				Revised March 23, 201	
RECEIVED: 08/23/2019	REVIEWER:	TYPE. SUD	PRG1828	334618	
1	- Geological	OIL CONSERVATION & Engineering Burn cis Drive, Santa Fe,	<b>N DIVISION</b> eau -	3	
THIS CHECKLIS	T IS MANDATORY FOR ALL AD	IVE APPLICATION C IMMISTRATIVE APPLICATIONS I BE PROCESSING AT THE DIVISION	FOR EXCEPTIONS TO DIV	ISION RULES AND	
Applicant: Mesquite SWD, Inc.			OGRID Number: 161968		
Well Name: Red Hills SW	D No. 1		API: 30-025-45028		
Pool: SWD; Devonian-Monto		Pool Cod	e: 97803		
1) TYPE OF APPLICATION A. Location – Spo	II	ndicated BELOW ich apply for [A] eous Dedication		SWD-1684 forend Order	
☐DHC - Injection [ II ]	ng – Storage – Meas	□PC □OLS Increase – Enhance	□OLM d Oil Recovery □PPR =		
₩FA	□FIMX ■344D			FOR OCD ONLY	
B. Royalty, over C. Application D. Notification	ators or lease holder erriding royalty owned requires published to and/or concurrent and/or concurrent	s ers, revenue owners notice approval by SLO		Notice Complete Application Content Complete	
J Solice Ow		1*2* 1*			

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

G. For all of the above, proof of notification or publication is attached, and/or.

H. No notice required

understand that <b>no action</b> will be taken on this application until the required information and notifications are submitted to the Division.					
Note: Statement must be completed by an i	individual with managerial and/or supervisory capacity.				
	8/20/18				
Melanie Wilson	Date				
Print or Type Name	575-914-1461				
Melanie Viction	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-1684
Mesquite SWD, Inc.
Red Hills SWD Well No. 1
API No. 30-025-45028
1500' FNL & 430' FEL, Unit H
Section 5, T-26S, R-33E, NMPM,
Lea County, New Mexico

Dear Ms. Riley,

By Administrative Order SWD-1684 dated August 3, 2017 the Division authorized Mesquite SWD, Inc. to utilize its Red Hills 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 16,620 feet to 17,820 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 SWD, Inc. ("Mesquite"), the operator of the Red Hills SWD No. 1, respectfully requests that Order SWD-1684 be amended to authorize the use of 7" tubing inside the 9 5/8" intermediate casing and 5 ½" tubing inside the 7 5/8" liner.

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

- 1. Copy of Order SWD-1684 (Exhibit 1);
- 2. Attached is the wellbore schematic originally submitted with the C-108 application received by the Division on May 1, 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 Red Hills 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 Red Hills 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 Red Hills SWD No. 1 is located approximately 13 miles Southeast 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 Red Hills 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-1684 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 Red Hills 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 Red Hills SWD No. 1 will commence in a matter of days, 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-1684 Red Hills 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-1684 August 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 Red Hills SWD Well No. 1 ("proposed well") with a location of 1500 feet from the North line and 430 from the East line, Unit H of Section 5, Township 26 South, Range 33 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 Red Hills SWD Well No. 1 (API 30-025-pending) with a location of 1500 feet from the North line and 430 from the East line, Unit H of Section 5, Township 26 South, Range 33 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 16620 feet to approximately 17820 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 a final description of the depth

1220 § Phone (505) 476 Exhibit 1
Order SWD-1684
Application to Amend SWD-1684
Red Hills SWD Well No. 1

n.us/ocd

#### **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 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 3324 psi**, but 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-1684 Mesquite SWD, Inc. August 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 Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

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 Administrative Application – pMAM1712152379

Est t/Montova 17860

Mesquite SWD, Inc. Red Hills SWD #1 1500' FNL & 430' FEL Sec. 5. T26S-R33E Lea County, NM

#### PROPOSED NEW WELL DIAGRAM

API: 30025ния Operator: Mesquite SWD, Inc Red Hills SWD 3364' est Lease Well No: KB: Location: Sec 5, T265-R33E Lea Co., NM 3338' (Google) Footage: 1500 FNL, 430 FEL MSL of TD: -14458' est 32.07533N 103.48434W Surface Esg Size: 20" 133# J-55 BTC Set @: 880 220 Rustler est 880 Sas cmt: 1980 Salado est 1180 Circ: Yes Tisalt est 2385 TOC: Suf B/Salt est 4150 Hole Size: 26" 4400 Intermediate Csg 13-3/8" 68# HCN-80 LTC Size: Dei Mta Group est 5300' Set @: 4 400 Sxs cmt: 1000 Circ: Yes DV @ approx 4800° TOC: Surf Hole Size: 17-1/2" Intermediate-2 Csg Size: 9-5/8" 47# HCL Set @: 11700 Sas omt 1800 Circ: Yes Bone Springs est 7200" 12-1/4" Hole Size: Lines Size: 7-5/8" 39/42.8# P-110 Top 11650 Set @ 16620 Sacmt 2880 Circ Yes Hole Size: 8-1/2" Wolfcamp est 11165 **Open Hole** Size 11650 16620-18010 Interval 11700 6-1/4" 11320 Hole Size Strawa est 135001 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' Morrow est 14315' 11.6# P110 LTC, 12,800"-14,400" 13.5# N80 LTC Dv @ approx 15650" 14,400'-16,620' 315# P110 LTC Miss Lo est 16150" Lok-Set or equivalent approx 16,620' 16520 Top Siluro-Devonian est Open hole acid if regiuried. Tubing annulus wicorrosion inhibitor Complete surface head for disposal 17620 TO

Exhibit 2
Original Wellbore Configuration
Application to Amend SWD-1684
Red Hills SWD Well No. 1

#### Mesquite SWD, Inc.

## Red Hills SWD No. 1: Proposed Wellbore Schematic 1500' FNL & 430' FEL (Unit H)

Section 5, T-26S, R-33E, NMPM, Lea County, NM

#### **Surface Casing:**

Hole Size: 26"

Size:

20" 133# J-55 BTC

Set @:

880' 1980

Sx. Cmt: TOC:

Surface

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

Hole Size: 17.5"

Size:

13.375" 68# N-80

Set @:

4,400' 1000

Sx. Cmt: TOC:

Surface

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

Hole Size: 12.25"

Size:

9.625 47# P-110

Set @: Sx. Cmt: 11,700' 1800

TOC:

Surface

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

Hole Size: 8.5"

Size:

7.625" 39# P-110

Set @: Sx. Cmt:

11,650'-16,620' 2880

TOC:

11,650' (Liner Top)

## **Open Hole Injection Interval**

Hole Size: 6 1/4"

Interval: 16,620'- 17,820'

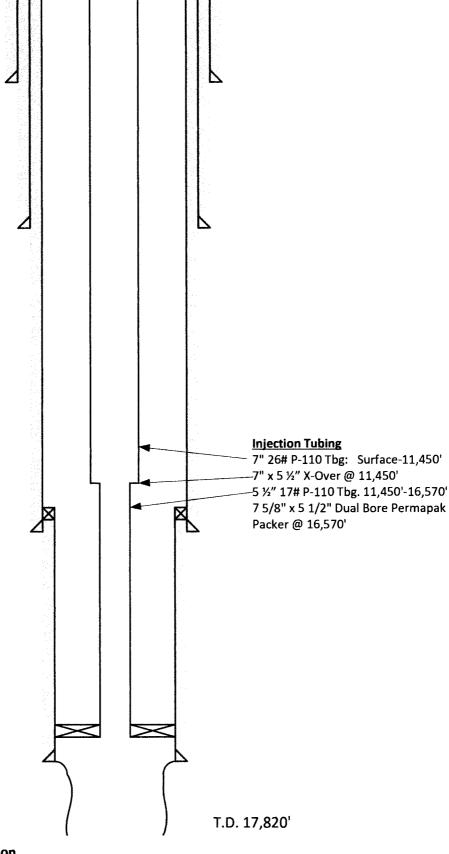
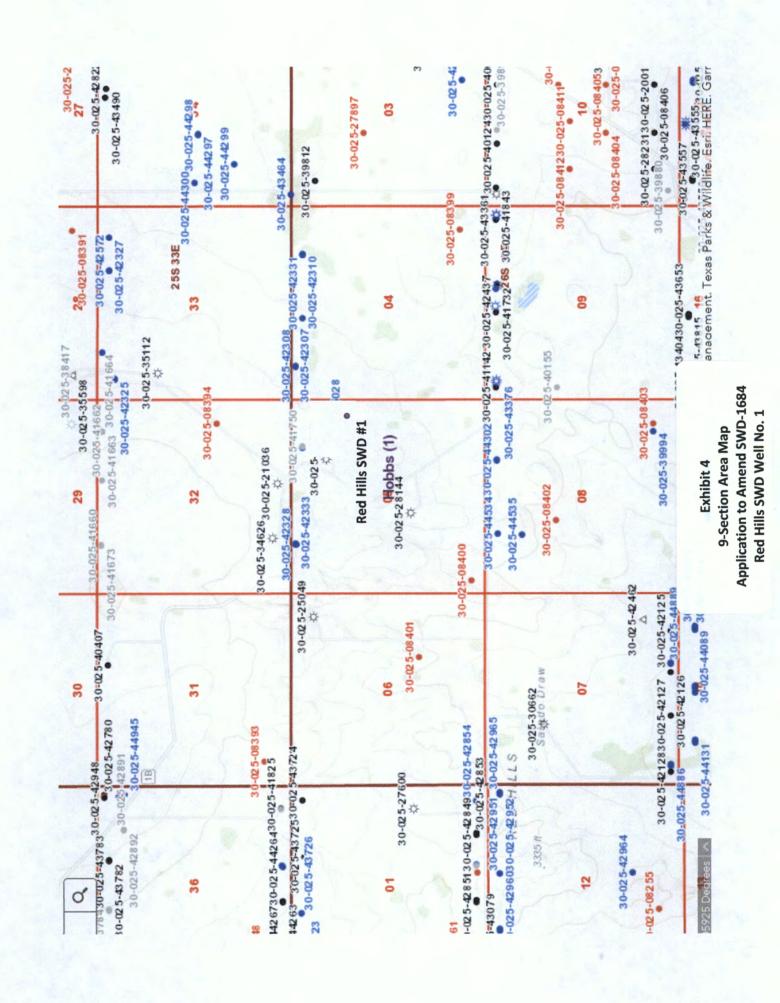
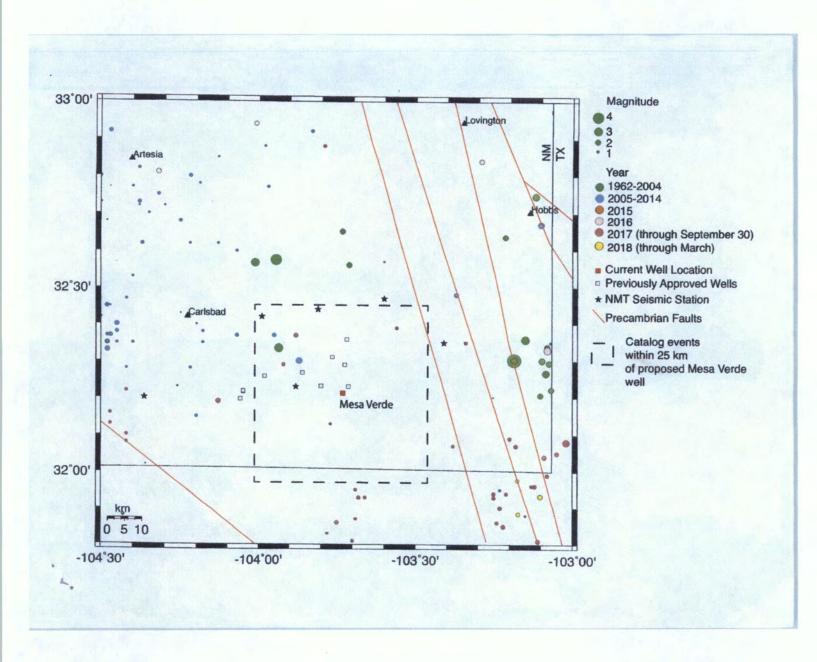


Exhibit 3 **Proposed Wellbore Configuration Application to Amend SWD-1684** Pod Hills SWD Wall No. 1





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:

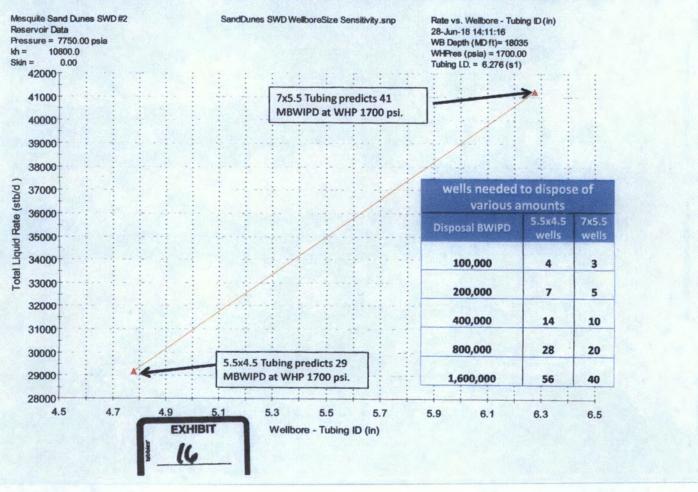
Sanford, A. R., Lin, K-w., Tsai, I., and Jaksha, L. H., 2002, Earthquake catalogs for New Mexico and bordering areas: 1869–1998: New Mexico Bureau of Geology and Mineral Resources, Circular 210, 104 pp.

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 6
Seismic Events-SE New Mexico
Application to Amend SWD-1684
Red Hills SWD Well No. 1

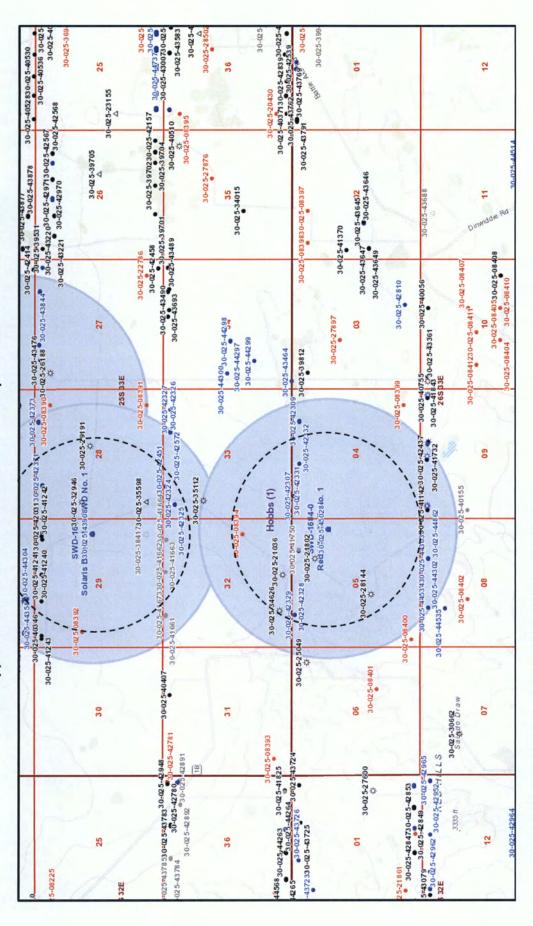
# Mesquite SWD Increased injection rate per well equates to fewer injectors.



Submit 1 Copy To Appropriate District Office	State of New Mexico		Form C-103		
District I - (575) 393-6161		Energy, Minerals and Natural Resources		Revised July 18, 2013 WELL API NO.	
1625 N. French Dr., Hobbs, NM 8824 District II – (575) 748-1283				30-025-45028	
811 S. First St., Artesia, NM 88210 District III – (505) 334-6178	OIL CONSERVATION 1220 South St. Fra		5. Indicate Ty		
1000 Rio Brazos Rd., Aztec, NM 8741			STATE	THE RESERVE OF THE PARTY OF THE	
District IV – (505) 476-3460 1220 S. St. Francis Dr., Santa Fe, NM 87505	Santa I C, IVIVI 6	6. State Oil & Gas Lease No.			
SUNDRY N (DO NOT USE THIS FORM FOR PR DIFFERENT RESERVOIR. USE "AI	7. Lease Name or Unit Agreement Name RED HILLS SWD				
PROPOSALS.)  1. Type of Well: Oil Well	Gas Well Other SWD	8. Well Numb	per 1		
2. Name of Operator	Was a second	9. OGRID Nu	9. OGRID Number 161968		
	QUITE SWD, INC.		10 Paul nome	10 Perlament Wildow	
	BOX 1479 RLSBAD NM 88220			10. Pool name or Wildcat [97803] SWD; DEVONIAN-MONTOYA	
4. Well Location					
A CONTRACTOR OF THE PROPERTY OF THE PARTY OF	00 feet from the NORTH line and			The best of the second of the	
Section 5		Range 33E	NMPM	LEA County	
	11. Elevation (Show whether DR 3360' GR	, KKB, KI, GK, etc	c.)		
12. Che	ck Appropriate Box to Indicate N	lature of Notice	, Report or Oth	ner Data	
PERFORM REMEDIAL WORK	FINTENTION TO:	REMEDIAL WO	BSEQUENT	ALTERING CASING	
TEMPORARILY ABANDON	CHANGE PLANS		RILLING OPNS.		
PULL OR ALTER CASING	MULTIPLE COMPL	CASING/CEME			
DOWNHOLE COMMINGLE					
CLOSED-LOOP SYSTEM		The same of the sa			
OTHER: Change plan	s/tubing size	OTHER:			
<ol> <li>Describe proposed or c of starting any propose proposed completion o</li> </ol>	ompleted operations. (Clearly state all d work). SEE RULE 19.15.7.14 NMAG recompletion.	pertinent details, a C. For Multiple C	and give pertinent ompletions: Attac	dates, including estimated date th wellbore diagram of	
smaller tubing inside the li	use of 5 1/2" or smaller tubing in ner. Mesquite SWD, Inc. respect rmediate casing and 5 1/2" tubin	tfully requests p	permission to ru	liate casing and 4 1/2" or un 7" tubing or smaller	
	tion above is true and complete to the b				
SIGNATURE Melan	ie Mason T	ITLE Regulatory	Analyst DAT	E <u>08/16/2018</u>	
Type or print name Melanie J For State Use Only	E-mail address: mjp1692@	@gmail.com_ PH	ONE: <u>575-914-</u>	1461	
APPROVED BY:	TITLE			DATE	
Conditions of Approval (if any)					

Exhibit 8
Form C-103 (Sundry Notice)
Application to Amend SWD-1684
Red Hills SWD Well No. 1

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



API 30-025-45028; Application No. pPRG1828534018; increase to 5.5-inch x 7-inch tapered tubing set Red Hills SWD No. 1; Mesquite SWD Inc.; SWD-1684