

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0025305

Owner: City of Chaffee  
Address: 222 W. Yoakum, Chaffee, MO 63740

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Chaffee WWTF  
Facility Address: The west terminus of Cumins Ct. Chaffee, MO 63740

Legal Description: NE ¼, SW ¼, Sec. 12, T29N, R12E, Scott County  
UTM Coordinates: X= 794591, Y= 4120924

Receiving Stream: Unnamed tributary to Ditch #1(U)  
First Classified Stream and ID: Ditch #1 (C) (3052)  
USGS Basin & Sub-watershed No.: (08020204-3052)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

**FACILITY DESCRIPTION**

Outfall #001 – POTW – SIC #4952

The use or operation of this facility shall be by or under the supervision of a Certified “D” Operator.

Three cell lagoon – Lemna system/sludge retained in lagoon.

Design population equivalent is 5,000.

Design flow is 0.51 million gallons per day.

Actual flow is 0.30 million gallons per day.

Design sludge production is 76.5 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

June 1, 2013  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

June 30, 2016  
Expiration Date

John Madras, Director, Water Protection Program

| OUTFALL #001   | TABLE A-1.<br>INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS |                              |                | PAGE NUMBER 2 of 8       |                         |                 |
|--|--|------------------------------|----------------|--------------------------|-------------------------|-----------------|
|  |  |                              |                | PERMIT NUMBER MO-0025305 |                         |                 |
| The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect through the <u>May 31, 2017</u> . Such discharges shall be controlled, limited and monitored by the permittee as specified below: |  |                              |                |                          |                         |                 |
| EFFLUENT PARAMETER(S)  | UNITS  | INTERIM EFFLUENT LIMITATIONS |                |                          | MONITORING REQUIREMENTS |                 |
|  |  | DAILY MAXIMUM                | WEEKLY AVERAGE | MONTHLY AVERAGE          | MEASUREMENT FREQUENCY   | SAMPLE TYPE     |
| Flow   | MGD  | *                            |                | *                        | once/weekday            | 24 hr. estimate |
| Biochemical Oxygen Demand <sub>5</sub>   | mg/L   |                              | 65             | 45                       | once/month              | grab            |
| Total Suspended Solids   | mg/L   |                              | 120            | 80                       | once/month              | grab            |
| <i>E. coli</i> (Note 1, Page 3)  | #/100 ml   |                              | 1030           | 206                      | once/week               | grab            |
| pH – Units   | SU   | **                           |                | **                       | once/month              | grab            |
| Ammonia as N<br>(April 1 – Sept 30)<br>(Oct 1 – March 31)  | mg/L   | *                            |                | *                        | once/month              | grab            |
| Oil & Grease   | mg/L   | 15                           |                | 10                       | once/month              | grab            |
| MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.  |  |                              |                |                          |                         |                 |
| Whole Effluent Toxicity (WET) test   | % Survival   | See Special Condition # 21   |                | once/permit cycle        | 24-hr Composite         |                 |
| <u>WET TEST</u> REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2016</u> .   |  |                              |                |                          |                         |                 |

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

| OUTFALL #001  | TABLE A-2.<br>FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS |                            |                |                   | PAGE NUMBER 3 of 8       |                 |
|---|--|----------------------------|----------------|-------------------|--------------------------|-----------------|
|   |  |                            |                |                   | PERMIT NUMBER MO-0025305 |                 |
| The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on <b>June 1, 2017</b> and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below: |  |                            |                |                   |                          |                 |
| EFFLUENT PARAMETER(S)   | UNITS  | FINAL EFFLUENT LIMITATIONS |                |                   | MONITORING REQUIREMENTS  |                 |
|   |  | DAILY MAXIMUM              | WEEKLY AVERAGE | MONTHLY AVERAGE   | MEASUREMENT FREQUENCY    | SAMPLE TYPE     |
| Flow  | MGD  | *                          |                | *                 | once/weekday             | 24 hr. estimate |
| Biochemical Oxygen Demand <sub>5</sub>  | mg/L   |                            | 65             | 45                | once/month               | Grab            |
| Total Suspended Solids  | mg/L   |                            | 110            | 70                | once/month               | Grab            |
| <i>E. coli</i> (Note 1, Page 3)   | #/100 ml   |                            | 1030           | 206               | once/week                | Grab            |
| pH – Units  | SU   | **                         |                | **                | once/month               | Grab            |
| Ammonia as N<br>(April 1 – Sept 30)<br>(Oct 1 – March 31)   | mg/L   | 5.4<br>9.2                 |                | 1.0<br>2.8        | once/month               | Grab            |
| Oil & Grease  | mg/L   | 15                         |                | 10                | once/month               | Grab            |
| MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2017</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.   |  |                            |                |                   |                          |                 |
| Whole Effluent Toxicity (WET) test  | % Survival   | See Special Condition # 21 |                | once/permit cycle | 24-hr Composite          |                 |
| <u>WET TEST</u> REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>BY JULY 28, 2016</u> .   |  |                            |                |                   |                          |                 |

\* Monitoring requirement only.

\*\* pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

| <b>TABLE B.<br/>INFLUENT MONITORING REQUIREMENTS</b>  |       | PAGE NUMBER 4 of 8       |             |
|---|-------|--------------------------|-------------|
|   |       | PERMIT NUMBER MO-0025305 |             |
| The facility is required to meet a removal efficiency of 65% or more as a monthly average. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below: |       |                          |             |
| SAMPLING LOCATION AND<br>PARAMETER(S)   | UNITS | MONITORING REQUIREMENTS  |             |
|   |       | MEASUREMENT FREQUENCY    | SAMPLE TYPE |
| Biochemical Oxygen Demand <sub>5</sub>  | mg/L  | once/quarter*****        | Grab        |
| Total Suspended Solids  | mg/L  | once/quarter*****        | Grab        |
| MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2013</u> .  |       |                          |             |

\*\*\*\*\* See table below for quarterly sampling.

| <b>Minimum Sampling Requirements</b> |                             |  |                          |
|--------------------------------------|-----------------------------|--|--------------------------|
| Quarter                              | Months                      | Influent Parameters                                  | Report is Due            |
| First                                | January, February, March    | Sample at least once during any month of the quarter | April 28 <sup>th</sup>   |
| Second                               | April, May, June            | Sample at least once during any month of the quarter | July 28 <sup>th</sup>    |
| Third                                | July, August, September     | Sample at least once during any month of the quarter | October 28 <sup>th</sup> |
| Fourth                               | October, November, December | Sample at least once during any month of the quarter | January 28 <sup>th</sup> |

#### C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated October 1, 1980 and August 15, 1994, and hereby incorporated as though fully set forth herein.

#### D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
  - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
    - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
    - (2) controls any pollutant not limited in the permit.
  - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
  - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Water Quality Standards
  - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
  - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
    - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;

D. SPECIAL CONDITIONS (continued)

- (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
- (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
- (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
- (5) There shall be no significant human health hazard from incidental contact with the water;
- (6) There shall be no acute toxicity to livestock or wildlife watering;
- (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
- (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

5. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
  - (1) One hundred micrograms per liter (100 µg/L);
  - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
  - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
  - (4) The level established by the Director in accordance with 40 CFR 122.44(f).
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

6. Report as no-discharge when a discharge does not occur during the report period.

7. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

8. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the department for review and, if deemed necessary, approval.

9. The permittee shall submit a report annually in January to the Southeast Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility for the previous year.

10. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Southeast Regional Office.

11. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.

12. A least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.

13. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.

D. SPECIAL CONDITIONS (continued)

14. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.
15. An all-weather access road shall be provided to the treatment facility.
16. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
17. A minimum of two (2) feet freeboard must be maintained in the lagoon cell.
18. The berms of the lagoons shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.
19. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the lagoon and to divert stormwater runoff around the lagoon and protect embankments from erosion.
20. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

| SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT |      |                       |                   |       |
|--|------|-----------------------|-------------------|-------|
| OUTFALL                                      | AEC  | FREQUENCY             | SAMPLE TYPE       | MONTH |
| 001  | 100% | Once per permit cycle | 24 hr. composite* | Any   |

\* A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampler.

| Dilution Series |               |              |              |                |                |                                       |   |
|-----------------|---------------|--------------|--------------|----------------|----------------|---------------------------------------|---|
| AEC% = 100%     | 100% effluent | 50% effluent | 25% effluent | 12.5% effluent | 6.25% effluent | (Control) 100% upstream, if available | (Control) 100% Lab Water, also called synthetic water |

- (a) Test Schedule and Follow-Up Requirements
  - (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
    - (i) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
    - (ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.
    - (iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
  - (2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level;  $p = 0.05$ ) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.
  - (3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

D. SPECIAL CONDITIONS (continued)

- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
    - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
    - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
  - (5) Follow-up tests do not negate an initial failed test.
  - (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
  - (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
  - (8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
  - (9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
  - (10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
  - (11) Submit a concise summary in tabular format of all WET test results with the annual report.
- (b) Test Conditions
- (1) Test Type: Acute Static non-renewal
  - (2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.
  - (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
  - (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
  - (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
  - (6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.
  - (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
  - (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.
  - (9) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

E. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final effluent limitations for ammonia as soon as reasonably achievable or no later than **4 years** of the effective date of this permit.

1. Within six months of the effective date of this permit, the permittee shall report progress made in attaining compliance with the final effluent limits.
2. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from issuance date.
3. Within **4 years** of the effective date of this permit, the permittee shall attain compliance with the final effluent limits, for ammonia.

Please submit progress reports to the Missouri Department of Natural Resources, Southeast Regional Office, 2155 North Westwood Boulevard, Poplar Bluff, MO 63901.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**MO-0025305**  
**CHAFFEE WWTF**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for a Minor.

**Part I – Facility Information**

Facility Type: POTW - SIC #4952

Facility Description:

Outfall #001 – POTW – SIC #4952

The use or operation of this facility shall be by or under the supervision of a Certified "D" Operator.

Three cell lagoon – Lemna system/sludge retained in lagoon.

Design population equivalent is 5000.

Design flow is 0.51million gallons per day.

Actual flow is 0.30 million. gallons per day.

Design sludge production is 76.5 dry tons/year.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

- No.

Application Date: 11/05/2012

Expiration Date: 01/17/2013

**OUTFALL(S) TABLE:**

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|---------|-------------------|-----------------|---------------|-------------------------------------|
| #001    | 0.79              | Primary         | Domestic      | 0.4                                 |

Receiving Water Body's Water Quality & Facility Performance History:

No inspections completed in the last five years. The facility has been in compliance and is not currently under enforcement.

## Part II – Operator Certification Requirements

Applicable ; This facility is required to have a D certified operator.

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.

- Department required:   
 The Department requires this facility to retain the services of a certified operator due to: Population equivalent greater than 200 and facility has more than 50 service connections.

This facility currently requires an operator with a D Certification Level. Please see **Appendix - Classification Worksheet** Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator's Name: Doyle S. Hendrix  
 Certification Number: 10780  
 Certification Level: WW-D

The listing of the operator above only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

## Part III– Operational Monitoring

As per [10 CSR 20-9.010(4)], the facility is required to conduct operational monitoring.

## Part IV – Receiving Stream Information

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1<sup>st</sup> classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

### **RECEIVING STREAM(S) TABLE:**

| WATER-BODY NAME               | CLASS | WBID | DESIGNATED USES* | 12-DIGIT HUC | EDU**                                |
|-------------------------------|-------|------|------------------|--------------|--------------------------------------|
| Unnamed tributary to Ditch #1 | U     | -    | General Criteria | 080202040102 | MS Alluvial Basin/St. Francis/Little |
| Ditch #1                      | C     | 3052 | LWW, AQL, WBC(B) |              |                                      |

\* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

\*\* - Ecological Drainage Unit

**RECEIVING STREAM(S) LOW-FLOW VALUES:**

| RECEIVING STREAM (U, C, P)        | LOW-FLOW VALUES (CFS) |      |       |
|-----------------------------------|-----------------------|------|-------|
|                                   | 1Q10                  | 7Q10 | 30Q10 |
| Unnamed tributary to Ditch #1 (U) | 0                     | 0    | 0     |

**MIXING CONSIDERATIONS**

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].

Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

**Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions**

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Not Applicable ; The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

**ANTI-BACKSLIDING:**

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

- Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

- The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b). The Permit Writer applied a water quality based effluent limit in anticipation of installation of chlorination as a method of disinfection. Chlorination was not installed, therefore this effluent limit is not applicable. There are no other sources of chlorine in this discharge. Total residual chlorine effluent limits have been removed from this permit.

**ANTIDegradation:**

In accordance with Missouri’s Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body’s available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

- No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

**AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:**

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

**BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address:

<http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Permittee is not authorized to land apply biosolids. Sludge/biosolids are stored in the lagoon.

**COMPLIANCE AND ENFORCEMENT:**

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable ; The permittee/facility is not currently under Water Protection Program enforcement action.

**PRETREATMENT PROGRAM:**

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Not Applicable ; The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

**REASONABLE POTENTIAL ANALYSIS (RPA):**

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable ; A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS**.

**REMOVAL EFFICIENCY:**

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

Applicable ; Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

**SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):**

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

- Not applicable. This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

**SCHEDULE OF COMPLIANCE (SOC):**

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable ; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)]. The facility has been given a schedule of compliance to meet final effluent limits for ammonia. The City of Chaffee will need to upgrade its current lagoon system with a mechanical plant. Due to the wastewater sewer rehabilitation and treatment project plan drafted by the City of Chaffee, the city will be given a 4 year schedule of compliance to meet the new effluent limits for ammonia.

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

Not Applicable ; At this time, the permittee is not required to develop and implement a SWPPP.

**VARIANCE:**

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable ; This operating permit is not drafted under premises of a petition for variance.

**WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:**

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ; Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C_e = \frac{(Q_e + Q_s)C - (C_s \times Q_s)}{(Q_e)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration  
Cs = upstream concentration  
Qs = upstream flow  
Ce = effluent concentration  
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

Not Applicable ; Wasteload allocations were not calculated.

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable ; Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. And the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

Facility is a municipality or domestic discharger with a Design Flow  $\geq$  22,500 gpd.

**40 CFR 122.41(M) - BYPASSES:**

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass, which includes blending, is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

Not Applicable ; This facility does not anticipate bypassing.

**303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Not Applicable ; This facility does not discharge to a 303(d) listed stream.

## Part VI – Effluent Limits Determination

### APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall’s Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

All Other Waters [10 CSR 20-7.015(8)]:

### OUTFALL #001 – MAIN FACILITY OUTFALL

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

### EFFLUENT LIMITATIONS TABLE:

| PARAMETER                             | Unit       | Basis for Limits | Daily Maximum   | Weekly Average | Monthly Average | Modified | Previous Permit Limitations |
|---------------------------------------|------------|------------------|---|----------------|-----------------|----------|-----------------------------|
| Flow                                  | MGD        | 1                | *   |                | *               | No       | *                           |
| BOD <sub>5</sub>                      | mg/L       | 1, 4             |   | 65             | 45              | No       | 65/45                       |
| TSS                                   | mg/L       | 1, 4             |   | 110            | 70              | No       | 110/70                      |
| pH                                    | SU         | 1, 4             | 6.5 – 9.0   | 6.5 – 9.0      | 6.5 – 9.0       | Yes      | 6.0 – 9.0                   |
| Ammonia as N<br>(April 1 – Sept 30)   | mg/L       | 2, 3, 5          | 5.4   |                | 1.0             | Yes      | *                           |
| Ammonia as N<br>(Oct 1 – March 31)    | mg/L       | 2, 3, 5          | 9.2   |                | 2.8             | Yes      | *                           |
| Escherichia coli                      | ***        | 1, 3             |   | 1030           | 206             | Yes      | ****                        |
| Oil & Grease (mg/L)                   | mg/L       | 1, 3             | 15  |                | 10              | No       | 15/10                       |
| Whole Effluent Toxicity<br>(WET) Test | % Survival | 11               | Please see WET Test in the Derivation and Discussion Section below. |                |                 |          |                             |

\* - Monitoring requirement only.

\*\* - For DO the Daily Maximum is a Daily Minimum and the Monthly Average is a Monthly Average Minimum.

\*\*\* - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.

\*\*\*\* - Parameters for fecal coliform were established in the previous permit.

#### Basis for Limitations Codes:

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law       | 7. Antidegradation Policy          |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits   | 9. Best Professional Judgment      |
| 4. Lagoon Policy                         | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 11. WET Test Policy                |
| 6. Antidegradation Review                |                                    |

**OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:**

- **Flow** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>)**
  - ☒ – Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Suspended Solids (TSS)**
  - ☒ – Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **pH** Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- **Total Ammonia Nitrogen** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU. No mixing considerations allowed; therefore, WLA = appropriate criterion.

| Season | Temp (°C) | pH (SU) | Total Ammonia Nitrogen CCC (mg/L) | Total Ammonia Nitrogen CMC (mg/L) |
|--------|-----------|---------|-----------------------------------|-----------------------------------|
| Summer | 26        | 7.8     | 1.5                               | 12.1                              |
| Winter | 6         | 7.8     | 3.1                               | 12.1                              |

Summer: April 1 – September 30

Chronic WLA:  $C_e = ((0.79 + 0.0)1.5 - (0.0 * 0.01))/0.79$   
 $C_e = 1.5 \text{ mg/L}$

Acute WLA:  $C_e = ((0.79 + 0.0)12.1 - (0.0 * 0.01))/0.79$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L} (0.311) = 0.47 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.088) = 1.06 \text{ mg/L}$

[CV = 3.4, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV = 3.4, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

$MDL = 0.47 \text{ mg/L} (11.42) = 5.4 \text{ mg/L}$   
 $AML = 0.47 \text{ mg/L} (2.18) = 1.0 \text{ mg/L}$

[CV = 3.4, 99<sup>th</sup> Percentile]  
 [CV = 3.4, 95<sup>th</sup> Percentile, n=30]

Winter: October 1 – March 31

Chronic WLA:  $C_e = ((0.79 + 0.0)3.1 - (0.0 * 0.01))/0.79$   
 $C_e = 3.1 \text{ mg/L}$

Acute WLA:  $C_e = ((0.79 + 0.0)12.1 - (0.0 * 0.01))/0.79$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.708) = 2.19 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.238) = 2.88 \text{ mg/L}$

[CV = 0.8, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV = 0.8, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

$MDL = 2.19 \text{ mg/L} (4.21) = 9.2 \text{ mg/L}$   
 $AML = 2.19 \text{ mg/L} (1.27) = 2.8 \text{ mg/L}$

[CV = 0.8, 99<sup>th</sup> Percentile]  
 [CV = 0.8, 95<sup>th</sup> Percentile, n=30]

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 ml as a geometric mean and Weekly Average of 1030 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). Weekly Average effluent variability will be evaluated in development of a future effluent limit. An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).
- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **WET Test**. WET Testing schedules and intervals are established in accordance with the Department’s Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

Acute

**No less than ONCE/PERMIT CYCLE:**

Municipality or domestic facility with a design flow  $\geq$  22,500 gpd, but less than 1.0 MGD.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

**Minimum Sampling and Reporting Frequency Requirements.**

| PARAMETER        | SAMPLING FREQUENCY | REPORTING FREQUENCY |
|------------------|--------------------|---------------------|
| Flow             | twice/week         | once/month          |
| BOD <sub>5</sub> | once/month         | once/month          |
| TSS              | once/month         | once/month          |
| pH               | once/month         | once/month          |
| Ammonia as N     | once/month         | once/month          |
| <i>E. coli</i>   | once/week          | once/month          |
| Oil & Grease     | once/month         | once/month          |

**Sampling Type Justification**

As per 10 CSR 20-7.015, samples collected for lagoons shall be grab samples

**Part VII – Finding of Affordability**

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

Applicable; 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.**

**Finding of affordability** - 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 – Affordability Analysis**

## **Part VIII – Administrative Requirements**

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

### **PERMIT SYNCHRONIZATION:**

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future.

### **PUBLIC NOTICE:**

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- The Public Notice period for this operating permit was from 3/8/2013 to 4/8/2013. No responses received.

**DATE OF FACT SHEET:** 12/26/2012

### **COMPLETED BY:**

**LACEY HIRSCHVOGEL, ENVIRONMENTAL SPECIALIST**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT**  
**(573) 751-9391**  
**[lacey.hirschvogel@dnr.mo.gov](mailto:lacey.hirschvogel@dnr.mo.gov)**

**Appendices**

**APPENDIX - CLASSIFICATION WORKSHEET:**

| ITEM  | POINTS POSSIBLE                            | POINTS ASSIGNED |
|---|--|-----------------|
| Maximum Population Equivalent (P.E.) served (Max 10 pts.)   | 1 pt./10,000 PE or major fraction thereof. | 1               |
| Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)                                    | 1 pt. / MGD or major fraction thereof.     | 1               |
| <b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:</b>  |  |                 |
| Missouri or Mississippi River   | 0  |                 |
| All other stream discharges except to losing streams and stream reaches supporting whole body contact             | 1  |                 |
| Discharge to lake or reservoir outside of designated whole body contact recreational area                         | 2  |                 |
| Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation            | 3  | 3               |
| <b>PRELIMINARY TREATMENT – Headworks</b>  |  |                 |
| Screening and/or comminution  | 3  |                 |
| Grit removal  | 3  |                 |
| Plant pumping of main flow (lift station at the headworks)  | 3  |                 |
| <b>PRIMARY TREATMENT</b>  |  |                 |
| Primary clarifiers  | 5  |                 |
| Combined sedimentation/digestion  | 5  |                 |
| Chemical addition (except chlorine, enzymes)  | 4  |                 |
| <b>REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)</b>                            |  |                 |
| Push – button or visual methods for simple test such as pH, Settleable solids                                     | 3  |                 |
| Additional procedures such as DO, COD, BOD, titrations, solids, volatile content                                  | 5  | 5               |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. | 7  |                 |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph                             | 10   |                 |
| <b>ALTERNATIVE FATE OF EFFLUENT</b>   |  |                 |
| Direct reuse or recycle of effluent   | 6  |                 |
| Land Disposal – low rate  | 3  |                 |
| High rate   | 5  |                 |
| Overland flow   | 4  |                 |
| <b>Total from page ONE (1)</b>  | ----                                       | 10              |

**APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):**

| ITEM   | POINTS POSSIBLE | POINTS ASSIGNED |
|--|-----------------|-----------------|
| <b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b> |                 |                 |
| Variation do not exceed those normally or typically expected                                     | 0               |                 |
| Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow             | 2               | 2               |
| Recurring deviations or excessive variations of more than 200 % in strength and/or flow          | 4               |                 |
| Raw wastes subject to toxic waste discharge  | 6               |                 |
| <b>SECONDARY TREATMENT</b>   |                 |                 |
| Trickling filter and other fixed film media with secondary clarifiers                            | 10              | 10              |
| Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)   | 15              |                 |
| Stabilization ponds without aeration   | 5               |                 |
| Aerated lagoon   | 8               |                 |
| Advanced Waste Treatment Polishing Pond  | 2               |                 |
| Chemical/physical – without secondary  | 15              |                 |
| Chemical/physical – following secondary  | 10              |                 |
| Biological or chemical/biological  | 12              |                 |
| Carbon regeneration  | 4               |                 |
| <b>DISINFECTION</b>  |                 |                 |
| Chlorination or comparable   | 5               |                 |
| Dechlorination   | 2               |                 |
| On-site generation of disinfectant (except UV light)   | 5               |                 |
| UV light   | 4               |                 |
| <b>SOLIDS HANDLING – SLUDGE</b>  |                 |                 |
| Solids Handling Thickening   | 5               |                 |
| Anaerobic digestion  | 10              |                 |
| Aerobic digestion  | 6               |                 |
| Evaporative sludge drying  | 2               |                 |
| Mechanical dewatering  | 8               |                 |
| Solids reduction (incineration, wet oxidation)   | 12              |                 |
| Land application   | 6               |                 |
| Total from page <b>TWO (2)</b>   | ----            | 12              |
| Total from page <b>ONE (1)</b>   | ---             | 10              |
| <b>Grand Total</b>   | ---             | 22              |

- A: 71 points and greater
- B: 51 points – 70 points
- C: 26 points – 50 points
- D: 0 points – 25 points

**APPENDIX – RPA RESULTS:**

| Symbol | Parameter                    | CMC  | RWC Acute | CCC | RWC Chronic | n     | Range     |           | CV   | MF  | Reasonable      | Reasonable        | Reasonable |
|--------|------------------------------|------|-----------|-----|-------------|-------|-----------|-----------|------|-----|-----------------|-------------------|------------|
|        |                              |      |           |     |             |       | Max/Min   | Potential |      |     | Potential Acute | Potential Chronic |            |
| NH3    | Ammonia as Nitrogen (Summer) | 12.1 | 95.19     | 1.5 | 95.19       | 27.00 | 20.2/0.05 | 1.73      | 4.71 | YES | YES             | YES               |            |
| NH3    | Ammonia as Nitrogen (Winter) | 12.1 | 29.15     | 3.1 | 29.15       | 26.00 | 10.9/0.05 | 0.84      | 2.67 | YES | YES             | YES               |            |

N/A – Not Applicable

\* - Units are (µg/L) unless otherwise noted.

\*\* - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.

\*\*\* - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

n – Is the number of samples.

MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.

**APPENDIX – AFFORDABILITY ANALYSIS:**

Missouri Department of Natural Resources  
Water Protection Program  
Affordability Determination and Finding  
(In accordance with RSMo 644.145)

**Chaffee Wastewater Treatment Facility  
City of Chaffee  
Renewal and Modification - Operating Permit #MO-0025305**

Section 644.145 RSMo requires DNR 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 or publicly-owned treatment works.”

Description:

The City of Chaffee Wastewater Treatment Facility (WWTF) is located on West Yoakum St., Chaffee, MO. This facility discharges to a unnamed tributary to Ditch #1 (Class U) (WBID 3052).

Residential Connections:   1198  

Commercial Connections:   0  

Total Connections:   1198<sup>1</sup>  

Proposed New Permit Requirements or Requirements Now Being Enforced:

Permit No. MO-0025302 expired on January 17, 2013. An application for renewal was received on November 5, 2012. The proposed new permit requirements may require the design, construction and operation of ammonia treatment.

**Range of Anticipated Costs Associated with Complying with the New Requirements:**

The department estimates the cost for adding ammonia treatment to be between \$1,713,246 and \$4,838,493 (CAPDEWORKS cost estimator was used). This cost, if financed through user fees, might cost each household between \$24.11 and \$42.11/mo.

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

If user rates are used to finance and operate an upgrade, the rates may need to be between \$24.11 and \$42.11/mo., which may make each household rate as high as 1.3% of the community’s MHI. Percentages above 2% could create a high burden for a community.

---

<sup>1</sup> The number of connections was obtained from Form B of the application for permit renewal.

**(2) Affordability of pollution control options for the individuals or households of the community;**

|  |                           |
|--|---------------------------|
| Current Annual Operating Costs (Exclude Depreciation):                 | unknown                   |
| Current User Rate:   | \$11.11                   |
| Future User Rate:  | \$24.11 and \$42.11/mo.   |
| Estimated Capital Cost of Pollution Control Options:                   | \$1,713,246 - \$4,838,493 |
| Annual Cost of Additional ( <i>operating costs and debt service</i> ): | NA                        |
| Estimated Resulting User Rate:   | \$24.11 and \$42.11/mo.   |
| Median Household Income <sup>2</sup>                                   | \$28,555                  |

Current Usage Rate as a % of Median Household Income: NA  
 Future Usage Rate as a % of Median Household Income: 1.01% - 1.77%<sup>2</sup>

| Check Appropriate Box | Financial Impact | Residential Indicator (Usage Rate as a percent of Median Household Income) |
|-----------------------|------------------|--|
|                       | Low              | Less than 1% MHI   |
| X                     | Medium           | Between 1% and 2% MHI  |
|                       | High             | Greater than 2% MHI  |

If the user rates were calculated to finance the new permit requirements, the rates could be between 0.6% and 1.3% of the MHI, and result in a low to medium financial impact.

- (3) An evaluation of the overall costs and environmental benefits of the control technologies;** the new permit limits on ammonia are anticipated to cost between \$1,713,246 and \$4,838,493. The environmental benefits of the increased ammonia removal will improve conditions for aquatic life in the stream receiving the discharge.
- (4) 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; and*
  - (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;*

<sup>2</sup> 24.11/(28555/12) = 1.01 and 42.11/(28555/12) = 1.77

| Potentially Distressed Populations                    |                                       |
|---|---------------------------------------|
| Unemployment for Chaffee <sup>3</sup>                 | 14.7%                                 |
| Median Household Income (MHI) in Chaffee <sup>4</sup> | \$28,555                              |
| Percent Change in MHI (2000-2010)                     | 5% Increase from \$27,076 to \$28,555 |
| Percent Population Growth/Decline <sup>5</sup>        | 2.92% Decrease from 2000 to 2010      |
| Change in Median Age in Years (2000-2010)             | +11% (from 33.7 to 41.8)              |
| Percent of Households in Poverty <sup>6</sup>         | 17.3%                                 |
| Percent of Households Relying on Food Stamps          | 57.8%                                 |

Opportunity for cost savings or cost avoidance:

If available, connection to a larger centralized sewer system in the area may be more cost effective for the community.

Opportunity for changes to implementation/compliance schedule:

The compliance schedule in the renewed permit could be matched with the time needed for the community to arrange appropriate means to finance an upgrade.

**(5) An assessment of other community investments relating to environmental improvements;**

Unknown.

**(6) 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;**

**Secondary indicators for consideration:**

Socioeconomic, Debt and Financial Indicators

| Indicators              | Strong<br>(3 points)             | Mid-Range<br>(2 points)  | Weak<br>(1 point)                    | Score |
|-------------------------|----------------------------------|--------------------------|--------------------------------------|-------|
| Unemployment Rate       | >1% below Missouri average       | ± 1% of Missouri average | >1% above Missouri average           | 1     |
| Median Household Income | More than 25% above Missouri MHI | ± 25% of Missouri MHI    | More than 25% below Missouri average | 1     |

Average Score for Financial Capability Matrix: 1

Residential Indicator (from Criteria #2 above): 1.01- 1.77

<sup>3</sup> Unemployment data was obtained from American Fact Finder at [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_10\\_5YR\\_S1901&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S1901&prodType=table)

<sup>4</sup> Median Household Income is provided by the American Fact Finder – INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION ADJUSTED DOLLARS) – 2006 – 2010 American Community Survey 5-Year Estimates, which can be found online at:

[http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_10\\_5YR\\_S1901&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S1901&prodType=table)

<sup>5</sup> Population trend data was obtained from online at [http://medcl.missouri.edu/cgi-bin/profiler/profiler.py?profile\\_id=SF1\\_2010&geoids=16000US2912988](http://medcl.missouri.edu/cgi-bin/profiler/profiler.py?profile_id=SF1_2010&geoids=16000US2912988)

<sup>6</sup> Poverty data is provided by the American Fact Finder – POVERTY STATUS IN THE PAST 12 MONTHS – 2006-2010 American Community Survey 5-Year Estimates, which can be found online at

[http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_10\\_5YR\\_DP03&prodType=table](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03&prodType=table)

**Financial Capability Matrix**

| Financial Capability Indicators Score from above ↓ | Residential Indicator (User rate as a % of MHI) |                                   |                   |
|--|---|-----------------------------------|-------------------|
|  | Low (Below 1%)                                  | Mid-Range (Between 1.0% and 2.0%) | High (Above 2.0%) |
| Weak (below 1.5)                                   | Medium Burden                                   | High Burden                       | High Burden       |
| Mid-Range (1.5 – 2.5)                              | Low Burden                                      | Medium Burden                     | High Burden       |
| Strong (above 2.5)                                 | Low Burden                                      | Low Burden                        | Medium Burden     |

Estimated Financial Burden: High Burden

**(7) An assessment of any other relevant local community economic condition.**

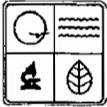
Unknown.

**Conclusion and Finding**

The Department identified the actions for which an affordability analysis is required under Section 644.145 RSMo. The City of Chaffee applied for a renewed operating permit. As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the WWTF to add ammonia treatment.

The Department estimates that adding ammonia treatment will cost the City of Chaffee an estimated \$1,713,246 and \$4,838,493. Should this cost be financed through increased user fees, the increase might require user fees between 1.01% and 1.77% of the community’s Median Household Income.

The Department considered all seven (7) of the criteria presented in subsection 644.145.3 when evaluating the affordability of the relevant actions. Taking into consideration these criteria, this analysis examined whether the above referenced permit modifications affects 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. As a result of reviewing the above criteria, the Department hereby finds that the action described above will likely result in a high burden with regard to the community’s overall financial capability and a high financial impact for most individual customers/households. However, this determination is based on readily available data, and may over-estimate the financial impact on the community.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING  
 PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC  
 WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS  
 PER DAY**

AP 13744

**FOR AGENCY USE ONLY**

|               |               |
|---------------|---------------|
| CHECK NUMBER  |               |
| DATE RECEIVED | FEE SUBMITTED |
| 11/5/12       | 08B           |

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

An operating permit and antidegradation review public notice.

A construction permit following an appropriate operating permit and antidegradation review public notice.

A construction permit, a concurrent operating permit and antidegradation review public notice.

A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).

An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_

An operating permit renewal: Permit #MO- 0025305 Expiration Date 01/17/2013

An operating permit modification: Permit #MO- \_\_\_\_\_ Reason: \_\_\_\_\_

1.1 Is this a Federal/State Funded Project?  Yes  No Funding Agency/Project #: \_\_\_\_\_

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)?  Yes  No

**2. FACILITY**

|  |                 |   |              |
|--|-----------------|---|--------------|
| NAME<br>Chaffee WWTF   |                 | TELEPHONE NUMBER WITH AREA CODE<br>573-887-3558 |              |
| ADDRESS (PHYSICAL)<br>Hwy 77 North   | CITY<br>Chaffee | STATE<br>Missouri                               | ZIP<br>63740 |
| 2.1 LEGAL DESCRIPTION (Plant Site): NE ¼, SW ¼, ¼, Sec. 12, T 29, R 12E County Scott   |                 |   |              |
| 2.2 UTM Coordinates Easting (X): _____ Northing (Y): _____<br>For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83) |                 |   |              |

**3. OWNER City of Chaffee**

|                          |                   |                                 |  |
|--------------------------|-------------------|---------------------------------|--|
| NAME                     |                   | TELEPHONE NUMBER WITH AREA CODE |  |
| ADDRESS<br>222 W. Yoakum |                   | 573-887-3558                    |  |
| CITY<br>Chaffee          | STATE<br>Missouri | ZIP<br>63740                    |  |

3.1 Request review of draft permit prior to Public Notice?  Yes  No

**4. CONTINUING AUTHORITY:** Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

|                          |   |                   |              |
|--------------------------|---|-------------------|--------------|
| NAME<br>City of Chaffee  |   | CITY<br>Chaffee   |              |
| ADDRESS<br>222 W. Yoakum | CERTIFICATE NUMBER (IF APPLICABLE)<br>10780 | STATE<br>Missouri | ZIP<br>63740 |

**5. OPERATOR**

|                                |  |   |  |
|--------------------------------|--|---|--|
| NAME<br>Shannon Hendrix        |  | TELEPHONE NUMBER WITH AREA CODE<br>573-318-4342 |  |
| TITLE<br>Public Works Director |  |   |  |

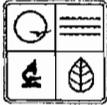
**6. FACILITY CONTACT**

|                         |  |                                |  |
|-------------------------|--|--------------------------------|--|
| NAME<br>Shannon Hendrix |  | TITLE<br>Public Works Director |  |
|-------------------------|--|--------------------------------|--|

MO 760-1805 (09-08)

NOV 05 2012

WATER PROTECTION PROGRAM



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**

|   |                 |
|---|-----------------|
| FACILITY NAME<br>Chaffee Waste Water Treatment Facility |                 |
| PERMIT NO.<br>MO-0025305                                | COUNTY<br>Scott |

**APPLICATION OVERVIEW**

Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.

**BASIC APPLICATION INFORMATION**

- A. Basic Application Information for all Applicants. All applicants must complete Part A.
- B. Additional Application Information for all Applicants. All applicants must complete Part B.
- C. Certification. All applicants must complete Part C.

**SUPPLEMENTAL APPLICATION INFORMATION**

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 2. Is required to have or currently has a pretreatment program.
  - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:
  - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
  - 2. Is required to have or currently has a pretreatment program.
  - 3. Is otherwise required by the permitting authority to provide the information.
- F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes*.  
SIUs are defined as:
  - 1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
  - 2. Any other industrial user that meets one or more of the following:
    - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
    - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
    - iii. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems*.

**ALL APPLICANTS MUST COMPLETE PARTS A, B and C**

|                              |                           |                    |
|------------------------------|---------------------------|--------------------|
| FACILITY NAME<br>Chaffee WWT | PERMIT NO.<br>MO- 0025305 | OUTFALL NO.<br>001 |
|------------------------------|---------------------------|--------------------|

**PART A – BASIC APPLICATION INFORMATION**

**7. ADDITIONAL FACILITY INFORMATION**

**7.1 BRIEF DESCRIPTION OF FACILITIES**

Three Cell Lagoon - lemna system/sludge retained in lagoon. Design flow is 510000 gpd. Actual flow is 30000 gpd. Design sludge production is 76.5 dry tons/year.

**7.2 TOPOGRAPHIC MAP.** ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.)

- The area surrounding the treatment plant, including all unit processes.
- The location of the downstream landowner(s). (See Item 10.)
- The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- The actual point of discharge.
- Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
- If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.

**7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC.** PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.

|                                      |                            |                             |                              |
|--------------------------------------|----------------------------|-----------------------------|------------------------------|
| <b>7.4 FACILITY SIC CODE</b><br>4952 | <b>DISCHARGE SIC CODE:</b> | <b>FACILITY NAICS CODE:</b> | <b>DISCHARGE NAICS CODE:</b> |
|--------------------------------------|----------------------------|-----------------------------|------------------------------|

**7.5 NUMBER OF SEPARATE DISCHARGE POINTS**  
001

**7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT**      **DESIGN POPULATION EQUIVALENT**  
5000

**NUMBER OF UNITS PRESENTLY CONNECTED**  
**HOMES** 894      **APARTMENTS** 50      **TRAILERS** 60      **OTHER** Public Housing 194

|   |                                  |
|---|----------------------------------|
| <b>TOTAL DESIGN FLOW (ALL OUTFALLS)</b><br>510000 gpd | <b>ACTUAL FLOW</b><br>300000 gpd |
|---|----------------------------------|

**7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?**  
Yes       No       (If Yes, attach an explanation.)

**7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES**

**7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2?**      Yes       No

**7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR?**      Yes       No

|  |  |
|--|--|
| <b>A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS</b><br>January - December | <b>B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR?</b><br>7 |
|--|--|

|  |  |
|--|--|
| <b>7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I)</b><br>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | <b>7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |
|--|--|

**7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY?**  
Yes       No

**7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS. ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE.**

**8. LABORATORY CONTROL INFORMATION**

**8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL**

|   |                              |                             |
|---|------------------------------|-----------------------------|
| Lab work conducted outside of plant.  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Push-button or visual methods for simple test such as pH, settleable solids.  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content. | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.                       | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.  | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

|               |                   |             |
|---------------|-------------------|-------------|
| FACILITY NAME | PERMIT NO.<br>MO- | OUTFALL NO. |
|---------------|-------------------|-------------|

**PART A – BASIC APPLICATION INFORMATION**

**9. SLUDGE HANDLING, USE AND DISPOSAL**

9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25?  
 Yes  No

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS  
 Design Dry Tons/Year 76.5 Actual Dry Tons/Year

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

9.4 SLUDGE STORAGE PROVIDED  
 Cubic Feet Days of Storage Average Percent Solids of Sludge  No Sludge Storage is Provided

9.5 TYPE OF STORAGE  
 Holding Tank  Basin  Building  Concrete Pad  Other (Describe) Lagoon

9.6 SLUDGE TREATMENT  
 Anaerobic Digester  Storage Tank  Lime Stabilization  Lagoon  
 Aerobic Digester  Air or Heat Drying  Composting  Other (Attach Description)

9.7 SLUDGE USE OR DISPOSAL  
 Land Application  Contract Hauler  Hauled to Another Treatment Facility  Solid Waste Landfill  
 Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years)  Incineration  
 Other (Attach Explanation Sheet)

**9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY**

NAME  
N/A

|                |                                 |                   |     |
|----------------|---------------------------------|-------------------|-----|
| ADDRESS        | CITY                            | STATE             | ZIP |
| CONTACT PERSON | TELEPHONE NUMBER WITH AREA CODE | PERMIT NO.<br>MO- |     |

**9.9 SLUDGE USE OR DISPOSAL FACILITY**

By Applicant  By Others (Complete Below)

NAME  
N/A

|                |                                 |                   |     |
|----------------|---------------------------------|-------------------|-----|
| ADDRESS        | CITY                            | STATE             | ZIP |
| CONTACT PERSON | TELEPHONE NUMBER WITH AREA CODE | PERMIT NO.<br>MO- |     |

9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503?  
 Yes  No (Attach Explanation)

**10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)**

NAME  
Burger Sons Farm Partnership

|                         |              |             |              |
|-------------------------|--------------|-------------|--------------|
| ADDRESS<br>151 Ballpark | CITY<br>Oran | STATE<br>MO | ZIP<br>63771 |
|-------------------------|--------------|-------------|--------------|

**11. DRINKING WATER SUPPLY INFORMATION**

**11.1 SOURCE OF YOUR DRINKING WATER SUPPLY**

A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY)  
Municipal

B. PRIVATE WELL  
City Owned

C. SURFACE WATER (LAKE, POND OR STREAM)

11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)?  
 Yes  No

11.3 DOES YOUR SUPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY?  
 Yes  No

**END OF PART A**

**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

|                               |                           |                    |
|-------------------------------|---------------------------|--------------------|
| FACILITY NAME<br>Chaffee WWTF | PERMIT NO.<br>MO- 0025305 | OUTFALL NO.<br>001 |
|-------------------------------|---------------------------|--------------------|

**PART B – ADDITIONAL APPLICATION INFORMATION**

**20. INFLOW AND INFILTRATION**

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION.

Gallons Per Day 30000

BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.

Smoke Testing, repair cracked and planned \$6,000,000 collection system rehabilitation

**20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)**

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?

Yes  No  If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME

Environmental Analysis South

MAILING ADDRESS

4000 E. Jackson Blvd., Jackson, MO 63755

TELEPHONE NUMBER WITH AREA CODE

573-204-8817

RESPONSIBILITIES OF CONTRACTOR

Monthly Sample Collection and analysis of Effluent

**20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)**

A. List the outfall number that is covered by this implementation schedule

Outfall No. 001

B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies.

Yes  No

**20.3 WASTEWATER DISCHARGES:**

COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.

**20.4 DESCRIPTION OF OUTFALL**

OUTFALL NUMBER 001

A. LOCATION

¼ NE ¼ SW ¼ Section 12 Township 29N Range 12  E  W

UTM Coordinates Easting (X): 12 Northing (Y): 29

For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable)

ft.

C. Depth Below Surface (If Applicable)

ft.

D. Average Daily Flow Rate

mgd

E. Does this outfall have either an intermittent or periodic discharge?

Yes  No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs: 365

Average Duration of Each Discharge: 24 hr

Average Flow Per Discharge: .300 mgd

Months in Which Discharge Occurs: 12

Is Outfall Equipped with a Diffuser?

Yes  No

**20.5 DESCRIPTION OF RECEIVING WATER**

B. Name of Receiving Water

Unnamed Tributary to ditch #1

B. Name of Watershed (If Known)

U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)  
08020204-010001

B. Name of State Management/River Basin (If Known)

U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)

B. Critical Flow of Receiving Stream (If Applicable)  
Acute \_\_\_\_ cfs Chronic \_\_\_\_ cfs

B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable)  
mg/L of CaCO<sub>3</sub>

|               |                   |             |
|---------------|-------------------|-------------|
| FACILITY NAME | PERMIT NO.<br>MO- | OUTFALL NO. |
|---------------|-------------------|-------------|

**PART B - ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply

Primary     Secondary     Advanced     Other (Describe)

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)

Design BOD<sub>5</sub> Removal Or Design CBOD<sub>5</sub> Removal    65 %    Design SS Removal    \_\_\_ %  
 Design P Removal    \_\_\_ %    Design N Removal    \_\_\_ %    Other    \_\_\_ %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:

none

If disinfection is by chlorination, is dechlorination used for this outfall?     Yes     No

Does the treatment plant have post aeration?     Yes     No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER

| PARAMETER            | MAXIMUM DAILY VALUE |       | AVERAGE DAILY VALUE |       |                |
|----------------------|---------------------|-------|---------------------|-------|----------------|
|                      | VALUE               | UNITS | VALUE               | UNITS | NO. OF SAMPLES |
| pH (Minimum)         | 8.65                | S.U.  | 9.33                | S.U.  | 12             |
| pH (Maximum)         | 9.78                | S.U.  |                     | S.U.  |                |
| FLOW RATE            | 550400              | MGD   | 180665              | MGD   | 12             |
| TEMPERATURE (Winter) | 20                  | °C    | 13                  | °C    | 12             |
| TEMPERATURE (Summer) | 28.5                | °C    | 23                  | °C    | 12             |

\*For pH report a minimum and a maximum daily value.

| POLLUTANT                                  | MAXIMUM DAILY DISCHARGE |          | AVERAGE DAILY DISCHARGE |          |                | ANALYTICAL METHOD | ML/MDL       |
|--|-------------------------|----------|-------------------------|----------|----------------|-------------------|--------------|
|  | CONC.                   | UNITS    | CONC.                   | UNITS    | NO. OF SAMPLES |                   |              |
| Conventional and Nonconventional Compounds |                         |          |                         |          |                |                   |              |
| BIOCHEMICAL OXYGEN DEMAND (Report One)     | BOD <sub>5</sub>        | 45       | mg/L                    | 27.39    | mg/L           | 12                | SM-5210 B-01 |
|  | CBOD <sub>5</sub>       |          | mg/L                    |          | mg/L           |                   |              |
| FECAL COLIFORM                             | 880                     | #/100 mL | 186.6                   | #/100 mL | 12             | SM-9222 D-97      |              |
| TOTAL SUSPENDED SOLIDS (TSS)               | 126                     | mg/L     | 96.38                   | mg/L     | 12             | SM-5240 D-97      |              |
| AMMONIA (AS N)                             | 2.89                    | mg/L     | .671                    | mg/L     | 12             | Lachat-10-107-0   |              |
| CHLORINE (TOTAL RESIDUAL, TRC)             | .23                     | mg/L     | .085                    | mg/L     | 12             | SM-4500-CI G-0    |              |
| DISSOLVED OXYGEN                           |                         | mg/L     |                         | mg/L     |                |                   |              |
| TOTAL KJELDAHL NITROGEN (TKN)              |                         | mg/L     |                         | mg/L     |                |                   |              |
| NITRATE PLUS NITRITE NITROGEN              |                         | mg/L     |                         | mg/L     |                |                   |              |
| OIL AND GREASE                             | < 5                     | mg/L     | < 5                     | mg/L     | 12             | EPA-1664A         |              |
| PHOSPHORUS (TOTAL)                         |                         | mg/L     |                         | mg/L     |                |                   |              |
| TOTAL DISSOLVE SOLIDS (TDS)                |                         | mg/L     |                         | mg/L     |                |                   |              |
| OTHER                                      |                         | mg/L     |                         | mg/L     |                |                   |              |

**END OF PART B**

**PART C - CERTIFICATION**

**30. CERTIFICATION**

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

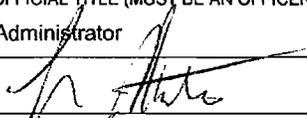
ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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 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.

PRINTED NAME AND OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)

Lee Horton - City Administrator

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

573-887-3558

DATE SIGNED

08/09/2012

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

For Design Flows Less than 1 Million Gallons Per Day,  
Send Completed Form to:

**Appropriate Regional Office**

Map of regional offices with addresses and phone numbers is available on the Web at [www.dnr.mo.gov/regions/ro-map.pdf](http://www.dnr.mo.gov/regions/ro-map.pdf).

For Design Flows of 1 Million Gallons Per Day or Greater,  
Send Completed Form to:

Department of Natural Resources  
Water Protection Program  
ATTN: NPDES Permits and Engineering Section  
P.O. Box 176  
Jefferson City, MO 65102

**END OF PART C.**

**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.**

Do not complete the remainder of this application, unless:

1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

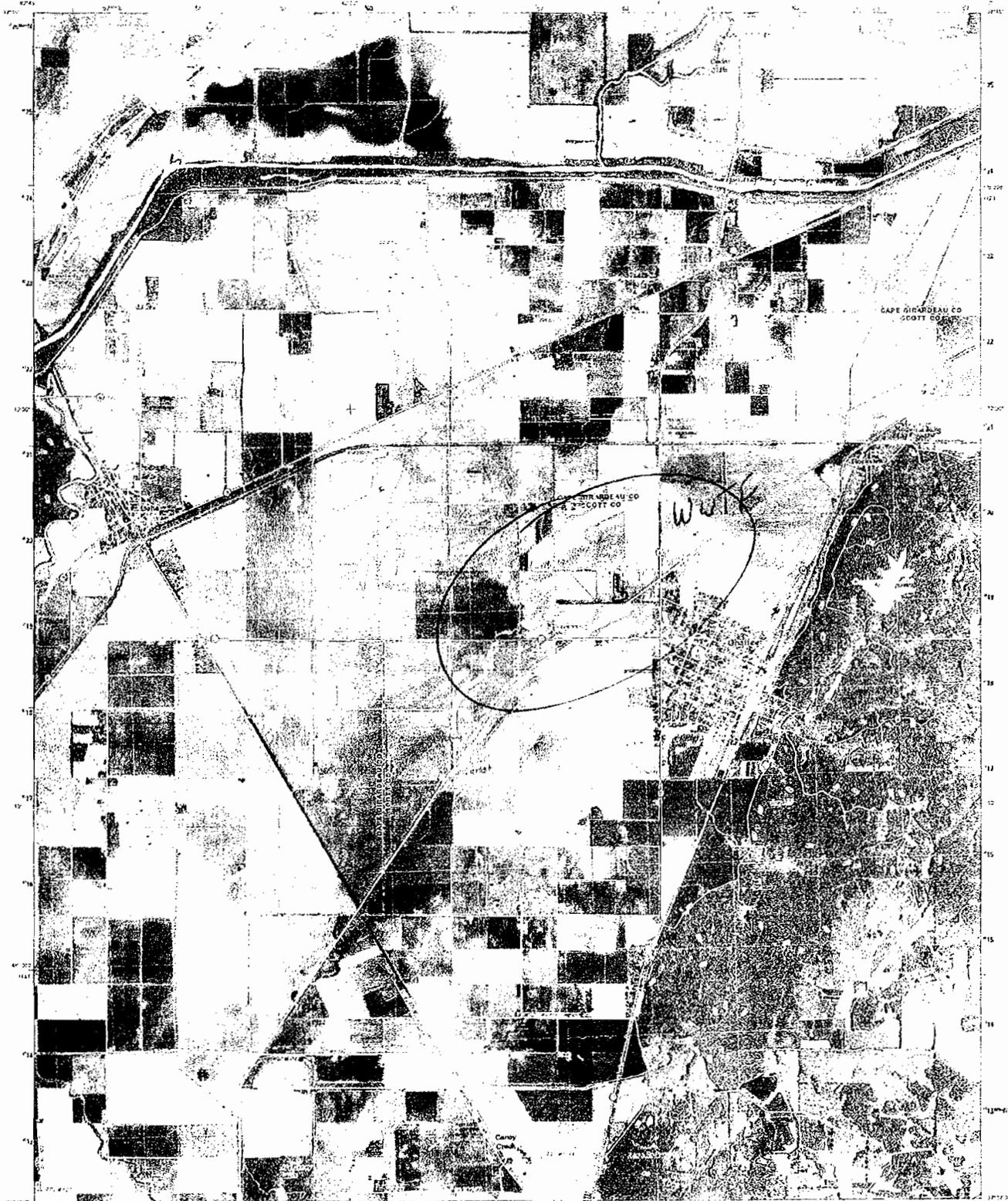
Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.



U.S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

The National Map  
US Topo

CHAFFEE QUADRANGLE  
MISSOURI  
7.5-MINUTE SERIES



Produced by the United States Geological Survey  
Map Date: 2012  
Scale: 1:25,000  
Projection: UTM  
Datum: NAD 83  
Contour Interval: 10 feet  
Vertical Datum: Mean Sea Level

SCALE 1:25,000

ROAD CLASSIFICATION

Legend  
Symbol Description  
Roads  
Contours  
Water  
Vegetation  
Buildings  
Other



U.S. GEOLOGICAL SURVEY  
DEPARTMENT OF THE INTERIOR  
WASHINGTON, D.C. 20508



CHAFFEE, MO  
2012

# City of Chaffee WWTF



Thursday, May 28, 2012 3:15:09 PM CDT Missouri Department of Natural Resources

0 2173ft  
View Scale 1:24,240

MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MNR 001

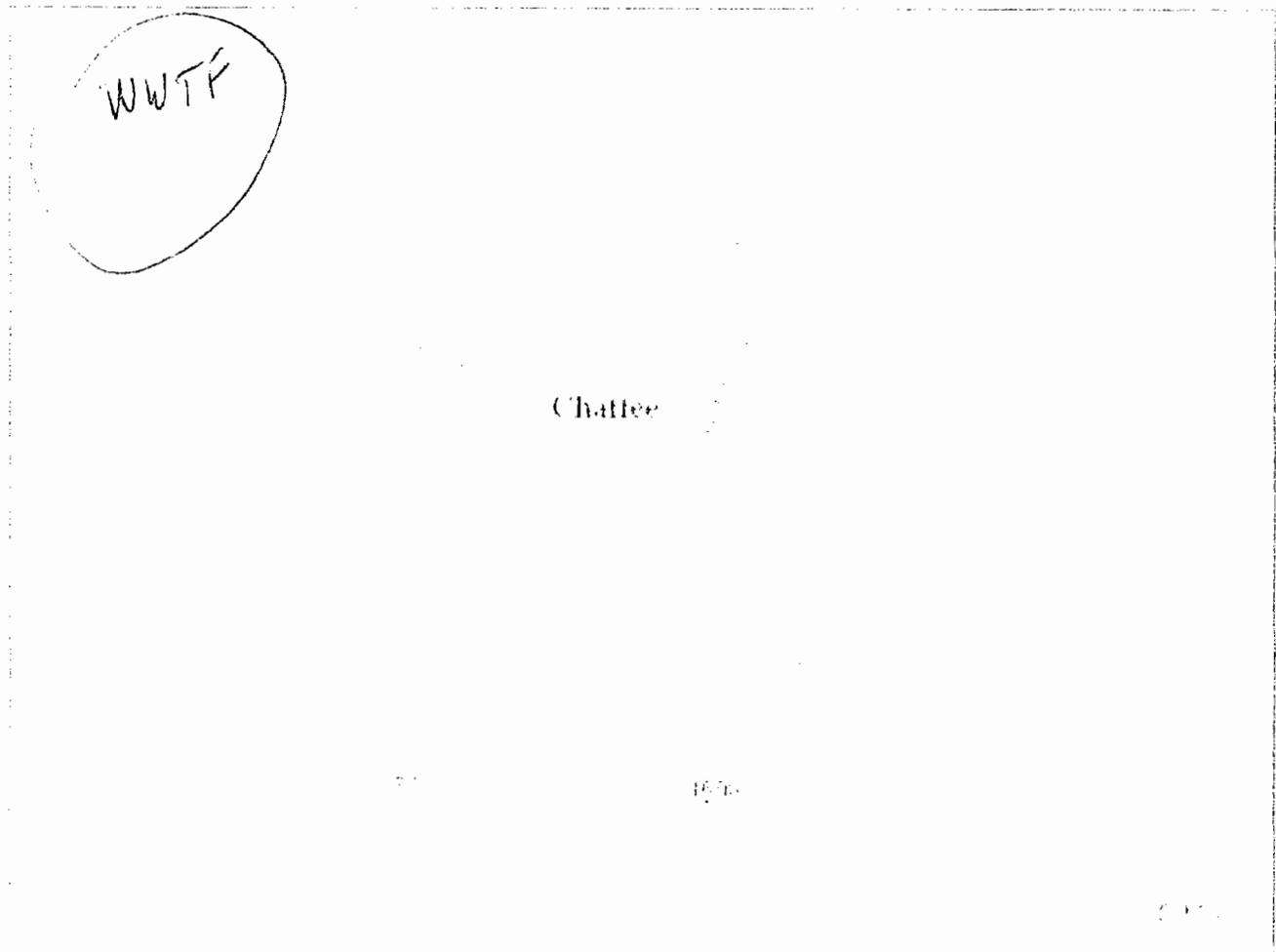


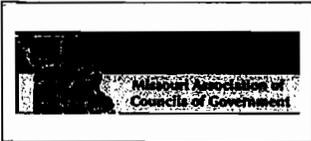
Missouri  
Department of  
Natural Resources

Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

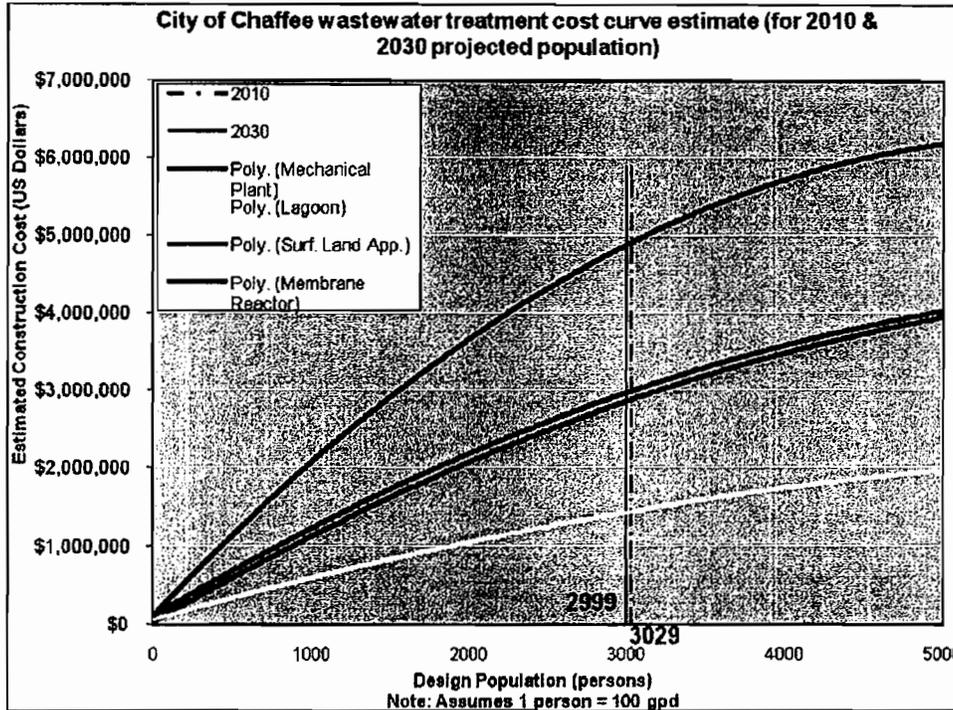
# Chaffee, Missouri

chaffee, missouri





# Community Wastewater Assessment City of Chaffee



The graph above estimates the cost of construction for wastewater systems to meet the capacity needs of the forecasted population. The vertical lines indicate the estimated population for 2010 and 2030. The intersection of these lines will provide an estimate of future construction costs based on treatment type and population.

|                                 | Interest rate (%) | Amortization period (years) | Total payment | Annual debt payment (\$) | Current number of users | Annual payment required per user (\$) | Estimated monthly payment increase (\$) |
|---------------------------------|-------------------|-----------------------------|---------------|--------------------------|-------------------------|---------------------------------------|---|
| Current market rate             | 5.5               | 20                          | \$1,650,960   | 82,548                   | 1150                    | \$71.78                               | \$5.98                                  |
| USD/Amrta development loan rate | 3                 | 20                          | \$1,191,600   | 59,580                   |                         | \$44.68                               | \$3.72                                  |
| SRF loan                        | 1.81              | 20                          | \$1,191,600   | 59,580                   |                         | \$51.81                               | \$4.32                                  |

**Note:** This information is for planning purposes only; jurisdictions should work with their engineering consultants, financial advisers, and local regional planning commission before undertaking any course of action. Data presented in this summary report is provided by the Census Bureau and the MACOG Community Sewer Assessment Survey conducted as part of this project. Linear interpolation is used to project population estimates for 2010 and 2030 assuming a linear model of population change between 1990 and 2000 numbers. The survey results are dated as of fall 2010.

$$\text{Projected population} = \text{Pop (2000)} + B (\text{projected year} - \text{last year})$$

$$B = (\text{2000 population} - \text{1990 population}) / \text{2000-1990}$$

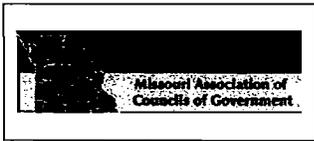
$$\text{Projected population (2010)} = \text{Pop (2000)} + B (10)$$

$$\text{Projected population (2030)} = \text{Pop (2010)} + B (20)$$



Environmental Protection Agency Region 7 through the Missouri Department of Natural Resources has provided funding (or partial funding) for this project under the American Recovery and Reinvestment Act of 2009, Section 604(b) of the Clean Water Act.





# Community Wastewater Assessment City of Chaffee

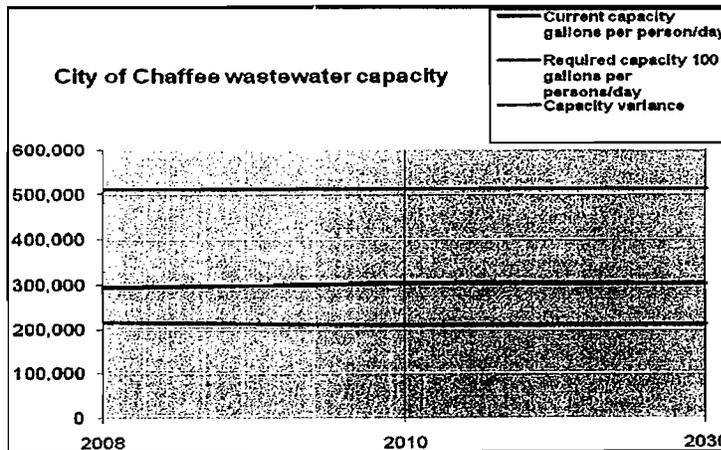
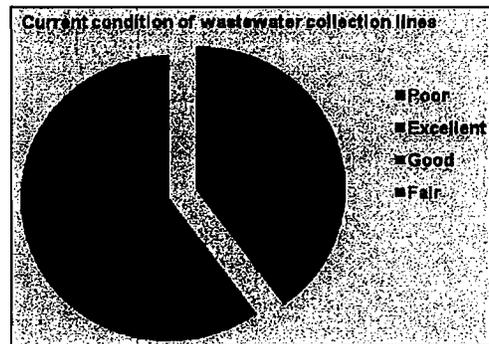
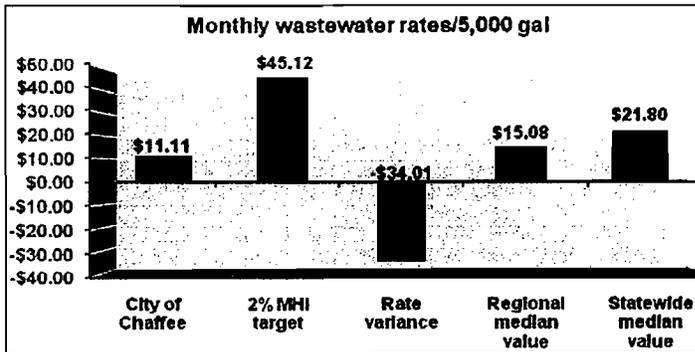


The City of Chaffee, together with Bootheel Regional Planning and Economic Development Commission, MoDNR and the Missouri Association of Councils of Government, surveyed small community wastewater treatment systems in the state. The goal of this project is to assess and inventory public wastewater systems; develop a wastewater improvement needs summary for interested communities and watersheds; identify potential funding opportunities for improvements; and work with communities as appropriate to anticipate needed improvements to maintain and improve water quality. This summary report is designed to provide a "snapshot" of the existing system; a comparison of this system to others in the region and the State; and to forecast future system capacity needs, options, and costs.

## EXISTING CONDITIONS

**City of Chaffee Wastewater System**

- Current Population = 2,950
- % of community served = 100%
- System type = Gravity collection system (161,747 gal/day)
- Current capacity = 570,000 gal/day
- Required capacity = 295,000 gal/day
- Anticipated capacity needs (2030) = 939,000 gal/day
- 60% of the pipes are in fair condition
- Have inflow/infiltration (I/I) issues - have a full 1/4 mile program
- There are no planned wastewater improvements at this time
- Amount of outstanding wastewater treatment plant (WWTP) improvements = \$6,000,000



**NPDES Permit**

- Permit: MO-0025305
- Expiration: 01/17/2013
- This permit has a Schedule of Compliance. Please refer to the permit for details.
- NPDES information: [www.mdnr.com](http://www.mdnr.com)



Environmental Protection Agency Region 7 through the Missouri Department of Natural Resources has provided funding (or partial funding) for this project under the American Recovery and Reinvestment Act of 2009, Section 604(b) of the Clean Water Act.



# Multi-million water, sewer bond issue on April ballot for Chaffee

Monday, March 29, 2010

By Brian Blackwell ~ Southeast Missourian

**CHAFFEE, Mo.** -- Councilman Steve Loucks isn't calling Chaffee's aging water and wastewater system an immediate danger to the town of 2,950.

But if voters don't approve proposed changes to the system through a \$12 million, 30-year bond vote April 6, Loucks said the city's residents could be facing a troublesome situation and higher utility rates in the future.

"By being proactive we feel it will help us out in the long run and prevent any potential problems from happening," said Loucks, who has been heavily involved in proposing the changes.

The city's water system has served residents for decades but dirty water and line breaks have become a recurring problem, said Marvin Nesbit, director of business development for Schultz and Summers Engineering. The city hired the Poplar Bluff, Mo., firm in 2008 to conduct an in-depth study of ways to improve its water and wastewater system. Its study was completed in January.

Built in 1986, the water treatment plant was designed for removal of iron and manganese from the drinking water. As the well water enters the plant, it is injected with chlorine for disinfection. The water then flows into a detention tank outside of the plant before flowing back into the plant building through two large filters.

Because much of this process is performed manually, automation is proposed to increase efficiency while reducing errors that could occur by its operators.

"This will be a big help because a computer will make it much easier on us who are working here," said Shannon Hendrix, public works administrator. "After doing this by hand for years, we're looking forward to the change."

In addition to automating the process, another proposed change is replacing the HVAC system and dehumidifiers to prevent the formation of excess condensation. At times condensation that forms on the floor poses a safety danger, the study said. The condensation also forms on pipes, contributing to erosion.

Other proposed changes to the plant include installing new lighting, an automatic transfer switch from normal power to a standby generator in emergency situations and new testing equipment.

Meanwhile, the study found that a new disinfection facility likely would need to be added to its wastewater treatment system. The current disinfection system uses a clay pipe collection system known for infiltration problems from cracking. The study said continuing to use this system could result in violations by the Environmental Protection Agency.

The need to upgrade its water and wastewater system dates back to 2008, when Chaffee was issued two boil-water orders, including one that lasted for 10 days.

The city in 2008 hired Schultz and Summers Engineering to conduct the study and in March held three meetings to allow for public input. A fourth meeting is scheduled for 6:30 p.m. April 5 at city hall.

If the voters approve the bond, Loucks said rates would be about \$61 per month per household. If the bond is not approved, the city would use private financing to make the required upgrades at a cost of nearly \$91 each month for a household.

"Other cities have this staring them in the face," Loucks said. "We don't want to be in the same boat as some others in our state."

Loucks hopes to avoid situations like what happened in January at Hayti Heights, Mo. The Southeast Missouri town was declared a hazardous substance emergency by the Missouri Department of Natural Resources after the city was unable to provide consistent drinking and wastewater services to its residents, according to the Associated Press.

The department was notified over New Year's weekend that residents of Hayti Heights had no drinking water and that sewage was backing up into homes and yards. Bottled water was brought in and department staff sent to investigate found the drinking water plant shut down and in a state of disrepair. The wastewater system was overloaded and had broken pumps at several lift stations.

In addition, the city's management of its drinking water system resulted in excess chemicals being added to the system, with the threat of chlorine from treated drinking water being released into the environment.

Despite a slow economy nationwide, Loucks said he is optimistic that voters will approve the bond measure.

"The question I have to those who may be wondering if they should vote on this is, what would you be willing to give up?" Loucks said. "You wouldn't want to move to a place that doesn't have an up-to-date and proper-functioning water and sewer system. This will add to our quality of life here for years to come."

[bblackwell@semissourian.com](mailto:bblackwell@semissourian.com)

388-3628

Pertinent addresses:

222 W Yoakum Ave, Chaffee, MO

4800 West Boulevard, Poplar Bluff, MO

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Story URL: <http://www.semissourian.com/story/1621753.html>

**FREQUENTLY ASKED QUESTIONS FOR THE PROPOSED IMPROVEMENTS TO THE CITY OF CHAFFEE WATER SYSTEM AND WASTEWATER SYSTEM**

There is an important issue that you as a registered voter living in the city limits of Chaffee will be given the opportunity to vote on during the April 6th election. It is to pass a bond issue so that funding can be obtained to make much needed improvements to the water and wastewater systems of the City of Chaffee.

**Wastewater System Upgrades**

The current Missouri State Operating Permit for the Chaffee wastewater treatment facility requires that disinfection facilities be added to the existing treatment plant by 2011.

The permit also requires Chaffee to monitor ammonia. This means that ammonia limits will be imposed on Chaffee with the new permit in 2013 so the wastewater treatment facility has to meet this requirement as well. This will require an upgrade of the existing wastewater treatment facility.

The City's sewer collection system has 7 lift stations and several of them need repairs. There are also about 25 manholes to be repaired in the collection system. Areas where there are inflow and infiltration problems also need to be addressed.

**Water System Upgrades**

The City's water system has urgent problems that need to be resolved. Currently, the City of Chaffee is under a bilateral compliance agreement with DNR and has completed some of the activities required by this agreement. Other portions of the bilateral compliance agreement still need to be addressed through upgrades to the existing system. To continue providing water that is healthy to drink, there are several upgrades to the water treatment plant and the distribution system that need to be made. The continual problem with "reddish" water is due to iron deposits and corrosion in the water mains. These mains need to be replaced to solve this problem. The water lines in the main part of town are undersized so the City does not have adequate flow to fight fires in many areas. There are also water pressure problems in the system due to the undersized lines. These undersized water mains will be replaced.

The City must pass a bond issue to have access to the low-interest funding provided by the public funding agencies. Although it will require a rate increase to pay back the low-interest loan, this will avoid the more expensive private financing and keep your rate increase lower.

*Q. Are the improvements to the Chaffee wastewater treatment plant going to be paid for by a property tax?*

A. NO! The funding source for the construction of the water and wastewater improvements will only allow revenue bonds to be used to back the loan portion of the funding. This means that the loan will be paid back through the user fees that are generated. No one will be assessed additional property tax because of the bond issue. Those users who are on the existing system and anyone in the service area that requests to hook on to the sewer system will pay the monthly user fee for sewer service.

*Q. I understand we have to vote on the issuance of the revenue bonds? Why is that?*

A. Before the City of Chaffee takes on the obligation of revenue bonds, the Missouri Revised Statutes dictate

(continued on back of page)

*Q. When will you be required to pay the new fee?*

A. Most likely, it will be 18 months before you would begin paying the new rate. It will begin when construction starts on the project.

*Q. Why is Chaffee being required to complete this project?*

A. Chaffee is not being singled out by the Department of Natural Resources. Nearly every municipality with a lagoon is being required to upgrade their wastewater treatment facilities because of new regulations regarding discharges into receiving streams. Especially in Southeast Missouri, where the lagoon treatment facility predominates, municipalities everywhere are making upgrades.

The water system has been cited for deficiencies by the Department of Natural Resources for many years. Most of these involve the water treatment plant. However, there are many complaints from the residents about "reddish" water that are the result of old water mains which are corroded by iron deposits.

*Q. Will my yard be left a total mess after construction?*

A. The rehabilitation of the sewer mains will be done with a cured-in-place liner that does not require digging up the lines. The water mains will be located in the City's street right-of-way. In the event water mains are placed on private property, the construction specifications will include a section covering seeding of existing yards. The specification will say each yard must be returned to its pre-construction condition. At the very least, the contractor will be required to smooth over the trenched area, gather out any over sized rocks, and then seed, fertilize, and straw each disturbed area. The City's engineer should be contacted if you have problems with project clean up.

**It is important to remember that your rate increase will be affected by whether you pass the bond issue or not. If the bond issue is passed, the estimated average user's rate (one that uses 5,000 gallons of water per month) will be the following:**

|                               |                |
|-------------------------------|----------------|
| <b>Sewer Monthly User Fee</b> | <b>\$25.27</b> |
| <b>Water Monthly User Fee</b> | <b>\$37.27</b> |

**If the bond issue does not pass and the City has to use private financing to make the required upgrades, the estimated average user's rate will be:**

|                               |                |
|-------------------------------|----------------|
| <b>Sewer Monthly User Fee</b> | <b>\$37.27</b> |
| <b>Water Monthly User Fee</b> | <b>\$51.87</b> |

Paid for by City of Chaffee, Missouri  
Loretta Mohorc, Mayor

**City of Chaffee Sewer Rehabilitation and Treatment Project**

**Collection System Rehabilitation**

| Description  | Quantity | Unit | Unit Price    | Total                  |
|--|----------|------|---------------|------------------------|
| 1 Smoke Testing of Sewer Mains                       | 1        | LS   | \$ 30,000.00  | \$ 30,000.00           |
| 2 Video Taping of Sewer Mains                        | 82,000   | LF   | \$ 1.40       | \$ 114,800.00          |
| 3 In-Situ Repair of Sewer Mains                      | 20,000   | LF   | \$ 28.00      | \$ 560,000.00          |
| 4 Dig and Replace Existing Main w/8" SDR-35 PVC      | 20,000   | LF   | \$ 25.00      | \$ 500,000.00          |
| 5 4" Forcemain w/Locator Tape                        | 1,500    | LF   | \$ 6.00       | \$ 9,000.00            |
| 6 8" Forcemain w/Locator Tape                        | 3,000    | LF   | \$ 9.00       | \$ 27,000.00           |
| 7 Forcemain Connection to Existing Manhole           | 6        | EA   | \$ 500.00     | \$ 3,000.00            |
| 8 Manhole Repairs                                    | 25       | EA   | \$ 1,000.00   | \$ 25,000.00           |
| 9 Lift Station #1 Rehabilitation                     | 1        | LS   | \$ 100,000.00 | \$ 100,000.00          |
| 10 Lift Station #6 Rehabilitation                    | 1        | LS   | \$ 60,000.00  | \$ 60,000.00           |
| 11 Lift Station Hoist Installation                   | 3        | EA   | \$ 500.00     | \$ 1,500.00            |
| 12 Cellular Control Unit for Terminal Lift Station   | 1        | LS   | \$ 5,000.00   | \$ 5,000.00            |
| 13 Individual House Reconnections                    | 600      | EA   | \$ 500.00     | \$ 300,000.00          |
| 14 4" SDR-26 Service Main                            | 30,000   | LF   | \$ 7.00       | \$ 210,000.00          |
| 15 Repair & Replace Gravel                           | 3,000    | TN   | \$ 23.00      | \$ 69,000.00           |
| 16 Repair & Replace Asphalt                          | 500      | SY   | \$ 50.00      | \$ 25,000.00           |
| 17 Repair & Replace Concrete                         | 250      | SY   | \$ 65.00      | \$ 16,250.00           |
| 18 Back-up Generator at Lift Station #1 w/ ATS       | 1        | LS   | \$ 75,000.00  | \$ 75,000.00           |
| 19 Portable Generator w/ Pigtail, Trailer, & 6 MTS's | 1        | LS   | \$ 75,000.00  | \$ 75,000.00           |
| 20 Project Cleanup                                   | 1        | LS   | \$ 25,000.00  | \$ 25,000.00           |
| <b>Collection Rehabilitation Total</b>               |          |      |               | <b>\$ 2,230,550.00</b> |

**Non-Discharge Lagoon with Spray Field (Complete In Place)**

| Description  | Quantity | Unit | Unit Price    | Total                  |
|--|----------|------|---------------|------------------------|
| 21 Forcemain for By-passing Lagoon During Construction | 3,000    | EA   | \$ 9.00       | \$ 27,000.00           |
| 22 Dirt Work   | 150,000  | CY   | \$ 4.00       | \$ 600,000.00          |
| 23 Lagoon Liner  | 633,000  | SF   | \$ 1.00       | \$ 633,000.00          |
| 24 Site Piping   | 1        | LS   | \$ 40,000.00  | \$ 40,000.00           |
| 25 Irrigation Lift Station                             | 1        | LS   | \$ 150,000.00 | \$ 150,000.00          |
| 26 3-Phase Electric Extension                          | 1        | LS   | \$ 75,000.00  | \$ 75,000.00           |
| 27 Irrigation Equipment w/ Controls                    | 1        | LS   | \$ 200,000.00 | \$ 200,000.00          |
| 28 8" Magnetic Flow Meter                              | 1        | LS   | \$ 10,000.00  | \$ 10,000.00           |
| 29 8" Forcemain to Spray Field                         | 3,000    | LF   | \$ 9.00       | \$ 27,000.00           |
| 30 Fencing & Gates for Lagoon - Complete In Place      | 4,500    | LF   | \$ 23.00      | \$ 103,500.00          |
| 31 Entrance Road                                       | 1        | LS   | \$ 20,000.00  | \$ 20,000.00           |
| 32 Sludge Removal from Existing Lagoons                | 1        | LS   | \$ 100,000.00 | \$ 100,000.00          |
| 33 Project Cleanup                                     | 1        | LS   | \$ 30,000.00  | \$ 30,000.00           |
| <b>Treatment Facility Construction Total</b>           |          |      |               | <b>\$ 2,015,500.00</b> |

**Total Construction Costs** \$ 4,246,050.00

**Summary of Costs**

|                            |                                    |
|----------------------------|------------------------------------|
| Total Construction Costs   | \$ 4,246,050.00                    |
| Contingency (5%)           | \$ 213,000.00                      |
| Easements Acquisition      | \$ 70,000.00                       |
| Easement Recording         | \$ 25,000.00                       |
| Land Purchase (200 acres)  | \$ 600,000.00 <i>\$600k option</i> |
| Surveying                  | \$ 30,000.00                       |
| Environmental Report       | \$ 5,000.00                        |
| Preliminary Engineering    | \$ 20,000.00                       |
| Engineering Design (6.55%) | \$ 278,149.82                      |
| Engineering Inspection     | \$ 208,612.36                      |
| Legal & Bond Counsel       | \$ 55,000.00                       |
| Two Year Interest          | \$ 269,000.00                      |
| Audit (2 Years)            | \$ 15,000.00                       |
| <b>TOTAL PROJECT COST</b>  | <b>\$ 6,034,812.18</b>             |

*\$488,000*



222 W. Yoakum • Chaffee, MO 63740

(573) 887-3558 • Fax (573) 887-3080

October 29, 2012

Missouri Department of Natural Resources  
Southeast Regional Office  
2155 North Westwood Blvd.  
Poplar Bluff, MO 63901

RECEIVED

NOV 05 2012

WATER PROTECTION DIVISION

Re: Application for Operating Permit # MO-0025305

To Whom It May Concern:

Enclosed is our application for an operating permit for the Chaffee Waste Water Treatment Facility permit # MO-0025305. Enclosed is also some information concerning our wastewater sewer rehabilitation and treatment project.

Our current system of wastewater treatment, 3 cell lagoon, is in need of replacement and our collection system is in need of rehabilitation.

We have passed a bond issue in order to obtain a USDA/ Rural Development loan to rehabilitate our sewer and wastewater treatment system. We will be rehabilitating our collection system and will switch to a non-discharge lagoon with a spray field land application system.

This project will be completed in two parts and because of available funding we are looking to begin rehabilitation of the collection lines in the Spring of 2013. Construction on the treatment system is expected to start in the Fall of 2013.

Thank you for your cooperation with us so far on our system. We also appreciate your future cooperation as we work to rehabilitate our system.

Regards,

Lee Horton  
City Administrator