STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

CONSTRUCTION PERMIT

The Missouri Department of Natural Resources hereby issues a permit to:

The Honorable Carol Holloway
Mayor of the City of Laredo
213 E. Main Street, P.O. Box 61
Laredo, MO 64652

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

As the Department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

A representative of the Department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the Department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

March 19, 2021
Effective Date

Edward B. Galbraith

Edward B. Galbraith, Director, Division of Environmental Quality

March 18, 2023
Expiration Date

Chris Wieberg

Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The City of Laredo Wastewater Treatment Facility (WWTF) is an existing three-cell facultative lagoon treatment system located in Laredo, Grundy County, Missouri. This project will include demolition and replacement of an existing influent lift station located south of the WWTF site, replacement of existing canal gate valves and baffles on the discharging end of the lagoon cells, and installation of a new tablet-feed chlorination and dechlorination system following lagoon treatment. The project will also include sludge judging, sludge sampling and testing, and sludge removal in each lagoon cell. Lagoon sludge removal will be coordinated with the Northeast Regional Office.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The Department is required to determine "findings of affordability" because the permit applies to a combined or separate sanitary sewer system for a publically-owned treatment works.

Cost Analysis for Compliance - The Department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of Department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3. See **APPENDIX – COST ANALYSIS FOR COMPLIANCE**.

III. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct subject to the following conditions:

1. This construction permit does not authorize discharge.

2. All construction shall be consistent with plans and specifications signed and sealed by Michael M. Hall, P.E. with McClure Engineering and as described in this permit.

3. The Department must be contacted in writing prior to making any changes to the plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).

4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the Department's Northeast Regional Office per 10 CSR 20-7.015(9)(G).

5. The wastewater treatment facility shall be located at least fifty feet (50') from the property line and two hundred feet (200') from any dwelling or establishment per 10 CSR 20-8.140(C)(2)

6. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.

7. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation per 10 CSR 20-8.140(2)(B).The minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300') per 10 CSR 20-8.140(2)(C)1.

8. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of 1 acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the Department's ePermitting system available online at dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.

9. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the Department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of jurisdictional waters of the U.S. then a 404/401 will be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine

permitting requirements. You may call the Department's Water Protection Program at 573-751-1300 for more information. See dnr.mo.gov/env/wpp/401/ for more information.

10. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

- Flood protection shall apply to new construction and to existing facilities undergoing major modification. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred-(100-) year flood elevation. 10 CSR 20-8.140(2)(B). 10 CSR 20-8.130 (2) (A)
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D). 10 CSR 20-8.130 (2) (B)
- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility: 10 CSR 20-8.130 (2) (C)
    - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals*;* 10 CSR 20-8.140 (8) (A)
    - Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140 (8) (B)
    - First aid equipment; 10 CSR 20-8.140 (8) (C)
    - Posted "No Smoking" signs in hazardous areas; 10 CSR 20-8.140 (8) (D)
    - Appropriate personal protective equipment (PPE); 10 CSR 20-8.140 (8) (E)
    - Portable blower and hose sufficient to ventilate accessed confined spaces; 10 CSR 20-8.140 (8) (F)
    - 10 CSR 20-8.140 (8) (G) Portable lighting equipment complying with NEC requirements. See subsection (7)(B) of this rule;
    - 10 CSR 20-8.140 (8) (H) Gas detectors listed and labeled for use in NEC Class I, Division 1, Group D locations. See subsection (7)(B) of this rule;
    - Appropriately-placed warning signs for slippery areas, non-potable water fixtures (see subparagraph (7)(D)3.B. of this rule), low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, high noise areas, etc.; 10 CSR 20-8.140 (8) (I)
    - Ventilation shall include the following:
        - Isolate all pumping stations and wastewater treatment components installed in a building where other equipment or offices are located from the rest of the building by an air-tight partition, provide separate outside entrances, and provide separate and independent fresh air supply; 10 CSR 20-8.140 (8) (J) 1.
        - Force fresh air into enclosed screening device areas or open pits more than four feet (4') deep. Interconnection between the wet well and dry well ventilation systems is not acceptable; 10 CSR 20-8.140 (8) (J) 2.
        - Dampers are not to be used on exhaust or fresh air ducts. Avoid the use of fine screens or other obstructions on exhaust or fresh air ducts to prevent clogging; 10 CSR 20-8.140 (8) (J) 3.
        - Where continuous ventilation is needed (e.g., housed facilities), provide at least twelve (12) complete air changes per hour. Where continuous

ventilation would cause excessive heat loss, provide intermittent ventilation of at least thirty (30) complete air changes per hour when facility personnel enter the area. Base air change demands on one hundred percent (100%) fresh air; 10 CSR 20-8.140 (8) (J) 4.

- Electrical controls. Mark and conveniently locate switches for operation of ventilation equipment outside of the wet well or building. Interconnect all intermittently operated ventilation equipment with the respective wet well, dry well, or building lighting system. The manual lighting/ventilation switch is expected to override the automatic controls. For a two (2) speed ventilation system with automatic switch over where gas detection equipment is installed, increase the ventilation rate automatically in response to the detection of hazardous concentrations of gases or vapors; 10 CSR 20-8.140 (8) (J) 5.
- Fabricate the fan wheel from non-sparking material. Provide automatic heating and dehumidification equipment in all dry wells and buildings; 10 CSR 20-8.140 (8) (J) 6.

- Explosion-proof electrical equipment, non-sparking tools, gas detectors, and similar devices, in work areas where hazardous conditions may exist, such as digester vaults and other locations where potentially explosive atmospheres of flammable gas or vapor with air may accumulate.; 10 CSR 20-8.140 (8) (K)
- Provisions for local lockout/tagout on stop motor controls and other devices; 10 CSR 20-8.140 (8) (L)
- Provisions for an arc flash hazard analysis and determination of the flash protection boundary distance and type of PPE to reduce exposure to major electrical hazards shall be in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* (2018 Edition), as approved and published August 21, 2017. 10 CSR 20-8.140 (8) (M)

- The distance between wastewater pumping stations and all potable water sources shall be at least fifty feet (50') in accordance with 10 CSR 23-3.010(1)(B). 10 CSR 20-8.130 (2) (D)
- Dry wells, including their superstructure, shall be completely separated from the wet well with gas tight common walls. 10 CSR 20-8.130 (3) (A) 1.
- Suitable and safe means of access to dry wells and to wet wells shall be provided to persons wearing self-contained breathing apparatus. 10 CSR 20-8.130 (3) (A) 2.
- Multiple pumps shall be provided except for design average flows of less than fifteen hundred (1,500) gallons per day. 10 CSR 20-8.130 (3) (B) 1.
- Electrical equipment. Electrical equipment shall be provided with the following requirements:
  - 10 CSR 20-8.130 (3) (B) 2. A. Electrical equipment must comply with 10 CSR 20-8.140(7)(B);
  - Utilize corrosive resistant equipment located in the wet well; 10 CSR 20-8.130 (3) (B) 2. B.
  - Provide a watertight seal and separate strain relief for all flexible cable; 10 CSR 20-8.130 (3) (B) 2. C.
  - Install a fused disconnect switch located above ground for the main power feed for all pumping stations. 10 CSR 20-8.130 (3) (B) 2. D.

  - When such equipment is exposed to weather, it shall comply with the requirements of weather proof equipment; enclosure NEMA 4; NEMA 4X where necessary; and *NEMA Standard 250-2014*, published December 15, 2014. 10 CSR 20-8.130 (3) (B) 2. E.
  - Install lightning and surge protection systems; 10 CSR 20-8.130 (3) (B) 2. F.
  - Install a one hundred ten volt (110 V) power receptacle inside the control panel located outdoors to facilitate maintenance; 10 CSR 20-8.130 (3) (B) 2. G.
  - Provide Ground Fault Circuit Interruption (GFCI) protection for all outdoor receptacles. 10 CSR 20-8.130 (3) (B) 2. H.
- Water level controls must be accessible without entering the wet well. 10 CSR 20-8.130 (3) (C)
- Valves shall not be located in the wet well unless integral to a pump or its housing. 10 CSR 20-8.130 (3) (D)
- Covered wet wells shall have provisions for air displacement to the atmosphere, such as an inverted and screened "j" tube or other means. 10 CSR 20-8.130 (3) (E)
- Interconnection between the wet well and dry well ventilation systems is not acceptable10 CSR 20-8.130 (3) (F)
- There shall be no physical connection between any potable water supply and a wastewater pumping station, which under any conditions, might cause contamination of the potable water supply. If a potable water supply is brought to the station, No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.130 (3) (G)
  - Hot water for any direct connections shall not be taken directly from a boiler used for supplying hot water to a digester heating unit or heat exchanger. 10 CSR 20-8.140 (7) (D) 2.
  - Where a potable water supply is to be used for any purpose in a wastewater treatment facility other than direct connections, a break tank, pressure pump, and pressure tank or a reduced pressure backflow preventer consistent with the department's Public Drinking Water Branch shall be provided. 10 CSR 20-8.140 (7) (D) 3. A.
  - For indirect connections, a sign shall be permanently posted at every hose bib, faucet, hydrant, or sill cock located on the water system beyond the break tank or backflow preventer to indicate that the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 3. B.
  - Where a separate non-potable water supply is to be provided, a break tank will not be necessary, but all system outlets shall be posted with a permanent sign indicating the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 4.
- Submersible pump stations shall meet the applicable requirements under section (3) of this rule, except as modified in this section. 10 CSR 20-8.130 (5)
  - Pump Removal. Submersible pumps shall be readily removable and replaceable without personnel entering, dewatering, or disconnecting any piping in the wet well. 10 CSR 20-8.130 (5) (A)
  - 10 CSR 20-8.130 (5) (B) Valve Chamber and Valves. Valves required under subsection (3)(D) of this rule shall be located in a separate valve chamber.
  - A minimum access hatch dimensions of twenty-four inches by thirty-six inches (24" x 36") shall be provided. 10 CSR 20-8.130 (5) (B) 1.

- A portable pump connection on the discharge line with rapid connection capabilities shall be provided. 10 CSR 20-8.130 (5) (B) 2.
- Alarm systems with an uninterrupted power source shall be provided for pumping stations. 10 CSR 20-8.130 (6)
- Where independent substations are used for emergency power, each separate substation and its associated distribution lines shall be capable of starting and operating the pump station at its rated capacity. 10 CSR 20-8.130 (7) (B)
- Force main system shall be designed to withstand all pressures (including water hammer and associated cyclic reversal of stresses), and maintain a velocity of at least two feet (2') per second. 10 CSR 20-8.130 (8) (A)
- Emergency Power. Disinfection and dechlorination processes, when used, shall be provided during all power outages. 10 CSR 20-8.190 (2) (A)
- Contact period for Chlorine Disinfection. A minimum contact period of fifteen (15) minutes at design peak hourly flow or maximum rate of pumpage shall be provided after thorough mixing. 10 CSR 20-8.190 (3) (A)
- Alarm System for chlorination and dechlorination systems. The applicant shall conform to 10 CSR 20-8.140(7)(C) and be responsible for specifying what the alarm requirements are necessary to assure consistent disinfection in compliance with the applicable bacteria limits and the disinfection residual limit in the effluent. 10 CSR 20-8.190 (3) (C)
- Effluent twenty-four (24) hour composite automatic sampling equipment shall be provided at all mechanical wastewater treatment facilities and at other facilities where necessary under provisions of the operating permit. 10 CSR 20-8.190 (3) (D)
- Dilution tanks and mixing tanks are required when using dry compounds and may be necessary when using liquid compounds to deliver the proper dosage. 10 CSR 20-8.190 (4) (A)
- Solid dechlorination systems shall not be located in the chlorine contact tank. 10 CSR 20-8.190 (4) (B) 1.
- Contact time. A minimum of thirty (30) seconds for mixing and contact time of dechlorination systems shall be provided at the design peak hourly flow or maximum rate of pumpage. 10 CSR 20-8.190 (4) (B) 2.

11. Upon completion of construction:

    A. The City of Laredo will become the continuing authority for operation and maintenance of these facilities;

    B. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and

    C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request issuance of the modified operating permit.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The purpose of this project is to replace aging WWTF infrastructure, improve the overall functionality of the lagoon system, and install a disinfection system to ensure compliance with *E. coli* effluent limitations during the recreation season.

2. FACILITY DESCRIPTION

The Laredo WWTF is an existing facility located approximately 0.6 miles north of the SE 30th and Highway V intersection in Laredo, Grundy County, Missouri. The facility, has a design average flow of 45,000 gallons per day (gpd) and serves a hydraulic population equivalent of approximately 450 people. Recent improvements have been made to the City's sanitary sewer system to reduce inflow and infiltration during wet weather events. The existing treatment system consists of a three-cell lagoon with sludge retained in the lagoon cells. The facility operates as a controlled discharge lagoon system.

Construction will consist of like-for-like replacement of an existing influent lift station located south of the WWTF site. Discharging control structures in each lagoon cell will be replaced with new canal gate valves and baffles. A new tablet-feed chlorination and dechlorination system will be installed downstream of the lagoon system. Effluent will discharge via the existing outfall structure to the Tributary to Black Oak Branch.

3. COMPLIANCE PARAMETERS

The proposed project is required to comply with the interim and final effluent limits as established in the modified Operating Permit MO-0094692.

The limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average limit
Biochemical Oxygen Demand$_5$	mg/L	45
Total Suspended Solids	mg/L	70
E. coli	#/100mL	206
Ammonia as N-summer	mg/L	Monitoring
Ammonia as N-winter	mg/L	Monitoring
Oil & Grease	mg/L	10
Total Residual Chlorine	µg/L	9 (<130 ML)
pH	SU	6.5-9.0
Dissolved Oxygen	mg/L	Monitoring

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Existing major components which will remain in use include the following:

- Three-Cell Facultative Lagoon – The existing WWTF consists of a three-cell, clay-lined lagoon system.
  - Lagoon Cell No. 1 - Influent is pumped to a manhole structure ahead of Lagoon Cell No. 1 by an existing lift station south of the treatment plant site. Lagoon Cell No. 1 is non-aerated and has a surface area of 2.26 acres at the 3 ft operating level. The cell has 2 ft of freeboard, 3 ft of operating depth, and 2 ft of sludge depth. The wastewater storage volume of the cell is approximately 2.26 million gallons.
  - Lagoon Cell No. 2 – Lagoon Cell No. 2 is non-aerated and has a surface area of 0.68 acres at the 3 ft operating level. The cell has 2 ft of freeboard, 3 ft of operating depth, and 2 ft of sludge storage. The wastewater storage volume of the cell is approximately 0.69 million gallons.
  - Lagoon Cell No. 3 – Lagoon Cell No. 3 is non-aerated and has a surface area of 0.61 acres at the 3 ft operating level. The cell has 2 ft of freeboard, 6 ft of operating depth, and 2 ft of sludge storage. The wastewater storage volume of the cell is approximately 1.38 million gallons. The combined effective lagoon volume of the three cells is approximately 4.33 million gallons.

Construction will cover the following items:

- Components are designed for a Population Equivalent of 450 with a hydraulic loading of 45,000 gallons per day (gpd) to the system. The system is operated as a controlled discharge lagoon.

- Influent Pump Station Replacement – Demolition of existing influent lift station and like-for-like replacement with a new duplex influent pump station with each 10 HP submersible non-clog pump capable of operating at 250 gallons per minute (gpm) at 78 feet of TDH.

- Lagoon Valve and Baffle Box Replacement – Replacement of lagoon interconnection control valves and housing to prohibit algae and floating solids from entering effluent piping.
  - Lagoon Cell No. 1 – Installation of three (3) 10 inch canal gate valves and four (4) 18 inch baffles prior to Lagoon Cell No. 1 effluent piping.
  - Lagoon Cell No. 2 – Installation of three (3) 10 inch canal gate valves and four (4) 18 inch baffles prior to Lagoon Cell No. 2 effluent piping.
  - Lagoon Cell No. 3 – Installation of six (6) 10 inch canal gate valves, one (1) 18 inch baffle, and three (3) 30 inch baffles prior to Lagoon Cell No. 3 effluent piping.

- Disinfection – Installation of a disinfection system for the purpose of removal, deactivation, or killing of pathogenic microorganisms.

- Tablet Chlorinator – Installation of a Norweco Bio-Dynamic® Series 4,000 or approved equivalent tablet feeder located downstream of the lagoon system and prior to the chlorine contact tank. The tablet chlorinator shall have a maximum design flow of 45,000 gpd. The system will dispense hypochlorite as the wastewater comes into contact with the tablets.

- Chlorine Contact Tank – Installation of a pre-cast concrete tank approximately 8.3 ft x 5.8 ft x 5.1 ft with 7 end-around baffles allowing for a length to width ratio of approximately 56:1. This tank will allow for approximately 30 minutes of contact time during a peak flow of 45,000 gpd. Shear gate valves will be used to ensure the discharging flow rate does not exceed 45,000 gpd.

- Tablet Dechlorinator – Installation of a tablet Norweco Bio-Dynamic® Series 4,000 or approved equivalent tablet feeder located downstream of the chlorine contact tank and prior to Outfall #001. The tablet dechlorinator shall have a maximum design flow of 45,000 gpd. The system will dispense sodium sulfite as the wastewater comes into contact with the tablets..

5. OPERATING PERMIT

Operating permit MO-0094692 will require a modification to reflect the construction activities. The modified Laredo WWTF, MO-0094692 will be public noticed to add Total Residual Chlorine effluent limitations and Dissolved Oxygen monitoring requirements. Submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

V. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: https://ahc.mo.gov

Ellen Modglin, E.I.
Engineering Section
Ellen.Modglin@dnr.mo.gov

Cailie Carlile, P.E.
Engineering Section
Cailie.Carlile@dnr.mo.gov

APPENDIX- Cost Analysis for Compliance

Missouri Department of Natural Resources
Water Protection Program
Cost Analysis for Compliance
(In accordance with RSMo 644.145)

Laredo Wastewater Treatment Facility, Permit Modification
City of Laredo
Missouri State Operating Permit #MO-0094692

Section 644.145 RSMo requires the Department of Natural Resources (Department) to make a "finding of affordability" when "issuing permits under" or "enforcing provisions of" state or federal clean water laws "pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works." This cost analysis does not dictate how the permittee will comply with new permit requirements.

New Permit Requirements
The permit requires compliance with new permit limitations for Total Residual Chlorine and monitoring requirements for Dissolved Oxygen.

Connections
The number of connections was reported by the permittee on the permit modification application.

Connection Type	Number
Residential	70
Commercial	15
Industrial	-
Total	**85**

Data Collection for this Analysis
This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City of Laredo's financial and socioeconomic situation. The financial questionnaire available to permittees on the Department's website (http://dnr.mo.gov/forms/780-2511-f.pdf) is a required attachment to the permit renewal application. If the financial questionnaire is not submitted with the renewal application, the Department sends a request to complete the form with the welcome correspondence. Though the Department has made attempts to gather financial information from the City of Laredo; no information has been provided. The Department has relied heavily on readily available data to complete this analysis. If certain data was not provided by the permittee to the Department and the data is not obtainable through readily available sources, this analysis will state that the information is "unknown".

Eight Criteria of 644.145 RSMo
The Department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

(1) A community's financial capability and ability to raise or secure necessary funding;

Criterion 1 Table. Current Financial Information for the City of Laredo	
Current Monthly User Rates per 5,000 gallons*	$50.00
Median Household Income (MHI)[1]	$37,670
Current Annual Operating Costs (excludes depreciation)	unknown

*User Rates were obtained from the 2020 Missouri Public Utility Alliance Water and Wastewater Rate Survey.

(2) Affordability of pollution control options for the individuals or households at or below the median household income level of the community;

The following tables outline the estimated costs of the new permit requirements:

Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements			
New Requirement	Frequency	Estimated Cost	Estimated Annual Cost
Chlorine, residual	Monthly	$20	$240
Dissolved Oxygen	Monthly	$12	$144
Total Estimated Annual Cost of New Permit Requirements			$384

Criterion 2B Table. Estimated Costs for New Permit Requirements		
(1)	Estimated Annual Cost	$384
(2)	Estimated Monthly User Cost for New Requirements [2]	$0.38
	Estimated Monthly User Cost for New Requirements as a Percent of MHI [3]	0.012%
(3)	Total Monthly User Cost*	$50.38
	Total Monthly User Cost as a Percent of MHI [4]	1.61%

* Current User Rate + Estimated Monthly Costs of New Sampling Requirements

Due to the minimal cost associated with new permit requirements, the Department anticipates an extremely low to no rate increase will be necessary, which could impact individuals or households of this community.

(3) An evaluation of the overall costs and environmental benefits of the control technologies;

This analysis is being conducted based on new requirements in the permit, which will not require the addition of new control technologies at the facility. However, the new sampling requirements are being established in order to provide data regarding the health of the receiving stream's aquatic life and to ensure that the existing permit limits are providing adequate protection of aquatic life. Improved wastewater provides benefits such as avoided health costs due to water-related illness, enhanced environmental ecosystem quality, and improved natural resources. The preservation of natural resources has been proven to increase the economic value and sustainability of the surrounding communities. Maintaining Missouri's water quality standards fulfills the goal of restoring and maintaining the chemical, physical, and biological integrity of the receiving stream; and, where attainable, it achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

(4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment system, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates:

The community did not provide the Department with this information, nor could it be found through readily available data.

(5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:

(a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.

(b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of Missouri. The following information was compiled using the latest U.S. Census data.

Criterion 5 Table. Socioeconomic Data [1, 5-9] for the City of Laredo

No.	Administrative Unit	Laredo City	Missouri State	United States
1	Population (2018)	212	6,090,062	322,903,030
2	Percent Change in Population (2000-2018)	-15.2%	8.8%	14.7%
3	2018 Median Household Income (in 2019 Dollars)	$37,670	$54,530	$61,385
4	Percent Change in Median Household Income (2000-2018)	19.5%	-6.3%	-4.7%
5	Median Age (2018)	32.4	38.5	37.9
6	Change in Median Age in Years (2000-2018)	-8.9	2.4	2.6
7	Unemployment Rate (2018)	4.9%	5.1%	5.9%
8	Percent of Population Below Poverty Level (2018)	17.0%	14.2%	14.1%
9	Percent of Household Received Food Stamps (2018)	23.9%	11.6%	12.2%
10	(Primary) County Where the Community Is Located	Grundy County		

(6) An assessment of other community investments and operating costs relating to environmental improvements and public health protection;

The community did not report any other investments relating to environmental improvements.

(7) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;

The new requirements associated with this permit will not impose a financial burden on the community, nor will they require the City of Laredo to seek funding from an outside source.

(8) An assessment of any other relevant local community economic conditions.

The community did not report any other relevant local economic conditions.

The Department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total

of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score. The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri.

Based on the assessment tool, the City of Laredo has been determined to be a category 2 community. This means that the City of Laredo could potentially face more challenging socioeconomic circumstances over time and may have significant declines in population in the future. Where applicable, the Department may determine an adequate schedule of compliance that will alleviate the potential financial burdens that the City of Laredo may face due to the necessary upgrades required to meet the new permit requirements. If this community experiences a decline in population, which results in the inability to secure the necessary funding for an upgrade to meet the new requirements within this permit, a modification to the schedule of compliance may be necessary. The community may contact the Department and send an application for a modification to the schedule of compliance with justification for the time necessary to comply with this permit.

Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.
This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the Department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

References

1. (A) 2018 MHI in 2018 Dollar: United States Census Bureau. United States Census Bureau. 2014-2018 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2018 Inflation-Adjusted Dollars). https://data.census.gov/cedsci/table?q=B19013&tid=ACSDT5Y2018.B19013&vintage=2018.
   (B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-2-1-pt1.pdf. (2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) 2019 CPI, 2018 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2019) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable.
   (D) 2018 MHI in 2019 Dollar = 2018 MHI in 2018 Dollar x 2019 CPI /2018 CPI; 2000 MHI in 2019 Dollar = 2000 MHI in 1999 Dollar x 2019 CPI /1999 CPI.
   (E) Percent Change in Median Household Income (2000-2018) = (2018 MHI in 2019 Dollar - 2000 MHI in 2019 Dollar) / (2000 MHI in 2019 Dollar).
2. ($384/85)/12 = $0.38 (Estimated Monthly User Cost for New Requirements)
3. ($0.38/($37,670/12))100% = 0.012% (New Sampling Only)
4. ($50.38/($37,670/12))100% = 1.61% (Total User Cost)
5. (A) Total Population in 2018: United States Census Bureau. 2014-2018 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population.
   https://data.census.gov/cedsci/table?q=B010003%20population&tid=ACSDT5Y2018.B01003&vintage=2018.
   (B) Total Population in 2000: (1) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf.
   (2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Place of Birth, Residence in 1995, and Language: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Percent Change in Population (2000-2018) = (Total Population in 2018 - Total Population in 2000) / (Total Population in 2000).

6. (A) Median Age in 2018: United States Census Bureau. 2014-2018 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population.
https://data.census.gov/cedsci/table?q=B01002&tid=ACSDT5Y2018.B01002&vintage=2018.
(B) Median Age in 2000: (1) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf.
(2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Place of Birth, Residence in 1995, and Language: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
(C) Change in Median Age in Years (2000-2018) = (Median Age in 2018 - Median Age in 2000).
7. United States Census Bureau. 2014-2018 American Community Survey 5-Year Estimates, B23025: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over.
https://data.census.gov/cedsci/table?q=B23025&tid=ACSDT5Y2018.B23025.
8. United States Census Bureau. 2014-2018 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months.
https://data.census.gov/cedsci/table?q=S1701&tid=ACSST5Y2018.S1701.
9. United States Census Bureau. 2014-2018 American Community Survey 5-Year Estimates, Table B22003: Receipt of Food Stamps/SNAP in the Past 12 Months by Poverty Status in the Past 12 Months for Households - Universe: Households.
https://data.census.gov/cedsci/table?q=B22003&tid=ACSDT5Y2018.B22003.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITY

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED $1000.00	CHECK NO. 9810
DATE RECEIVED 12-22-20	813

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Treatment Facility form has been developed in a modular format and consists of Part A and B. **All applicants must complete Part A.** Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. **Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.**

PART A – BASIC INFORMATION

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

1.1 Is this a Federal/State funded project? ☑ YES ☐ N/A Funding Agency: USDA-RD Project #: N/A

1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
☑ YES Date of Approval: 12/1/17 ☐ N/A

1.3 Has the department approved the proposed project's facility plan*?
☑ YES Date of Approval: 6/29/17 ☐ NO (If No, complete No. 1.4.)

1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan* for wastewater treatment facilities included with this application?
☐ YES ☐ NO ☐ Exempt because _____

1.5 Is a copy of the appropriate plans* and specifications* included with this application?
☐ YES Denote which form is submitted: ☐ Hard copy ☑ Electronic copy (See instructions.) ☐ NO

1.6 Is a summary of design* included with this application? ☐ YES ☑ NO

1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?
☐ YES Date of submittal: _____
☑ Enclosed is the appropriate operating permit application and fee submittal. Denote which form: ☐ A ☑ B ☐ B2
☐ N/A: However, In the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits to secondary limits or adding total residual chlorine limits, please share a draft copy prior to public notice? ☑ YES ☐ NO

1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☑ YES ☐ NO

1.9 Is the appropriate fee or JetPay confirmation included with this application? ☑ YES ☐ NO
See Section 7.0

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT
Wastewater Treatment Facility Laredo, MO

2.2 ESTIMATED PROJECT CONSTRUCTION COST
$ 364,000.00

2.3 PROJECT DESCRIPTION
Lagoon improvements will be made including replacement of baffle boxes, valves, sludge removal and the addition of chlorination and dechlorination tablet feeders to the lagoon. Influent pump station to be replaced (like for like, 10 hp, 250 gpm) - no permit required

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Sludge retained in the lagoon per existing permit.

2.5 DESIGN INFORMATION

A. Current population: 198 ; Design population: 450

B. Actual Flow: 13k gpd; Design Average Flow: 45K gpd;
Actual Peak Daily Flow: 81K gpd; Design Maximum Daily Flow: 81k gpd; Design Wet Weather Event: 24hr

2.6 ADDITIONAL INFORMATION

A. Is a topographic map attached? ☐ YES ☑ NO

B. Is a process flow diagram attached? ☐ YES ☑ NO

3.0 WASTEWATER TREATMENT FACILITY

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Laredo WWTF	660-286-2632	laredomo@grm.net

ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE	COUNTY
0.6 mi N of SE30th and Hwy V	Laredo	MO	64652	Grundy

Wastewater Treatment Facility: Mo- 0096692 (Outfall 001 Of 001)

3.1 Legal Description: ____ ¼, SW ¼, NW ¼, Sec. 35, T 61N, R 23W
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 462393 Northing (Y): 4432638
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: Tributary to Black Oak Branch

4.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
City of Laredo	660-286-2632	laredomo@grm.net

ADDRESS	CITY	STATE	ZIP CODE
213 Main Street	Laredo	MO	64652

5.0 CONTINUING AUTHORITY:
A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements.

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
City of Laredo	660-286-2632	laredomo@grm.net

ADDRESS	CITY	STATE	ZIP CODE
213 Main Street	Laredo	MO	64652

5.1 A letter from the continuing authority, if different than the owner, is included with this application. ☐ YES ☐ NO ☑ N/A

5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.

A. Is a copy of the certificate of convenience and necessity included with this application? ☐ YES ☐ NO

5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.

A. Is a copy of the as-filed restrictions and covenants included with this application? ☐ YES ☐ NO

B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? ☐ YES ☐ NO

C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? ☐ YES ☐ NO

D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? ☐ YES ☐ NO

6.0 ENGINEER

ENGINEER NAME / COMPANY NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Michael Hall/McClure Engineering	573-476-3211	mhall@mecresults.com

ADDRESS	CITY	STATE	ZIP CODE
1901 Pennsylvania Dr	Columbia	MO	65202

7.0 APPLICATION FEE

☑ CHECK NUMBER 9810 ☐ JETPAY CONFIRMATION NUMBER

8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PROJECT OWNER SIGNATURE Carol Holloway

PRINTED NAME Carol Holloway DATE 12-14-20

TITLE OR CORPORATE POSITION	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Mayor	660-286-2632	laredomo@grm.net

Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.