AE Order Number Banner

Application Number: pMSG2436450081

SWD-2643

3R Operating, LLC [331569]

RECEIVED:	REVIEWER:	TYPE:	APP NO:	
		cal & Engineerin	/ATION DIVISION g Bureau –	THE PARTY OF THE P
THIS	CHECKLIST IS MANDATORY FOR AL			SION RULES AND
Applicant: 3R Ope Well Name: Liber	rating, LLC ty 4 #1	QUILLY NO SESSING 71 III		umber: 331569 35371
Pool: SWD; Delawar	2		Pool Code	e: 96100
SUBMIT ACCUR	ATE AND COMPLETE INF	ORMATION REQUINDICATED BELG		YPE OF APPLICATION
A. Location	ICATION: Check those Notes - Spacing Unit - Simult NSL NSP	aneous Dedicatio	-	
[1] Com [II] Inject 2) NOTIFICATION A. Offse	one only for [1] or [1] mingling – Storage – Mo DHC	.C	eor ppr	FOR OCD ONLY Notice Complete Application
C. Appli D. Notifi E. Notifi F. Surfa	cation requires published cation and/or concurred cation and/or concurred ce owner I of the above, proof of otice required	ed notice ent approval by Sl ent approval by B	LO LM	Content Complete
administrative understand th	N: I hereby certify that to approval is accurate and action will be taken are submitted to the Divi	and complete to en on this applic	the best of my knowled	dge. I also
N	ote: Statement must be complet	ed by an individual wit	n managerial and/or supervisor	y capacity.
Brian Wood Print or Type Name	Bilde		12-12-24 Date 505 466-8120 Phone Number	
Signature	V		brian@permitswest.cor e-mail Address	m

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
II.	OPERATOR: 3R OPERATING, LLC
	ADDRESS: 4000 N. BIG SPRING ST., SUITE 210, MIDLAND, TX 79705
	CONTACT PARTY: BRIAN WOOD (PERMITS WEST, INC.) PHONE: 505 466-8120
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 XXX No SWD; DELAWARE 96100-
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:
	 Proposed average and maximum daily rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
*VIII	Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
IX.	Describe the proposed stimulation program, if any.
*X.	Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
*XI.	Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
XII.	Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
XIII.	Applicants must complete the "Proof of Notice" section on the reverse side of this form.
XIV.	Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
	NAME: BRIAN WOOD TITLE: CONSULTANT
	NAME: BRIAN WOOD SIGNATURE: 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:

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

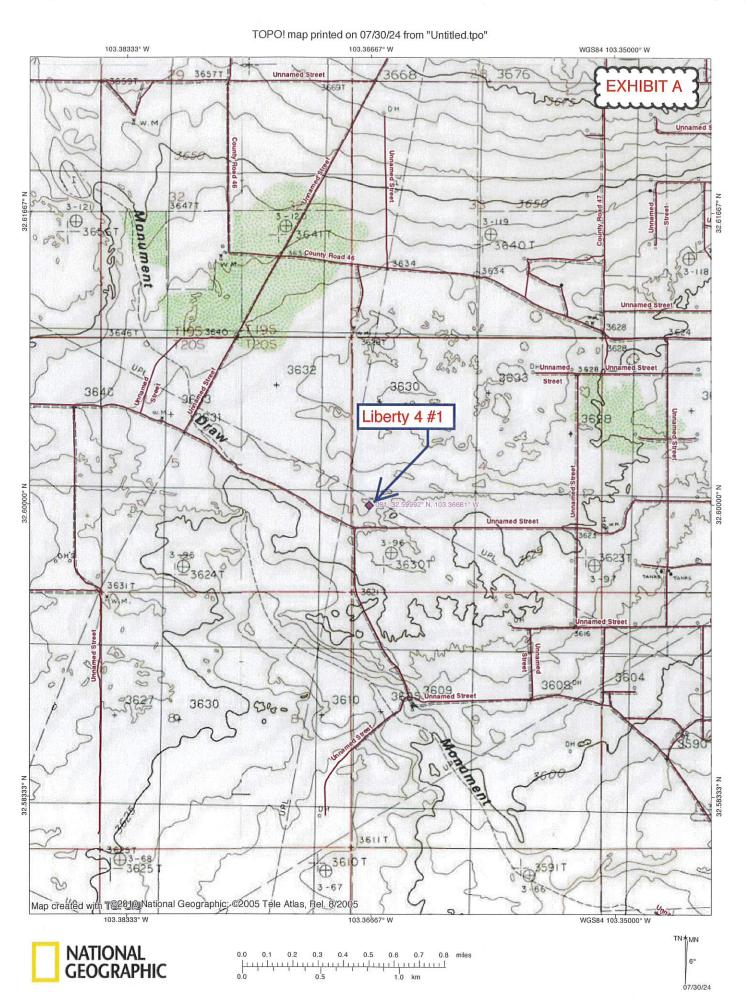
All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

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.



Hobbs, NM 88241-1980

State of New Mexico Et jy, Minerals, and Natural Resources 1

artment

Form C-102 od 02-10-94 tions on back

Submit to the Appropriate District Office

State Lease - 4 copies Fee Lease - 3 copies

OIL CONSERVATION DIVI

P. O. Box 2088 Santa Fe, New Mexico 87504-2088

AMENDED REPORT

DISTRICT III 1000 Rio Brazos Rd. Aztec, NM 87410

DISTRICT IV

Artesio, NM 88211-0719

DISTRICT II P. O. Drawer DD

P. O. Box 2088
Sonto Fe, NM 87507-2088 WELL LOCATION AND ACREAGE DEDICATION

'API Numbe		M I	PTT FOC	ATION A	ND ACE	REAGE DE	DICATION	J P	I.AT		
		3537/	7 Pool Coo	de	3 Pos	ol Name			ALC: A		
' Property Co	de	5 Property 1				W	ildcat E	ller	hurger	200 - 100 per casa 400000 4 0000 8 1	
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'OGRID No.		Operator N	Vame	LIDE	KIT 4	FEDERAL	. COM			well Numb	er
01891	7		r.	RF	AD 8. 5	TEVENS,	71.10			* Elevation	
										362	9'
UL or lot no.	Section	Township		" SU	RFACE	LOCATION					
L	4	20 SOUTH	38 FAST	nge	Lot Ida	Feet from the	North/South	line	Feet from the	P. A.	
										WEST Heat line	
I'L or lot no.	0 1	BOLLO	M HOLE	E LOCAT	ION IF	DIFFEREN	NT FROM	SI	IDEACH	WE51	LEA
TO OF INC BO.	Section	Township	Ran	ng e	Lot Ida	Feet from the	North /Paul	اد	Feet from the		
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10/	1 /	/ / /	OR A NON	N-STANDA	RD UNIT	HAS BEEN	APPROVED	BY	TERESTS HAV	VE BEEN	
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Phone: (505) 476-3441 Fax: (55) 476-3462

General Information Phone: (505) 629-6116

Online Phone Directory Visit:

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

State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION

Revised July 9, 2024

Submit Electronically via OCD Permitting

Submittal Type:

☐ Initial Submittal ☑ Amended Report

☐ As Drilled

WELL LOCATION INFORMATION	1
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API Number Pool Code 30-025-35371 Pool Code 96100						Pool Name SWD; DELAWARE			
Property Code Property Name LIBERTY 4								Well Num	ber
OGRID No. 331569 Operator Name 3R OPERATING, LLC					LLC				evel Elevation
Surfac	e Owner: 🗆	State ☑ Fee □	l Tribal 🗆 Fe	deral		Mineral Owner:	☐ State ☑ Fee ☐ Tri		
					Surf	ace Location			
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longituda	T C

L	4	20 S	36 E	Lot	1800 FSL	330 FWL	32.59992	Longitude -103.36681	County	
10	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 N/A	Infill or Defining Well N/A	Defining Well API N/A	Overlapping Spacing Unit (Y/N) N/A	Consolidation Code N/A	
Order Numbers. NS	L-4536 & NSL-4536A		Well setbacks are under Common Ownership: □Yes □No		

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
					First Ta	ke 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
			-						

			-
Unitized Area or Area of Uniform Interest	Spacing Unit Type ☐ Horizontal ☑ Vertical	Ground Floor Elevation:	_

OPERATOR CERTIFICATIONS

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 unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool orgiormation) in which any part of the well's completed obtailed a compulsory pooling order from the division

11-22-24

Signature

BRIAN WOOD

Printed Name

brian@permitswest.com

Email Address

SURVEYOR CERTIFICATIONS

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

ORIGNAL SURVEY BY VYRON L. BEZNER ON FILE WITH NMOCD

Signature and Seal of Professional Surveyor

Certificate Number

Date of Survey

7920

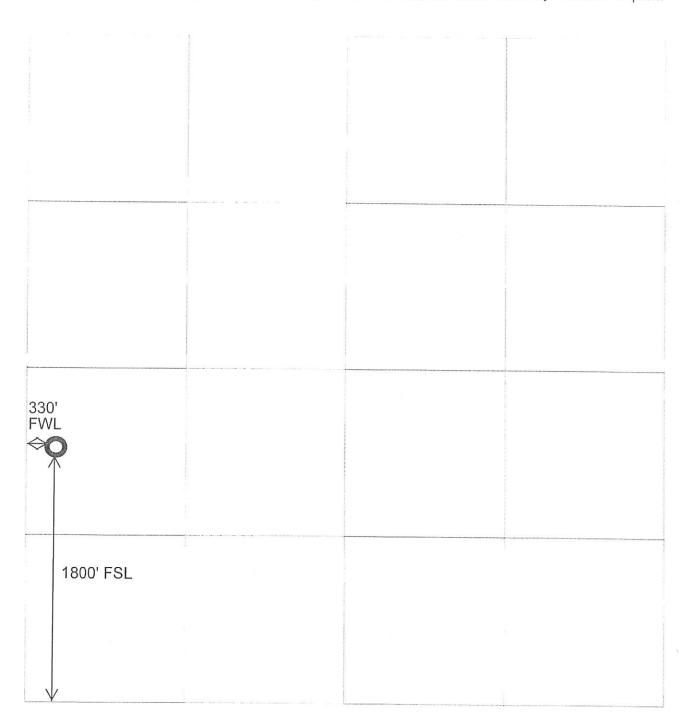
12-29-2000

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.

ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators 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.



OPERATOR: 3R OPERATING, LLC

WELL NAME & NUMBER: LIBERTY 4 #1

WELL LOCATION: 1800' FSL & 330' FWL

04

20 S

36 E

FOOTAGE LOCATION

UNIT LETTER

SECTION

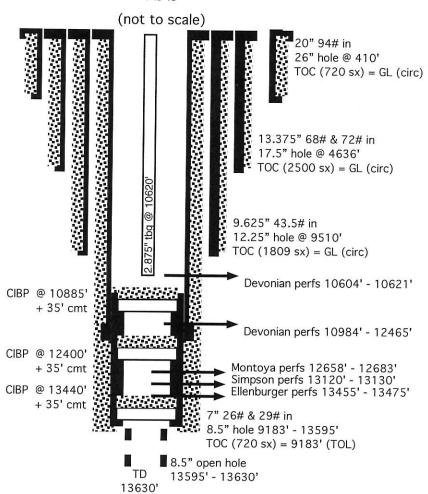
TOWNSHIP

RANGE

WELLBORE SCHEMATIC

"As Is"

WELL CONSTRUCTION DATA Surface Casing



Hole Size: 26" Casing Size: 20" Cemented with: 720 sx. Top of Cement: GL Method Determined: CIRC.

Intermediate Casing

Hole Size: 17.5" Casing Size: 13.375" Cemented with: 2500 sx.

Top of Cement: GL Method Determined: CIRC.

Production Casing

Hole Size: 12.25" Casing Size: 9.625" Cemented with: 1650 sx.

Top of Cement: GL Method Determined: CIRC.

Total Depth: CSG @ 9510', LINER @ 13595', & OPEN HOLE 13630'

Injection Interval

5350 feet to 6300'

(Perforated or Open Hole: indicate which)

WELL NAME & NUMBER: LIBERTY 4 #1

WELL LOCATION: 1800' FSL & 330' FWL

FOOTAGE LOCATION

UNIT LETTER

04 **SECTION**

20 S **TOWNSHIP**

36 E **RANGE**

WELLBORE SCHEMATIC

"Proposed"

WELL CONSTRUCTION DATA Surface Casing

Hole Size: 26"

Cemented with: 720

Casing Size: 20"

Top of Cement: GL

Method Determined: CIRC.

Intermediate Casing

Hole Size: 17.5"

Casing Size: 13.375"

Cemented with: 2500

Top of Cement: GL

Method Determined: CIRC.

Production Casing

Hole Size: 12.25"

Casing Size: 9.625"

Cemented with: 1650 sx.

Top of Cement: GL

Method Determined: CIRC.

Total Depth: CSG @ 9510', LINER @ 13595', & OPEN HOLE 13630'

Injection Interval

5350 feet to 6300'

(Perforated or Open Hole; indicate which)

	(not to scale)	
packer @ 5300' perf Delaware	20" 94# in 26" hole @ 410' TOC (720 sx) = GL (cire) 13.375" 68# & 72# in 17.5" hole @ 4636' TOC (2500 sx) = GL (cire)	·c)
350' - 6300'	9.625" 43.5# in	
CIBP @ 6350'	12.25" hole @ 9510'	
+ 35' cmt 📲	TOC (1809 sx) = GL (circ)	
✓ CIBP @ 10885'	Devonian perfs 10604' - 10621'	
+ 35' cmt	Devonian perfs 10984' - 12465'	
CIBP @ 12400' + 35' cmt	Montoya perfs 12658' - 12683'	
CIBP @ 13440'	Simpson perfs 13120' - 13130' Ellenburger perfs 13455' - 13475'	
+ 35' cmt	Chemburger peris 15455 = 15475	
	7" 26# & 29# in 8.5" hole 9183' - 13595' TOC (720 sx) = 9183' (TOL)	
	8.5" open hole	
	TD 13595' - 13630'	
	13630'	

INJECTION WELL DATA SHEET

Tul	bing Size: 5.5" Lining Material: IPC							
	Type of Packer: STAINLESS STEEL OR NICKEL							
Pac	cker Setting Depth: 5300'							
Otl	ner 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 WEL							
2.	Name of the Injection Formation: DELAWARE							
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							
5.	Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:							
	OVER: YATES (3116'), SEVEN RIVERS (3500'), QUEEN (4094'),							
	<u>UNDER: BONE SPRING (6659'), WOLFCAMP (9305'), STRAWN (9473'), ATOKA (9646'), MORROW (9800'), MONTOYA (12510'), SIMPSON (12848'), & ELLENBURGER (13375')</u>							

PERFORATION TABLE

DEPTH	HOLES	COMMENT		
10576'	n/a	Devonian top		
10600' - 10800'	planned	proposed disposal interval		
10604' - 10614'				
10619' - 10621'				
10647' - 10650'	7			
10657' - 10660'	50	500 gal 15% NEFe HCl (twice)		
10669' - 10671'	7			
10694' - 10696'	7			
10885'	n/a	CIBP w/ 35' cement on top		
10984' - 10986'	8	swab test, 100% water, squeeze perfs w/ 75 sx cmt		
11714' - 11719'		water, squeeze peris w/ 75 sx cilit		
11731' - 11737'	31	no acid, swab water		
11747' - 11750'		, , , , , , , , , , , , , , , , , , , ,		
11841' - 11847'				
11863' - 11867'	22	1000 gal, 15% NEFe HCl, swab water		
12041' - 12043'				
12049' - 12051'	7			
12056' - 12058'	25	500 gas 15% NEFe HCl, sab water		
12064' - 12066'	1	S water a risi, sas water		
12071' - 12073'	1			
12115' - 12118'				
12124' - 12126'	1			
12132' - 12134'				
12138' - 12140'	32	500 gal 15% NEFe HCl, swab water		
12144' - 12146'	1			
12152' - 12154'	1			
12400'	n/a	CIBP w/ 35' cement on top		
12455' - 12465'	21	no acid, swab water		
12510'	n/a	Montoya top		
12658' - 12660'		7		
12668 - 12670'	2.4			
12674' - 12678'	24	100 gal 15% NEFe HCl, swab, show of oil		
12681' - 12683'				
12848'	n/a	Simpson top		
13120' - 13130'	21	500 gal 7.5% NEFe HCl, swab water		
13440'	n/a	CIBP w/ 35' cement on top		
13348' - 13358'	21	500 gal 7.5% NEFe HCl, swab water		
13375'		Ellenburger top		
13455' - 13475'		2000 gal 15% NEFe, swab water		
13490'		PBTD		
13524'		Granite Wash top		
13630'		TD		
13030	n/a	IU		

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.

Business Manager

My commission expires

January 29, 2027

(Seal) STATE OF NEW MEXICO

NOTARY PUBLIC

GUSSIE RUTH BLACK

COMMISSION # 1087526

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.

EXHIBIT L

LEGAL LEGAL

LEGAL NOTICE November 21, 2024

3R Operating, LLC is applying to convert its Liberty 4 #1 gas well to a saltwater disposal well. The well is at 1800' FSL & 330' FWL, Sec. 4, T. 20 S., R. 36 E., Lea Gounty, 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.t.a. Fe, N.M. 8.7.50.5. or 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) 466-8120; #00296216

02108485

00296216

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





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, NM

Approximate Location: 6 air miles southwest of Monument, NM

Applicant Name: 3R Operating, LLC

(432) 684-7877

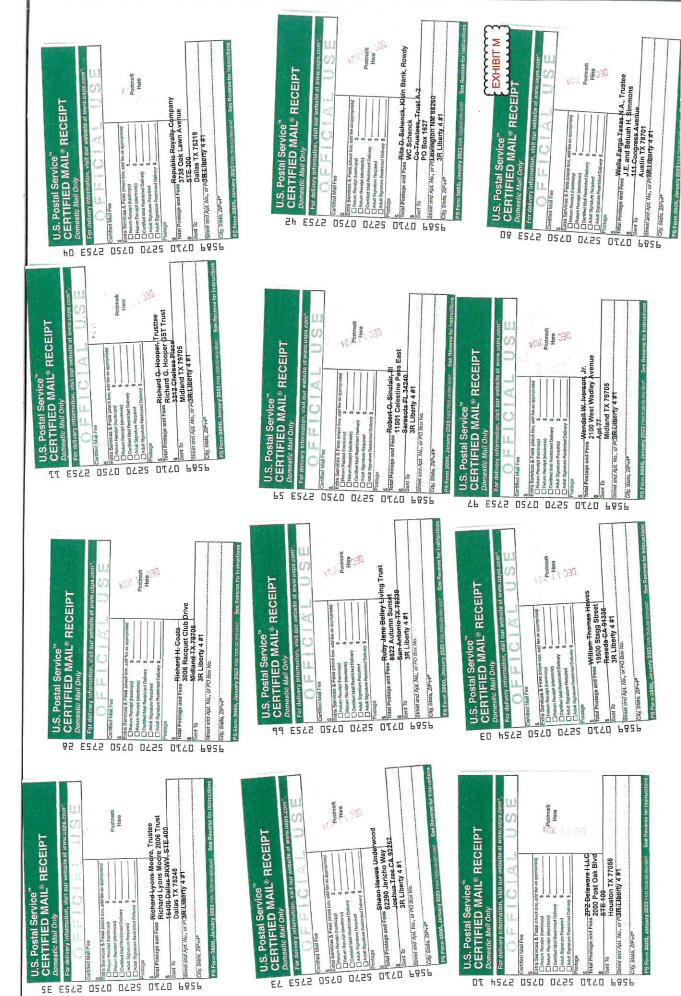
Applicant's Address: 4000 N. Big Spring St., Suite 210, Midland, TX 79705

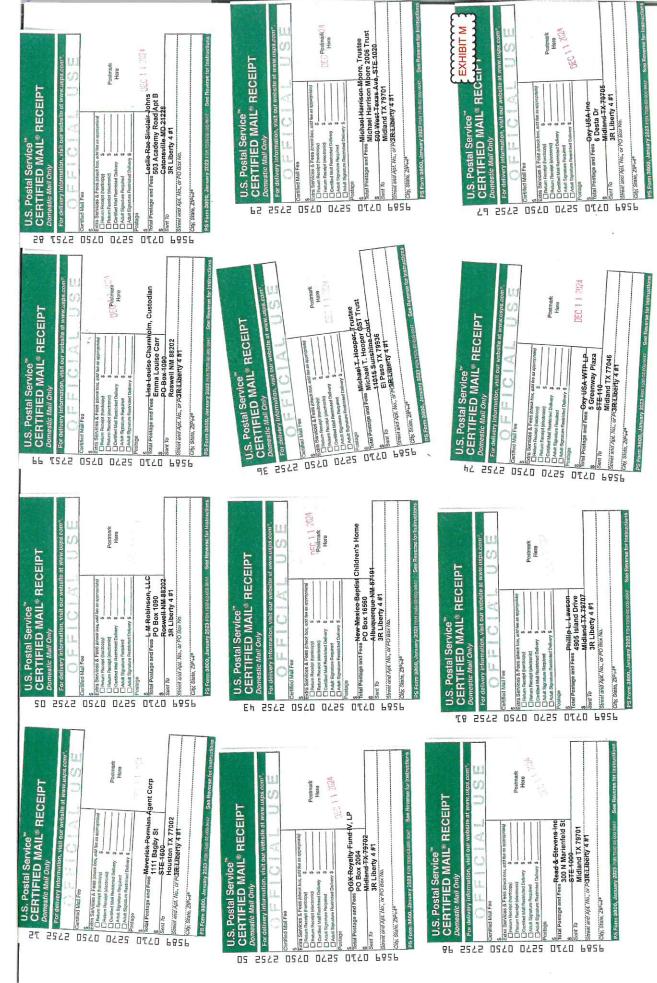
<u>Submittal Information:</u> Application for a saltwater disposal well will be filed with the NMOCD. If you have an objection, or wish to request a hearing, then it must be filed with the NMOCD within 15 days of receipt of this letter. NMOCD address is 1220 South St. Francis Dr., Santa Fe, NM 87505.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

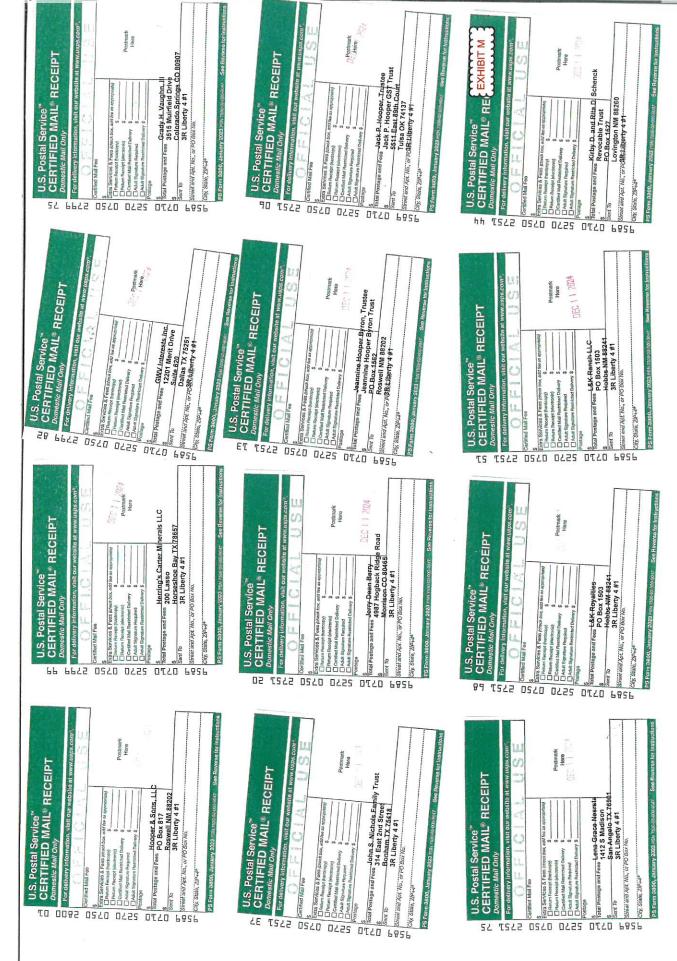
Please call me if you have any questions.

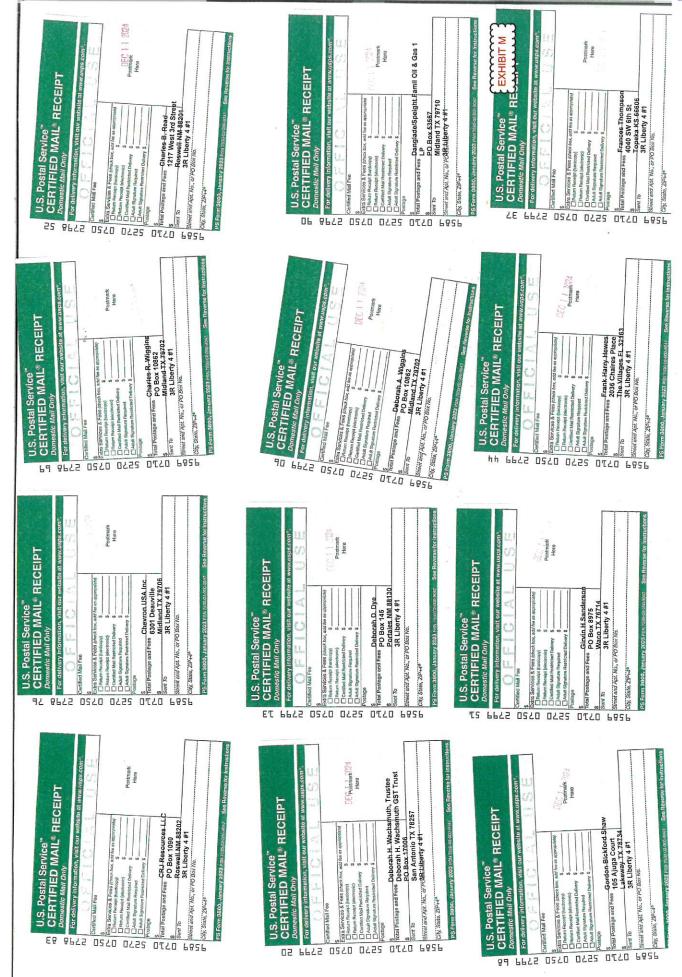
Sincerely,

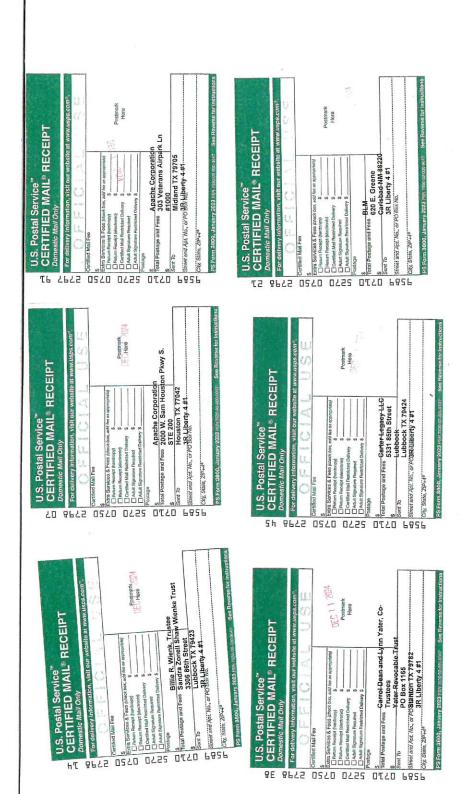
Brian Wood



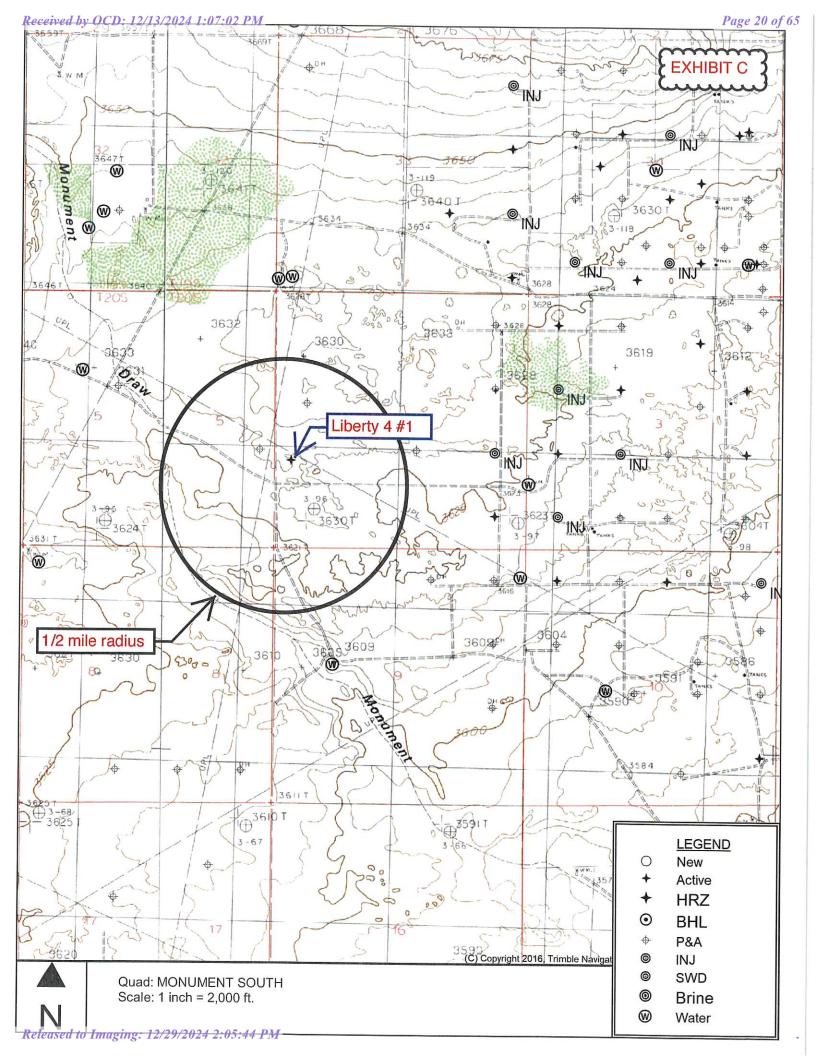






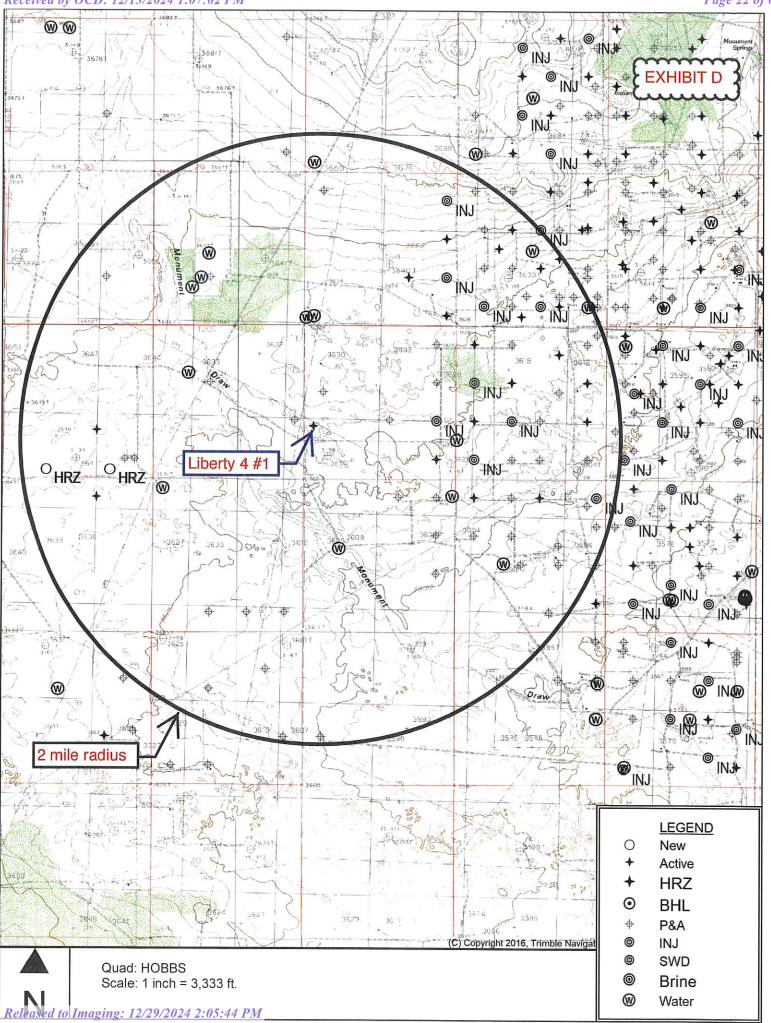






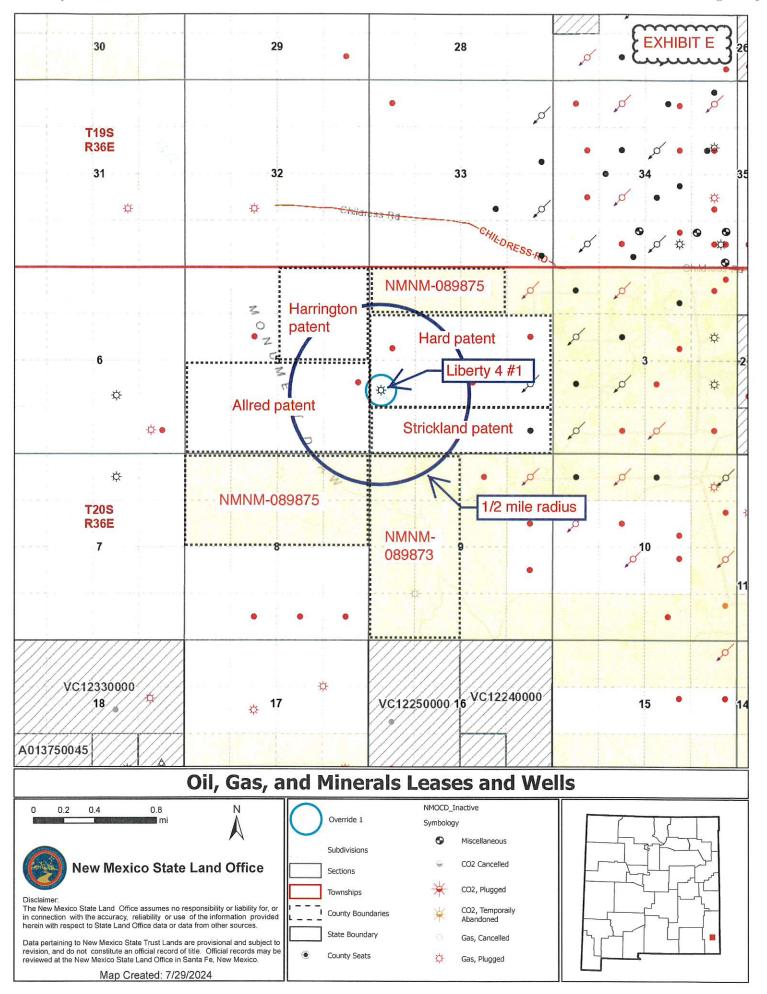
SORTED BY DISTANCE FROM LIBERTY 4 #1

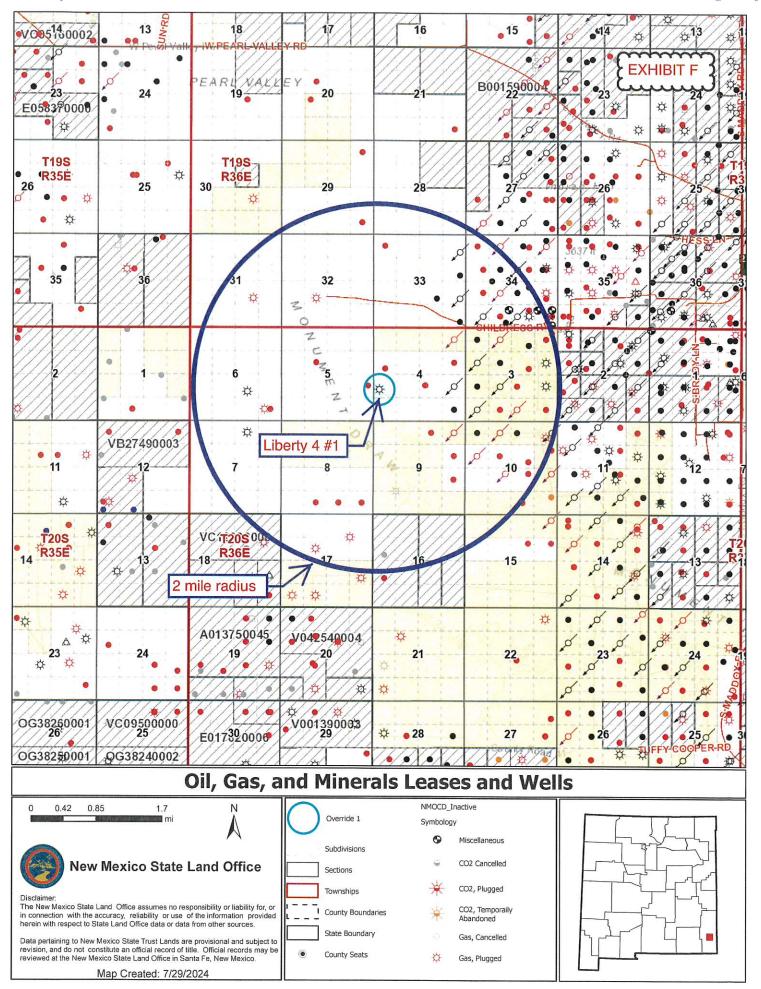
API	OPERATOR	WELL	STATUS	UNIT- SECTION- T20S-R36E	TVD	ZONE @ TD	FEET FROM LIBERTY 4 #1
3002535847	Read & Stevens	Klein 5 001	P&A	I-5	10933	Devonian	695
3002536164	Read & Stevens	Liberty 4 003	P&A	E-4	7200	Bone Spring	1260
3002535947	Read & Stevens	Liberty 4 002	P&A	J-4	9400	Wolfcamp	2644



Received by OCD: 12/13/2024 1:07:02 PM 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





SPUD TVD ZON		ZON	ZONE @ TD	WELL	HOLE O.D.	CASING O.D.	SET @	CEMENT	T0C	HOW TOC DETERMINED
	3/1/02	10933	Devonian	P&A	17.5	13.375	408	375 sx	GL	Circ 90 sx
					7	8.625	4598	1000 sx	GL	Circ 60 sx
					7.875	5.5	10913	875 sx	3600	Calc
	7/4/02	9400	Wolfcamp	P&A	17.5	13.375	401	375 sx	GL	Circ.
					11	8.625	3500	650 sx	GL	Circ.
					7.875	5.5	9400	975 sx	GL	Circ.
	2/27/03	7200	Bone Spring	P&A	17.5	13.375	445	375 sx	GL	Circ.
					11	8.625	3110	800 sx	GL	Circ.
					7.875	5.5	7200	850 sx	2994	CBL

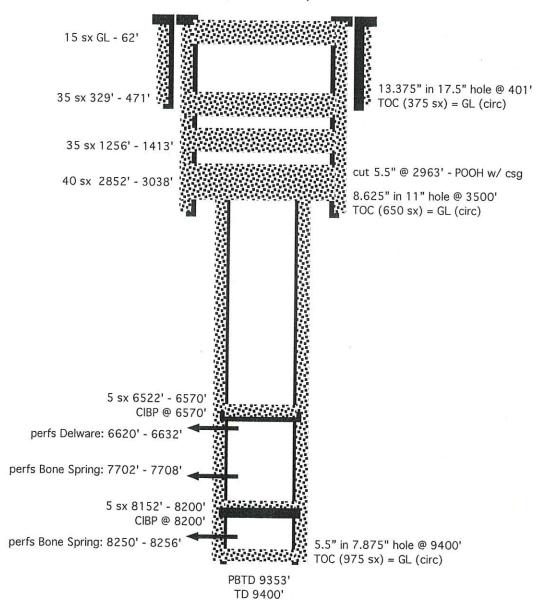


6/19/2013 Wellbore Diagram r263 KLEIN 5 No. 001 30-025-35847-00-00 Company Name: READ & STEVENS INC Location: Sec: 5 T: 20S R: 36E Spot: String Information Length Diameter Weight Lat: 32.6005279393325 Long: -103.368961229494 Bottom String (ft sub) (inches) (lb/ft) Property Name: KLEIN 5 HOL1 17.5 408 County Name: Lea SURF 408 13.375 408 54.5 HOL2 4598 11 8.625 4598 4598 11 HOL3 7.875 perf @ 458' Cement from 408 ft. to surface PROD 10913 5.5 10913 circ. down 5.5" Surface: 13.375 in. @ 408 ft. T1 10518 2.875 Hole: 17.5 in. @ 408 ft. GL - 458' CIRC perf @ 1700' sqz 25 sx @ 1567' - 1700' Cement Information вос TOC String Class Sacks (ft sub) (ft sub) 25 sx @ UK 1000 11 4598 3354' - 3552' 875 PROD 10913 0 UK UK 375 Cement from 4598 ft. to surface SURF 408 Intermediate: 8.625 in. @ 4598 ft. Hole: 11 in. @ 4598 ft. 25 sx @ 4468' - 4650' Perforation Information Top Bottom No Shts 25 sx @ 5852' Shts/Ft (ft sub) (ft sub) 10656 10680 9723 25 sx @ 8966' 8936 - 8909 9408 DUTTOOL Formation Information Depth CIBP @ 9607' + 25 sx Cement from 10913 ft. to surface Tubing: 2.875 in. @ 10518 ft. Production: 5.5 in. @ 10913 ft. CIBP @ 10.600 + 35 CMT Hole: 7.875 in. @ 10933 ft. TD: 0 TVD: 10933 PBTD: 2ND Stage TOC 3600 5/2009 CALC.? 1 ST STAGE

EXHIBIT G

Liberty 4 #2 30-025-35947 J-4-20s-36e spud 7-4-02 P&A 8-5-04

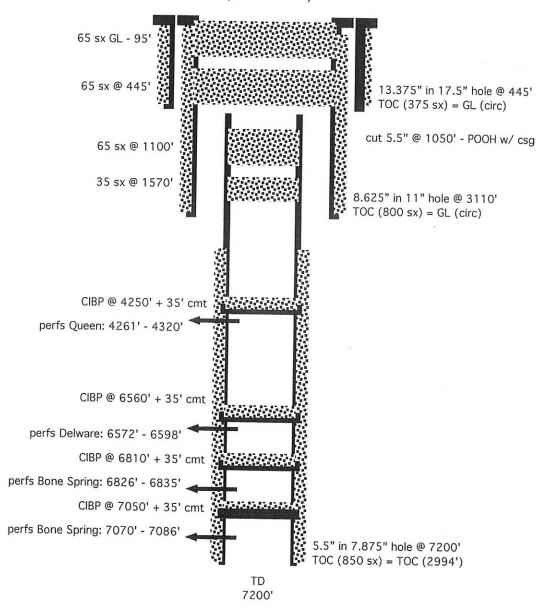
(not to scale)





Liberty 4 #3 30-025-36164 E-4-20s-36e spud 2-27-03 P&A 7-3-03

(not to scale)



API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002534310	1	198	36E	N	Abo	54512	18351	2288	31939	627	2558
3002534778	11	195	36E	Р	Abo	84095	27214	5045	52487	530	2468
3002534191	12	195	36E	С	Abo	57619	19539	2329	33819	597	2738
3002534470	12	195	36E	D	Abo	56387	20462	1469	35220	689	26
3002503163	15	195	35E	0	Artesia	311153			193100	564	747
3002503189	22	198	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	198	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	K	Artesia	242263			152100	71	350
3002503241	29	198	35E	K	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	I	Artesia	221538			137500	225	971
3002504023	20	195	36E	K	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	20S	35E	Е	Artesia	218754			135000	4	1700
3002503327	4	20S	35E	L	Artesia	149470			94150	164	1246
3002503361	25	20S	35E	Α	Artesia	174035			106839	367	2726
3002504130	1	20S	36E	Α	Artesia	13609			4934	615	3330
3002504152	1	20S	36E	N	Artesia	33835			17060	812	3691
3002504350	26	20S	36E	Α	Artesia	79120			47790	1445	738
3002504350	26	20S	36E	Α	Artesia	44140			26230	1461	93

API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002504374	32	205	36E	0	Artesia	177450					
3002503156	6	195	35E	L	Bone Spring	25800			14100	830	1120
3002503156	6	198	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	195	36E	Р	Grayburg		2394	601	4577	463	312
3002504063	25	198	36E	Р	Grayburg		2777	237	4799	592	352
3002504063	25	195	36E	Р	Grayburg		3035	482	5326	1065	352
3002504254	13	20S	36E	Μ	Grayburg		4368	520	7532	601	1375
3002504254	13	20S	36E	Δ	Grayburg	17249	4848	904	9595	1262	205
3002504053	25	198	36E	N	Grayburg San Andres					5531	
3002504063	25	198	36E	Р	Grayburg San Andres		-			352	
3002504063	25	198	36E	Р	Grayburg San Andres				97	312	
3002504063	25	198	36E	Р	Grayburg San Andres					352	
3002521886	35	195	36E	G	Grayburg San Andres	_				660	
3002512481	36	198	36E	F	Grayburg San Andres					430	

API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002504139	1	20S	36E	D	Grayburg San Andres				- CHICHAC	Dicarbonate	Sunate
3002504151	1	205	36E	М	Grayburg San Andres					2250	
3002504151	1	205	36E	M	Grayburg San Andres	1 1.023381				530	
3002504165	2	205	36E	А	Grayburg San Andres	10905	2829	740	2350	1220	3700
3002504165	2	205	36E	Α	Grayburg San Andres	40497	12952	1680	20800	1390	3100
3002504165	2	205	36E	Α	Grayburg San Andres	71407	24177	2320	29800	810	3500
3002504165	2	205	36E	Α	Grayburg San Andres	27045	7815	1670	14500	1370	1020
3002504168	2	20S	36E	G	Grayburg San Andres					5710	
3002504224	11	20S	36E	F	Grayburg San Andres		1132	1	0	959	
3002504224	11	20S	36E	F	Grayburg San Andres		1089	0	0	922	
3002504235	12	20S	36E	С	Grayburg San Andres					55	
3002504259	13	20S	36E	Ì	Grayburg San Andres					177	
3002504259	13	20S	36E	I	Grayburg San Andres					125	

ADI										1	
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	205	36E	K	Grayburg San Andres					1618	
3002504272	14	20S	36E	К	Grayburg San Andres					1746	
30025,04266	14	20S	36E	Р	Grayburg San Andres		1113	0	0	932	
3002504297	23	20S	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	20S	36E	О	Grayburg San Andres		914	1	0	996	
3002504299	23	205	36E	0	Grayburg San Andres		881	0	0	970	
3002503229	28	195	35E	0	Penrose		69960	15974	149248	352	711
3002504350	26	205	36E	А	Permo- Penn.					739	, 11
3002503247	29	195	35E	С	Queen		65212	19975	151575	141	940
002503247	29	195	35E	С	Queen		78188	8394	154968	65	1432
002503248	29	195	35E	J	Queen		64824	15418	149504	35	257

API	Section	Township	Range	UL	Formation	TDS	Sodium	Calcium	Chloride	Bicarbonate	Sulfate
3002503284	33	198	35E	С	Queen		59508	15080	138040	38	418
3002503307	35	195	35E	G	San Andres	66415			39600	313	993
3002503307	35	198	35E	G	San Andres	73409			43880	450	865
3002504099	33	198	36E	Н	San Andres		22745	2211	38119	405	4317
3002512476	36	198	36E	J	San Andres			3454	16406	611	
3002512476	36	198	36E	J	San Andres		4687	3454	16406	611	
3002512476	36	195	36E	J	San Andres	26344					
3002504326	25	20S	36E	Α	Yates		32533	107798	247872	1091	30984



Water Column/Average Depth to Water

(A CLW#### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)



(quarters are smallest to largest)

(meters)

(In feet)

POD Number Code	Sub basin	County	Q64	Q16	Q4	Sec	Tws	Range	X	Y	Мар	Distance	Well Depth		Water Column
L 15456 POD1	L	LE	SW	SW	SW	33	19S	36E	653151.0	3609259.5	•	1152	62	33	29
L 10248	L	LE		SW	NW	09	20S	36E	653376.0	3606958.0 *	•	1159	65		
L 01312	L	LE	SW	SW	SW	33	19S	36E	653237.0	3609276.0 *		1164	67	40	27
L 10245	L	LE	SW	SW	SW	33	19S	36E	653237.0	3609276.0 *		1164	75		
L 14757 POD1	L	LE	SE	SW	NW	09	20S	36E	653553.3	3606832.1		1313	62	34	28
L 14758 POD1	L	LE	NW	SW	NW	05	20S	36E	651908.7	3608655.2		1455	112	30	82
L 14752 POD1	L	LE	SW	NW	SW	03	20S	36E	654781.9	3607997.0	•	1527	72	36	36
L 10247	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 *		1619	60		
L 02707	L	LE	NE	NE	NE	09	20S	36E	654744.1	3607405.0		1644	85	38	47
L 01522 POD1	L	LE	NW	NW	NW	80	20S	36E	651658.0	3607434.0 *	0	1738	50	30	20
L 08083	L	LE			SW	32	19S	36E	651926.0	3609553.0 *		1963	50	35	15
<u>L 00512 S</u>	L	LE	SW	NE	SW	32	19S	36E	652020.0	3609660.0 *	•	1982	65	30	35
L 00512 POD3	L	LE	NE	NE	SW	32	19S	36E	652097.0	3609914.9	0	2144	60	30	30
L 15039 POD1	L	LE	NW	NE	SW	10	20S	36E	655302.6	3606705.1	•	2481	71	38	33
L 10249	L	LE		SW	NE	10	20S	36E	655790.0	3606997.0 *	0	2765	60		
L 02969	L	LE	SW	SW	SW	28	19S	36E	653209.0	3610891.0 *	•	2779	60	34	26
L 00011	L	LE	SW	NW	NW	32	19S	36E	651602.0	3610461.0 *	0	2874	42		
<u>L 03114</u>	L	LE				34	19S	36E	655553.0	3610005.0 *	•	2974	135		
L 10804	L	LE		SE	SE	34	19S	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

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Basin/County Search:

County: LE

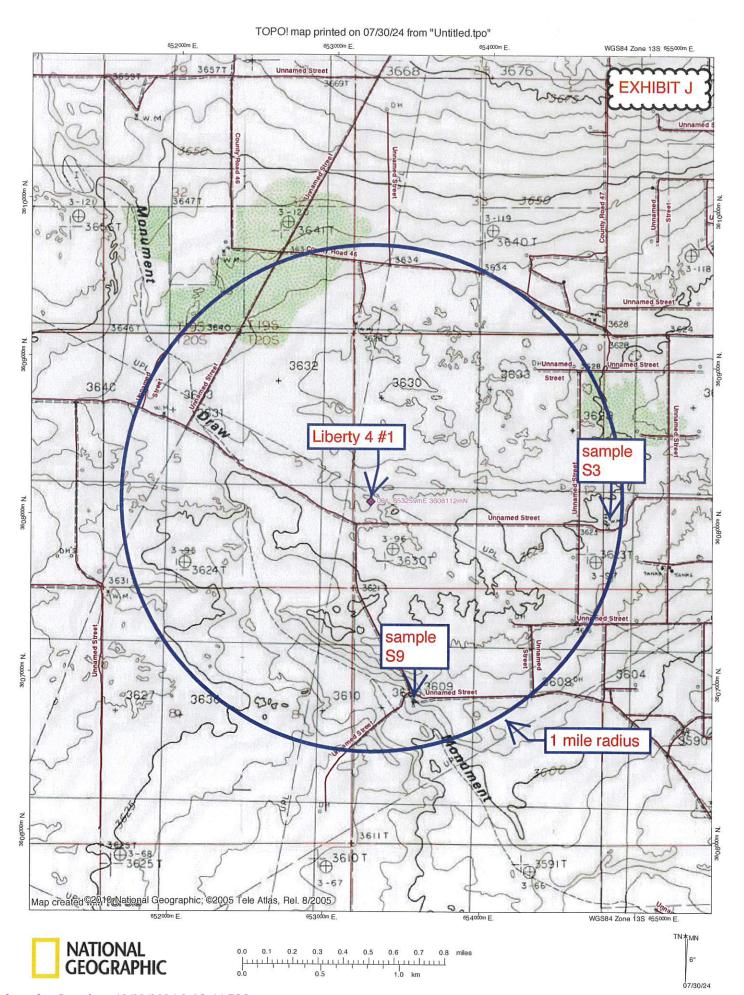
UTM Filters (in meters):

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.

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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

See page two for job notes and contact information.

Page 1 of 14



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

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

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

Laboratory Job ID: 885-9520-1

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QC Association Summary	 10
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Definitions/Glossary

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

Job ID: 885-9520-1

Glossary Abbreviation

	these seminary assaughternations may or may not be present in this report.						
п	Listed under the "D" column to designate that the result is reported on a dry weight basis						
%R	Percent Recovery						
OF							

Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample DL, RA, RE, IN

These commonly used abbreviations may or may not be present in this report

Decision Level Concentration (Radiochemistry) DLC

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)

Reporting Limit or Requested Limit (Radiochemistry) RL

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



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.

Eurofins Albuquerque

Client Sample Results

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



Job ID: 885-9520-1

Client Sample ID: S3

Date Collected: 08/08/24 07:00 Date Received: 08/08/24 15:55 Lab Sample ID: 885-9520-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
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

Client Sample Results

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



Job ID: 885-9520-1

Client Sample ID: S9

Date Collected: 08/08/24 07:35 Date Received: 08/08/24 15:55 Lab Sample ID: 885-9520-2

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	370		10	mg/L			08/29/24 09:56	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	1

QC Sample Results

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





Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-11393/7

Matrix: Water

Analysis Batch: 11393

MB MB

Analyte

Result Qualifier ND

RL 0.50 Unit Prepared mg/L

Client Sample ID: Method Blank

Analyzed Dil Fac

Prep Type: Total/NA

08/29/24 08:54

Prep Type: Total/NA

Lab Sample ID: MB 885-11393/85

Matrix: Water

Chloride

Analysis Batch: 11393

MB MB

Analyte Chloride

Result Qualifier ND

RL 0.50

Unit D Prepared mg/L

Unit

mg/L

Unit

mg/L

Analyzed 08/30/24 01:33

Client Sample ID: Method Blank

Dil Fac

Lab Sample ID: LCS 885-11393/8

Matrix: Water

Analysis Batch: 11393

Analyte

Spike Added 5.00

Spike

5.00

Spike

Added

0.500

Added

LCS LCS Result Qualifier 4.89

LCS LCS

MRL MRL

0.509

Result Qualifier

4.80

Result Qualifier

Unit D %Rec mg/L

> D %Rec

%Rec Limits 90 - 110

Client Sample ID: Lab Control Sample

%Rec

Limits

90 - 110

%Rec

Limits

50 - 150

Client Sample ID: Method Blank

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Lab Sample ID: LCS 885-11393/86

Matrix: Water

Chloride

Analysis Batch: 11393

Analyte

Chloride

Lab Sample ID: MRL 885-11393/6 Matrix: Water

Analysis Batch: 11393

Method: 1664B - HEM and SGT-HEM

Lab Sample ID: MB 885-10354/1

Matrix: Water

Analyte

Chloride

Analysis Batch: 10354

MB MB

Analyte Result Qualifier HEM (Oil & Grease) ND

RL 5.0

Unit mg/L

Prepared

%Rec

102

Analyzed 08/15/24 12:27

Dil Fac

Lab Sample ID: LCS 885-10354/2

Matrix: Water

Analysis Batch: 10354

Analyte HEM (Oil & Grease)

Spike Added 40.0

LCS LCS Result Qualifier 35.8

Unit mg/L %Rec

%Rec Limits 78 - 114

Client Sample ID: Lab Control Sample

Eurofins Albuquerque

Dil Fac

20

Dil Fac

QC Sample Results

Spike

Added

Spike

Added

Spike

Added

Spike

Added

1000

40.0

RL

50

40.0

MB MB

ND

MB MB

ND

Sample Sample

1500

Result Qualifier

Result Qualifier

Result Qualifier

40.0

RL

5.0

LCSD LCSD

37.2

37.2

LCSD LCSD

37.2

LCS LCS

DU DU

1540

1000

Result Qualifier

Result Qualifier

Unit

mg/L

Unit

mg/L

mg/L

D

Prepared

%Rec

100

Result Qualifier

Unit

mg/L

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



Job ID: 885-9520-1

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

Lab Sample ID: LCSD 885-10354/3

Matrix: Water

Analysis Batch: 10354 Analyte

HEM (Oil & Grease) Lab Sample ID: MB 885-9984/1

Matrix: Water Analysis Batch: 9984

Analyte

HEM (Oil & Grease)

Lab Sample ID: LCS 885-9984/2 Matrix: Water

Analysis Batch: 9984

Analyte HEM (Oil & Grease)

Lab Sample ID: LCSD 885-9984/3

Matrix: Water Analysis Batch: 9984

Analyte

HEM (Oil & Grease)

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-10020/1

Matrix: Water

Analysis Batch: 10020

Total Dissolved Solids

Analyte

Lab Sample ID: LCS 885-10020/2 Matrix: Water

Analysis Batch: 10020

Analyte Total Dissolved Solids

Lab Sample ID: 885-9520-2 DU Matrix: Water Analysis Batch: 10020

Analyte Total Dissolved Solids Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

%Rec **RPD** Unit %Rec Limits **RPD** Limit mg/L 93 78 - 114 4 20

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyzed

08/09/24 09:50

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

LCS LCS %Rec Result Qualifier D %Rec Limits mg/L 93 78 - 114

Prepared

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

%Rec RPD Unit D %Rec Limits RPD Limit

Client Sample ID: Method Blank

78 - 114

Prep Type: Total/NA

Analyzed

08/09/24 15:06

Client Sample ID: Lab Control Sample

Limits

80 - 120

Prep Type: Total/NA %Rec

Client Sample ID: S9

Prep Type: Total/NA

RPD Result Qualifier Unit D **RPD** Limit mg/L 0.4 10

QC Association Summary

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



Job ID: 885-9520-1

HPLC/IC

Analysis Batch: 11393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
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 885-9520-1	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
000-9520-1	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	Prep Type	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	\$9	Total/NA	Water	2540C	

Analysis Batch: 10354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9520-2	S9	Total/NA	Water	1664B	
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	1664B	

Lab Chronicle

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



Job ID: 885-9520-1

Client Sample ID: S3

Date Collected: 08/08/24 07:00 Date Received: 08/08/24 15:55 Lab Sample ID: 885-9520-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	300.0		20	11393	KB	EETALB	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 Sample ID: S9

Date Collected: 08/08/24 07:35 Date Received: 08/08/24 15:55 Lab Sample ID: 885-9520-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	300.0		20	11393		EETALB	08/29/24 09:56
Total/NA	Analysis	1664B		1	10354	KH	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

Accreditation/Certification Summary

Client: Permits West Inc Project/Site: 3R Liberty Job ID: 885-9520-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.



Authority	Program		Identification Number	Expiration Date
New Mexico	State		NM9425, NM0901	02-26-25
	are included in this report, does not offer certification.	but the laboratory is n	ot certified by the governing authori	ity. This list may include analytes
Analysis Method	Prep Method	Matrix	Analyte	
1664B		Water	HEM (Oil & Grease)	
		Water	Total Dissolved Solids	
2540C				
2540C 300.0		Water	Chloride	

HALL ENVIRONMENTAL ANALYSIS L www.hallenvironmenta 4901 Hawkins NE - Albuquerque, Tel. 505-345-3975 Fax 505-34, Analysis Regulast	TPH:8015D(GRO / DRO / MRO) 8081 Pesticides/8082 PCB's EDB (Method 504.1) PAHs by 8310 or 8270SIMS RCRA 8 Metals CI, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄ 8250 (VOA) 8270 (Semi-VOA) Total Coliform (Present/Absent) Total Coliform (Present/Absent)		Any sub-contracted data will be clearly notated on the analytical report.
Turn-Around Time: Standard Rush Project Name: 3R Liberty Project #:	Project Manager: Project Manager:		Time: Relinquished by: Received by: Via: Date Time Remarks: Time: Relinquished by: Received by: Via: Date Time Remarks: Time: Relinquished by: Received by: Nia: Date Time Received by: Nia: Date Time The cessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
Chain-of-Custody Record Client: Permits West Inc. Mailing Address: 37 Vereno La SF NM 87568 Phone #: 505 466 8126	OA/QC Package: OA/QC Package: Candard Accreditation: Date Time	8.8 7:35 Ng S 9	Date: Time: Relinquished by: Pate: Time: Relinquished by:

Login Sample Receipt Checklist



List Source: Eurofins Albuquerque

Client: Permits West Inc

Job Number: 885-9520-1

Login Number: 9520

List Number: 1

MS/MSDs

sampling.

<6mm (1/4").

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			

True

True

N/A

There is sufficient vol. for all requested analyses, incl. any requested

Containers requiring zero headspace have no headspace or bubble is

TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of





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 Walk

Coy 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.

Coy Walk

Geologist

Permits West Inc.

December 4, 2024



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 ~north-south (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_{ϕ} 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.



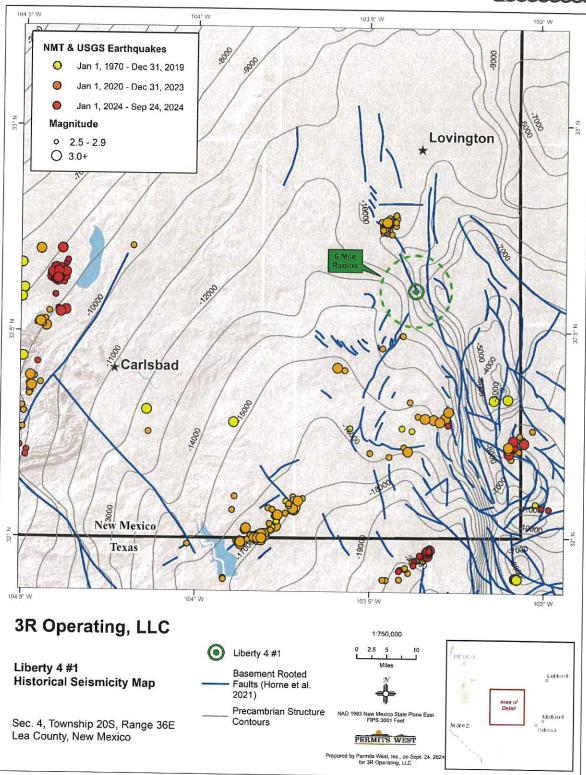


Figure 1. Structural contour map of the Precambrian basement in feet below sea level. Blue lines represent the locations of Precambrian basement-rooted faults (Horne et al., 2021). Liberty 4 # 1 well lies ~ 0.4 miles southwest of the closest deeply penetrating fault and 7.8 miles north from the closest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



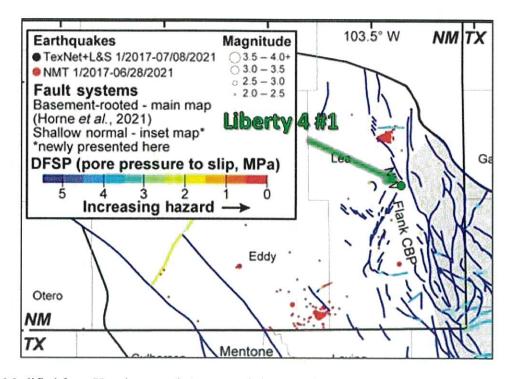


Figure 2. Modified from Hennings et. al. (2021) and shows an increased pore pressure to slip on the nearby faults which decreases the hazard potential. The proposed injection zone is shallower in the Delaware Mountain Group (Brushy Canyon Formation) and therefore removes any major concern of inducing 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, Bureau of Economic Geology, Report of Investigations No. 201, 63 p.
- Frenzel, H. N., Bloomer, R. R., Cline, R. B., Cys, J. M., Galley, J. E., Gibson, W. R., Hills, J. M., King, W. E., Seager, W. R., Kottlowski, F. E., Thompson, S., III, Luff, G. C., Pearson, B. T., and Van Siclen, D. C., 1988, The Permian Basin region, in Sloss, L. L., ed., Sedimentary cover—North American Craton, U.S.: Boulder, Colorado, Geological Society of America, The Geology of North America, v. D-2, p. 261–306.
- Horne, E. A., Hennings, P. H., and Zahm, C. K., 2021, Basement-rooted faults of the Delaware Basin and Central Basin Platform, Permian Basin, West Texas and southeastern New Mexico, in Callahan, O. A., and Eichhubl, P., eds., The geologic basement of Texas: a volume in honor of Peter T. Flawn: The University of Texas, Bureau of Economic Geology Report of Investigations No. 286, doi:10.23867/RI0286C6.
- 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.

PAGE 1

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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.



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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 ≈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 $(\approx 3,500')$, and Queen (4,094'). Bone Spring (6,659'), Wolfcamp (9,305'), Strawn (9,473'), Atoka (9,646'), Morrow $(\approx 9,800')$, 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.



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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 ≈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 $\approx 1,000$ 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



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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'



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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.



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

Action 411834

CONDITIONS

Operator:	OGRID:
3R Operating, LLC	331569
20405 State Highway 249	Action Number:
Houston, TX 77070	411834
	Action Type:
	[C-108] Fluid Injection Well (C-108)

CONDITIONS

Created By	Condition	Condition Date
mgebremichael	None	12/29/2024