# Protested SWD Application

By Danglade/Speight Fmly O&G I LP Recieved 1/2/2025

From:	Sandoval, Stacy, EMNRD
То:	Brian Wood
Cc:	jlindemood@catoicoresource.com; Goetze, Phillip, EMNRD; Harris, Anthony, EMNRD; Gebremichael, Million, EMNRD
Subject:	Protest of 3R Operating, LLC Application to Convert Liberty 4 $#1$ Gas Well to an SWD
Date:	Friday, January 3, 2025 10:18:00 AM
Attachments:	image001.png

Greetings Mr. Wood,

The OCD was notified by Danglade/Speight Fmly O&G I LP, it is protesting the following injection permit request application of 3R Operating, LLC ("3R") for produced water disposal in Lea County, NM:

• Liberty 4 #1 well is located in Section 4, Township 20 South, Range 36 East, Lea County, New Mexico

Danglade/Speight Fmly O&G I LP is identified as an affected person for the referenced application. For the application to proceed, 3R has two options; either resolve the matter with the protesting party or to go to a hearing before the Division. If the protest is withdrawn, then the application could be processed administratively. Meanwhile, OCD will retain your application until a resolution is reached on the status of the submittal. If you have any questions, please don't hesitate to reach out to the UIC group.

Thank you, Stacy Sandoval Petroleum Specialist B <u>Stacy.Sandoval@emnrd.nm.gov</u>



From:	Sandoval, Stacy, EMNRD
То:	Sandoval, Stacy, EMNRD
Subject:	FW: [EXTERNAL] Protest of 3R Operating LLC Application to convert Liberty 4 1 (API 30-025-35371) well to SWD
Date:	Friday, January 3, 2025 11:05:53 AM

From: Joe Lindemood <jlindemood@catoicoresource.com>

Sent: Thursday, January 2, 2025 9:28 AM

To: Engineer, OCD, EMNRD <<u>OCD.Engineer@emnrd.nm.gov</u>>

Cc: Laurie Vehar <<u>lvehar@catoicoresource.com</u>>

**Subject:** [EXTERNAL] Protest of 3R Operating LLC Application to convert Liberty 4 1 (API 30-025-35371) well to SWD

You don't often get email from jlindemood@catoicoresource.com. Learn why this is important

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

On behalf of Danglade/Speight Family Oil & Gas I LP, we are protesting the application submitted by 3R Operating LLC to convert the Liberty 4 #1 from active gas well to salt water disposal well. This well is located 1800' FSL & 330' FWL of Section 4-20S-36E, Lea Co., NM.

I have attached copy of application received December 20, 2024. Please don't hesitate to let me know if you require any further information.

Joe Lindemood Oil & Gas Manager (432) 686-1044 x203



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Catoico Resource Management LP, EMAIL NOTICE - This transmission may be strictly confidential. If you are not the intended recipient of this message, you may not disclose, print, copy, or disseminate this information. If you have received this in error, please reply and notify the sender (only) and delete the message. Unauthorized interception of this e-mail is a violation of federal criminal law. This communication does not reflect an intention by the sender or the sender's principal to conduct a transaction or make any agreement by electronic means. Nothing contained in this message or in any attachment shall satisfy the requirements for a writing, and nothing contained herein shall constitute a contract or electronic signature under the Electronic Signatures in Global and National Commerce Act, any version of the Uniform Electronic Transactions Act, or any other statute governing electronic transactions

)SI Page 4 of 62 3002500 112 PERMITS WEST PROVIDING PERMITS for LAND USERS 37 Verano Loop, Santa Fe, New Mexico 87508 505-466-8120 DEC 2 0 2024 December 10, 2024 BY:

Danglade/Speight Famil Oil & Gas 1 LP PO Box 53567 Midland TX 79710

3R Operating, LLC is applying (see attached application) to convert the Liberty 4 #1 gas well to a saltwater disposal well. As required by NM Oil Conservation Division (NMOCD) rules, I am notifying you of the following proposed saltwater disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Well: Liberty 4 #1 (fee lease) TD = 13,630'Proposed Disposal Zone: Delaware (5,350' - 6,300') Location: 1800' FSL & 330' FWL Sec. 4, T. 20 S., R. 36 E., Lea County, NM Approximate Location: 6 air miles southwest of Monument, NM Applicant Name: 3R Operating, LLC (432) 684-7877 Applicant's Address: 4000 N. Big Spring St., Suite 210, Midland, TX 79705

Submittal Information: Application for a saltwater disposal well will be filed with the NMOCD. If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. NMOCD address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3441. Their e-mail address is: ocd.engineer@emnrd.nm.gov.

Please call me if you have any questions.

Sincerely,

RiWard

Brian Wood

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Received by	OCD:	1/6/2025	1:30:05	<b>PM</b>

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       XXX Disposal       Storage         Application qualifies for administrative approval?       XXX Yes       No
$\Pi_{r}$	110
	ADDRESS: 4000 N. BIG SPRING ST., SUITE 210, MIDLAND, TX 79705
	CONTACT PARTY: BRIAN WOOD (PERMITS WEST, INC.)
III.	PHONE - 202 466-8120
IV,	
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 frach water (

- nical 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
- 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

NAME: BRIAN WOOD	(1)		
	13.11.1	TITLE: CONSULTANT	
SIGNATURE:	- 4 000		
		DATE: 12-1024	

E-MAIL ADDRESS: brian@permitswest.com

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.

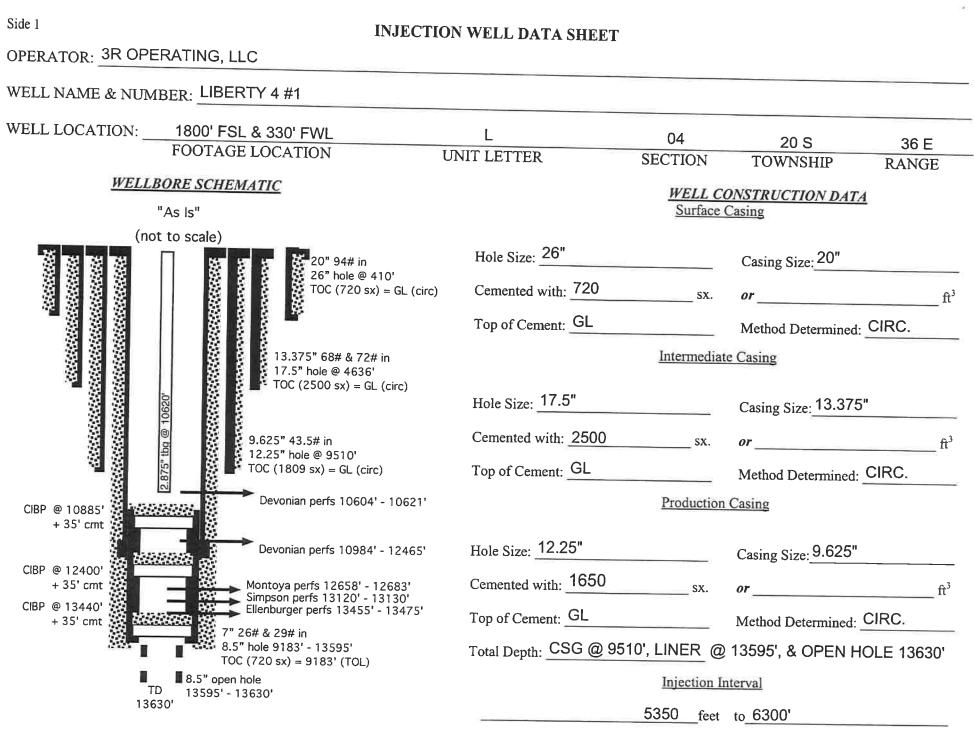
Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (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.

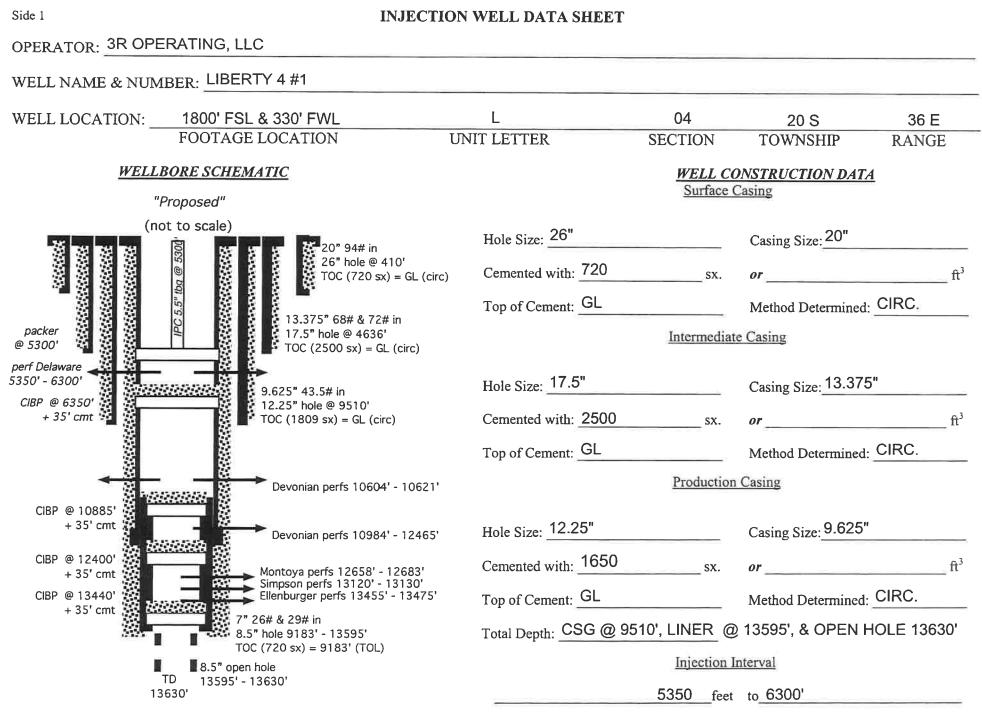
### NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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.



(Perforated or Open Hole; indicate which)

Received by OCD: 1/6/2025 1:30:05 PM



(Perforated or Open Hole; indicate which)

Page 8 of 62

# INJECTION WELL DATA SHEET Tubing Size: 5.5" Lining Material: IPC Type of Packer: STAINLESS STEEL OR NICKEL Packer Setting Depth: 5300' Other Type of Tubing/Casing Seal (if applicable): Additional Data 1. Is this a new well drilled for injection? Yes XXX No If no, for what purpose was the well originally drilled? DEVONIAN-ELLENBURGER GAS WELL Name of the Injection Formation: DELAWARE 2. 3. Name of Field or Pool (if applicable): SWD; DELAWARE (96100) 4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. YES - SEE EXHIBIT B Give the name and depths of any oil or gas zones underlying or overlying the proposed 5. injection zone in this area: OVER: YATES (3116'), SEVEN RIVERS (3500'), QUEEN (4094'), UNDER: BONE SPRING (6659'), WOLFCAMP (9305'), STRAWN (9473'), ATOKA (9646'), MORROW (9800'), MONTOYA (12510'), SIMPSON (12848'), & ELLENBURGER (13375')

I. Goal is to convert a 13,630' deep gas well to a saltwater disposal well. Proposed disposal interval will be 5,350' – 6,300' in the SWD; Delaware (96100). Well currently produces from the Osudo; Devonian, North (9715). It is the only well in the field. Production in the first nine months of 2024 has averaged <7 bopd and <4 Mcfd. The well is no longer economical to produce. The well is on private surface and private minerals. See Exhibit A for C-102 and map.

 II. Operator: 3R Operating, LLC [OGRID 331569]
 Operator phone number: (832) 304-8093
 Operator address: 4000 N. Big Spring St., Suite 210, Midland, TX 79705
 Contact for Application: Brian Wood (Permits West, Inc.) Phone: (505) 466-8120

- III. A. (1) Lease name: Liberty Lease area: S2NW4 & N2SW4 Sec. 4, T. 20 S., R. 36 E.
  Well name and number: Liberty 4 #1 Location: 1800' FSL & 330' FWL Section 4, T. 20 S., R. 36 E.
  - A. (2) Surface casing (20", 94#) is set at 410' in a 26" hole and cemented to GL with 720 sacks. Circulated.

Intermediate casing (13.375", 68# & 72#) is set at 4,636' in a 17.5" hole and cemented to GL with 2,500 sacks. DV tool and packer @ 3700'. Circulated.

Production casing (9.625", 43.5#) is set at 9,510' in a 12.25" hole and cemented to GL with 1,650 sacks. Circulated.

Liner (7", 26# & 29#) is set from 9,183' to 13,595' in an 8.5" hole and cemented to TOL with 720 sacks.



PAGE 1

30-025-35371

PAGE 2

30-025-35371

CIBPs are set at 13,440', 12,400', and 10,885'. Each is topped with 35' of cement.

3R will set a CIBP at 6350' (50' below lowest perforation) and top it with 35' of cement.

- A. (3) IPC 5.5" 23# P-110 injection string will be run from GL to  $\approx$ 5,300'. (Disposal interval will be 5,350' to 6,300'.)
- A. (4) A stainless-steel or nickel-plated packer will be set at  $\approx$ 5,300'.
- B. (1) Disposal zone will be the Delaware (SWD; Delaware (96100) pool).
- B. (2) Disposal interval will be perforated from 5,350' to 6,300'.
- B. (3) Well was drilled as a Devonian oil well.
- B. (4) Devonian, Montoya, Simpson, and Ellenburger were perforated (Exhibit B). Latter three are isolated below CIBPs and cement. Devonian will be similarly isolated after the C-108 is approved.
- B. (5) Actual or potentially productive zones above the Delaware (5,338') are the Yates (3,116'), Seven Rivers (≈3,500'), and Queen (4,094'). Bone Spring (6,659'), Wolfcamp (9,305'), Strawn (9,473'), Atoka (9,646'), Morrow (≈9,800'), Devonian (10,536'), Montoya (12,510'), Simpson (12,848'), and Ellenburger (13,375') are actual or potentially productive zones below the Delaware.

Closest Delaware, Bell Canyon, Cherry Canyon, or Brushy Canyon producer is >4 miles northwest in E-22-19s-35e.

IV. This is not an expansion of an existing injection project. It is disposal only.



V. Exhibit C shows and tabulates the 3 existing wells within a half-mile radius. All three wells are P&A and all three penetrated the Delaware. Exhibit D shows all 103 existing wells (21 oil or gas + 52 P&A + 9 WIW + 21 water) within a two-mile radius. The water injectors are Yates-Seven Rivers-Queen or Grayburg-San Andres.

All leases within a half-mile radius are BLM or fee. Exhibit E shows and tabulates all leases within a one-mile radius. Two-mile radius leases are BLM, fee, or NMSLO (Exhibit F).

VI. All 3 wells within a half-mile penetrated the Delaware. All are P&A and their well bore diagrams are in Exhibit G. Closest Delaware well (30-025-27960 is 4 miles SW in G-23-20s-35e. It is a SWD; Queen-Delaware-Bone Spring well.

- VII. 1. Average injection rate will be  $\approx$ 4,000 bwpd. Maximum injection rate will be 5,000 bwpd.
  - 2. System will be open and closed. Water will both be trucked and piped.
  - 3. Average injection pressure will be ≈1,000 psi. Maximum injection pressure will be 1070 psi (= 0.2 psi/ft x 5350' (top perforation)).
  - 4. Disposal water will be produced water, mainly Bone Spring, but also Grayburg, Morrow, San Andres, Strawn, Wolfcamp, et al. There are 299 approved Bone Spring and 113 approved Wolfcamp wells in T. 19 S., R. 35 & 36 E. and T. 20 S., R. 35 & 36 E. Abstracts from the NM Produced Water Quality Database v.2 for wells in T. 19 & 20 S., R. 35 & 36 E. are in Exhibit H. A table of TDS ranges from those wells is below.

Formation	TDS range (mg/l)
Abo	54,512 - 84,095
Artesia	13,609 - 311,153
Bone Spring	25,800 - 195,200
Devonian	44,825
Grayburg	17,249
Grayburg San Andres	10,905 - 71,407
San Andres	26,344 – 73,409



PAGE 3

30-025-35371

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3R OPERATING, LLC LIBERTY 4 #1 1800' FSL & 330' FWL SEC. 4, T. 20 S., R. 36 E., LEA COUNTY, NM

30-025-35371

PAGE 4

No compatibility problems have been reported from the closest (4 miles southwest) Delaware SWD well (30-025-27960). At least 2,231,636 barrels have been disposed in the Queen, Delaware, and Bone Spring since 1994.

5. No Delaware oil or gas well is within 4 miles.

VIII. The Delaware interval (1,321' thick) is mainly sandstone with some limestone and shale. Sandstone strata will be the well's goal. Confining strata are 180' to 200' of tight impermeable limestone at the top of the Bone Spring. There are also a few thin (30' – 80') and tight intervals at the base of the Brushy Canyon. Closest possible underground source of drinking water above the proposed disposal interval are the Quaternary sand, gravel, and conglomerate deposits at the surface. According to State Engineer records (Exhibit I), closest water well is 0.71 miles north. Deepest water well within 2-miles is 135'. Liberty 4 #1 (Exhibit I) is 2 miles inside the Ogallala aquifer and 4 miles outside the Capitan reef. No underground source of drinking water is below the proposed disposal interval.

Formation tops are:

Quaternary = 0' Rustler = 1,584' Yates = 3,116' Queen = 4,094' San Andres= 4,441' Delaware = 5,338' *disposal interval = 5,350' - 6,300'* Bone Spring = 6,659' Wolfcamp = 9,305' Strawn = 9,473' Atoka = 9,646' Mississippian = 9,978' Devonian = 10,576' Montoya = 12,510'



Page 13 of 62

> Simpson = 12,848' Ellenburger = 13,375' TD = 13,630'

According to State Engineer records (Exhibit I), the deepest water well within 2-miles is 135'. There will be >5,200' of vertical separation, including multiple layers of shale and anhydrite, between the bottom of the only likely underground water source (Quaternary) and the top of the Delaware.

IX. Well will be stimulated with acid as needed.

X. GR/CCL/CBL/USIT logs were run and are on file with NNMOCD.

XI. According to State Engineer records (Exhibit I), 21 water wells are within a 2-mile radius, closest of which is 0.71 miles north. Two water wells within a mile were sampled. Locations and analyses are in Exhibit J.

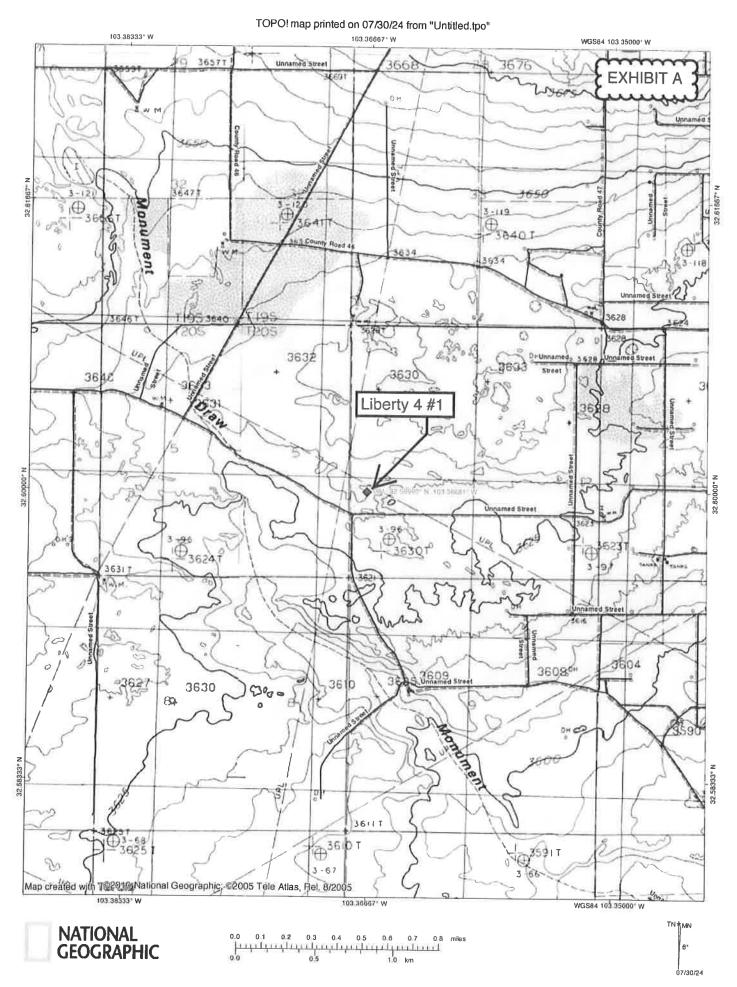
XII. 3R Operating, LLC (Exhibit K) is not aware of any geologic or engineering data that may indicate the Delaware is in hydrologic connection with any underground source of water. Deepest water well within a 2-mile radius is 135'. There are 105 active Delaware SWD wells in New Mexico.

XIII. A legal ad (Exhibit L) was published on November 21, 2024. Notice (Exhibit M) and this application has been sent to the surface owner (L & K Ranch), all well operators regardless of depth, government lessors, lessees, and operating right holders within a half-mile.

# PAGE 5

30-025-35371





P: C. Box BS21-1980       D. JY. Minerells, and Matural Besurces: artmont       EXTENDED       Antende Matural Besurces: artmont         P: C. Dower DO       Attack MB 8221-1980       OIL CONSERVATION DIVISION       Sector Antende Matural Besurces: artmont       EXTENDED         MERMET II.       O. DOWER MARKET II.       P. O. Dower 2086       Sector Antende Market Besurces: artmont       State Area Area Area Area Area Area Area Are	Re	ceive	ed by QC	CD: 1/6/2	2025 1:30:05	PM								Page 16 of 62
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3D - 02.5       35.37/       **Rel Nume       Wildcat Ellenburger         227/24       - UBERTY 4 #EBERMA_CDM       **Rel Number         10080 Ns.       **Perster Name.       **Rel Number         018917       READ & STEVENS, INC.       **Berdia         3029'       *SURFACE LOCATION       **Berdia         1.4       4200/MI 35 EAST. N.M.P.M.       Let Mar.       Non-the Section         **BOTTOM HOLE LOCATION       **BERRET FROM SURFACE       South Section       **Berline         **BOTTOM HOLE LOCATION #       **BERRET FROM SURFACE       **Berline       **Berline         **BOTTOM HOLE LOCATION #       **BERRET FROM SURFACE       **Berline       **Berline         **BOTTOM HOLE ACCOMPTION WITH AS EAST **A the BERN       **Berline       **Berline       **Berline         **Dideted seree       **Device Association Code       **Order Mar.       **Device Association       County         *** fits on Section       **Device Association Code       **Order Mar.       **Device Association Code       **Order Mar.         ****       *****       ************************************				UN 075	07-2088 WI	ELL LOO	CATION A	ND AC	REAGE DE	DICATION	PLAT			
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2.77/6.9       Inprator Name       Imprator Name       Imprator Name       Imprator Name       Imprator Name         108017       Imprator Name       READ & STEVENS, INC.       Imprator Name       Imprator Name         11       "SURFACE LOCATION       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name       Imprator Name       Imprator Name         12       Imprator Name         12       Imprator Name       Imprator Name       Imprator Name       Imprator Name       Imprator Name       Imprator Name       Impretor Name       Impretor Name       Impretor Na		• P	roperty Co	<u>مر _) م</u> ode					W:	ildcat El	lenburger			
**06Rp Ne.     **operator Neess     **Derestor Neess     1       018917     READ & STEVENS, INC.     *Beresting 3829'       **Ue of lot do:     Section     **surphase       L     4     20 SOUTH 35 EAST, N.M.P.M.     Lot Hs       **Boresting     *Boresting     1000'       **Ue of lot do:     Section     **surphase       **Borton     *Borton     N.M.P.M.       **Borton     *Borton     Borton       **Borton     *Borton     Borton       **Borton     *Borton     Borton       **Borton     Borton     Borton       **Borton     Borton     Borton       **Definition     Sector     Sector       **Definition     Sector     P       **Definition     Sector     NSL 4536       NO     ALLO*ABLE     WELL SECONFLICION UNTIL ALL INTERESTS HAVE BEEN       **Definition     Dot of Tract 2     Consolidation Code       Lot's 3'4     **Development     Non-Standard Unit       **Development     Tract 3     **Development       **Development     Sile Sile     Sile Sile       **Development     Tract 4     **Development       **Development     Sile Sile     Sile Sile       **Development     Sile Sile     Sile Sile					sparty		LIBE	RTY 4		COM			• Well Number	
Closest     CRAD & STEVENS, INC.     3829'       "SURFACE LOCATION     "SURFACE LOCATION     South Statest Location     South Statest Location       "BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE     "BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE     Location       "BOTTOM HOLE LOCATION OF DIFFERENT FROM SURFACE     "BOTTOM HOLE LOCATION OF DIFFERENT FROM SURFACE     Location       "BOTTOM HOLE LOCATION OF DIFFERENT FROM SURFACE     Name     Location     Location       "Definition of thill "Consolitation Code "order Me.     NSL 4536     NO ALLOPABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSULTATED OR A NON-STANDARD UNTI HAS BEEN APPROVED BY THE DIFISION       Tract 2     Location     Tract 3       S1/z N1/z W1/z     Tract 4     S1/z W1/z     S1/z W1/z       Ibod     Tract 4     S1/z W1/z     S1/z W1/z       1200'     Tract 4     S1/z S1/z W1/z     S1/z S1/z W1/z		'0	GRID No.		* Operator 1	Name			- CDCINITE			_	1	
PL or lot us.       Betty       Torenation       Renge       Lat May Prethod the North/South Hase Feet from the Bett/Test Hase County TEST         L       4       BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE       Test from the North/South Hase Test from the North/South Hase Test from the Surf/Test Hase County         '' Point or Infill       Torenation       Renge       Lat May Perform the North/South Hase Test from the North/South Hase Test from the Surf/Test Hase County         '' Point or Infill       '' Consolidation Code       '' Order He.       NSL 4536         NO ALLO*ABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION       Thereby certify that the information contained herein is the and complete to the solar		F	0189	17										
L 4 20 SOUTH 35 EAST, N.M.P.M. Lat is pertindent the interval table intervent table intable in		UL.	or lot no.	Section	Township	1								
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1 Weight Second       Teventip       Reger       Let Me Feet from the Work/South Line Feet from the Second Secon					"BOTT(	DM HOL	E LOCAT	ION IF	DIFFEREN	NT FROM	SURFACE	2		
** Perior to family       ** Consolidation Code       ** Order Mo.         320       NO       ALD*ABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION         **       Tract 2		100 0	or lot no.	Section	Township			Lot Ide	Feet from the	North/South	line Feet from	a the	Last/West line	Country
320     N     P     NSL 4536       NO ALLOWARLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION     INTERESTS HAVE BEEN       Image: Consolidated or a non-standard unit has been approved by the division     Image: Consolidated or a non-standard unit has been approved by the division       Image: Consolidated or a non-standard unit has been approved by the division     Image: Consolidated or a non-standard unit has been approved by the division       Image: Consolidated or a non-standard unit has been approved by the division division division and the information of the division divisi divisi division divisi di division di didivision di didivision d		17 De	dicated A	ores '> Jo	int or Infill	14 Consolid	ation Code						y sor me	COULTY
NO ALLOWARDE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION         Tract 2         Lots 3:4         OPERATOR 'RERTIFICATION I hareby certify that the information continued herein is true and complete to the best of my knowledge and beint         Signature S'/z NV/z WU/z N'/z S'/z WU/z         NO         Tract 3         S'/z NV/z WU/z         N'/z S'/z WU/z         No         Tract 4         S'/z NV/z WU/z         No         Tract 4         S'/z NV/z WU/z         N'/z S'/z WU/z         No         Tract 4         S'/L S'/z WU/z         NO         Tract 4         S'/z NV/z WU         N'/z S'/z WU/z         NO         Tract 4         S'/L S'/z WU         NO         Tract 4         S'/L S'/z WU         BEZ: L A         BEZ: L A         NO         BEZ: L A         NO         NO         NO         Lots 2'/L S'/2 WU		3	820		N		p	. Order			1. Mar and a second sec			
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Tract 2       Lots 3:4         Lots 3:4       I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief         Stanture       Printed fixingle         John C. Maxey, Jr         Tract 3         S'/2 N'/2 W'/2         N'/2 S'/2 W'/2         S'/2 N'/2 W'/2         Stanture         Detail of the best of my knowledge and belief         Stanture         N'/2 S'/2 W'/2         Stanture         Stanture         Detail of the best of my knowledge         Stanture         Stanture         N'/2 S'/2 W'/2         Stanture         Best of stanture         S		14 .		CO?	VSOLIDATED	ORAN	ON-STANDA	RD UNI	T HAS BEEN	APPROVED	) BY THE D	5 HAV	E BEEN	
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Tract 3 S'/2 N'/2 W'/2 N'/2 S'/2 W'/2 N'/2 S'/2 W'/2 Job SURVEYOR CERTIFICATION I hereby cartiy 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 some is true and correct to the best of my belief. Date of Survey DECEMBER: 29, 2000 Structure and Seal of Professional Survey DECEMER: 20, 2000 Structure and Seal of Professional Survey DECEM		1			i		í.				10 1110 00	51 01 1	my knowledge and	d belief.
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1       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.         330'       If act 4 Signature and Seal of Profeesional Surveys Virght         1800'       Sile Size With Sile Size With Sile Size With Sile Size With Size W	1	1				10 12	K		1					
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	Re	77 lease	ed to Im	iging: 1	6/2025 1.31	50 PM	/		1			RER	R R W7	920

Santa Fe Main Office Phone: (505) 476-3441 Fax: (55) 476-3462 General Information Phone: (505) 629-6116 Online Phone Directory Visit: https://www.emmrd.nm.gov.ocd/contact-us		State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION		Submit Elec		<u>C-102</u> Revised July 9, 2024 Submit Electronically via OCD Permitting
				Submittal	Initial Submittal	
				Type:	Amended Report	
						illed
		WELL LOCATIO	N INFORMATION			
API Number 30-025-35371	Poot Code 96100	Poc SW	DI Name D; DELAWARE			
Property Code 334247	Property Name LIBERTY 4				Well Nun 001	nber
OGRID No. Operator Name 331569 3R OPERATING, LLC						evel Elevation
Surface Owner: 🗆 State 😡	Fee 🗆 Tribal 🗆 Federal		Mineral Owner: 🗆 State 😡 Fe	e 🗍 Trihal 🗖 P		

	Surface Location									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County	
L	4	20 S	36 E		1800 FSL	330 FWL	32.59992	-103.36681		
	Bottom Hole Location									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County	
L	4	20 S	36 E		1800 FSL	330 FWL	32.59992	-103.36681	LEA	

Dedicated Acres	Infilt or Defining Well N/A	Defining Well API	Overlapping Spacing Unit (Y/N) N/A	Consolidation Code
Order Numbers.	NSL-4536 & NSL-4536A		Well setbacks are under Common	Ownership: 🗆 Yes 🗆 No

					Kick O	ff Point (KOP)			
UL.	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
			1		First Ta	ıke Point (FTP)			
UL.	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
					Last Ta	ke Point (LTP)			
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County

** 1.1 · 1.1 ·		
Unitized Area or Area of Uniform Interest	Spacing Unit Type 🗆 Horizontal 🖾 Vertical	Ground Floor Elevation:

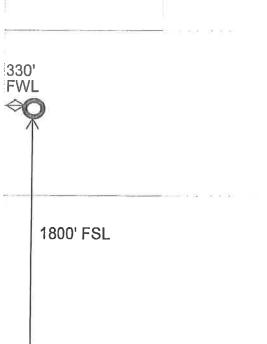
OPERATOR CERTIFICATIONS	SUDVENOD CEDTIEN	
	SURVEYOR CERTIFIC	ATIONS
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, that this organization either owns a working interest or inleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location purstaint to a contract with an owner of a working interest or inleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entersd by the division.	or indiant of the or indiant o	ell location shown on this plat was plotted from field notes of actual ler my supervision, and that the same is true and correct to the best of SURVEY BY VYRON L. BEZNER
If this well is a horizontal well, I further certify that this organization has received the	ON FILE V	VITH NMOCD
consent of at least one lessee or owner of a working interest or infeased mineral interest		
in each tract (in the target pool or formation) in which any part of the well's completed		
interva ful be located in obtailed a compulsory pooling order from the division.		
(11-22-24)		
Signature Date	Signature and Seal of Profess	Ingal Superor
	2	
BRIAN WOOD		
Printed Name	Certificate Number	Date of Survey
brian@permitswest.com	7920	12-29-2000
Email Address		

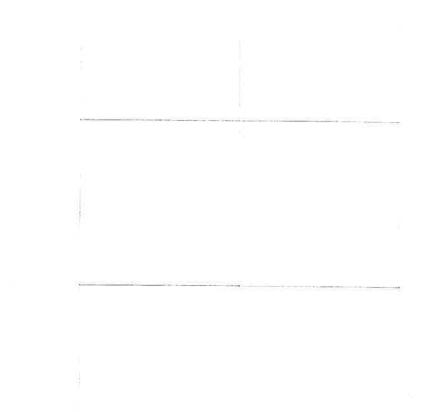
Note: No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division. Released to Imaging: 1/6/2025 1:31:50 PM

### Received by OCD: 1/6/2025 1:30:05 PM ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operator **EXHIBIT A** dedicated acreage in a red box, clearly show the well surface location and bottom hole location. if it is directionally drilled, we the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau, Independent subdivision surveys will not be acceptable.



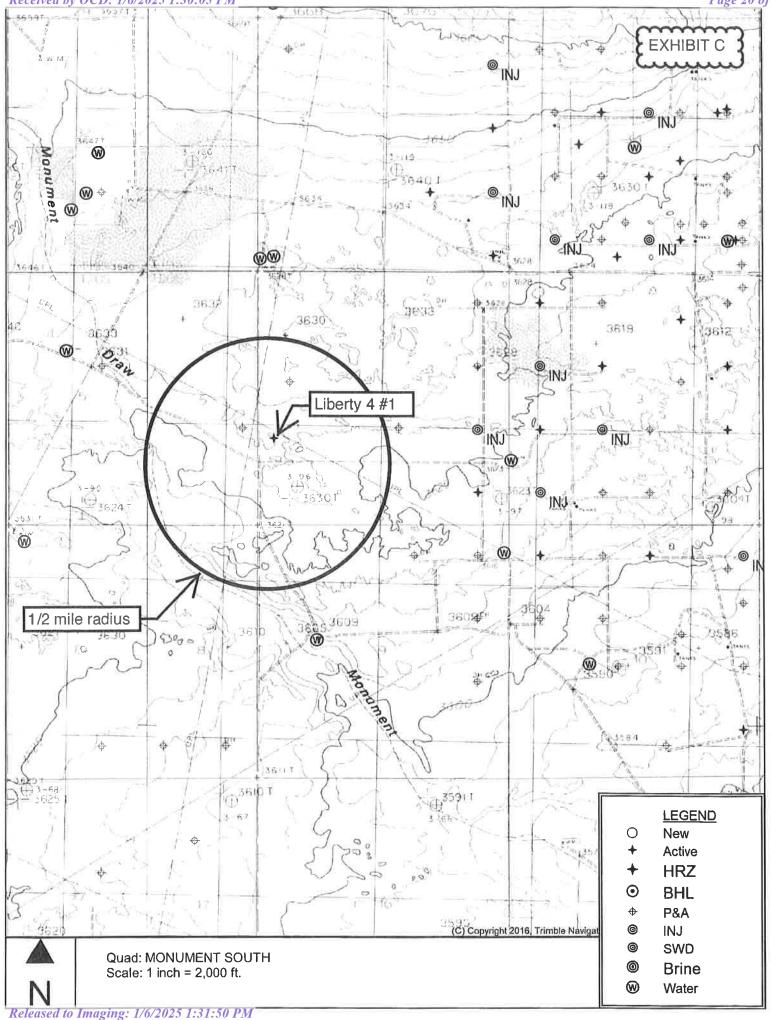


# PERFORATION TABLE

DEPTH	HOLES	COMMENT
10576'	n/a	Devonian top
10600' - 10800'	planned	proposed disposal interval
10604' - 10614'		
10619' - 10621'		
10647' - 10650'	<b>_</b>	
10657' - 10660'	- 50	500 gal 15% NEFe HCl (twice)
10669' - 10671'	7	
10694' - 10696'		
10885'	n/a	CIBP w/ 35' cement on top
10984' - 10986'	8	swab test, 100% water, squeeze perfs w/ 75 sx cmt
11714' - 11719'		, see all of a dece period w/ 75 SX cint
11731' - 11737'	31	no acid, swab water
11747' - 11750'		
11841' - 11847'	20	
11863' - 11867'	22	1000 gal, 15% NEFe HCl, swab water
12041' - 12043'		
12049' - 12051'	1	
12056' - 12058'	25	500 gas 15% NEFe HCl, sab water
12064' - 12066'	1	
12071' - 12073'	1	
12115' - 12118'		
12124' - 12126'		
12132' - 12134'		
12138' - 12140'	32	500 gal 15% NEFe HCl, swab water
12144' - 12146'		
12152' - 12154'		
12400'	n/a	CIBP w/ 35' cement on top
12455' - 12465'	21	no acid, swab water
12510'	n/a	Montoya top
12658' - 12660'		
12668 - 12670'	24	
2674' - 12678'	24	100 gal 15% NEFe HCl, swab, show of oil
2681' - 12683'		
L2848'	n/a	Simpson top
13120' - 13130'	21	500 gal 7.5% NEFe HCl, swab water
.3440'	n/a	CIBP w/ 35' cement on top
.3348' - 13358'	21	500 gal 7.5% NEFe HCl, swab water
.3375'	n/a	Ellenburger top
3455' - 13475'	41	2000 gal 15% NEFe, swab water
3490'	n/a	PBTD
3524'	n/a	Granite Wash top
3630'		TD

### Received by OCD: 1/6/2025 1:30:05 PM

### Page 20 of 62

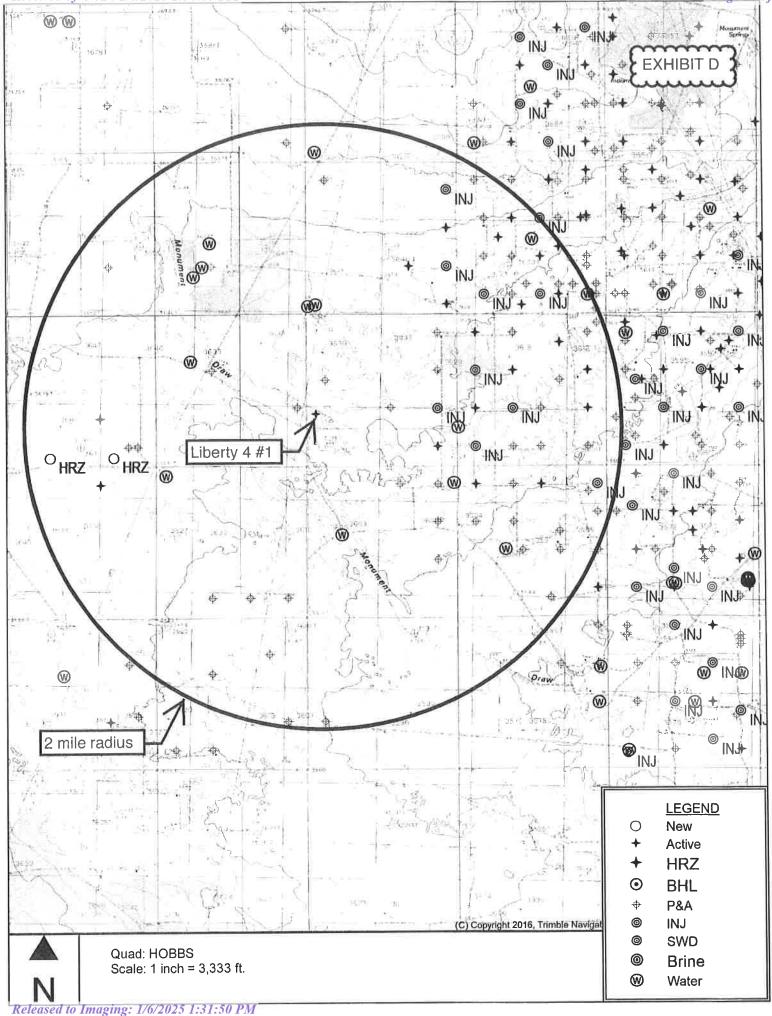


# SORTED BY DISTANCE FROM LIBERTY 4 #1

API	OPERATOR	WELL	STATUS	UNIT- SECTION- T20S-R36E	TVD	ZONE @ TD	FEET FROM LIBERTY 4 #1	
3002535847	Read & Stevens	Klein 5 001	P&A	I-5	10933	Devonian	695	
3002536164	Read & Stevens	Liberty 4 003	P&A	E-4	7200	Bone Spring	1260	
3002535947	Read & Stevens	Liberty 4 002	P&A	J-4	9400	Wolfcamp	2644	

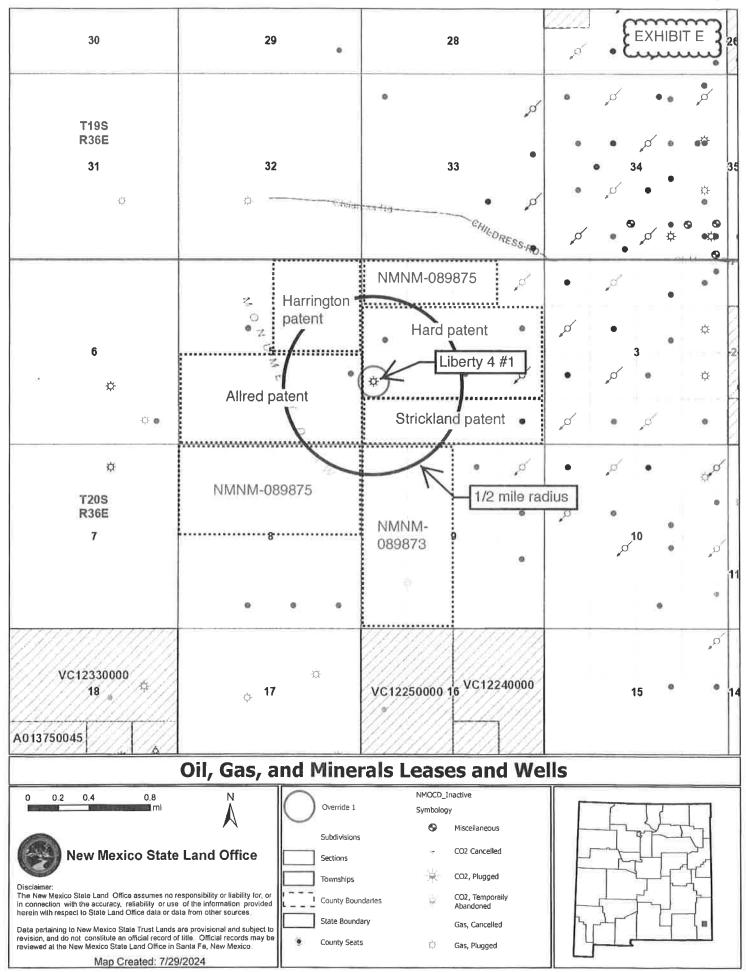
### Received by OCD: 1/6/2025 1:30:05 PM

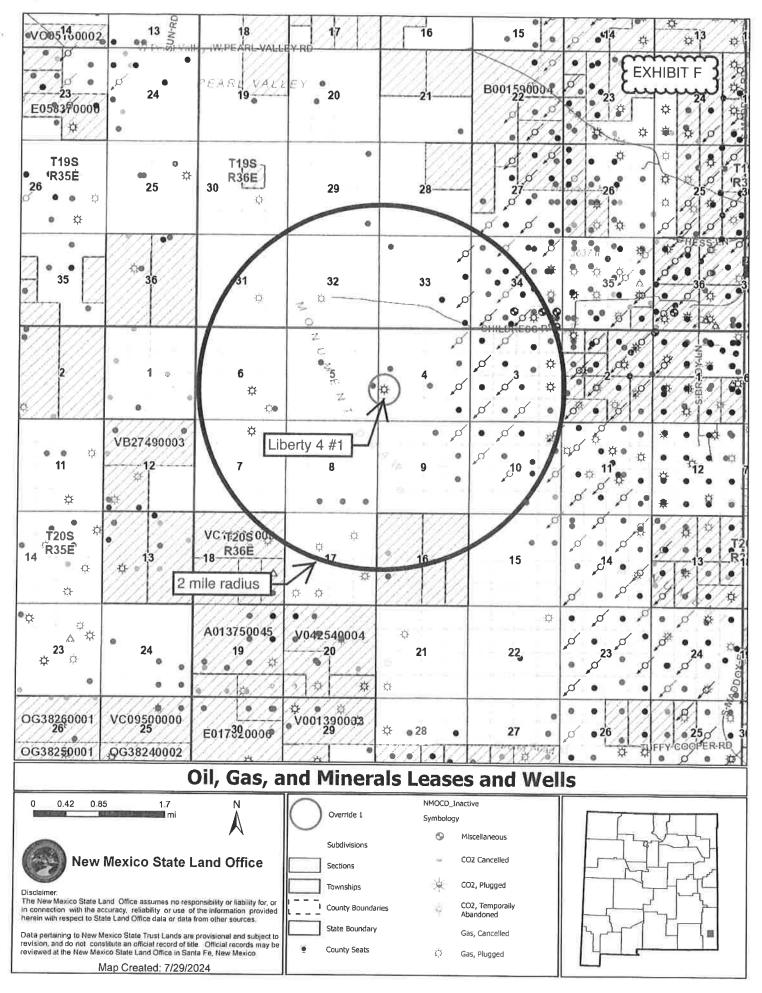
### Page 22 of 62



# LIBERTY 4 #1 AREA OF REVIEW (1 MILE RADIUS) LEASES

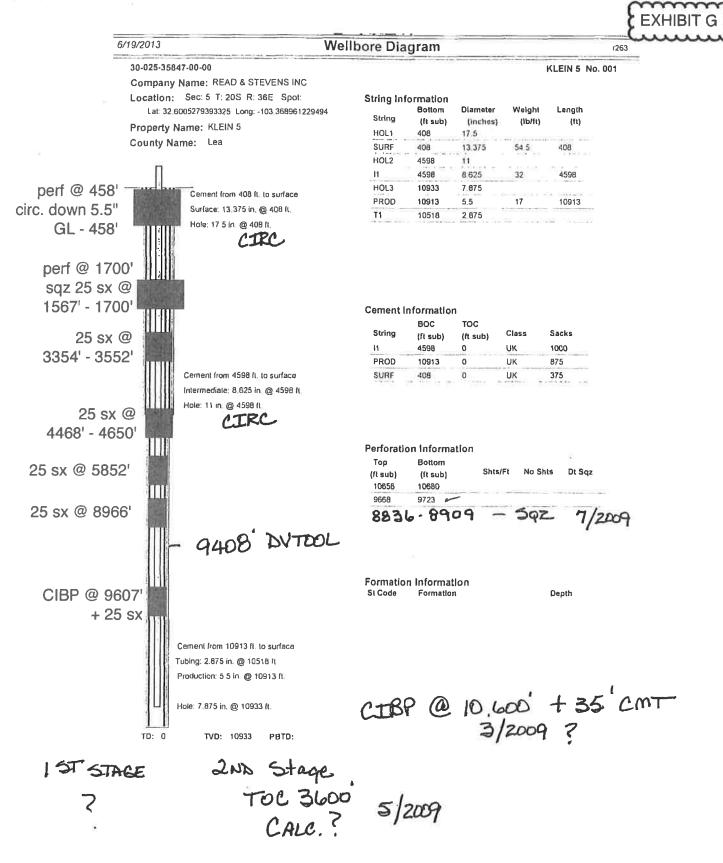
Aliquot Parts in Area of Review	Lessor	Lease	Lessee(s) of Record	Well Operators (regardless of depth)
N2NW4 4-20s-34e	BLM	NMNM- 089875	L G Nesrsta, G H Sanderson, & F Thompson	none
S2NW4, SWNE, NWSE, & N2SW4 4- 20s-36e	fee	Hard patent	3R	3R (S2NW4)
S2SW4 & SWSE 4-20s-36e	fee	Strickland patent	3R	3R (N2SW4)
E2NE4 & SWSE 5-20s-36e	fee	Harrington patent	L & K et al	none
SE4 5-20s-36e	fee	Allred patent	L & K et al	none
N2NE4 8-20s-36e	BLM	NMNM- 089875	L G Nesrsta, G H Sanderson, & F Thompson	none
N2NW4 9-20s-36e	BLM	NMNM- 089873	Apache, Chevron Maverick, ZPZ	none



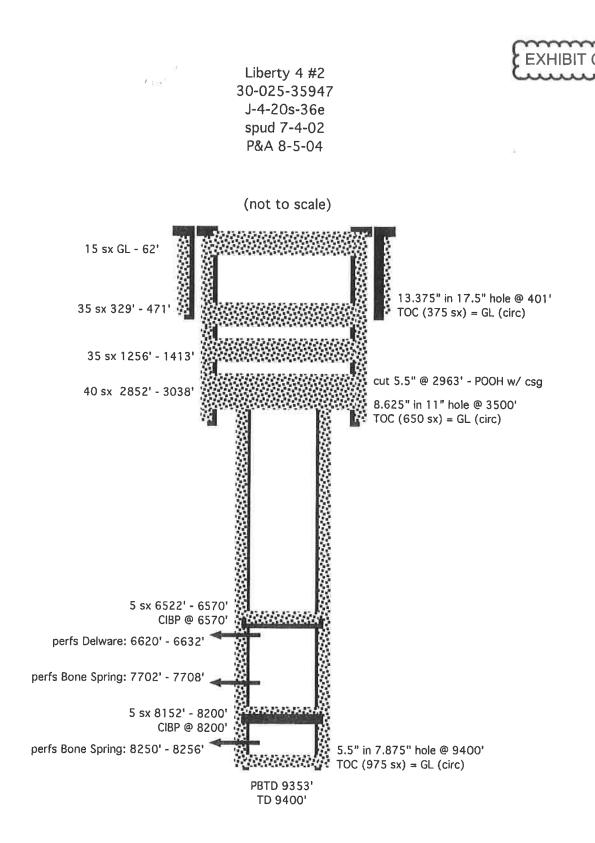


WELL	SPUD	TVD	ZONE @ TD	WELL TYPE	HOLE O.D.	CASING O.D.	SET @	CEMENT	тос	HOW TOC DETERMINED
Klein 5 001	3/1/02	10933	Devonian	P&A	17.5	13.375	408	375 sx	GL	Circ 90 sx
3002535847					11	8.625	4598	1000 sx	GL	Circ 60 sx
I-5-20S-36E					7.875	5.5	10913	875 sx	3600	Calc
Liberty 4 #1	7/4/02	9400	Wolfcamp	P&A	17.5	13.375	401	375 sx	GL	Circ.
3002535947					11	8.625	3500	650 sx	GL	Circ.
J-4-20S-36E					7.875	5.5	9400	975 sx	GL	Circ.
Liberty 4 #3	2/27/03	7200	Bone Spring	P&A	17.5	13.375	445	375 sx	GL	Circ.
3002536164					11	8.625	3110	800 sx	GL	Circ.
E-4-20S-36E					7.875	5.5	7200	850 sx	2994	CBL

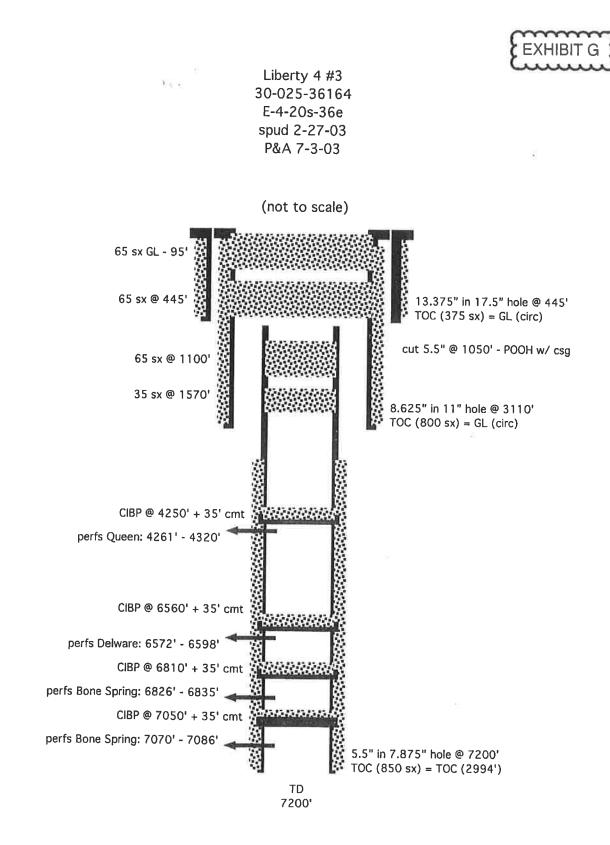
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Page 27 of 62









API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002534310	1	195	36E	N	Abo	54512	18351	2288	31939	627	2558
3002534778	11	195	36E	P	Abo	84095	27214	5045	52487	530	2338
3002534191	12	195	36E	С	Abo	57619	19539	2329	33819	597	2738
3002534470	12	195	36E	D	Abo	56387	20462	1469	35220	689	2738
3002503163	15	195	35E	0	Artesia	311153			193100	564	747
3002503189	22	195	35E	В	Artesia	302747			188000	215	1140
3002503212	27	195	35E	J	Artesia	242504			150400	563	1492
3002503229	28	195	35E	0	Artesia	240799			149200	352	711
3002503247	29	195	35E	С	Artesia	250156			154900	65	1432
3002503247	29	195	35E	С	Artesia	243283			151500	141	940
3002503244	29	195	35E	F	Artesia	238283			148500	106	372
3002503244	29	195	35E	F	Artesia	238553			148800	106	372
3002503248	29	195	35E	J	Artesia	237684			149500	35	257
3002503241	29	195	35E	к	Artesia	242263			152100	71	350
3002503241	29	195	35E	К	Artesia	241833			151700	71	350
3002503242	29	195	35E	Р	Artesia	242146			151100	53	372
3002503284	33	195	35E	С	Artesia	219950			138000	38	418
3002503304	34	195	35E	1	Artesia	221538			137500	225	971
3002504023	20	195	36E	К	Artesia	257353			158500	187	1108
3002504099	33	195	36E	Н	Artesia	68631			38110	405	4317
3002504113	34	195	36E	0	Artesia	19393			8383	2050	2252
3002503315	3	205	35E	E	Artesia	218754			135000	4	1700
3002503327	4	205	35E	L	Artesia	149470			94150	164	1246
3002503361	25	205	35E	A	Artesia	174035			106839	367	2726
3002504130	1	205	36E	A	Artesia	13609			4934	615	3330
3002504152	1	205	36E	N	Artesia	33835			17060	812	3691
3002504350	26	205	36E	A	Artesia	79120			47790	1445	738
3002504350	26	205	36E	A	Artesia	44140			26230	1443	93

Page 30 of 62

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API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002504374	32	205	36E	0	Artesia	177450				Dicarbonate	Junate
3002503156	6	195	35E	L	Bone Spring	25800			14100	830	1120
3002503156	6	195	35E	L	Bone Spring	53622			30550	1123	2280
3002503156	6	195	35E	L	Bone Spring	195200			118000	220	1030
3002520377	17	205	35E	н	Bone Spring					7916	
3002520377	17	205	35E	Н	Devonian	44825					
3002504063	25	19S	36E	Р	Grayburg		2394	601	4577	463	312
3002504063	25	195	36E	Р	Grayburg		2777	237	4799	592	352
3002504063	25	195	36E	Р	Grayburg		3035	482	5326	1065	352
3002504254	13	205	36E	М	Grayburg		4368	520	7532	601	1375
3002504254	13	20S	36E	М	Grayburg	17249	4848	904	9595	1262	205
3002504053	25	195	36E	N	Grayburg San Andres					5531	
3002504063	25	195	36E	Р	Grayburg San Andres					352	
3002504063	25	195	36E	Ρ	Grayburg San Andres					312	
3002504063	25	195	36E	Р	Grayburg San Andres					352	
3002521886	35	195	36E	G	Grayburg San Andres		_			660	
3002512481	36	195	36E	F	Grayburg San Andres					430	

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EXHIBIT H

	_										
4.51		-									
API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002504139	1	205	36E	D	Grayburg San Andres						
3002504151	1	205	36E	м	Grayburg San Andres					2250	
3002504151	1	205	36E	м	Grayburg San Andres					530	
3002504165	2	20S	36E	A	Grayburg San Andres	10905	2829	740	2350	1220	3700
3002504165	2	205	36E	A	Grayburg San Andres	40497	12952	1680	20800	1390	3100
3002504165	2	205	36E	А	Grayburg San Andres	71407	24177	2320	29800	810	3500
3002504165	2	205	36E	А	Grayburg San Andres	27045	7815	1670	14500	1370	1020
3002504168	2	205	36E	G	Grayburg San Andres					5710	
3002504224	11	205	36E	F	Grayburg San Andres		1132	1	0	959	
3002504224	11	205	36E	F	Grayburg San Andres		1089	0	0	922	
3002504235	12	205	36E	С	Grayburg San Andres					55	
3002504259	13	205	36E	Î	Grayburg San Andres					177	
3002504259	13	20S	36E	Ĩ	Grayburg San Andres					125	

Page 32 of 62

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4.04											
API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002504254	13	205	36E	м	Grayburg San Andres					205	
3002504254	13	205	36E	М	Grayburg San Andres					1375	
3002504272	14	20S	36E	К	Grayburg San Andres					1618	
3002504272	14	205	36E	к	Grayburg San Andres					1746	
3002504266	14	205	36E	Р	Grayburg San Andres		1113	0	0	932	
3002504297	23	205	36E	В	Grayburg San Andres		612	1	0	1289	
3002504297	23	20S	36E	В	Grayburg San Andres		872	0	0	1094	
3002504297	23	205	36E	В	Grayburg San Andres		602	1	0	1459	
3002504299	23	205	36E	0	Grayburg San Andres		914	1	0	996	
3002504299	23	205	36E	0	Grayburg San Andres		881	0	0	970	
3002503229	28	19S	35E	0	Penrose		69960	15974	149248	352	711
3002504350	26	205	36E	А	Permo- Penn.					739	
3002503247	29	195	35E	С	Queen		65212	19975	151575	141	940
3002503247	29	195	35E	С	Queen		78188	8394	154968	65	1432
3002503248	29	195	35E	1	Queen		64824	15418	149504	35	257

Page 33 of 62

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API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002503284	33	195	35E	С	Queen		59508	15080	138040	38	418
3002503307	35	195	35E	G	San Andres	66415			39600	313	993
3002503307	35	195	35E	G	San Andres	73409			43880	450	865
3002504099	33	195	36E	Н	San Andres		22745	2211	38119	405	4317
3002512476	36	195	36E	J	San Andres			3454	16406	611	
3002512476	36	195	36E	J	San Andres		4687	3454	16406	611	
3002512476	36	195	36E	J	San Andres	26344					
3002504326	25	20S	36E	А	Yates		32533	107798	247872	1091	30984

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EXHIBIT H



# Water Column/Average Depth to Water

(A CLW##### in the POD suffix (R=POD has indicates the POD has been been replaced, replaced O=orphaned, & no longer serves C=the file is a water right file.) closed)

(quarters are smallest to largest)

															( ,	
POD Number	Code	Sub basin	County	Q64	Q16	Q4	Sec	Tws	Range	x	Y	Мар	Distance	Well Depth	Depth Water	Water Column
L 15456 POD1		L	LE	SW	SW	SW	33	19S	36E	653151.0	3609259.5	•	1152	62	33	29
<u>L 10248</u>		L	LE		SW	NW	09	20S	36E	653376.0	3606958.0 *	٥	1159	65		
L 01312		L	LE	SW	SW	SW	33	19S	36E	653237.0	3609276.0 *	0	1164	67	40	27
L 10245		L	LE	SW	SW	SW	33	19S	36E	653237.0	3609276.0 *	0	1164	75		
L 14757 POD1		L	LE	SE	SW	NW	09	20S	36E	653553.3	3606832.1	0	1313	62	34	28
L 14758 POD1		L	LE	NW	SW	NW	05	20S	36E	651908.7	3608655.2	0	1455	112	30	82
L 14752 POD1		L	LE	SW	NW	SW	03	20S	36E	654781.9	3607997.0	•	1527	72	36	36
<u>L 10247</u>		L	LE		SW	NW	05	20S	36E	651739.0	3608544.0 *	•	1580	75		
L 10246		L	LE	NW	NW	SW	03	20S	36E	654869.0	3608291.0 *	0	1619	60		
<u>L 02707</u>		L	LE	NE	NE	NE	09	20S	36E	654744.1	3607405.0	0	1644	85	38	47
L 01522 POD1		L	LE	NW	NW	NW	08	20S	36E	651658.0	3607434.0 *	۲	1738	50	30	20
L 08083		L	LE			SW	32	19S	36E	651926.0	3609553.0 *	0	1963	50	35	15
L 00512 S		L	LE	SW	NE	SW	32	19S	36E	652020.0	3609660.0 *	0	1982	65	30	35
L 00512 POD3		L	LE	NE	NE	SW	32	19S	36E	652097.0	3609914.9	0	2144	60	30	30
<u>L 15039 POD1</u>		L	LE	NW	NE	SW	10	20S	36E	655302.6	3606705.1	0	2481	71	38	33
L 10249		L	LE		SW	NE	10	20S	36E	655790.0	3606997.0 *	Ø	2765	60		
<u>L 02969</u>		L	LE	SW	SW	SW	28	19S	36E	653209.0	3610891.0 *	•	2779	60	34	26
<u>L 0001</u> I		L	LE	SW	NW	NW	32	19S	36E	651602.0	3610461.0 *	•	2874	42		
L 03114		L	LE				34	19S	36E	655553.0	3610005.0 *	•	2974	135		
L 10804		L	LE		SE	SE	34	195	36E	656159.0	3609422.0 *	•	3182	66	50	16
L 10250		L	LE		SW	SE	10	20S	36E	655800.0	3606192.0 *	•	3184	60		

Average Depth to Water: 35 feet

Minimum Depth: 30 feet

Maximum Depth: 50 feet

BIT

(In feet)

(meters)

### *Received by OCD: 1/6/2025 1:30:05 PM* <u>Record Count:</u> 21

Basin/County Search: County: LE

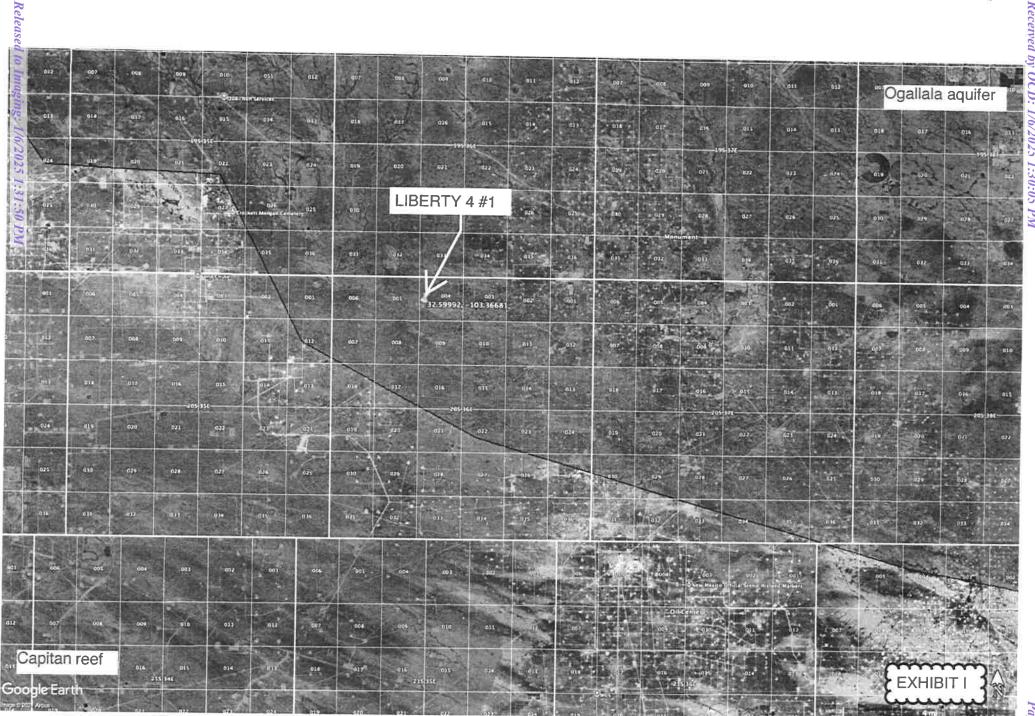
# UTM Filters (in meters):

Easting: 653259 Northing: 3608112 Radius: 003220

\* UTM location was derived from PLSS - see Help

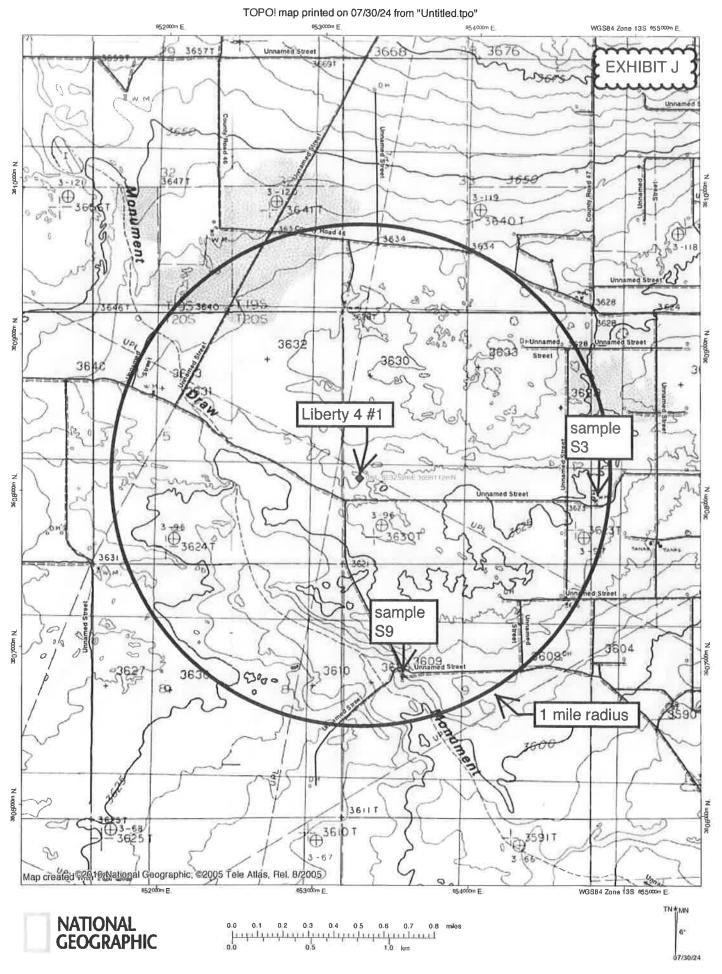


The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



Page 37 of 62

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18. A.

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**Environment Testing** 



# ANALYTICAL REPORT

# PREPARED FOR

Attn: Brian Wood Permits West Inc 37 Verano Loop Santa Fe, New Mexico 87508 Generated 9/10/2024 12:47:36 PM

# **JOB DESCRIPTION**

**3R** Liberty

# JOB NUMBER

885-9520-1

Eurofins Albuquerque 4901 Hawkins NE Albuquerque NM 87109





# **Eurofins Albuquerque**

## Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

## Authorization

Generated 9/10/2024 12:47:36 PM

EXHIBIT

Authorized for release by Andy Freeman, Business Unit Manager andy.freeman@et.eurofinsus.com Designee for Cheyenne Cason, Project Manager cheyenne.cason@et.eurofinsus.com (505)345-3975

E

Client: Permits West Inc
Project/Site: 3R Liberty

#### Laboratory Job ID: 885-9520-1

**EXHIBIT J** 

# **Table of Contents**

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	
Client Sample Results	6
QC Sample Results	8
QC Association Summary	10
Lab Chronicle	11
Certification Summary	12
Chain of Custody	13
Receipt Checklists	14

Client: Permits West Inc Project/Site: 3R Liberty Page 42 of 62

Glossary		
Abbreviation	These commonly used abbreviations may or may not be present in this report.	
a	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	
CFL	Contains Free Liquid	EXHIBIT J
CFU	Colony Forming Unit	uuuu
CNF	Contains No Free Liquid	
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
MPN	Most Probable Number	
MQL	Method Quantitation Limit	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
NEG	Negative / Absent	
POS	Positive / Present	
PQL	Practical Quantitation Limit	
PRES	Presumptive	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	
TNTC	Too Numerous To Count	

Eurofins Albuquerque

.

## **Case Narrative**

Client: Permits West Inc Project: 3R Liberty

Job ID: 885-9520-1

#### Job ID: 885-9520-1

#### **Eurofins Albuquerque**

Job Narrative 885-9520-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these
  situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise
  specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 8/8/2024 3:55 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 21.7°C.

#### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### **General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## **Client Sample Results**



**Matrix: Water** 

Lab Sample ID: 885-9520-1

## Client Sample ID: S3 Date Collected: 08/08/24 07:00

Client: Permits West Inc

Project/Site: 3R Liberty

Date Received: 08/08/24 15:55								
Method: EPA 300.0 - Anlons, lor	n Chromatography							
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	5
Chloride	86	10	mg/L			08/29/24 09:31	20	
General Chemistry								
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
HEM (Oil & Grease) (1664B)	ND	4.9	mg/L			08/09/24 09:50	1	
Total Dissolved Solids (SM 2540C)	5600	500	mg/L			08/09/24 15:06	1	

**Eurofins Albuquerque** 

4

Client: Permits West Inc Project/Site: 3R Liberty		Client S	Sample Re	esults	E)	(HIBIT J	Job ID: 885	-9520-1
Client Sample ID: S9 Date Collected: 08/08/24 07:35 Date Received: 08/08/24 15:55						Lab Sam	ple ID: 885-9 Matrix	9 <b>520-2</b> : Water
Method: EPA 300.0 - Anions, Ion Analyte		tography Qualifier	RL	Unit	D	Prepared	Analyzed	
Chloride	370		10	mg/L	J	riepareu	Analyzed 08/29/24 09:56	DII Fac 20
General Chemistry								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664B)	ND		4.9	mg/L			08/15/24 12:27	1
Total Dissolved Solids (SM 2540C)	1500		100	mg/L			08/09/24 15:06	. વંદ

Eurofins Albuquerque

Client: Permits West Inc Project/Site: 3R Liberty		QC	Sam	ple	Resi	ults	£		EL TIS	Job ID: 885-	9520-1
lethod: 300.0 - Anions, Ion C	hrom	atograp	hy								
Lab Sample ID: MB 885-11393/7 Matrix: Water								Cli	ent Sam	ple ID: Method Prep Type: To	
Analysis Batch: 11393	МВ	мв									
Analyte	Result	Qualifier		RL		Unit		DF	repared	Analyzed	Dil Fac
Chloride	ND	-		0.50		mg/L				08/29/24 08:54	1
Lab Sample ID: MB 885-11393/85 Matrix: Water								Cli	ent Sam	ple ID: Method Prep Type: To	
Analysis Batch: 11393											
		MB		-				-			
Analyte Chloride	Result ND	Qualifier		RL 0.50		Unit mg/L		DF	Prepared	Analyzed 08/30/24 01:33	Dil Fac
Chionde	ND			0.50		ng/L				00/30/24 01.33	I
Lab Sample ID: LCS 885-11393/8 Matrix: Water Analysis Batch: 11393							Clie	ent Sa	mple ID	: Lab Control S Prep Type: To	
Analysis Batch. 11355			Spike		LCS	LCS				%Rec	
Analyte			Added		Result	Qualifler	Unit	D	%Rec	Limits	
Chloride			5.00		4.89		mg/L		98	90 - 110	
Lab Sample ID: LCS 885-11393/86 Matrix: Water Analysis Batch: 11393							Clie	ent Sa	mple ID	: Lab Control S Prep Type: T	
-			Spike		LCS	LCS				%Rec	
Analyte			Added			Qualifier	Unit	D		Limits	
Chloride			5.00		4.80		mg/L		96	90 - 110	
Lab Sample ID: MRL 885-11393/6 Matrix: Water Analysis Batch: 11393							Clie	ent Sa	mple ID	: Lab Control S Prep Type: T	•
Analysis Datch. 11555			Spike		MRL	MRL				%Rec	
Analyte			Added		Result	Qualifier	Unit	D	%Rec	Limits	
Chloride			0.500		0.509		mg/L		102	50 - 150	
lethod: 1664B - HEM and SG	T-HEN	Λ									
Lab Sample ID: MB 885-10354/1 Matrix: Water								Cli	ent Sam	ple ID: Metho Prep Type: T	
Analysis Batch: 10354		MD									
Analyte		MB Qualifier		RL		Unit		DI	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND	guainter	-	5.0		mg/L			ichaian	08/15/24 12:27	Dirrad
Lab Sample ID: LCS 885-10354/2 Matrix: Water Analysis Batch: 10354							Clie	ent Sa	mple ID	: Lab Control : Prep Type: T	•
Analysis Batch: 10354			Spike		LCS	LCS				%Rec	
Analyte			Added			Qualifier	Unit	D	%Rec	Limits	
HEM (Oil & Grease)		-	40.0		35.8		mg/L		90	78 - 114	

.

**Client: Permits West Inc** 

Project/Site: 3R Liberty

EXHIBIT J

Job ID: 885-9520-1

# Method: 1664B - HEM and SGT-HEM (Continued)

		•		/							
Lab Sample ID: LCSD 885-10354/3 Matrix: Water						Client	Samp	le ID: La	ib Control Prep Ty		
Analysis Batch: 10354									i i op i y	pe. It	//a//11
A			Spike	LCS	D LCSD				%Rec		RP
			Added		lt Qualifie	er Unit		D %Rec	Limits	RPD	Lim
HEM (Oil & Grease)			40,0	37	.2	mg/L		93	78 - 114	4	2
Lab Sample ID: MB 885-9984/1							~	Hand Car			
Matrix: Water							C	lient Sai	nple ID: M		
Analysis Batch: 9984									Ргер Ту	pe: Io	otal/N
-	MB	MB									
Analyte	Result	Qualifier		RL	Un	nlt	D	Prepared	Алају	hor	Dil Fa
HEM (Oil & Grease)	ND			5.0	mg	g/L		ropurcu	08/09/24		
Leb Semale ID: LOS 005 000 (/0											
Lab Sample ID: LCS 885-9984/2 Matrix: Water						С	lient S	ample II	D: Lab Cor	trol S	ampl
Analysis Batch: 9984									Prep Ty		
Anarysis Daton. 3304			0-H								
Analyte			Spike Added		S LCS				%Rec		
HEM (Oil & Grease)		_	40.0		lt Qualifie			D %Rec	Limits		
			40.0	37.	2	mg/L		93	78 - 114		
Lab Sample ID: LCSD 885-9984/3						Client	Samol	e ID· Lai	b Control s	Samnl	o Du
Matrix: Water							oumpi	o ib. Eu	Prep Ty		
Analysis Batch: 9984		34							I I CP I J	. 10	(a)/14/
			Spike	LCSI	) LCSD				%Rec		RP
Analyte			Added	Resul	t Qualifle	r Unit		%Rec	Limits	RPD	Lim
HEM (Oil & Grease)			40.0	37.2	2	mg/L		93	78 - 114	0	2
lethod: 2540C - Solids, Total I	Disso	lved (T	DS)								
Lab Sample ID: MB 885-10020/1							CI	ient San	nple ID: Me	athod	Blan
Matrix: Water							•		Prep Typ		
Analysis Batch: 10020											
	MB										
		Qualifier		RL	Uni	t	D	Prepared	Analyz	ed	Dil Fa
otal Dissolved Solids	ND			50	mg/	/L			08/09/24	5:06	0
.ab Sample ID: LCS 885-10020/2						01					
						CII	ent Sa	ampie ID	: Lab Con		
Vlatrix: Water											tal/NA
									Ргер Тур	ie: 101	
			Spike	LCS	ICS					e: 101	
Analysis Batch: 10020			Spike Added		LCS Qualifler				%Rec	ie: 101	
Analysis Batch: 10020					Qualifler		D			ie: 101	
Analysis Batch: 10020 Inalyte Iotal Dissolved Solids Lab Sample ID: 885-9520-2 DU			Added	Result	Qualifler	- Unit		%Rec	%Rec Limits 80 - 120		
Analysis Batch: 10020 Inalyte Iotal Dissolved Solids I.ab Sample ID: 885-9520-2 DU Matrix: Water			Added	Result	Qualifler	- Unit		%Rec	%Rec Limits 80 - 120 Client Sat	nple l	D: S9
Analysis Batch: 10020 Analyte Total Dissolved Solids Lab Sample ID: 885-9520-2 DU Matrix: Water Analysis Batch: 10020			Added	Result	Qualifler	- Unit		%Rec	%Rec Limits 80 - 120	nple l	D: S9
Analysis Batch: 10020 Analyte otal Dissolved Solids Lab Sample ID: 885-9520-2 DU Matrix: Water Analysis Batch: 10020 Sample	e Sam		Added	Result 1000	Qualifler	- Unit		%Rec	%Rec Limits 80 - 120 Client Sat	nple l	D: S9
	lt Qual		Added	Result 1000 DU	Qualifier	r Unit mg/L		%Rec 100	%Rec Limits 80 - 120 Client Sat	nple l	D: S9 al/NA

### HPLC/IC

#### Analysis Batch: 11393

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batcl
885-9520-1	S3	Total/NA	Water	300.0	
885-9520-2	S9	Total/NA	Water	300.0	
MB 885-11393/7	Method Blank	Total/NA	Water	300.0	
MB 885-11393/85	Method Blank	Total/NA	Water	300.0	
LCS 885-11393/8	Lab Control Sample	Total/NA	Water	300.0	
LCS 885-11393/86	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-11393/6	Lab Control Sample	Total/NA	Water	300.0	

### **General Chemistry**

Analysis Batch: 9984

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
885-9520-1	S3	Total/NA	Water	1664B	
MB 885-9984/1	Method Blank	Total/NA	Water	1664B	
LCS 885-9984/2	Lab Control Sample	Total/NA	Water	1664B	
LCSD 885-9984/3	Lab Control Sample Dup	Total/NA	Water	1664B	

#### Analysis Batch: 10020

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
885-9520-1	S3	Total/NA	Water	2540C	
885-9520-2	S9	Total/NA	Water	2540C	
MB 885-10020/1	Method Blank	Total/NA	Water	2540C	
LCS 885-10020/2	Lab Control Sample	Total/NA	Water	2540C	
885-9520-2 DU	S9	Tota!/NA	Water	2540C	

#### Analysis Batch: 10354

Lab Sample ID 885-9520-2	Client Sample ID S9	Prep Type Total/NA	Matrix Water	Method 1664B	Prep Batch
MB 885-10354/1	Method Blank	Total/NA	Water	1664B	
LCS 885-10354/2	Lab Control Sample	Total/NA	Water	1664B	
LCSD 885-10354/3	Lab Control Sample Dup	Total/NA	Water	166 <b>4</b> B	

Job ID: 885-9520-1

EXHIBIT J

## Lab Chronicle



Job ID: 885-9520-1

#### **Client Sample ID: S3** Date Collected: 08/08/24 07:00 D

**Client: Permits West Inc** 

Project/Site: 3R Liberty

## Lab Sample ID: 885-9520-1

Matrix: Water

Date Receive								Matrix: Wat
Ргер Туре	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	300.0		20	11393	KB	EET ALB	08/29/24 09:31
Total/NA	Analysis	1664B		1	9984	со	EET ALB	08/09/24 09:50
Total/NA	Analysis	2540C		1	10020	ES	EET ALB	08/09/24 15:06
Client Sam Date Collecte Date Receive	d: 08/08/24 0						La	ab Sample ID: 885-9520 Matrix: Wat

	Batch	Batch		Dilution	Batch			Prepared
Ргер Туре	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	300.0		20	11393	КВ	EET ALB	08/29/24 09:56
Total/NA	Analysis	1664B		1	10354	КН	EETALB	08/15/24 12:27
Total/NA	Analysis	2540C		1	10020	ES	EET ALB	08/09/24 15:06

#### Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

**Eurofins Albuquerque** 

Released to Imaging: 1/6/2025 1:31:50 PM

Job ID: 885-9520-1

aboratory: Eurofinness otherwise noted, all an		e covered under eac	h accreditation/certification below.	EXHIBIT J
Authority	Program		Identification Number	Expiration Date
New Mexico	State		NM9425, NM0901	02-26-25
	s are included in this report, b does not offer certification.	-	not certified by the governing author	ity. This list may include analytes
		ut the laboratory is r Matrix	not certified by the governing author Analyte	ity. This list may include analytes
for which the agency	does not offer certification.	-		ity. This list may include analytes
for which the agency Analysis Method	does not offer certification.	Matrix	Analyte	ity. This list may include analytes
for which the agency Analysis Method 1664B	does not offer certification.	Matrix Water	Analyte HEM (Oil & Grease)	ity. This list may include analytes

**Eurofins Albuquerque** 

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Date: Time: Relinquished by: Via:	8-8 3:55 Relinquished by	l					10 8.8 7:35 Na 54	8-8	Date Time Matrix Sa			CI EDD (Type)	NELAC      Other	Accreditation:   Az Compliance	Ch-Standard D Level 4 (Full Validation)	QAVQC Package:	email or Fax#: brigh @ par mitsulest	Phone #: 505 466 8120	SF NM 87588	Mailing Address: 37 VENENO SA	4	Client Permits West, Inc	Chain-of-Custody Record
Received by:	Received by	2							Type and #	Container	Cooler Temp	# of Coolers:	On Ice:	Sampler:	X	Ċ	Project Manager:		Project #:	5/<	Project Name:	Standard	Tum-Around Time:
Via:	B S S S S S S								Туре	Preservative	Cooler Temp(Including CF): 2/. 1/+ 6.2:		□ Yes	At a	IGH W	1	ager:	7-1	11	Libe		d 🗆 Rush	d Time:
	Date Time 8-8-24 15:55								1	HEAL No.	a) L12		No No	17	000	1 de la				A-		h	
Date Time	Remarks:								TP 808 ED PA RC CI, 826 827 Tot	H:80 B1 P B (M Hs b RA ( F, E 60 (V 70 (S al Co	MT 115D eestic Metho y 83 8 Me BBr, N (OA) Semi- olifor	(GR ide: id 5 10 ( tals IO <sub>3</sub> , VO m ((	:O / s/8( 04. or 8 N A) Pre	DR 082 1) 02, 02,	O / PCI DSIN PO,	MR( B's //S	D)	Analysis	Л	4901 Hawkins NE - Albumernie		ANAL ENVIRONMENTAL	

1

**Client: Permits West Inc** 

Login Number: 9520 List Number: 1

Creator: McQuiston, Steven

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Water present in cooler, indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	





Job Number: 885-9520-1

List Source: Eurofins Albuquerque



37 Verano Loop, Santa Fe, New Mexico 87508 505-466-8120



NM Oil Conservation Division 1220 S. St. Francis Dr. Santa Fe, NM 87505

> Re: Geology Statement 3R Operating, LLC Liberty 4 #1 Section 4, T. 20S, R. 36E Lea County, New Mexico

To whom it may concern:

Publicly available geologic and engineering data related to the proposed well have been thoroughly reviewed, and no evidence for open faults or any other hydrologic connection between the proposed Delaware injection zone and any underground sources of drinking water has been found. Please see the attached assessment for additional information.

Sincerely,

Cory Week

Cory Walk Geologist



Seismic Risk Assessment

**3R Operating, LLC** 

Liberty 4 No. 1

Section 4, Township 20 South, Range 36 East

Lea County, New Mexico

Cory Walk, M.S.

Cory Walk

Geologist

Permits West Inc.

**December 4, 2024** 

Released to Imaging: 1/6/2025 1:31:50 PM



#### **GENERAL INFORMATION**

Liberty 4 #1 is located in the SW 1/4, section 4, T.20S, R.36E, about 6 miles southwest of Monument, NM in the Permian Basin. 3R Operating, LLC proposes to dispose produced water within the Delaware Mountain Group (Brushy Canyon Formation) through a perforated liner from 5,350'-6,300' below ground surface. This report assesses any potential concerns relating to induced seismicity along deep penetrating basement-rooted faults or the connection between the injection zone and known underground potable water sources.

#### SEISMIC RISK ASSESSMENT

#### Historical Seismicity

Searching the USGS and NMT earthquake catalog resulted in no (0) earthquakes above a magnitude 2.5 within 6 miles (9.7 km) of the proposed disposal site since 1970 (Fig. 1). The nearest earthquake above a magnitude 2.5 occurred on December 14, 2021, about 7.8 miles (12.5 km) southwest of the proposed SWD site and had a magnitude of 2.53.

#### **Basement Faults and Subsurface Conditions**

A structure contour map (Fig. 1) of the Precambrian basement shows Liberty 4 #1 is approximately 0.4 miles (0.6 km) from the nearest basement-rooted fault interpreted by an unidentified oil and gas operator using proprietary 3D Seismic data and published by Horne et al (2021).

Snee and Zoback (2018) state, "In the western part of Eddy County, New Mexico,  $S_{Hmax}$  is ~northsouth (consistent with the state of stress in the Rio Grande Rift; Zoback and Zoback, 1980) but rotates to ~east-northeast-west-southwest in southern Lea County, New Mexico and the northernmost parts of Culberson and Reeves counties, Texas." Around the Liberty 4 #1 site, Snee and Zoback indicate a  $S_{Hmax}$ direction of N060°E and an  $A_{\phi}$  of 0.65, indicating an extensional (normal) stress regime.

Induced seismicity is a growing concern of deep SWD wells. Snee and Zoback (2018) show that due to its orientation, the nearest Precambrian fault has a low probability of slipping (Fig. 2). Also, the proposed injection zone is much shallower in the Delaware Mountain Group (Brushy Canyon Formation) and therefore would not affect the deep-rooted Precambrian faults. Seismic data shows that the deep-rooted Precambrian faults do not penetrate anything above the Bone Spring Formation.

#### **GROUNDWATER SOURCES**

Three principal aquifers are used for potable groundwater in southern Lea County; these geologic units include the Triassic Santa Rosa formation, Tertiary Ogallala formation, and Quaternary alluvium. Nicholson and Clebsch (1961) state, "Potable ground water is not available below the Permian and Triassic unconformity but, because this boundary is not easily defined, the top of the Rustler anhydrite formation is regarded as the effective lower limit of 'potable' ground water." Around the Liberty 4 #1 well, the top of the Rustler Formation lies at an estimated depth of 1,584' bgs.



#### **VERTICAL MIGRATION OF FLUIDS**

Well logs show a 180-200' thick impermeable limestone cap lies at the top of the Bone Spring Formation that would prevent injected water from migrating into producing Bone Spring zones and deeprooted Precambrian faults below. OCD well records show the basement to be at a depth of approximately 13,524' (Top of Granite Wash) in this area. Therefore, the injection zone lies approximately 7,225' above the Precambrian basement and approximately 3,766' below the previously stated lower limit of potable water at the top of the Rustler formation.

#### CONCLUDING STATEMENTS

After examination of publicly available geologic and engineering data, there is no evidence of open faults or any other hydrologic connection between the disposal zone and any subsurface potable water sources. The shallow injection zone and orientation of nearby faults also removes any major concern of inducing seismic activity.

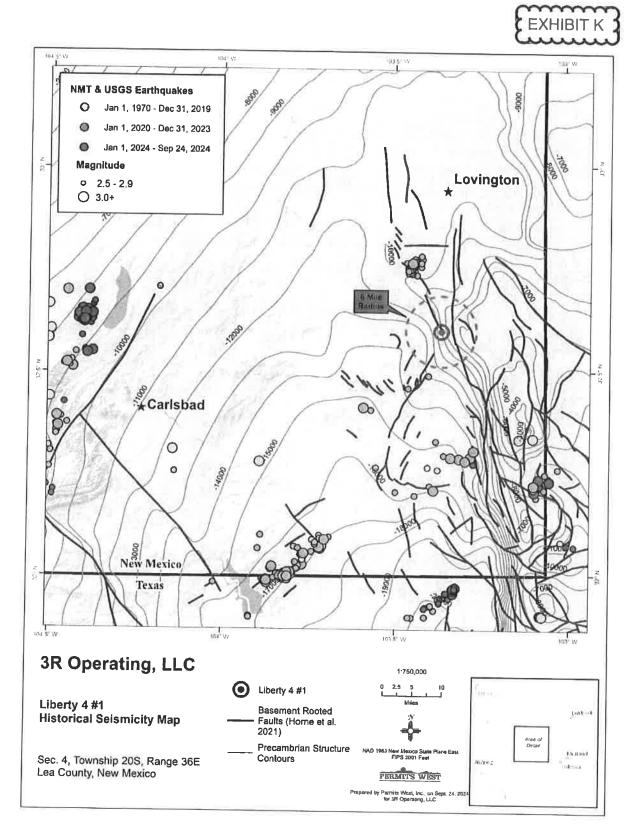


Figure 1. Structural contour map of the Precambrian basement in feet below sea level. Blue lines represent the locations of Precambrian basement-rooted faults (Horne et al., 2021). Liberty 4 #1 well lies  $\sim$ 0.4 miles southwest of the closest deeply penetrating fault and 7.8 miles north from the closest historic earthquake with a magnitude >2.5.

3



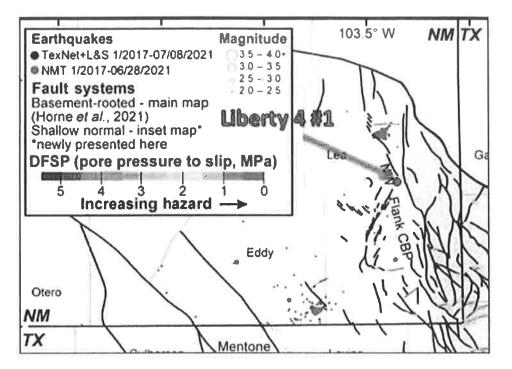


Figure 2. Modified from Hennings et. al. (2021) and shows an increased pore pressure to slip on the nearby faults which decreases the hazard potential. The proposed injection zone is shallower in the Delaware Mountain Group (Brushy Canyon Formation) and therefore removes any major concern of inducing seismicity on any known fault.



#### **References Cited**

- Comer, J. B., 1991, Stratigraphic Analysis of the Upper Devonian Woodford Formation, Permian Basin, West Texas and Southeastern New Mexico: The University of Texas at Austin, Burcau of Economic Geology, Report of Investigations No. 201, 63 p.
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- Hennings, P., Dvory, N., Horne, E., Li, P., Savvaidis, A., and Zoback, M. (2021). Stability of the Fault Systems That Host-Induced Earthquakes in the Delaware Basin of West Texas and Southeast New Mexico. The Seismic Record. 1(2), 96–106, doi: 10.1785/0320210020
- Nicholson, A., Jr., and Clebsch, A., Jr., 1961, Geology and ground-water conditions in southern Lea County, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Ground-Water Report 6, 123 pp., 2 plates.
- Snee, J.-E.L., Zoback, M.D., 2018, State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity: Leading Edge, v. 37, p. 127–134.

# 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 21, 2024 and ending with the issue dated November 21, 2024.

Publisher

Sworn and subscribed to before me this 21st day of November 2024.

Ruth Raid

Business Manager

My commission expires January 29, 2027 (Seal) STATE OF NEW MEXICO NOTARY PUBLIC **GUSSIE RUTH BLACK** COMMISSION # 1087528 COMMISSION EXPIRES 01/29/2027

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 publication has been made.

02108485

**BRIAN WOOD** PERMITS WEST 37 VERANO LOOP **SANTA FE, NM 87508** 

LEGAL

1114

8120. #00296216 **LEGAL NOTICE** 

November 21, 2024 3R Operating, LLC is applying to convert its Liberty 4 #1 gas well to a salivater disposal well. The well is at 1800'FSL & 330'FWL, Sec. 4, T. 20 S., R. 36 E., Lea County, NM. This is 6 miles southwest of Monument, NM. It will dispose water into the

Delaware (maximum injection pressure = 1,070 psi) from 5,350' to 6,300'. Disposal will be at a maximum rate of 5,000 bwpd. Interested parties must file objections or requests for hearing with the NM Oil Conservation Division, 1220 South Saint Francis Dr., S a n 1 a F e NM 8 7 5 0 5, o r OCD Engineer@emnrd.nm.gov, within 15 days.

Additional information can be obtained by contacting: Brian Wood, Permits West, Inc., 37 Verano Loop, Santa Fe, NM 87508. Phone number is (505) 466-

00296216

LEGAL





December 10, 2024

BLM 620 E. Greene Carlsbad NM 88220

# **TYPICAL NOTICE**

3R Operating, LLC is applying (see attached application) to convert the Liberty 4 #1 gas well to a saltwater disposal well. As required by NM Oil Conservation Division (NMOCD) rules, I am notifying you of the following proposed saltwater disposal well. This letter is a notice only. No action is needed unless you have questions or objections.

Well: Liberty 4 #1 (fee lease)TD = 13,630'Proposed Disposal Zone: Delaware (5,350' - 6,300')Location: 1800' FSL & 330' FWL Sec. 4, T. 20 S., R. 36 E., Lea County, NMApproximate Location: 6 air miles southwest of Monument, NMApplicant Name: 3R Operating, LLC(432) 684-7877Applicant's Address: 4000 N. Big Spring St., Suite 210, Midland, TX 79705

Submittal Information: Application for a saltwater disposal well will be filed with the NMOCD. If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. NMOCD address is 1220 South St. Francis Dr., Santa Fe, NM 87505. Their phone number is (505) 476-3441. Their e-mail address is: ocd.engineer@emnrd.nm.gov.

Please call me if you have any questions.

Sincerely.

Brian Wood

Sante Fe Main Office Phone: (505) 476-3441

General Information Phone: (505) 629-6116

Online Phone Directory https://www.emnrd.nm.gov/ocd/contact-us

## State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:
3R Operating, LLC	331569
20405 State Highway 249	Action Number:
Houston, TX 77070	417435
	Action Type:
	[IM-SD] Admin Order Support Doc (ENG) (IM-AAO)

#### CONDITIONS

Created By	Condition	Condition Date
stacy.sandoval	None	1/6/2025

Page 62 of 62