00 24 2018



PRG1828534299

#### NEW MEXICO OIL CONSERVATION DIVISION



- Geological & Engineeri	
1220 South St. Francis Drive, Sa	ntd Fe, NM 8/505
ADMINISTRATIVE APPLICA	ATION CHECKLIST
THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPI REGULATIONS WHICH REQUIRE PROCESSING AT	LICATIONS FOR EXCEPTIONS TO DIVISION RULES AND THE DIVISION LEVEL IN SANTA FE
Applicant: Mesquite SWD, Inc.	OGRID Number:161968
Well Name: Trey SWD No. 1	API: 30-025-45029 /
Pool: SWD; Devonian-Silurian	Pool Code: 97869
SUBMIT ACCURATE AND COMPLETE INFORMATION REQ	
1) TYPE OF APPLICATION: Check those which apply for	[A] SWD-1699
A. Location – Spacing Unit – Simultaneous Dedica	tion
	NSP (PRORATION UNIT) SD Amend
B. Check one only for [1] or [1]  [1] Commingling – Storage – Measurement  DHC   CTB   PLC   PC    [11] Injection – Disposal – Pressure Increase – En  WFX   PMX   SWD   IPI    2) NOTIFICATION REQUIRED TO: Check those which app  A.   Offset operators or lease holders  B.   Royalty, overriding royalty owners, revenue of complete to the complete of th	FOR OCD ONLY  Doly.  Notice Complete  Application Content Complete  Dublication is attached, and/or,  Submitted with this application for on the best of my knowledge. I also cation until the required information and
	8/24/2018
Melanie Wilson	Date
Print or Type Name	
(	575-914-1461
Melanie Welson	Phone Number
	mjp1692@gmail.com
Signature	e-mail Address

Energy, Minerals and Natural Resources Department Oil Conservation Division 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Attention: Ms. Heather Riley

**Division Director** 

Re: Application to Amend Order SWD-1699
Mesquite SWD, Inc.
Trey SWD Well No. 1
API No. 30-025-45029
200' FNL & 200' FEL, Unit A
Section 21, T-23S, R-32E, NMPM,
Lea County, New Mexico

Dear Ms. Riley,

By Administrative Order SWD-1699 dated November 3, 2017 the Division authorized Mesquite SWD, Inc. ("Mesquite") to utilize its Trey SWD No. 1 as a produced water disposal well, injection to occur into the Devonian and Silurian formations through the open-hole interval from approximately 16,737 feet to 18,000 feet. The order also stipulated that injection was to occur through 5 ½" or smaller tubing inside the 9 5/8" intermediate casing, and 4 ½" or smaller tubing inside the 7 5/8" liner.

Mesquite, the operator of the Trey SWD No. 1, respectfully requests that Order SWD-1699 be amended to authorize the use of 7" tubing or smaller inside the 9 5/8" intermediate casing and 5 ½" tubing or smaller inside the 7 5/8" liner.

In support of this request, Mesquite submits the following statements and/or documents:

- 1. Copy of Order SWD-1699 (Exhibit 1);
- 2. Attached is the wellbore schematic originally submitted with the C-108 application received by the Division on October 18, 2017 (Exhibit 2). Also attached is a wellbore schematic that shows the proposed wellbore configuration (Exhibit 3). (Please note that the casing and cementing program for this well is not being amended);
- 3. OCD GIS map (Exhibit 4) showing the location of the Trey SWD No. 1 and the surrounding 9-section area. An examination of Division records indicates that there are currently no additional Devonian/Silurian produced water disposal wells within this 9-section area;

- 4. By Order No. R-14392-A issued in Case No. 15654 on December 7, 2017 the Oil Conservation Commission approved the application of Mesquite to increase the injection tubing size in eight of its Devonian/Silurian produced water disposal wells from a maximum of 4 ½ inches to a maximum of 5 ½ inches for each well. In that case, the Commission finds that:
  - a. Finding No. 21: "Mesquite also presented sufficient evidence and testimony in this particular case which indicates that the increased injection rates, achieved through the use of 5 ½" tubing, is unlikely to create fault slippage or induced seismicity. That is, in part, due to the distance between the wells at issue in Mesquite's application and the distance from the wells to known fault lines";
  - b. Finding No. 22: "The evidence presented further indicated that fishing operations could successfully be performed on the wells when 5 ½" tubing is utilized within 7 5/8" casing";

The wells that are the subject of Case No. 15654 are in the same general area of Eddy and Lea Counties as the Trey SWD No. 1

- 5. By Order No. R-14796 issued in Case No. 16308 on July 30, 2018 the Oil Conservation Division approved the application of Mesquite to increase the injection tubing size from 5 ½" or smaller tubing inside the surface and intermediate casing to 7", and increase the injection tubing size from 4 ½" or smaller in the 7 5/8" liner to 5 ½" within its Mesa Verde SWD Well No. 3 located in Unit N of Section 13, Township 24 South, Range 31 East, NMPM, Eddy County, New Mexico. In that case, the Division finds that:
  - a. Finding No. 8: "The fishing specification books available to the Examiner indicate that the proposed 5 ½-inch diameter tubing cannot be fished with an off-the-shelf slim hole overshot inside 7 5/8-inch, 39-ppf casing. Therefore, the overshot tool required in this instance must be specifically milled to a smaller outside diameter, resulting in lower tensile strength rating. The evidence presented from an expert in pipe recovery indicates that the proposed tubing inside the subject well's casing can be fished (pulled out of the hole) with an internal spear type tool and can also be fished from the hole with a modified or milled overshot grapple";
  - b. Finding No. 13: "The proposed increase in tubing size in this properly cemented and cased disposal well should not pose an increased risk to potable or protectable waters and should not degrade the ability of the Division to properly administer the Class II Underground Injection Control Program";

- 6. Attached are the following documents presented as evidence in Case No. 16308 to support Mesquite's position that due to the proximity of the Mesa Verde SWD No. 3 to known Pre-Cambrian Faults in Southeast New Mexco, it is unlikely that any seismic activity will result from injection into the Devonian/Silurian formation in this area:
  - a. Map of known Pre-Cambrian faults in Southeast New Mexico (Exhibit 5) relative to the location of the Mesa Verde SWD No. 3. (It should be noted that the Trey SWD No. 1 is located approximately 8 miles Northeast of the Mesa Verde SWD No. 3, and still a considerable distance from these known faults);
  - b. A summary of seismic events within 25 km of the Mesa Verde SWD No. 3 (Exhibit 6). This evidence shows no seismic activity within the area of the Trey SWD No. 1;
- 7. Attached is a document presented in Case No. 16308 which demonstrates that increasing the tubing size in a Devonian well in this area will result in an increase in injection rate from 29 MBWPD to 41 MBWPD (Exhibit 7). The resulting increase in injection rate will mean that less produced water disposal wells will be necessary to accommodate the ever-increasing demand for disposal.
- 8. Attached is a copy of a C-103 Sundry Notice that will be submitted to the Hobbs District office of the Division (Exhibit 8).

In summary, the proposed amendment of Order SWD-1699 will not likely result in an increase in seismic activity in Southeast New Mexico, will not cause mechanical problems within the well in the event the tubing is required to be fished, will reduce the number of disposal wells necessary to accommodate produced water disposal needs in Southeast New Mexico, and will result in a more efficient use of the Trey SWD No. 1 for produced water disposal.

Mesquite requests that the processing of this application be expedited by the Division to the extent possible. Drilling operations on the Trey SWD No. 1 will commence before the end of the year, and it will be necessary to plan ahead for equipping the well for disposal.

I believe that all the information necessary to approve the application is enclosed. If additional information is needed, please contact me at (575) 914-1461.

Mesquite SWD, Inc. Application to Amend SWD-1699 Trey SWD No. 1

Sincerely,

Melanie Wilson-Regulatory Analyst

Mesquite SWD, Inc.

P.O. Box 1479

Carlsbad, New Mexico 88221-1479

Xc: OCD-Hobbs

## State of New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez Governor

Ken McQueen Cabinet Secretary

Matthias Sayer Deputy Cabinet Secretary David R. Catanach, Division Director Oil Conservation Division



Administrative Order SWD-1699 November 3, 2017

### ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8B. NMAC, Mesquite SWD, Inc. (the "operator") seeks an administrative order for its Trey SWD Well No. 1 ("proposed well") with a location of 200 feet from the North line and 200 from the East line, Unit A of Section 21, Township 23 South, Range 32 East, NMPM, Lea County, New Mexico, for the purpose of commercial disposal of produced water.

#### THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 19.15.26.8B. NMAC and satisfactory information has been provided that affected parties as defined in said rule have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met and the operator is in compliance with Rule 19.15.5.9 NMAC.

#### IT IS THEREFORE ORDERED THAT:

The applicant, Mesquite SWD, Inc. (OGRID 161968), is hereby authorized to utilize its Trey SWD Well No. 1 (API 30-025-pending) with a location of 200 feet from the North line and 200 from the East line, Unit A of Section 21, Township 23 South, Range 32 East, NMPM, Lea County, for disposal of oil field produced water (UIC Class II only) through an open hole interval consisting of the Devonian and Silurian formations from 16737 feet to approximately 18000 feet.

Injection will occur through either an internally-coated, 5-1/2-inch or smaller tubing inside the surface and intermediate casings, and a 4-1/2-inch or small tubing inside the liner. Further, a packer shall be set within 100 feet of the uppermost perforation.

This permit does not allow disposal into the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to this formation.

Prior to commencing disposal, the operator shall submit mudlog and geophysical logs information, to the Division's District geologist and Santa Fe Bureau Engineering office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of depths (picks) for contacts of the formations which the Division shall use to amend this order for 'h for the injection interval.

Exhibit No. 1 Order SWD-1699 ) South St. Francis Drive • Santa Fe, New Mexico 87505 76-3441 • Fax (505) 476-3462 • email: www.emnrd.state.nm.us/ocd

Application to Amend SWD-1699
Trey SWD Well No. 1

#### **IT IS FURTHER ORDERED THAT:**

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application and, if necessary, as modified by the District Supervisor.

The operator shall circulate the cement behind the casing to surface for all surface and intermediate casings.

The operator shall run a CBL (or equivalent) across the 7-5/8-inch liner from 500 feet above the liner to the bottom of the liner to demonstrate a good cement across to demonstrate a good cement across the liner and good cement bond across the 9-5/8-inch casing.

If significant hydrocarbon shows occur while drilling, the operator shall notify the Division's District I office and the operator shall be required to receive written permission prior to commencing disposal.

Within two years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District I office and Santa Fe Engineering Bureau office.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC. The Division Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

The wellhead injection pressure on the well shall be limited to **no more than 3347 psi**, <u>but</u> may be modified by the Division Director following the completion of the initial Step-Rate Test. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formations. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and

Administrative Order SWD-1699 Mesquite SWD, Inc. November 3, 2017 Page 3 of 3

time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District I office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The disposal authority granted herein shall terminate two (2) years after the effective date of this Order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

DAVID R. CATANACH

Director

DRC/mam

cc: Oil Conservation Division – Hobbs District Office

Bureau of Land Management - Carlsbad

Administrative Application – pMAM1729159232

Mesquite SWD, Inc. Trey SWD #1 200' FNL & 200' FEL Sec. 21, T23S-R32E Lea County, NM

#### PROPOSED NEW WELL DIAGRAM

API: 30025xxxx

Operator: Mesquite SWD, Inc
Lease: Trev SWD

Location: Sec 21, T23S-R32 Lea Co., NM

Footage: 200' FNL & 200' FEL

Well No:

KB: 3727' est GL: 3697' (Google) MSL of TD: -14273' est 32.29552011N 103.6721339W

Surface Esg

 Size:
 20" 94# J-55 BTC

 Set ⊚:
 880

 Sxs cmt:
 650

 Circ:
 Yes

 TOC:
 Surf

 Hole Size:
 26"

Intermediate Csg

 Size:
 13-3/8" 68# N-80 LTC

 Set ⊚:
 4,400

 Sxs omt:
 1000

 Circ:
 Yes

 TOC:
 Surf

 Hole Size:
 17-1/2"

Intermediate-2 Csg

 Size:
 9-5/8" 47# HCL

 Set ⊚:
 11700

 Sxs cmt:
 1800

 Circ:
 Yes

 Hole Size:
 12-1/4"

Liner

 Size:
 7-5/8" 39/42.8# P-110

 Top
 11650

 Set ⊚
 16737

 Sx cmt
 2885

 Circ
 Yes

 Hole Size:
 8-1/2"

Open Hole

 Size
 Interval
 16737-18000'

 Hole Size
 6-1/4"

Tubular requirements (made-up): 5-1/2" 0-300' 17# N80 Butt, 330'-11,000' 17# N80 LTC, 11,000'-11,650' 20# N80 LTC, 4.5" 11,650'-12,800' 11.6# P110 LTC, 12,800'-14,400' 13.5# N80 LTC 14,400'-16,737' 31.5# P110 LTC

Lok-Set or equivalent approx 16,737

Open hole acid if reqiuried. Tubing annulus w/corrosion inhibitor Complete surface head for disposal

Rustler est 720' 880 T/salt est 1060' 4400 B/Salt est 4370' Del Mtn Group est 4612' DV @ approx 4800' Bone Springs est 8400' 0-13-2 Wolfcamp est 11165' 11650 11700 11920 Strawn est 13500' Morrow est 14315' Miss Ls est 16150" 16737 Top Siluro-Devonian est 18000 TD **NOT TO SCALE** Est: Montoya 18050

Exhibit No. 2
Original Wellbore Configuration
Application to Amend SWD-1699
Trey SWD Well No. 1

#### Mesquite SWD, Inc.

#### Trey SWD No. 1: Proposed Wellbore Schematic 200' FNL & 200' FEL (Unit A)

#### Section 21, T-23S, R-32E, NMPM, Lea County, NM

#### **Surface Casing:**

Hole Size: 26"

Size:

20" 94# J-55 BTC

Set @:

880' 650

Sx. Cmt: TOC:

Surface

#### 1<sup>st</sup> Intermediate Casing:

Hole Size: 17.5"

Size: 13.375" 68# N-80

Set @:

4,400

Sx. Cmt: 1000

TOC:

Surface

#### 2<sup>nd</sup> Intermediate Casing

Hole Size: 12.25"

Size:

9.625 47# P-110

Set @:

11,700' Sx. Cmt: 1800

TOC:

Surface

#### <u>Liner</u>

Hole Size: 8.5"

Size:

7.625" 39# P-110

Set @:

11,650'-16,737' Sx. Cmt: 2885

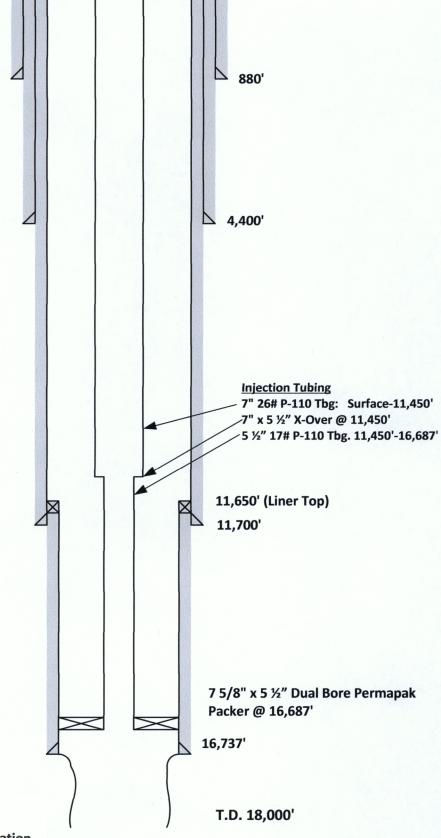
TOC:

11,650' (Liner Top)

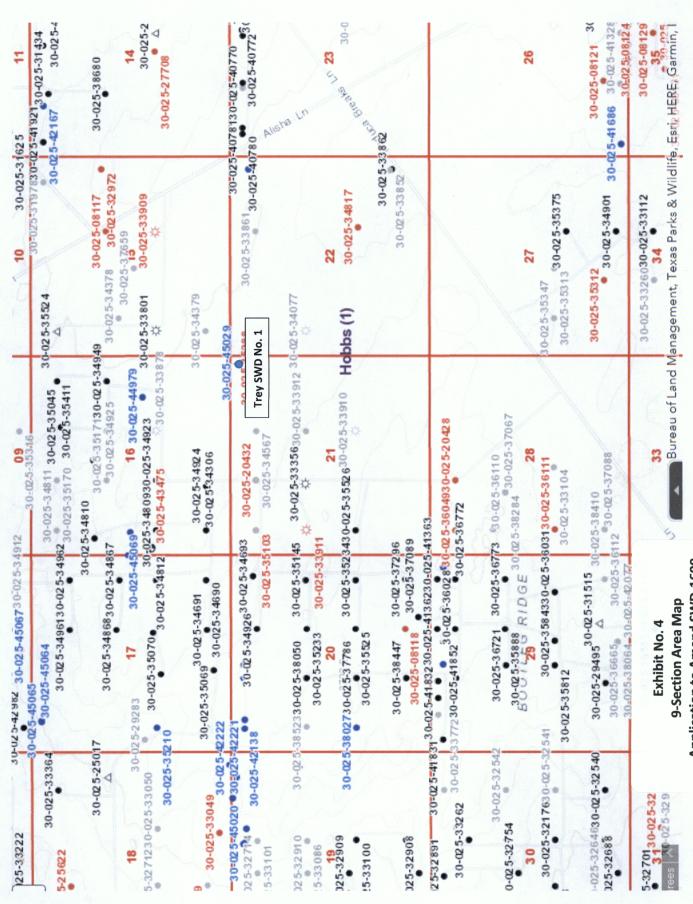
#### **Open-Hole Injection Interval**

Hole Size: 6 1/4"

Interval: 16,737'- 18,000'



**Exhibit No. 3 Proposed Wellbore Configuration Application to Amend SWD-1699 Trey SWD Well No. 1** 



9-section Area Map
Application to Amend SWD-1699
Trey SWD Well No. 1

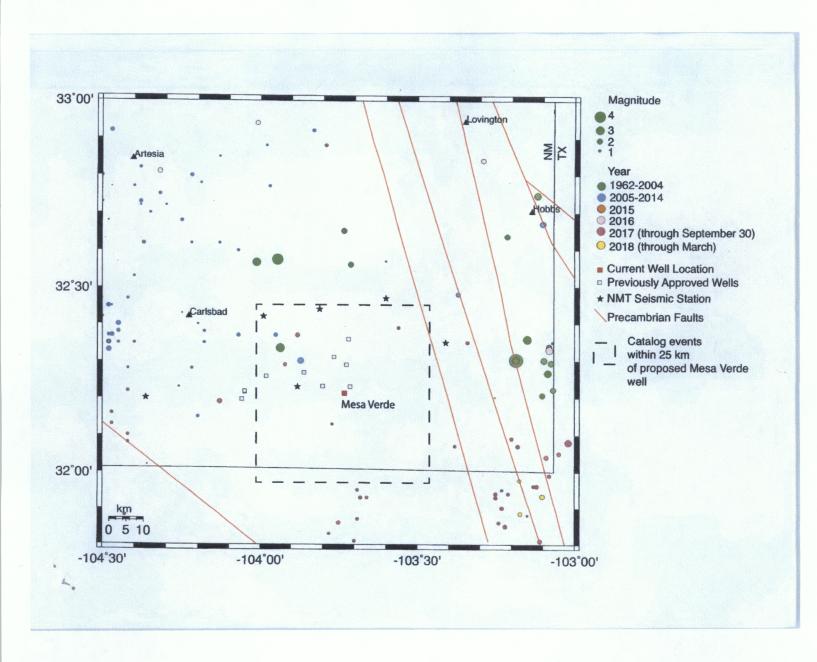


Exhibit No. 5 Known Pre-Cambrian Faults Application to Amend SWD-1699 Trey SWD Well No. 1

Seismic Catalog Analysis within 25 km of Mesa Verde #3:

Analysis based on NMT seismicity analysis using US Geological Survey earthquake catalog and data from seismic network stations within the SE New Mexico region. Published NMT catalogs span 1962-2009 (Sanford et al., 2002, Sanford et al., 2006, Stankova-Pursley et al., 2013) and unpublished catalogs from 2009 – September 2017, February-March 2018.

Total of 7 events within 25 km of this well (between 1962-March 2018)

Catalog from 1962-2004: 1 event magnitude 3.2

Closest event to well location: 23.7 km (magnitude 3.2 event)

Catalog from 2005-2018(March): minimum magnitude 1.0, maximum magnitude 2.4

Closest event to well location: 9.8 km (1.0 magnitude event)

#### Yearly summary of earthquakes within 25 km of Mesa Verde #3 well:

1962\_1998: 1 (1 earthquake with magnitude greater than 2)

1998 2004:0

2005-2014: 2 (1 earthquake with magnitude greater than 2)

2015: 0 2016: 0

2017: 4 (0 > M2)

2018(through March): 0

YYYYMMDD	HH:MM:SS	LATITUDE	LONGITUDE	MAGNITUDE
19971019	11:12:09	32.33	-103.94	3.2
20111227	23:10:37	32.37	-103.95	1.6
20120318	10:57:22	32.30	-103.87	2.4
20170211	14:34:27	32.29	-103.92	1.5
20170302	11:38:53	32.37	-103.88	1.7
20170325	22:46:01	32.13	-103.77	1.0
20170814	01:09:56	32.39	-103.56	1.2

Earthquake depths are unconstrained.

#### References:

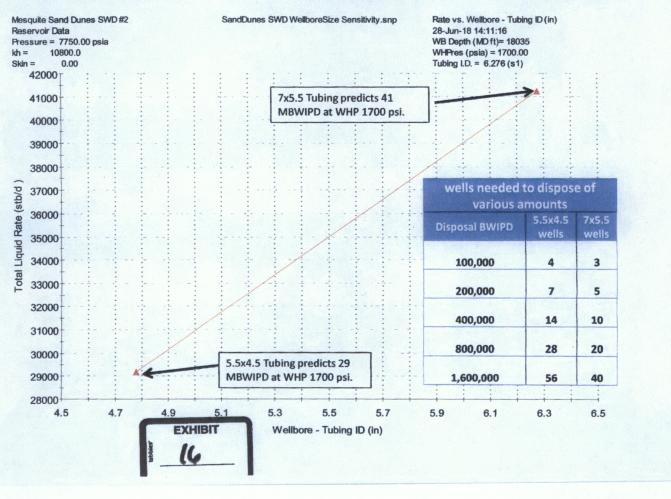
Sanford, A. R., Lin, K-w., Tsai, I., and Jaksha, L. H., 2002, Earthquake catalogs for New Mexico and bordering areas: 1869–1998: New Mexico Bureau of Geology and Mineral Resources, Circular 210, 104 pp.

Sanford, A. R., Mayeau, T. M., Schlue, J. W., Aster, R. C., and Jaksha, L. H., 2006, Earthquake catalogs for New Mexico and bordering areas II: 1999–2004: New Mexico Geology, v. 28, no. 4, pp. 99–109.

Pursley, J., Bilek, S.L., and Ruhl, C.J., 2013, Earthquake catalogs for New Mexico and bordering areas: 2005–2009, New Mexico Geology, v. 35, no. 1, pp. 3–12.

Exhibit No. 6
Seismic Events-SE New Mexico
Application to Amend SWD-1699
Trey SWD Well No. 1

# Mesquite SWD Increased injection rate per well equates to fewer injectors.

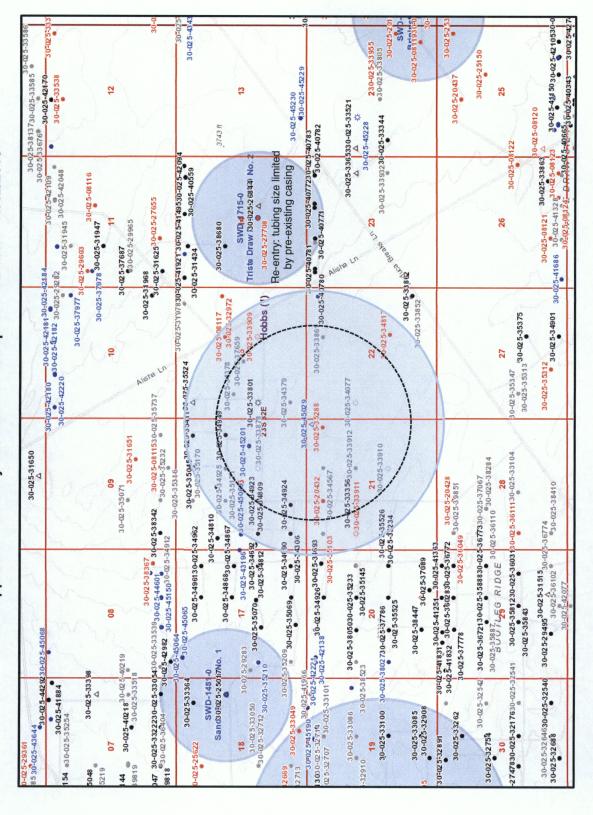


Submit 1 Copy To Appropriate District	Didle of field		Form C-103		
District I – (575) 393-6161	Office District I – (575) 393-6161 Energy, Minerals and Natural Resources		Revised July 18, 2013		
1625 N. French Dr., Hobbs, NM 88240			WELL API NO.		
<u>District II</u> – (575) 748-1283 811 S. First St., Artesia, NM 88210	OIL CONSERVATION	DIVISION	30-025-45029		
District III - (505) 334-6178	1220 South St. Fra	ncis Dr.	5. Indicate Type of Lease  STATE FEE		
1000 Rio Brazos Rd., Aztec, NM 87410	Santa Fe, NM 8	7505	6. State Oil & Gas Lease No.		
<u>District IV</u> – (505) 476-3460 1220 S. St. Francis Dr., Santa Fe, NM	2 4, 1 1 1 2		o. State on & Gas Lease No.		
87505					
(DO NOT USE THIS FORM FOR PROPO	CICES AND REPORTS ON WELLS OSALS TO DRILL OR TO DEEPEN OR PL ICATION FOR PERMIT" (FORM C-101) F	UG BACK TO A	7. Lease Name or Unit Agreement Name TREY SWD		
PROPOSALS.)	Gas Well Other SWD	8. Well Number 1			
Type of Well: Oil Well     Name of Operator	Gas Well  Other SWD		9. OGRID Number 161968		
	ITE SWD, INC.		, OGRID Rumber 101700		
3. Address of Operator PO BO			10. Pool name or Wildcat		
	SBAD NM 88220		[97869] SWD; DEVONIAN-SILURIAN		
4. Well Location					
	eet from the NORTH line and _	200 feet from th	e EAST line		
Section 21	Township 23S	Range 32E	NMPM LEA County		
Section 21	11. Elevation (Show whether DE				
	3689' GR				
NOTICE OF INTENTION TO:  PERFORM REMEDIAL WORK  PLUG AND ABANDON  CHANGE PLANS  COMMENCE DRILLING OPNS. PAND A DOWNHOLE CASING  MULTIPLE COMPL  CASING/CEMENT JOB  CASING CASI					
I hereby certify that the information above is true and complete to the best of my knowledge and belief.					
SIGNATURE Millson TITLE Regulatory Analyst DATE 08/21/2018					
Type or print name Melanie J. V. For State Use Only	Vilson E-mail address: mjp1692	@gmail.com PH	ONE: <u>575-914-1461</u>		
APPROVED BY:	TITLE		DATE		

Exhibit No. 8
Form C-103 (Sundry Notice)
Application to Amend SWD-1699
Trey SWD Well No. 1

Conditions of Approval (if any):

Pending Application to Modify High-Volume Devonian Disposal Well C-108 Application for Trey SWD No. 1 – Mesquite SWD Inc. – 10/12/2018



API 30-025-45029; Application No. pPRG1828534299; increase to 5.5-inch x 7-inch tapered tubing set Trey SWD No. 1; Mesquite SWD Inc.; SWD-1699