South St. Francis Drive Santa Fe, NM 87505

RE: REVISED C-108, SWD APPLICATION

Lime Rock Resources II-A, L.P. CHOATE DAVIS 13 STATE #3\_— API#: 30-015-45444 Unit Letter "D" Section 13 T18S R27E Eddy County, New Mexico

### **NOTICE OF OBJECTION WITHDRAWAL**

Since Lime Rock has agreed not perforate above the top of the Wolfcamp at about 6500', V-F Petroleum hereby withdraws our objection to Lime Rock's revised SWD application. This eliminates the Lower Abo from any injection water.

Very truly yours,

Jerry Gahr

President V-F Petroleum Inc.

	WF							Revised March 23, 2017
F	RECEIVED:	<del></del>	REVIEWER:		TYPE:	AP	P NO:	
			- Geolog 1220 South St.	GICO OIL gical & E Francis E	ingineerir Orive, Sar	VATION DI ng Bureau nta Fe, NM	- 87505	
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rint	or Type N	lame				505-327-4	1573	
		Mike	Papin			Phone N	lumber	

e-mail Address mike@pippinllc.com

Signature

# LIME ROCK RESOURCES II-A, L.P. Mike Pippin PE 3104 N. Sullivan Avenue Farmington, NM 87401 505-327-4573 (phone) mike@pippinllc.com

November 19, 2018

Mike McMillan NMOCD 1220 South St. Francis Drive Santa Fe, NM 87505

**RE: C-108, SWD APPLICATION** 

CHOATE DAVIS 13 STATE #3- API#: 30-015-45444

Unit Letter "D" Section 13 T18S R27E

Eddy County, New Mexico

Dear Mr. McMillan.

LIME ROCK RESOURCES II-A, L.P. as operator of the above-referenced well, is submitting this application to permit the referenced well for produced water disposal in the Lower Abo-Wolfcamp-Cisco (97967).

An APD (C-101) for this well has been submitted to the State for approval. There are no wells in the area of review that penetrated the proposed disposal interval.

The State of New Mexico as the surface owner and all offsetting operators have been notified.

Attached is the necessary C-108 information, data, maps, and proof of notices for the application.

Should you have any questions, please contact me at 505-327-4573.

Very truly yours,

Mike Pippin

Petroleum Engineer

District 1 1625 N. Franch De., Hobbs, N.M. 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District II 811 S. First St., Amesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9720 District III 1000 Rio Bezzos Road, Azuec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 1220 S. St. Francis De., 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 BY AM

	API Nembe	n 45440	2) (	<sup>3</sup> Pool Cod	e	KEAGE DEDI	<sup>3</sup> Pool Na	me		
<sup>1</sup> Property		70 77	<u>Z. I</u>	796	Property	NOSBASA Name	CABO-W	OLF CAMP.	C1960	
				CHOATE DAVIS 13 STATE					* Well Number 3	
'OGRID'			Operator Name LIME ROCK RESOURCES II-A, L.P.				<del> </del>	*Elevation 3556.7		
					• Surface	Location				
UL or lot no. D	Section 13	Township 18 S	Range 27 E	Lot Idn	Feet from the 660	North/South line NORTH	Feet from the	East/West line WEST	County	
			" B	ottom Ho	ole Location	If Different Fr	om Surface			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West time	County	
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division,

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# 1	N/4 CORNER SEC. 13 LAT. = 32/7545752'N	NE CORNER SEC. 13	I harring certify that the information contained havin is true and complete to the
<b>    \$</b>	LONG. = 104.2321486 W	LAT. = 32,7544604'N	best of my knowledge and belief, and that this argunization either owns a
-   <del> </del>	SURFAÇE NUSP EAST (FT)	LONG. = 104.2235488W	working interest or unleased mineral interest in the land including the proposed
600	LOCATION N = 638261.17 E = 572443.97	NUSP EAST (FT) N = 638222.04	bertem hole location or het a right to drill this will at this location pursuant to
NW CORNER SEC.	47 (	E = 575087.78	A contract with an owner of such a principal or working interest, or to a
il tΩltat To vesse	' CHUATE DAVIS 13 STATE 9		voluntary pooling agreement or a compulsary pooling order herosofore interest
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E = 569819.40	i i	N = 635582.23	"SURVEYOR CERTIFICATION
_	1	E = 575090.41	I hereby certify that the well location shown on this plat was
	NOTE: LATITUDE AND LONGITUDE COORDINATES ARE	· .	plotted from field notes of actual surveys made by me or under
85.	SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NABS). LISTED NEW MEXICO STATE PLANE EAST	· I	Bent transmitter
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#### 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 X Disposal Storage Application qualifies for administrative approval? X Yes No
II.	OPERATOR: LIME ROCK RESOURCES II-A, L.P.
	ADDRESS: 1111 Bagby Street, Houston, TX 77002
	CONTACT PARTY: Mike Pippin PHONE: 505-327-4573
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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:Mike PippinTITLE:Petroleum Engineer
	SIGNATURE: DATE: 11/19/18
•	E-MAIL ADDRESS:mike@pippinllc.com

#### 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 I	INJECTION WELL DATA SHE	<b>et</b>		
OPERATOR: <u>LIME ROCK RESOURCES II-A, I</u>	P.			
WELL NAME & NUMBER: <u>CHOATE DAVIS 1</u>	3 STATE #3			
WELL LOCATION: 660' FNL 600' FWL	D	13	<u>T18S</u>	_ R27E
FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE
WELLBORE SCHEMATIC (SEE ATTACHED)		WELL CONST	RUCTION DATA	
· · · · · · · · · · · · · · · · · · ·		Surface		
	Halo Circo 17.1/	o»	Gastra	
•	Hole Size: <u>17-1/</u>	2"	Casing Size: <u>13-3/8"</u>	
	Cemented with:3	<u>50</u> sx.	or	ft³
	Top of Cement:S	URFACE	Method Determine	d: <u>Observation</u>
		<u>Intermedia</u>	ate Casing	
	Hole Size:12-1/4	»	Casing Size: 9.	-5/8"
	Cemented with: 84	<u>5</u> sx.	or	ft³
	Top of Cement:S	URFACE	Method Determine	d; Observation
		<u>Productio</u>	n Casing	
	Hole Size: 8-3/4"		Casing Size: 7º	<u>,                                    </u>
	Cemented with:	1250 sx.	or	ft³
	Top of Cement: SURFACE	<del></del>	Method Determined	d: Observation
	Total Depth:8700	,		
		Injection Interv	al Perforations	
	<u>6350'</u>		t to <u>7530' Pe</u>	
	<u></u>	fee	t to 8700' Open	<u>Hole</u>
	(	Perforated or Open I	iole; indicate which)	•

INJECTION WELL DATA SHEET 4-1/2" 11.6# Tubing Size: Lining Material: IPC duolined Type of Packer: Packer Setting Depth: 6300' Other Type of Tubing/Casing Seal (if applicable): \_\_\_ Additional Data Is this a new well drilled for injection? \_\_X\_\_\_Yes \_\_\_\_\_No If no, for what purpose was the well originally drilled? Name of the Injection Formation: <u>Lower Abo-Wolfcamp-Cisco</u> Name of Field or Pool (if applicable): SWD; BASAN ABO-WOLFCAMP-CISCO 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. NO 5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Atoka-Morrow at 10,000 Grayburg at 2000'

# CHOATE DAVIS 13 STATE #3 APPLICATION FOR INJECTION Form C-108 Section III

#### III Well Data-On Injection Well

#### A. Injection Well Information

(1) <u>Lease</u> Well No CHOATE DAVIS 13 STATE

.

Location Sec.Twn.Rnge 660' FNL & 600' FWL

Cntv. State

Sec 13, T18S-R27E, Unit Letter D

Eddy County, New Mexico

(2) Casing

13-3/8", 48# J-55 @ 300' in 17-1/2" hole. Cmt w/ 350 sx

9-5/8", 36#, J-55 @ 2800'. Cmt w/ 845 sx.

7", 26#, L-80 @ 7530'. Cmt w/1250 sx

OPEN HOLE 7630'-8700'

(3) Injection Tubing

4-1/2", 11.6#, Duolined coated tubing at 6300'.

(4) Packer

7" IPC Packer set at 6300"

#### B. Other Well information

(1) Injection Formation: Field Name:

Lower Abo, Wolfcamp and Cisco

SWD Lower Abo-WOLFCAMP-CISCO (97967)

(2) Injection Interval:

6350' - 8700'

(3) Original Purpose of Welibore:

3410

(4) Other Perforated intervals: NONE

(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. The top of the Atoka-Morrow zone is noted at 10,000°. The next lower oil zone top is the Grayburg at 2000°.

Atoka-Morrow 10,000' Grayburg 2000'

## CHOATE DAVIS 13 STATE #3 APPLICATION FOR PRODUCED WATER DISPOSAL

Form C-108 Section VII to XII

#### VII Attach data on the proposed operation, including:

- Proposed average injection rate: 8,000 BWPD Proposed maximum injection rate: 10,000 BWPD
- (2) The system will be a closed system.

(3) Proposed average injection pressure: 1200 psi Proposed max injection pressure: 1506 psi

- (4) The proposed injection fluid is produced water from the San Andres and Yeso that will be re-injected into the Lower Abo, Wolfcamp and Cisco zones (6350'-8700'). Attached is a water analysis of San Andres and Yeso produced water that will go into this SWD well. No water compatibility issues have occurred in the other SWD wells Injecting into the same zones.
- (5) We plan to submit an analysis of the disposal zone formation water during drilling operations.

#### VIII Geologic Injection Zone Data

The proposed injection zones are the Lower Abo (6350'-6700'), Wolfcamp (6700'-7750') and Cisco (7750'-8700') formations. These zones are porous dolomitic carbonates interbedded with tight limestones & shales intersparsed. The targeted disposal zones are basically all dolomitic porosity with porosities ranging from 4%-12% on a dolomite matrix scaling. The proposed injection interval is 2350' thick. See the attached wellbore diagram. The proposed saltwater disposal zone, the non-productive Lower Abo, Wolfcamp, & Cisco formations, are present between the vertical depths of 6350' (Top Lower Abo) and 8700' open hole TD in the subject well. No sources of underground drinking water exist below the Cisco Formation and the deepest potential sources of underground drinking water above the Wolfcamp are less than 250' deep.

The top of the Lower Abo Formation is approximately 6100' below the lowest possible source of underground drinking water and is separated from that potential underground source of drinking water by thousands of feet of interbedded shales, sandstones, anhydrites, salts, limestones, and dolomites.

The average depth of water report notes aquifers at an average depth of 90'. Surface casing will be set at 300' and cemented to surface.

#### IX Proposed Stimulation

20,000 gal 15% HCL

#### X Log Data

No logging program is scheduled for this well.

#### XI Fresh Water Analysis

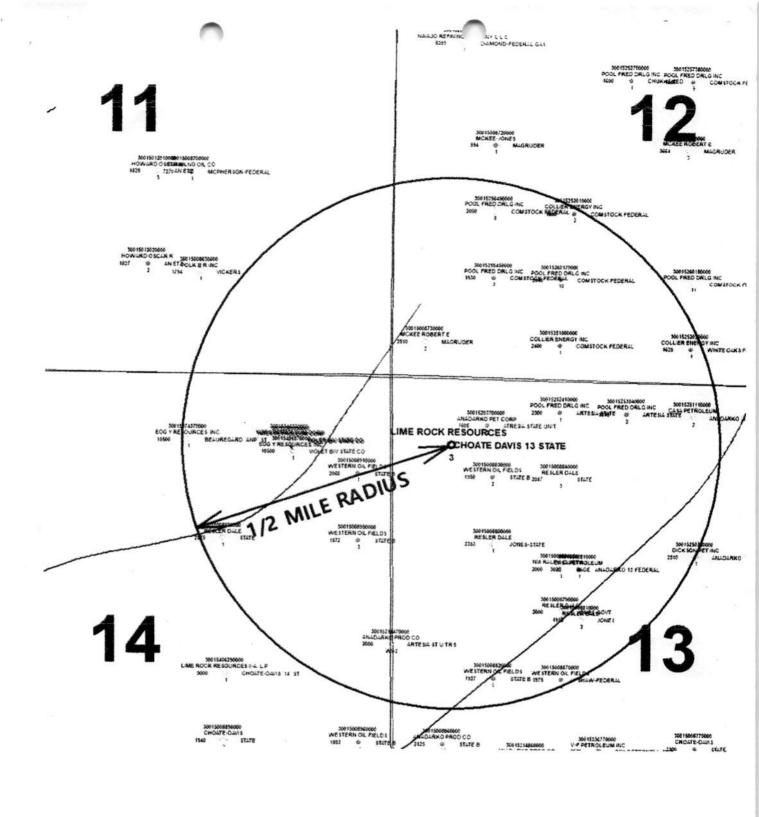
Only one fresh water well was listed within one mile using the office of the State Engineer website. Stanley Jones drilled a fresh water well on 11/5/1947, but after an extensive field search, the well could not be found, and nearby current surface owners had never seen or heard of the well. We assume the well has been P&Aed.

#### XII Geologic / Engineering Statement

An examination of this area has determined there are no open faults or other hydrologic connection between the disposal zone and any underground drinking water. SEE ATTACHED SIGNED AFFIRMATION

#### XIII Proof of Notice

Proof of notice to surface owner, leasehold operators, and public legal notification is attached



1 inch = 1000 feet

1500

0

1500 ft



EAST ARTESIA AREA CHOATE DAVIS 13 STATE 3

Author		Dates
< nam e>		: November.
	Scale:	
	<scale></scale>	

# CHOATE DAVIS 13 STATE SWD #3

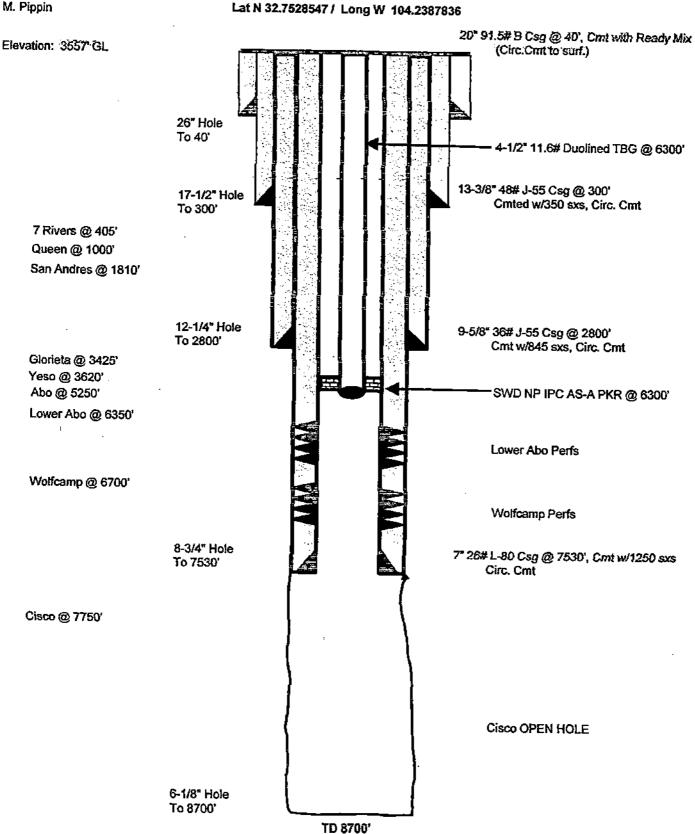
#### Proposed new SWD Well

Lower Abo, Wolfcamp, & Cisco

(D) Section 13, T-18-S, R-27-E, Eddy County, NM

Today's Date: 11/19/18

M. Pippin





Permian Basin Area Laboratory 2101 Market Street, Micland, Texas 79703 **Upstream Chemicals** 

REPORT DAYE:

5/21/2018

### COMPLETE WATER ANALYSIS REPORT SSP v 2010

# PRODUCED WATER TO BE INJECTED INTO SWD

CUSTOMER: DISTRICT: AREA/LEASE; SAMPLE POINT NAME

SAMPLE POINT DESCRIPTIONS

SITE TYPE:

LIMEROCK RESOURCES NEW MEXICO SENM OXY PESO 1 WELL SITES HIPLIAN DISCHARGE ACCOUNT REP: SAMPLE ID: SAMPLE DATE: ANALYSIS DATE: ANALYSIS:

GENE ROGERS 201801030226 5/11/2018 5/21/2018 DG

#### LIMEROCK RESOURCES, SENM, OXY PESO 1

With the second	ID DATA		\$100mm → 100mm → 100mm → 100mm	A CONTRACTOR	E ANALYSIS OF	SAMPLE 4 ,	£ " , z 4	n ă, să
			ANIONS:	mg/L	meq/L	CATIONS:	mg/L	meq/L
hittil Temperature (T):			Chiarida (CI):	1121934	3164.9	Scallum (Na'):	69218.4	3012.2
Final Temperature ("E);			Sulfate (\$0, <sup>2</sup> ):	4928.2		Potassium (K'):	675.3	26.0
initial Pressure (psi):			Borate (M <sub>2</sub> BO <sub>3</sub> );	62,3		Magnesium (Mg <sup>21</sup> );	760.0	62.5
Final Pressure (psi):		15	fluoride (F):	ND		Calcium (Ca <sup>2*</sup> );	3664.2	182.8
			Bromide (Er'):	ND		Strontium (Sr <sup>2</sup> '):	71.0	1.6
pHt			Nitrite (NO <sub>2</sub> ):	ΝĐ		Barismo /Ba <sup>2*</sup> lr	0.0	0.0
pH at time of sampling:		7.1	Nitrate (NO.):	ND		.lrop.(fe <sup>2</sup> '):	1.3	0.1
			Phomhate (PD, 1):	ND		Manganese (Mo <sup>2*</sup> ):	0.0	0.0
			Salica (SiO <sub>2</sub> ):	ND		Lead (Pb <sup>2+</sup> ):	0.0	
				*		Zinc (Zn <sup>2*</sup> ):	0.0	0.0
ALKALDETY BY TITE AT LABOR.	mg/L	meg/L				AND PARTY.	u.u	0.0
Elearbonate (HCO <sub>x</sub> ):	500.2	8.2				Aluminum (Al <sup>3</sup> 1):		
Carbonata (CO, 3):	.ND					Chromium (Gr <sup>3</sup> *):	0.0	0.0
Hydroxide (OHT):	.ND						. ND	
			ORGANIC ACIDS:	mq/L	meg/L	Cobalt (Co <sup>2</sup> ):	ND	
queous CO <sub>2</sub> (ppm):		1.0	Formic Acid:	ND ND	megre	Copper (Cu <sup>2*</sup> );	0.0	0.0
queous H.S (ppm):		68.0	Acetic Acid:	MD		Molybdenum (Mo <sup>2*</sup> ):	0.0	0.0
queous OZ (ppb);			Propionic Acid:	ND ND		Nickel (Ni <sup>2</sup> '):	ND	
• • • •		,	Dutyriz Arid:	GA.		Tin (Sn²'):	ND	
Calculated TDS (mg/L):		191965	Valeric Acid:			Ticonium (II <sup>2</sup> ):	. HD	
Density/Specific Gravity (		1.1200	tanic resp.	.ND		Vanadium (V <sup>2</sup> *);	.HD	
Messared Specific Gravity		1.1259				Zirconium (Zr <sup>2</sup> '):	ND	
Conductivity (munhos):	,	. ND				Lithium (Li):	ND	
Resistivity:		. ND						
MCF/D:		No Data				Total Hardness	12373	N/A
SOPO:								
SWPD:		No Data						
MED.		No Data	Anion/Cation Ratio:		1.00	ND = No	t Determined	

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTIONS BEST IT'S.	

Conditions					(caco)	Су <b>рына (С</b>	(م <u>ر</u> 194عه	Anhydrite (CaSO <sub>e</sub> )		
Temp	Press.	ž=dex	Arm (ptb)	Index	Annt (pith)	Entlest	Amit (pth)		Amt (ptb)	
80°F	15 psi		0.000	-1.61	108.195	0.22	893.22B	0.09	314.291	
99°F	24 psi		0.000	1.54	108.414	0.24	930,418	0.18	587.676	
118°F	34 psi		0.006	1.68	109112	0.24	936.783	0.27	821,848	
137°F	نعم 43		D.0G0	1.73	109.881	0.24	928,540	0.36	1031.518	
156°F	53 psi		0.000	1.79	110.664	0.23	913.204	0.44	122L834	
174'F	62 pai		0.000	1.84	134.477	0.23	894,158	0.53	1394,313	
193°F	72 psi		0.000	1.89	112,345	0.22	872,320	0.63	1549.119	
212°F	81 psi		0.000	194	113.381	0.23	846.884	0.72	1686.120	
231°F	91 psi		0.000	200	114.574	0.20	815.697	0.81	1805.379	
250°F	100 psi		0.000	2.05	115.831	0.19	775,441	0.91	1907.368	
Condi	tions	والمعامة	(Sess)	Halite (	Malite (Natil)		Iron Salfide (FeS) iron Carbonete (FeCO.)			
Temp	Press.	Index	And (ptb)	Index	Amt (ptb)	Index	Annt (ptb)	Index	And (p(b)	
80°F	15 psi	0.25	<b>2</b> 2. <b>927</b>	-0.79	0.000	2.95	1.832	0.17	0.762	
99*F	24 psi	0.26	23.437	-0.80	0.000	2.78	1.831	0.25	1.022	
1187	34 psi	0.26	23.547	-0.81	0.000	2.67	1.830	633	1.262	
137°F	43 psi	0.26	23.497	-0.21	0.000	2.60	1.829	0.41	1448	
156°F	53 ps)	0.26	23.458	-0.82	0.000	254	1.829	0.48	1.584	
174°F	62 psi	0.26	23.546	-0.83	0.000	2.50	1.828	0.53		
193°F	72 psi	0.27	23.829	-0.83	0.000	2.47	1.828	0.57	1.680	
212°F	81 psi	0.28	24.327	-0.84	0.000	2.46	1.827		1744	
212 F						2.70	1.027	0.60	1.791	
231'F	91 psi	0.29	25.021	-0.84	0.000	2.46	1.827	0.62	1.820	

Note 1: What assenting the soverity of the scale problem, both the salaration index (SI) and abount of scale must be considered Note 2: Precipitation of each scale is considered separately. Youl scale will be less than the sum of the amounts of the eight (II) scales. Note 3: Saturation index predictions on this shart use pri and alkalinity, MCO<sub>2</sub> is not industed in the calculations.

\* 2221 • ScaleSuftPirzer\*\* NSP2010

#### **Statement of Affirmation**

I, Stan Bishop, affirm that Lime Rock Resources has examined available geologic and engineering data, and find no evidence of open faults or any other hydrologic connection between disposal zones and any underground sources of drinking water.

Signed:

Nate:



# New Mexico Office of the State Engineer **Point of Diversion Summary**

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

**POD Number** Q64 Q16 Q4 Sec Tws Rng

X

RA 04048

4 14 18S 27E

570841 3623030\*

**Driller License:** 

**Driller Company:** 

**Driller Name:** 

Well Tag

STANLEY JONES

**Drill Start Date:** 

11/05/1947

**Drill Finish Date:** 

Pipe Discharge Size:

01/03/1948

Plug Date:

Source:

Log File Date: Pump Type:

06/02/1959 PCW Rcv Date:

Estimated Yield:

Artesian

Casing Size:

Depth Well:

2096 feet

Depth Water:

\*UTM location was derived from PLSS - see Help

# **Affidavit of Publication**

State of New Mexico County of Fildy: Danny Scott being duly swom sayes that he is the Publisher of the Arresia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto mtached Legal Ad was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper daily qualified. for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for Consecutive weeks day on the same day as follows First Publication November 16, 2018 Second Publication Third Publication Fourth Publication Litth Publication Sixth Publication Seventh Publication Subscribed and sworn before me this loth . . day of November OFFICIAL SEAL Lotten Florida Latisha Romme

Notary Public, Eddy County, New Mexico

# Copy of Publication.

#### Legal Noti e

CHOATE DAVIS 13 STATE SW 12 #3 -- SWD Application - Form C-108

LIME ROCK RESOURCES II-A, L.P., 1111 Bagby St, Suite 4600, Houston, TX 77002, contact: Mike Pippin 505-327-4573 is seeking administrative approval from the NMOCD for produced water disposal: CHOATE DAVIS 13 STATE #3 is located in Sec. 13, T18S, R27E, 660' FNL & 600' FWL, Eddy County, NM. Proposed injection interval is the Abo, Wolfcamp and Cisco formations with perforations from about 5055' through the open hole to a TD of 8700' with an estimated maximum daily injection volume of produced formation water of 10,000 bbls per day and a maximum injection pressure of 1506 psi. Any objections regarding this application must file their objections or request for hearing with the NMOCD, 1220 South St. Frances Drive, Santa Fe, NM 87505 within 15 days.

Published in the Artesia Daily Press. Artesia, 1854., Nov. 16, 2018 Legal No. 24911

#### LIME ROCK RESOURCES II-A, L.P.

c/o Mike Pippin LLC 505-327-4573 (phone) Email: mike@ pippinllc.com

#### LEGAL NOTICE

CHOATE DAVIS 13 STATE SWD #3 -- SWD Application -- Form C-108

LIME ROCK RESOURCES II-A, L.P., 1111 Bagby St, Suite 4600, Houston, TX 77002, contact: Mike Pippin 505-327-4573 is seeking administrative approval from the NMOCD for produced water disposal: CHOATE DAVIS 13 STATE #3 is located in Sec 13, T18S, R27E, 660' FNL & 600' FWL, Eddy County, NM. Proposed injection interval is the Abo, Wolfcamp and Cisco formations with perforations from about 5055' through the open hole to a TD of 6700' with an estimated maximum daily injection volume of produced formation water of 10,000 bbls per day and a maximum injection pressure of 1506 psi. Any objections regarding this application must file their objections or request for hearing with the NMOCD, 1220 South St. Frances Drive, Santa Fe, NM 87505 within 15 days.

# LIME ROCK RESOURCES II-A, L.P. Mike Pippin 3104 N. Sullivan Avenue Farmington, NM 87401 505-327-4573 (phone) mike@pippinllc.com

November 19, 2018.

RE: C-108 Application for SWD Well

CHOATE DAVIS 13 STATE #3, 30-015-45444

Unit Letter D Section 13 T18S R27E

Eddy County, New Mexico

VIA CERTIFIED MAIL.
To all Interest Owners:

In accordance with the New Mexico Oil Conservation Division Rule 19.15.26.8 governing water disposal wells, you are hereby notified that LIME ROCK RESOURCES II-A, L.P. as operator of the above-referenced well, has submitted an application to permit the referenced well for produced water disposal in the Lower Abo, Wolfcamp, and Cisco.

An APD (C-101) for this well has been submitted to the State for approval. There are no wells in the area of review that penetrated the proposed disposal interval.

Any objections or requests that a hearing be held regarding this application must be submitted within 15 days to the NMOCD at 1220 South St. Frances Drive, Santa Fe, NM 87505.

Should you have any questions or concerns, please contact me at 505-327-4573 and/or the NMOCD at 505-476-3467.

Sincerely,

LIME ROCK, RESOURCES II-A, L.P.

Mike Pippin PE

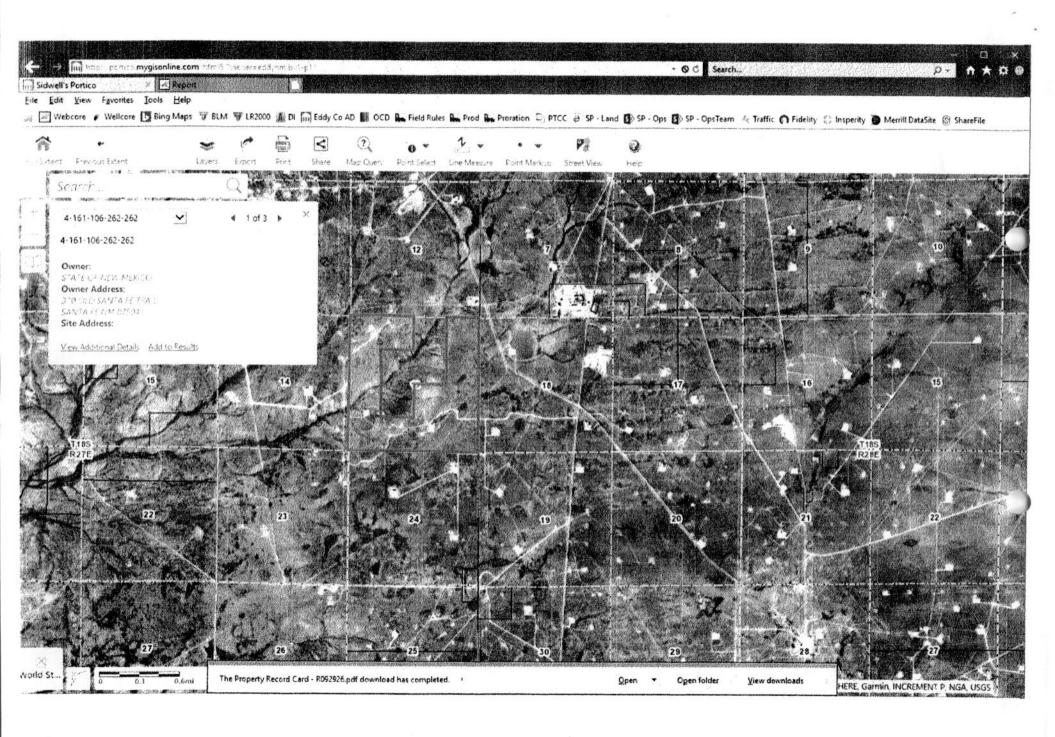
Petroleum Engineer

Miketippin

**Enclosures** 

# APPLICATION FOR SWD OFFSET OPERATORS WITHIN 1/2 MILE OF CHOATE DAVIS 13 STATE COM #3 LIME ROCK RESOURCES II-A, L.P.

OGRID	OPERATOR	ADDRESS
2336	BILL L MILLER	PO BOX 3396, EVERGREEN, CO 80437
3420	C O FULTON	PO BOX 1176, ARTESIA, NM 88211
	V-F PETROLEUM INC	PO BOX 1889, MIDLAND, TX 79702
246205	HARLOW ENTERPRISES LLC	26 CHALK BLUFF RD, ARTESIA, NM 88210
371484	ROVER OPERATING, LLC	55 OLD SANTA FE TRAIL, SANTA FE, NM 87501
372279	LLI VENTURES, LLC DBA MARKER OIL & GAS	PO BOX 3188, ROSWELL, NM 88202















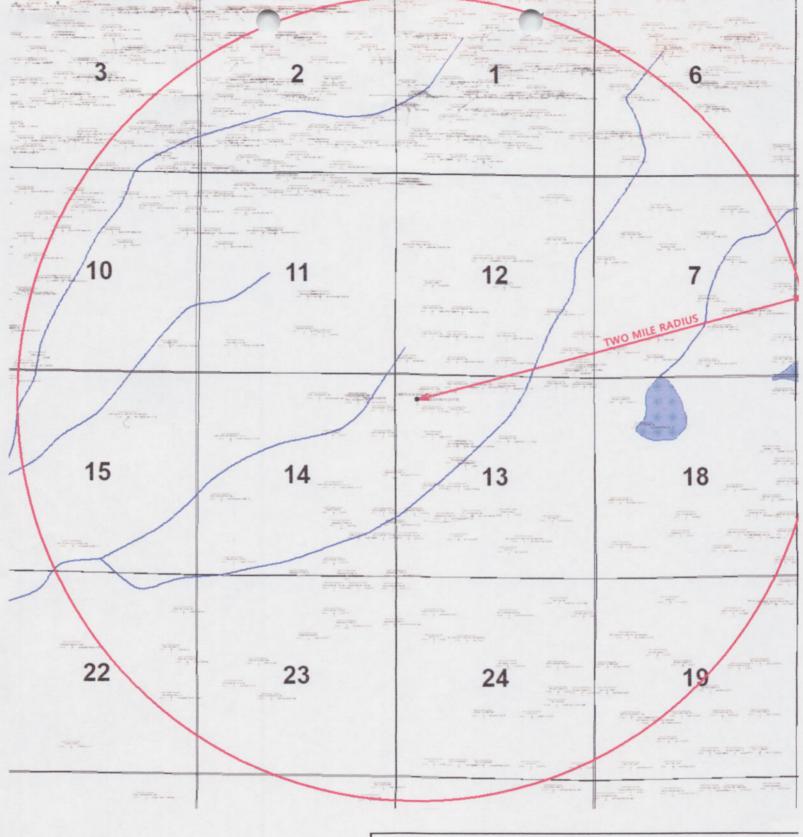
2366

0007

0710

7076

For delivery information, visit our web 5 SANTA FE # 87961 9 Certified Mail Fee \$3.45 0401 B 25 Extra Services & Fees (check box, Return Receipt (hardcopy) Return Receipt (electronic) \$0.00 Certified Mail Restricted De \$0.00 Adult Signature Required 0410 \$0.71 \$ Total Postage and Fees \$6.91 7016



1 inch = 2640 feet
2640 0 2640 ft



EAST ARTESIA AREA CHOATE DAVIS 13 STATE 3

Author:		Date: 1 November, 2018
	Scale: <scale></scale>	