

HOLLAND & HART<sup>LLP</sup>



**Adam G. Rankin**  
Phone (505) 988-4421  
Fax (505) 983-6043  
agrarkin@hollandhart.com

January 9, 2018

**VIA HAND DELIVERY**

Allison Marks, Deputy Director  
Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
1220 South Saint Francis Drive  
Santa Fe, New Mexico 87505

*Case 15972*

**Re: Application of Chevron U.S.A. Inc. for approval of a salt water disposal well,  
Lea County, New Mexico.**

Dear Ms. Marks:

Enclosed in triplicate is the above-referenced administrative application of Chevron U.S.A. Inc., as well as a copy of a legal advertisement. Upon review of the Form C-108 administrative application, the Division requested that the application go to hearing. Consequently, Chevron hereby respectfully requests that this matter be placed on the docket for the February 8, 2018, examiner hearing.

Very truly yours,

Adam G. Rankin

Enclosures

RECEIVED OOD  
2018 JAN -9 P 14:32

**Holland & Hart** LLP

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

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

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



Denise Pinkerton  
Permitting Specialist  
Midcontinent BU

Chevron North America  
Exploration & Production  
Company  
6301 Deauville Blvd  
Midland, TX 79706  
Tel: 432-687-7375  
[jlbm@chevron.com](mailto:jlbm@chevron.com)

October 25, 2017

New Mexico Oil Conservation Division  
1220 South Francis Drive  
Santa Fe, New Mexico 87504

Re: Application for Authorization  
To Inject as SWD-OCD form C108  
Maelstrom SWD #1  
Lea County, New Mexico

*Case 15972*

Chevron U.S.A. Inc. respectfully requests administration approval to inject salt water into the Maelstrom SWD #1 (API# pending), which is located 2050' FSL & 1793' FEL, Unit Letter J, Section 15, T26S, R32E, Lea County, New Mexico.

The target formations have been estimated to occur between 17,400' to 19,100' open hole, based on limited offset well data, with maximum anticipated injection rate to 50,000 BWPDP, and a maximum injection pressure to be dictated by NMOCD. There will be no CO2 or produced gas injected. There is also no production from this interval in the immediate area.

Attached is an OCD form C-108 with information relative to the SWD injection of the referenced well. A copy of the letter sent to applicable surface land owners and offset operators is included in the attachments. Chevron USA Inc. owns a 100% working interest as to Section 15, T26S, R32E, Lea County, New Mexico.

Your prompt consideration and approval of this application will be greatly appreciated. If additional information is required, you may contact me at 432-687-7375, or by email at [jlbm@chevron.com](mailto:jlbm@chevron.com)

Sincerely,

Denise Pinkerton  
Chevron U.S.A. Inc.  
Permitting Specialist

Enclosure



Denise Pinkerton  
Permitting Specialist  
Midcontinent BU

Chevron North America  
Exploration & Production  
Company  
6301 Deauville Blvd  
Midland, TX 79706  
Tel: 432-687-7375  
[ilbm@chevron.com](mailto:ilbm@chevron.com)

October 25, 2017

State of New Mexico Land Office  
Attn: Faith Crosby  
P O Box 1148  
Santa Fe, New Mexico 87504

Re: Application for Authorization  
To Inject as SWD-OCD form C108  
Maelstrom SWD #1  
Lea County, New Mexico

Chevron U.S.A. Inc. respectfully requests administration approval to inject salt water into the Maelstrom SWD #1 (API# pending), which is located 2050' FSL & 1793' FEL, Unit Letter J, Section 15, T26S, R32E, Lea County, New Mexico.

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Attached is an OCD form C-108 with information relative to the SWD injection of the referenced well. A copy of the letter sent to applicable surface land owners and offset operators is included in the attachments. Chevron USA Inc. owns a 100% working interest as to Section 15, T26S, R32E, Lea County, New Mexico.

Your prompt consideration and approval of this application will be greatly appreciated. If additional information is required, you may contact me at 432-687-7375, or by email at [ilbm@chevron.com](mailto:ilbm@chevron.com)

Sincerely,

A handwritten signature in blue ink that reads "Denise Pinkerton".

Denise Pinkerton  
Chevron U.S.A. Inc.  
Permitting Specialist

Enclosure

RECEIVED:	REVIEWER:	TYPE:	APP NO.:
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Geological & 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

Applicant: CHEVRON U.S.A. INC OGRID Number: 4323  
 Well Name: MAELSTROM SWD #1 API: NEW  
 Pool: SWD; SILURIAN Pool Code: 98249

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW**

- 1) **TYPE OF APPLICATION:** Check those which apply for (A)
- A. Location - Spacing Unit - Simultaneous Dedication  
 NSL       NSP (PROJECT AREA)       NSP (PRORATION UNIT)       SD
- B. Check one only for (I) or (II)
- (I) Commingling - Storage - Measurement  
 DHC    CTB    PLC    PC    OLS    OLM
- (II) Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX    PMX    SWD    IPI    EOR    PPR

- 2) **NOTIFICATION REQUIRED TO:** Check those which apply.
- A.  Offset operators or lease holders  
 B.  Royalty, overriding royalty owners, revenue owners  
 C.  Application requires published notice  
 D.  Notification and/or concurrent approval by SLO  
 E.  Notification and/or concurrent approval by BLM  
 F.  Surface owner  
 G.  For all of the above, proof of notification or publication is attached, and/or,  
 H.  No notice required

FOR OCD ONLY	
<input type="checkbox"/>	Notice Complete
<input type="checkbox"/>	Application Content Complete

3) **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.

Denise Pinkerton  
 Print or Type Name

10/25/2017  
 Date

Denise Pinkerton  
 Signature

432-687-7375  
 Phone Number

JLBM@chevron.com  
 e-mail Address

# Affidavit of Publication

STATE OF NEW MEXICO  
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 3 issue(s).

Beginning with the issue dated  
November 01, 2017  
and ending with the issue dated  
November 03, 2017.



Publisher

Sworn and subscribed to before me this  
3rd day of November 2017.

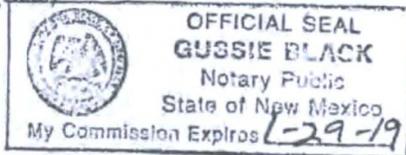


Business Manager

My commission expires

January 29, 2019

(Seal)



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

## LEGALIS

LEGAL NOTICE  
November 1, 2 and 3, 2017

Notice is hereby given of the application of CHEVRON U.S.A. INC, 6301 Deauville Blvd, Midland, TX 79706, to the Oil Conservation Division of the state of New Mexico, and the Commissioner of Public Lands, State of New Mexico for approval for Maelstrom SWD #1 to a Salt Water Disposal. The Chevron Maelstrom SWD #1 is located 2050' FSL & 1793' FEL, Unit Letter J, Section 15, T26S, R32E, Lea County, New Mexico. Interested parties should file objections or requests for hearing with the Oil Conservation Division, 1220 South St Francis Dr, Santa Fe, New Mexico 87505, within 15 days. Inquiries regarding this application should be directed to Chevron North America, Attn. Sean Heaster, 1400 Smith St, Rm 4604B, Houston, TX 77002. #32200

01102480

00201979

CHEVRON USA INC.  
6301 DEAUVILLE BLVD.  
MIDLAND, TX 79706



Denise Pinkerton  
 Permitting Specialist  
 Midcontinent BU

Chevron North America  
 Exploration and Production Co  
 6301 Deauville Blvd  
 Midland, TX 79706  
 Tel: 432-687-7375  
[ilbm@chevron.com](mailto:ilbm@chevron.com)

October 25, 2017

New Salt Water Disposal Well  
 Section 15, T26S, R32E  
 Lea County, New Mexico

Re: Maelstrom SWD #1

For your information, as an offset operator, Chevron U.S.A. Inc., operator of the Maelstrom SWD #1 has filed an application with the Bureau of Land Management and the New Mexico Oil Conservation Division for authorization to drill and inject the Maelstrom SWD #1, (API# pending) to a Salt Water Disposal well and dispose into the Salado Draw, Silurian Limestone Formation. The Maelstrom SWD #1 will be drilled at a location of 2050' FSL, & 1793' FEL, Unit Letter J, Section 15, T26S, R32E, Lea County, New Mexico.

The target formations have been estimated to occur between 17,400' to 19,100' based on limited offset well data.

Attached is an OCD form C-108 with information relative to the SWD injection of the referenced well.

Any objections to this application must be sent to the New Mexico Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, NM 87505 within 15 days of receipt of this notification. If additional information is required, please contact Denise Pinkerton at 432-687-7375, or the project engineer, Sean Heaster, at 713-372-3608.

Sincerely,

Denise Pinkerton  
 Chevron U.S.A. Inc.  
 NM Permitting Specialist

7015 3010 0001 0775 5888

<b>U.S. Postal Service™</b> <b>CERTIFIED MAIL® RECEIPT</b> Domestic Mail Only For delivery information, visit our website <a href="http://usps.com">usps.com</a>		<b>SENDER: COMPLETE THIS SECTION</b> ■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits.		<b>COMPLETE THIS SECTION ON DELIVERY</b>	
<b>1. Article Addressed to:</b> COG Operating LLC 600 W. Illinois Ave. Midland, TX 79701		<b>A. Signature</b> <input checked="" type="checkbox"/> D. Wolfe <input checked="" type="checkbox"/> Agent <input type="checkbox"/> Addressee		<b>B. Received by (Printed Name)</b> D. Wolfe	
<b>2. Article Number (Transfer from service label)</b> 7015 3010 0001 0775 5888		<b>C. Date of Delivery</b> 10/28/17		<b>D. Is delivery address different from item 1?</b> <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No	
<b>3. Service Type</b> <input type="checkbox"/> Adult Signature <input type="checkbox"/> Adult Signature Restricted Delivery <input checked="" type="checkbox"/> Certified Mail® <input type="checkbox"/> Certified Mail Restricted Delivery <input type="checkbox"/> Collect on Delivery <input type="checkbox"/> Collect on Delivery Restricted Delivery <input type="checkbox"/> Mail Restricted Delivery (M)		<input type="checkbox"/> Priority Mail Express® <input type="checkbox"/> Registered Mail™ <input type="checkbox"/> Registered Mail Restricted Delivery <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Signature Confirmation™ <input type="checkbox"/> Signature Confirmation Restricted Delivery		<b>4. Postage and Fees</b> Certified Mail Fee \$ _____ Extra Services & Fees (check box, add fee as appropriate) <input type="checkbox"/> Return Receipt (hardcopy) \$ _____ <input type="checkbox"/> Return Receipt (electronic) \$ _____ <input type="checkbox"/> Certified Mail Restricted Delivery \$ _____ <input type="checkbox"/> Adult Signature Required \$ _____ <input type="checkbox"/> Adult Signature Restricted Delivery \$ _____ Postage \$ _____ Total Postage and Fees \$ _____ PS Form 3811, July 2015 PSN 7530-02-000-9053	

**MAELSTROM SWD #1**

**OFFSET OPERATORS, SURFACE OWNER**

<u>NAME</u>	<u>ADDRESS</u>	<u>CITY, STATE, &amp; ZIP</u>	<u>CERTIFIED #</u>
BLM	301 Dinosaur Trail	Santa Fe, NM 87508	7015 3010 0001 0775 5864
Mewbourne Oil Company	500 West Texas, Suite 1020	Midland, TX 79701	7015 3010 0001 0775 5871
COG Operating LLC	600 West Illinois Avenue	Midland, TX 79701	7015 3010 0001 0775 5888
Conoco Phillips Co.	P.O. Box 7500	Bartlesville, OK 74005-7500	7015 3010 0001 0775 5895

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance \_\_\_\_\_ **XXXX** Disposal  
\_\_\_\_\_ Storage  
Application qualifies for administrative approval? \_\_\_\_\_ **XXXX** Yes \_\_\_\_\_ No
- II. OPERATOR: **CHEVRON U.S.A. INC.**  
ADDRESS: **6301 DEAUVILLE BLVD, MIDLAND, TEXAS 7706**
- CONTACT PARTY: **DENISE PINKERTON** PHONE: **432-687-7375**
- 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 **XXXXX** 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. **ATTACHED**
- 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. **ATTACHED**
- VII. Attach data on the proposed operation, including:
- Proposed average and maximum daily rate and volume of fluids to be injected; **AVG:50,000 BWPD - 2018**
  - Whether the system is open or closed; **CLOSED TANK**
  - Proposed average and maximum injection pressure; **SET BY NMOCD**
  - Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, **ATTACHED WATER SAMPLE OF SALADO DRAW**
  - 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.). **ATTACHED**
- \*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. **SALADO DRAW, SILURIAN LIMESTONE FORMATION, PROPOSED INJECTION ZONE 17,400 - 19,100'**
- IX. Describe the proposed stimulation program, if any. **WILL BE COMPLETED USING HCl ACID. VOLUME WILL BE SPOTTED VIA WORKSTRING**
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted). **THIS IS A NEW DRILL - NO LOGS YET**
- \*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. **NO KNOWN FR WTR WELLS EXIST**
- 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. **STATEMENT ATTACHED**
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. **ATTACHED. HOBBS NEWS SUN**
- 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: **DENISE PINKERTON** TITLE: **PERMITTING SPECIALIST**

SIGNATURE: *Denise Pinkerton* DATE: **10/25/2017**

E-MAIL ADDRESS: **leakejd@chevron.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: \_\_\_\_\_

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

### 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. **SWD: SILURIAN**
- (2) The injection interval and whether it is perforated or open-hole. **OPEN HOLE**
- (3) State if the well was drilled for injection or, if not, the original purpose of the well. **WILL BE DRILLED AS A NEW DISPOSAL**
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations. **N/A**
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any. **WITHIN A 2 MILE RADIUS: NEXT HIGHER PRODUCING OIL AND GAS ZONE: WOLF CAMP FORMATION (BASED OFF OF HISTORICAL PRODUCTION WELLS); NEXT LOWER OIL AND GAS PRODUCING INTERVAL: NONE**

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

**NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.**

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**NOTICE:** Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

OPERATOR: CHEVRON U.S.A. INC

WELL NAME & NUMBER: MAELSTROM SWD #1

WELL LOCATION: 2050 FSL, 1793' FEL      J      15      26S      32E  
FOOTAGE LOCATION      UNIT LETTER      SECTION      TOWNSHIP      RANGE

WELLBORE SCHEMATIC

See NEXT PAGE  
for SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24"      Casing Size: 20"

Cemented with: 789 sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: Surface      Method Determined: Returns

Intermediate Casing 1

Hole Size: 18.5"      Casing Size: 16"

Cemented with: 1172 sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: Surface      Method Determined: Returns

Intermediate Casing 2

Hole Size: 14.75"      Casing Size: 13-3/8"

Cemented with: 832 sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: 4200'      Method Determined: Calc

Production Casing

Hole Size: 12.25"      Casing Size: 9.625"

Cemented with: 1520 sx.      or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: 11700'

Method Determined: Calc

Production Liner

Hole Size: 8.5"

Casing Size: 7"

Cemented with: 74 sx.

*or* \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: 17110'

Method Determined: Calc

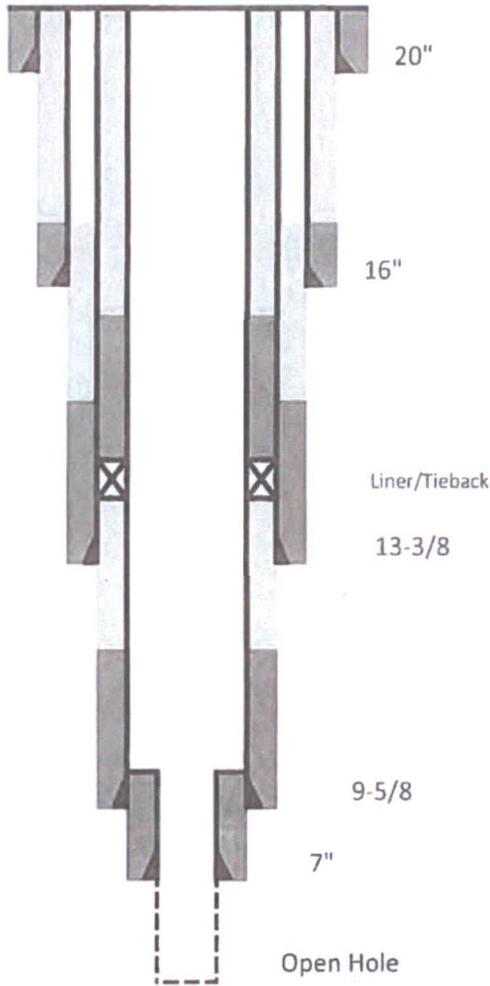
Total Depth: 19,100'

Injection Interval

17,400' feet to 19,100'

(Perforated or Open Hole; indicate which) Open Hole

# T1 Taelstrom SWD#1



Hole Size	Casing	Mud Program
24" +/- 800'	20" 94# J55 BTC	Spud Mud 8.3-9.0 ppg
18-1/2" +/- 4,540'	16" 97# L80 BTC	Brine Water 10-10.4 ppg
14-3/4" +/- 12,000'	13-3/8" 72# TN-110SS 513 Alt Drift 12.25"	OBM 8.7-10.0 ppg
12-1/4" +/- 17,410'	9-5/8" 53.5# TN-95IC Blue Liner Alt Drift 8.5"  9-5/8" 53.5# TN-110HS Blue Tieback Alt Drift 8.5"	OBM 12.2-15.6 ppg
8-1/2" +/- 17,950'	7" 26# L80 Blue Liner	WBM 8.9-9.6 ppg
5-7/8" +/- 19,100'	N/A	Cut Brine 8.4-9.0 ppg

**INJECTION WELL DATA SHEET**

Tubing Size: 7" Lining Material: TK15XT

Type of Packer: Baker Premier Packer Semi-Permanent

Packer Setting Depth: 17,850'

Other Type of Tubing/Casing Seal (if applicable): Anchor Latch

Additional Data

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

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

2. Name of the Injection Formation: SWD, SILURIAN

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. \_\_\_\_\_

N/A NEW DRILL

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**1. FORMATION TOPS**

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Rustler		580	580
Castle		2,710	2,710
Lamar		4,510	4,510
Bell Canyon		4,560	4,560
Cherry Canyon		5,570	5,570
Brushy Canyon		7,130	7,130
Bone Spring Lime		8,630	8,630
Upper Avalon		8,700	8,700
Top Bone Spring 1		9,650	9,650
Top Bone Spring 2		10,230	10,230
Top Bone Spring 3		10,320	10,320
Wolfcamp A		11,900	11,900
Wolfcamp B		12,600	12,600
Wolfcamp C		13,100	13,100
Wolfcamp D		14,100	14,100
Strawn		14,800	14,800
Atoka		15,000	15,000
Morrow		15,900	15,900
Barnett Shale		16,700	16,700
Mississippian Lime		17,400	17,400
Woodford		17,790	17,790
Silurian		17,950	17,950
Fuselman		18,815	18,815
Montoya		19,100	19,100

**2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS**

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Deepest Expected Base of Fresh Water		
W	Castle	2,710
W	Lamar	4,510
O / W	Bell Canyon	4,560
O / W	Cherry Canyon	5,570
O / W	Brushy Canyon	7,130
O / G / W	Bone Spring Lime	8,630
O / G / W	Upper Avalon	8,700
O / G / W	Top Bone Spring 1	9,650
O / G / W	Top Bone Spring 2	10,230
O / G / W	Top Bone Spring 3	10,320
O / G / W	Wolfcamp A	11,900
O / G / W	Wolfcamp B	12,600
O / G / W	Wolfcamp C	13,100
O / G / W	Wolfcamp D	14,100
O / G / W	Strawn	14,800
G / W	Atoka	15,000
G / W	Morrow	15,900
W	Barnett Shale	16,700
W	Mississippian Lime	17,400
W	Woodford	17,790
W	Top Silurian	17,950
W	Top Fuselman	18,815
W	Montoya	19,100

All shows of fresh water and minerals will be reported and protected.

**3. BOP EQUIPMENT**

A 2M 21-1/4 BOP will be installed and tested to drill the 18-1/2" hole section (800' to 4,540'). Please see schematic. The BOP will be tested as a 2M system per BLM Onshore Oil and Gas Order 2 prior to drilling out the casing shoe. Max anticipated pressure in hole section 2250 psi.

A 5M 16-3/4 BOP will be installed and tested to drill the 14-3/4" hole section (4,540' to 12,000'). Please see schematic. The BOP will be tested as a 5M system per BLM Onshore Oil and Gas Order 2 prior to drilling out the casing shoe. Max anticipated pressure in hole section 5920 psi.

A 10M 13-5/8 BOP will be installed and tested to drill the 12-1/4", 8-1/2", and 5-7/8" hole section (12,000' to 19,100'). Please see schematic. The BOP will be tested as a 10M system per BLM Onshore Oil and Gas Order 2 prior to drilling out the casing shoe. Max anticipated pressure in hole section 13,560 psi at 17,410 MD/TVD. After 17,410 there is a pressure regression back to normally pressured.

Chevron request a variance to use a flexible line with flanged ends between the BOP and the choke manifold (Choke Line)

BOPE will be nipped up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. Chevron requests a variance to use a FMC Technologies Multibowl wellhead. Please see attached wellhead schematic.

4. CASING PROGRAM

a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	800'	24"	20"	94#	J-55	BTC	New
Intermediate 1	0'	4,540'	18-1/2"	16"	97#	L-80	BTC	New
Intermediate 2	0'	12,000'	14-3/4"	13-3/8"	72#	TN-110SS	513	New
Production Liner 1	11,700'	17,410'	12-1/4"	9-5/8"	53.5#	T-95IC	Blue	New
Production Tieback	0'	11,700'	N/A	9-5/8"	53.5#	TN-110HS	Blue	New
Production Liner 2	17,110'	17,950'	8-1/2"	7"	26#	L80	Blue	New
Production Open Hole	17,950'	19,100'	5-7/8"	N/A	N/A	N/A	N/A	N/A

b. Casing design subject to revision based on geologic conditions encountered.

c. \*\*\*A "Worst Case" casing design for wells in a particular area is used below to calculate the Casing Safety Factors. If for any reason the casing design for a particular well requires setting casing deeper than the following "worst case" design, then the Casing Safety Factors will be recalculated & sent to the BLM prior to drilling.

SF Calculations based on the following "Worst Case" casing design:

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.4	1.13	4.68	1.56
Intermediate 1	1.28	1.34	3.37	1.51
Intermediate 2	1.21	1.05	1.63	1.35
Production Liner 1	2.28	1.14	2.89	1.57
Production Tieback	1.31	1.41	2.18	1.41
Production Liner 2	1.31	2.63	2.39	1.44

The following worst case load cases were considered for calculation of the above Min. Safety Factors:

	Surf	Int1	Int2	Prod Liner1	Prod Tieback	Prod Liner2
<b>Burst Design</b>						
Pressure Test- Surface, Int, Prod Csg P external: Mud weight above TOC, PP below P internal: Test psi + next section heaviest mud in csg	X	X	X	X	X	X
Displace to Gas- Surf Csg P external: Mud weight above TOC, PP below P internal: Dry Gas from Next Csg Point	X					
Gas over mud (60/40) - Int Csg/Liner P external: Mud weight above TOC, PP below P internal: 60% gas over 40% mud from Pilot hole TD PP		X				
Gas over mud (50/50) - Int Csg/Liner P external: Mud weight above TOC, PP below P internal: 50% gas over 50% mud from Pilot hole TD PP			X	X	X	X
Stimulation (Acid Job) Pressures- Prod Csg P external: Mud weight above TOC, PP below P internal: Max permitted inj pressure w/ heaviest fluid				X	X	X
Tubing Leak- Prod Csg P external: Mud weight above TOC, PP below P internal: Leak just below surf, 9.1 ppg packer fluid				X	X	X
<b>Collapse Design</b>						
Partial Evacuation P external: Mud weight gradient P internal: Dry Gas to 2000', Mud Weight Gradient Below		X	X	X	X	X
Full Evacuation P external: Mud weight gradient P internal: none	X					
Fluid Drop Above Packer P external: Mud weight gradient P internal: 9.1 ppg packer fluid drops till balanced with TD PP				X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: displacement fluid - water	X	X	X	X	X	X
<b>Tension Design</b>						
100k lb overpull	X	X	X	X	X	X

5. CEMENTING PROGRAM

Slurry	Type	Top	Bottom	Weight	Yield	%Excess	Sacks	Water	Volume
Surface				(ppg)	(cu ft/sk)	Open Hole		gal/sk	bbls
Tail	Class C	0'	800'	14.8	1.33	100	962	6.37	227
Intermediate Csg 1									
Lead	50:50 Poz: Class C + Extender, Antifoam, Retarder, Salt	0'	3,540'	11.9	2.37	50	1018	13.45	430
Tail	Class C + Retarder	3,540'	4,540'	14.8	1.33	50	603	6.37	143
Intermediate Csg 2									
Lead	50:50 Poz: Class C + Extender, Antifoam	4,240'	11,000'	11.9	2.36	10	1567	13.40	279
Tail	Class H + Retarder + Extender + Dispersant	11,000'	12,000'	15.6	1.23	10	299	5.41	53
Production Liner1									
Lead	Class H + Extender, Antifoam, Dispersant, Gas Control, Viscosifier, Retarder	11,700'	16,410'	15.6	1.20	10	1617	5.40	286
Tail	Class H + Extender, Antifoam, Dispersant, Gas Control, Viscosifier, Retarder	16,410'	17,410'	15.6	1.20	10	376	5.40	67
Production Tieback									
Tail	Class H + Antifoam, Dispersant, Fluid Loss, Retarder, Extender	0'	11,700'	15.6	1.20	0	3632	5.40	683
Production Liner2									
Tail	TXI + Antifoam, Dispersant, Viscosifier, Fluid Loss, Retarder	17,110'	17,950'	12.5	1.56	50	150	8.38	27

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.

**6. MUD PROGRAM**

From	To	Type	Weight	Viscosity	Filtrate
0'	800'	Spud Mud	8.3 – 9.0	28-36	N/C
800'	4,540'	Brine Water	10 – 10.4	28-32	N/C
4,540'	12,000'	OBM	8.7-10.0	40-60	20-30
12,000'	17,410'	OBM	12.2-15.0	55-75	10-15
17,410'	17,950'	WBM	8.8-9.6	35-45	<10
17,950'	19,100'	Cut Brine	8.4-9.0	28-32	N/C

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated – a pit volume totalizer (PVT), stroke counter, and flow sensor will be used to detect volume changes indicating loss or gain of circulating fluid volume.

A weighting agent and lost circulating material (LCM) will be onsite to mitigate pressure or lost circulation as hole conditions dictate.

**7. TESTING, LOGGING, AND CORING**

The anticipated type and amount of testing, logging, and coring are as follows:

- a. Drill stem tests are not planned.
- b. The logging program will be as follows:

TYPE	Logs	Interval
Mudlogs	2 Man Mud Log	4,540' to TD
LWD	MWD Gamma	4,540' to TD
OH Logs	Quad Combo	17,950' - 19,100' Injection Zone
CH Logs	CBL	17,110' - 17,870' Production Liner 2

- c. A Directional Survey will be run.

**8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

- a. Normal pressures are anticipated throughout the Delaware section. Pressures are anticipated to gradually increase from the Bone Springs into the Wolfcamp. Anticipated pressure ramps are expected 1000' into the Wolfcamp and 200' into the Atoka with pressures returning to normal in the Mississippian Lime to TD. Estimated BHP is in injectional interval: **8270 psi**
- b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan is attached with this APD in the event that H2S is encountered.

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 98249	<sup>3</sup> Pool Name SWD; SILURIAN
<sup>4</sup> Property Code	<sup>5</sup> Property Name MAELSTROM SWD	
<sup>7</sup> OGRID No. 4323	<sup>8</sup> Operator Name CHEVRON U.S.A. INC.	<sup>6</sup> Well Number 1
		<sup>9</sup> Elevation 3168'

<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
J	15	26 SOUTH	32 EAST, N.M.P.M.		2050'	SOUTH	1793'	EAST	LEA

<sup>11</sup> Bottom Hole Location If Different From Surface

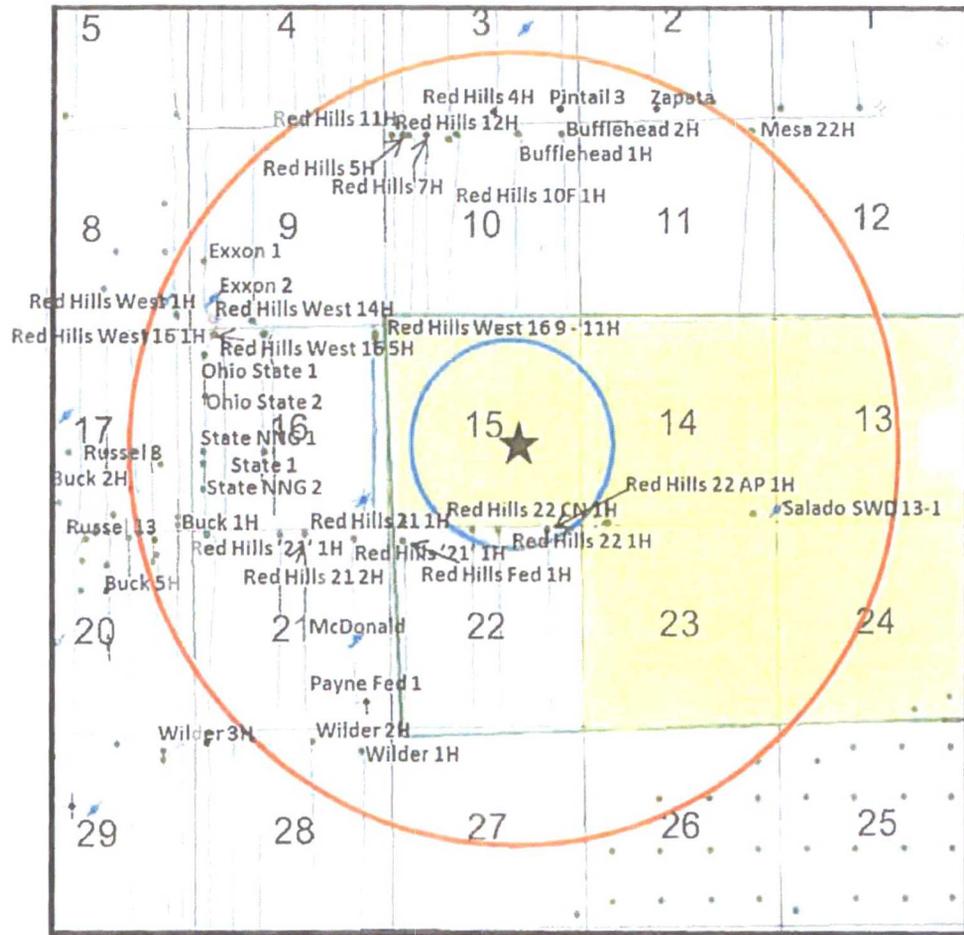
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	15	26 SOUTH	32 EAST, N.M.P.M.		2050'	SOUTH	1793'	EAST	LEA

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

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

<p><sup>16</sup></p>	<p><b><sup>17</sup> OPERATOR CERTIFICATION</b> I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Denise Pinkerton</i> 10/12/2017 Signature Date</p> <p>Denise Pinkerton Printed Name</p> <p>Leakej@chevron.com E-mail Address</p>
	<p><b><sup>18</sup> SURVEYOR CERTIFICATION</b> I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>02/17/2017 Date of Survey</p> <p>Signature and Seal of Professional Surveyor: <i>Robert L. Lastrapes</i></p> <p>23006 Certificate Number</p>

# Maelstrom SWD #1



○ Two Mile Radius

○ 1/2 Mile Radius

★ Proposed SWD Location

## Maelstrom SWD #1

Company	Well Name	API	Horizontal or Vertical
BlackRock Oil	Union Federal 1	30025239930000	Horizontal
BTA Oil	Mesa 8105 JV-P 22H	30025428570000	Horizontal
CHEVRON USA INC	Salado Draw SWD 13-1	30025423540000	Vertical
COG Production	Pintail 3 Federal 2H	30025406850000	Horizontal
COG Production	Bufflehead 10 Fed 1H	30025404230100	Horizontal
COG Production	Bufflehead 10 Fed 2H	30025405940000	Horizontal
ConocoPhillips	Red Hills West 16 S 1H	30025404100000	Horizontal
ConocoPhillips	Red Hills West 16 S 5H	30025404140000	Horizontal
ConocoPhillips	Red Hills West 16 S 2H	30025404110000	Horizontal
ConocoPhillips	Red Hills West 16 S 6H	30025404150000	Horizontal
ConocoPhillips	Red Hills West 16 S 9H	30025417090000	Horizontal
ConocoPhillips	Red Hills West 16 S 10H	30025417080000	Horizontal
ConocoPhillips	Red Hills West 16 S 11H	30025417070000	Horizontal
ConocoPhillips	Red Hills West 16 S 12H	30025417060000	Horizontal
ConocoPhillips	Buck 17 Federal 2H	30025404010000	Horizontal
ConocoPhillips	Buck 17 Federal 1H	30025402810000	Horizontal
ConocoPhillips	Buck 17 Federal 5H	30025408400000	Horizontal
ConocoPhillips	Buck 20 Federal 5H	30025405390000	Horizontal
ConocoPhillips	Buck 20 Federal 1H	30025404310000	Horizontal
ConocoPhillips	Wilder 28 Federal 1H	30025402610100	Horizontal
ConocoPhillips	Wilder 28 Federal 2H	30025403290000	Horizontal
ConocoPhillips	Wilder 28 Federal 3H	30025405010000	Horizontal
Enfield Robert	Ohio-State 1	30025082580000	Vertical
EOG Operating	Zapata BQZ State CO 1H	30025400010000	Horizontal
Forrest Robert	Ohio State 1	30025275250000	Vertical
Forrest Robert	Ohio State 2	30025275260000	Vertical
Mewbourne	Red Hills West Unit 4H	30025406870000	Horizontal
Mewbourne	Red Hills West Unit 11H	30025423360000	Horizontal
Mewbourne	Red Hills West Unit 5H	30025411360000	Horizontal
Mewbourne	Red Hills West Unit 12H	30025424170000	Horizontal
Mewbourne	Red Hills West Unit 7H	30025418490000	Horizontal
Mewbourne	Red Hills West Unit 10F 1H	30025399110000	Horizontal
Mewbourne	Red Hills West 8 FE 1H	30025399020100	Horizontal
Mewbourne	Red Hills West Unit 14H	30025431360000	Horizontal
Mewbourne	Red Hills West Unit 6H	30025406050000	Horizontal
Mewbourne	Red Hills West '21' 1H	30025408970000	Horizontal
Mewbourne	Red Hills West 21 2H	30025403910000	Horizontal
Mewbourne	Red Hills West 21 1H	30025411290000	Horizontal
Mewbourne	Red Hills West '21' 1H	30025401560000	Horizontal
Mewbourne	Red Hills West '22' Fed Com 1H	30025399010000	Horizontal

Mewbourne	Red Hills West '22' CN Fed Com 1H	30025406070000	Horizontal
Mewbourne	Red Hills West 22 1H	30025411350000	Horizontal
Mewbourne	Red Hills West '22' AP Fed Com 1H	30025406080000	Horizontal
Sahara Operating	Russell-Federal 8	30025226870000	Vertical
Sahara Operating	Russell-Federal 13	30025295100000	Vertical
Sahara Operating	McDonald Federal 1	30025306600000	Vertical
Sivley	Payne-Federal 1	30025208500000	Vertical
Tempo Energy	Exxon Federal 1	30025275570000	Vertical
Tempo Energy	Exxon Federal 2	30025282590000	Vertical
Tempo Energy	State NNG 1	30025282450000	Vertical
Tempo Energy	State 1	30025250640000	Vertical
Tempo Energy	State NNG 2	30025284710000	Vertical
CHEVRON USA INC	KIEHNE RANCH 15 26 32 USA No. 001H	3002540602	Horizontal
CHEVRON USA INC	SALADO DRAW SWD 13 No. 001	3002542354	Horizontal
CHEVRON USA INC	SD WE 14 FEDERAL P 5 No. 001H	3002542800	Horizontal
CHEVRON USA INC	SD WE 14 FEDERAL P 5 No. 002H	3002542801	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P 5 No. 001H	3002542802	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P 5 No. 002H	3002542803	Horizontal
CHEVRON USA INC	SD WE 14 FEDERAL P7 No. 003H	3002543086	Horizontal
CHEVRON USA INC	SD WE 14 FEDERAL P7 No. 004H	3002543087	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P7 No. 003H	3002543088	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P7 No. 004H	3002543089	Horizontal
CHEVRON USA INC	SD WE 24 FEDERAL P23 No. 002H	3002543296	Horizontal
CHEVRON USA INC	SD WE 24 FEDERAL P23 No. 003H	3002543297	Horizontal
CHEVRON USA INC	SD WE 24 FEDERAL P23 No. 004H	3002543298	Horizontal
CHEVRON USA INC	SD WE 24 FEDERAL P23 No. 001H	3002543318	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P25 No. 001H	3002543460	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P25 No. 002H	3002543461	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P25 No. 003H	3002543462	Horizontal
CHEVRON USA INC	SD WE 23 FEDERAL P25 No. 004H	3002543463	Horizontal
CHEVRON USA INC	SD WE 15 FEDERAL P12 No. 002H	3002543594	Horizontal
CHEVRON USA INC	SD WE 15 FEDERAL P12 No. 003H	3002543595	Horizontal
CHEVRON USA INC	SD WE 15 FEDERAL P12 No. 004H	3002543596	Horizontal
CHEVRON USA INC	SD WE 15 FEDERAL P12 No. 001H	3002543613	Horizontal
Sahara Operating	North El Mar Unit No. 10	3002508299	Vertical

Current  
**WELLBORE DIAGRAM**

<b>Created:</b>	<u>8/19/2015</u>	<b>By:</b> PTB	<b>Well No.:</b> <u>1</u>	<b>Field:</b> <u>SWD: Devonian, Silurian</u>
<b>Updated:</b>	<u>1/11/2017</u>	<b>By:</b> PTB	<b>Unit Ltr:</b> <u>M</u>	<b>Sec:</b> <u>13</u> <b>TSHR/Range:</b> <u>26S / 32E</u>
<b>Lease:</b>	<u>Salado Draw SWD 13</u>		<b>St Lease:</b> _____	<b>API:</b> <u>30-025-42354</u> <b>Cost Center:</b> _____
<b>Surface Location:</b>	<u>290' FSL &amp; 10' FWL</u>		<b>Elevation:</b> <u>3171'</u>	<b>CHEVNO:</b> <u>PD6336</u>
<b>County:</b>	<u>Lea</u>	<b>St:</b> <u>NM</u>		
<b>Current Status:</b>	<u>TA'd</u>			

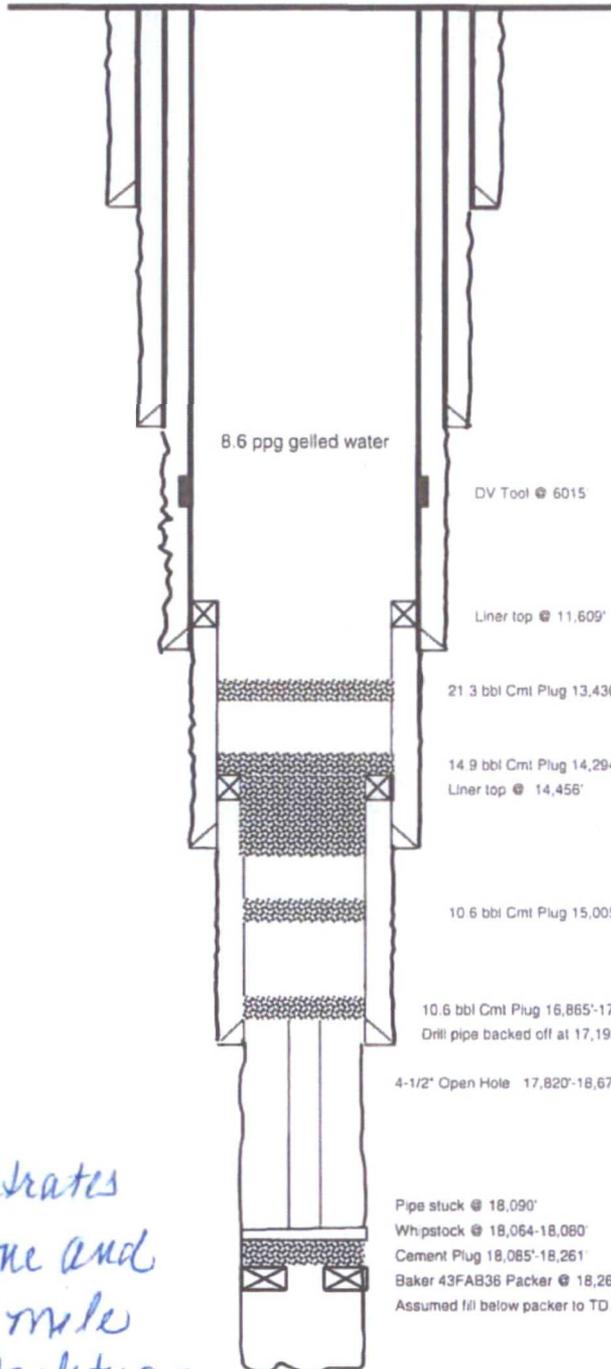
**Surface Csg.**  
 Size: 16"  
 Wt.: 75#, J-55  
 Set @: 737'  
 Sxs cmt: 840  
 Circ: yes, 106 bbl  
 TOC: surface  
 Hole Size: 20"

**1st Intermediate Csg.**  
 Size: 13-3/8"  
 Wt.: 68#, J-55  
 Set @: 4,555'  
 Sxs Cmt: 1100  
 Circ: yes; 71 bbls.  
 TOC: surface  
 Hole Size: 14-3/4"

**2nd Intermediate Csg.**  
 Size: 9-5/8"  
 Wt.: 53.5#, P-110  
 Set @: 12,188'  
 Sxs Cmt: 1,920  
 TOC: \_\_\_\_\_  
 Hole Size: 12-1/4"

**Production Liner No. 1**  
 Size: 7-5/8"  
 Wt.: 39#, P-110  
 TOL: 11,609'  
 BOL: 14,678'  
 Sxs Cmt: 300  
 Hole Size: 8-1/2"

**Production Liner No. 2**  
 Size: 5-1/2"  
 Wt.: 23#, P-110  
 TOL: 14,456'  
 BOL: 17,820'  
 Sxs Cmt: 286  
 Hole Size: 6-1/2"



KB: \_\_\_\_\_  
 DF: \_\_\_\_\_  
 GL: 3171'  
 Spud Date: 2/20/2015  
 Compl. Date: 8/23/2015

*VI.*  
 This well penetrates  
 the injection zone and  
 is within the 2 mile  
 radius of the Maelstrom

Pipe stuck @ 18,090'  
 Whpstock @ 18,064-18,080'  
 Cement Plug 18,065'-18,261'  
 Baker 43FAB36 Packer @ 18,261'  
 Assumed fill below packer to TD.



Permian Basin Area Laboratory  
2101 Market Street,  
Midland, Texas 79703

VII<sup>4</sup> - WTR Sample  
Upstream Chemicals

REPORT DATE: 8/8/2016

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: CHEVRON  
DISTRICT: WATER MANAGEMENT PERMIAN  
AREA/LEASE: SALADO DRAW  
SAMPLE POINT NAME: SALADO DRAW OWL  
SITE TYPE: WELL SITES  
SAMPLE POINT DESCRIPTION: NOT PROVIDED

ACCOUNT REP: LARRY G HINES  
SAMPLE ID: 201601033611  
SAMPLE DATE: 8/1/2016  
ANALYSIS DATE: 8/5/2016  
ANALYST: JESSICA KILPATRICK

CHEVRON, SALADO DRAW, SALADO DRAW OWL

FIELD DATA		ANALYSIS OF SAMPLE											
		ANIONS:		mg/L		meq/L		CATIONS:		mg/L		meq/L	
Initial Temperature (°F):		250 Chloride (Cl <sup>-</sup> ):	110279.3	3110.8 Sodium (Na <sup>+</sup> ):	56517.0	2459.4							
Final Temperature (°F):		80 Sulfate (SO <sub>4</sub> <sup>2-</sup> ):	546.8	11.4 Potassium (K <sup>+</sup> ):	831.3	21.3							
Initial Pressure (psi):		100 Borate (H <sub>2</sub> BO <sub>3</sub> ):	265.4	4.3 Magnesium (Mg <sup>2+</sup> ):	1560.3	128.4							
Final Pressure (psi):		15 Fluoride (F <sup>-</sup> ):	ND	Calcium (Ca <sup>2+</sup> ):	8029.7	400.7							
		Bromide (Br <sup>-</sup> ):	ND	Strontium (Sr <sup>2+</sup> ):	861.0	19.7							
pH:		Nitrite (NO <sub>2</sub> <sup>-</sup> ):	ND	Barium (Ba <sup>2+</sup> ):	2.5	0.0							
pH at time of sampling:		6.4 Nitrate (NO <sub>3</sub> <sup>-</sup> ):	ND	Iron (Fe <sup>2+</sup> ):	51.7	1.9							
		Phosphate (PO <sub>4</sub> <sup>3-</sup> ):	ND	Manganese (Mn <sup>2+</sup> ):	1.5	0.1							
		Silica (SiO <sub>2</sub> ):	ND	Lead (Pb <sup>2+</sup> ):	0.0	0.0							
				Zinc (Zn <sup>2+</sup> ):	0.0	0.0							
ALKALINITY BY TITRATION:		mg/L	meq/L										
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> ):		818.5	13.4										
Carbonate (CO <sub>3</sub> <sup>2-</sup> ):		ND											
Hydroxide (OH <sup>-</sup> ):		ND											
				ORGANIC ACIDS:		mg/L		meq/L					
aqueous CO <sub>2</sub> (ppm):		ND	Formic Acid:	ND									
aqueous H <sub>2</sub> S (ppm):		ND	Acetic Acid:	ND									
aqueous O <sub>2</sub> (ppb):		ND	Propionic Acid:	ND									
			Butyric Acid:	ND									
Calculated TDS (mg/L):		179500	Valeric Acid:	ND									
Density/Specific Gravity (g/cm <sup>3</sup> ):		1.1142											
Measured Specific Gravity		1.1262											
Conductivity (mmhos):		ND											
Resistivity:		ND											
MCF/D:		No Data											
BOPD:		No Data											
BWPD:		No Data											
		No Data	Anion/Cation Ratio:		1.04								ND = Not Determined

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA. FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS

Conditions		Barite (BaSO <sub>4</sub> )		Calcite (CaCO <sub>3</sub> )		Gypsum (CaSO <sub>4</sub> ·2H <sub>2</sub> O)		Anhydrite (CaSO <sub>4</sub> )	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.61	1.137	1.60	192.771	0.40	0.000	0.54	0.000
99°F	24 psi	0.48	1.011	1.66	195.146	0.39	0.000	0.45	0.000
118°F	34 psi	0.36	0.856	1.73	198.487	0.39	0.000	0.36	0.000
137°F	43 psi	0.26	0.671	1.81	201.777	0.38	0.000	-0.27	0.000
156°F	53 psi	0.16	0.457	1.90	204.780	0.38	0.000	0.18	0.000
174°F	62 psi	0.07	0.215	1.97	207.459	0.38	0.000	0.08	0.000
193°F	72 psi	0.01	0.000	2.05	209.839	0.38	0.000	0.02	11.835
212°F	81 psi	0.09	0.000	2.14	212.250	0.38	0.000	0.12	64.346
231°F	91 psi	0.16	0.000	2.22	214.404	0.38	0.000	0.22	106.422
250°F	100 psi	0.22	0.000	2.29	216.323	0.39	0.000	0.32	139.671

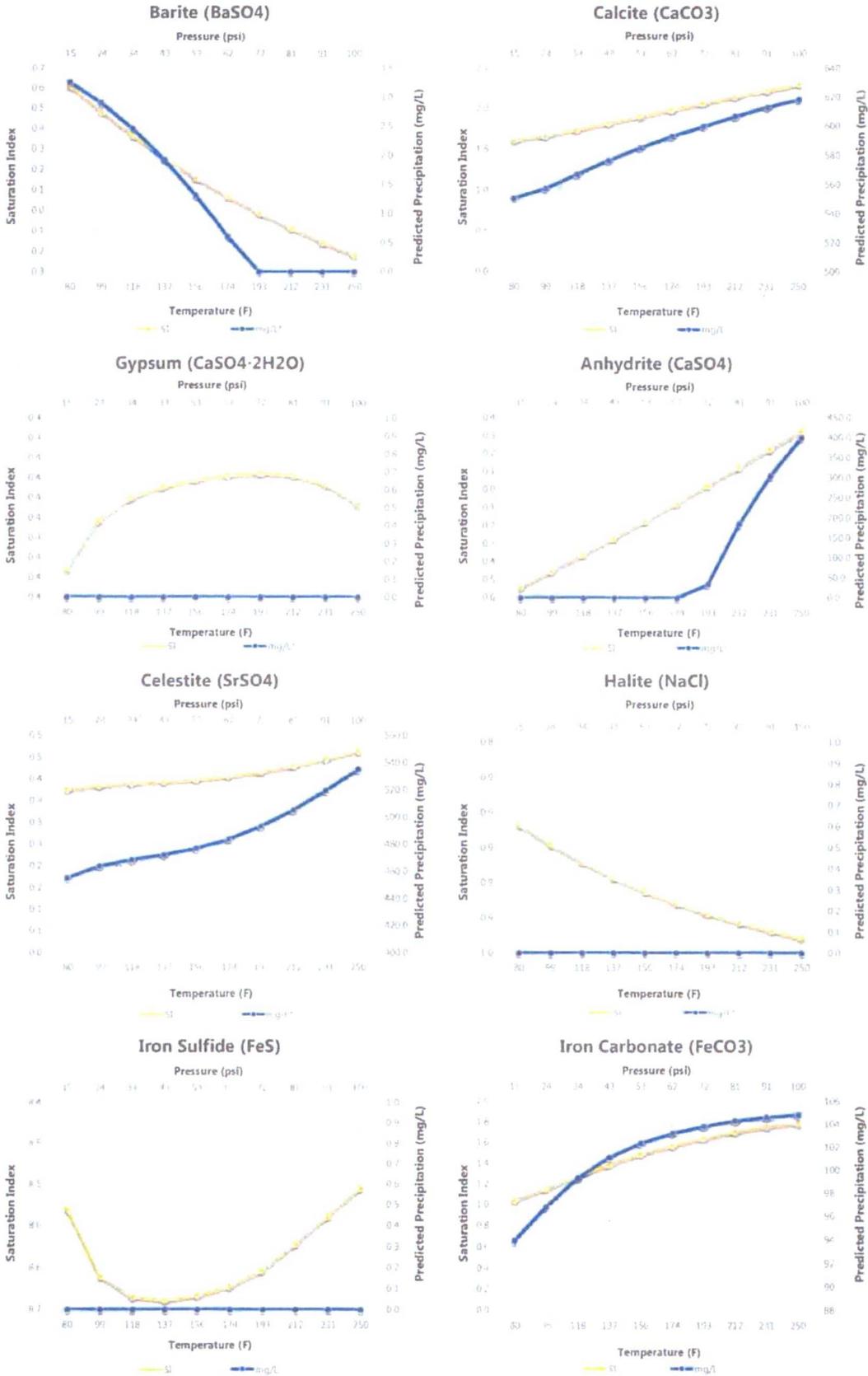
  

Conditions		Celestite (SrSO <sub>4</sub> )		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO <sub>3</sub> )	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.37	159.268	0.89	0.000	8.53	0.000	1.03	32.866
99°F	24 psi	0.38	162.245	0.90	0.000	8.61	0.000	1.14	33.863
118°F	34 psi	0.39	163.895	0.91	0.000	8.64	0.000	1.27	34.736
137°F	43 psi	0.39	165.200	0.92	0.000	8.64	0.000	1.38	35.365
156°F	53 psi	0.40	166.830	0.93	0.000	8.63	0.000	1.48	35.800
174°F	62 psi	0.40	169.199	0.93	0.000	8.62	0.000	1.56	36.099
193°F	72 psi	0.42	172.497	0.94	0.000	8.60	0.000	1.63	36.311
212°F	81 psi	0.43	176.724	0.94	0.000	8.57	0.000	1.70	36.478
231°F	91 psi	0.45	181.729	0.95	0.000	8.54	0.000	1.75	36.590
250°F	100 psi	0.46	187.246	0.95	0.000	8.51	0.000	1.78	36.663

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.  
 Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.  
 Note 3: Saturation Index predictions on this sheet use pH and alkalinity. %CO<sub>2</sub> is not included in the calculations.



Comments:



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA. FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS

MAELSTROM SWD #1

VII. 5 for C-108

The data table below represents all water analysis of wells within 30 miles of the proposed SWD well in Lea County, New Mexico. The data was supplied by Martha Cather from the PRRC (Petroleum Recovery Resource Center) at New Mexico Tech in Socorro, New Mexico. The water analysis was performed on water samples from the 'Devonian', which covers both Silurian and Devonian aged rocks.

For most wells, the chloride count and total dissolved solids count (tds in milligrams) was available. The sodium count, which was not available for these wells, is always about half the chloride count, and is included in the total dissolved solids count. With this assumption, the dissolved sodium and chloride count comprises 90% of the total dissolved solids. The average value for the chloride count in the 11 wells is 64,000 mg, which equates to 100,000 mg sodium and chloride. Some of the Devono-Silurian wells have total dissolved solid counts as high as 236,000 mg.

As previously seen in the water analysis from the Upper Avalon, the dissolved sodium and chloride content is 166,000 mg, which is similar to the salinity of the Silurian formation that will receive the injected water.

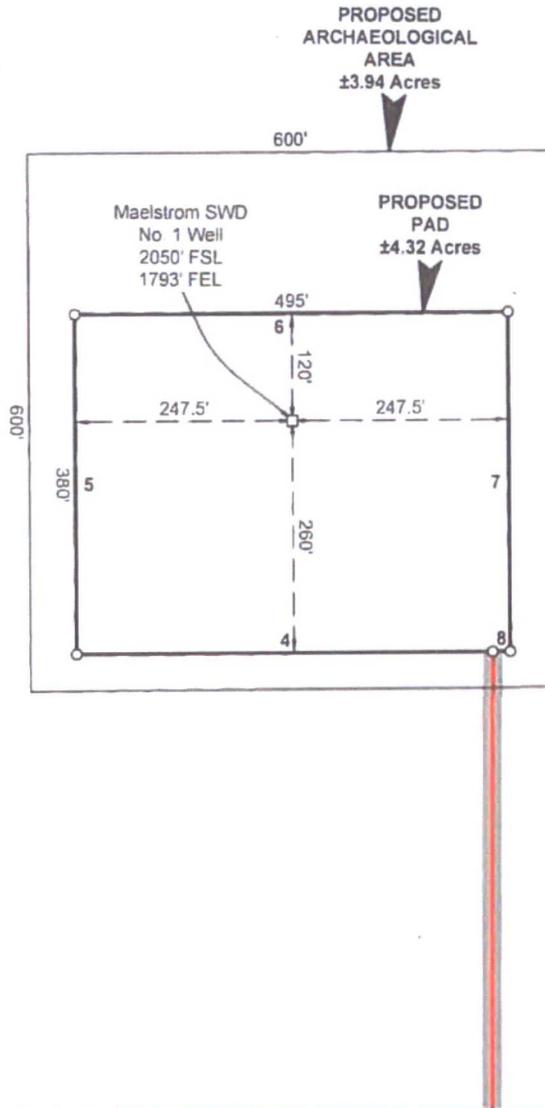
VII.5

WELL NAME	API #	LAT	LONG	SEC	TWN	RANGE	CNTY	STATE	FIELD	FORMATION	SMPL SRC	TDS MGL	CHLRD MGL
	30-025-												
Antelope Ridge Unit	20182	32.259	-103.461	34	23S	34E	LEA	NM	Ant Rdg	Devonian	Unkwn	80187	47900
Farnsworth Federal	11950	32.078	-103.162	4	26S	37E	LEA	NM	Crosby	Devonian	Unkwn	31911	20450
Arnott Ramsay NCT B	11863	32.092	-103.178	32	25S	37E	LEA	NM	Crosby	Devonian	Unkwn		100382
Copper	11818	32.099	-103.165	28	25S	37E	LEA	NM	Crosby	Devonian	Unkwn	27506	15270
State NJ A	11398	32.165	-103.127	2	25S	37E	LEA	NM	Justis N	Devonian	DST	105350	59300
W Dollarhide Dev	12297	32.172	-103.076	32	24S	38E	LEA	NM	Dlrhide	Devonian	Wellhead	50858	30200
State B Com	1E+08	32.179	-103.221	36	24S	36E	LEA	NM	Custer	Devonian	Unkwn	176234	107400
E C Hill D Federal	10950	32.265	-103.144	34	23E	37E	LEA	NM	Teague	Devonian	Unkwn	236252	147000
E C Hill B Federal	10945	32.266	-103.144	34	23S	37E	LEA	NM	Teague	Devonian	Unkwn	112959	67390
Cline Federal	10717	32.302	-103.136	14	23S	37E	LEA	NM	Cline	Devonian	Prod Test	118979	71280
Bell Lake Unit	8483	32.328	-103.507	6	23S	34E	LEA	NM	Bell Lke N	Devonian	Htr/Trtr	71078	42200
											AVG	101133	64434

R 32 E

Sec. 15  
Bureau of Land Management

T  
26  
S



NW ARCH. AREA CORNER	NE ARCH. AREA CORNER
X= 708,493 NAD 27 Y= 379,628	X= 709,093 NAD 27 Y= 379,633
ELEVATION +3168' NAVD 88	ELEVATION +3172' NAVD 88
SW ARCH. AREA CORNER	SE ARCH. AREA CORNER
X= 708,498 NAD 27 Y= 379,028	X= 709,098 NAD 27 Y= 379,033
ELEVATION +3165' NAVD 88	ELEVATION +3167' NAVD 88
NW PAD CORNER	NE PAD CORNER
X= 708,547 NAD 27 Y= 379,449	X= 709,042 NAD 27 Y= 379,453
ELEVATION +3171' NAVD 88	ELEVATION +3172' NAVD 88
SW PAD CORNER	SE PAD CORNER
X= 708,551 NAD 27 Y= 379,069	X= 709,046 NAD 27 Y= 379,073
ELEVATION +3165' NAVD 88	ELEVATION +3167' NAVD 88
MAELSTROM SWD NO 1 WELL	
X= 708,796 NAD 27 Y= 379,331	
LAT. 32.041105	
LONG. 103.659493	
X= 749,983 NAD83 Y= 379,388	
LAT. 32.041230	
LONG. 103.659963	
ELEVATION +3168' NAVD 88	

LEGEND	
	Proposed Pad
	Centerline Access

FOR THE EXCLUSIVE USE OF  
CHEVRON U.S.A. INC.  
I, Robert L. Lastrapes, Professional  
Surveyor, do hereby state this plat is true  
and correct to the best of my knowledge.

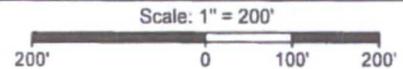
*Not to be used for construction,  
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Robert L. Lastrapes  
Registration No. 23006

PAGE 1 OF 3

WELL PLAT



CHEVRON U.S.A. INC.  
PROPOSED PAD & ACCESS ROAD  
MAELSTROM SWD NO. 1 WELL  
SECTIONS 15 & 22, T26S-R32E  
LEA COUNTY, NEW MEXICO

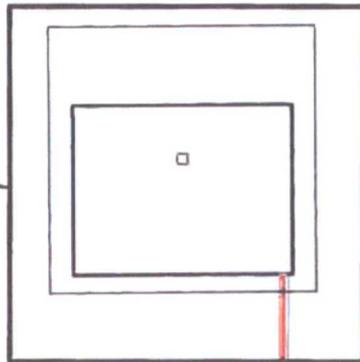


C. H. Fenstermaker & Associates, L.L.C.  
135 Regency Sq. Lafayette, LA 70508  
Ph. 337-237-2200 Fax. 337-232-3299  
www.fenstermaker.com

DRAWN BY: BOR	REVISIONS		
PROJ MGR.: VHV	No.	DATE:	REVISED BY:
DATE: 03/02/2017	No.	DATE:	REVISED BY:
FILENAME: T:\2017\2175438\DWG\Maelstrom SWD No.1_WellPlat.dwg			

R 32 E

SEE PAGE  
1 OF 3



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**PRELIMINARY**

Robert L. Lastrapes  
Registration No. 23006

**LEGEND**

	Proposed Pad
	Centerline Access
	Section Line
	Existing Pad/Road
	Proposed ROW
	Found Monument

T  
26  
S

Sec. 15

Bureau of Land Management

CENTERLINE  
PROPOSED  
ACCESS ROAD  
20' x ±2,150.50'  
±130.33 Rods  
±0.99 Acres

Proposed Powerline  
& Pipeline ROWs

Point of  
Commencement/  
Fnd. 1 1/2" Iron Pipe  
w/Cap @ SE Corner  
of Section 15

Salado Draw Pad 9  
(Under Construction)

S 79° 14' 00" W 1,748.05'

Existing Red Hills  
West 22 1H Pad

Sec. 22

Bureau of Land Management

Existing Road

Scale: 1" = 400'

400' 0 200' 400'

PAGE 2 OF 3

WELL PLAT

CHEVRON U.S.A. INC.  
PROPOSED PAD & ACCESS ROAD  
MAELSTROM SWD NO. 1 WELL  
SECTIONS 15 & 22, T26S-R32E  
LEA COUNTY, NEW MEXICO



C. H. Fenstermaker & Associates, L.L.C.  
135 Regency Sq. Lafayette, LA 70508  
Ph. 337-237-2200 Fax 337-232-3299  
www.fenstermaker.com

DRAWN BY: BOR

REVISIONS

PROJ. MGR.: VHV

No.

DATE:

REVISED BY:

DATE: 03/02/2017

No.

DATE:

REVISED BY:

FILENAME: T:\2017\2175438\DWG\Maelstrom SWD No.1\_WellPlat.dwg

**DISCLAIMER:** At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering; hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

**NOTE:**

Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc may exist undetected on site.

**NOTE:**

Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance New Mexico One Call - [www.nmonecall.org](http://www.nmonecall.org)

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
1	N 00° 36' 40" W	553.52'
2	N 34° 14' 43" E	274.23'
3	NORTH	1322.75'

PROPOSED PAD		
COURSE	BEARING	DISTANCE
4	S 89° 29' 59" W	474.96'
5	N 00° 30' 01" W	380.00'
6	N 89° 29' 59" E	495.00'
7	S 00° 30' 01" E	380.00'
8	S 89° 29' 59" W	20.04'

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I, Robert L. Lastrapes, Professional  
Surveyor, do hereby state this plat is true  
and correct to the best of my knowledge.

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sales or engineering design*



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Registration No. 23006

WELL PLAT

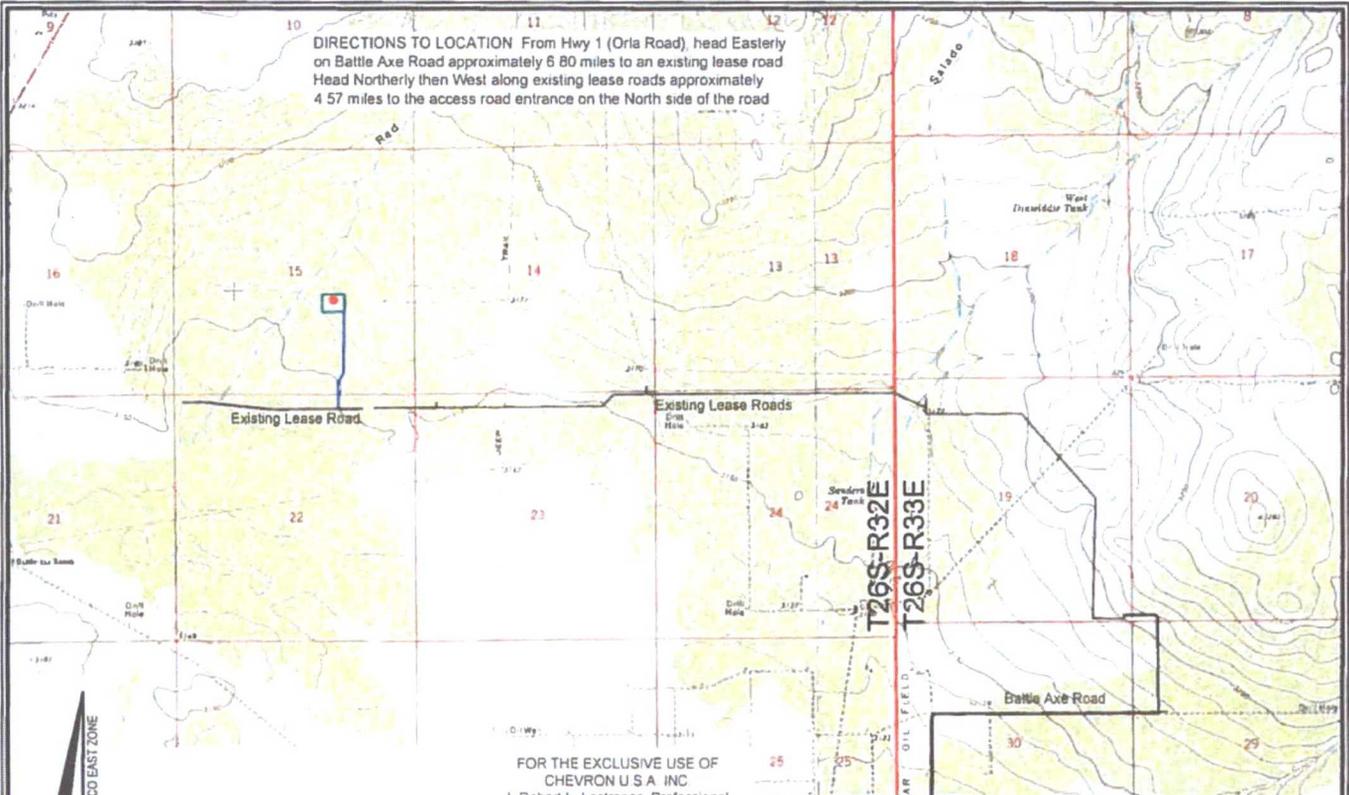
CHEVRON U.S.A. INC.  
PROPOSED PAD & ACCESS ROAD  
MAELSTROM SWD NO. 1 WELL  
SECTIONS 15 & 22, T26S-R32E  
LEA COUNTY, NEW MEXICO



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PROJ. MGR.: VHV	No.	DATE:	REVISED BY:
DATE: 03/02/2017	No.	DATE:	REVISED BY:
FILENAME: T:\2017\2175438\DWG\Maelstrom SWD No.1_WellPlat.dwg			

**DIRECTIONS TO LOCATION** From Hwy 1 (Orla Road), head Easterly on Battle Axe Road approximately 6.80 miles to an existing lease road. Head Northerly then West along existing lease roads approximately 4.57 miles to the access road entrance on the North side of the road.



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Surveyor, do hereby state this plat is true  
and correct to the best of my knowledge.

**LEGEND**

- Proposed Well
- Proposed Access Road
- Proposed Drill Site
- Existing Road
- Section Line

Scale 1" = 3,000'

3,000' 0 1,500' 3,000'



NAD 27 NEW MEXICO EAST ZONE



C. H. Fenstermaker & Associates, L.L.C.  
135 Regency Sq. Lafayette, LA 70508  
Ph. 337-237-2200 Fax. 337-232-3299  
[www.fenstermaker.com](http://www.fenstermaker.com)

Not to be used for construction, bidding,  
recordation, conveyance, sales, or as the  
basis for the issuance of a permit.



Robert L. Lastrapes  
Registration No. 23006

**ROAD MAP**

**CHEVRON U.S.A. INC.**  
MAELSTROM SWD NO. 1 WELL  
LOCATED 2050' FSL & 1793' FEL  
SECTION 15, T26S-R32E  
LEA COUNTY, NEW MEXICO

DRAWN BY: BOR

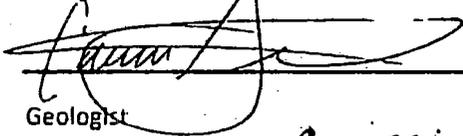
**REVISIONS**

PROJ. MGR.	VHV	No.	DATE	REVISED BY.
DATE	03/02/2017	No.	DATE	REVISED BY.
FILENAME: T:\2017\2175438\DWG\Maelstrom SWD No 1_RoadPlat.dwg				

MAELSTROM SWD #1

XII Statement for C-108

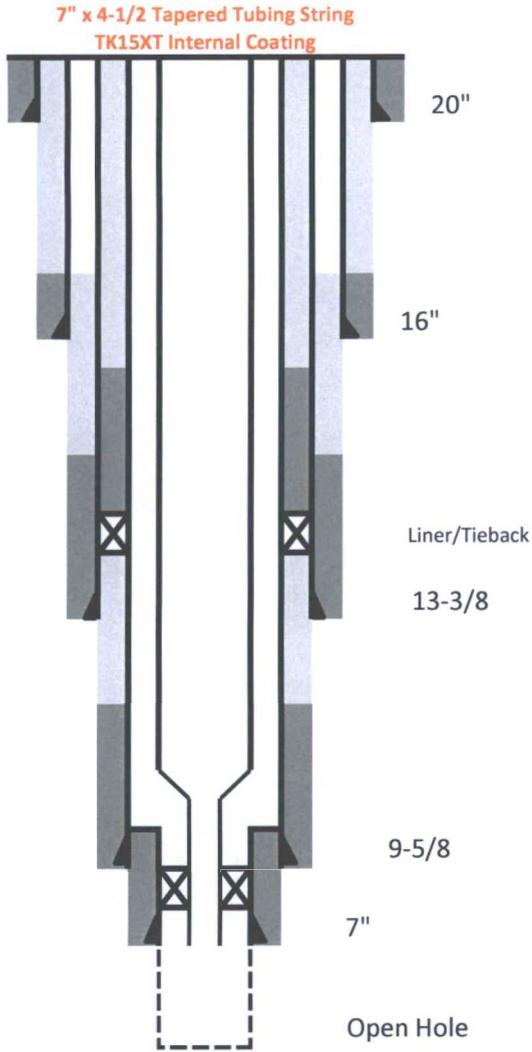
I have examined the available data for this disposal well and find no evidence of open faults or other hydrologic connections between the disposal zone in this well and any underground sources of drinking water.



---

Geologist

CAMERON GRIFFIN



Hole Size	Casing	Mud Program
24" +/- 800'	20" 94# J55 BTC	Spud Mud 8.3-9.0 ppg
18-1/2" +/- 4,540'	16" 97# L80 BTC	Brine Water 10-10.4 ppg
14-3/4" +/- 12,000'	13-3/8" 72# TN-110SS 513 Alt Drift 12.25"	OBM 8.7-10.0 ppg
12-1/4" +/- 17,410	9-5/8" 53.5# TN-95IC Blue Liner Alt Drift 8.5"  9-5/8" 53.5# TN-110HS Blue Tieback Alt Drift 8.5"	OBM 12.2-15.6 ppg
8-1/2" +/- 17,950'	7" 26# L80 Blue Liner	WBM 8.9-9.6 ppg
5-7/8" +/- 19,100'	N/A	Cut Brine 8.4-9.0 ppg

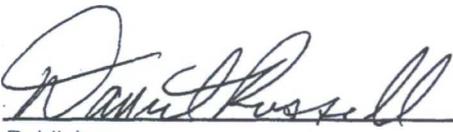


# Affidavit of Publication

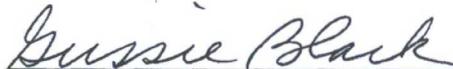
STATE OF NEW MEXICO  
COUNTY OF LEA

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

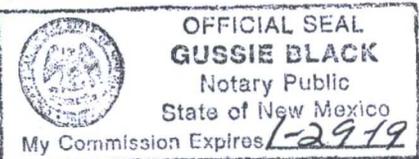
Beginning with the issue dated  
December 13, 2017  
and ending with the issue dated  
December 13, 2017.

  
\_\_\_\_\_  
Publisher

Sworn and subscribed to before me this  
13th day of December 2017.

  
\_\_\_\_\_  
Business Manager

My commission expires  
January 29, 2019

(Seal)  


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

**LEGAL NOTICE**  
December 13, 2017

Notice is hereby given of the application of CHEVRON U.S.A. INC, 6301 Deauville Blvd, Midland, TX 79706, to the Oil Conservation Division of the state of New Mexico and the Commissioner of Public Lands, State of New Mexico for approval for Maelstrom SWD #1 to a Salt Water Disposal. The Chevron Maelstrom SWD #1 is located 2050' FSL & 1793' FEL, Unit Letter J, Section 15, T26S, R32E, Lea County, New Mexico. The formation will be Silurian Limestone and the intervals are 17400-19100 open hole. The maximum anticipated injection rate will be 50,000 BWPD at a maximum injection pressure of 2500 psig. Interested parties should file objections or requests for hearing with the Oil Conservation Division, 1220 South St Francis Dr, Santa Fe, New Mexico 87505, within 15 days. Inquiries regarding this application should be directed to Chevron North America, Attn: Sean Heaster, 1400 Smith St, Rm 46048, Houston, TX 77002. #32336

01102480

00204118

CHEVRON USA INC.  
6301 DEAUVILLE BLVD.  
MIDLAND, TX 79706