Initial

Application Part I

Received: 03/15/2019

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

MAR 15 2019 PM02:47

Revised March 23, 2017

RECEIVED	REVIEWER.	TYPE-	APP NO:	
3/15/2019	base	S GD	pinAm19074	57171
	NEW MEXICO - Geologico 1220 South St. Frai	OIL CONSERVATIO al & Engineering Bur ncis Drive, Santa Fe	N DIVISION reau – , NM 87505	D.
	ADMINISTRA	TIVE APPLICATION	CHECKLIST	
THIS CHE	CKLIST IS MANDATORY FOR ALL A REGULATIONS WHICH REQU	ADMINISTRATIVE APPLICATIONS JIRE PROCESSING AT THE DIVISION	FOR EXCEPTIONS TO DIVISION RULES A ON LEVEL IN SANTA FE	ND
pplicant: Permian TDS	, LLC		OGRID Number:	306958
ell Name: Coombes S	SWD #1		API: pending	
ol: Proposed SWD: Devo	nian-Silurian		Pool Code:	7869
) TYPE OF APPLICA	ATION: Check those w	INDICATED BELOW hich apply for [A]		
A. Location – NS	Spacing Unit – Simultan L NSP (PROJ	neous Dedication ECT AREA) NSP (PROF		
B. Check one [1] Commi D [1] Injectic V	only for [1] or [1] ngling – Storage – Mea HC CTB PLC on – Disposal – Pressure VFX PMX SWI	asurement PC OLS Increase – Enhance D IPI EOR	OLM d Oil Recovery	OCD ONLY
A. Offset of B. Royalty, C. Applica D. Notifica E. Notifica F. Surface G. For all of H. No notic	EQUIRED TO: Check th berators or lease holde overriding royalty owr tion requires published tion and/or concurren tion and/or concurren owner the above, proof of r ce required	ose which apply. ers hers, revenue owners I notice It approval by SLO It approval by BLM notification or publico	Applic Conte Comp	e Complete ation Int lete
) CERTIFICATION: I administrative a understand that notifications are	hereby certify that the oproval is accurate ar no action will be take submitted to the Divisi	e information submitted ad complete to the b n on this application on.	ed with this application for est of my knowledge. I als until the required informat	r o ion and
Note:	Statement must be completed	d by an individual with mana	gerial and/or supervisory capacity.	
		3 D	/13/2019 Date	
oel Lowry				
oel Lowry				
oel Lowry rint or Type Name		4	32-466-4450	

Signature

0

joel@lowryenvironmental.com e-mail Address

March 13, 2019

New Mexico Oil Conservations Division Attn: Phillip Goetze 1220 S. St. Francis Dr. Santa Fe, New Mexico 87505

Via U.S. Certified Mail – Return Receipt Requested

RE: Application for Authorization to Inject Coombes SWD #1 Township 22 South Range 33 East, N.M.P.M Section 22, 1630' FSL & 200' FEL Lea County, New Mexico

Mr. Goetze

Enclosed for your review is a copy of a C-108 Application and supporting documentation that has been prepared on behalf of Permian TDS, LLC, of Lovington, New Mexico. The proposed injection well is located in Section 22 Township 20 South Range 33 East, 1630' FSL and 200' FEL, in Lea County, New Mexico.

The proposed injection well will be a commercial SWD well taking produced water products form oil and gas operations in the surrounding area. If you have any questions or need any additional information, please contact Joel Lowry with Lowry Environmental & Associates, LLC.

Respectfully,

Joel W Lowry

environmental

PO Box 896 Lovington, NM 88260 Direct 432-466-4450

APPLICATION FOR AUTHORIZATION TO INJECT

1.	PURPOSE: Application qualifie	Secondary Recovery	Pressure Maintenance	XXX Disposal	Storage
11.	OPERATOR: Per	mian TDS, LLC	<u></u>		
	ADDRESS: PO	Box 788 Lovington, NM, 8826	0	DA(ON/E-	422 466 4450
	CONTACT PARTY	Lowry Environmental & A	Associates, LLC		432-400-4430
III.	WELL DATA: Con Ada	nplete the data required on the r litional sheets may be attached ij	everse side of this form for each well pro f necessary.	posed for injections.	
	Applicable Well D	ata is provided as <u>Attachment</u>	<u>#1</u> .		

- IV. Is this an expansion of an existing project? Yes XXX No If yes, give the Division order number authorizing the project: Yes N/A
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

A map identifying all wells and leases within a two mile radius is provided as Figure 1 in <u>Attachment #2</u>. A map identifying all wells and leases within the one-mile expanded Area of Review is provided as Figure 2 in <u>Attachment #2</u>.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

A tabulation of data on all wells of public record within the expanded area of review which penetrate the proposed injection zone is provided as <u>Attachment #3</u>.

- VII. Attach data 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.).

Proposed operation details are provided as <u>Attachment #4</u>. Analysis from source zone produced water is provided as <u>Attachment #4a</u>. Analysis from injection zone produced water is provided as <u>Attachment #4b</u>.

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

Geological data on the proposed injection zone is provided as Attachment #5.

IX. Describe the proposed stimulation program, if any.

Acid may be utilized to clean and open the formation in accordance with industry standards, as necessary.

*X. Attached appropriate logging and test data on the well. (If well logs have been filed with the Division, the need not be resubmitted).

As this is a new drill, logging and test data is not available. Well Log and test data will be filed with the NMOCD upon completion of the well. NMOCD District I Office will be notified prior to conducting MIT.

***X1.** Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

A map depicting fresh water wells within a one mile radius and associated chemical analysis, if applicable, is provided as <u>Attachment #6</u>.

XII Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal one and any underground sources of drinking water.

An Affirmative Statement is provided as Attachment #7.

XIII Applicants must complete the "Proof of Notice" section on the reverse side of this form.

"Proof of Notice" documentation is provided as <u>Attachment #8</u>.

XIV. Certification: I hereby certify that the information submitted with the application is true and correct to the best of my knowledge and belief.

NAME:	Joel W. Lowry	- 11-1	TITLE:	Agent of	Permian	TDS, LLC	-
SIGNATUI	RE: Quel Journ			5		,	
EMAIL AD	DRESS: joel & lowry prvironne	ntal.(on				
If the inform	mation required under Sections VI, VIII, X, and XI above I	has been pre	viously sul	bmitted, it need not	be resubmitted.		
Please show	w the date and circumstances of the earlier submitta						

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

Well Data

III. Well Data

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1)	(General Well Information
	Operator	Permian TDS, LLC
-	Lease Name & Well No.	Coombes SWD #1
	Location	1630' FSL & 200' FEL, UL I, Sec. 22, T20S, R33E

(2)

	Casing Information							
String	Size	Grade	Weight	Setting Depth	Sacks of Cement	Hole Size	Estimated Top of Cement	Method of Determination
Surface	20"	J-55	94.0 lb/ft.	1,405'	2,940	26"	Surface	Circulation
Intermediate 1	13.375"	P-110	80.7 lb/ft	3,020'	1,835	17.5"	Surface	Circulation
Intermediate 2	9.625"	P-110	53.5 lb/ft.	11,900'	2,400	12.25"	Surface	Circulation
Liner	7.625"	P-110	39.0 lb/ft.	14,900'	370	8.5"	11,600 (TOL)	CBL

(3)

(5)

Description of Tubing					
Size	Weight	Lining Material	Setting Depth		
5.5"	23.0 lb/ft	Internal Plastic Coated	11,500'		
5"	18.0 lb/ft	Internal Plastic Coated	14,800'		

(4)	Packer Information	
	Туре	Setting Depth
	LOK-SET ^{1M} or Equivalent	14,800'

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.

Injection Information		
Name of Injection Formation:	Devonian -Silurian, Montoya	
Injection Interval:	14,900' to 16,250'	
Perforated or Open-Hole:	Open Hole	
Purpose of Well:	New Drill for Salt Water Disposal	
Other Perforated Intervals:	None	

Estimated Depth of Various Formations	Estimated Depth of Various Formations Including Oil and Gas Zones (Ft. bgs)					
T. Rustler	1,380					
T. Salt	1,455					
T. Capitan	3,420					
T. Delaware	5,425					
T. Bone Spring	8,025					
T. Wolfcamp	11,480					
T. Strawn	12,512					
T. Atoka	12,800					
T. Morrow	13,530					
T. Woodford Shale	14,650					
T. Devonian	14,900					
T. Montoya	16,250					

There are no known oil and gas zones beneath the proposed injection zone.

WELL SCHEMATIC

Coombes SWD #1 1630' FSL & 200' FEL, UL"I", Sec. 22, T20S, R33E Eddy Co, New Mexico



Figure 1 - 2-Mile Area of Review Map

Figure 2 - 1-Mile Area of Review Map





Tabulation of Data Wells within AOR

Su	immary of Wel	ls within AOR	which Penetr	ate Proposed	Injection Interv	val
API No.	Well Name	Operator	Location	Well Type	Spud Date	Total Depth
	Now	ells wi	chin AC	DR pen	etrate	
	the	propos	ed inje	ection :	zone.	
	1		I	1	I	

Proposed Operations

A. Source Zone Produced Water Analysis

B. Injection Zone Produced Water Analysis

VII. Proposed Operations

Attach data on the proposed operation, including:

Proposed	Operation
Average Rate:	20,000 bbls
Maximum Rate:	30,000 bbls
Open or Closed:	Open
Average Injection Pressure:	1,500 - 2,000 psi
Maximum Injection Pressure:	2,980 psi

(4) Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected producted water; and

The anticipated sources of produced water proposed to be injected into the Devonian and Silurian formations are from the Delaware, Wolfcamp and Bone Springs Formations, which are known to be compatable with formation water from the Devonian Formation. Laboratory analysis of water samples collected from the respective formations is provided as **Attachment #4a**.

(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

Laboratory analysis of water samples collected from the Devonian and Fusselman Formations are provided as Attachment #4b.

Safety, Spill Prevention and Release Response

Above-ground storage tanks (ASTs) associated with the SWD operation will be placed into a steelwalled, lined containment system. The well, injection equipment and ASTs will be equipment with metering and pressure sensing devices in an effort to monitor and ensure the integrity of the equipment and prevent accidental releases to the environment.

In the event of an accidental releases to the environment, a Release Notification (NMOCD Form C-141) will be prepared, characterizing the release and proposing remediation activites designed to mitigate environmental impacts, as necessary. In the event of an accidental discharge of greater than 25 bbls, the NMOCD will be notified immediately.



Attachment 4a - Source Zone Produced Water Analysis - Delaware



Attachment 4a - Source Zone Produced Water Analysis - Wolfcamp



Attachment 4a – Source Zone Produced Water Analysis – 2nd Bone Spring



Attachment 4a - Source Zone Produced Water Analysis - Bone Spring



Attachment 4b - Injection Zone Produced Water Analysis - Devonian



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Attachment 4b - Injection Zone Produced Water Analysis - Devonian



Attachment 4b - Injection Zone Produced Water Analysis - Fusselman

A. Geological Description

B. Seismic Information

VIIIa Geologic Description

a. Attach appropriate geologic data on the injection zone including appropriate lithological detail, geologic name, thickness, and depth.

The proposed injection interval consists of sedimentary rock formations deposited during the Devonian and Silurian Periods. The Devonian Formation consists of porous dolomites, chert intervals and limestone (McGlasson, E.H. 1967). The thickness of the Devonian and Silurian Formations is estimated to be 1,350 feet (ft.). Sections of porous dolomite and limestone are believed to be present at the proposed injection site. The proposed injection interval is overlain by the Woodford Shale, which ranges in thickness from 100 to 300 ft. consists of organic-rich dark shales, black cherts, siltstone, sandstone and greenish-colored shales (Broadhead, R.F., 2010). Inferred depths of the proposed injection zone were estimated utilizing completions data from wells within the vicinity.

During the advancement of the proposed well, mud logging data will be utilized to ensure that the thickness of the Devonian and Silurian Formation is adequately defined, allowing for the proper placement of the packer, casing shoe and determination of the open-hole injection interval. Should logging data indicate depth adjustments are required, applicable Sundry Notices will be filed the NMOCD.

b. 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// or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

A search of the NMOSE database suggests the presence of ten (10) wells within a 5-mile radius of the Site. The wells are were drilled to depths ranging from 60 to 1,000 ft. bgs; there are no water wells within a 1-Mile radius of the proposed injection well.

A search of the USGS database suggests the presence of eight (8) wells within the vicinity of the Site. The wells are were completed in Alluvium and Bolson Deposits; the Santa Rose Sandstone and the Chinle Formations. Data from wells with available information suggested static water levels ranged from 33.19 ft. bgs as measured within alluvium and bolson deposits approximately 3 miles north of the Site to 335.10 ft. bgs as measured in the Chinle Formation approximately 1.5 Mi north of the site.

Other known water sources in the area include the Rustler Formation, which is the first anhydrite of the Ochoan Series and the Capitan Limestone which is expected to be encountered at a depth of approximately 3,420 ft. bgs. The estimated thickness of the Capitan Limestone at the location is approximately 2,000 ft. Groundwater from the Capitan Limestone varies in quality and is inferred to exhibit elevated TDS and chloride concentrations locally.



VIIIb Seismic Information

Data from the 2018 USGS One-Year probabilistic seismic hazard forecast suggests there was a less than 1% chance of potentially minor-damage from induced and natural ground shaking in 2018, as depicted on the map below:



Source:

U.S. Geological Survey (USGS). February 2019. Earthquakes Hazard Program: Short-term Induced Seismicity Models. https://earthquake.usgs.gov/hazards/induced/index.php#2018

VIIIb Seismic Information

The proposed injection well is located within the northern Delaware Basin in Unit Letter "I", Section 22, Township 20 South, Range 33 East in Lea County. A review of USGS data available on the ComCat Earthquake Catalog indicates no seismic activities exceeding a magnitude of 1.5 has been recorded between February 1900 and February 2019 within a 20-Mile radius of the Site.

The nearest fault trace is approximately 10.6 Mi southeast of the proposed injection well. The fault trace is indicative of a normal fault striking north-south. Additional north-south trending faults are located further east of the Site approaching the Central Basin Platform.

The nearest recorded seismic event registering above a Magnitude 0.5 (minimum search criteria used) occurred in 1984 and can be described as Magnitude 2.9 which occurred over 20 Mi South-Southeast of the Site at a depth of approximately 5 kilometers. The seismic event and basement faults within the subject area are depicted on the map below:



Faults traces are depicted as green linear features. Seismic events with available data are depicted as orange dots of which the size is representative of the magnitude. The red circle represents a 20-Mile radius of the proposed injection well. Details regarding the depicted faults are provided on the following page.

Sources:

Bureau of Economic Geology. Accessed February 2019. Permian Basin Geologic Synthesis Project. https://gis.utlands.utsystem.edu/ags/rest/services/GeologicFeatures/MapServer

U.S. Geological Survey (USGS). February 2019. Earthquakes Hazard Program: ComCat Earthquake Catalog. https://earthquake.usgs.gov/learn/kml.php A recent publication prepared by Snee and Zoback (2018) entitled "State of Stress in the Permian Basin, Texas and New Mexico" discusses the fault slip potential of fault traces complied from Ewing et al. (1990), Green and Jones (1997), Ruppel et al. (2005) as well USGS Quaternary Faults and Fold Database. A map detailing their findings with the proposed injection well location superimposed is provided below:



Figure 3. Results of our probabilistic FSP analysis across the Permian Basin. Data sources are as in Figures 1 and 2.

In general, faults within the Northern Delaware Basin striking north-south are less likely to experience slip as a result of increased fluid-pressure than faults striking east-west. Groups of north-south striking faults located along the Central Basin Platform and the western Delaware Basin have low fault slip potential.

Based on the proposed injection well's distance to known faults, relative low faulting and seismic activity in the area, review of historical earthquake data and the presence of confining layers above and beneath the proposed injection zone, it is unlikely that the proposed injection activities will contribute to a fault-slip event.

Source:

Snee, Jens-Erik Lund, and Mark D. Zoback. 2018 "State of Stress in the Permian Basin, Texas and New Mexico; Implication for Induced Seismicity." The Leading Edge 37 (February 2018).

Figure 4 - Water Well Proximity Map



Affirmative Statement

XII. AFFIRMATIVE STATEMENT

Re: Permian TDS, LLC Coombes SWD #1 1630' FSL & 200' FEL, UL I, Sec. 22, T20S, R33E

Available geologic and engineering data has been examined and we find no evidence of open faults or any hydrologic connection between the disposal interval and any underground sources of drinking water.

Joel W. Lowry

environmental

Proof of Notice Documentation



Surface Owner:

Mineral Owners within a One-Mile Radius:

Malcomb Coombes 1015 N. Dal Paso Hobbs, NM 88240 **Bureau of Land Management** 301 Dinosaur Trail Santa Fe, NM 87508

Leasehold Operators within a One-Mile Radius:

COG Operating LLC 600 W. Illinois Ave. Midland, TX 79701

Concho Resources Inc. 600 W. Illinois Ave. Midland, TX 79701

Ascent Energy LLC 1621 18th St. STE 200 Denver, CO 80202

Trilogy Operating Inc. P.O. Box 7606 Midland, TX 79708

Magnum Hunter Production Inc. 508 W. Wall St. STE 600 Midland, TX 79701

Conoco Philips Co. P.O. Box 7500 Bartlesville, OK 74005

Sun Expl & Prod Co P.O. Box 1330 Houston, TX 77251 Prime Rock Resources Agent Co Inc. 203 W. Wall St STE 1000 Midland, TX 79701

COG Acreage LP 600 W. Illinois Ave Midland, TX 79701

Asher Enterprises LTD Co. P.O. Box 423 Artesia, NM 88211

PGP Holdings I LLC 104 Townpark Dr NW Kennesaw GA, 30144

Marathon Oil Permian LLC 5555 San Felipe St. Houston, TX 77'056

Chisos LTD 1331 Lamar St STE 1077 Houston, TX 77010

Apache Corp. 2000 Post Oak Blvd STE 100¹ Houston, TX 77056

Desert Rainbow LLC P.O. Box 1837 Roswell, NM 88202

Merit Energy PTNRS III LP 13727 Noel Rd #500 Dallas, TX 75240

Merit Energy PTNRS D-III LP 13727 Noel Rd #500 Dallas, TX 75240

Merit ENE MGT Partners I LP 13727 Noel Rd #500 Dallas, TX 75240

Momentum Operating Co. Inc. P.O. Box 578 Albany, TX 76430

Woodbine Petro Inc. 1445 Ross Ave #3660 Dallas, TX 752002

Ard Julian P.O. Box 17360 Fort Worth, TX 76102

Regulatory Agency:

NMOCD - Santa Fe 1220 S. St. Francis Dr. Santa Fe, NM 87505 Hudson Edward R Jr. 616 Texas St Fort Worth, TX 76102

Burlington Res Oil & Gas Co LP P.O. Box 51810 Midland, TX 79710

APC Oper PTNRSHP 1700 Lincoln St Denver, CO 80203

CTV OG NM LLC 201 Main St STE 2700 Fort Worth, TX 76102

Thru Line OG NM LLC 201 Main St #2700 Fort Worth, TX 76102

SRBI OG NM LLC 201 Main St #2700 Fort Worth, TX 76102

Linn Energy Holdings LLC 600 Travis St. STE 1400 Houston, TX 77002

NMOCD - District 1 1625 N. French Dr. Hobbs, NM 88240







































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Affidavit of Publication

Copy of Publication

Affidavit of Publication

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STATE OF NEW MEXICO

COUNTY OF LEA

Joyce Clemens being first duly sworn on oath deposes and says that she is Advertising Manager of THE LOVINGTON LEADER, a once a week newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled Legal Notice was published in a regular and entire issue of THE LOVINGTON LEADER and not in any supplement thereof, for one (1) day(s), beginning with the issue of March 7, 2019 and ending with the issue of March 7, 2019.

And that the cost of publishing said notice is the sum of \$ 34.46 which sum has been (Paid) as Court Costs.

ari L'INCH.

Joyce Clemens, Advertising Manager Subscribed and sworn to before me this 12th day of March , 2019.

time Toot

Gine Fort Notary Public, Lea County, New Mexico My Commission Expires June 30, 2022

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LEGAL NOTICE

Permise TDR, LLC, PO Box 788, Lovington, NM 88280, Is filing Form C-108 for an application for Authority to Inject with the New Maxino OI and Conservation Division requesting administrative approval for a sail water disposal web. The proposed newly drilled web, the Counties SWD No 1 is located at 1630° FSL & 200° FEL, Section 22, Tomrship 2008 Range 33E, NM, PMM, Lee County, New Maxioo: approximately 35 miles West/Southwest of Hobbs, NM, (API # to be assigned). Produced water from area oil and gas producing wells will be commercially disposed into the Devortan and Silvina formations from 14.900° to 14.250° betwa surface. Expected maximum injection rate is 30,000 bpd, and the sepacted maximum injection pressure a 2,960 psl. Countiers concerning the application can be directed to the applicant's agent Lowry Environmental. LLC, PO Box 948, Lovington, NM 88260, by phone (432) 468-4550 oct energial load/Beavytwitipermetale.com. Dipodiants se wegenet for hearing must be directed to the OII Conservation Diveson, (505) 470-3440, 1220 South Baint Francis Drive, Santa Fa, NM 87504, within 15 days.

Published in the Lovington Leader March 7, 2019

