

RAILROAD COMMISSION OF TEXAS OIL AND GAS DIVISION

MINOR PERMIT TO TREAT DOMESTIC WASTEWATER

Permit No. MPG-0467
Permit Effective January 12, 2021

LIME ROCK RESOURCES IV-A, L.P.
1111 BAGBY STREET SUITE 4600
HOUSTON, TX 77002

Based on information contained in the original application received January 07, 2021, and additional information received to date, you are hereby authorized to treat, recycle, and reuse domestic wastewater as described herein:

Lease Name: UL FI
Well Number(s): 4H
Drilling Permit Number(s): 860865
Latitude/Longitude: 32.15212635°, -102.6070855°
Andrews County, Texas
RRC District 08, 08 Midland

This minor permit grants authority to store, handle, treat, recycle, and reuse certain non-hazardous domestic wastewater in accordance with 16 Texas Administrative Code (TAC) §3.8 (Statewide Rule 8) and the following conditions:

1. The effective date of this permit is **January 12, 2021**, and the authority granted by this permit expires on **March 11, 2021**.
2. Technical Permitting in Austin and the appropriate District Office must be notified via email when the wastewater treatment is initiated and once the treatment is completed.
3. This permit authorizes the on-site treatment, management and exclusive use of domestic wastewater and mobile drinking water treatment system waste streams, generated at oil and gas drill sites, for use used down-hole and/or for dust suppression and controlled irrigation purposes as specified in the "*Sampling Criteria for Waste Streams*" document, which is attached as **Permit Appendix A**. Treatment and reuse of the waste streams is granted for use at the above referenced location(s).
4. This permit does not authorize the discharge of any domestic wastewater or waste streams generated from mobile drinking water treatment systems into any watercourses or drainage ways, including any drainage ditch, dry creek, flowing creek, river, or any other body of surface water.
5. Residual solids accumulated during the treatment process must be removed and transported by a Texas Commission on Environmental Quality (TCEQ) registered sludge transporter to a TCEQ permitted disposal facility approved to receive and manage domestic sewage **prior to treatment system relocation**.

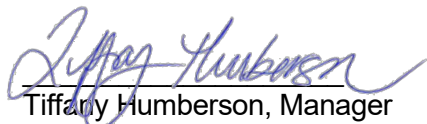
6. Unless otherwise required by conditions of this permit, operation of the treatment system(s) and reuse of the treated waste streams must be in accordance with the information represented in the permit application and information contained in the "*Application For Beneficial Recycling Of Treated Domestic Wastewater And Mobile Drinking Water Treatment System Wastewater At Drill Sites*" (Domestic Wastewater Application Worksheet), which is attached as **Permit Appendix B**.
7. A waiver from the surface owner or proof that notice has been provided to the surface owner at least ten (10) days prior to reuse is required for any recycling of domestic wastewater other than for down-hole purposes. The surface owner waiver must be submitted to Technical Permitting in Austin for approval.
8. If treated domestic wastewater and mobile drinking water treatment system wastewater are commingled, the more stringent requirements will apply, unless otherwise indicated.
9. If treated domestic wastewater or wastewater from mobile drinking water treatment systems is stored for greater than seven days, a chlorine residual between 2 and 3 parts per million (ppm) must be maintained.
10. For treated domestic wastewater, no more than 5,000 gallons per day of pre-treated domestic wastewater may be received and processed. The domestic wastewater and mobile drinking water treatment system wastewater flow volume must be metered separately and recorded daily.
11. The treated domestic wastewater and drinking water treatment system wastewater must be analyzed as indicated for the Parameters listed in the "*Sampling Criteria for Waste Streams*" document provided in **Permit Appendix A**. All samples must be representative of the respective waste streams. All sample acquisition, preservation, and analysis must be performed according to procedures specified in Title 40 of the Code of Federal Regulations (40 CFR) Part 136. The procedures used to preserve the samples and analytical methods used must be reported.
12. If treated domestic wastewater or wastewater from mobile drinking water treatment systems are active at a location at least one sample must be collected and analyzed in accordance with Permit Condition 11.
13. All chemical laboratory analyses required to be performed in accordance with this permit must be performed using appropriate Environmental Protection Agency (EPA) methods or Standard Methods by an independent National Environmental Laboratory Accreditation Program (NELAP) certified laboratory neither owned nor operated by the permittee. Any sample collected for laboratory analysis must be collected and preserved in a manner appropriate for that analytical method as specified by 40 CFR, Part 136. All geotechnical testing is to be performed utilizing tests standardized by the American Society for Testing and Materials (ASTM) and certified by a Texas registered Professional Engineer.
14. Safety Data Sheets (SDS) must be submitted to Technical Permitting in Austin for any chemical or accelerator proposed to be used in the treatment of waste at the facility that was not identified in the initial application. Storage of the chemicals must be in accordance with the manufacturers' specifications and must be maintained in a leak free condition.
15. Prior to recycling and reuse, the treated domestic wastewater must be stored in a 500-bbl steel tank. The storage tank must be surrounded by containment berms that meet the requirements specified in Permit Condition 16.
16. All containment berms that surround the storage tanks and/or the pit must be compacted and/or constructed of material that meets 95% Standard Proctor (ASTM D698) or 90-92% Modified Proctor (ASTM D1557) density. Each berm must maintain a slope no steeper

than a one-to-three (vertical-to-horizontal) ratio. These structures must be used to divert non-contact storm water and contain and isolate treated wastewater.

17. Upon completion of the project or expiration of the minor permit, a report detailing all activities for the duration of the permit or project must be submitted and include the following:
 - a. The total number of days domestic wastewater and/or mobile drinking water treatment system wastewater is reused or applied after treatment.
 - b. The total volume of each type of waste received for treatment.
 - c. The total volume of treated effluent for each type of reuse method (down-hole, controlled irrigation, dust suppression).
 - d. A table of the water treatment analytical results, sampling dates, corresponding analytical reports, and chain of custody for the required parameters in the "*Sample Criteria for Waste Streams*" document provided in **Permit Appendix A**.
 - e. The reports must be submitted to Technical Permitting in Austin no later than 60 days after project completion.
18. All reports must be certified as follows: "I declare under penalties prescribed in Section 91.143, Natural Resources Code, that I am authorized to make this report, that this report was prepared by me or under my direct supervision and direction, and that data and facts stated therein are true and complete to the best of my knowledge."
19. Water treatment vessels and equipment must be maintained in good operating condition for the duration of the permit.
20. Any changes affecting this permit must be reported to Technical Permitting in Austin to determine whether a permit amendment is necessary.
21. Failure to comply with any condition of this minor permit may be cause for modification, suspension, termination, or cancellation of this minor permit if Technical Permitting determines that the permittee is in violation RRC rules.

This authorization is granted subject to review and cancellation should investigation show that such authorization is being abused.

APPROVED AND ISSUED ON **January 11, 2021**.



Tiffany Humberson, Manager
Environmental Permits & Support
Technical Permitting

Attachments: Permit Appendices A and B

CC: RRC – District 08 / 08 Midland

PERMIT APPENDIX A

Sampling Criteria for Waste Streams

Permit No. MPGW-0467

SAMPLING CRITERIA FOR WASTE STREAMS

The RRC has jurisdiction over the on-site treatment and management of domestic wastewater generated at oil and gas drill sites and waste streams generated from mobile drinking water treatment systems located at and resulting from use exclusively at well sites. The term “domestic wastewater” means wastewater that originates primarily from kitchen, bathroom, and laundry sources, including wastes from food preparation, dishwashing, garbage grinding, toilets, baths, showers, and sinks of a residential dwelling. The term “mobile drinking water treatment system wastewater” means wastewater generated from the treatment of groundwater for drinking water purposes, including reverse osmosis reject water. The following analyses are required for each specific end use of the treated wastewater:

TOTAL ESTIMATED VOLUME

The estimated daily volume of the treated and recycled waste stream from all sources is presented below. The total volume of the influent source of domestic wastewater must be less than 5,000 gallons per day.

Waste Stream	Reuse Method	Estimated Volume (GPD)
Treated Domestic Wastewater (< 5,000 GPD)	Down-hole	4000
	Dust Suppression	
	Controlled Irrigation	
Mobile Drinking Water Treatment System Wastewater	Down-hole	
	Dust Suppression	
	Controlled Irrigation	

MOBILE DRINKING WATER TREATMENT SYSTEM WASTEWATER

Mobile drinking water treatment system wastewater can be recycled and reused for either down-hole purposes or dust suppression and/or controlled irrigation purposes. No permit or testing criteria is required for reuse of mobile drinking water treatment system wastewater for down-hole recycling purposes.

- **Dust suppression and/or controlled irrigation purposes:** Quality assurance sampling and analyses of the treated effluent utilized for dust suppression and/or controlled irrigation purposes must be conducted once per site location for the parameters below:

<u>PARAMETER</u>	<u>LIMITATION</u>
Total Dissolved Solids (TDS) <i>Standard Method 2540 or equivalent</i>	Report mg/l
pH <i>EPA Method 9045 or equivalent</i>	Report SU
Electrical Conductivity (EC)	Report mmhos/cm

Dust suppression and controlled irrigation must cease if vegetation shows signs of stress or damage

TREATED DOMESTIC WASTEWATER

Treated domestic wastewater can be recycled and reused for either down-hole purposes or dust suppression and/or controlled irrigation purposes; however, a waiver from the surface owner or proof that notice has been provided to the surface owner at least ten (10) days prior to reuse is required for any recycling of domestic wastewater other than for down-hole purposes. Each specific end use requires different testing requirements as described below.

- **Down-hole purposes:** Quality assurance sampling and analyses of the treated effluent utilized for down-hole purposes must be conducted every fourteen (14) days for the parameters below. If the mobile unit is on location less than 14 days, at least one sample must be collected and analyzed.

<u>PARAMETER</u>	<u>LIMITATION</u>
Biological Oxygen Demand (BOD ₅) / (CBOD ₅) *	≤ 80 milligrams per liter (mg/l)
Escherichia coli (E-Coli)	≤ 800 CFU/100 milliliters (ml)
Chlorine Residual (> 7-day storage) <i>EPA Method 334.0 or equivalent</i>	2 - 3 mg/l
pH <i>EPA Method 9045C or equivalent field method</i>	6.0 - 9.0 Standard Units (SU)

- **Dust suppression and/or controlled irrigation purposes:** Quality assurance sampling and analyses of the treated effluent utilized for dust suppression and/or controlled irrigation purposes must be conducted every seven (7) days for the parameters below. If the mobile unit is on location less than 7 days, at least one sample must be collected and analyzed.

<u>PARAMETER</u>	<u>LIMITATION</u>
Biological Oxygen Demand (BOD ₅) / (CBOD ₅) *	≤ 65 mg/l
E-Coli for "Dust Suppression"	≤ 200 CFU/100 ml
E-Coli for "Controlled Irrigation"	≤ 75 CFU/100 ml
Oil and Grease <i>EPA Method 1664</i>	≤ 30 mg/l
Total Chlorides <i>or site-specific background for surficial aquifer</i>	≤ 1,500 mg/l
Chlorine Residual (> 7-day storage) <i>EPA Method 334.0 or equivalent</i>	2 - 3 mg/l
pH <i>EPA Method 9045C or equivalent field method</i>	6.0 - 9.0 SU

* Carbonaceous Biological/Biochemical Oxygen Demand (CBOD₅) may be substituted for BOD₅

PERMIT APPENDIX B

Domestic Wastewater Application Worksheet

DOMESTIC WASTEWATER APPLICATION WORKSHEET

OPERATOR NAME (as shown on P-5, Organization Report) Lime Rock Resources IV-A, L.P.			OPERATOR P-5 NUMBER 500794	
OPERATOR ADDRESS (including city, state, and zip code) 1111 Bagby Street, Ste 4600 Houston, TX 77002-0000			TYPE OF FACILITY New Drill	
RRC DISTRICT NO. 08	COUNTY Andrews	FIELD NAME Emma (Devonian)	LEASE NAME AND NUMBER UL FI	
WELL NUMBER AND DRILLING PERMIT NUMBER 4H DP 860865		LATITUDE/LONGITUDE (Decimal Degrees) X = 697674.4 Y = 6763145.9 32.15212635, -102.6070855		
NAME OF CONTRACTOR PROVIDING THE TREATMENT SERVICES Oil Patch Group				
DESCRIPTION OF THE WASTE STREAM AND ESTIMATED VOLUME OF WASTE RECEIVED (gallons per day, GPD) <input checked="" type="checkbox"/> Domestic Wastewater (DW) Volume of DW (GPD): 4,000 <input type="checkbox"/> Mobile Drinking Water Treatment System Wastewater (MDW) Volume of MDW (GPD):				
STORAGE METHOD OF WASTEWATER BEFORE RECYCLING <input type="checkbox"/> Lined Pit <input checked="" type="checkbox"/> Above-Ground Tank Provide details for pits (liner material, liner thickness, manufacturers' specifications, pit capacity, berms, etc.) and/or tanks (tank material, tank volume, tank pad, berms, etc.). Liner permeability must be less than or equal to 1×10^{-7} cm/s. 500 bbl frac tank				
RE-USE METHOD OF WASTEWATER AFTER TREATMENT <input checked="" type="checkbox"/> Down-hole Application <input type="checkbox"/> Controlled Irrigation <input type="checkbox"/> Dust Suppressant			ESTIMATED TREATED EFFLUENT VOLUME (GPD) Down-hole: 4500 4000 Surface Application:	
PRECAUTIONS TAKEN TO MINIMIZE EXPOSURE TO THE WASTE Fully enclosed waste water system				
ADDITIONAL OR COMPLIMENTARY TECHNICAL INFORMATION (include estimated time frame and dates necessary for use of the permit) 1/12/2021-3/11/2021 - 60 days				
PROOF OF LANDOWNER NOTICE (required for wastewater re-use as controlled irrigation or dust suppressant) <input type="checkbox"/> Attached <input checked="" type="checkbox"/> Not Attached				
"I certify that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the data and facts stated herein are true, correct, and complete to the best of my knowledge."				
Signature: <u>Carla Martin</u>			Date: <u>1/7/21</u>	
Name (print or type): <u>Carla Martin/Regulatory Tech</u>			Email: <u>cmartin@limerockresources.com</u>	

* Attachments may be used to explain or clarify any additional information