

Revised March 23, 2017

RECEIVED: 12/06/18	REVIEWER:	TYPE: SWD	APP NO: PLE 1835358259
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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: Probity SWD, LLC **OGRID Number:** 296278
Well Name: Mac-Brant East SWD No.1 **API:** 30-015-xxxxx
Pool: Proposed: SWD; Devonian-Silurian **Pool Code:** 97869

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

☐

Notice Complete

☐

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.

Ben Stone

Print or Type Name

Signature

12/05/2018

Date

903-488-9850

Phone Number

ben@sosconsulting.us

e-mail Address



December 5, 2018

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

Attn: Ms. Heather Riley, Director

Re: Application of Probity SWD, LLC to permit for salt water disposal the Mac-Brant East SWD Well No.1, to be located in Section 23, Township 24 South, Range 29 East, NMPM, Eddy County, New Mexico.

Dear Ms. Riley,

Please find the enclosed form C-108 Application for Authority to Inject, supporting the above-referenced request for salt water disposal. The well will be operated as a commercial endeavor offering operators in the area additional options for produced water disposal.

Probity SWD, LLC seeks to optimize efficiency, both economically and operationally, of its operations in southeast New Mexico. Approval of this application is consistent with that goal as well as the NMOCD's mission of preventing waste and protection of correlative rights.

I would point out that this application for a proposed Devonian SWD interval includes the currently mandated increased One-Mile Area of Review including pertinent and available seismic information for the area and region. Published legal notice will ran December 4, 2018 in the Artesia Daily Press and all offset operators and other interested parties have been notified individually. The legal notice affidavit is included herein. This application also includes a wellbore schematic, area of review maps, affected party plat and other required information for a complete Form C-108. The well is located on private land and federal minerals. There are federal lands & minerals and private minerals within the one-mile radius notice area and the Bureau of Land Management and offset operators have been notified of this application.

I respectfully request that the approval of this salt water disposal well proceed swiftly and if you or your staff requires additional information or has any questions, please do not hesitate to call or email me.

Best regards,

Ben Stone, Partner
SOS Consulting, LLC
Agent for Probity SWD, LLC

Cc: Application attachment and file

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: **Salt Water Disposal** and the application **QUALIFIES** for administrative approval.
- II. OPERATOR: **Probity SWD, LLC**
ADDRESS: **P.O. Box 7307, Midland, TX 79708**

CONTACT PARTY: **Agent: SOS Consulting, LLC – Ben Stone (903) 488-9850**
- III. WELL DATA: **All well data and applicable wellbore diagrams are ATTACHED.**
- IV. **This is not an expansion of an existing project.**
- V. **A map is attached** that identifies all wells and leases within two miles of any proposed injection well with a **ONE-Mile** radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- *VI. A tabulation is attached of data on all wells of public record within the area of review which penetrate the proposed injection zone. **There are NO (0) Wells in the subject AOR which Penetrate the proposed Devonian interval.** The data includes a description of each well's type, construction, date drilled, location, depth, and a schematic of any plugged well illustrating all plugging detail. **NO P&A Wells penetrate.**
- VII. **The following data is ATTACHED** on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. **Appropriate geologic data on the injection zone is ATTACHED** including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. **Stimulation program – a conventional acid job may be performed to clean and open the formation.**
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted). **Well Logs will be filed with OCD.**
- *XI. **There are 2 water wells/ PODs within one mile of the proposed salt water disposal well. Representative analyses are ATTACHED.**
- XII. **An affirmative statement is ATTACHED that available geologic and engineering data has been examined and no evidence was found** of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. **"Proof of Notice" section on the next page of this form has been completed and ATTACHED. There are 6 offset lessees and/or mineral owners within ½ mile and federal & private minerals - all have been noticed. Well location is Private.**
- 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: **Ben Stone** TITLE: **SOS Consulting, LLC agent for Probity SWD, LLC**

SIGNATURE:  DATE: **12/05/2018**

E-MAIL ADDRESS: **ben@sosconsulting.us**

* 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

FORM C-108 – APPLICATION FOR AUTHORIZATION TO INJECT (cont.)

III. WELL DATA – *The following information and data is included (See ATTACHED Wellbore Schematic):*

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 *pursuant to the following criteria is ATTACHED.*

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.

C-108 - Items III, IV, V

Item III - Subject Well Data

Wellbore Diagram - PROPOSED

Item IV – Tabulation of AOR Wells

NO wells penetrate the proposed injection interval.

Item V – Area of Review Maps

1. Two Mile AOR Map with One-Mile Fresh Water Well Radius
2. One-Half Mile AOR Map

All Above Exhibits follow this page.



WELL SCHEMATIC - PROPOSED Mac-Brant East SWD Well No.1

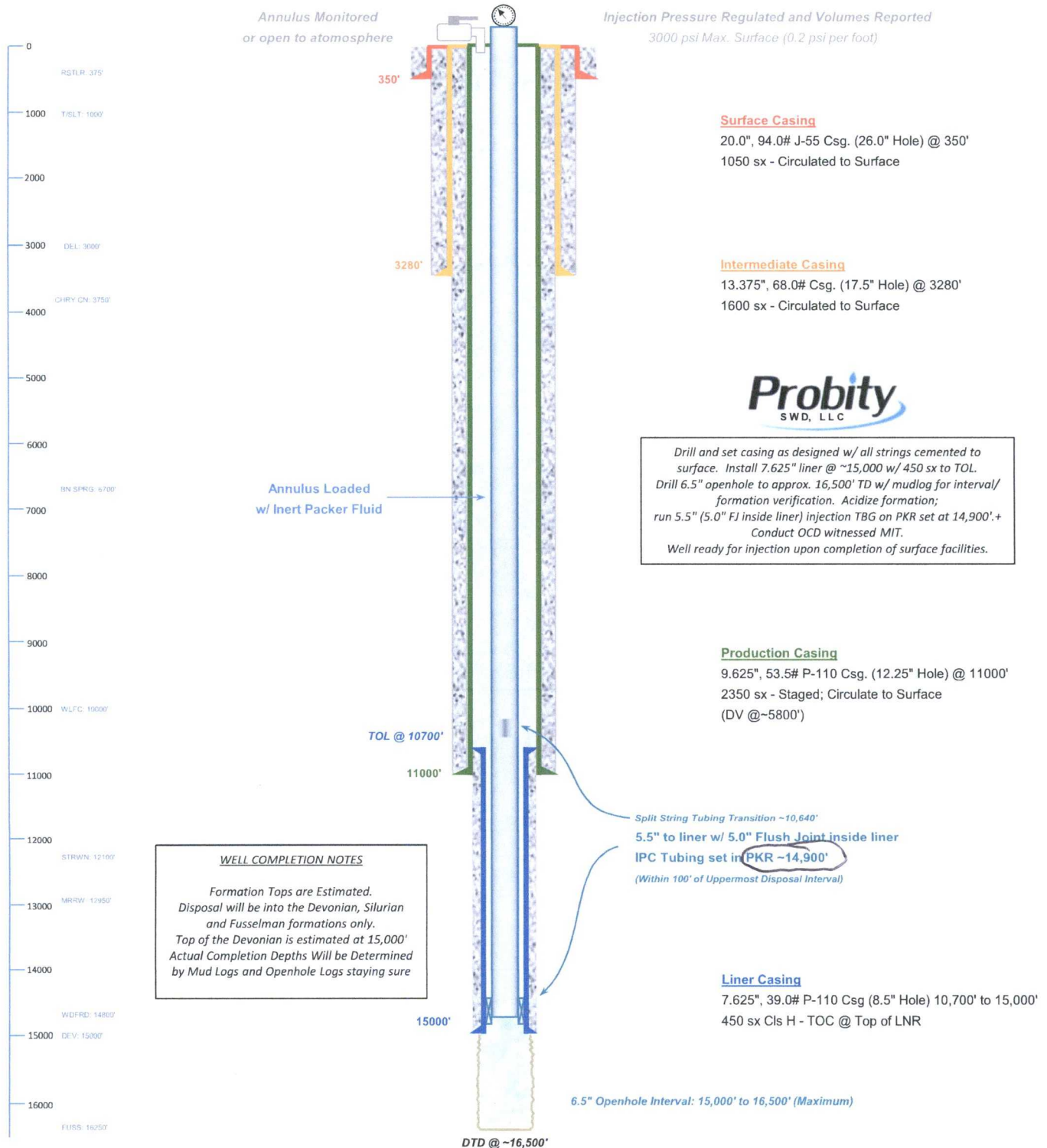
API 30-015-xxxxx

1160' FSL & 2590' FWL, SEC. 23-T24S-R29E
EDDY COUNTY, NEW MEXICO

Proposed: SWD; Devonian-Silurian-Fusselman

Spud Date: 3/01/2019

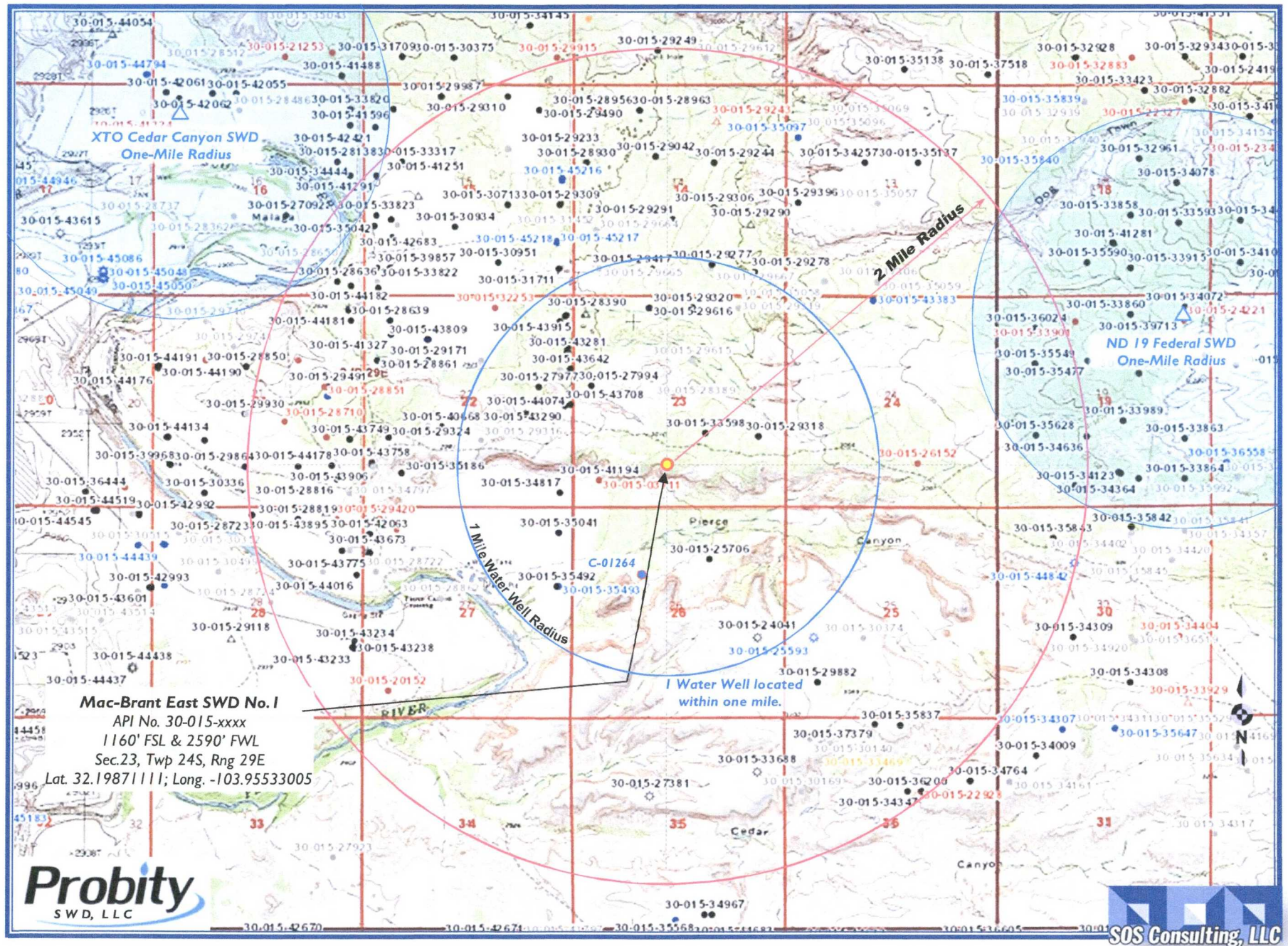
SWD Config Dt: 4/15/2019



Drawn by: Ben Stone, 11/29/2018



(Attachment to NMOCD Form C-108 - Item V)



(Attachment to NMOCD Form C-108, Application for Authority to Inject.)



Eddy County, New Mexico

C-108 - Item VI

Area of Review Well Data

**THERE ARE NO WELLS WHICH PENETRATE THE
PROPOSED DEVONIAN FORMATION IN THE
ONE-HALF MILE AREA of REVIEW**

C-108 ITEM X

LOGS and AVAILABLE TEST DATA

Some Cross-Sections of Wells in the Area are included in the Geological Information Section of this application.

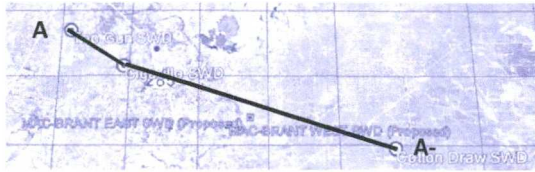
A Standard Suite of Logs will be run after drilling the well and submitted to the Division.

C-108 ITEM X

LOGS and AVAILABLE TEST DATA – Cross-Section

30-015-29728
COTTON DRAW SWD
I-2-25S-31E

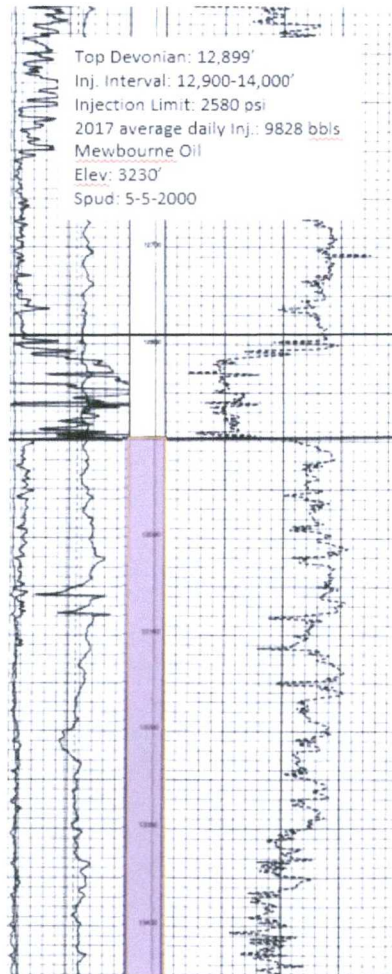
TD: 16585



MAC-BRANTE & W
Top Devonian
@ 15,000' Estimate

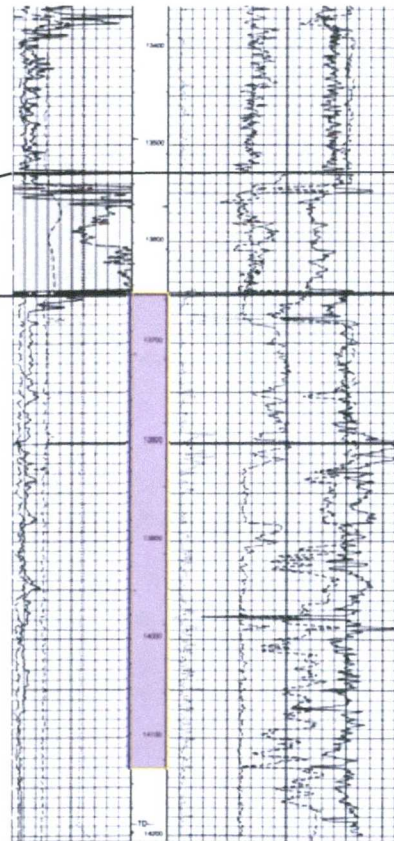
A

30-015-31075
TOP GUN FEDERAL SWD
A-18-23S-27E



30-015-21543
CIGARILLO SWD
G-36-23S-27E

Top Devonian: 13,650'
Inj. Interval: 13,650-14,130'
Injection Limit: 1730 psi
2017 average daily Inj.: 3111 bbls
EOG
Elev: 3137'
Spud: 10-8-1975

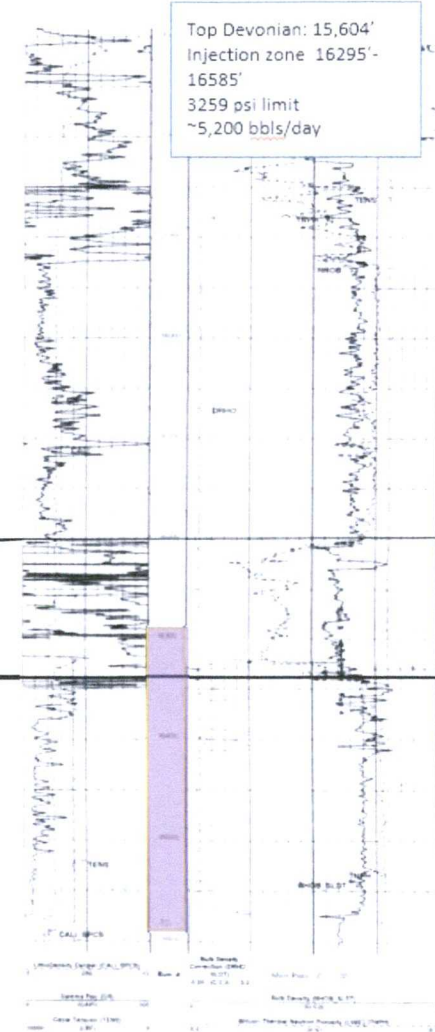


Top Woodford

Top Devonian

A'

Top Devonian: 15,604'
Injection zone 16295'-
16585'
3259 psi limit
~5,200 bbls/day



C-108 ITEM VII – PROPOSED OPERATION

Mac-Brant East SWD No.1

Commercial SWD Facility

Upon approval of all permits for SWD, operations would begin within 30 days. Completion of the well operations will take approximately 6-8 weeks. Facility construction including installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval but at a different location from the well. In any event, it is not expected for the construction phase of the project to last more than 60 days, depending on availability of contractors and equipment.

Configure for Salt Water Disposal

Prior to commencing any work, an NOI sundry(ies) will be submitted to configure the well for SWD and will detail the completion workover including all work otherwise described above, any change to the procedure noted herein and to perform mechanical integrity pressure test per OCD test procedures. (Notify NMOCD 24 hours prior.) The casing/tubing annulus will be monitored for communication with injection fluid or loss of casing integrity.

Operational Summary

The SWD facility will not be fenced so that trucks may access for load disposal 24/7.

The well and injection equipment will be a closed system and equipped with pressure limiting devices and volume meters. The annulus, loaded with an inert, anti-corrosion packer fluid, will be monitored for pressure.

The tanks will be equipped with telemetry devices and visual alarms to alert the operator and customers of full tanks or an overflow situation.

Anticipated daily maximum volume is 30,000 bpd and an average of 17,500 bpd at a maximum surface injection pressure of 3000 psi (.2 psi/ft gradient – maximum pressure will be adjusted if the top of interval is modified after well logs are run).

Potential releases will be contained and cleaned up immediately. The operator shall repair or otherwise correct the situation within 48 hours before resuming operations. OCD will be notified within 24 hours of any release greater than 5 bbls. If required, remediation will start as soon as practicable. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC; as necessary and appropriate and OCD form C-141 will be submitted promptly.

C-108 Item VII.5 - Produced Water Data
Probity SWD, LLC - Mac-Brant East SWD Project

SOURCE ZONE

GLO/YESO

API No	3001524754	Lab ID	
Well Name	PLATT PA 009	Sample ID	1146
		Sample No	
Location	ULSTR 26 18 S 26 E	Lat / Long	32.71216 -104.35742
	330 S 990 W	County	Eddy
Operator (when sampled)	Yates Petroleum Corp.		
	Field ATOKA	Unit	M
Sample Date	8/4/1984	Analysis Date	
	Sample Source Wellhead	Depth (if known)	
	Water Typ Produced Water		
ph	7.5	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	1800
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	120382	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	113000	conductivity_temp_F	
sodium_mgL	71415	carbonate_mgL	0
calcium_mgL	2560	bicarbonate_mgL	476
iron_mgL	0	sulfate_mgL	2001
barium_mgL		hydroxide_mgL	
magnesium_mgL	0	h2s_mgL	0
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 Item VII.5 - Produced Water Data
Probity SWD, LLC - Mac-Brant East SWD Project

SOURCE ZONE

GLO/YESO

		Lab ID	
API No	3001524619	Sample ID	1207
Well Name	PLATT PA	Sample No	
	008		
Location	ULSTR 26 18 S 26 E	Lat / Long	32.71245 -104.35329
	430 S 2260 W	County	Eddy
Operator (when sampled)	Yates Petroleum Corporation		
	Field	ATOKA	Unit N
Sample Date	1/19/1985	Analysis Date	
	Sample Source well head	Depth (if known)	
	Water Typ	Produced Water	
ph	6	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	11500
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	136324	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	121000	conductivity_temp_F	
sodium_mgL	61571	carbonate_mgL	
calcium_mgL	4160	bicarbonate_mgL	104
iron_mgL	0	sulfate_mgL	3720
barium_mgL		hydroxide_mgL	
magnesium_mgL	7340	h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 Item VII.5 - Produced Water Data
Probity SWD, LLC - Mac-Brant East SWD Project

SOURCE ZONE

BONE SPRING

API No	3001520225	Lab ID	
Well Name	BIG EDDY UNIT	Sample ID	5847
	012	Sample No	
Location	ULSTR 21 20 S 31 E	Lat / Long	32,56399 -103,87994
	660 N 660 W	County	Eddy
Operator (when sampled)	MALLON OIL COMPANY		
	Field	Unit D	
	BIG EDDY		
Sample Date	8/27/1999	Analysis Date	8/31/1999
Sample Source	Depth (if known)		
Water Typ			
ph	5.2	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity	1.125	hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	181697	resistivity_ohm_cm_temp	
tds_mgL_180C		conductivity	
chloride_mgL	123750	conductivity_temp_F	
sodium_mgL	73895.6	carbonate_mgL	
calcium_mgL	5625	bicarbonate_mgL	13,725
iron_mgL	337.5	sulfate_mgL	787.5
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	0
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 Item VII.5 - Produced Water Data
Probity SWD, LLC - Mac-Brant East SWD Project

SOURCE ZONE

WOLFCAMP

API No	3001520138	Lab ID	
Well Name	MAHUN STATE 001	Sample ID	5688
		Sample No	
Location	ULSTR 16 22 S 22 E	Lat / Long	32.39340 -104.70979
	1800 N 1980 W	County	Eddy
Operator (when sampled)			
	Field ROCKY ARROYO	Unit	F
Sample Date	5/17/1968	Analysis Date	
	Sample Source DST	Depth (if known)	
	Water Type		
ph	8.6	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	35495	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	19000	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	830
iron_mgL		sulfate_mgL	2500
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	

Remarks

(Produced water data courtesy of NMT Octane NM WAIDS database.)



**C-108 Item VII.5 - Produced Water Data
 Probity SWD, LLC - Mac-Brant East SWD Project**

DISPOSAL ZONE

DEVONIAN

API No.	3001510280	Lab ID	
Well Name	JURNEGAN POINT 001	Sample ID	6170
		Sample No	
Location	ULSTR 05 24 S 25 E	Lat / Long	32.24037 -104.42375
	660 S 660 W	County	Eddy
Operator (when sampled)			
	Field WILDCAT	Unit	M
Sample Date	12/14/1964	Analysis Date	
	Sample Source DST	Depth (if known)	
	Water Type		
ph	7	alkalinity_as_caco3_mgL	
ph_temp_F		hardness_as_caco3_mgL	
specificgravity		hardness_mgL	
specificgravity_temp_F		resistivity_ohm_cm	
tds_mgL	229706	resistivity_ohm_cm_temp_	
tds_mgL_180C		conductivity	
chloride_mgL	136964	conductivity_temp_F	
sodium_mgL		carbonate_mgL	
calcium_mgL		bicarbonate_mgL	198
iron_mgL		sulfate_mgL	2511
barium_mgL		hydroxide_mgL	
magnesium_mgL		h2s_mgL	
potassium_mgL		co2_mgL	
strontium_mgL		o2_mgL	
manganese_mgL		anionremarks	
Remarks			

(Produced water data courtesy of NMT Octane NM WAIDS database.)



C-108 - Item VIII

Geological Data

Geological Evaluation of a Devonian Salt Water Disposal site for Probit SWD, LLC

Introduction

The location of the proposed injection site is Section 23-24S-29E in Eddy County New Mexico. Approximately 28 nearby Silurian/Devonian deep SWD wells were used for this evaluation. These wells are all within a **radius of 20 miles** from the proposed section that the well be drilled.

Geological Setting

During most of the Paleozoic Era, sandstone, limestone, and carbonaceous shales were deposited in sedimentary basins throughout much of Texas and Southern New Mexico. These basins received sediments until the latter part of the Pennsylvanian era, when the Llano Uplift and the Ouachita Fold Belt caused regional tilting of the land surface to the west and east off the flanks of the uplifted zones.

The Silurian/Devonian section overlays the Montoya Group, which comprises a moderately thick (100 to 600 ft) Upper Ordovician carbonate ramp succession present in both outcrop and the subsurface of West Texas and southeastern New Mexico.

The Montoya Group was largely deposited on the Middle-Upper Ordovician Simpson Group but locally overlies on the Lower Ordovician Ellenburger or equivalent. The Sylvan Shale, where present, and the Fusselman Formation generally overlie the Montoya.

Available information shows that the upper Fusselman in the Midland Basin was deposited in a spectrum of shallow-water, high-energy open marine environments. The top of the upper Fusselman in a number of wells is characterized by diagenetic textures indicative of karstification and soil formation, both of which suggest a prolonged period of subaerial erosion prior to deposition of the overlying Wristen Formation.

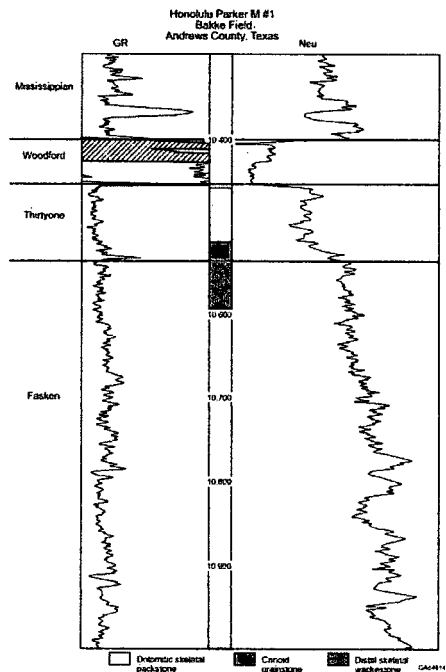
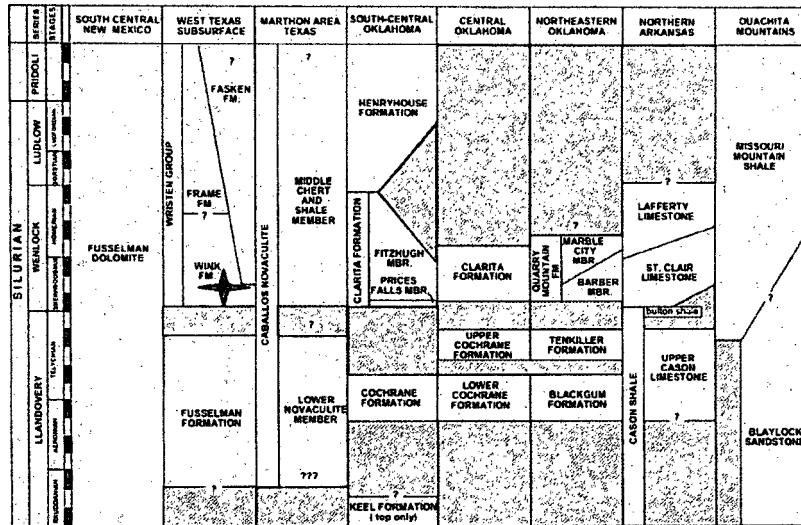
The Fusselman Formation comprises a complex series of carbonate facies, including light-colored ooid grainstones, green glauconitic and pink pelmatozoan grainstones and packstones, and sparse skeletal wackestones with minor shaly intercalations. Geesaman and Scott (1989) and Garfield and Longman (1989) divided the Fusselman into two informal units in the subsurface of the central Midland Basin, a lower Fusselman and an upper Fusselman, each of which represents a separate depositional sequence.

The age of the subsurface Fusselman is poorly known due to a lack of fossil material from only limited core studies. The upper Fusselman is dominated by widespread thick, crinoidal grainstones, and lesser amounts of dolomitic wackestone to skeletal packstone. These three lithofacies are interbedded such that they reflect minor differences in paleotopographic setting and degree of relative subsidence during deposition.

C-108 - Item VIII

Geological Data (cont.)

In the area being proposed for this disposal well, the Devonian Woodford Shale overlays massive deposits of undifferentiated carbonates of Silurian/Devonian age, predominately Fusselman dolostones that are the primary deep disposal zone in this area of Southern New Mexico. Immediately beneath the Woodford the Thirtyone and Fasken formations develop porosity within skeletal packstones.



Typical type section for the area of interest.

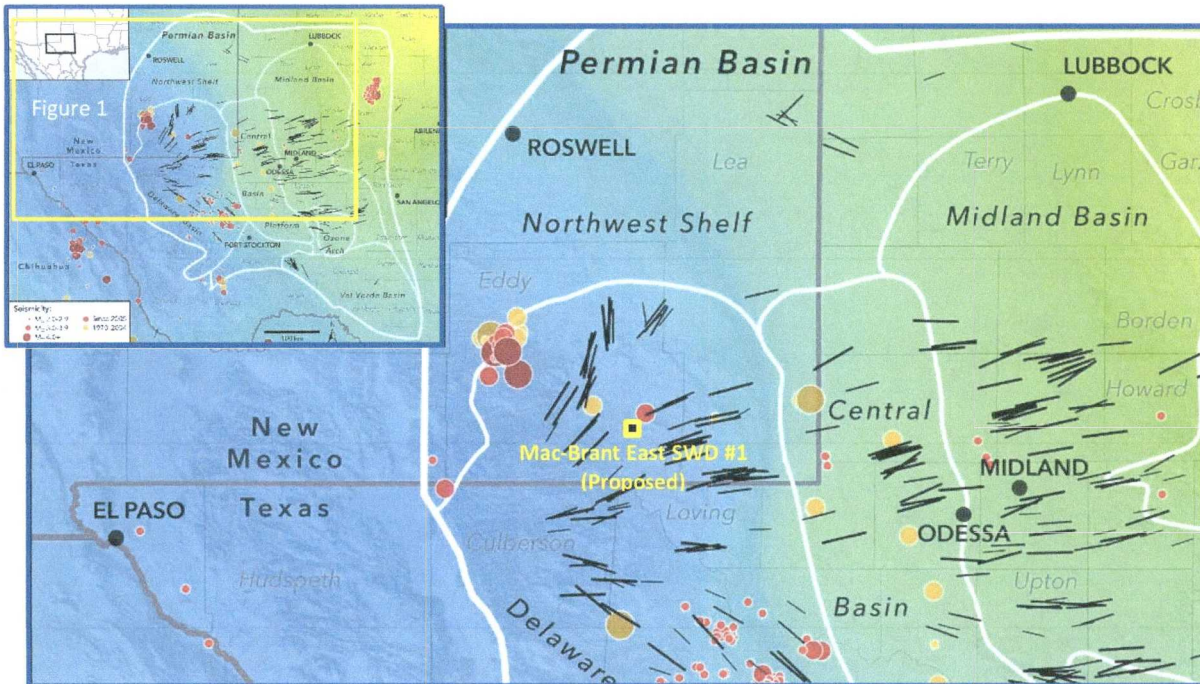
API #	Well Name	location	Total depth	operator	Top in)	Base in)	Max PSI	Fm	GL
30-015-39713	19 FEDERAL SWD #001	L-19-24S-30E	16770	BOPCO L.P.	15611	16770	3122 Dev	3184	
30-015-41351	NASH DRAW 6 FEDERAL #001	A-18-24S-30E	16950	BOPCO L.P.	15750	17225	3150 Dev	3200	
30-015-40935	PLU DELAWARE B 23 FEDERAL SWD	C-23-24S-30E	17783	BOPCO L.P.	16300	17785	3260 Dev	3435	
30-015-41846	GOLDENCHILD 6 STATE SWD #001	P-06-25S-29E			14745	16240	2949 Dev	2931	
30-015-43895	MOUTRAY SWD	A-28-24S-29E	16036	MESQUITE SWD	15100	15900	3020 Dev	2929	
30-015-31075	TOP GUN FEDERAL SWD	A-18-23S-27E	13800	MEUBOURNE OIL CO	12900	14000	2580 Dev	3230	
30-015-33187	RINGER FEDERAL #006	P-03-25S-26E	13550	MURCHISON OIL & GAS INC	12850	13700	2570 Dev	3340	
30-015-44303	RUSTLER BREAKS SWD 3	J-24-23S-27E	14499	BLACK RIVER WATER	13650	14494	2730 Dev	3115	
30-015-21643	CIGARILLO SWD 1	G-36-23S-27E	14195	EOG	13650	14130	1793 Dev	3187	
30-015-22638	LAYLA 27 SWD #001	H-27-23S-28E	15000	MEUBOURNE OIL CO	14000	15000	2800 Dev	3095	
30-015-39400	NASH UNIT SWD #053	H-13-23S-29E	16445	XTO ENERGY, INC	14906	16445	2981 Dev	2939	
30-015-44054	CEDAR CANYON SWD #001	P-08-24S-29E	15764	MESQUITE SWD	14800	16000	2960 Dev	2929	
30-015-44262	CALDERON FARMS SWD	O-09-24S-28E	14900		13650	14650	2730 Dev	3024	
30-015-42797	CEDAR CANYON 15 SWD	K-15-24S-29E	16014	OXY USA INC	14887	15937	2977 Dev	2928	
30-015-44061	SCOTT B SWD -1	N-23-24S-28E	15212	MESQUITE SWD	15000	16200	3000 Dev	2954	
30-015-41806	WILLOW 17 STATE SWD-1	P-17-25S-28E	15292	COG OPERATING	14000	15300	2800 Dev	3016	
30-015-40435	PLU PIERCE CANYON 3 FEDERAL SWD	O-03-25S-30E	17799	BOPCO L.P.	16471	18275	3294 Dev	3321	
30-015-39470	SHOCKER SWD #001	A-32-25S-29E	15700		15200	15700	3040 Dev	2990	
30-015-42356	COTTONWOOD 2 STATE SWD #001	O-02-26S-28E	14500	COG OPERATING LLC	13100	14600	2620 Dev	3229	
30-015-43892	GRAVITAS 2 STATE SWD #002	M-02-26S-27E	14960	CHEVRON U S A INC	13900	15100	2780 Dev	3211	
30-015-41402	APPLE 5 STATE SWD #001	B-05-26S-28E	15400	COG OPERATING LLC	14100	15400	2820 Dev	3017	
30-015-23615	FLOWER DRAW 2 STATE SWD #001	G-02-26S-28E	15900	MEUBOURNE OIL CO	14700	16100	2940 Dev	2961	
30-015-21398	SRO SWD #102	G-16-26S-28E	15400	COG OPERATING LLC	14225	15400	2905 Dev	3023	
30-015-29728	COTTON DRAW UNIT #084	I-02-25S-31E	16585	DEVON ENERGY	16595	16585	3259 Dev	3455	
30-015-31381	COTTON DRAW UNIT #089	O-03-25S-31E	17400	DEVON ENERGY	17100	17400	3420 Dev	3419	
30-015-04749	J F HARRISON FEDERAL #001	D-12-25S-30E	17205	BOPCO L.P	16626	17205	3325 Dev	3362	
30-015-41074	JAMES RANCH UNIT 21 FEDERAL SWD #0	G-21-22S-30E	16525	BOPCO L.P.	12252	16525	2450 Dev	3165	
30-015-44131	SAND DUNES SWD #002	K-08-24S-31E	17920	MESQUITE SWD, INC	16620	18010	3324 Dev	3515	
30-015-43630	FULLER 14 FEDERAL SWD	J-14-26S-29E	16540	MEUBOURNE OIL CO	15540	16540	3108 Dev	2990	

C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT

Map Source: State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity (Figure 1); Jens-Erik Lund Snee/ Mark Zoback, February 2018



PROJECT VICINITY

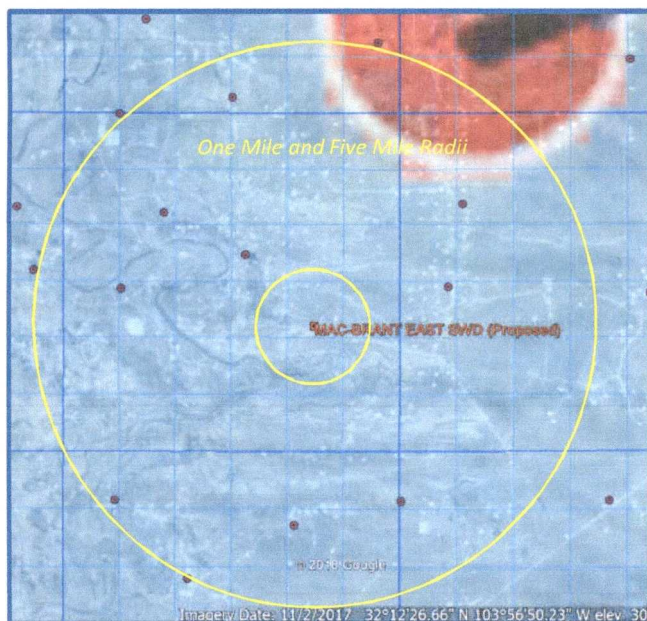


Figure 1. State of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of the maximum horizontal stress (SHmax), with line length scaled by data quality. The colored background is an interpolation of measured relative principal stress magnitudes (faulting regime) expressed using the A_p parameter (see text for details) of Simpson (1997). Blue lines are fault traces known to have experienced normal-sense offset within the past 1.6 Ma, from the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). The boundary between the Shawnee and Mazatzal basement domains is from Lund et al. (2015), and the Precambrian Grenville Front is from Thomas (2006). The Permian Basin boundary is from the U.S. Energy Information Administration, and the subbasin boundaries are from the Texas Bureau of Economic Geology Permian Basin Geological Synthesis Project. Earthquakes are from the USGS National Earthquake Information Center, the TexNet Seismic Monitoring Program, and Gan and Frohlich (2013). Focal mechanisms are from Saint Louis University (Herrmann et al., 2011).

C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT (cont.)

In the following map, a layer with USGS historical earthquake data is overlaid and, a layer showing lines to represent Precambrian faults as documented by Ruppel, et al. (2005). Finally, a layer showing all currently permitted SWDs completed or proposed to be completed in the Devonian (Silurian) formation.

The USGS earthquakes shown are well know to the area. The cluster to the NW represents the seismic events in and around the Dagger Draw area (43.4 miles) in 2002. The 2012 quake located approximately 13 miles due east of Loving is also shown (6.0 miles). This was perhaps the most significant of the area in recent years but was determined to not be related to oil and gas activity.

The Precambrian faults and existing Devonian SWDs are discussed in more detail on the next page.



REGIONAL VIEW - DEVONIAN SWD LOCATIONS, PRECAMBRIAN FAULTS, S_{Hmax} , USGS MAGNITUDE

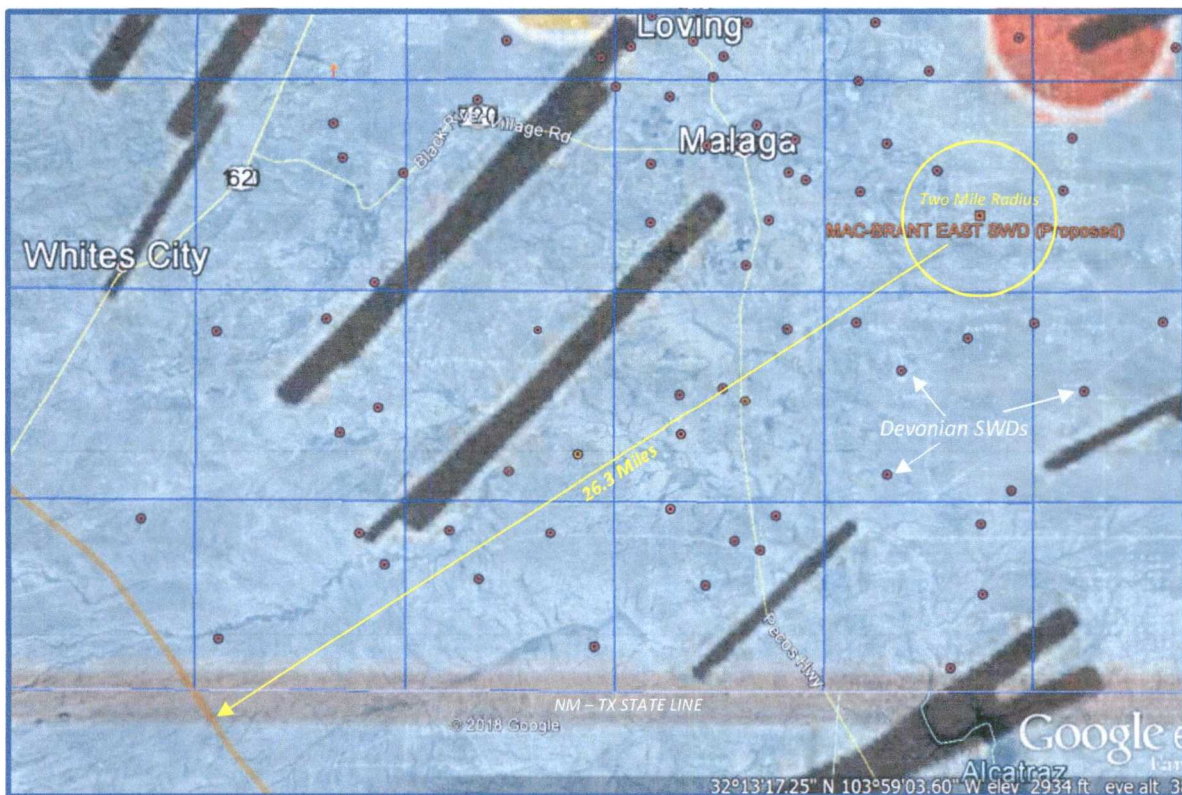
C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT (cont.)

The primary Precambrian fault in the area as documented by Ruppel, et al. (2005) is represented on this map by the tan colored line; the fault is running southeast to northwest. The proposed Mac-Brant East SWD is located 26.3 miles from the fault. Other Devonian SWDs in the area are also shown by small purple dots completed or proposed to be completed in the Devonian (Silurian) formation.

The previously referenced study by Snee and Zoback evaluated the strike-slip probability using probabilistic FSP (Fault Slip Potential) analysis of known faults in the Permian Basin. The study predicts that the Precambrian fault shown here has less than a 10% probability of being critically stressed to the point of creating an induced seismicity event. The main reason for the low probability is due to the relationship of the strike of the fault to the regional S_{Hmax} orientation in this area.

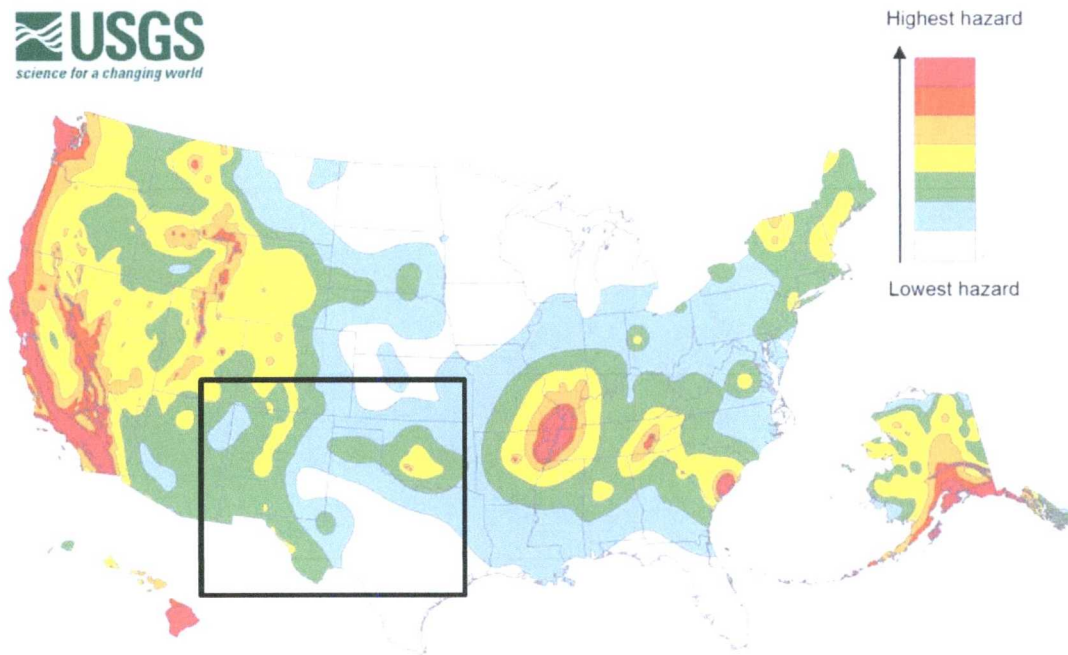


VICINITY - PERMITTED DEVONIAN SWDs, PRECAMBRIAN FAULT, S_{Hmax}

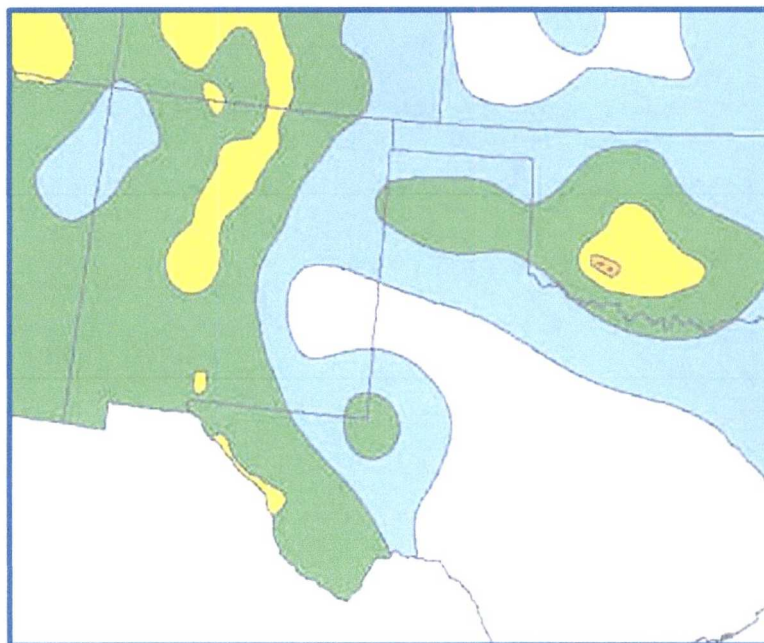
C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT (cont.)



2014 map data: The USGS notes in its report that [fracking](#) may be to blame for a sizeable uptick in earthquakes in places like [Oklahoma](#). "Some states have experienced increased seismicity in the past few years that may be associated with human activities such as the disposal of wastewater in deep wells," the report says. USGS hopes to use that data in future maps but it isn't included in this one. "Injection-induced earthquakes are challenging to incorporate into hazard models because they may not behave like natural earthquakes and their rates change based on man-made activities," the report says.

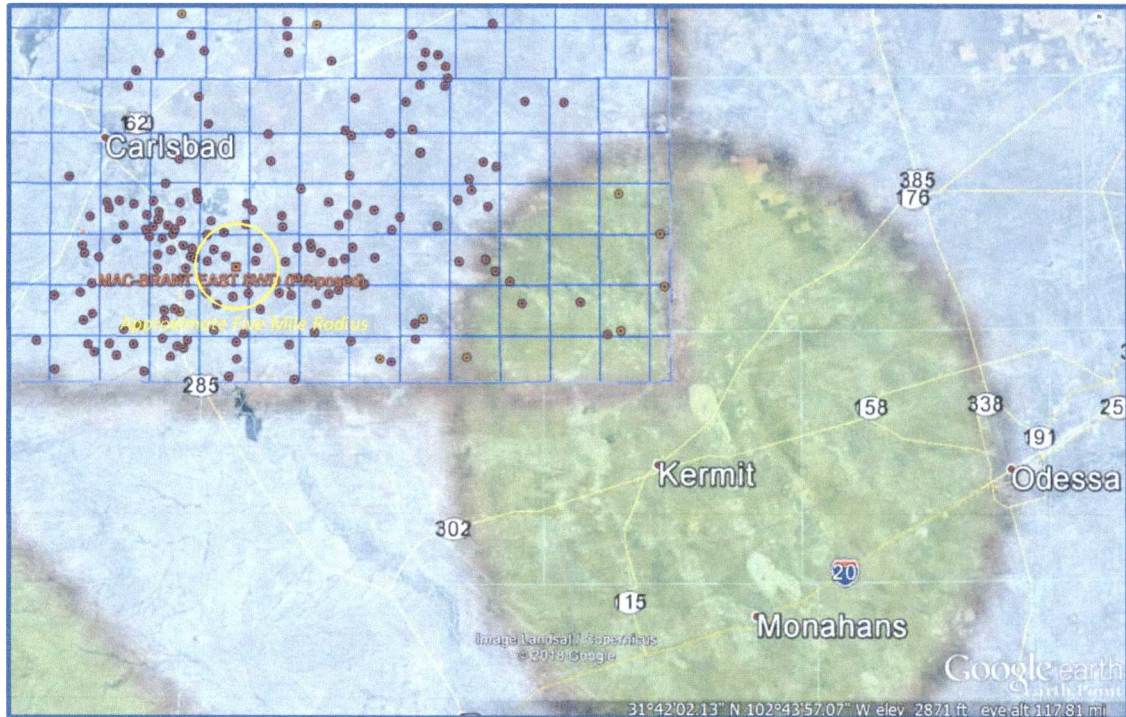


C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT (cont.)

USGS 2014 MAP DATA OVERLAY IN GOOGLE EARTH



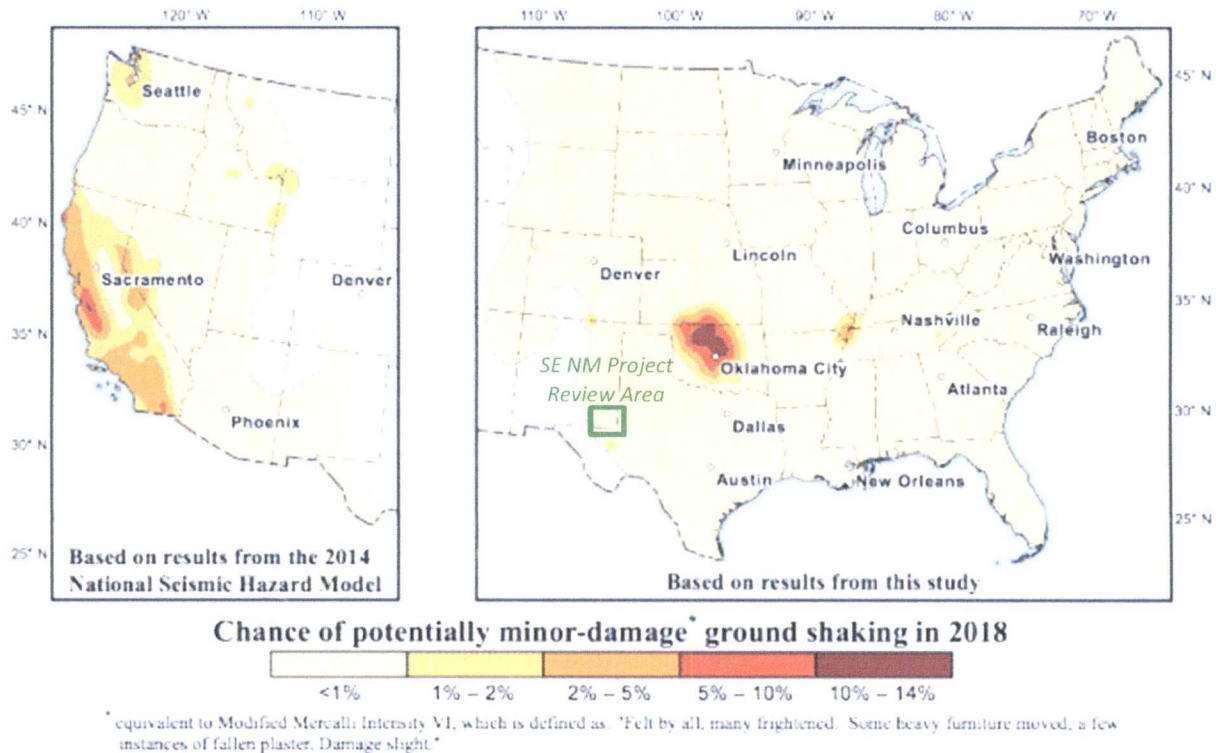
An updated USGS map for 2018 is on the next page. While methodology remained essentially the same according to USGS, the interpreted results and color-coding did have some modification. However, the subject area in southeast New Mexico on both maps remains very low and on the 2018 map, the area is assigned a value of <1% of “potentially minor-damage ground shaking”.

C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT (cont.)

USGS 2018 ONE-YEAR MODEL



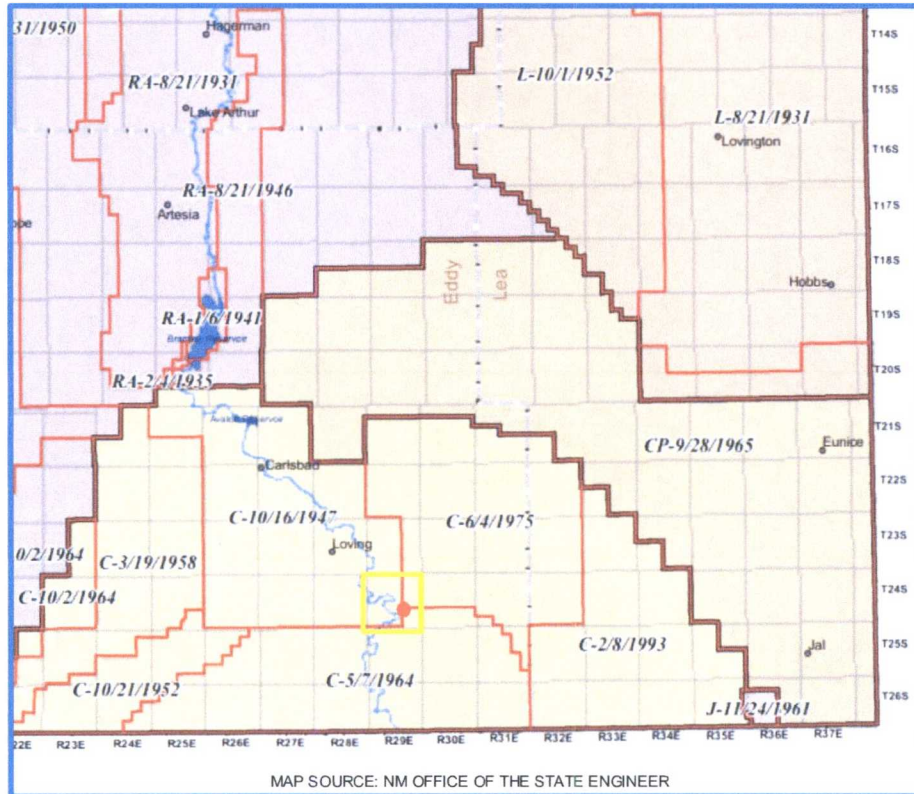
Map showing chance of damage from an earthquake in the Central and Eastern United States during 2018. Percent chances are represented as follows: pale yellow, less than 1 percent; dark yellow, 1 to 2 percent; orange, 2 to 5 percent; red, 5 to 10 percent; dark red, 10 to 12 percent. See Hazard from the western United States from the [2014 National Seismic Hazard Maps](#) (Petersen et al., 2014) for comparison.

The USGS has produced the 2018 one-year probabilistic seismic hazard forecast for the central and eastern United States from induced and natural earthquakes. For consistency, the updated 2018 forecast is developed using the same probabilistic seismicity-based methodology as applied in the two previous forecasts.

Based on publicly available data for the subject area, it is reasonable to believe the risk of induced seismic activity due to disposal injection into this well is extremely low.

C-108 - Item XI

Groundwater Basins - Water Column / Depth to Groundwater



The subject well is located within the Carlsbad Basin.

Fresh water in the area is generally available from valley and basin fill of the Carlsbad-Pecos segment of the lower Pecos Valley complex of Quaternary alluvial sand and gravel deposits. State Engineer's records show water wells in 24S-29E with an average depth to water at 21 feet.

There are two water wells (domestic, abandoned) located within one mile of the proposed SWD. Two representative analyses are included with this application. They are from offsetting applications but are closely matched and represent the shallow fresh water available in the area.

C-108 Item XI

Water Wells Within One Mile

Mac-Brant East SWD No.1 - Water Well Locator Map

There are 2 water wells/ PODs within a one-mile radius of the proposed SWD.



Data from NM Office of the State Engineer displayed in OSE-GIS System.

C-108 ITEM XI – WATER WELLS IN AOR

Depth to Ground Water



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

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

(R=POD has
been replaced.
O=orphaned.
C=the file is

closed) (quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub- Code	basin	County	Q	Q	Q	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 00349	C	CUB	ED	1	3	18	4	24S	29E	591401	3564773*	2734		
C 00381	C	CUB	ED	3	2	3	07	24S	29E	591682	3566297*	2797		
C 00463	C	CUB	ED	4	4	4	17	24S	29E	594332	3564282*	260	4	256
C 00856	C	CUB	ED	1	2	4	30	24S	29E	592538	3561644*	380		
C 00857	C	CUB	ED	3	1	4	30	24S	29E	592135	3561440*	306		
C 00862	C	CUB	ED	1	2	4	30	24S	29E	592538	3561644*	155		
C 00863	C	CUB	ED	3	3	1	16	24S	29E	594524	3565091*	220		
C 00863 CLW199506	O	CUB	ED	3	3	1	16	24S	29E	594524	3565091*	220		
C 02713	C	CUB	ED	4	4	1	16	24S	29E	591633	3565944*	230	18	212
C 03615 POD1	C	CUB	ED	1	3	2	06	24S	29E	591964	3568500*	60	36	24
C 03615 POD2	C	CUB	ED	4	2	4	06	24S	29E	592661	3568013*	60	26	34

Average Depth to Water: 21 feet

Minimum Depth: 4 feet

Maximum Depth: 36 feet

Record Count: 11

PLSS Search:

Township: 24S Range: 29E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



GE Power & Water
Water & Process Technologies

Customer Analytical Services Laboratory

9669 Grogans Mill Road
The Woodlands, TX 77380
Telephone: 877.251.3479
Fax: 281.363.7724

WATER ANALYSIS REPORT

WESTERN ENVIRONMENTAL MANAGEMENT, CARLSBAD, NM
WESTERN ENVIRONMENTAL MANAGEMENT, 3106 EAST GREENE
STREET
CARLSBAD, NM 88221
United States
Customer #: 4000101850
Ship To #: 4000101850
Sold To #: 1000090673

Project ID: WDLW170815024

Sales Rep: Laird, Kelly
Receive Date: 15-Aug-2017
Report Date: 24-Aug-2017

Report Authorized By:

Susan Overbeck

24-Aug-2017

The results listed within the report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from the Customer Analytical Services Laboratory



GE Power & Water
Water & Process Technologies

Customer: WESTERN ENVIRONMENTAL

Project ID: WDLW170815024

Submitted Samples: 2

SAMPLE INFORMATION

Sample Name	Grid	Bottles	Asset	Sampling Point	Sampled Date	Lab Sample ID
#C02256		3		GGENR	08-Aug-2017	WDLW170815067
#C 00329/#C00684/ #C01154		3		GGENR	08-Aug-2017	WDLW170815068

The results listed within the report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from the Customer Analytical Services Laboratory



GE Power & Water
Water & Process Technologies

Customer: WESTERN ENVIRONMENTAL

Project ID: WDLW170815024

Sample Name: #C02256

Lab Sample ID: WDLW170815067

Sampled Date: 8-Aug-2017

Parameter Name	Result	Units	Reporting Limit
pH Analysis			
pH	7.7	-	1.0
Automated Colorimetric Analysis			
Chloride, as Cl	466	ppm	0.5
ICP Analysis			
Calcium Hardness, Total, as CaCO ₃	969	ppm	0.5
Hardness, Total, as CaCO ₃	1420	ppm	1
Magnesium Hardness, Total, as CaCO ₃	448	ppm	0.5
Total Dissolved Solids			
Solids, Total Dissolved, at 105°C	2620	ppm	20

The results listed within the report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from the Customer Analytical Services Laboratory



GE Power & Water
Water & Process Technologies

Customer: WESTERN ENVIRONMENTAL

Project ID: WDLW170815024

Sample Name: #C 00329/#C00684/#

Lab Sample ID: WDLW170815068

Sampled Date: 8-Aug-2017

Parameter Name	Result	Units	Reporting Limit
pH Analysis			
pH	7.6	-	1.0
Automated Colorimetric Analysis			
Chloride, as Cl	470	ppm	0.5
ICP Analysis			
Calcium Hardness, Total, as CaCO ₃	963	ppm	0.5
Hardness, Total, as CaCO ₃	1420	ppm	1
Magnesium Hardness, Total, as CaCO ₃	451	ppm	0.5
Total Dissolved Solids			
Solids, Total Dissolved, at 105°C	2580	ppm	20

Notes:

- 1) mg/kg = ppm ; 0.1wt% = 1000ppm
- 2) Filtered results may be slightly higher than non-filtered results. This is due to method variances.

The results listed within the report relate only to the samples received on the dates indicated. This report must not be reproduced, except in full, without the written approval from the Customer Analytical Services Laboratory

C-108 ITEM XII

Geologic Affirmation

We have examined available geologic and engineering data and have found no evidence of open faults or other hydrologic connection between the disposal interval and any underground sources of drinking water.



Ben Stone, Partner
SOS Consulting, LLC

Project: Probity SWD, LLC
 Mac-Brant East SWD No.1
 Reviewed 11/31/2018

C-108 ITEM XIII – PROOF OF NOTIFICATION

IDENTIFICATION AND NOTIFICATION OF INTERESTED PARTIES

Exhibits for Section

Affected Parties Map

List of Interested Parties

Notification Letter to Interested Parties

Proof of Certified Mailing

Published Legal Notice

C-108 ITEM XIII – PROOF OF NOTIFICATION AFFECTED PARTIES LIST

**SOS Consulting is providing electronic delivery of C-108 applications.
ALL APPLICABLE AFFECTED PARTIES ARE PROVIDED A LINK IN THE NOTICE LETTER
TO A SECURE SOS/ CITRIX SHAREFILE® SITE TO VIEW AND DOWNLOAD
A FULL COPY OF THE SUBJECT C-108 APPLICATION IN PDF FORMAT.**

SURFACE OWNER

- 1 HENRY McDONALD and JOHN BRANTLEY (Notified via USPS Certified Mail)
c/o Henry McDonald
P.O. Box 597
Loving, NM 88256-0597
Certified: 7018 0360 0001 8569 5524

OFFSET MINERALS LESSEES and OPERATORS (All Notified via USPS Certified Mail)

Fee Lease – McDonald/ Brantely (T.1 and T.10 on Plat)

Lessee and Operator

- 2 OXY USA, INC.
6001 Deauville Blvd.
Midland, TX 79706
Certified: 7018 0360 0001 8569 5531

BLM Lease NMNM-096222 (T.3 on Plat)

Lessee

- 3 DEVON ENERGY PRODUCTION CO., LP
333 W. Sheridan Avenue
OKC, OK 73102-5010
Certified: 7018 0360 0001 8569 5548

Operator

- 4 SHACKELFORD OIL COMPANY
11417 W County Road 33.
Midland, TX 79707
Certified: 7018 0360 0001 8569 5555

BLM Lease NMNM-108967 (T.2, T.4, T.5, T.6, T.7 and T.9 on Plat)

Lessee

OXY USA, INC. or OXY USA WTP, LP OCCIDENTAL PERMIAN, LTD
6001 Deauville Blvd.
Midland, TX 79706

Operator

OXY USA, INC.
6001 Deauville Blvd.
Midland, TX 79706

BLM Lease NMNM-014777 (T.8 on Plat)

Lessee

- 5 EOG RESOURCES
P.O. Box 4362
Houston, TX 77210-4362
Certified: 7018 0360 0001 8569 5562

C-108 ITEM XIII – PROOF OF NOTIFICATION
AFFECTED PARTIES LIST (cont.)

BLM Lease NMNM-014777 (T.8 on Plat – cont.)

Operator

OXY USA, INC.
6001 Deauville Blvd.
Midland, TX 79706

Split Fee Surface/ BLM Leases NMNM-013996 (T.11 on Plat)

Lessee

- 6 OCCIDENTAL PERMIAN, LTD
6001 Deauville Blvd.
Midland, TX 79706
Certified: 7018 0360 0001 8569 5579

Operator

OXY USA, INC.
6001 Deauville Blvd.
Midland, TX 79706

Split BLM Surface/ Fee Minerals – McDonald/ Brantely (T.12 on Plat)

Lessee and Operator

OXY USA, INC.
6001 Deauville Blvd.
Midland, TX 79706

OFFSET MINERALS OWNERS (Notified via USPS Certified Mail)

- 7 U.S. DEPARTMENT OF INTERIOR
Bureau of Land Management
Oil & Gas Division
620 E. Greene St.
Carlsbad, NM 88220
Certified: 7018 0360 0001 8569 5586

REGULATORY

NEW MEXICO OIL CONSERVATION DIVISION (FedEx'ed original and copy)
1220 S. St. Francis Dr.
Santa Fe, NM 87505

NEW MEXICO OIL CONSERVATION DIVISION (FedEx'ed copy)
811 S. First St.
Artesia, NM 88210



December 3, 2018

NOTIFICATION TO INTERESTED PARTIES
via U.S. Certified Mail – Return Receipt Requested

To Whom It May Concern:

Probity SWD, LLC, Midland, Texas, has made application to the New Mexico Oil Conservation Division to drill and complete for salt water disposal the Mac-Brant East SWD Well No.1. The proposed commercial operation will be for produced water disposal from area operators. As indicated in the notice below, the well is located in Section 23, Township 24 South, Range 29 East in Eddy County, New Mexico.

The published notice states that the interval will be from 15,000 feet to 16,500 feet into the Devonian (Silurian) and Fusselman formations.

Following is the notice published in the Artesia Daily Press, Artesia, New Mexico on or about December 5, 2018.

LEGAL NOTICE

Probity SWD, LLC, P.O. Box 7307, Midland, TX 79708, is filing Form C-108 (Application for Authority to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Mac-Brant East SWD No.1, will be located 1160' FSL and 2590' FWL, Section 23, Township 24 South, Range 29 East, Eddy County, New Mexico.

Produced water from area production will be commercially disposed into the Devonian (Silurian) and Fusselman formations at a depth of 15,000' to 16,500' at a maximum surface pressure of 3000 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 7.0 miles east/ southeast of Malaga, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, SOS Consulting, LLC, (903)488-9850 or, email info@sosconsulting.us.

You have been identified as a party who may be interested as an offset lessee or operator.

You are entitled to a full copy of the application. A full copy in PDF format is posted on the SOS Consulting **ShareFile** site and is available for immediate download.

Use the URL link: <https://sosconsulting.sharefile.com/d-sd350f13a9ab470d8>

(Please Note: The ShareFile service is powered by Citrix Systems and is completely secure.*)

The link to this file will be active for 30 days from the date of this letter. Your company can access and download the file a maximum of five (5) times. (One copy may be downloaded and shared as needed amongst your company.)

Alternatively, you may call SOS Consulting, LLC at 903-488-9850, or email info@sosconsulting.us, and the same PDF file copy will be expedited to you via email.

Please use a subject like, "**Mac-Brant East SWD Dec2018 PDF Copy Request**".

Thank you for your attention in this matter.

Best regards,



Ben Stone, SOS Consulting, LLC
Agent for Probity SWD, LLC

Cc: Application File

SOS Consulting is committed to providing superior quality work using technology to assist clients and interested parties in obtaining the documentation required. SOS will continue to utilize methods for reducing papers copies and are less energy and resource intensive.

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ShareFile

C-108 - Item XIV

Proof of Notice (Certified Mail Receipts)

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7018 0360 0001 8569 5524
7018 0360 0001 8569 5524

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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	
\$	6.20

Sent To	HENRY MAC-BRANTLEY EAST
Street and	& JOHN BRANTLEY
City, State	P.O. Box 597
PS Form	Loving, NM 88256-0597

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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	
\$	6.20

Sent To	DEVON ENERGY PROD. CO., LP
Street and	333 W. Sheridan Avenue
City, State	OKC, OK 73102-5010
PS Form 3	

7018 0360 0001 8569 5524
7018 0360 0001 8569 5524
7018 0360 0001 8569 5524

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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	
\$	6.20

Sent To	OXY USA, INC.
Street and	6001 Deauville Blvd.
City, State	Midland, TX 79706
PS Form	

Domestic Mail Only

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

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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	
\$	6.20

Sent To	SHACKELFORD OIL COMPANY
Street and	11417 W County Road 33.
City, State	Midland, TX 79707
PS Form 3	

C-108 - Item XIV

Proof of Notice (Certified Mail Receipts – cont.)

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BUREAU OF LAND MANAGEMENT
 Oil & Gas Division
 620 E. Greene St.
 Carlsbad, NM 88220

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 03 2018

Affidavit of Publication

No. 24931

State of New Mexico

County of Eddy:

Danny Scott

being duly sworn says that he is the **Publisher**
of the Artesia Daily Press, a daily newspaper of General
circulation, published in English at Artesia, said county
and state, and that the hereto attached

Legal Ad

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

1 Consecutive weeks/day on the same

day as follows:

First Publication December 4, 2018

Second Publication

Third Publication

Fourth Publication

Fifth Publication

Sixth Publication

Seventh Publication

Subscribed and sworn before me this

4th day of December 2018



OFFICIAL SEAL
Latisha Romine
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires: 5/12/2019

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

Copy of Publication:

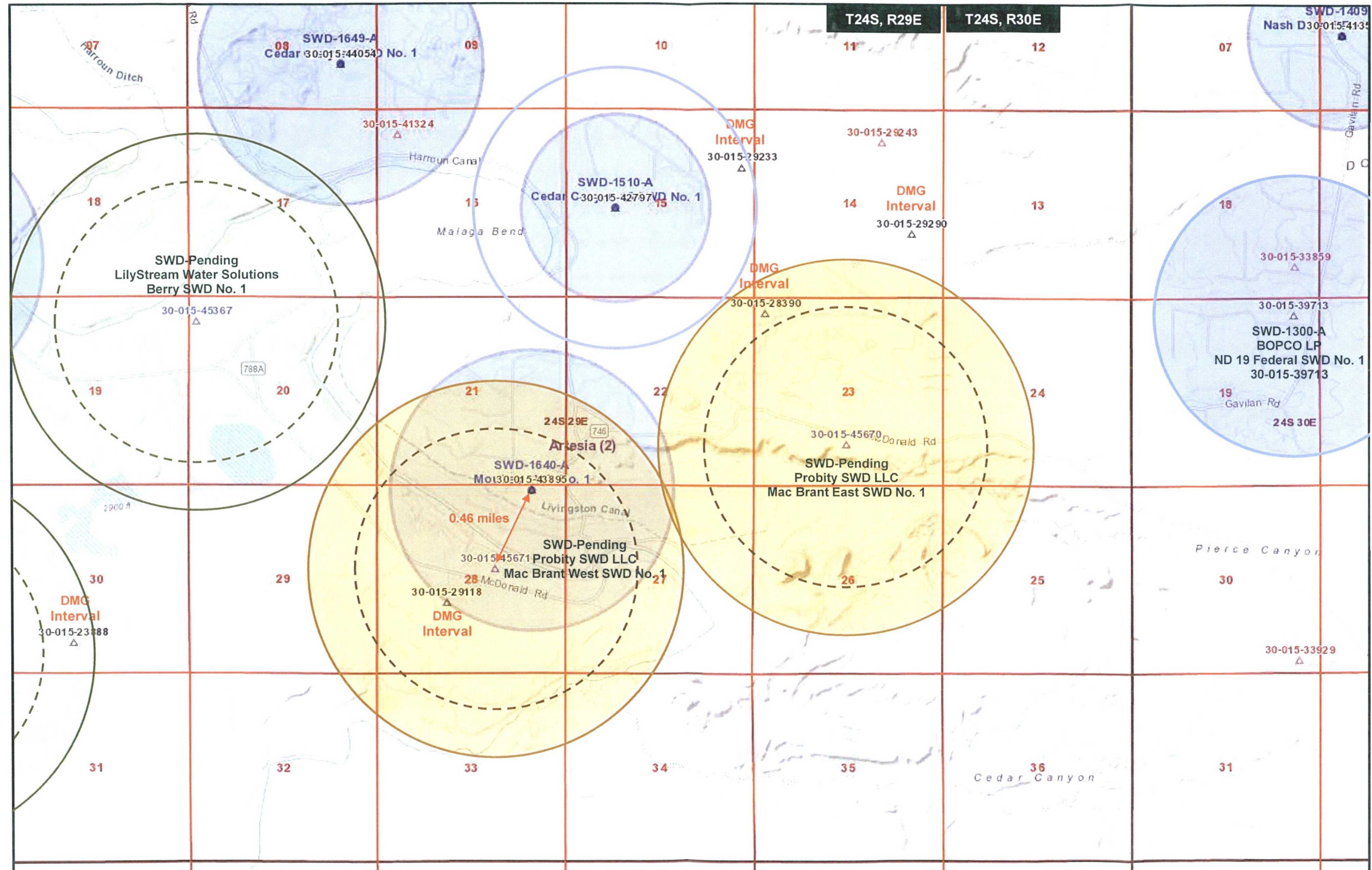
Legal Notice

Probitry SWD, LLC, P.O. Box 7307, Midland, TX 79708, is
filing Form C-108 (Application for Authority to Inject) with
the New Mexico Oil Conservation Division seeking admin-
istrative approval for a salt water disposal well. The proposed
well, the Mac-Brant East SWD No.1, will be located 1160' FSL
and 2590' FWL, Section 23, Township 24 South, Range 29
East, Eddy County, New Mexico. Produced water from area
production will be commercially disposed into the Devonian
(Silurian) and Fusselman formations at a depth of 15,000' to
16,500' at a maximum surface pressure of 3000 psi and a rate
limited only by such pressure. The proposed SWD well is lo-
cated approximately 7.0 miles east/ southeast of Malaga, NM.

Interested parties wishing to object to the proposed applica-
tion must file with the New Mexico Oil Conservation Divi-
sion, 1220 St. Francis Dr., Santa Fe, NM 87505, (505)476-
3460 within 15 days of the date of this notice. Additional
information may be obtained from the applicant's agent, SOS
Consulting, LLC, (903)488-9850 or, email info@sosconsult-
ing.us.

Published in the Artesia Daily Press, Artesia, N.M., Dec. 4,
2018 Legal No. 24931.

Pending Application for High-Volume Devonian Disposal Well
C-108 Applications for Mac Brant East SWD No. 1 and Mac Brant West SWD No. 1 – Probity SWD LLC





FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V17]

DATE RECORD: First Rec: _____ Admin Complete: _____ or Suspended: _____ Add. Request/Reply: _____

ORDER TYPE: WFX / PMX / SWD Number: _____ Order Date: _____ Legacy Permits/Orders: _____

Well No. _____ Well Name(s): MAC B Rent East

API: 30-0 15-45670 Spud Date: _____ New or Old (EPA): _____ (UIC Class II Primacy 03/07/1982)

Footages 1160 FSL 2590 FWL Lot _____ or Unit N Sec 23 Tsp 24S Rge 29E County Edm

General Location: 5 miles SE of May Pool: SWD, Devonian - Silurian Pool No.: 97869

BLM 100K Map: TA1 Operator: Probability SWD, LLC LOGRID: 296278 Contact: Ben Stone

COMPLIANCE RULE 5.9: Total Wells: 5 Inactive: 1 Fincl Assur: OK Compl. Order: N/A IS 5.9 OK? X Date: 3-12-2018

WELL FILE REVIEWED ☐ Current Status: Proposed

WELL DIAGRAMS: NEW: Proposed ☐ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: _____

Planned Rehab Work to Well: _____

Well Construction Details		Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement Sx or Cf	Cement Top and Determination Method
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Surface		<u>26" / 20"</u>	<u>350</u>	<u>1050</u>	<u>Surface / UIC 40</u>
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Interm/Prod		<u>17 1/2" / 13 3/8"</u>	<u>3280</u>	<u>1600</u>	<u>Surface / UIC 40</u>
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Interm/Prod		<u>12 1/4" / 4 5/8"</u>	<u>11000</u>	<u>2350</u>	<u>Surface / UIC 40</u>
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Prod/Liner		<u>8 1/2" / 7 5/8"</u>	<u>15000</u>	<u>450</u>	<u>10700 / 16-3-6"</u>
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Liner					
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> OH / PERF					

Injection Lithostratigraphic Units	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.		<u>nd</u>	<u>14800</u>
Confining Unit: Litho. Struc. Por.		<u>DV</u>	<u>16250</u>
Proposed Inj Interval TOP:			
Proposed Inj Interval BOTTOM:			
Confining Unit: Litho. Struc. Por.			
Adjacent Unit: Litho. Struc. Por.			

Completion/Operation Details:	
Drilled TD <u>1650</u>	PBTD _____
NEW TD <u>18</u>	NEW PBTD _____
NEW Open Hole <input type="checkbox"/> or NEW Perfs <input type="checkbox"/>	
Tubing Size <u>4</u> in.	Inter Coated? _____
Proposed Packer Depth _____ ft	
Min. Packer Depth <u>14900</u> (100-ft limit)	
Proposed Max. Surface Press. <u>3000</u> psi	
Admin. Inj. Press. <u>300</u> (0.2 psi per ft)	

AOR: Hydrologic and Geologic Information

POTASH: R-111-P MA Noticed? _____ BLM Sec Ord ☐ WIPP ☐ Noticed? _____ Salt/Salado T: _____ B: _____ NW: Cliff House fm _____

USDW: Aquifer(s) Quaternary Max Depth 36' HYDRO AFFIRM STATEMENT By Qualified Person ☒

NMOSE Basin: CANISBAY CAPITAN REEF: thru _____ adj (NA) No. GW Wells in 1-Mile Radius? 102 FW Analysis? ☒

Disposal Fluid: Formation Source(s) Wulf Camp, B.S. Analysis? ☒ On Lease ☐ Operator Only ☐ or Commercial ☒

Disposal Interval: Inject Rate (Avg/Max BWPD): 17.5K/30K Protectable Waters? MA Source: _____ System: Closed or Open

HC Potential: Producing Interval? _____ Formerly Producing? _____ Method: Logs/DST/P&A/Other _____ 2-Mi Radius Pool Map ☐

AOR Wells: 1/2-M _____ or ONE-M _____ RADIUS MAP/WELL LIST: Total Penetrating Wells: 0 [AOR Hor: _____ AOR SWDs: _____]

Penetrating Wells: No. Active Wells 0 No. Corrective? _____ on which well(s)? _____ Diagrams? _____

Penetrating Wells: No. P&A Wells MA No. Corrective? _____ on which well(s)? _____ Diagrams? _____

Induced-Seismicity Risk Assess: analysis submitted ☒ historical/catalog review ☒ fault-slip model MA probability <10%

NOTICE: 1/2-M _____ or ONE-M Y: Newspaper Date 12/04/2018 Mineral Owner* BLM Surface Owner Henry M. Smith N. Date 12-08-2018

RULE 26.7(A): Identified Tracts? _____ Affected Persons*: Devon, SHAWK & FUND & ELL, CO, N. Date 12-03-2018

* new definition as of 12/28/2018 [any the mineral estate of United States or state of New Mexico; SWD operators within the notice radius]

Order Conditions: Issues: C-B-L From 500' top liner - 7 hrs & liner

Additional COAs:

(A) 5 1/2" Surface + Intermediate & 5" / Liner