Initial Application Part I

Received 12/24/18

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:
12/24/2018		SWD	PMAM1836037670

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: McDonald South 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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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

12/20/2018
Date

903-488-9850
Phone Number

ben@sosconsulting.us
e-mail Address

December 20, 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 McDonald South SWD Well No.1, to be located in Section 7, Township 26 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 seeks to optimize efficiency, both economically and operationally, of its operations in south-east 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 man-dated increased One-Mile Area of Review including pertinent and available seismic information for the area and region. Published legal notice ran today, December 20, 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 minerals. There are state and federal lands & minerals and private minerals within the one-mile radius notice area and the State Land Office 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

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: ***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 6 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 8 offset lessees and/or mineral owners within 1 mile and state, 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: ***12/20/2018***

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

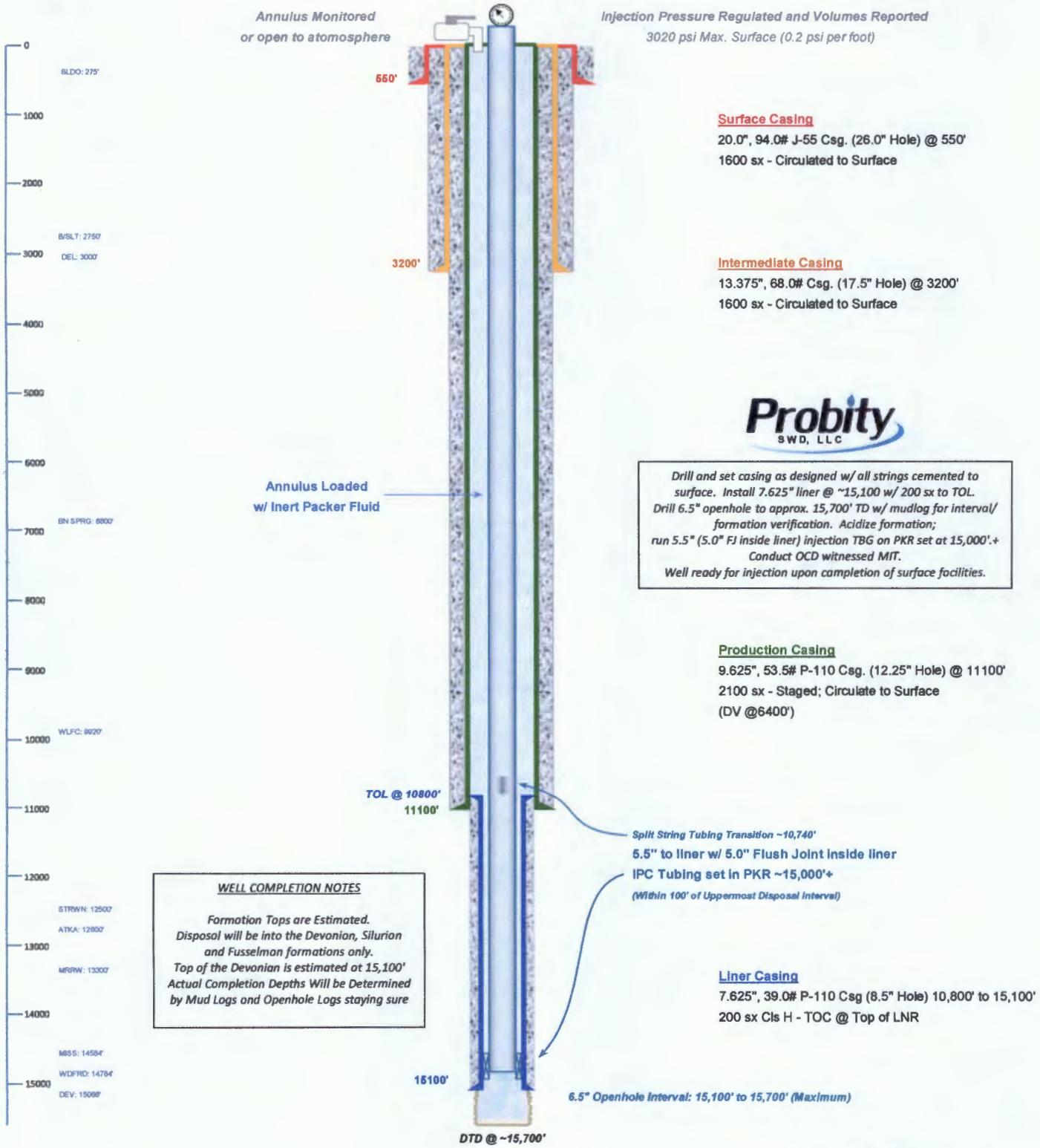
2. One-Half Mile AOR Map

All Above Exhibits follow this page.

WELL SCHEMATIC - PROPOSED
McDonald South SWD Well No.1

API 30-015-xxxxx
1750' FNL & 1400' FEL, SEC. 7-T26S-R29E
EDDY COUNTY, NEW MEXICO

Proposed: SWD; Devonian-Silurian-Fusselman
Spud Date: 4/01/2019
SWD Config Dt: 5/15/2019



Surface Casing
20.0", 94.0# J-55 Csg. (26.0" Hole) @ 550'
1600 sx - Circulated to Surface

Intermediate Casing
13.375", 68.0# Csg. (17.5" Hole) @ 3200'
1600 sx - Circulated to Surface

Probity SWD, LLC

Drill and set casing as designed w/ all strings cemented to surface. Install 7.625" liner @ ~15,100 w/ 200 sx to TOL. Drill 6.5" openhole to approx. 15,700' TD w/ mudlog for interval/ formation verification. Acidize formation; run 5.5" (5.0" FJ inside liner) injection TBG on PKR set at 15,000'.+ Conduct OCD witnessed MIT. Well ready for injection upon completion of surface facilities.

Production Casing
9.625", 53.5# P-110 Csg. (12.25" Hole) @ 11100'
2100 sx - Staged; Circulate to Surface
(DV @6400')

Split String Tubing Transition ~10,740'
5.5" to liner w/ 5.0" Flush Joint inside liner
IPC Tubing set in PKR ~15,000'+
(Within 100' of Uppermost Disposal Interval)

Liner Casing
7.625", 39.0# P-110 Csg (8.5" Hole) 10,800' to 15,100'
200 sx Cls H - TOC @ Top of LNR

6.5" Openhole Interval: 15,100' to 15,700' (Maximum)

WELL COMPLETION NOTES

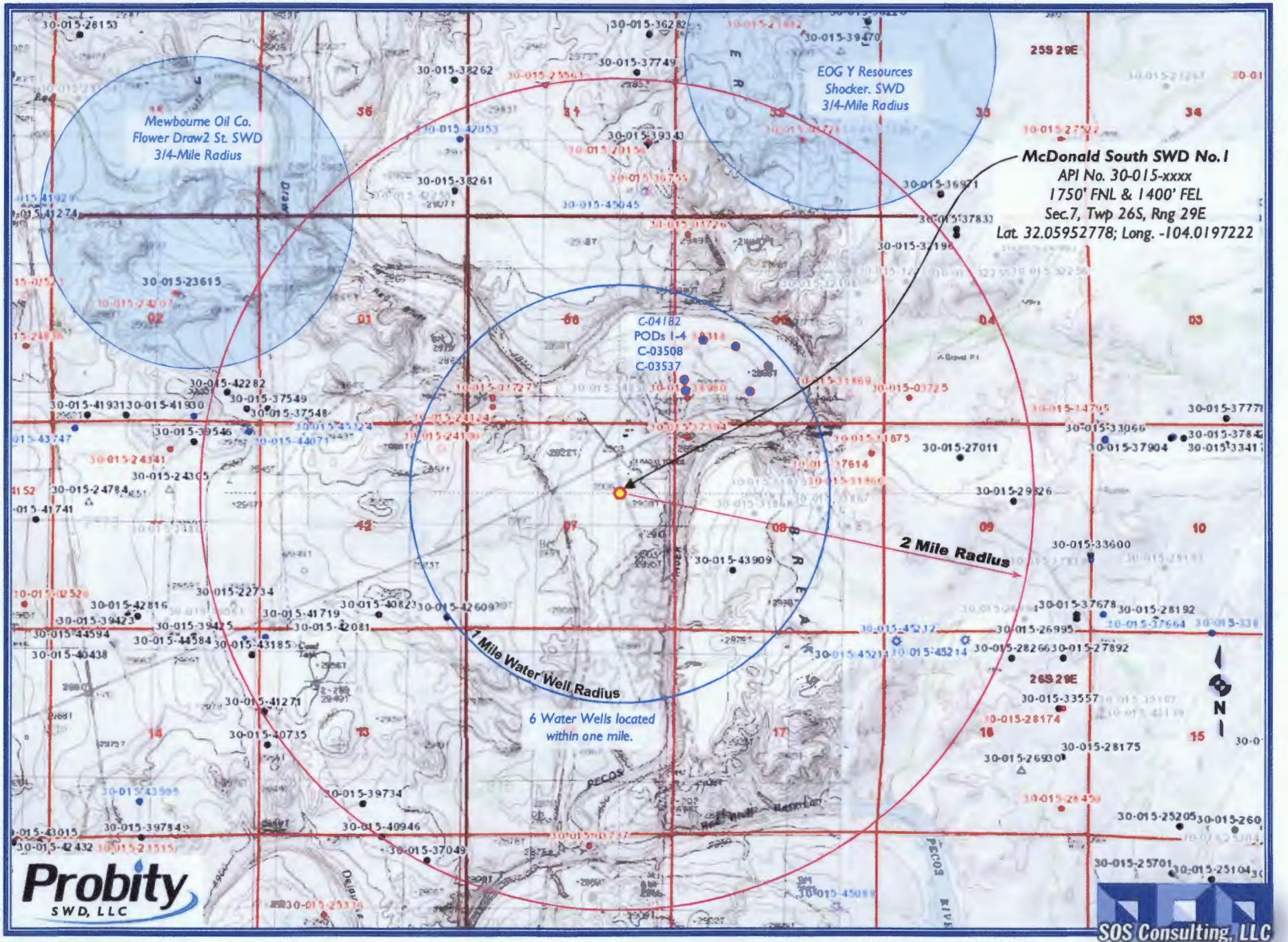
Formotion Tops are Estimated. Disposol will be into the Devonion, Silurion and Fusselmon formations only. Top of the Devonian is estimated ot 15,100' Actual Completion Depths Will be Determined by Mud Logs and Openhole Logs staying sure

Drawn by: Ben Stone, 12/18/2018

SOS Consulting, LLC

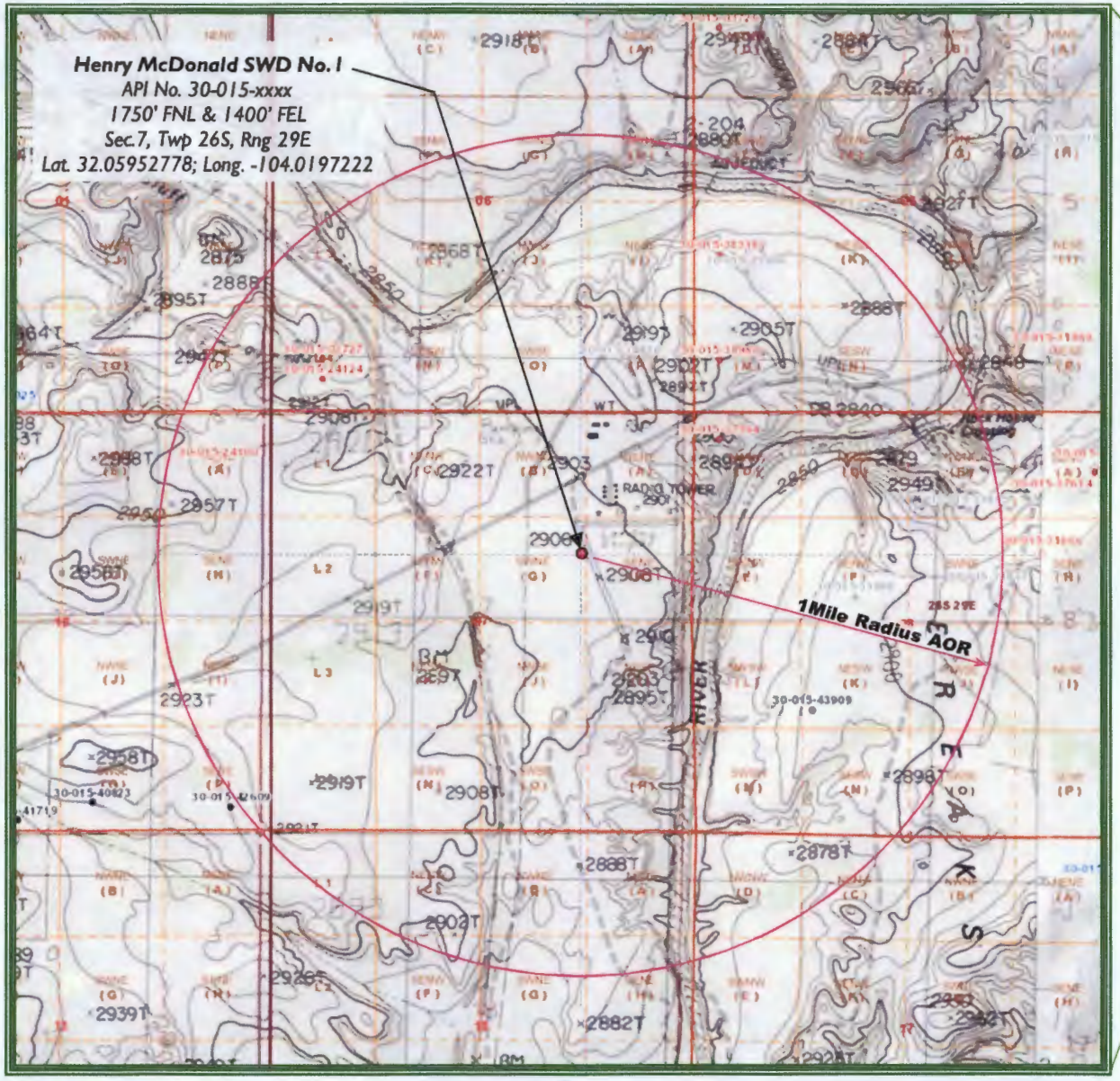
McDonald South SWD No.1 - Area of Review / 2 Miles

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



Henry McDonald SWD Well No.1 – One Mile Area of Review / Overview Map

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



11.7 miles S/SE of Malaga, NM

Eddy County, New Mexico

Probity SWD, LLC

SOS Consulting, LLC

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 VII – PROPOSED OPERATION

McDonald South 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 25,000 bpd and an average of 17,500 bpd at a maximum surface injection pressure of 3020 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 – PRODUCED WATER ANAYLSES

Item VII.4 – Water Analysis of Source Zone Water

Glorieta/ Yeso
Bone Spring
Wolfcamp

Item VII.5 – Water Analysis of Disposal Zone Water

Devonian

Water Analyses follow this page.

C-108 Item VII.5 - Produced Water Data

Probity SWD, LLC - McDonald South SWD Project

SOURCE ZONE

GLO/YESO

Lab ID

Sample ID 1146

Sample No

API No 3001524754

Well Name PLATT PA 009

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.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data

Probity SWD, LLC - McDonald South SWD Project

SOURCE ZONE

GLO/YESO

Lab ID

Sample ID 1207

Sample No

API No 3001524619

Well Name PLATT PA 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.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data

Probity SWD, LLC - McDonald South SWD Project

SOURCE ZONE

BONE SPRING

Lab ID

Sample ID 5847

API No 3001520225

Sample No

Well Name BIG EDDY UNIT 012

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 BIG EDDY Unit D

Sample Date 8/27/1999 Analysis Date 8/31/1999

Sample Source

Water Typ

Depth (if known)

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.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data

Probity SWD, LLC - McDonald South SWD Project

SOURCE ZONE

WOLFCAMP

Lab ID

Sample ID 5688

API No 3001520138

Sample No

Well Name MAHUN STATE 001

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 Sourc DST Depth (if known)

Water Typ

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.)

SOS Consulting, LLC

C-108 Item VII.5 - Produced Water Data
Probity SWD, LLC - McDonald South SWD Project

DISPOSAL ZONE

DEVONIAN

Lab ID

Sample ID 6170

Sample No

API No. 3001510280

Well Name JURNEGAN POINT 001

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.)

SOS Consulting, LLC

C-108 - Item VIII

Geological Data

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

Introduction

The location of the proposed injection site is Section 7-26S-29E in Eddy County New Mexico. Approximately 28 nearby Silurian/Devonian deep SWD wells were used for this evaluation. These wells are all within an approximate ***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 Sliurian/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.

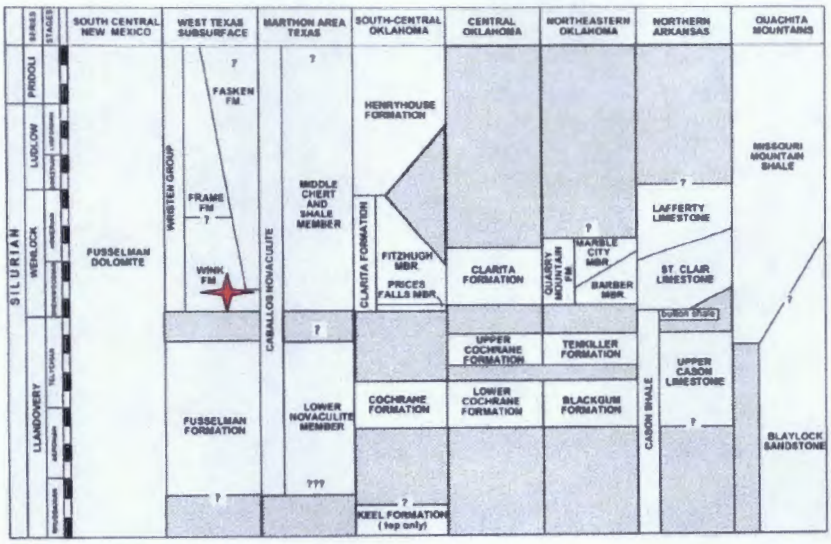
The Fusselman Formation comprises a complex series of carbonate facies, including light-colored ooid grainstones, green glauconitic and pink pelmatozoan grainstones and packstones, and sparse skeletal wackestones with minor shaly intercalations. Geesaman and Scott (1989) and Garfield and Longman (1989) 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.

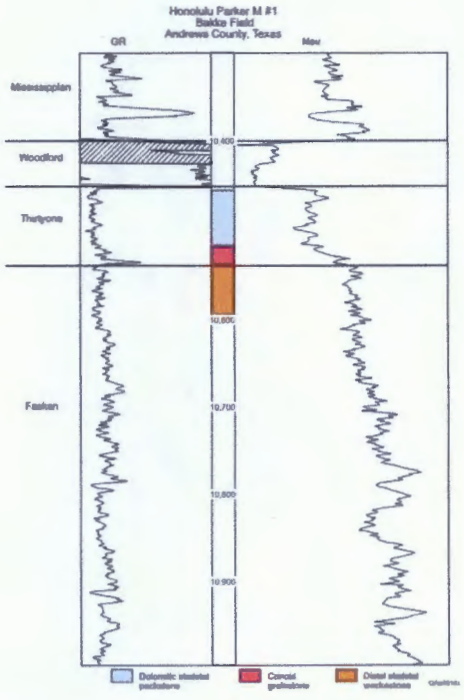
The age of the subsurface Fusselman is poorly known due to a lack of fossil material from only limited core studies. The upper Fusselman is dominated by widespread thick, crinoidal grainstones, and lesser amounts of dolomitic wackestone to skeletal packstone. These three lithofacies are interbedded such 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.

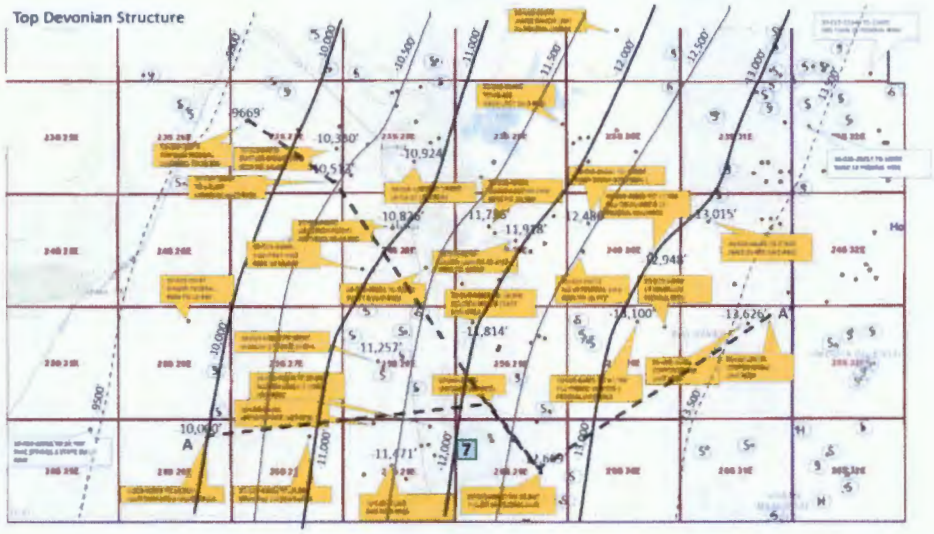
C-108 - Item VIII

Geological Data (cont.)

Detailed Analysis of the location

The subsurface structure of the Pre-Woodford carbonates displays a sequence of carbonates becoming shallower to the North-west. The depth of the top carbonate section beneath section 7-26S-29E is approximately 12,150 feet subsea or approximately 15,066' true vertical depth from surface. The average injection interval of all the wells is 1185'. Most of the wells reached total depth before penetrating the base of the carbonates, making an isopach map difficult to create.

There are no deep Silurian or Devonian wells in the area that produce hydrocarbons.



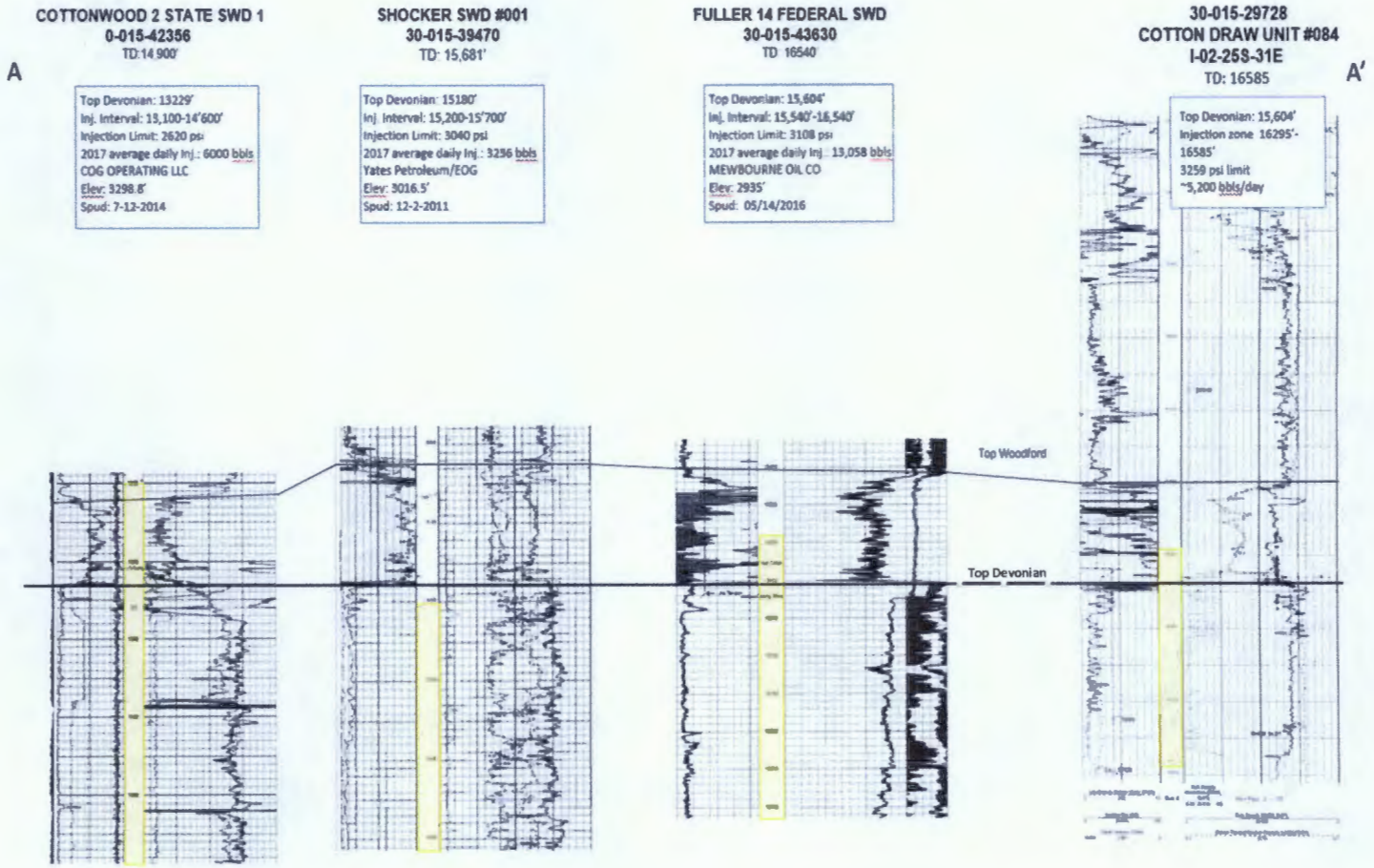
Twenty-eight deep salt water disposal wells were used to create this map and numerous other wells were evaluated that penetrate the deeper sections. The vast majority of the wells in the immediate area are shallower than the Devonian.

API #	Well Name	location	Total depth	operator	Top inj	Base inj	Max PSI	Fm	GL
30-015-39713	19 FEDERAL SWD #001	A-19-24S-30E	16770	BOPCO, L.P.	15611	16770	3122	Dev	3184
30-015-41351	NASH DRAW B FEDERAL #001	L-08-24S-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	MEWBOURNE OIL CO	12900	14000	2580	Dev	3230
30-015-33187	RINGER FEDERAL #006	P-03-25S-28E	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	1730	Dev	3137
30-015-22638	LAYLA 27 SWD #001	H-27-23S-28E	15000	MEWBOURNE OIL CO	14000	15000	2800	Dev	3035
30-015-39400	NASH UNIT SWD #053	H-13-23S-29E	16445	XTO ENERGY, INC	14906	16445	2981	Dev	2999
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-26E	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	MEWBOURNE OIL CO	14700	16100	2940	Dev	2961
30-015-21398	SRO SWD #102	G-16-26S-28E	15400	COG OPERATING LLC	14525	15400	2905	Dev	3023
30-015-29728	COTTON DRAW UNIT #084	I-02-25S-31E	16585	DEVON ENERGY	16295	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
30-015-43638	FULLER 14 FEDERAL SWD	J-14-26S-29E	16540	MEWBOURNE OIL CO	15540	16540	3108	Dev	2935

C-108 - Item VIII

Geological Data (cont.)

East-West X-section



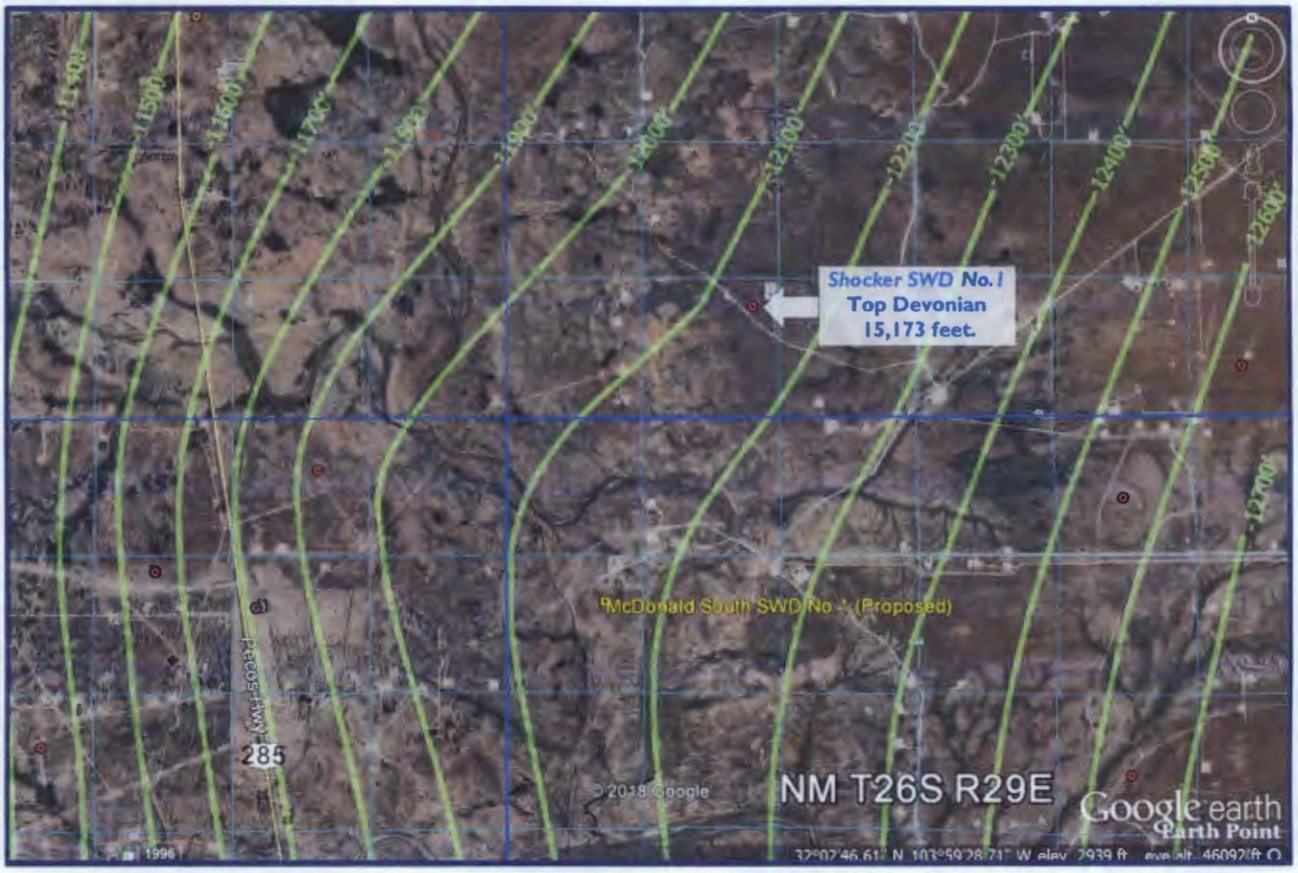
Prepared by: Howard McLaughlin – Geologist, April 2018

C-108 - Item VIII

Geological Data

DEVONIAN CONTOURS IN AREA

McDonald South SWD No.1



Proposed SWD is located 1750' FNL & 1400' FEL, 7-26S-29E. Elevation is 2916 feet. Contour map shows the well spot to lay approximately half way between the -12,100' and -12,200' (subsea) intervals. The measured depth to the top of the Devonian based on these figures would be 15,066 feet.

The Shocker SWD No.1, operated by EOG Y Resources, has the logged top of the Devonian at 15,173 feet and a PBTD of 15,610 feet.

Based on these data, Probity SWD proposes a target interval of 15,100 feet to 15,700 feet. Mudlogging and openhole logs will determine final interval and reported on form C-105. Permit will be amended if necessary.

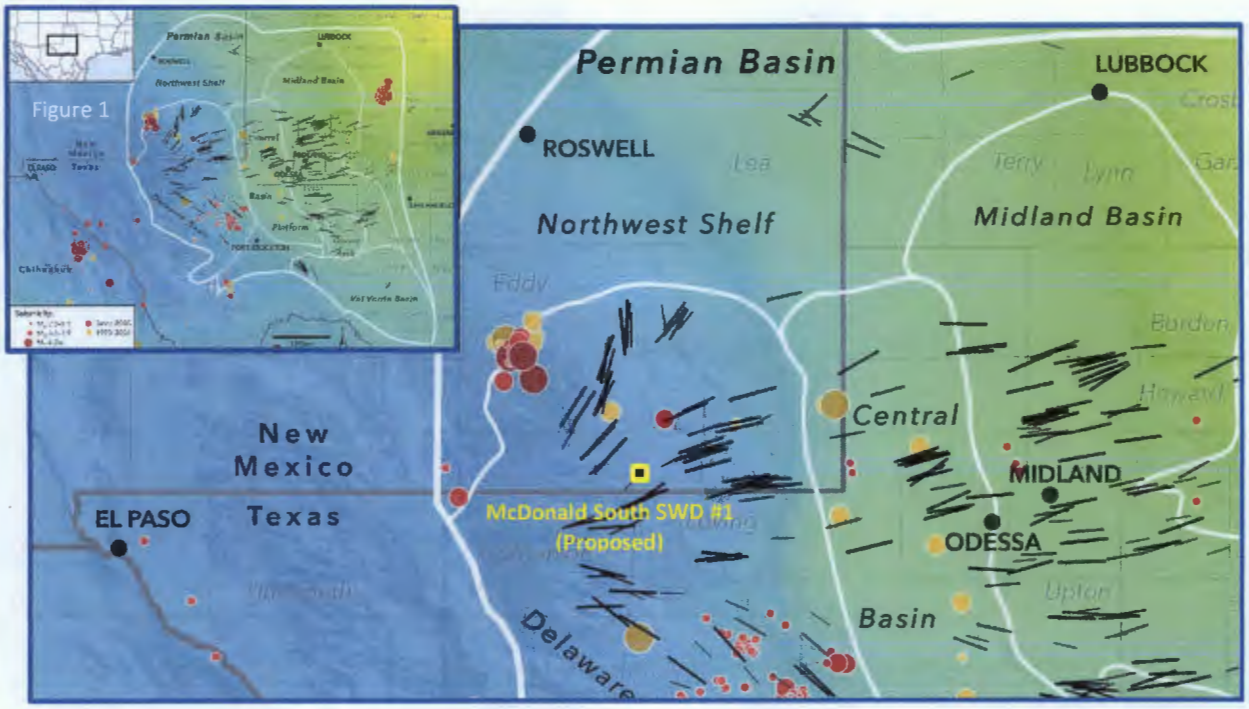
SOS Consulting, LLC

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

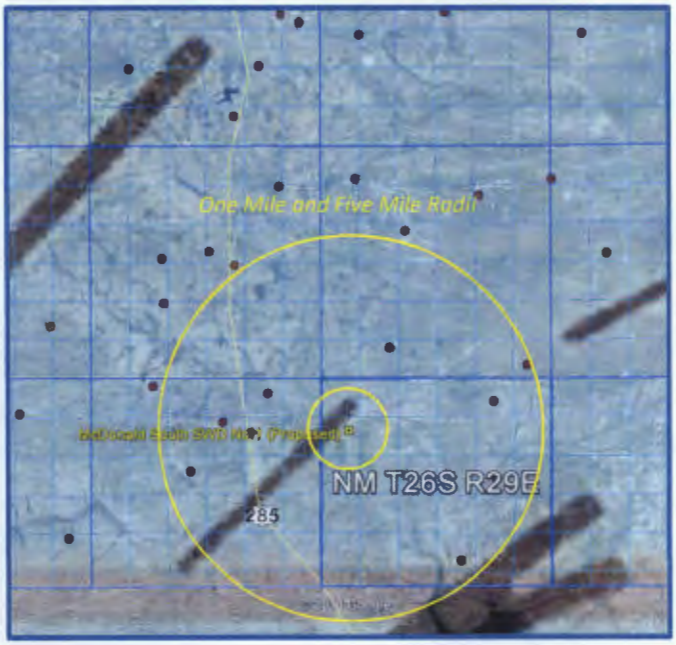


Figure 1. State of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of the maximum horizontal stress (SHmax), with line length scaled by data quality. The colored background is an interpolation of measured relative principal stress magnitudes (faulting regime) expressed using the Aφ 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

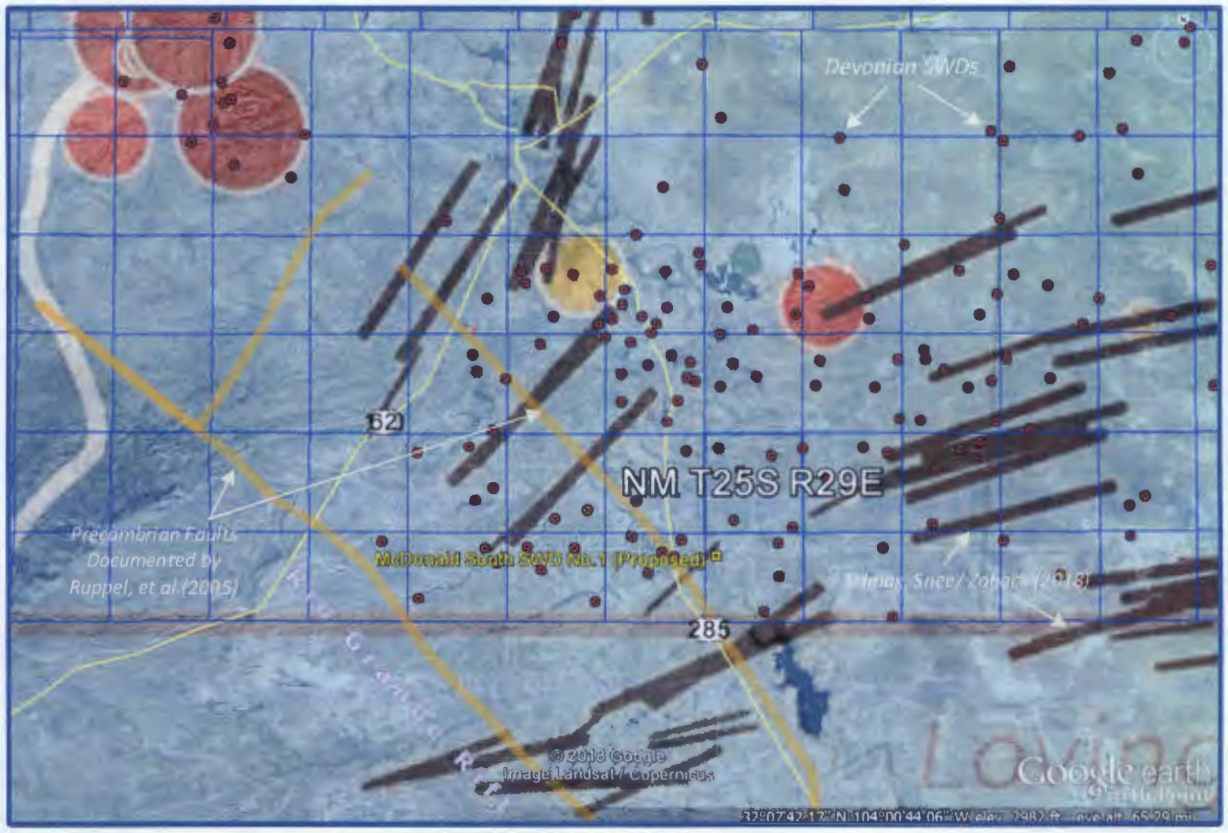
Geological Data

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 (46.2 miles) in 2002. The 2012 quake located approximately 13 miles due east of Loving is also shown (16.1 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

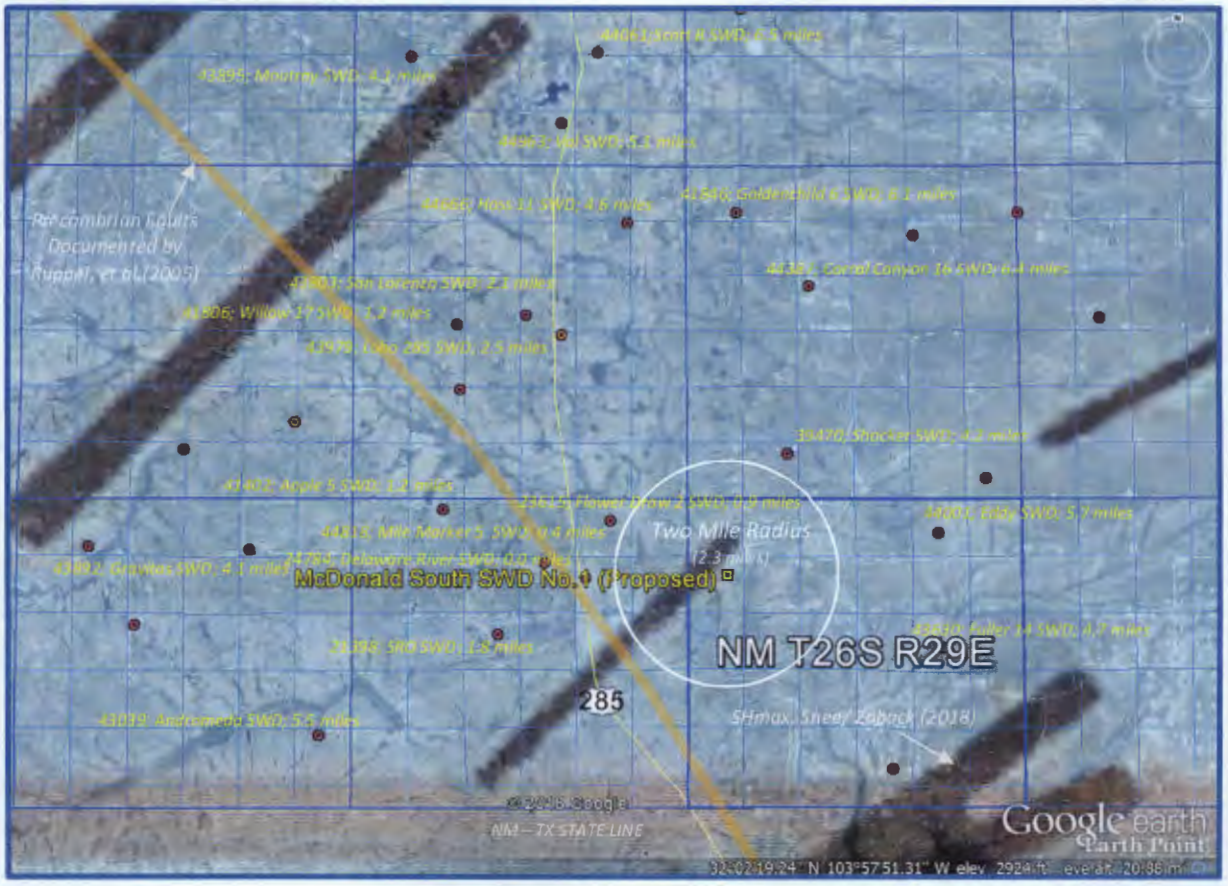
C-108 - Item VIII

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 McDonald South SWD is located 2.3 miles from the fault. Other Devonian SWDs in the area are also shown by small purple dots. (5-digit API well no., well name and distance for each is shown.) 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.

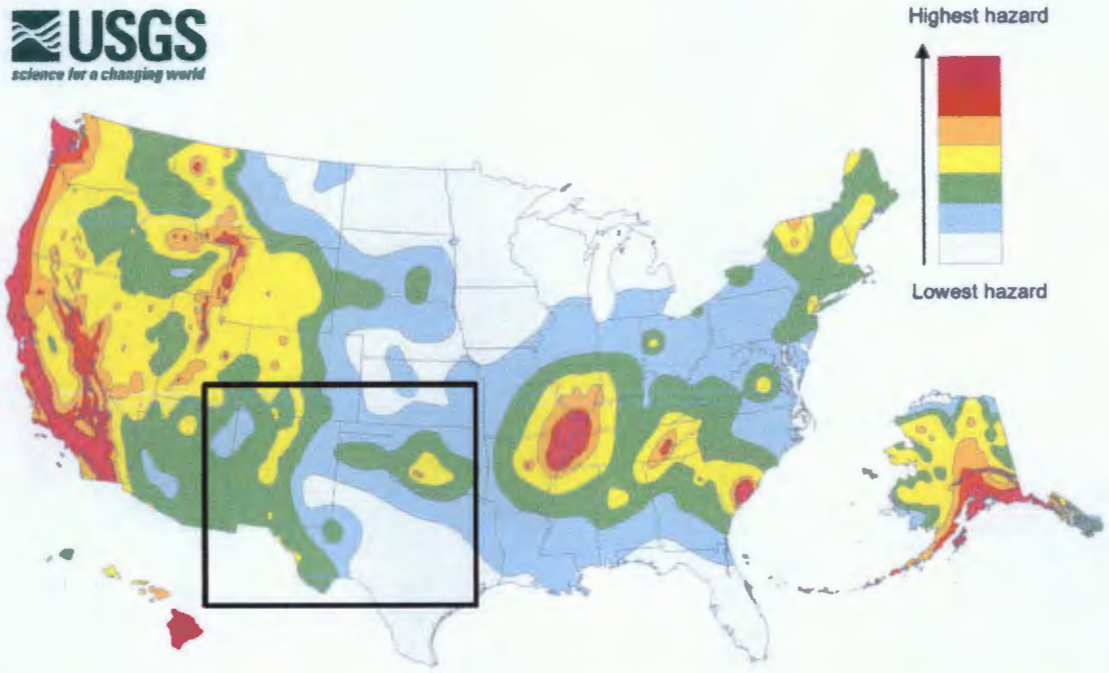


VICINITY - PERMITTED DEVONIAN SWDS, PRECAMBRIAN FAULT, S_{Hmax}

C-108 - Item VIII

Geological Data

EARTHQUAKE / SEISMIC INFORMATION SUPPLEMENT (cont.)



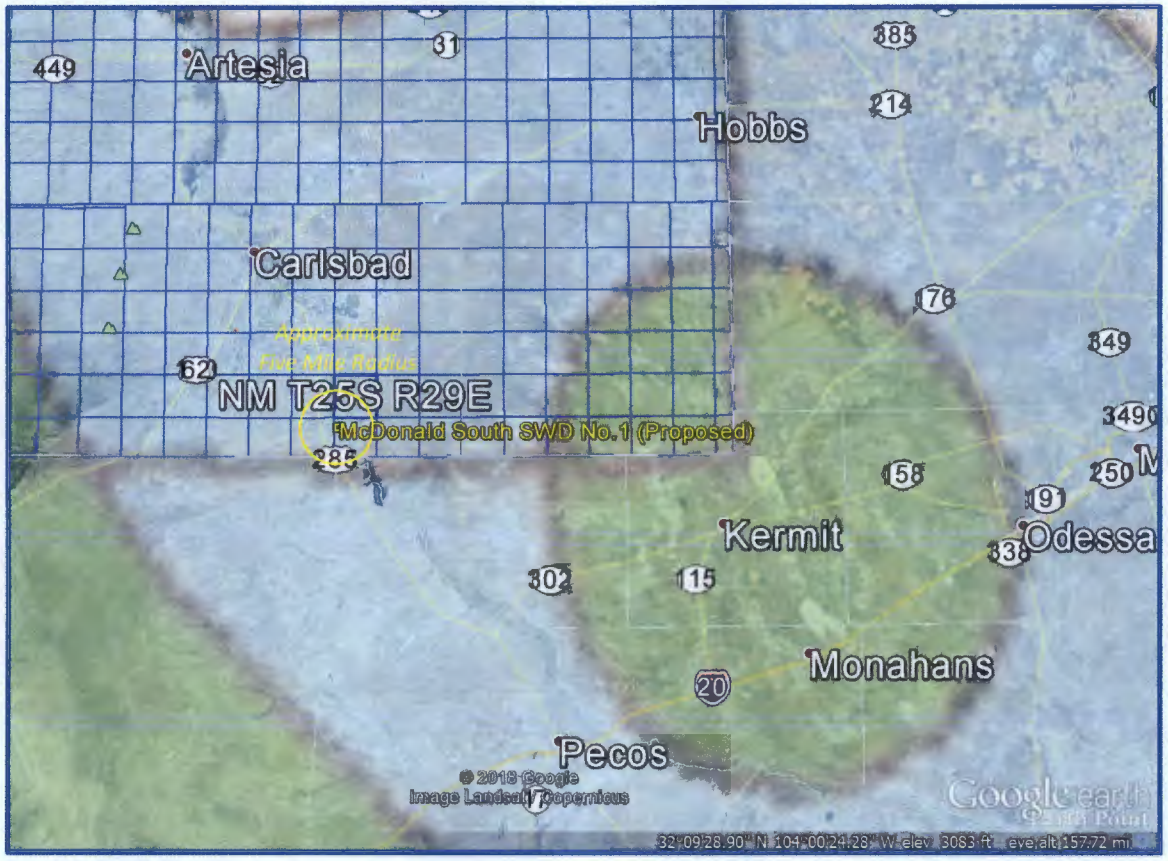
2014 map data: The USGS notes in its report that fracking may be to blame for a sizeable uptick in earthquakes in places like Oklahoma. "Some states have experienced increased seismicity in the past few years that may be associated with human activities such as the disposal of wastewater in deep wells," 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



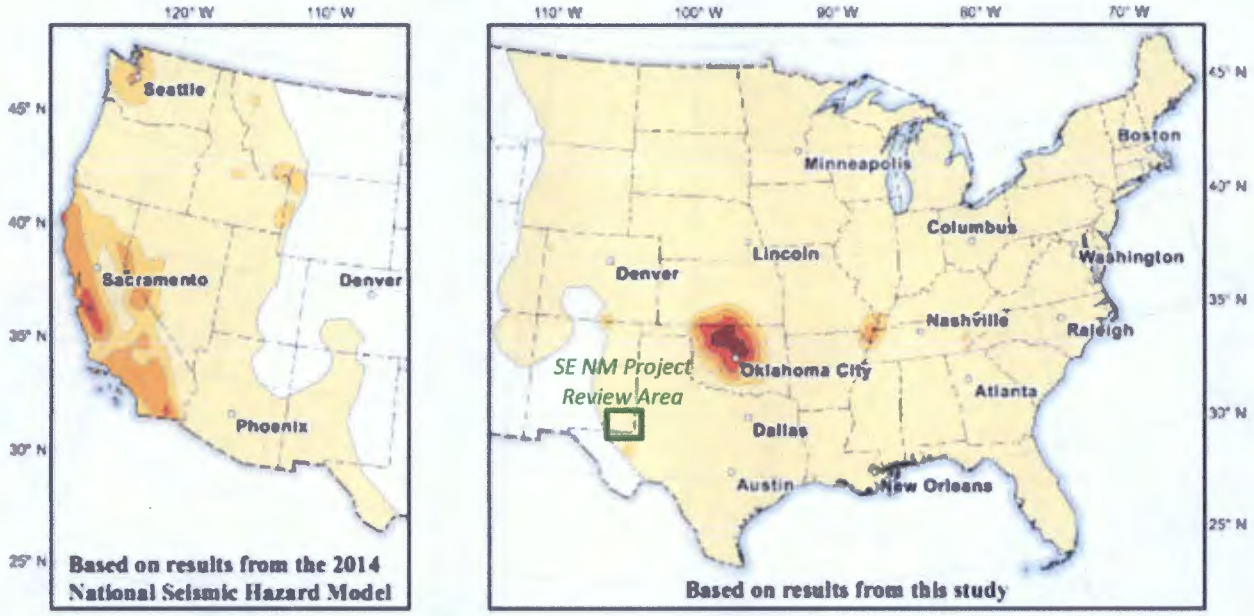
An updated USGS map for 2018 is on the next page. *(Made available after the start of this investigation.)* While methodology remained essentially the same according to USGS, the interpreted results and color-coding did have changes. However, the subject area in southeast New Mexico on both maps remains 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



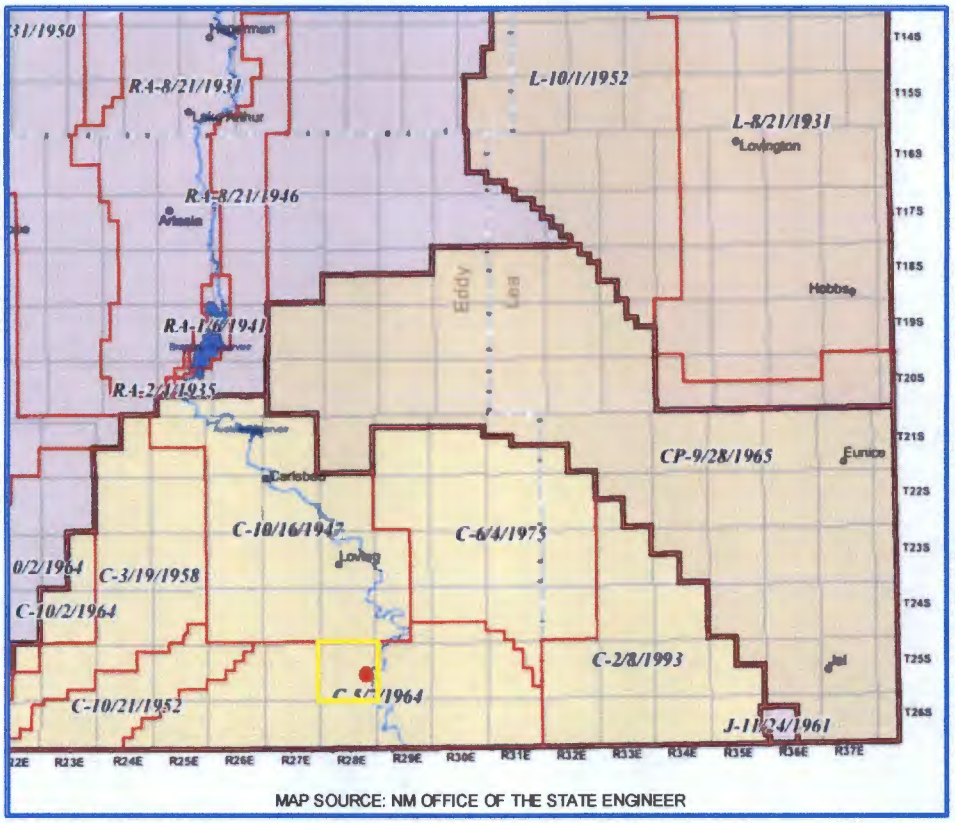
Map showing chance of damage from an earthquake in the Central and Eastern United States during 2018. Percent chances are represented as follows: pale yellow, less than 1 percent; dark yellow, 1 to 2 percent; orange, 2 to 5 percent; red, 5 to 10 percent; dark red, 10 to 12 percent. See Hazard from the 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



MAP SOURCE: NM OFFICE OF THE STATE ENGINEER

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 26S-29E with an average depth to water at 51 feet.

There are six water wells and/or PODs located within one mile of the proposed SWD. Two are being sampled and a representative analysis is included with this application. They are from offsetting applications but are closely matched and represent the shallow fresh water available in the area.

SOS Consulting, LLC

C-108 Item XI

Water Wells Within One Mile

McDonald South SWD No.1 - Water Well Locator Map

There are 6 water wells/ PODs within a one-mile radius of the proposed SWD.

Representative Water Analyses are included – Analyses will be forwarded.

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

SOS Consulting, LLC

DownHole SAT Water Analysis Report

PERFORMANCE Chemical Company

SYSTEM IDENTIFICATION

Mewbourne
Fresh Water Tank

Fresh Water Well
POD 01411

Sample ID#: 0
ID:

Sample Date: 01-30-2018 at 1626
Report Date: 01-31-2018

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	656.36
Magnesium(as Mg)	70.02
Barium(as Ba)	0.00
Strontium(as Sr)	8.42
Sodium(as Na)	38.52
Potassium(as K)	12.72
Iron(as Fe)	0.0440
Manganese(as Mn)	0.00

ANIONS

Chloride(as Cl)	400.44
Sulfate(as SO_4)	1261
Dissolved CO_2(as CO_2)	0.00
Bicarbonate(as HCO_3)	170.80
H_2S (as H_2S)	0.00

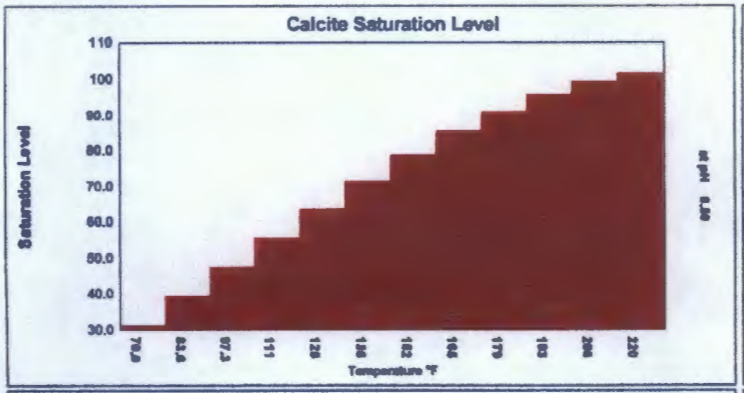
PARAMETERS

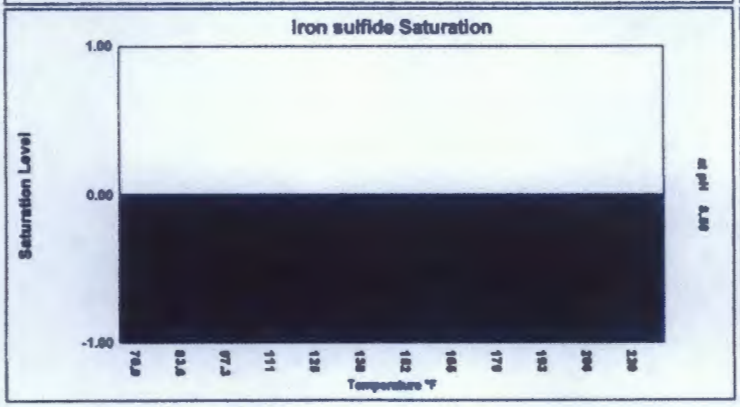
Temperature(^{0}F)	61.00
Sample pH	8.50
Conductivity	2270
T.D.S.	2618
Resistivity	440.57
Sp.Gr.(g/mL)	1.01

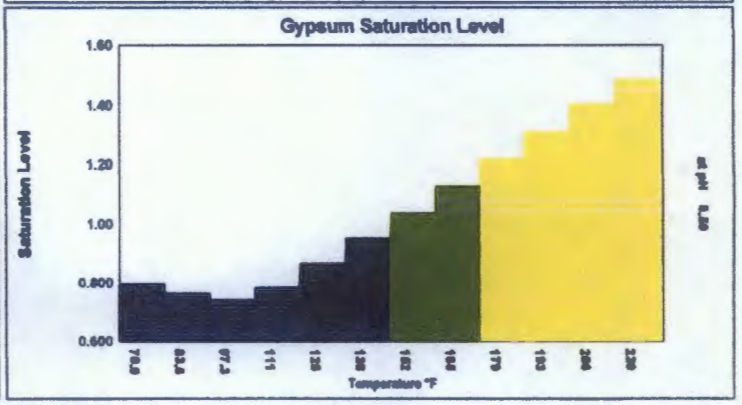
SCALE AND CORROSION POTENTIAL

Temp.	Press.	Calcite		Anhydrite		Gypsum		Barite		Celestite		Siderite		Mackawenite		CO_2	pCO_2
(^{0}F)	(psig)	$CaCO_3$		$CaSO_4$		$CaSO_4*2H_2O$		$BaSO_4$		$SrSO_4$		$FeCO_3$		FeS		(mpy)	(atm)
70.00	0.00	31.02	5.39	0.464	-628.11	0.794	-185.50	0.00	-0.0125	0.703	-7.34	0.313	-0.0133	0.00	-0.0878	0.00374	< 0.001
83.64	0.00	39.15	6.12	0.476	-590.91	0.761	-217.37	0.00	-0.0170	0.712	-7.04	0.454	-0.00754	0.00	-0.0880	0.00505	< 0.001
97.27	0.00	47.45	6.70	0.508	-519.62	0.741	-236.12	0.00	-0.0221	0.737	-6.19	0.621	-0.00390	0.00	-0.0882	0.00636	< 0.001
110.91	0.00	55.48	7.12	0.562	-422.71	0.780	-189.68	0.00	-0.0277	0.773	-5.10	0.818	-0.00145	0.00	-0.0885	0.00663	< 0.001
124.55	0.00	63.49	7.45	0.642	-308.59	0.863	-107.68	0.00	-0.0343	0.809	-4.11	1.05	< 0.001	0.00	-0.0887	0.00556	< 0.001
138.18	0.00	71.30	7.70	0.754	-184.84	0.948	-37.24	0.00	-0.0421	0.844	-3.23	1.31	0.00158	0.00	-0.0891	0.00376	< 0.001
151.82	0.00	78.62	7.86	0.910	-57.91	1.04	23.55	0.00	-0.0514	0.877	-2.45	1.58	0.00247	0.00	-0.0895	0.00300	< 0.001
165.45	0.00	85.20	7.93	1.12	66.97	1.13	76.20	0.00	-0.0622	0.909	-1.75	1.83	0.00301	0.00	-0.0899	0.00238	< 0.001
179.09	0.00	90.90	7.91	1.42	186.14	1.22	122.21	0.00	-0.0747	0.939	-1.13	2.02	0.00319	0.00	-0.0904	0.00163	< 0.001
192.73	0.00	95.60	7.83	1.83	296.88	1.31	162.62	0.00	-0.0892	0.968	-0.577	2.08	0.00296	0.00	-0.0910	< 0.001	< 0.001
206.36	0.00	99.22	7.68	2.41	397.55	1.40	198.30	0.00	-0.106	0.995	-0.0927	1.93	0.00230	0.00	-0.0918	< 0.001	< 0.001
220.00	2.51	101.50	7.56	3.19	487.69	1.49	227.33	0.00	-0.127	1.01	0.142	1.70	0.00157	0.00	-0.0931	0.00161	< 0.001
		xSAT	mg/L	xSAT	mg/L	xSAT	mg/L	xSAT	mg/L	xSAT	mg/L	xSAT	mg/L	xSAT	mg/L		

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. $\{Ca\}\{CO_3\}/K_{sp}$. pCO_2 (atm) is the partial pressure of CO_2 in the gas phase.
mg/L scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.







Analytical Report
Lab Order **1609364**
Date Reported: **9/20/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West
Project: Solaris US 285 SWD
Lab ID: 1609364-001 **Matrix:** AQUEOUS

Client Sample ID: US 285 SWD #1
Collection Date: 9/1/2016 1:35:00 PM
Received Date: 9/7/2016 1:55:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664A						Analyst: **tnc**	
N-Hexane Extractable Material	ND	10		mg/L	1	9/12/2016 10:45:00 AM	27440
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	350	10	*	mg/L	20	9/9/2016 4:38:51 AM	A37081
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	2620	20.0	*	mg/L	1	9/9/2016 5:12:00 PM	27408

EXHIBIT H

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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-basin Code	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Depth Well	Depth Water	Water Column
C 01354 X-3	CUB	ED	2	1	3	23	26S	29E	598323	3543837	170		
C 02038	C	ED	3	2	4	26	26S	29E	599204	3541992*	200		
C 03507 POD1	C	ED	1	3	3	05	26S	29E	593064	3548313	140	78	62
C 03508 POD1	C	ED	1	3	3	05	26S	29E	593063	3548361	140	75	65
C 03605 POD1	CUB	ED	4	2	3	27	26S	29E	596990	3541983	45	0	45

Average Depth to Water: **51 feet**

Minimum Depth: **0 feet**

Maximum Depth: **78 feet**

Record Count: 5

PLSS Search:

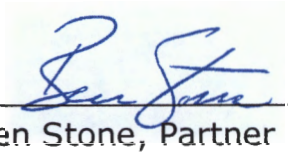
Township: 26S **Range:** 29E

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

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
McDonald South SWD No.1
Reviewed 12/18/2018

C-108 ITEM XIII – PROOF OF NOTIFICATION

IDENTIFICATION AND NOTIFICATION OF INTERESTED PARTIES

Exhibits for Section

Affected Parties Map

List of Interested Parties

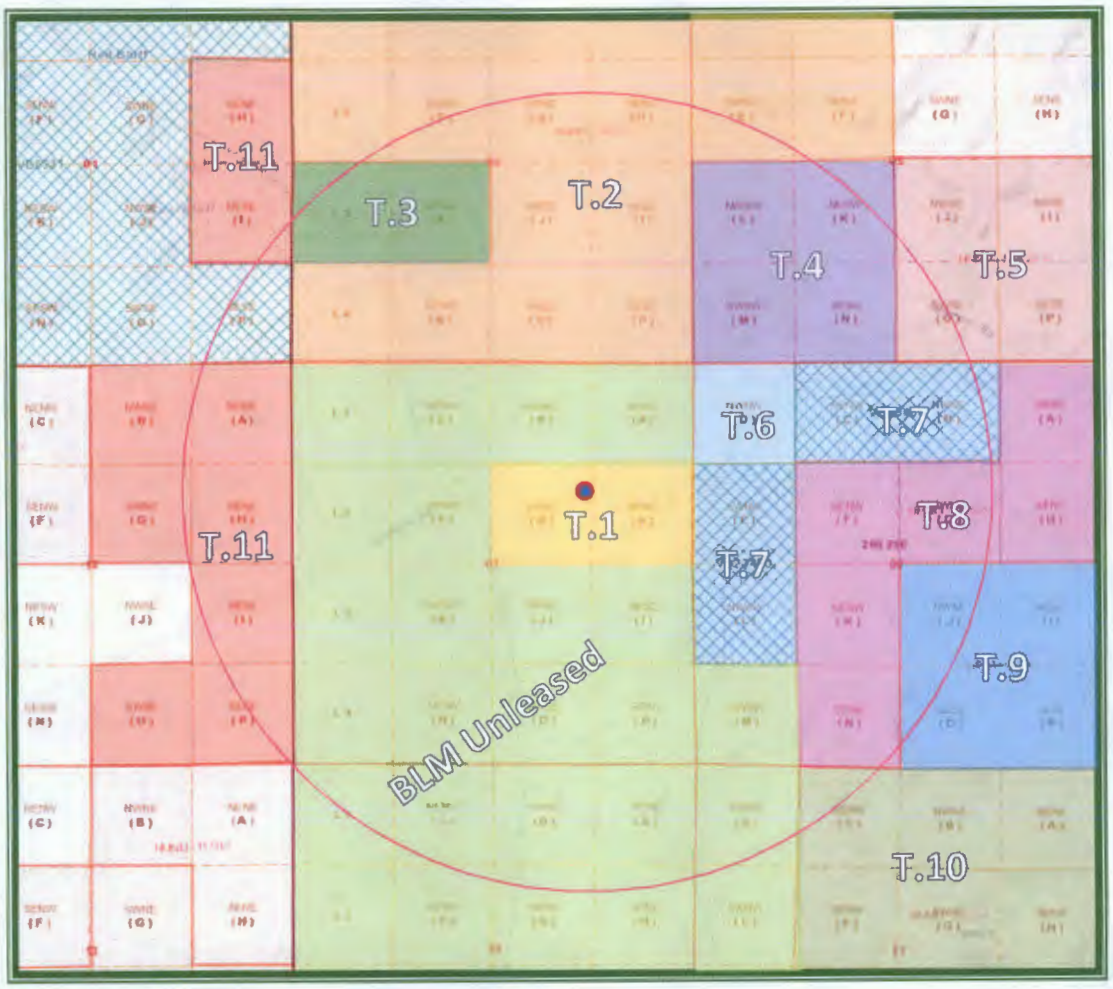
Notification Letter to Interested Parties

Proof of Certified Mailing

Published Legal Notice

McDonald South SWD Well No.1 – Affected Parties Plat

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



Probity SWD, LLC

LEGEND

T.1 – Private – Henry McDonald

T.2 – NMNM-118113 – Vanguard; COG Operating

T.3 – NMNM-057261 – Regeneration Energy

T.4 – Private – Brad Bennett, LP

T.5 – NMNM-124655 – The Allar Company

T.6 – Split: COG Surface/ State Minerals

T.7 – VB-2345 –MRC Permian Company

T.8 – NMNM-123925 – COG Operating, LLC

T.9 – NMNM-057261 – Regeneration Energy

T.10 – NMNM-122616 – COG Operating, LLC

T.11 – NMNM-012559 – Oxy USA, Inc.

BLM Unleased

SOS Consulting, LLC

December 18, 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 McDonald South 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 7, Township 26 South, Range 29 East in Eddy County, New Mexico.

The published notice states that the interval will be from 15,100 feet to 15,700 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 18, 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 McDonald South SWD No.1, will be located 1750' FNL and 1400' FEL, Section 7, Township 26 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 15,100' to 15,700' at a maximum surface pressure of 3020 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 11.7 miles south/ 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-sdee2aff215440e6a**

(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.)

If preferred, 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, "**McDonald South 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.

We hope you'll partner with us and appreciate these efforts.

* You will be asked for your name and email.
This will not be used for anything except to track the file downloads.
You will not be solicited by SOS or anyone else. Data is stored on Citrix Systems servers only.

citrix ShareFile

C-108 - Item XIV

Proof of Notice (Certified Mail Receipts)

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

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

OFFICIAL USE

Certified Mail Fee $

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

Postage $ 6.70

Total Postage and Fees $

Postmark Here
DEC 18 2018

7018 0360 0001 8569 5852

Sent To
Street and
City, State,

HENRY MCDONALD
P.O. Box 597
Loving, NM 88256-0597

PS Form

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

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

OFFICIAL USE

Certified Mail Fee $

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

Postage $ 6.70

Total Postage and Fees $

Postmark Here
DEC 18 2018

7018 0360 0001 8569 5869

Sent To
Street and
City, State

VANGUARD OPERATING, INC.
5847 San Felipe, Ste.3000
Houston, TX 77057

PS Form

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

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

OFFICIAL USE

Certified Mail Fee $

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

Postage $ 6.70

Total Postage and Fees $

Postmark Here
DEC 18 2018

7018 0360 0001 8569 5876

Sent To
Street and
City, State,

COG OPERATING, LLC
Attn: Brian Collins
2208 W. Main Street
Artesia, New Mexico 88210-3720

PS Form

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

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

OFFICIAL USE

Certified Mail Fee $

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

Postage $ 6.70

Total Postage and Fees $

Postmark Here
DEC 18 2018

7018 0360 0001 8569 5890

Sent To
Street and
City, State,

XTO ENERGY, INC.
P.O. Box 6501
Englewood, CO 80155

PS Form

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

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

OFFICIAL USE

Certified Mail Fee $

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

Postage $ 6.70

Total Postage and Fees $

Postmark Here
DEC 18 2018

7018 0360 0001 8569 5883

Sent To
Street and
City, State,

REGENERATION ENERGY CORP.
P.O. Box 210
Artesia, New Mexico 88211-0210

PS Form

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

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

OFFICIAL USE

Certified Mail Fee $

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

Postage $ 6.70

Total Postage and Fees $

Postmark Here
DEC 18 2018

7018 0360 0001 8569 5906

Sent To
Street and
City, State

THE ALLAR COMPANY
735 Elm Street
Graham, TX 76450

PS Form

C-108 - Item XIV

Proof of Notice (Certified Mail Receipts – cont.)

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

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

OFFICIAL USE

Certified Mail Fee
$

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

Postage
$

Total Postage and Fees
$ 6.70

Postmark Here

DEC 18 2019

Sent To
MRC PERMIAN COMPANY
Street and Apt.
5400 LBJ Freeway, Suite 1500
City, State, ZIP
Dallas, Texas 75240

PS Form 3800

7018 0360 0001 8569 5913

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

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

OFFICIAL USE

Certified Mail Fee
$

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

Postage
$

Total Postage and Fees
$ 6.70

Postmark Here

DEC 18 2019

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

PS Form 3800

7018 0360 0001 8569 5920

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

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

OFFICIAL USE

Certified Mail Fee
$

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

Postage
$

Total Postage and Fees
$ 6.70

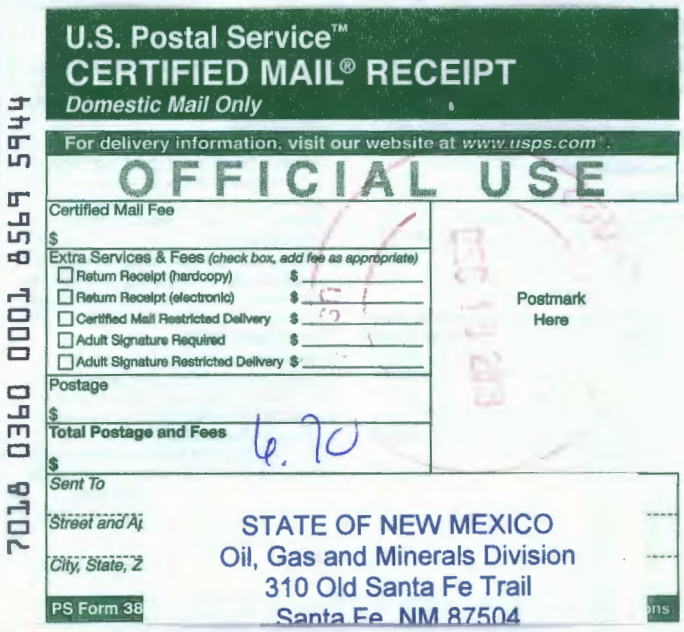
Postmark Here

DEC 18 2019

Sent To
BUREAU OF LAND MANAGEMENT
Street and Apt.
Oil & Gas Division
City, State, ZIP
620 E. Greene St.
Carlsbad, NM 88220

PS Form 3800

7018 0360 0001 8569 5937



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

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

OFFICIAL USE

Certified Mail Fee
$

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

Postage
$

Total Postage and Fees
$ 6.70

Postmark Here

DEC 18 2019

Sent To
STATE OF NEW MEXICO
Street and Apt.
Oil, Gas and Minerals Division
City, State, ZIP
310 Old Santa Fe Trail
Santa Fe, NM 87504

PS Form 3800

7018 0360 0001 8569 5944

Affidavit of Publication

No. 24945

State of New Mexico

County of Eddy:

Danny Scott

being duly sworn sayes 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 18, 2018
Second Publication	
Third Publication	
Fourth Publication	
Fifth Publication	
Sixth Publication	
Seventh Publication	

Subscribed and sworn before me this

18th day of December 2018

OFFICIAL SEAL
Latisha Romine
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 5/12/2018

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

Copy of Publication:

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 McDonald South SWD No.1, will be located 1750' FNL and 1400' FEL, Section 7, Township 26 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 15,100' to 15,700' at a maximum surface pressure of 3020 psi and a rate limited only by such pressure. The proposed SWD well is located approximately 11.7 miles south/ 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.

Published in the Artesia Daily Press, Artesia, N.M., Dec. 18, 2018 Legal No. 24945.