## **BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION**

### APPLICATION OF VISTA DISPOSAL SOLUTIONS LLC, FOR A SALT WATER DISPOSAL WELL, IN LEA COUNTY, NEW MEXICO.

Case No.

### **APPLICATION FOR SALT WATER DISPOSAL**

Vista Disposal Solutions LLC, by and through its undersigned attorney, applies for an order approving a salt water disposal well, and in support thereof, states:

 Applicant seeks an order proposing a salt water disposal well for its Muir Federal SWD #2, (Pool Code 97869) to be drilled at a location 1,245' FSL and 200' FEL, Unit P, Section
 30, Township 26 South, Range 34 East, N.M.P.M., Lea County, New Mexico.

2. Applicant proposes to set a packer at 17,480' feet below the surface of the earth and then inject into the Devonian-Silurian formation at depths between 17,500' through 18,780' open hole, as stated in the attached C-108.

3. Attached hereto as Exhibit A is the C-108.

4. The granting of this application will prevent waste and protect correlative rights.

**WHEREFORE**, Applicant requests that, after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

PADILLA LAW FIRM, P.A.

### /s/ ERNEST L. PADILLA

ERNEST L. PADILLA, Attorney for Vista Disposal Solutions, LLC PO Box 2523 Santa Fe, New Mexico 87504 505-988-7577 padillalaw@qwestoffice.net

STATE OF NEW MEXICO	<b>Oil Conservation Division</b>
ENERGY, MINERALS AND NATURAL	1220 South St. Francis Dr.
RESOURCES DEPARTMENT	Santa Fe, New Mexico 87505

PHONE: 918-382-7581

### **APPLICATION FOR AUTHORIZATION TO INJECT**

I.	PURPOSE:	Secondary Recovery	Pressure M	laintenar	nce	X	Disposal
	Stora	age Application qualifies for administrativ	e approval?	Х	Yes		No

II.	OPERATOR:	Vista Disposa	l Solutions, LLC
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ADDRESS: 12444 NM 10th St., Building G, Suite 202-512, Yukon, OK 73099

CONTACT PARTY Nate Alleman

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 th	e 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	AND WELL ARTING	TITLE: President/Chief Engineer
SIGNATURE: J. an Onten	( ( 2 ) ) )	DATE: 11/07/2019
/	CIESSIONAL ENGINE	

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

XV. If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:

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

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: Muir Federal SWD #2

### 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: Muir Federal SWD #2 Location Footage Calls: 1,245' FSL & 200' FEL Legal Location: Unit Letter P, S30 T26S R34E Ground Elevation: 3,350' Proposed Injection Interval: 17,500' – 18,780' County: Lea

### (2) Casing Information:

Туре	Hole Size	Casing Size	Casing Weight	Setting Depth	Sacks of Cement	Estimated TOC	Method Determined
Surface	24"	20"	133.0 lb/ft	775'	790	Surface	Circulation
Intermediate 1	14-3/4"	13-3/8"	68.0 lb/ft	5,330'	1,190	Surface	Circulation
Intermediate 2	12-1/4"	9-5/8"	53.5 lb/ft	14,760'	4,898	Surface	Circulation
Liner	8-1/2″	7-5/8"	39.0 lb/ft	17,500'	225	14,560'	CBL

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

### (3) Tubing Information:

4-1/2" (composite weight string) of fiberglass-coated tubing with setting depth of 17,480'

(4) Packer Information: SC-2 or equivalent packer set at 17,480'

### В.

- (1) Injection Formation Name: Devonian and Silurian formations
   Pool Name: SWD; DEVONIAN SILURIAN
   Pool Code: 97869
- (2) Injection Interval: Open-hole injection between 17,500' 18,780'
- (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 (5,330')
  - Bone Spring (10,510')
  - Wolfcamp (12,520')
  - Atoka (15,100')
  - Morrow (16,450')

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 Ownership 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 Surface Maximum Injection Pressure: 3,500 psi (based on 0.2 psi per foot) Proposed Average Surface 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 Spring 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 in this area known to be compatible with formation water from the Wolfcamp and Bone Spring 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 17,500 – 18,780 feet. These formations consist of carbonate rocks which include light colored dolomite and chert intervals interspersed with some tight limestone intervals. Several thick sections of porous dolomite capable of accepting injected fluids 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 750 feet. Surface casing will be set at a depth of 775 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 135 - 300 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, no groundwater wells were located within 1-mile radius 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 Hobbs News-Sun 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

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### Attachment 1

- C-102
- Wellbore Diagram

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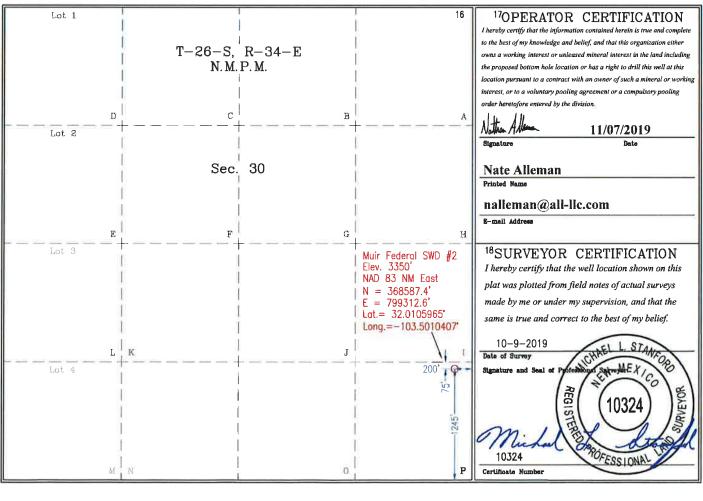
*Property Code <sup>7</sup> OGRID No. 329051 UL or lot no. Section Tow	Vista	<sup>3</sup> Property Name Muir Federal SWD <sup>8</sup> Operator Name Vista Disposal Solutions, LLC <sup>10</sup> Surface Location Range Lot Idn Feet from the North/South line Feet from the East/West lin				East/West line	*Well Number 2 *Elevation 3350'
1API Number	<sup>2</sup> Pool Code 97869 SWD; Devonian - Silurian						AT U Mushes
	W			ACREAGE 1	DEDICATION		
DISTRICT III 1000 Rio Brazos Road, Aztec, NM 87411 Phone: (505) 334-6178 Fax: (505) 334-6 DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87 Phone: (505) 476-340 Fax: (505) 476-3	0 170 505	1220 South St. Francis Dr. Santa Fe, NM 87505					AMENDED REPORT
DISTRICT 1 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0 DISTRICT II 811 S. First St., Artesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9	Ench Dr., Hobbs, NM 88240     State of New Mexico       5) 393-6161 Fax: (575) 393-0720     Energy, Minerals & Natural Resources Departme       III     CONSERVATION DIVISION						Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

Section	rowmannb	wante	TOC JUL	FEBL ITOM THE	North/South mie	reet nom the	Daar/ meat inte	county
30	26-S	34-E		1245'	South	200'	East	Lea

## <sup>11</sup>Bottom Hole Location If Different From Surface

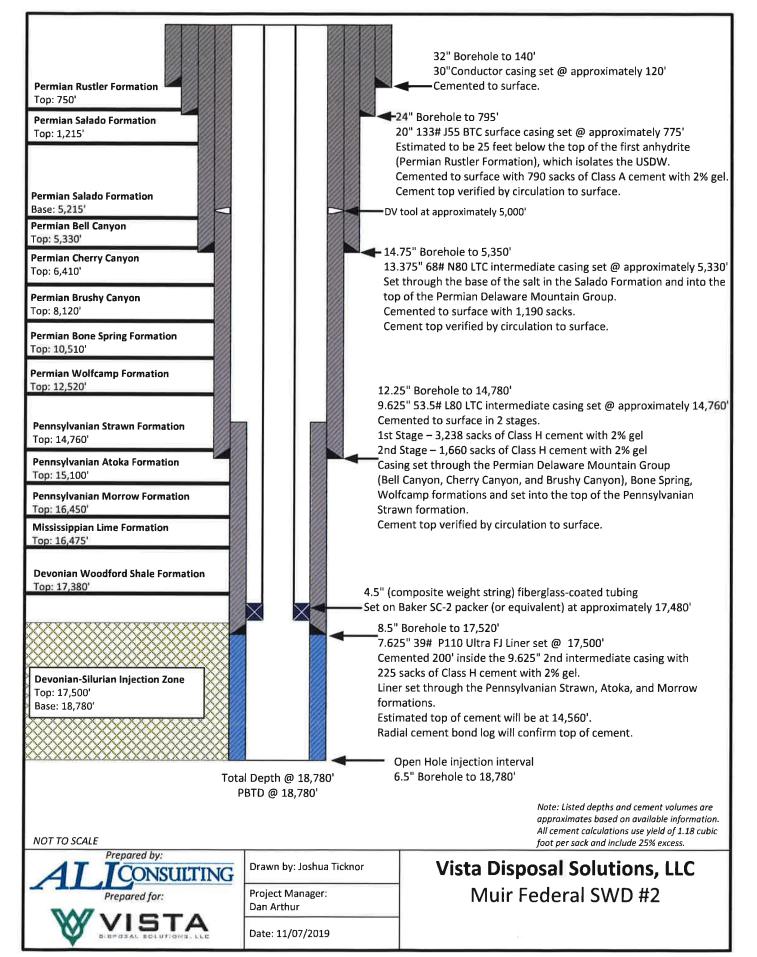
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint o	r Infill <sup>14</sup>	Consolidation C	code <sup>15</sup> 0	rder No.				

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.



<u>\_\_\_\_19.4</u>\_\_\_ Miles <u>W-SW</u> of \_\_\_\_\_\_ Jal \_\_\_\_\_, New Mexico.

A-12922



TU 5632 Rev. M Effective Date: 11 Apr 2019

# SC-2 Packer

### **1** Introduction

The SC-2<sup>TM</sup> 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, highperformance 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<sup>™</sup> and HP<sup>™</sup> 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.

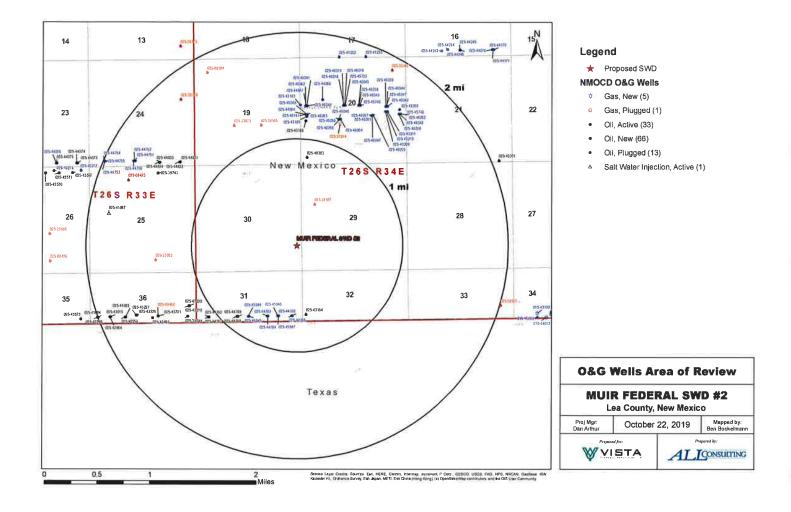


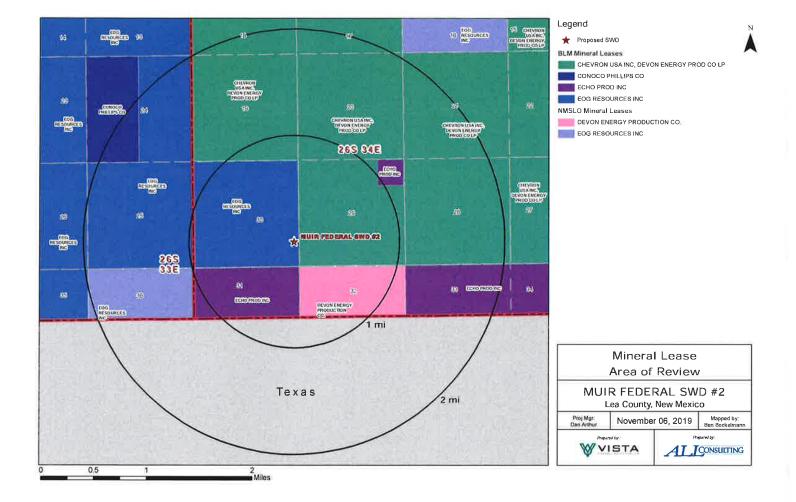
Drawing 662-476-1

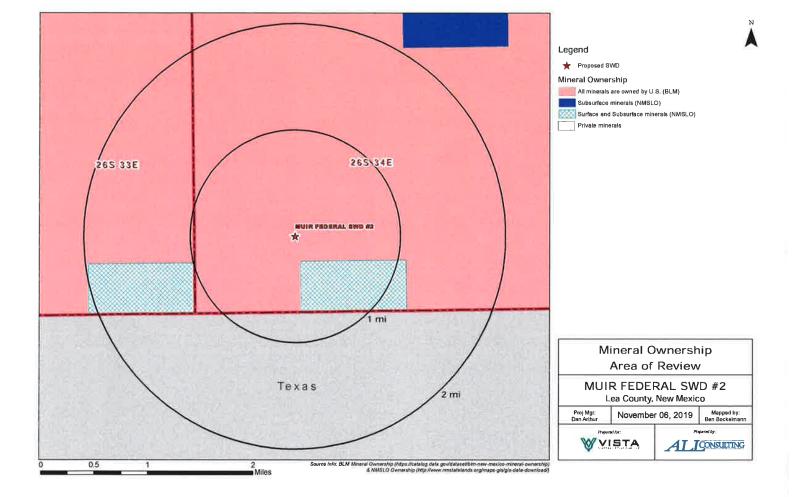
### Attachment 2

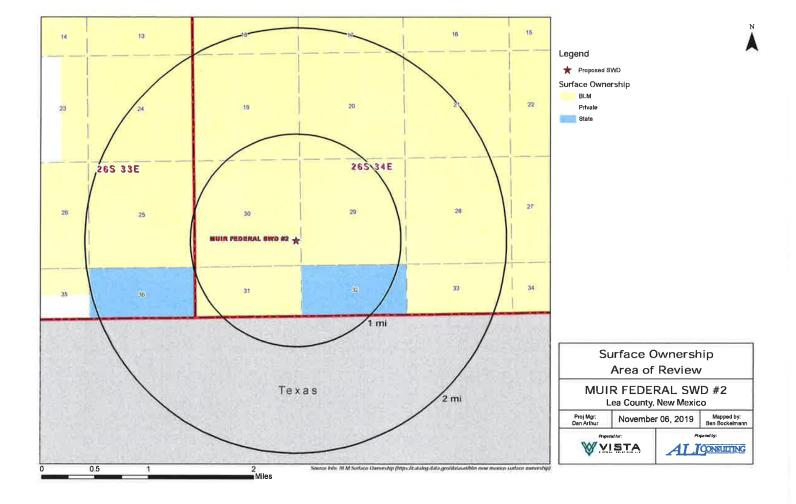
Area of Review Information:

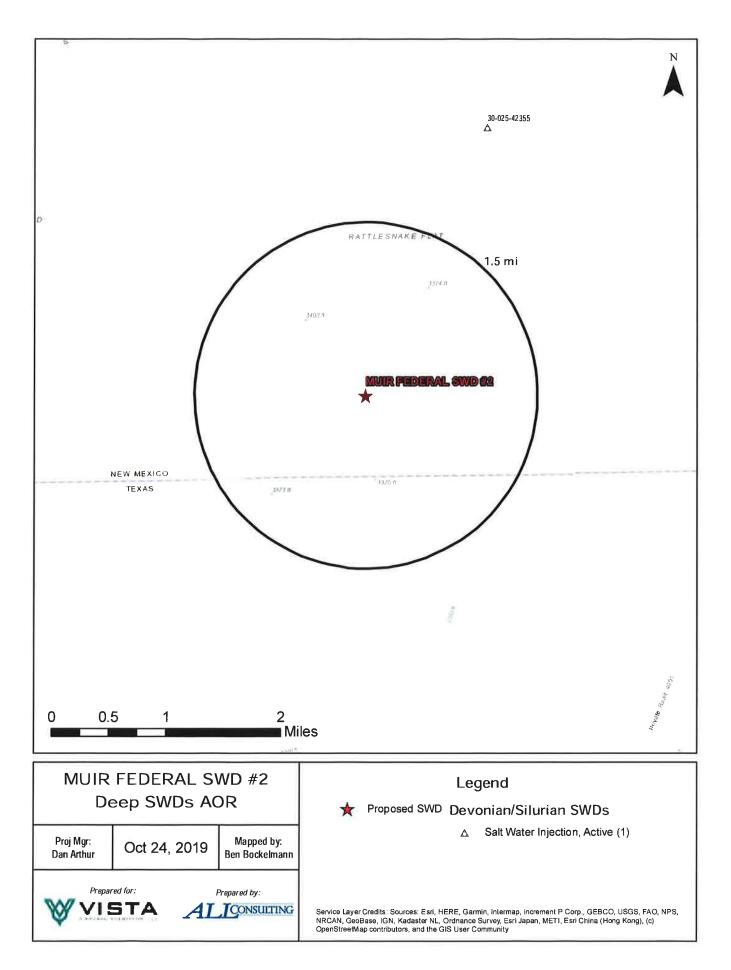
- 2-mile Oil & Gas Well Map
- 2-mile Lease Map
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- 1-mile Well Detail List
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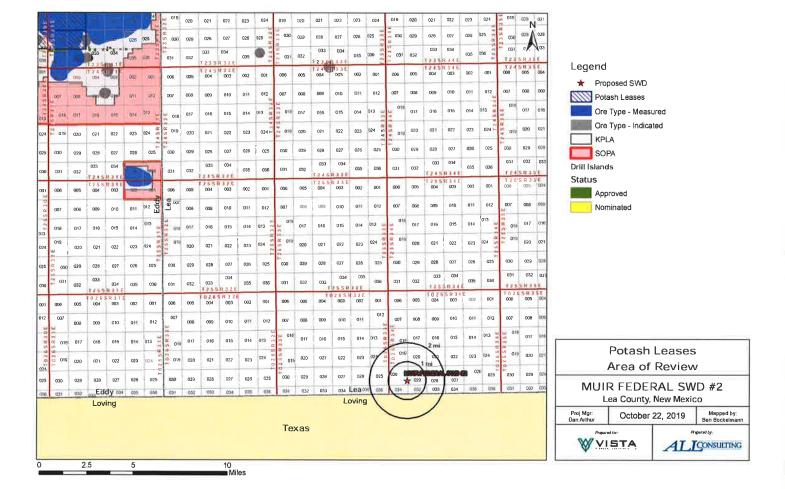








Well Name	APIN	Well Type	Operator	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth (feet)	Penetrate Inj. Zone?
PRE-ONGARD WELL #001	30-025-28651	Plugged	PRE-ONGARD WELL OPERATOR (Gulf Oil Corporation)	3/31/1984	E-29-265-34E	Plugged (15562)	No
PHILLY 31 FEDERAL COM #706H	30-025-44763	0	EOG RESOURCES INC	6/19/2019	4-31-265-34E	12720	No
PHILLY 31 FEDERAL COM #709H	30-025-44766	0	EOG RESOURCES INC	6/22/2019	5-31-265-34E	12724	No
PHILLY 31 FEDERAL COM #704H	30-025-44769	0	EOG RESOURCES INC	6/27/2018	3-31-265-34E	12763	No
PHILLY 31 FEDERAL COM #708H	30-025-44765	0	EOG RESOURCES INC	Not Drilled	5-31-265-34E	Proposed [12711]	No
PHILLY 31 FEDERAL COM #703H	30-025-44768	0	EOG RESOURCES INC	7/25/2018	3-31-265-34E	12723	No
PHILLY 31 FEDERAL COM #711H	30-025-45946	0	EOG RESOURCES INC	Not Drilled	5-31-265-34E	Proposed (12718)	No
PHILLY 31 FEDERAL COM #710H	30-025-45945	0	EOG RESOURCES INC	Not Drilled	3-31-265-34E	Proposed (12723)	No
PHILLY 31 FEDERAL COM #705H	30-025-45944	0	EOG RESOURCES INC	Not Drilled	3-31-265-34E	Proposed (12715)	No
PHILLY 31 FEDERAL COM #712H	30-025-45947	0	EOG RESOURCES INC	Not Drilled	5-31-265-34E	Proposed (12720)	No
PHILLY 31 FEDERAL COM #707H	30-025-44764	0	EOG RESOURCES INC	6/20/2019	4-31-265-34E	12747	No
GREEN WAVE 20 32 FEDERAL STATE COM #003H	30-025-43184	0	DEVON ENERGY PRODUCTION COMPANY, LP	8/28/2017	L-20-265-34E	10917	No
GREEN WAVE 20 FEDERAL #001H	30-025-40383	0	DEVON ENERGY PRODUCTION COMPANY, LP	3/25/2012	M-20-265-34E	9487	No



### Attachment 3

Source Water Analyses

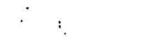


### 2708 West County Road, Hobbs NM 88240 Phone (575) 592-5556 Fax (575) 392-7307

Company		Well Name	Draw 1	County	State
		BD		408-	New Mexico
Sample Source	Swab Sa	mpie	Sample #	ddy	1-265-294
Formation			Depth		
Specific Gravity	1.170		SG C	60 °F	1.172
pН	6.30		5	Sulfi <b>des</b>	Absent
Temperature (*F)	70		Reducing	Agents	
Cations					
Sodium (Calc)		in Mg/L	77,962	in PPM	56,520
Calcium		in Mg/L	4,000	in PPM	3,413
Magnesium		in Mg/L	1,200	In PPM	1,024
Soluable fron (FE2)		in Mg/L	10.0	in PPM	9
Antons					
Chiandes		in Mg/L	130,000	in PPM	110,922
Sulfates		in Mg/L	250	in PPM	213
Bicarbonates		in Mg/L	127	in PPM	106
Total Hardness (as CaCO	3)	in Mg/L	15,000	in PPM	12,799
Total Dissolved Solida (Ca	Nc)	in Mg/L	213,549	in PPM	182,209
Equivalent NaCl Concentr	ation	in Mg/L	182, <b>865</b>	in PPM	156,031
icaling Tendencies					
Calcium Carbonate Index Below 800,000	Remote / 500,	000-1,000,000	Possible / Above 1	.000,000 Probabil	507,520
Calcium Sulfate (Gyp) Ind					1,000,000
KAT GAN DATE STOL		00 - 10,000,00	Posable / Above 1		
ble Calculation is only as appi setment.	outration and	is only valid b	elore treatment o	f a weli or severa	woaks after

Report # 3188

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Sec 22, T25, S, R28E

Bone Spring

North Permian Basin Region P.O. Box 740 Sundown, TX 79372-0740 (808) 228-8121 Leb Team Leader - Shells Hemandez (432) 495-7240

## 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		Analysis of Sample 534665 @ 75 F								
Sampling Date: 03/1	0/11 Anlens	mg/i	Npem	Cations	mg/l	Neen				
Analysis Date: 03/1		109619.6	3091.92	Sodium:	70275.7	3056.82				
Analyst: SANDRA GO	WEZ Bloarbonate:	2135.0	34.99	Megneslum:	195.0	16.04				
TDB (mail or a/m3): 1849	Carbonste:	0.8	۵.	Calcium:	844.0	42.12				
- to be a second	113 Sulfata:	747.0	15.55	Strontium:	220.0	5.02				
Anion/Cation Ratio:	Phosphale:			Badum:	0.8	0.01				
	Borate:			Iron:	4.5	0.23				
	Silicate:		(	Polassium:	889.0	22.22				
				Aluminum:						
Carbon Dioxida: 0 50 PP	M Hydrogen Suilide:		0 PPM	Chromium:						
Oxygen:	pH at time of sampl	ion-		Copper:						
Comments:			· · · /	Lead:						
10000-011	pH at time of analys	ds:		Manganese:	0.100	0.				
	pH used in Calcule	tion:	7	Nickel:						
Conditions Value	Coloulated at the At			-1 0						
Condisions Value	s Calculated at the Giv	en conditione	T	OF SCALE IN INVIO						

	mp Gauge Calcite Press. CaCO <sub>3</sub>		Gypsum CaSO_2H_ 0			ydrile aSO4	Celestite BrSO4		Barite BaSO		CO2 Press	
Ŧ	pel	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	pel
80	0	1.05	188.52	-1.20	0.00	-1.18	0.00	-0.11	0.00	0.56	0.29	1.72
100	0	1.10	205.05	-1.29	0.00	-1.20	0.00	-0.15	0.00	0.35	0.29	2.35
120	0	1.12	224.17	-1.38	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 eaverity of the scale problem, both the saturation index (SI) and emount of ecale must be considered.

Nois 2 Precipitation of each acase is considered separately. Total acate will be less than the sum of the amounts of the five acates.

Note 2: The reported GO2 pressure is actually the calculated GO2 fugacity. It is usually nearly the same as the GO2 partiel pressure.

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### Attachment 4

Injection Formation Water Analyses

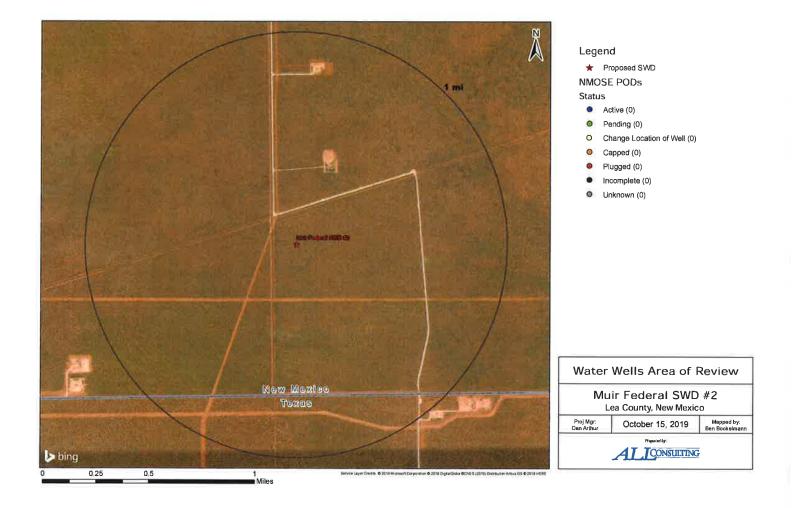
	474			and the second se	Vista C	Naposal So	hitions, LLC	- Devonia	n and Silluri	en-Fusseln	nan Formati-	one					
Wellname	AM	Letitude	Longitisda	Section Township	Hange	Unit	Figns	Figner	County	State	Company	Field	Formation	Ids_mgt.	Chloride_mgl.	Dicarbonata mgt.	Sultate_mgL
STATE B COM #001	3002509716	37.179405	-103.2212524	36 245	36E	C.	600N	1880W	LEA	NRA		CUSTER	DEVONIAN	17623	107400	121	1 1004
FARNSWORTH FEDERAL IIDOG	3002511950	32.077725	103.162468	4 265	37E	A	650N	990E	LEA	NM		CNOSBY	DEVONIAN	31931	20456	30.	2 591
ABNOTT RAMSAY NCT-B #00.5	3002511863	37.092228	-103.1784439	37 255	371	A	65CH	GGCE	I.CA	NM		CROSBY	DEVONIAN		100382	470	6
ARNOTT RAMSAY NCT-B #003	3007511863	32.092228	103.1784439	32 255	376	Δ.	660N	6606	LEA	NM		C80587	DEVONIAN	158761			
COPPER #001	3002511818	32.099484	-103.1656723	28 255	37E	0	12805	19816	LEA.	NIM		CROSBY	DEVONIAN	2750	15770	1085	9 1079
STATE NI A ROOT	3002511398	32.164749	103.1273346	2 255	376	A	663N	6600	LEA .	NM		JUSTIS NOWTH	DEVONIAN	105356	59300	660	4950
WESTATES FEDERAL NOD4	3002511389	32.161129	103.1241226	1 255	376	t	1380N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	80880	46200	340	3050
WESTATES FEDERAL ID04	3002511389	37.161129	-101 1241226	1 258	37E	1	12801	330W	LEA .	NM		RUSTIS NORTH	FUSSELMAN	84900	48600	840	2650
WESTATES FEDERAL 8004	3002511389	32.161129	103.1241226	1 255	37E	£.	1980W	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	72200	41000	370	2960
WESTATES FEDERAL ROO4	3002511389	32.161129	-101 1741726	1 255	376	1	19800	3307W	LEA .	NRA		ALISTIS NORTH	FUSSELMAN	80900	46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	-103.1241226	1 255	376	0	1980N	330/W	LEA	NM		KISTIS NORTH	FUSSELMAN	2760	44000	550	3240
WESTATES FEDERAL 1004	3002511389	32.161129	-103.1241226	1 255	37E	6	1980N	330W	1EA	NRA .		JUSTIS NORTH	FUSSELMAN	13500	77000	650	5810
WESTATES FEDERAL 8004	3002511389	32 161129	-103 1241226	1 255	X7E	1	1980N	330W	ITA .	NM		JUSTIS NORTH	FUSSELMAN	114000	55000	280	5110
WESTATES FEDERAL 8004	3002511389	32.161129	103.1241226	1 255	37E	t.	1980N	330W	LEA.	1974		JUSTIS NORTH	FUSSELMAN	135000	77000	500	0 \$320
WESTATES FEDERAL INOR	3002511393	32.162121	-103 1241226	1 255	176	0	1620N	330/W	LEA .	NM		RISTIS NORTH	FUSSELMAN	9105/	51020	370	6 4783
WESTATES FEDERAL BOOIL	3002511393	32.162121	-103 1241226	1 255	378	0	1620N	330W	LEA	NM		JUSTIS NORTH	FUSSELMAN	8584)	50450	36	3 2544
STATE Y #009	3002511777	32.10582	-103 111 5434	25 255	371	A	990N	990E	EEA .	NA.		AUSTIS	FUSSELMAN	219576	129000	966	4630
STATE V #009	3002511777	32.10582	-103.1113434	25 255	376	A	990N	(190E)	LEA .	NM		RISTIS	FUSSELMAN	163430	96000	290	3780
SCIUTH JUSTIS UNIT #023C	3002511760	32.106728	-101 1184616	25 255	X7E	c	660N	2080W	LEA	NM		IUSTIS	FUSSELMAN	63817	35870	364	3442
CARLSON A 8002	3002511764	32.100384	-103.1113434	25 255	171	1	23105	1990E	LEA	NM		JUSTIS	RUSSELMAN	208284	124000	510	3400
CARLSON B 25 M004	3002511784	32.096756	103 1113434	25 255	SH.	P	9905	990E	LEA	NM		JUSTIS	FUSSELMAN	184030	112500	6	8 1806

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### Attachment 5

Water Well Map and Well Data



			Vista Disposal Solutions, LLC -	Muir Federal SWD #2	Callent Sector Callent	and the second second second
SWD	Water Wells	Owner	Available Contact Information	Use	Sampling Required	Notes

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### Attachment 6

Induced Seismicity Assessment Letter



November 7, 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 Muir Federal SWD #2

Dear Mr. Goetze,

This letter provides information regarding the seismic potential associated with injection operations associated with Vista Disposal Solutions, LLC (Vista), proposed Muir Federal SWD #2, 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 1,245' FSL & 200' FEL of Section 30, in T26-S and R34-E of Lea 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 M2.9 that occurred on December 4<sup>th</sup>, 1984, and was located approximately 17.9 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 2.6 miles to the northeast (See Exhibit 1).

Vista does not own either 2D or 3D seismic reflection data in the area of the Subject Well. Fault data from USGS indicates that the closest known fault is approximately 9.8 miles east 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 Induced Seismicity Potential Statement for the Muir Federal SWD #2 November 7, 2019

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

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Induced Seismicity Potential Statement for the Muir Federal SWD #2 November 7, 2019

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." <u>http://www.beg.utexas.edu/resprog/permianbasin/PBGSP\_members/writ\_synth/Simpson.pdf</u> (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). Induced Seismicity Potential Statement for the Muir Federal SWD #2 November 7, 2019

# **Exhibits**

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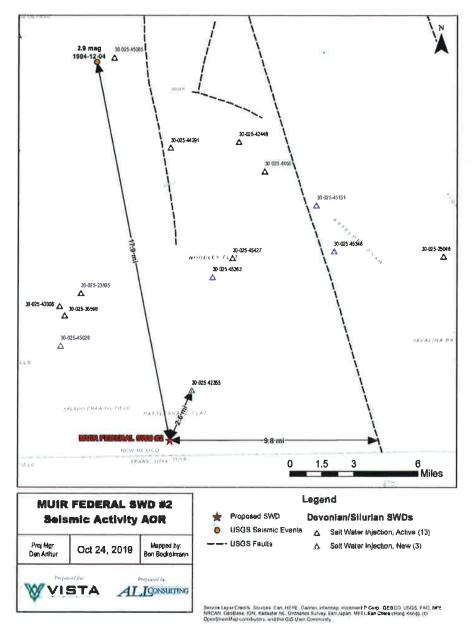


Exhibit 1. Map Showing the Distances from Known and Inferred Faults, Seismic Event, and Closest Deep Injection Well

Induced Seismicity Potential Statement for the Muir Federal SWD #2 November 7, 2019

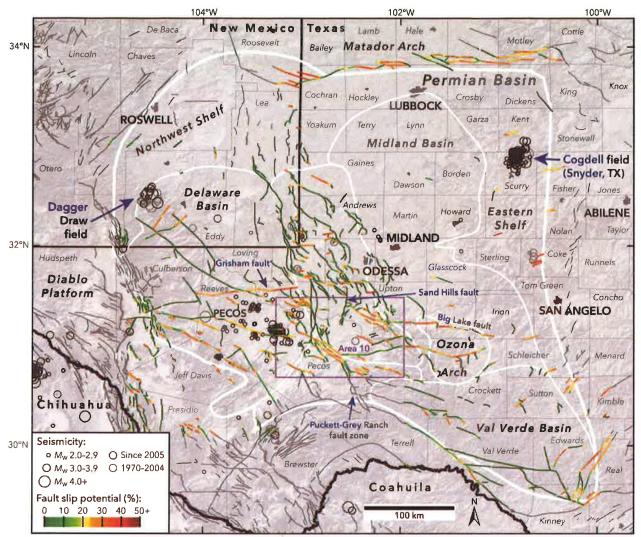


Exhibit 2. Results of the Snee and Zoback (2018) Probabilistic FSP Analysis Across the Permian Basin

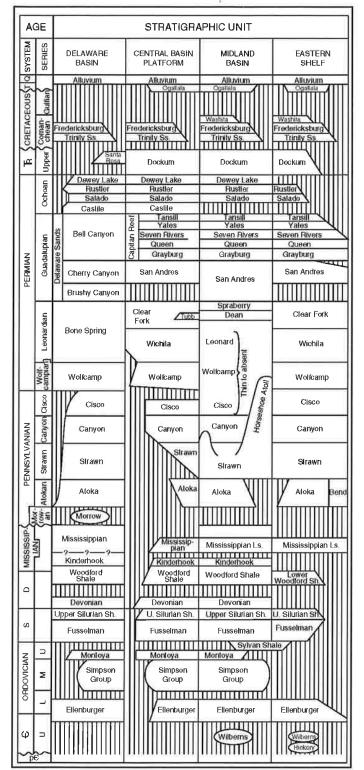


Exhibit 3. Delaware Basin Stratigraphic Chart (Ball 1995)

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 10<sup>th</sup> 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: Muir Federal SWD #2

<u>SE ¼ SE ¼, Section 30, Township 26S, Range 34I</u> 1245' FSL & 200' FEL

 NAME AND DEPTH OF DISPOSAL ZONE:
 Devonian – Silurian (17,500' – 18,780')

 EXPECTED MAXIMUM INJECTION RATE:
 40,000 Bbls/day

 EXPECTED MAXIMUM INJECTION PRESSURE:
 3,500 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.

## Affidavit of Publication

STATE OF NEW MEXICO COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

> Beginning with the issue dated November 02, 2019 and ending with the issue dated November 02, 2019.

Publisher

Sworn and subscribed to before me this 2nd day of November 2019.

**Business Manager** 

## My commission expires

and other to start an entropy of the January 29, 2023



This newspaper is duly qualified to publish. legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL NOTICE NOVEMBER 2, 2019 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 OII Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as follows: PURPOSE: The Intended purpose of the Injection well is to dispose of sall water produced from permitted oil and gas wells. WELL NAME AND LOCATION: Muir Federal SWD Located 19.5 miles southwest of Jal. NM SE 14 SE 14. Section 30. Township 265, Bange 34E 1245' FSL & 200 FEL Lea County, NM NAME AND DEPTH OF DISPOSAL ZONE: Devonian - Silurian (17,500' - 16,780') EXPECTED MAXIMUM INJECTION RATE: 40,000 Bbls/day EXPECTED MAXIMUM INJECTION PRESSURE: 3,500 psi (surface) Objections or requests for hearing must be filed with the New Mexico Oil Conservation Division within lifteen (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. #34834

67115320

DANIEL ARTHUR ALL CONSULTING 1718 S. CHEYENNE AVE. TULSA, OK 74119

00235654

Entity	Address	City	State	Zip Code
	Landowner & Mineral Owner			1. S.
New Mexico BLM	620 E Greene St.	Carlsbad	NM	88220
	OCD District	2 Same a statement		
NMOCD District 1	1625 N. French Drive	Hobbs	NM	88240
	Leasehold Operators			1000
Chevron USA Inc. (CHEVRON USA INC)	6301 Deauville	Midland	ТХ	79706
Commision of Public Lands - State Land Office	310 Old Santa Fe Trail	Santa Fe	NM	87501
Devon Energy Production Company, LP (DEVON ENERGY PROD CO LP) (DEVON ENERGY PRODUCTION CO.)	6488 Seven Rivers Hwy.	Artesia	NM	88210
ECHO Production, Inc. (ECHO PROD INC)	P.O. Box 1210	Graham	ТХ	76450
EOG Resources, Inc. (EOG RESOURCES INC)	104 S. 4th Street	Artesia	NM	88210
Railroad Commission of Texas Technical Permitting Section - UIC Program (TEXAS)	P.O. Box 12967	Austin	тх	78711
<b>Notes:</b> The table above shows the Entities who v detail list (Attachment 2) or on the 2-mile Minera abbreviated entity names used on either the 1-m	al Lease Map (Attachment 2). The nam	es listed above in pare	nthesis, are	the

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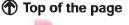
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Technical Permitting Section - UIC Program Railroad Commission of Texas P.O. Box 12967 Austin TX 78711-2967



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### NMOCD Case No.

Application of Vista Disposal Solutions, LLC for approval of a salt water disposal well in Lea County, New Mexico; Applicant seeks an order for a salt water disposal well for its Nancy Federal SWD#1, (Pool Code 96769) to be drilled at a location 1,092' FSL and 260' FEL, Unit P, Section 22, Township 25 South, Range 35 East, N.M.P.M., Lea County, New Mexico for injection into the Bell Canyon formation at depths between 5,300' through 6,100' open hole. The well will be located approximately \_\_\_\_\_ miles \_\_\_\_\_\_, New Mexico.

## **BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION**

## APPLICATION OF VISTA DISPOSAL SOLUTIONS LLC, FOR A SALT WATER DISPOSAL WELL, IN LEA COUNTY, NEW MEXICO.

Case No.

### **APPLICATION FOR SALT WATER DISPOSAL**

Vista Disposal Solutions LLC, by and through its undersigned attorney, applies for an order approving a salt water disposal well, and in support thereof, states:

1. Applicant seeks an order proposing a salt water disposal well for its Nancy

Federal SWD #1, (Pool Code 96769) to be drilled at a location 1,092' FSL and 260' FEL, Unit P,

Section 22, Township 25 South, Range 35 East, N.M.P.M., Lea County, New Mexico.

2. Applicant proposes to set a packer at 5,280' feet below the surface of the earth and then inject into the Devonian-Silurian formation at depths between 5,300' through 6,100' open hole, as stated in the attached C-108.

3. Attached hereto as Exhibit A is the C-108.

4. The granting of this application will prevent waste and protect correlative rights.

WHEREFORE, Applicant requests that, after notice and hearing, the Division enter its order approving this application.

Respectfully submitted,

PADILLA LAW FIRM, P.A.

<u>/s/ ERNEST L. PADILLA</u>

ERNEST L. PADILLA, Attorney for Vista Disposal Solutions, LLC PO Box 2523 Santa Fe, New Mexico 87504 505-988-7577 padillalaw@qwestoffice.net