Received by OCD: 9/3/2019 12:33:08 PM

#### 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 its Kathy Federal SWD #1, to drilled at a location 2,153' FNL and 612' FWL, Unit E, Section 03, Township 26 South, Range 34 East, N.M.P.M., Lea County, New Mexico.
- 2. Applicant proposes to set a packer at 17,880' feet below the surface of the earth and then inject into the Devonian Silurian formation at depths between 17,900' through 19,100' 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.

#### /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 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:
	<ol> <li>Proposed average and maximum daily rate and volume of fluids to be injected;</li> <li>Whether the system is open or closed;</li> <li>Proposed average and maximum injection pressure;</li> <li>Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,</li> <li>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.).</li> </ol>
*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: 71 DATE: 8/12/2019
*	E-MAIL ADDRESS: <u>darthur@all-llc.com</u> 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:

#### 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: Kathy 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: Kathy Federal SWD #1 Location Footage Calls: 2,153' FNL & 612' FWL Legal Location: Unit Letter E, S03 T26S R34E

Ground Elevation: 3,313'

Proposed Injection Interval: 17,900' – 19,100'

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	865'	880	Surface	Circulation
Intermediate 1	14-3/4"	13-3/8"	68.0 lb/ft	5,300'	1,700	Surface	Circulation
Intermediate 2	12-1/4"	9-5/8"	53.5 lb/ft	14,600'	4,945	Surface	Circulation
Liner	8-1/2"	7-5/8"	39.0 lb/ft	17,900	285	14,400 (TOL)	CBL

#### (3) Tubing Information:

4-1/2" (composite weight string) of fiberglass-coated tubing with setting depth of 17,880'

(4) Packer Information: Lok-set or equivalent packer set at 17,880'

В.

(1) Injection Formation Name: Devonian and Silurian - Fusselman

Pool Name: SWD; DEVONIAN - SILURIAN

**Pool Code: 97869** 

- (2) Injection Interval: Open-hole injection between 17,900′ 19,100′
- (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.
  - Delaware (5,300')
  - Bone Springs (10,000')
  - Wolfcamp (12,200')
  - Atoka (14,750')
  - Morrow (15,700')

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
- 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: 30,000 bpd Proposed Average Injection Rate: 15,000 bpd
- (2) A closed system will be used.
- (3) Proposed Maximum Injection Pressure: 3,580 psi (surface)
  Proposed Average Injection Pressure: approximately 1,500 2,000 psi (surface)
- (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-Fusselman 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-Fusselman formations from 17,900-19,100 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 freshwater formation is the Rustler at a depth of approximately 840 feet. 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

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 are 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

No faulting is present in the area that would provide a hydrologic connection between the injection interval and overlying USDWs. Additionally, the casing program has been designed to 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*.

Attachment 1: Wellbore Diagram

Attachment 2: Area of Review Information:

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

Attachment 3: Source Water Analyses

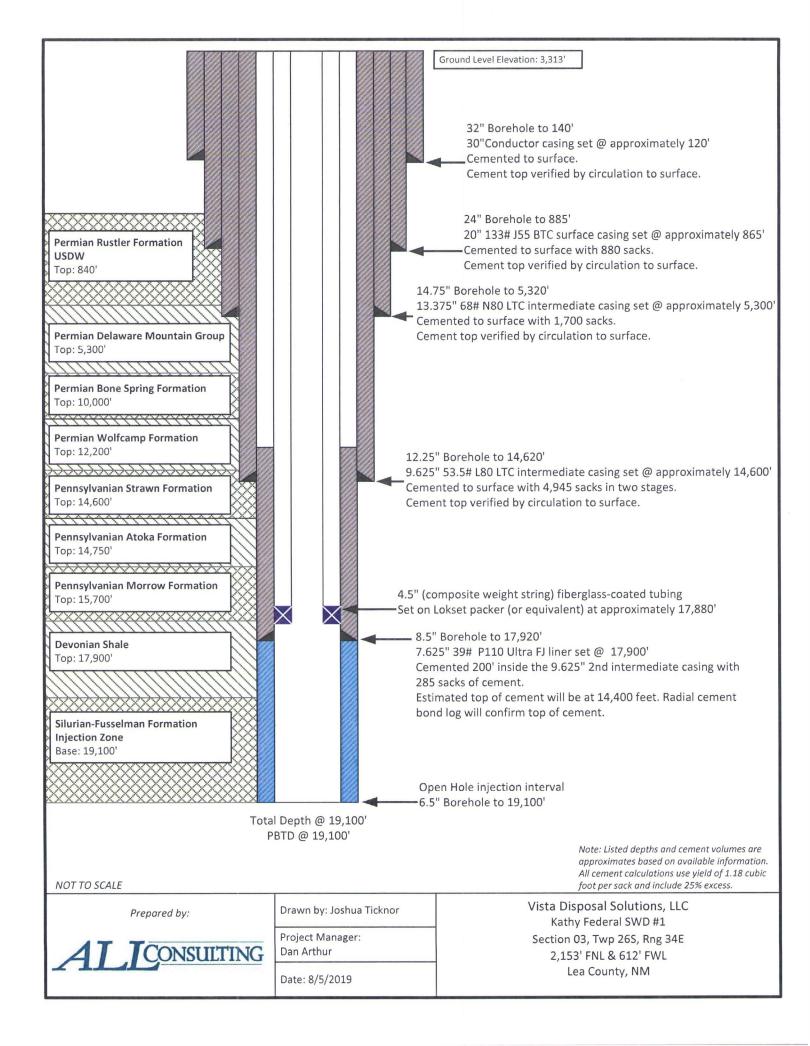
**Attachment 4:** Injection Formation Water Analyses

Attachment 5: Water Well Map and Well Data

Attachment 6: Induced Seismicity Assessment Letter

Attachment 7: Public Notice Affidavit and Notice of Application Confirmations

Wellbore Diagram



### A-3 and AL-2 LOK-SET Retrievable Casing Packers

#### Product Family No. H64630 and H64628

#### **APPLICATION**

The A-3™ LOK-SET™ packer combines advantages of a retrievable packer with the features of a permanent packer. An ability to lock down tubing forces makes the A-3 suitable for a broad range of applications, including production, injection, zone isolation, and remedial operations. The AL-2™ LOK-SET packer is similar to the A-3, and has a larger bore.

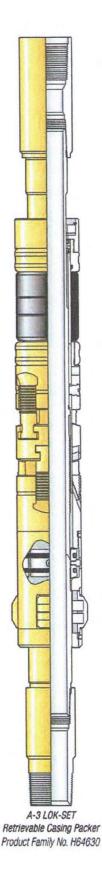
#### Advantages

- Holds pressure from above and below, without relying on set-down weight, tubing tension, or hydraulic hold down
- Provides tubing anchoring with tension applied, suitable for pumping wells or injection, controlling tubing forces related to change fluid temperatures
- Opposed, non-transferring, dovetail slips prevent packer movement associated with changing differential pressures, while allowing the landing of the tubing in tension, neutral or compression
- Right-hand tubing rotation controls setting and releasing
- Packing element compression locks in by ratcheting action of lock segments, which restricts rotation to one direction

#### Accessories

To provide a simple and reliable injection system for retrieving an injection string without having to unseat the packer:

L-10 or L-316 on-off sealing connectors, Product Family Nos. H68420 and H68422. Baker Hughes blanking plug can be used in the seating nipple profile of the on-off sealing connector to provide a means of plugging the lower zone while the tubing is being pulled.



**SPECIFICATION GUIDES** 

A-3" LOK-SET Retrievable Casing Packer, Product Family No. H64630

	Casing				Packer		
01	D	Weight *	Size	Nom	10	Max 6 Ring	
In.	mm	lb/ft		In.	mm	in.	mn
4	101.6	9.5-12.9	41A2	1.500	38.1	3.244	82.4
4-1/2	144.3	21.6-23.6	41A2	1.500	38.1	3.244	82.4
4	101.6	9.5	41A4	1.500	38.1	3.423	112.4
-		18.8	41A4	4.500	38.1	3.423	112.4
		13.5-17.7	41B	1.500	30.1	3.578	90.9
4-1/2	114.3	11.6-13.5	43A2		50.0	3.786	96.2
		9.5-10.5	43A4	1.978	50.2	3.786	96.2
		15-18	43B		50.0	4.140	105.2
5	127.0	11.5-15	430	1.978	50.2	4.265	108.3
		26	43C			4.265	108.3
		20-23	45A2			4.515	114.7
5-1/2	139.7	15.5 -20	45A4	1.978	50.2	4.656	118.3
		13-15.5	45B			4.796	121.8
		26	458			4.796	121.8
6	152.4	20-23	45C	1.978	50.2	5.078	129.0
O	102.4	15-18	45D		2000	5.171	131.3
		34	45E			5.421	137.7
		24-32	45F	1.978	50.2	5,499	139.7
6-5/8	168.3	24	47A2	2.441	62.0	5.671	144.0
0-370	700.0	17-24	45G	1.978	50.2	5.796	147.2
		17-20	47A4	2.441	62.0	5.827	148.0
		38	47A2			5.671	144.0
		32-35	47A4			5.827	148.0
7	177.8	26-29	47B2	2.441	62.0	5.983	152.0
	11.0	23-26	47B4			6.093	154.8
		17-20	4702			6.281	159.5
		33.7-39	47C4			6.468	164.3
7-5/8	193.7	24-29.7	4702	2.441	62.0	6.687	169.5
,		20-24	47D4	1		6.827	173.4
		44-49	49A2			7.327	186.1
8-5/8	219.1	32-40	49A4	3.500	88.9	7.546	191.7
		20-28	498			7.796	198.0
		47-53.5	51A2			8.234	209.
9-5/8	244.5	40-47	51A4	3.500	88.9	8.452	214.7
		29.3-36	51B			8.608	218.6

#### AL-2" Large Bore LOK-SET Retrievable Casing Packer Product Family No. H64628

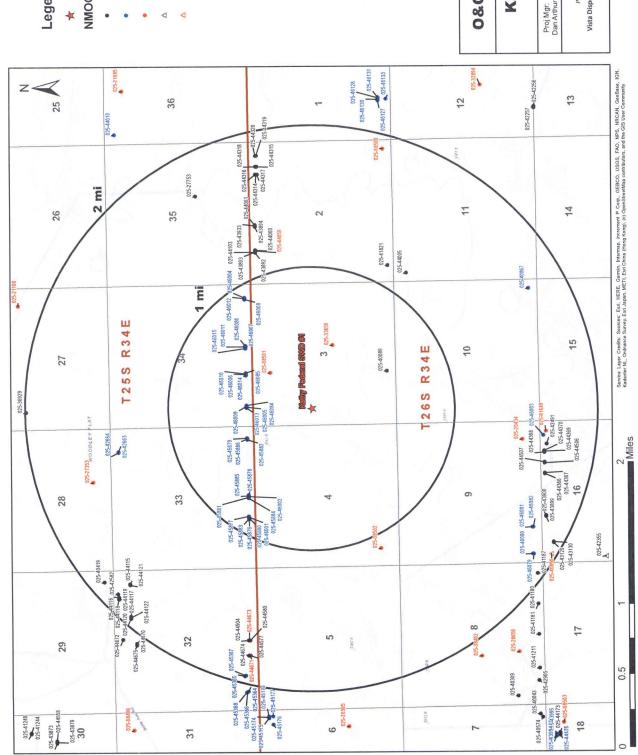
Cas	ing				Pac	ker			
0	D ·	Weight •	Size	Non	ı ID	Max Gage	Ring OD	Max Dia Compressed	
in.	mm	lb/ft		in.	mm	in.	mm	in.	mm
		20	45A2 x 2-3/8	2.375		4.562	115.9	4.592	116.6
5-1/2	139.7	15.5-17	45A4 x 2-3/8		2.375	60.3	4.656	118.3	4.750
		13	458 x 2-3/8			4.796	121.8	4.902	124.5
6	152.4	26	45B x 2-3/8	2.375	60.3	4.796	121.8	4.902	124.5

When selecting a packer for a casing weight common to two weight ranges (same OD), choose the packer size shown for the lighter of the two weight ranges. Example: for 7-in. (177.8 mm) OD 26 lb/ft casing use packer size 4784. Under certain circumstances the other packer size may be run, such as when running in mixed casing strings.

Repair kits, including such items as packing elements, seal rings, etc., are available for redressing Baker Retrievable Packers. Contact your Baker Hughes representative. Use only Baker Hughes repair parts.

Area of Review Information:

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



### Legend

★ Proposed SWD

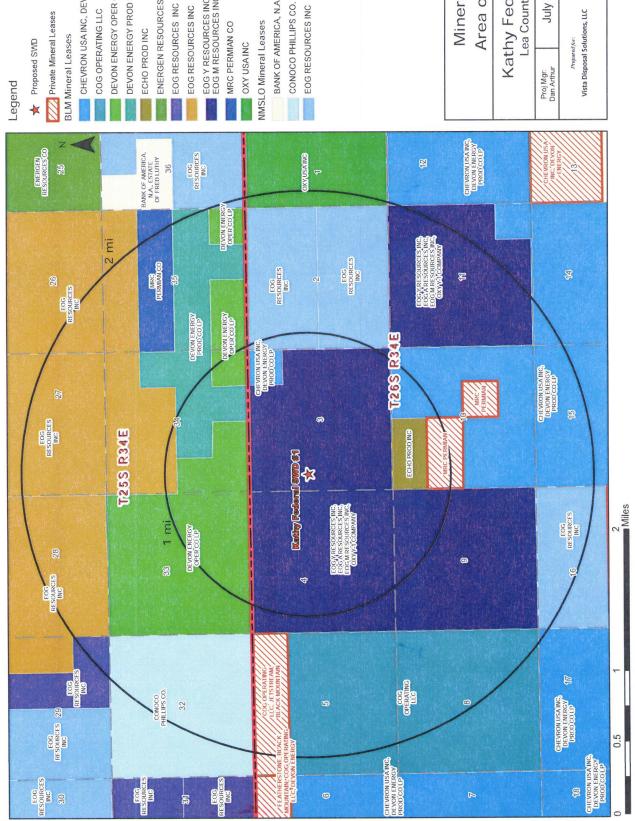
## NMOCD O&G Wells

- Oil, Active (66)
- Oil, New (56)
- Oil, Plugged (18)
- Salt Water Injection, Active (1)
- Salt Water Injection, Plugged (1)

# **O&G** Wells Area of Review

# Kathy Federal SWD #1 Lea County, New Mexico

Mapped by: Ben Bockelmann	CONSULTING
July 09, 2019	Pre Pre
Proj Mgr. Dan Arthur	Prepared for: Vieta Disnocal Solutions 110



CHEVRON USA INC, DEVON ENERGY PROD CO LP COG OPERATING LLC

DEVON ENERGY OPER CO LP

DEVON ENERGY PROD CO LP

ENERGEN RESOURCES CO

EOG RESOURCES INC

EOG Y RESOURCES INC, EOG A RESOURCES INC, EOG M RESOURCES INC, OXY Y-1 COMPANY

MRC PERMIAN CO

BANK OF AMERICA, N.A., ESTATE OF FRED LUTHY

EOG RESOURCES INC

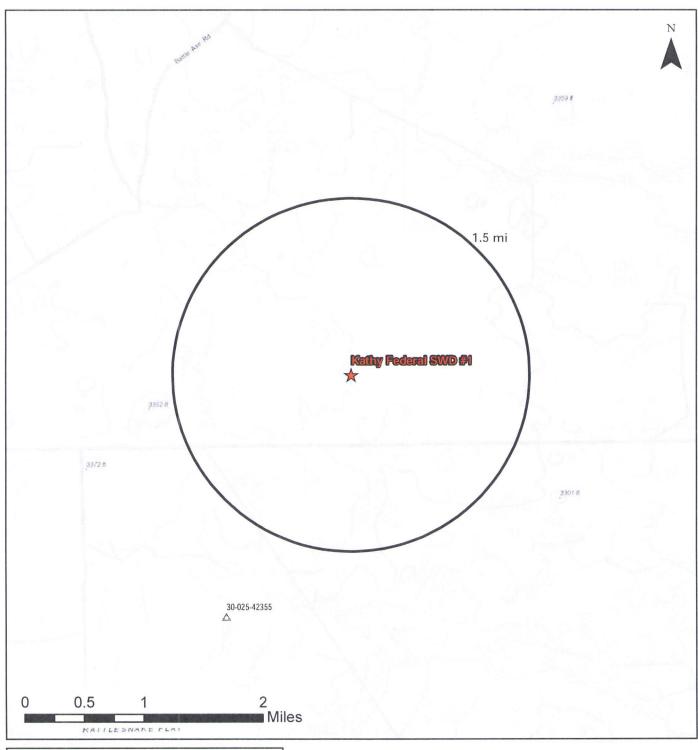
## Area of Review Mineral Lease

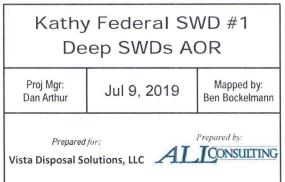
# Kathy Federal SWD #1

Lea County, New Mexico

Mapped by: Ben Bockelmann July 15, 2019

AL ICONSULTING





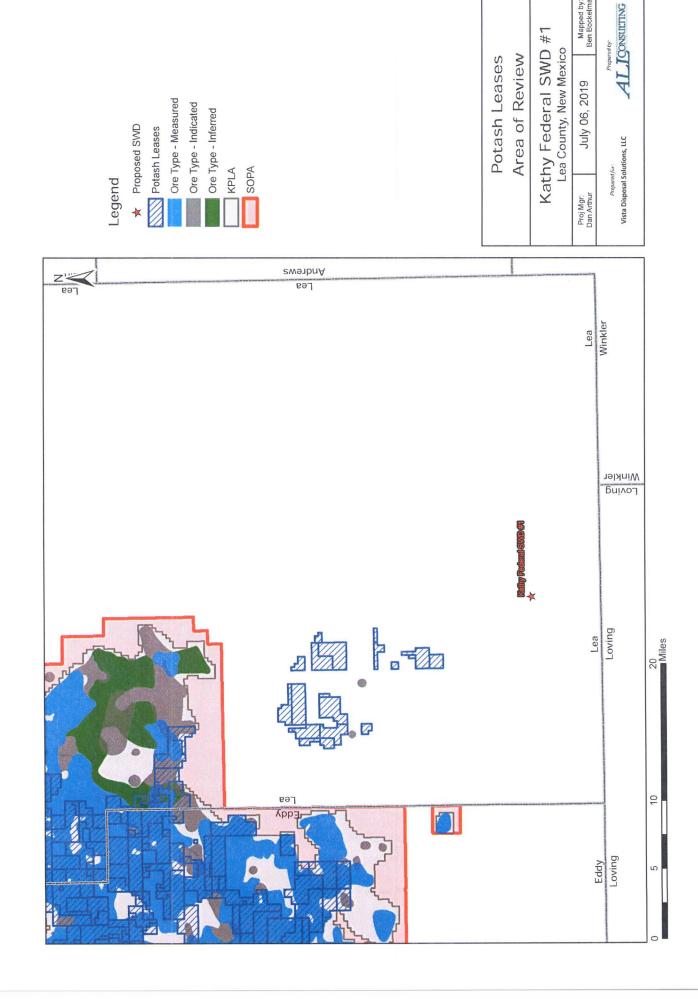
#### Legend

Proposed SWD Devonian/Silurian SWDs

△ Salt Water Injection, Active (1)

	AC	<b>AOR Tabulation for</b>	for Kathy Federal SWD #1 (Top of Injection Interval: 17,900')	ction Inter	val: 17,900')		
Well Name	API#	Well Type	Operator	Spud Date	Location (Sec., Tn., Rng.)	Total Vertical Depth (feet)	Penetrate Inj. Zone?
STRANGER 34 FEDERAL COM #001H	30-025-46084	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	M-34-25S-34E	Proposed (12,539)	No
STRANGER 33 FEDERAL #010H	30-025-45885	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-33-25S-34E	Proposed (12,780)	No
STRANGER 34 FEDERAL COM #007H	30-025-46007	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-34-25S-34E	Proposed (12,680)	No
STRANGER 34 FEDERAL COM #010H	30-025-46010	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-34-25S-34E	Proposed (12,780)	No
STRANGER 34 FEDERAL COM #013H	30-025-46013	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	M-34-25S-34E	Proposed (12,890)	No
STRANGER 34 FEDERAL COM #002H	30-025-46085	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-34-25S-34E	Proposed (12,530)	No
STRANGER 33 FEDERAL #001H	30-025-45876	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-33-25S-34E	Proposed (12,550)	No
STRANGER 33 FEDERAL #004H	30-025-45879	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	P-33-25S-34E	Proposed (12,540)	No
STRANGER 33 FEDERAL #007H	30-025-45882	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	P-33-25S-34E	Proposed (12,690)	No
STRANGER 33 FEDERAL #012H	30-025-46001	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-33-25S-34E	Proposed (12,900)	No
STRANGER 34 FEDERAL COM #004H	30-025-46004	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	P-34-25S-34E	Proposed (12,530)	No
STRANGER 34 FEDERAL COM #015H	30-025-46015	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-34-25S-34E	Proposed (12,890)	No
STRANGER 33 FEDERAL #002H	30-025-45877	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-33-25S-34E	Proposed (12,540)	No
STRANGER 33 FEDERAL #005H	30-025-45880	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-33-25S-34E	Proposed (12,690)	No
STRANGER 33 FEDERAL #008H	30-025-45883	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-33-25S-34E	Proposed (12,790)	No
STRANGER 33 FEDERAL #011H	30-025-45886	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	P-33-25S-33E	Proposed (12,790)	No
STRANGER 33 FEDERAL #013H	30-025-46002	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-33-25S-34E	Proposed (12,900)	No
STRANGER 34 FEDERAL COM #005H	30-025-46005	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	M-34-25S-34E	Proposed (12,670)	No
STRANGER 34 FEDERAL COM #008H	30-025-46008	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	P-34-25S-34E	Proposed (12,680)	No
STRANGER 34 FEDERAL COM #003H	30-025-46086	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-34-25S-34E	Proposed (12,530)	No
STRANGER 33 FEDERAL #006H	30-025-45881	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-33-25S-34E	Proposed (12,690)	No
STRANGER 33 FEDERAL #009H	30-025-45884	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-33-25S-34E	Proposed (12,780)	No
STRANGER 34 FEDERAL COM #006H	30-025-46006	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-34-25S-34E	Proposed (12,680)	No
STRANGER 34 FEDERAL COM #009H	30-025-46009	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	M-34-25S-34E	Proposed (12,770)	No
STRANGER 34 FEDERAL COM #012H	30-025-46012	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	P-34-25S-34E	Proposed (12,780)	No
STRANGER 33 FEDERAL #003H	30-025-45878	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-33-25S-34E	Proposed (12,540)	No
STRANGER 34 FEDERAL COM #011H	30-025-46011	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	O-34-25S-34E	Proposed (12,780)	No
STRANGER 34 FEDERAL COM #014H	30-025-46014	0	DEVON ENERGY PRODUCTION COMPANY, LP	Not drilled	N-34-25S-34E	Proposed (12,890)	No
DEAN APQ FEDERAL #002H	30-025-40089	0	EOG RESOURCES INC	7/18/2011	N-03-26S-34E	9,728	No
DEAN APQ FEDERAL #001	30-025-33656	Plugged	EOG Y RESOURCES, INC.	10/29/1996	J-03-26S-34E	Plugged (12,850)	No
PRE-ONGARD WELL #001	30-025-08501	Plugged	PRE-ONGARD WELL OPERATOR (Gulf Oil Corporation)	4/26/1961	C-03-26S-34E	Plugged (5,506)	No
				AND CONTRACTOR OF THE PERSON O			

Notes: No wells within the 1-mile AOR penetrate the injection interval.



Mapped by: Ben Bockelmann

Source Water Analyses



#### **Water Analysis**

Date: 23-Aug-11

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

Analyzed For		Broshy	Draw 1th	(	
Company	1	Nell Name		ounty	State
		BD	THE RESERVE OF THE PERSON NAMED IN	Lea-	New Mexico
Sample Source	Swab Sa	elqm	Sample #	day	1-265-29
Formation			Depth		
Specific Gravity	1.170		SG @	60 °F	1.172
pН	6.30		S	ulfides	Absent
Temperature (*F)	70		Reducing A	gents	
Cations					
Sodium (Calc)	aga, amini masa sina gayari daribiri dibbi albandar salari Sarinasaki	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 fron (FE2)		in Mg/L	10.0	in PPM	9
Anions		And the second s	the state of the s		
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 CaCC	)3)	in Mg/L	15,000	in PPM	12,799
Total Dissolved Solids (C	a(c)	in Mg/L	213,549	in PPM	182,209
Equivalent NaCl Concenti	ration	in Mg/L	182,868	in PPM	156,031
icaling Tendencies					
Calcium Carbonate Index					507,520
Below 500,00	0 Remote / 500,	000 - 1,000,00	0 Possible / Above 1	,000,000 Probabl	•
Calcium Sulfate (Gyp) Ind					1,000,000
			Passible / Above 16		
This Calculation is only an app eatment.	roidmation and	i is only valid	before treatment of	a well or severa	l weeks after
lemarks RW=.0486	270F				

## Sec 22, T25,5,R28E Bone Spring

WELLHEAD

Sample Point:

North Permian Basin Region P.O. Box 740 Sundown, TX 79372-0740 (806) 229-8121

Lab Team Leader - Shella Hernandez

(432) 495-7240

#### Water Analysis Report by Baker Petrolite

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

Summa	ary		Ar	alysis of Sar	mple 534665 @ 75	F	
Sampling Date:	03/10/11	Anlons	mg/l	пефі	Cations	mg/l	meqñ
Analysis Date:	03/18/11	Chlorida:	109618.0	3091.92	Sodium:	70275.7	3058.82
Analyst: S.	ANDRA GOMEZ	Bicarbonate:	2135.0	34.99	Magneslum:	195.0	18.04
TDB (	184911.1	Carbonate:	0.0	۵.	Calcium:	844.0	42.12
TDS (mg/t or g/m3):		Sulfate:	747.0	15.55	Strontium:	220.0	5.02
Density (g/cm3, tonne	/m3): 1.113	Phosphale:		- (	Barlum:	8.0	0.01
Anion/Cation Ratio:	1	Borate:			Iron:	6.5	0.23
		Silicate:		[	Polassium:	889.0	22.22
					Aluminum:		
Carbon Dioxide:	0 50 PPM	Hydrogen Sulfide:		0 PPM	Chromium:		
Oxygen:		all at time of accurate		-	Copper:		
Comments:		pH at time of sampling		′	Lead:		
		pH at time of analysis	8:	1	Manganese:	0.100	0.
		pH used in Calculat	ion:	7	Nickel:		
				1			

Cond	itions		Values C	alculated	at the Give	n Conditi	ons - Amou	ints of Sc	ale in lb/10	1dd 00		
	Gauge Press.		alcite aco <sub>3</sub>		sum		ydrite aSO <sub>4</sub>		stite rSO <sub>4</sub>		rite ISO <sub>4</sub>	CO <sub>2</sub> Press
Ŧ	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.

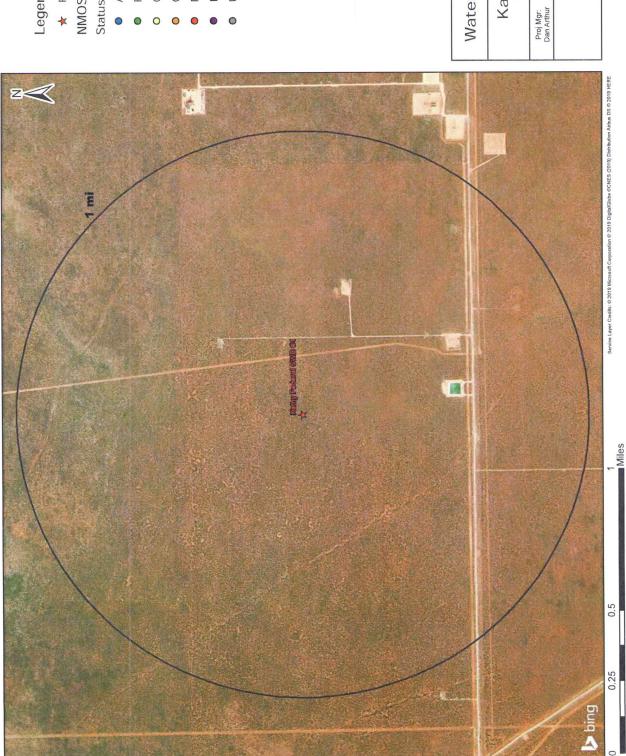
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

Injection Formation Water Analyses

							Injection	ormation \	Injection Formation Water Analysis	is							
					Vista D	isposal Solu	tions, LLC -	<b>Devonian</b>	Vista Disposal Solutions, LLC - Devonian and Silurian-Fusselman Formations	usselman F	ormations						
Wellname	API	Latitude	Longitude	Section Township	Township Range	Unit	Ftgns	Ftgew	County	State Company	mpany	Field	Formation	Tds_mgt_C	hloride_mgL B	Chloride_mgt Bicarbonate_mgt Sulfate_mgt	ulfate_mgL
STATE B COM #001	3002509716	32.179405	3002509716 32.179405 -103.2212524	36 245	36E	C	0009	1880W	LEA NM	1	CO	CUSTER	DEVONIAN	176234	107400	128	1004
FARNSWORTH FEDERAL #006	3002511950	32.077725	3002511950 32.077725 -103.162468	4 265	37E	A	N099	3066	LEA NM	1	CR	CROSBY	DEVONIAN	31931	20450	302	591
ARNOTT RAMSAY NCT-B #003	3002511863	32.092228	3002511863 32.092228 -103.1784439	32 255	37E	A	9 N099	T 3099	LEA NM	-	CR	CROSBY	DEVONIAN		100382	476	
ARNOTT RAMSAY NCT-B #003	3002511863	32.092228	3002511863 32.092228 -103.1784439	32 255	37E	A	9 N099	3099	LEA NM	-	CR	CROSBY	DEVONIAN	158761			
COPPER #001	3002511818	32.099484	3002511818 32.099484 -103.1656723	28 255	37E	1	19805	1981E L	LEA NM	-	CR	CROSBY	DEVONIAN	27506	15270	1089	1079
STATE NJ A #001	3002511398	32.164749	3002511398 32.164749 -103.1273346	2 255	37E	A	9 NE99	1 3099	LEA NM	-	)U(	JUSTIS NORTH	DEVONIAN	105350	59300	099	4950
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM	_	înr	JUSTIS NORTH	FUSSELMAN	80880	46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W	LEA NM		nr	JUSTIS NORTH	FUSSELMAN	84900	48600	840	2650
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM	_	înr	JUSTIS NORTH	FUSSELMAN	72200	41000	370	2960
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM	_	ini	JUSTIS NORTH	FUSSELMAN	80900	46200	340	3050
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM	_	nr	JUSTIS NORTH	FUSSELMAN	77600	44000	250	3240
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM		ini	JUSTIS NORTH	FUSSELMAN	135000	77000	029	5810
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM		nr	JUSTIS NORTH	FUSSELMAN	114000	00059	280	5110
WESTATES FEDERAL #004	3002511389	32.161129	3002511389 32.161129 -103.1241226	1 255	37E	E	1980N	330W L	LEA NM		ini	JUSTIS NORTH	FUSSELMAN	135000	77000	200	5320
WESTATES FEDERAL #008	3002511393	32.162121	3002511393 32.162121 -103.1241226	1 255	37E	Е	1620N 3	330W L	LEA NM		nr	JUSTIS NORTH	FUSSELMAN	91058	51020	376	4783
WESTATES FEDERAL #008	3002511393		32.162121 -103.1241226	1 255	37E	E	1620N 3	330W L	LEA NM		ini	JUSTIS NORTH	FUSSELMAN	86847	50450	363	2544
STATE Y #009	3002511777		32.10582 -103.1113434	25 255	37E	A	8 N066	3066	LEA NM		ini	JUSTIS	FUSSELMAN	219570	129000	096	4630
STATE Y #009	3002511777	32.10582	32.10582 -103.1113434	25 255	37E	A	8 N066	306E	LEA NM		ini	JUSTIS	FUSSELMAN	163430	00096	290	3780
SOUTH JUSTIS UNIT #023C	3002511760	32.106728	3002511760 32.106728 -103.1184616	25 255	37E	C	660N 2	2080W L	LEA NM		ini	JUSTIS	FUSSELMAN	63817	35870	360	3442
CARLSON A #002	3002511764	32.100384	3002511764 32.100384 -103.1113434	25 255	37E		23105	306E	LEA NM		or	JUSTIS	FUSSELMAN	208280	124000	510	3400
CARLSON B 25 #004	3002511784	32.096756	3002511784 32.096756 -103.1113434	25 255	37E	Ь	9905	3066	LEA NM		ini	JUSTIS	FUSSELMAN	184030	112900	89	1806

Water Well Map and Well Data



## Legend

★ Proposed SWD

## NMOSE PODS

Status

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

Incomplete (0)

# Water Wells Area of Review

# Kathy Federal SWD #1 Lea County, New Mexico

August 05, 2019

Mapped by: Ben Bockelmann

AL ICONSULTING

Vista Disposal Solutions, LLC - Kathy Federal SWD #1  SWD Water Wells Owner Available Contact Information Use Sampling Re	Water Well Sa	Water Well Sampling Kationale		
Water Wells Owner Available Contact Information Use	Vista Disposal Solutions,	LLC - Kathy Federal SWD #1		
	Available Contact Information	Use	Sampling Required	Notes

Induced Seismicity Assessment Letter

July 16, 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 Kathy 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 Kathy 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 2,153 FNL & 612 FWL of Section 03, 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 14.3 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 2.3 miles to the southwest (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 5.0 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

Induced Seismicity Potential Statement for the Kathy Federal SWD #1 July 16, 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 Induced Seismicity Potential Statement for the Kathy Federal SWD #1 July 16, 2019

References

Induced Seismicity Potential Statement for the Kathy Federal SWD #1 July 16, 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." <a href="http://www.beg.utexas.edu/resprog/permianbasin/PBGSP\_members/writ\_synth/Simpson.pdf">http://www.beg.utexas.edu/resprog/permianbasin/PBGSP\_members/writ\_synth/Simpson.pdf</a> (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 Kathy Federal SWD #1 July 16, 2019

**Exhibits** 

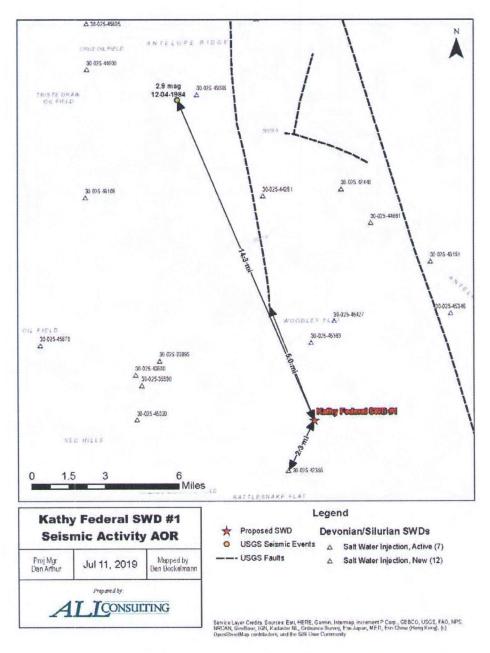


Exhibit 1. Map Showing the Distances from Known and Inferred Faults, Seismic Event, and Closest Deep Injection Well

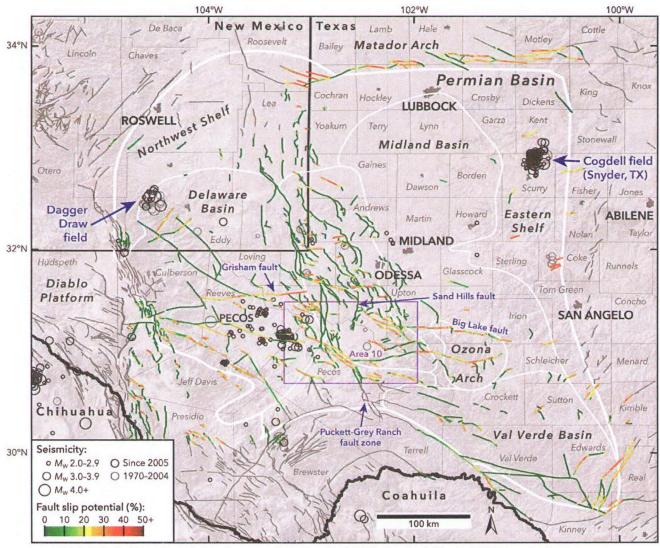


Exhibit 2. Results of the Snee and Zoback (2018) Probabilistic FSP Analysis Across the Permian Basin

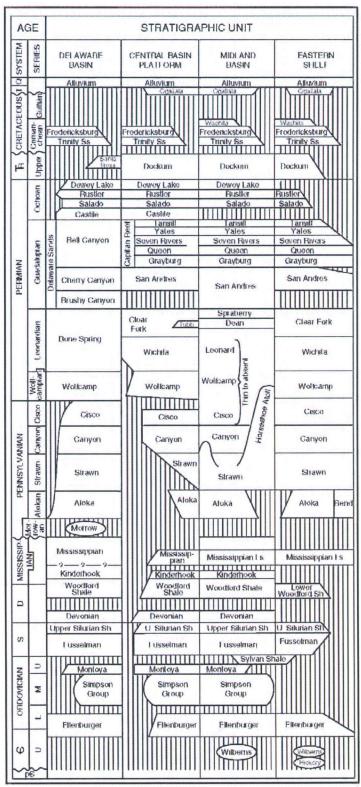


Exhibit 3. Delaware Basin Stratigraphic Chart (Ball 1995)

Public Notice Affidavit and Notice of Application Confirmations

#### 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 July 12, 2019 and ending with the issue dated July 12, 2019.

Publisher

Sworn and subscribed to before me this 12th day of July 2019.

**Business Manager** 

My commission expires

January 29, 2023

(Seal)

OFFICIAL SEAL CURRE CLACK Notary Public State of New Mexico

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 JULY 12, 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 Oil Conservation Division administratively approve the APPLICATION FOR AUTHORIZATION TO INJECT as

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: Kathy Federal SWD #1 SW 14 NW 14. Section 03. Township 26S. Range 34E 2.153' FNL & 612' FWL Lea County. NM

NAME AND DEPTH OF DISPOSAL ZONE: Devonian - Silurian (17,900 - 19,100) EXPECTED MAXIMUM INJECTION RATE: 30,000 Bbis/day EXPECTED MAXIMUM INJECTION PRESSURE: 3.580 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

67115320

00230720

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

Kathy Fed	eral SWD #1 - Notice of Application Recip	pients		
Entity	Address	City	State	Zip Code
	Landowner & Mineral Owner		The state of the s	
New Mexico BLM	620 E Greene St.	Carlsbad	NM	88220
	OCD District	The Control of the Co		o superiorania pina suo suo
NMOCD District 1	1625 N. French Drive	Hobbs	NM	88240
	Leasehold Operators			
Chevron USA Inc. (CHEVRON USA INC)	6301 Deauville	Midland	TX	79706
Commision of Public Lands - State Land Office	310 Old Santa Fe Trail	Santa Fe	NM	87501
Devon Energy Operating Corporation (DEVON ENERGY OPER CO LP)	6488 Seven Rivers Hwy.	Artesia	NM	88210
Devon Energy Production Company, LP (DEVON ENERGY PROD CO LP)	6488 Seven Rivers Hwy.	Artesia	NM	88210
ECHO Production, Inc. (ECHO PROD INC)	P.O. Box 1210	Graham	TX	76450
EOG A Resources, Inc. (EOG A RESOURCES INC)	P.O. Box 900	Artesia	NM	88211
EOG M Resources, Inc. (EOG M RESOURCES INC)	P.O. Box 840	Artesia	NM	88211
EOG Resources, Inc. (EOG RESOURCES INC)	104 S. 4th Street	Artesia	NM	88210
EOG Y Resources, Inc. (EOG Y RESOURCES INC)	104 S. 4th Street	Artesia	NM	88210
MRC Company (MRC PERMIAN)	5400 LBJ Freeway, Suite 1500	Dallas	TX	75240
OXY-1 Company	P.O. Box 27570	Houston	TX	77227

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).

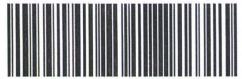
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EOG Resources, Inc. 104 S. 4th Street Artesia NM 88210-2123

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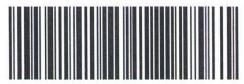
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EOG Y Resources, Inc. 104 S. Fourth Street Artesia NM 88210-2123



MRC Company 5400 LBJ Freeway, Suite 1500 Dallas TX 75240-1017

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**New Mexico BLM** 620 E Greene St. Carlsbad NM 88220-6292 NMOCD District 1 1625 N. French Drive Hobbs NM 88240-9273

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