Initial Application Part I

Received: **11/26/2019**

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

ALL CONSULTING
GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

November 26, 2019

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

Subject: Vista Disposal Solutions, LLC – Worrill Federal SWD #1
Application for Authorization to Inject

To Whom It May Concern,

On behalf of Vista Disposal Solutions, LLC (Vista), ALL Consulting, LLC (ALL) is submitting the enclosed Application for Authorization to Inject for the Worrill Federal SWD #1, a proposed salt water disposal well, in Eddy County, NM.

Should you have any questions regarding the enclosed application, please contact Dan Arthur at (918) 382-7581 or darthur@all-llc.com.

Sincerely,
ALL Consulting

Dan Arthur
President/Chief Engineer

KNO1S-191126-C-1080

Revised March 23, 2017

RECEIVED:	REVIEWER:	TYPE:	APP NO:
11/26/19	BLL	SWD	pBL1933150806

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: _____ **OGRID Number:** _____
Well Name: _____ **API:** _____
Pool: _____ **Pool Code:** _____

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

SWD-2337

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.

Print or Type Name

JAMES DANIEL ARTHUR NEW MEXICO 21680 PROFESSIONAL ENGINEER
11/26/19

Signature

Date

Phone Number

e-mail Address

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: _____Secondary Recovery _____Pressure Maintenance ___X___Disposal
_____Storage Application qualifies for administrative approval? ___X___Yes _____No

II. OPERATOR: Vista Disposal Solutions, LLC

ADDRESS: 12444 NM 10th St., Building G, Suite 202-512, Yukon, OK 73099

CONTACT PARTY Nate Alleman PHONE: 918-382-7581

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes ___X___No
If yes, give the Division order number authorizing the project: _____

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.

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.

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.).

*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.

IX. Describe the proposed stimulation program, if any.

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

*XI. 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.

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 zone and any underground sources of drinking water.

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

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: Dan Arthur, P.E., SPEC TITLE: President/Chief Engineer

SIGNATURE: _____ DATE: 11/26/2019

E-MAIL ADDRESS: darthur@all-llc.com

JAMES DANIEL ARTHUR NEW MEXICO 21986 PROFESSIONAL ENGINEER 11/26/2019

XV. If the information required under Sections VI, V ove 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

Side 2

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) 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

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.

Application for Authorization to Inject
Well Name: Worrill Federal SWD #1

III – Well Data (*The Wellbore Diagram is included as **Attachment 1***)

A.

(1) General Well Information:

Operator: Vista Disposal Solutions, LLC (OGRID No. 329051)
Lease Name & Well Number: Worrill Federal SWD #1
Location Footage Calls: 1,372' FNL & 1,903' FWL
Legal Location: Unit Letter F, S14 T25S R31E
Ground Elevation: 3,394'
Proposed Injection Interval: 16,775' – 18,140'
County: Eddy

(2) Casing Information:

Type	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface	24"	20"	133.0 lb/ft	625'	635	Surface	Circulation
Intermediate 1	14-3/4"	13-3/8"	68.0 lb/ft	4,370'	980	Surface	Circulation
Intermediate 2	12-1/4"	9-5/8"	53.5 lb/ft	13,705'	4,550	Surface	Circulation
Liner	8-1/2"	7-5/8"	39.0 lb/ft	16,775'	260	13,505'	CBL

Note: A DV Tool will be set at 5,000'.

(3) Tubing Information:

4.5" (composite weight string) of fiberglass-coated tubing with setting depth of 16,755'

(4) Packer Information: Baker SC-2 or equivalent packer set at 16,755'

B.

(1) Injection Formation Name: Devonian and Silurian formations
Pool Name: SWD; DEVONIAN - SILURIAN
Pool Code: 97869

(2) Injection Interval: Open-hole injection between 16,775' – 18,140'

(3) Drilling Purpose: New Drill for Salt Water Disposal

(4) Other Perforated Intervals: No other perforated intervals exist.

(5) Overlying Oil and Gas Zones: Below are the approximate formation tops for known oil and gas producing zones in the area.

- Permian Delaware Mountain Group (4,370')
- Bone Springs (8,265')
- Wolfcamp (11,815')
- Atoka (13,875')
- Morrow (14,650')

Underlying Oil and Gas Zones: No underlying oil and gas zones exist.

V – Well and Lease Maps

The following maps are included in ***Attachment 2***:

- 2-mile Oil & Gas Well Map
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Owernship Map
- 1.5-mile Deep SWD Map (Devonian/Silurian SWDs)
- 1-mile Well Detail List
- Potash Lease Map

VI – AOR Well List

There are no wells within the 1-mile AOR that penetrate the proposed injection zone.

A list of the wells within the 1-mile AOR is included in ***Attachment 2***.

VII – Proposed Operation

(1) **Proposed Maximum Injection Rate:** 40,000 bpd
Proposed Average Injection Rate: 20,000 bpd

(2) A **closed system** will be used.

(3) **Proposed Maximum Injection Pressure**: 3,355 psi (based on 0.2 psi per foot)
Proposed Average Injection Pressure: approximately 1,500 – 2,000 psi

(4) **Source Water Analysis:** It is expected that the injectate will consist of produced water from production wells completed in the Wolfcamp and Bone Springs formations. Analysis of water from these formations is included in ***Attachment 3***.

(5) **Injection Formation Water Analysis:** The proposed SWD will be injecting water into the Devonian and Silurian formations which is a non-productive zone known to be compatible with formation water from the Wolfcamp and Bone Springs formations. Water analyses from the Devonian-Silurian formation in the area are included in ***Attachment 4*.**

VIII – Geologic Description

The proposed injection interval includes the Devonian and Silurian formations from 16,775 – 18,140 feet. These formations consist of carbonates including light colored dolomite and chert intervals interspersed with some tight limestone intervals. Several thick sections of porous dolomite capable of taking water are present within the subject formations in the area.

The base of the deepest Underground Source of Drinking Water (USDW) is at a depth of approximately 600 feet. Surface casing will be set at a depth of 625 feet, which is 25 feet below the top of the Rustler formation, which isolates the USDW. Geophysical log assessment was conducted to accurately determine the top of the Rustler formation, and the top and the base of the Salado formation in this area. Water well depths in the area range from approximately 325 - 429 feet below ground surface.

IX – Proposed Stimulation Program

A small cleanup acid job may be used to remove mud and drill cuttings from the formation. However, no other formation stimulation is currently planned.

X – Logging and Test Data

Geophysical logs will be submitted to the Division upon completion of the well.

XI – Fresh Groundwater Samples

Based on a review of data from the New Mexico Office of the State Engineer, there are no groundwater well located within 1-mile of the proposed SWD location; therefore, no groundwater samples were collected in association with this application.

A water well map of the area is included in ***Attachment 5***.

XII – No Hydrologic Connection Statement

ALL Consulting has examined available geologic and engineering data, and has found no evidence of faulting present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing and cementing program has been designed to further ensure there will be no hydrologic connection between the injection interval and overlying USDWs. A letter from a knowledgeable and qualified expert stating that there is a low risk of seismic activity from the proposed injection activities is included in ***Attachment 6.***

XIII – Proof of Notice

A Public Notice was filed with the Carlsbad Current Argus newspaper and an affidavit is included in ***Attachment 7***.

A copy of the application was mailed to the OCD District Office, landowner, and leasehold operators within 1-mile of the proposed SWD location. A list of the recipients, as well as delivery confirmations, are included in ***Attachment 7***.

Attachments

Attachment 1:

- C-102
- Wellbore Diagram

Attachment 2: Area of Review Information:

- 2-mile Oil & Gas Well Map
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- 1.5-mile Deep SWD Map (Devonian/Silurian SWDs)
- 1-mile Well Detail List
- Potash Lease Map

Attachment 3: Source Water Analyses

Attachment 4: Injection Formation Water Analyses

Attachment 5: Water Well Map and Well Data

Attachment 6: Induced Seismicity Assessment Letter

Attachment 7: Public Notice Affidavit and Notice of Application Confirmations

Attachment 1

- C-102
- Wellbore Diagram

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1]API Number	[2]Pool Code	[3]Pool Name
	97869	SWD; Devonian – Silurian

[4]Property Code	[5]Property Name	[6]Well Number
	Worrill Federal SWD	1

[7]OGRID No.	[8]Operator Name	[9]Elevation
329051	Vista Disposal Solutions, LLC	3394'

[10]Surface Location

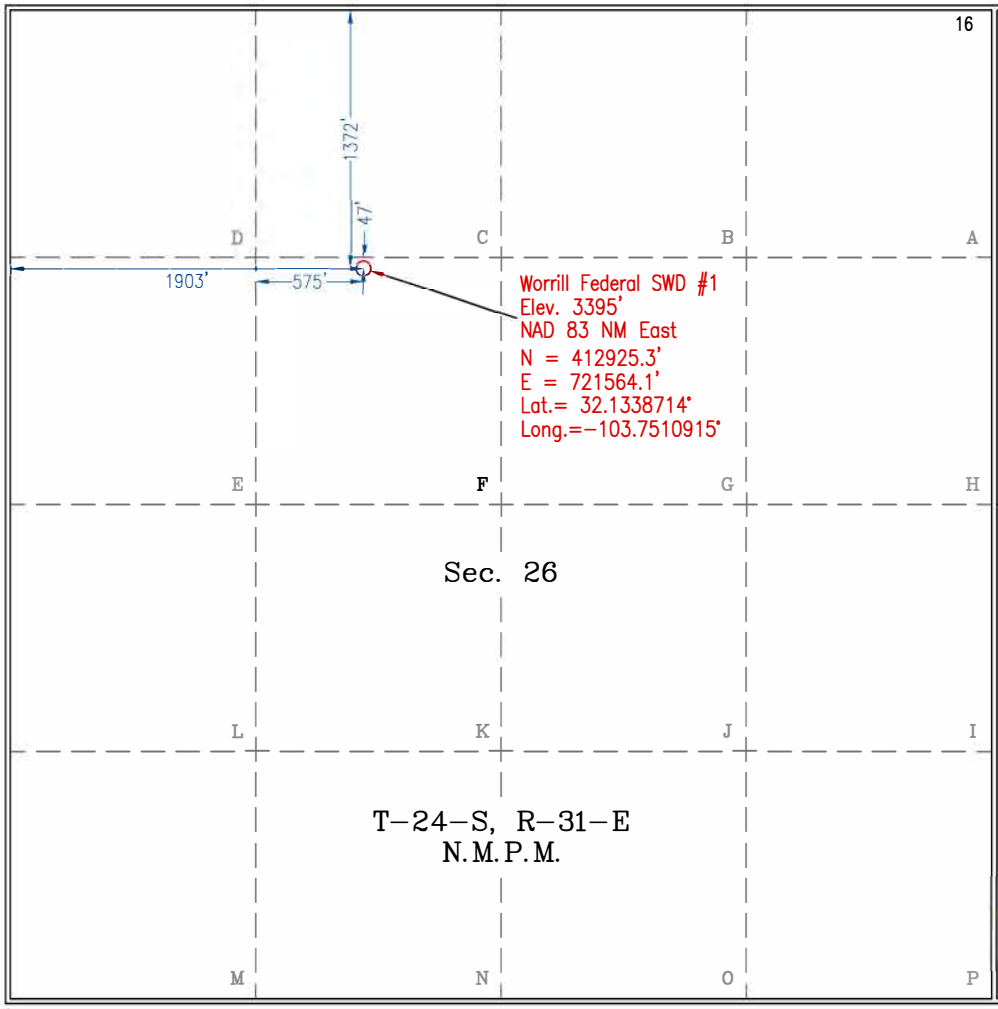
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	14	25–S	31–E		1372'	North	1903'	West	Eddy

[11]Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12]Dedicated Acres	[13]Joint or Infill	[14]Consolidation Code	[15]Order No.

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



[17]OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Nathan Alleman — **11/26/2019**
Signature — Date

Nate Alleman
Printed Name

nalleman@all-llc.com
E-mail Address

[18]SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

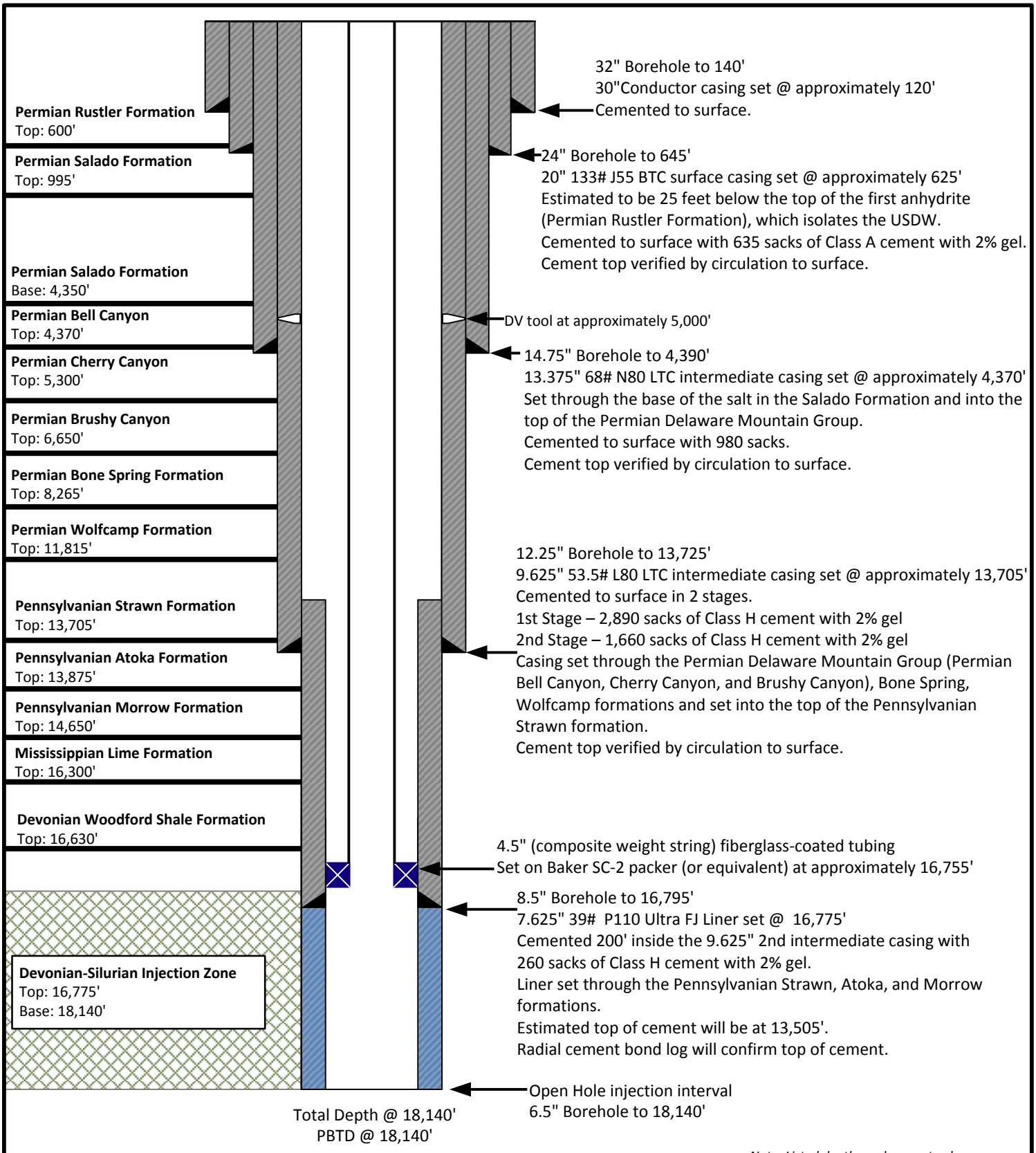
11–11–2019
Date of Survey

Signature and Seal of Professional Surveyor:

MICHAEL L. STANFORD
NEW MEXICO
10324
REGISTERED PROFESSIONAL LAND SURVEYOR

Michael L. Stanford
10324
Certificate Number

19.8 Miles E–SE of Malaga, New Mexico. File No. A–12939



Note: Listed depths and cement volumes are approximates based on available information. All cement calculations use yield of 1.18 cubic foot per sack and include 25% excess.

NOT TO SCALE

Prepared by: ALL CONSULTING

Prepared for: VISTA DISPOSAL SOLUTIONS, LLC

Drawn by: Joshua Ticknor

Project Manager: Dan Arthur

Date: 11/19/2019

Vista Disposal Solutions, LLC
Worrill Federal SWD #1

1 Introduction

The SC-2™ packer is Baker Hughes, a GE company (BHGE)' primary packer for cased hole gravel pack and frac pack applications where a high performance retrievable packer is required.

2 Description

The SC-2 packer is a fully retrievable, high-performance retainer production packer. Although the packer was originally designed for premium gravel pack applications, it may also be used as a standard completion packer in wells where a premium retrievable production packer is required.

The SC-2 packer is fully compatible with standard BHGE sealing accessories, including retrievable and expendable plugs.

Refer to the specifications guide in the Packer Size/Model Availability Guide, Specification Guide, and Packer/Accessory Guide for SC™ and HP™ Packers (Product Family H48861), Unit 5750 under Sand Control Tools for packer/accessory size and packer size/model availability.

3 Application

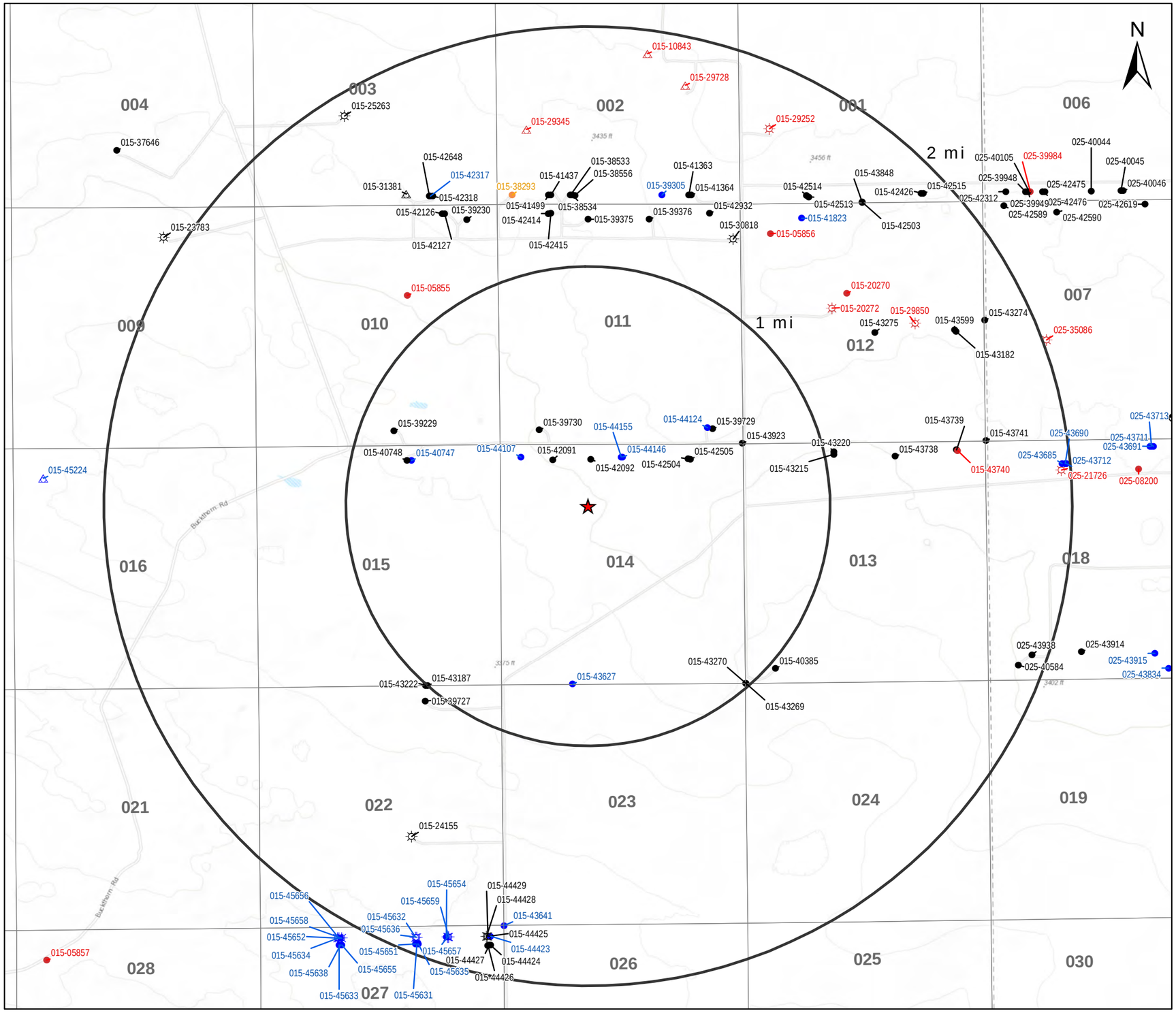
The SC-2 packer is primarily used in gravel pack or frac pack applications where a higher differential pressure production rating, treating pressure rating and temperature are required. The SC-2 may also be used as a production packer.

Drawing 662-476-1

Attachment 2

Area of Review Information:

- 2-mile Oil & Gas Well Map
- 2-mile Lease Map
- 2-mile Mineral Ownership Map
- 2-mile Surface Ownership Map
- 1.5-mile Deep SWD Map (Devonian/Silurian SWDs)
- 1-mile Well Detail List
- Potash Lease Map



Legend

- Proposed SWD
- Miscellaneous (1)
- Gas, Active (6)
- Gas, New (7)
- Gas, Plugged (5)
- Oil, Active (67)
- Oil, New (27)
- Oil, Plugged (7)
- Oil, Temporarily Abondoned (1)
- Salt Water Injection, Active (1)
- Salt Water Injection, New (1)
- Salt Water Injection, Plugged (3)

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Info: NMOCD O&G Wells updated 7/30/2019 (http://www.emnrd.state.nm.us/OCD/ocdgis.html)

O&G Wells Area of Review

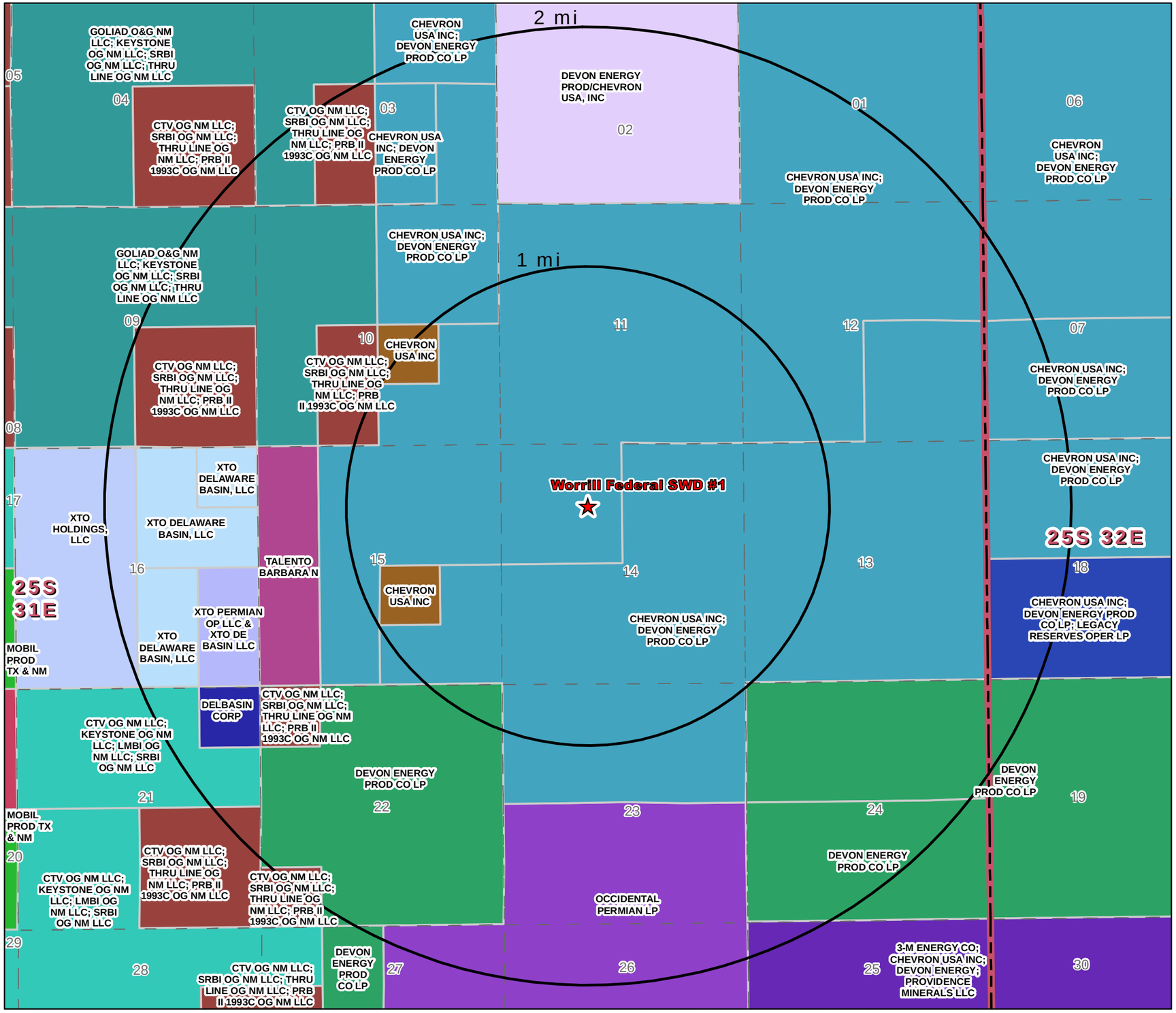
Worrill Federal SWD #1

Eddy County, New Mexico

Proj Mgr: Dan Arthur	November 22, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA

Prepared by: ALL CONSULTING



Legend

- Proposed SWD

BLM Mineral Leases

- 3-M ENERGY CO; CHEVRON USA INC; DEVON ENERGY; PROVIDENCE MINERALS LLC
- CHEVRON USA INC
- CHEVRON USA INC; DEVON ENERGY PROD CO LP
- CHEVRON USA INC; DEVON ENERGY PROD CO LP; LEGACY RESERVES OPER LP
- CTV OG NM LLC; 32 MINERAL O&G NM LLC; SRBI OG NM LLC; THRU LINE OG NM LLC
- CTV OG NM LLC; KEYSTONE OG NM LLC; LMBI OG NM LLC; SRBI OG NM LLC
- CTV OG NM LLC; SRBI OG NM LLC; THRU LINE OG NM LLC; PRB II 1993C OG NM LLC
- DELBASIN CORP
- DEVON ENERGY PROD CO LP
- GOLIAD O&G NM LLC; KEYSTONE OG NM LLC; SRBI OG NM LLC; THRU LINE OG NM LLC
- MOBIL PROD TX & NM
- OCCIDENTAL PERMIAN LP
- TALENTO BARBARA N

NMSLO Mineral Leases

- DEVON ENERGY PROD/CHEVRON USA, INC
- XTO DELAWARE BASIN, LLC
- XTO HOLDINGS, LLC
- XTO PERMIAN OP LLC & XTO DE BASIN LLC

N

Source Info: BLM Mineral Leases (https://catalog.data.gov/dataset/blm-new-mexico-mineral-ownership) & NMSLO O&G Leases (http://www.nmstatelands.org/maps-gis/gis-data-download/)

Mineral Lease Area of Review

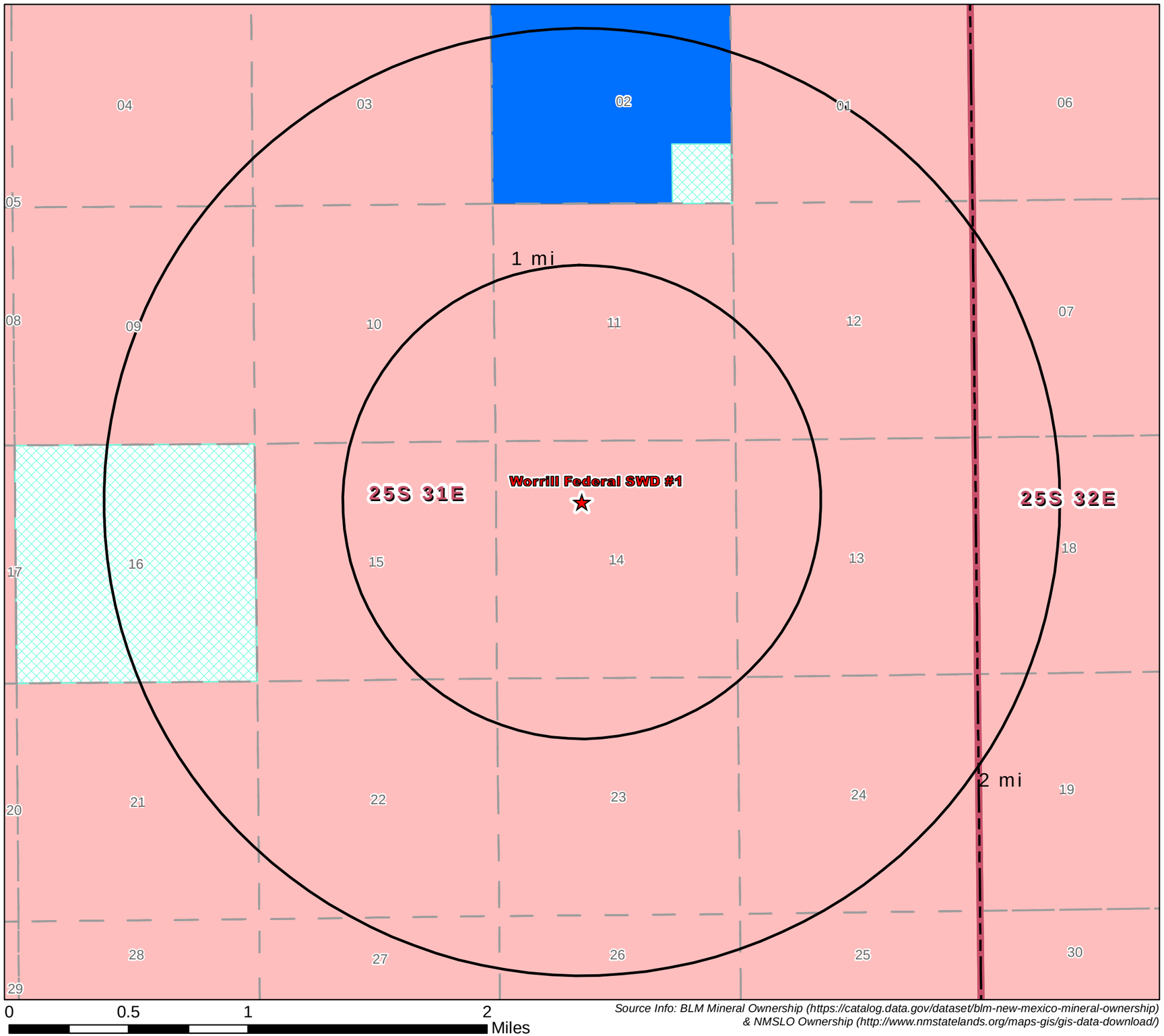
Worrill Federal SWD #1

Eddy County, New Mexico

Proj Mgr: Dan Arthur	November 25, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA

Prepared by: ALL CONSULTING



N

Legend

- Proposed SWD

Mineral Ownership

- All minerals are owned by U.S. (BLM)
- Subsurface minerals (NMSLO)
- Surface and Subsurface minerals (NMSLO)
- Private minerals

Source Info: BLM Mineral Ownership (https://catalog.data.gov/dataset/blm-new-mexico-mineral-ownership) & NMSLO Ownership (http://www.nmstatelands.org/maps-gis/gis-data-download/)

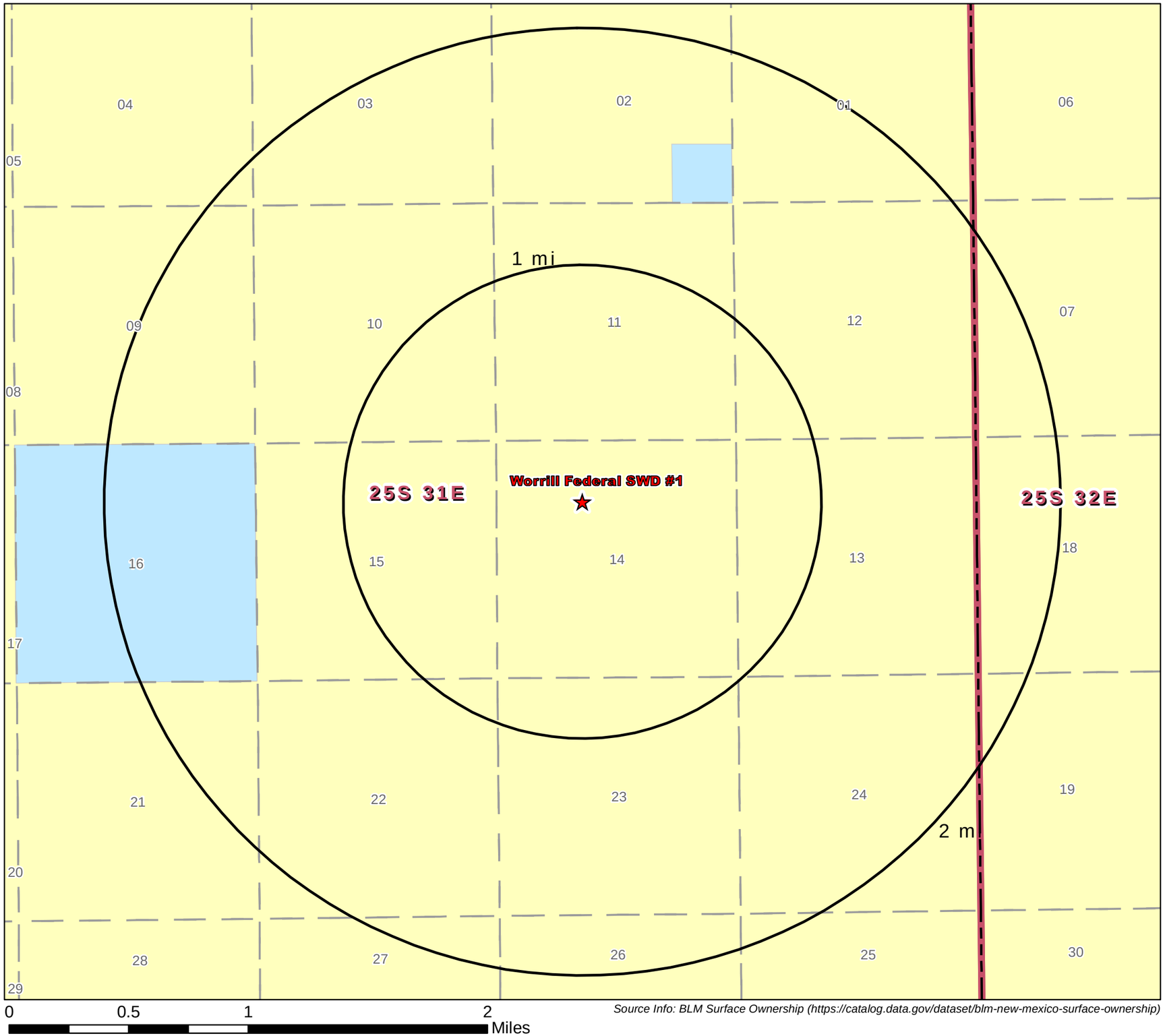
Mineral Ownership
Area of Review

Worrill Federal SWD #1
Eddy County, New Mexico

Proj Mgr: Dan Arthur	November 22, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA

Prepared by: ALL CONSULTING



N

Legend

Proposed SWD

Surface Ownership

BLM

State

Source Info: BLM Surface Ownership (https://catalog.data.gov/dataset/blm-new-mexico-surface-ownership)

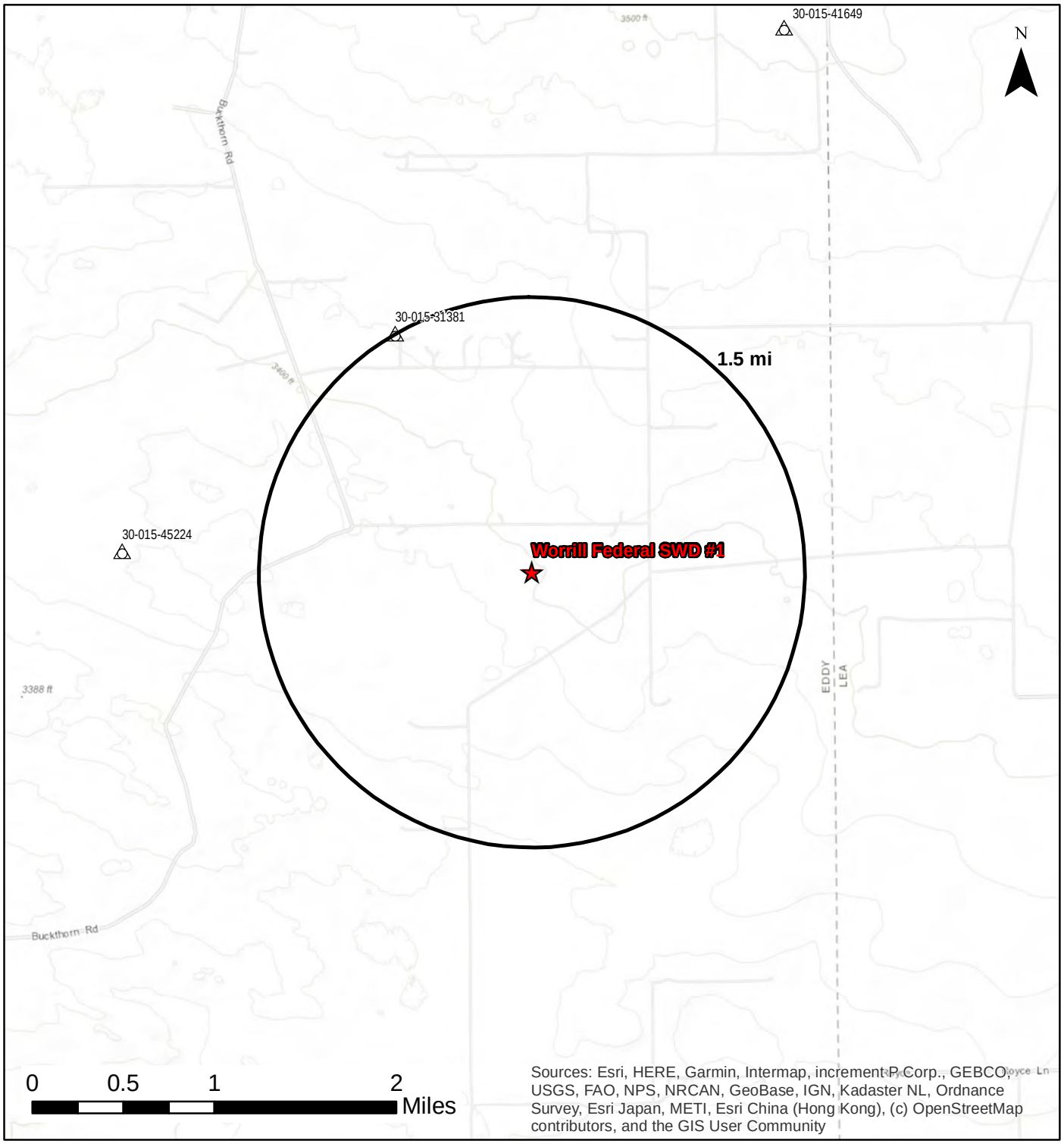
Surface Ownership
Area of Review

Worrill Federal SWD #1
Eddy County, New Mexico

Proj Mgr: Dan Arthur	November 22, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA NATURAL RESOURCES, LLC

Prepared by: ALL CONSULTING



Worrill Federal SWD #1 Deep SWDs AOR		
Proj Mgr: Dan Arthur	Nov 25, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA

Prepared by: ALL CONSULTING

Legend

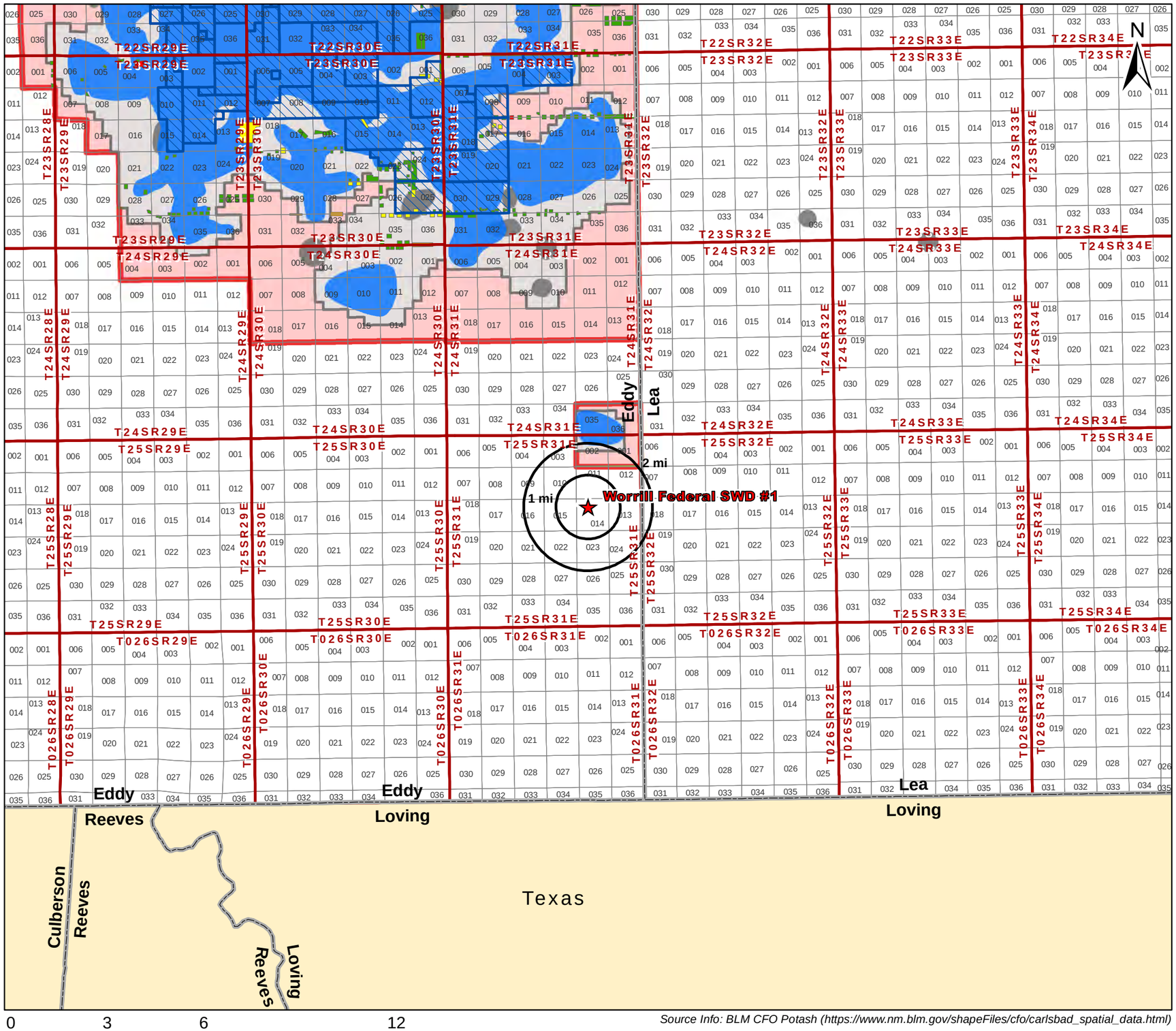
★ Proposed SWD

Devonian/Silurian SWDs

△ Salt Water Injection, Active (3)

Source Info: NMOCD O&G Wells updated 7/30/2019 (http://www.emnrd.state.nm.us/OCD/ocdgis.html)

AOR Tabulation for Worrill Federal SWD #1 (Top of Injection Interval: 16,775')							
Well Name	**API#**	**Well Type**	**Operator**	**Spud Date**	**Location (Sec., Tn., Rng.)**	**Total Vertical Depth (feet)**	**Penetrate Inj. Zone?**
BELGIAN 15 FEDERAL #002H	30-015-43627	O	DEVON ENERGY PRODUCTION COMPANY, LP	Not Drilled	P-15-25S-31E	Proposed (10338)	No
BELGIAN 15 FEDERAL COM #001H	30-015-43187	O	DEVON ENERGY PRODUCTION COMPANY, LP	10/2/2015	O-15-25S-31E	10342	No
COTTON DRAW 10 FEDERAL COM #001H	30-015-39229	O	DEVON ENERGY PRODUCTION COMPANY, LP	3/10/2012	O-10-25S-31E	8179	No
COTTON DRAW 14 23 FEDERAL COM #421H	30-015-44107	O	DEVON ENERGY PRODUCTION COMPANY, LP	Not Drilled	D-14-25S-31E	Proposed (8175)	No
COTTON DRAW 14 23 FEDERAL COM #422H	30-015-44155	O	DEVON ENERGY PRODUCTION COMPANY, LP	Not Drilled	C-14-25S-31E	Proposed (8189)	No
COTTON DRAW 14 23 FEDERAL COM #423H	30-015-44146	O	DEVON ENERGY PRODUCTION COMPANY, LP	Not Drilled	B-14-25S-31E	Proposed (8218)	No
COTTON DRAW 14 23 FEDERAL COM #424H	30-015-44124	O	DEVON ENERGY PRODUCTION COMPANY, LP	Not Drilled	A-14-25S-31E	Proposed (8175)	No
COTTON DRAW 14 FED COM #001H	30-015-42091	O	DEVON ENERGY PRODUCTION COMPANY, LP	7/17/2014	D-14-25S-31E	10398	No
COTTON DRAW 14 FED COM #002H	30-015-42092	O	DEVON ENERGY PRODUCTION COMPANY, LP	8/21/2014	D-14-25S-31E	10398	No
COTTON DRAW 14 FEDERAL #003H	30-015-42504	O	DEVON ENERGY PRODUCTION COMPANY, LP	12/29/2014	A-14-25S-31E	10507	No
COTTON DRAW 14 FEDERAL #004H	30-015-42505	O	DEVON ENERGY PRODUCTION COMPANY, LP	11/29/2014	A-14-25S-31E	10485	No
COTTON DRAW 15 FED COM #002H	30-015-40748	O	DEVON ENERGY PRODUCTION COMPANY, LP	6/13/2013	B-15-25S-31E	10397	No
COTTON DRAW 15 FED COM #003H	30-015-40747	O	DEVON ENERGY PRODUCTION COMPANY, LP	Not Drilled	B-15-25S-31E	Proposed (8212)	No
COTTON DRAW UNIT #158H	30-015-39729	O	DEVON ENERGY PRODUCTION COMPANY, LP	2/28/2012	P-11-25S-31E	8211	No
COTTON DRAW UNIT #162H	30-015-39730	O	DEVON ENERGY PRODUCTION COMPANY, LP	11/15/2012	M-11-25S-31E	8188	No
COTTON DRAW UNIT #238H	30-015-43269	O	DEVON ENERGY PRODUCTION COMPANY, LP	9/7/2015	D-13-25S-31E	10531	No
COTTON DRAW UNIT #239H	30-015-43270	O	DEVON ENERGY PRODUCTION COMPANY, LP	8/16/2015	D-13-25S-31E	10354	No
COTTON DRAW UNIT #278H	30-015-43923	O	DEVON ENERGY PRODUCTION COMPANY, LP	10/5/2016	A-13-25S-31E	8121	No
Notes: No wells within the 1-mile AOR penetrate the injection interval.							



Legend

- Proposed SWD
- Potash Leases
- Ore Type - Measured
- Ore Type - Indicated
- KPLA
- SOPA

Drill Islands

Status

- Approved
- Denied
- Nominated
- Withdrawn

Source Info: BLM CFO Potash (https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html)

Potash Leases
Area of Review

Worrill Federal SWD #1
Eddy County, New Mexico

Proj Mgr: Dan Arthur	November 25, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA

Prepared by: ALL CONSULTING

Attachment 3

Source Water Analyses

Wolfcamp

BAKER HUGHES

Water Analysis

Date: 23-Aug-11

2708 West County Road, Hobbs NM 88240
Phone (575) 392-5556 Fax (575) 392-7307

Analyzed For Brushy Draw 1 #1

Company	Well Name	County	State
	BD	~~Lea~~ Eddy	New Mexico 1-26S-29E

Sample Source Swab Sample **Sample #** 1

Formation **Depth**

Specific Gravity	1.170	SG @ 60 °F	1.172
pH	6.30	Sulfides	Absent
Temperature (°F)	70	Reducing Agents	

Cations

Sodium (Calc)	in Mg/L	77,962	in PPM	66,520
Calcium	in Mg/L	4,000	in PPM	3,413
Magnesium	in Mg/L	1,200	in PPM	1,024
Soluable Iron (FE2)	in Mg/L	10.0	in PPM	9

Anions

Chlorides	in Mg/L	130,000	in PPM	110,922
Sulfates	in Mg/L	250	in PPM	213
Bicarbonates	in Mg/L	127	in PPM	108
Total Hardness (as CaCO3)	in Mg/L	15,000	in PPM	12,799
Total Dissolved Solids (Calc)	in Mg/L	213,549	in PPM	182,209
Equivalent NaCl Concentration	in Mg/L	182,868	in PPM	156,031

Scaling Tendencies

*Calcium Carbonate Index 507,520

Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable

*Calcium Sulfate (Gyp) Index 1,000,000

Below 500,000 Remote / 500,000 - 10,000,00 Possible / Above 10,000,000 Probable

**This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.*

Remarks RW=.048@70F

Report # 3188

Sec 22, T25S, R28E

North Permian Basin Region
P.O. Box 740
Sundown, TX 79372-0740
(806) 229-8121
Lab Team Leader - Sheila Hernandez
(432) 495-7240

Bone Spring

Water Analysis Report by Baker Petrolite

Company:		Sales RDT:	33514.1
Region:	PERMIAN BASIN	Account Manager:	TONY HERNANDEZ (575) 910-7135
Area:	ARTESIA, NM	Sample #:	534665
Lease/Platform:	PINOCHLE 'BPN' STATE COM	Analysis ID #:	106795
Entity (or well #):	2 H	Analysis Cost:	$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary	
Sampling Date:	03/10/11
Analysis Date:	03/18/11
Analyst:	SANDRA GOMEZ
TDS (mg/l or g/m3):	184911.1
Density (g/cm3, tonne/m3):	1.113
Anion/Cation Ratio:	1
Carbon Dioxide:	0 50 PPM
Oxygen:	
Comments:	

Analysis of Sample 534665 @ 75 °F

Anions	mg/l	meq/l	Cations	mg/l	meq/l
Chloride:	109618.0	3091.92	Sodium:	70275.7	3056.82
Bicarbonate:	2135.0	34.99	Magnesium:	195.0	16.04
Carbonate:	0.0	0.	Calcium:	844.0	42.12
Sulfate:	747.0	15.55	Strontium:	220.0	5.02
Phosphate:			Barium:	0.8	0.01
Borate:			Iron:	6.5	0.23
Silicate:			Potassium:	869.0	22.22
			Aluminum:		
Hydrogen Sulfide:		0 PPM	Chromium:		
pH at time of sampling:		7	Copper:		
pH at time of analysis:			Lead:		
pH used in Calculation:		7	Manganese:	0.100	0.
			Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite $CaCO_3$		Gypsum $CaSO_4*2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$		CO_2 Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	1.08	188.52	-1.20	0.00	-1.18	0.00	-0.11	0.00	0.58	0.29	1.72
100	0	1.10	206.05	-1.29	0.00	-1.20	0.00	-0.15	0.00	0.35	0.29	2.35
120	0	1.12	224.17	-1.36	0.00	-1.19	0.00	-0.17	0.00	0.16	0.00	3.17
140	0	1.13	243.17	-1.42	0.00	-1.18	0.00	-0.18	0.00	0.00	0.00	4.21

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

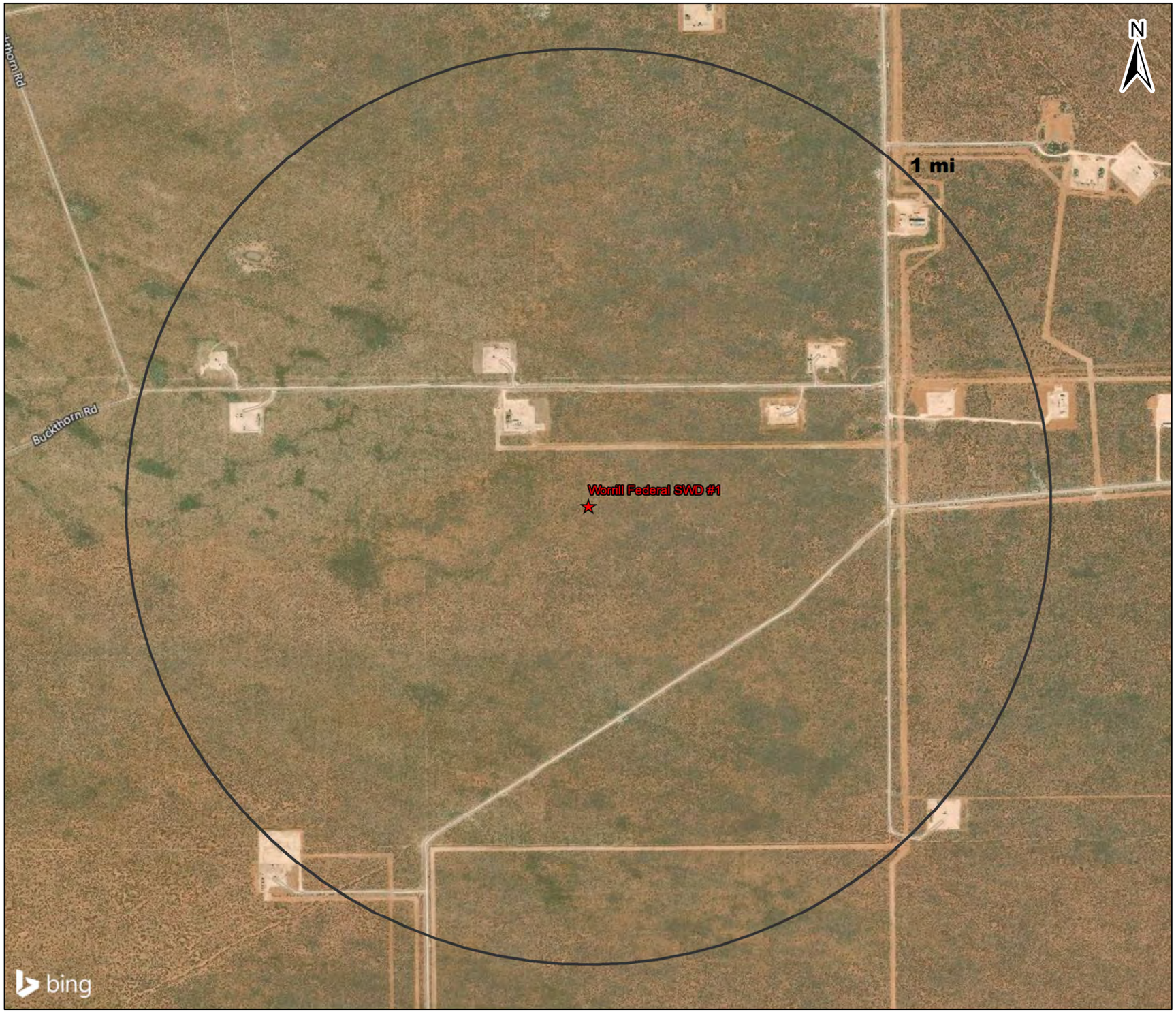
Attachment 4

Injection Formation Water Analyses

Injection Formation Water Analysis																		
Vista Disposal Solutions, LLC - Devonian and Silurian-Fusselman Formations																		
Wellname	API	Latitude	Longitude	Section	Township	Range	Unit	Ftgns	Ftgew	County	State	Company	Field	Formation	Tds_mgL	Chloride_mgL	Bicarbonate_mgL	Sulfate_mgL
STATE B COM #001	3002509716	32.179405	-103.2212524	36	24S	36E	C	600N	1880W	LEA	NM		CUSTER	DEVONIAN	176234	107400	128	1004
FARNSWORTH FEDERAL #006	3002511950	32.077725	-103.162468	4	26S	37E	A	660N	990E	LEA	NM		CROSBY	DEVONIAN	31931	20450	302	591
ARNOTT RAMSAY NCT-B #003	3002511863	32.092228	-103.1784439	32	25S	37E	A	660N	660E	LEA	NM		CROSBY	DEVONIAN		100382	476	
ARNOTT RAMSAY NCT-B #003	3002511863	32.092228	-103.1784439	32	25S	37E	A	660N	660E	LEA	NM		CROSBY	DEVONIAN	158761			
COPPER #001	3002511818	32.099484	-103.1656723	28	25S	37E	J	1980S	1981E	LEA	NM		CROSBY	DEVONIAN	27506	15270	1089	1079
STATE NJ A #001	3002511398	32.164749	-103.1273346	2	25S	37E	A	663N	660E	LEA	NM		JUSTIS NORTH	DEVONIAN	105350	59300	660	4950
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	80880	46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	84900	48600	840	2650
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	72200	41000	370	2960
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	80900	46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	77600	44000	550	3240
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	135000	77000	650	5810
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	114000	65000	280	5110
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1	25S	37E	E	1980N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	135000	77000	500	5320
WESTATES FEDERAL #008	3002511393	32.162121	-103.1241226	1	25S	37E	E	1620N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	91058	51020	376	4783
WESTATES FEDERAL #008	3002511393	32.162121	-103.1241226	1	25S	37E	E	1620N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	86847	50450	363	2544
STATE Y #009	3002511777	32.10582	-103.1113434	25	25S	37E	A	990N	990E	LEA	NM		JUSTIS	FUSSELMAN	219570	129000	960	4630
STATE Y #009	3002511777	32.10582	-103.1113434	25	25S	37E	A	990N	990E	LEA	NM		JUSTIS	FUSSELMAN	163430	96000	290	3780
SOUTH JUSTIS UNIT #023C	3002511760	32.106728	-103.1184616	25	25S	37E	C	660N	2080W	LEA	NM		JUSTIS	FUSSELMAN	63817	35870	360	3442
CARLSON A #002	3002511764	32.100384	-103.1113434	25	25S	37E	I	2310S	990E	LEA	NM		JUSTIS	FUSSELMAN	208280	124000	510	3400
CARLSON B 25 #004	3002511784	32.096756	-103.1113434	25	25S	37E	P	990S	990E	LEA	NM		JUSTIS	FUSSELMAN	184030	112900	68	1806

Attachment 5

Water Well Map and Well Data



Service Layer Credits: © 2019 Microsoft Corporation © 2019 DigitalGlobe ©CNES (2019) Distribution Airbus DS © 2019 HERE

Legend

- Proposed SWD

NMOSE PODs

Status

- Active (0)
- Pending (0)
- Change Location of Well (0)
- Capped (0)
- Plugged (0)
- Incomplete (0)
- Unknown (0)

Water Wells Area of Review

Worrill Federal SWD #1

Eddy County, New Mexico

Proj Mgr: Dan Arthur	November 25, 2019	Mapped by: Ben Bockelmann

Prepared for: VISTA Disposal Solutions, LLC

Prepared by: ALL Consulting

Water Well Sampling Rationale						
Vista Disposal Solutions, LLC - Worrill Federal SWD #1						
SWD	**Water Wells**	**Owner**	**Available Contact Information**	**Use**	**Sampling Required**	**Notes**
Note: No water wells are present within 1 mile of the proposed SWD location.						

Attachment 6

Induced Seismicity Assessment Letter

ALL CONSULTING
GOVERNMENT RELATIONS · ENERGY · PLANNING · TECHNOLOGY
ENGINEERING · ENVIRONMENTAL

November 26, 2019

Mr. Phillip Goetze, P.G.
NM EMNRD – Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Subject: Induced Seismicity Potential Statement for the Worrill Federal SWD #1

Dear Mr. Goetze,

This letter provides information regarding the seismic potential associated with injection operations associated with Vista Disposal Solutions, LLC (Vista), proposed Worrill Federal SWD #1, hereinafter referred to as the "Subject Well."

As outlined herein, based on my experience as an expert on the issue of induced seismicity, it is my opinion that the potential for the proposed injection well to cause injection-induced seismicity is expected to be minimal, at best. This conclusion is based on (1) the lack of historic seismic activity and faulting in the area, (2) the low fault slip potential (FSP) of Precambrian faults in the area, (3) the presence of confining layers, and (4) the overall vertical distance between the proposed injection zone and basement rock.

The Subject Well, is located 1,372' FNL & 1,903' FWL of Section 14, in T25-S and R31-E of Eddy County, New Mexico. Historically, the Eddy and Lea Counties area has experienced very limited recorded seismic activity (per the U.S. Geological Survey [USGS] earthquake catalog database). There has been one known seismic event located within a 25-mile radius of the proposed Subject Well. The closest recorded seismic event was a M3.1 that occurred on March 18th, 2012 and was located approximately 13.1 miles northwest of the Subject Well (See Exhibit 1). The closest Class IID well injecting into the same formations (Devonian-Silurian) of the Subject Well is approximately 1.5 miles to the northwest (See Exhibit 1).

Vista does not own either 2D or 3D seismic reflection data in the area of the Subject Well. Publicly available fault data from USGS indicates that the closest known fault is approximately 14.8 miles northwest of the Subject Well (See Exhibit 1).

In a recent paper written by Snee and Zoback (2018) entitled "State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity,", the authors found that large groups of mostly north-south striking Precambrian basement faults, predominantly located along the Central Basin Platform, the western Delaware Basin, and large parts of the Northwest Shelf (which includes Eddy and Lea counties, New Mexico) have low FSP at the modeled fluid-pressure

perturbation. The map in Exhibit 2 depicts the low probability risk of FSP for the Delaware Basin and Northwest Shelf areas (Snee and Zoback 2018).

Geologic analysis indicates that the proposed Devonian-Silurian injection zone is overlain by approximately 200 to 400 feet of Woodford Shale, which is the upper confining zone and will serve as a barrier for upward injection fluid migration. Additionally, the Simpson Group that lies directly below the Montoya Formation will act as a lower confining zone to prohibit fluids from migrating downward into the underlying Ellenberger Formation and Precambrian basement rock. See the stratigraphic column for the Delaware Basin included in Exhibit 3.

In the Eddy and Lea Counties area of New Mexico, the Simpson Group is comprised of a series of Middle to Upper Ordovician carbonates, several sandstones, and sandy shales that range from approximately 350 to 650 feet thick (Jones 2008). This group of rocks is capped by the limestones of the Bromide Formation, which is approximately 200 feet thick in this area (Jones 2008). The closest deep well drilled into the Precambrian basement was completed by the Skelly Oil Company in 1975. This well is located in Section 17, Range 36E, Township 25S of Lea County (API No.30-025-25046) and encountered 602 feet of Ellenburger Formation before reaching the top of the Precambrian granite at a depth of 18,920 feet. Based on the estimated thickness of the Simpson Group and Ellenburger Formation in this area, the Precambrian basement should be approximately 1,000 to 1,200 feet below the bottom of the proposed injection zones in the Subject Well.

Conclusion

As an expert on the issue of induced seismicity, it is my opinion that the potential for the proposed injection well to cause injection-induced seismicity is expected to be minimal, at best. This conclusion is based on (1) the lack of historic seismic activity and faulting in the area, (2) the low FSP of Precambrian faults in the area, (3) the presence of confining layers, and (4) the overall vertical distance between the proposed injection zone and basement rock.

Sincerely,
ALL Consulting

J. Daniel Arthur, P.E., SPEC
President and Chief Engineer

Enclosures
References
Exhibits

References

Ball, Mahlon M. 1995. “Permian Basin Province (044).” In *National Assessment of United States Oil and Gas Resources—Results, Methodology, and Supporting Data.* U.S. Geological Survey. https://certmapper.cr.usgs.gov/data/noga95/prov44/text/prov44.pdf (accessed June 18, 2018).

Green, G.N., and G.E. Jones. 1997. “The Digital Geologic Map of New Mexico in ARC/INFO Format.” U.S. Geological Survey Open-File Report 97-0052. https://mrdata.usgs.gov/geology/state/state.php?state=NM (accessed June 14, 2018).

Jones, Rebecca H. 2008. “The Middle-Upper Ordovician Simpson Group of the Permian Basin: Deposition, Diagenesis, and Reservoir Development.” http://www.beg.utexas.edu/resprog/permianbasin/PBGSP_members/writ_synth/Simpson.pdf (accessed June 19, 2018).

Snee, Jens-Erik Lund, and Mark D. Zoback. 2018. “State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity.” *The Leading Edge* 37, no. 2 (February 2018): 127-34.

U.S. Geological Survey (USGS). No date. Earthquakes Hazard Program: Earthquake Catalog. https://earthquake.usgs.gov/earthquakes/search/ (accessed June 14, 2018).

Exhibits

Induced Seismicity Potential Statement for the Worrill Federal SWD #1
November 26, 2019

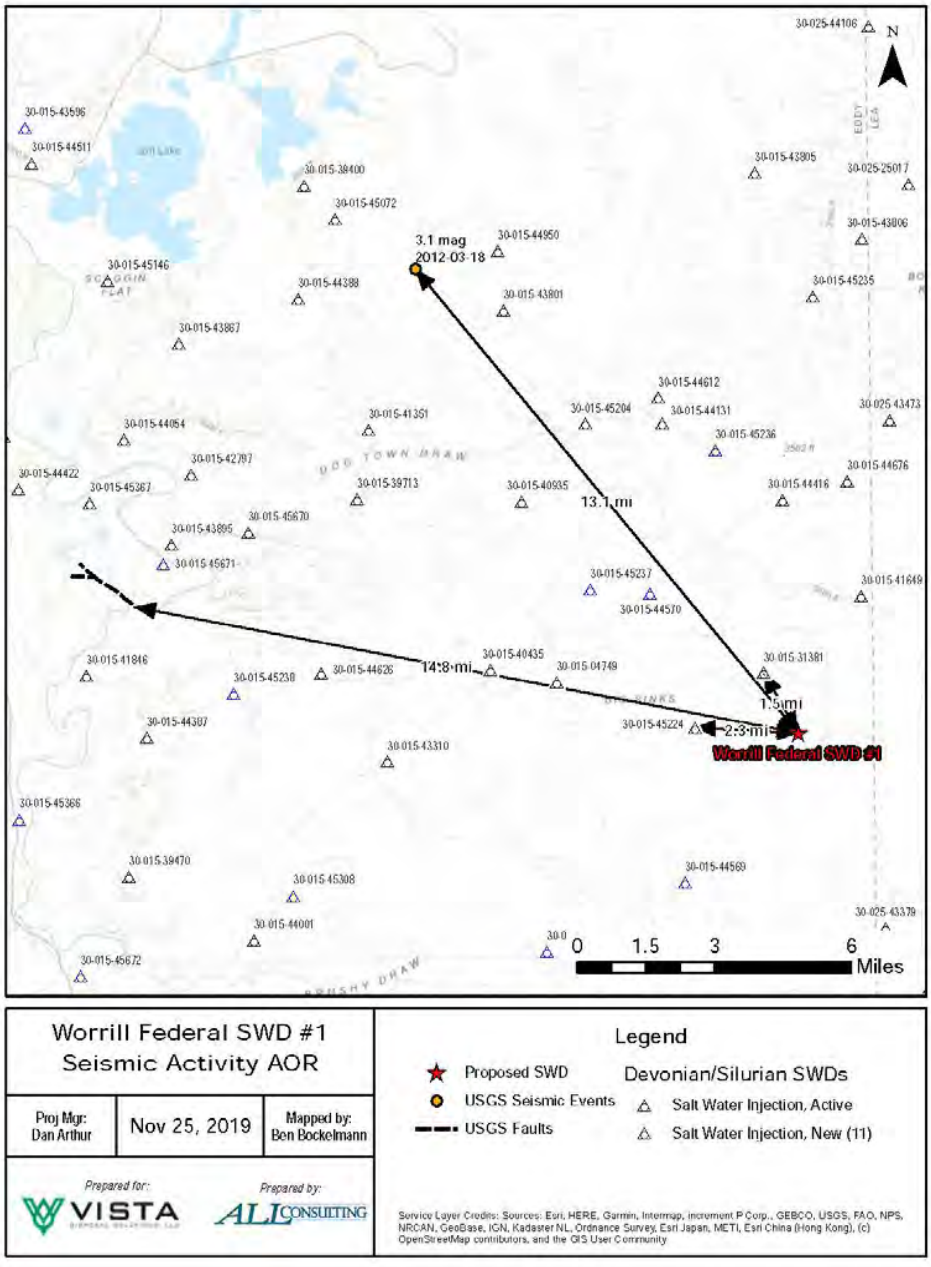


Exhibit 1. Map Showing the Distances from Known and Inferred Faults, Seismic Event, and Closest Deep Injection Well

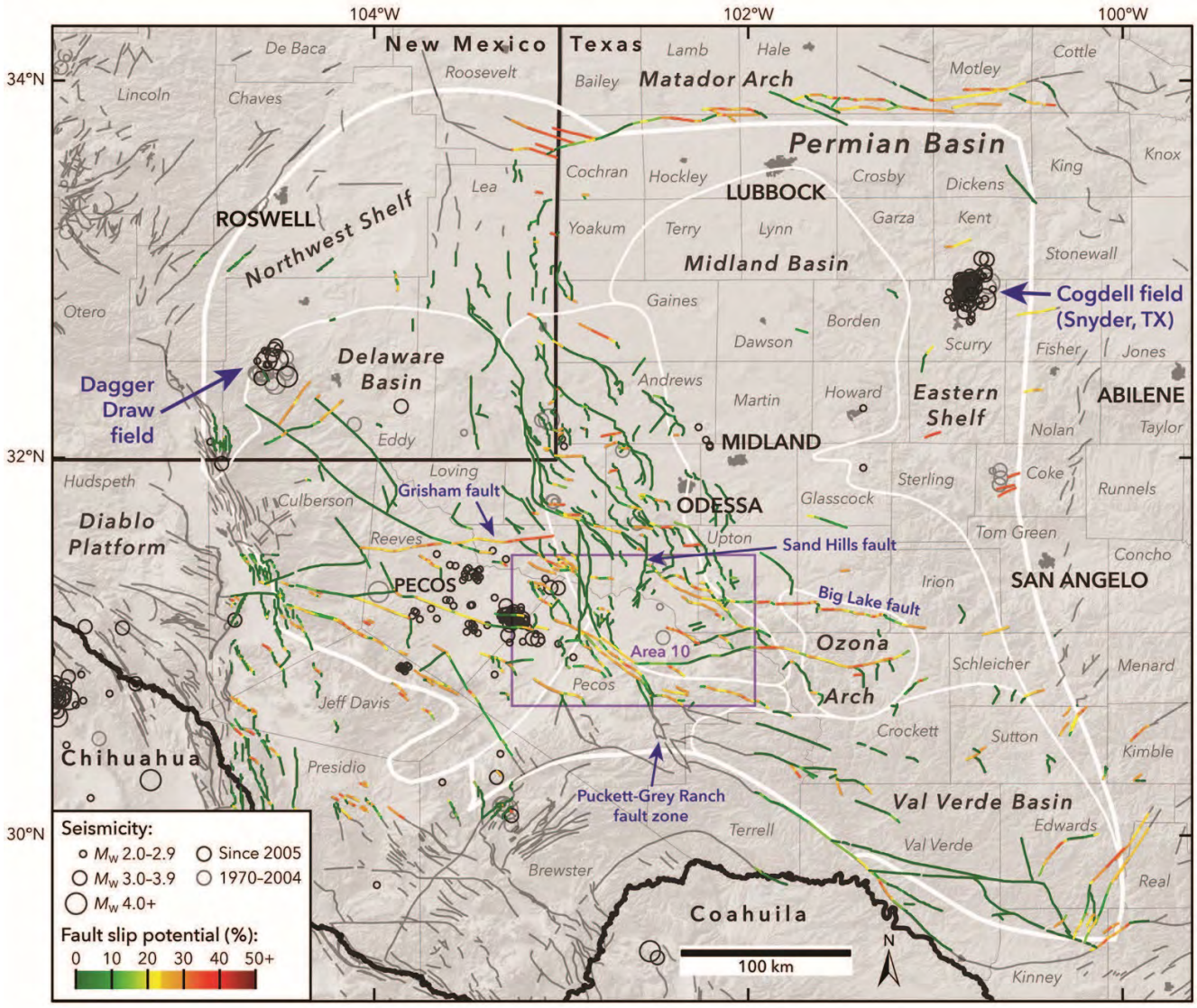


Exhibit 2. Results of the Snee and Zoback (2018) Probabilistic FSP Analysis Across the Permian Basin

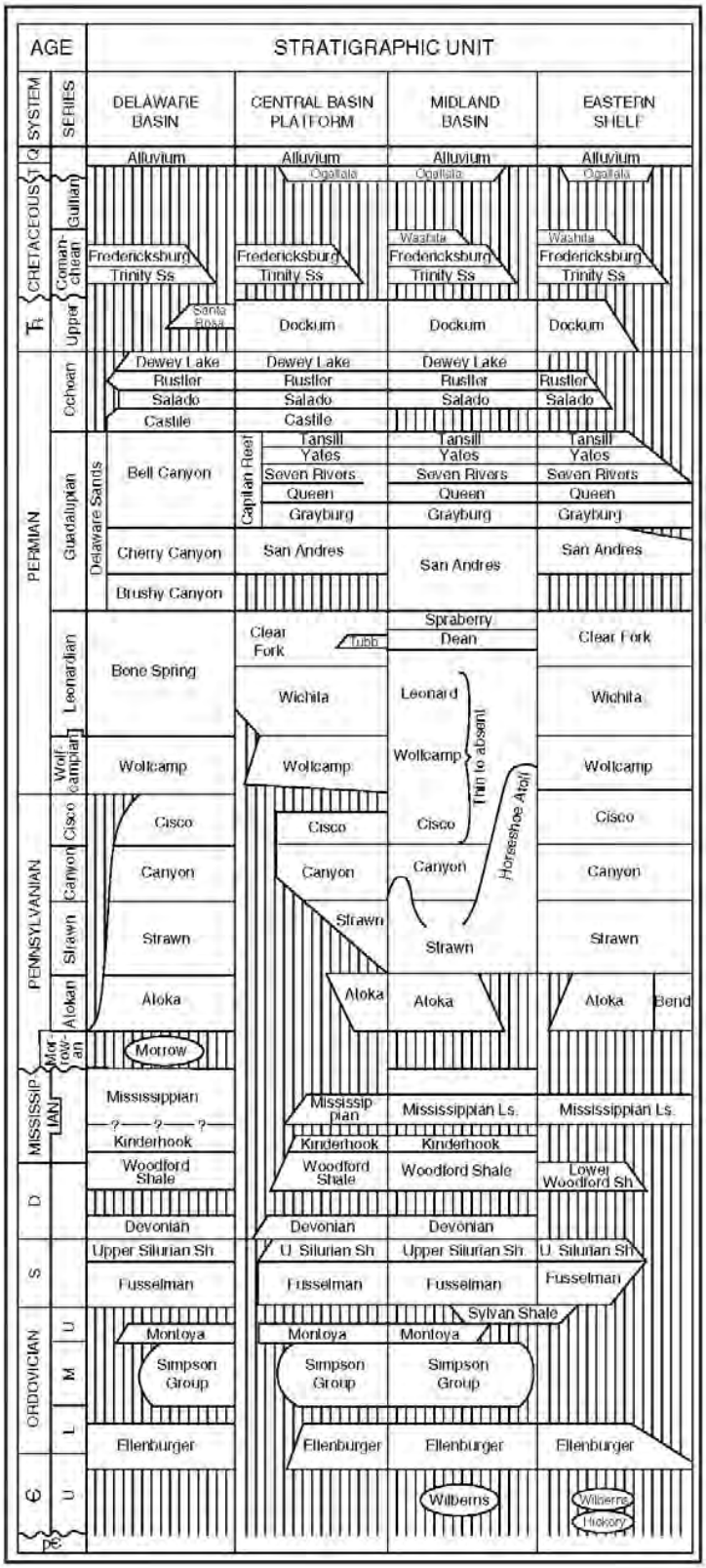


Exhibit 3. Delaware Basin Stratigraphic Chart (Ball 1995)

Attachment 7

Public Notice Affidavit and Notice of Application Confirmations

APPLICATION FOR AUTHORIZATION TO INJECT

NOTICE IS HEREBY GIVEN: That Vista Disposal Solutions, LLC, 12444 NW 10th St., Building G, Suite 202-512, Yukon, OK 73099, is requesting that the New Mexico Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows:

PURPOSE: The intended purpose of the injection well is to dispose of salt water produced from permitted oil and gas wells.

WELL NAME AND LOCATION: Worrill Federal SWD #1
SE ¼ NW ¼, Section 14, Township 25S, Range 31E
1,372' FNL & 1,903' FWL
Eddy County, NM

NAME AND DEPTH OF DISPOSAL ZONE: Devonian – Silurian (16,775' – 18,140')

EXPECTED MAXIMUM INJECTION RATE: 40,000 Bbls/day

EXPECTED MAXIMUM INJECTION PRESSURE: 3,355 psi (surface)

Objections or requests for hearing must be filed with the New Mexico Oil Conservation Division within fifteen (15) days. Any objection or request for hearing should be mailed to the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505.

Additional information may be obtained by contacting Nate Alleman at 918-382-7581.

Carlsbad Current Argus.

Affidavit of Publication

Ad # 0003910813

This is not an invoice

ALL CONSULTING- CARL SBAD
1718 SOUTH CHEYENNE AVENUE

TULSA, OK 74119

I, a legal clerk of the **Carlsbad Current Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

November 21, 2019

Legal Clerk

Subscribed and sworn before me this November 21, 2019:

State of WI, County of Brown
NOTARY PUBLIC

5-15-23
My commission expires

NANCY HEYRMAN
Notary Public
State of Wisconsin

Ad # 0003910813
PO #: App for Injection
# of Affidavits : 1

This is not an invoice

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Additional information may be obtained by contacting Nate Alleman at 918-382-7581.
#3910813, Current-Argus, November 21, 2019

Worrill Federal SWD #1 - Notice of Application Recipients				
Entity	**Address**	**City**	**State**	**Zip Code**
Landowner & Mineral Owner				
New Mexico BLM	620 E Greene St.	Carlsbad	NM	88220
OCD District				
NMOCD District 2	811 S. 1st St.	Artesia	NM	88210
Leasehold Operators				
Chevron USA Inc. (Chevron USA INC)	6301 Deauville Blvd	Midland	TX	79706
CTV Oil & Gas New Mexico, LLC (CTV OG NM LLC)	201 Main Street, Suite 2700	Fort Worth	TX	76102
Devon Energy Production Company, LP (DEVON ENERGY PROD CO LP)	333 W. Sheridan Ave.	Oklahoma City	OK	73102
PRB II 1993C Oil & Gas New Mexico, LLC (PRB II 1993C OG NM LLC)	251 Little Falls Dr.	Wilmington	DE	19808
SRBI O&G NM, LLC (SRBI OG NM LLC)	201 Main Street, Suite 3200	Fort Worth	TX	76102
Thru Line Oil & Gas New Mexico, LLC (THRU LINE OG NM LLC)	201 Main Street, Ste 2700	Fort Worth	TX	76102
Notes: The table above shows the Entities who were identified as parties of interest requiring notification on either the 1-mile well detail list (Attachment 2) or on the 2-mile Mineral Lease Map (Attachment 2). The names listed above in parenthesis, are the abbreviated entity names used on either the 1-mile well detail list (Attachment 2) or on the 2-mile Mineral Lease Map (Attachment 2).				

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