

**BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES**

**In the Matter of:** )  
 )  
 City of Wardell )  
 Wastewater Treatment Facility )  
 )  
**Serve:** )  
 )  
 The Honorable David Byrd, Mayor )  
 City of Wardell )

**Order No. 2016-WPCB-1341**

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**ABATEMENT ORDER ON CONSENT**

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**NOTICE TO RECIPIENTS OF ABATEMENT ORDERS ON CONSENT**

The issuing of this Abatement Order on Consent (AOC) No. 2016-WPCB-1341, by the Department of Natural Resources, is a formal administrative action by the state of Missouri and is being issued because the city of Wardell’s wastewater treatment facility (WWTF) is in violation of the Missouri Clean Water Law (MCWL). This AOC is issued under the authorities of Sections 640.130, 640.131, 644.056 and 644.079, RSMo. Failure to comply with this AOC is, by itself, a violation of the MCWL Section 644.076.1, RSMo. Litigation may occur without further administrative notice if there is not compliance with the requirements of this AOC. This AOC does not constitute a waiver or a modification of any requirements for the MCWL, or its implementing regulations, all of which remain in full force and effect. Compliance with the terms of this AOC shall not relieve the Respondents of liability for, or preclude the department from, initiating an administrative or judicial enforcement action to recover civil penalties for any future violations of the MCWL, or to seek injunctive relief, pursuant to Chapter 644, RSMo.

## FINDINGS OF FACT

The department makes the following findings of fact:

1. The city of Wardell is a fourth class municipality with a population of approximately 427 residents. The city owns and operates a WWTF that consists of a three cell aerated lagoon with sludge retained in the lagoon. The WWTF is located in the NW ¼, NW ¼, Section 25, Township 20 North, Range 11 East, in Pemiscot County, Missouri. The WWTF has a design population equivalent of 1,026, a design flow of 130,000 gallons per day (gpd), and an average flow of 76,000 gpd. Treated effluent from the WWTF discharges from Outfall No. 001 to Old Channel Little River, pursuant to the conditions and requirements of Missouri State Operating Permit (MSOP) No. MO-0052132.

2. Old Channel Little River is waters of the state as the term is defined by Section 644.016(27), RSMo.

3. Domestic wastewater is a water contaminant as the term is defined by Section 644.016(24).

4. On December 31, 2009, the department re-issued MSOP No. MO-0052132 to the city, which expired by its own terms on December 30, 2014. MSOP No. MO-0052132 included final effluent limits for Ammonia as Nitrogen, Fecal Coliform, and Total Residual Chlorine. Section "E", Schedule of Compliance (SOC), of the MSOP required the city to: 1) submit a preliminary engineering report to the department prepared by a registered professional engineer in the state of Missouri by December 31, 2010, recommending upgrades to enable the WWTF to comply with the new effluent limits; 2) submit a construction permit application to the department by December 31, 2011; and 3) complete construction by December 31, 2012.

5. MSOP No. MO-0052132 requires the city to sample the effluent discharged from Outfall No. 001 and chemically analyze the effluent sample for the water contaminants listed in Part “A” every month. The MSOP further requires the effluent to comply with the effluent limitations contained in Part “A” and requires the results of the analyses to be submitted to the department on monthly Discharge Monitoring Reports (DMRs) by the 28<sup>th</sup> day of the month following the reporting period.

6. Monthly DMRs submitted to the department document that the effluent discharged from the WWTF failed to comply with the applicable permitted effluent limitations for Ammonia as Nitrogen during the months of January and February 2014; and January, February, August, and September 2015.

7. Monthly DMRs submitted to the department document that the effluent discharged from the WWTF failed to comply with the applicable permitted effluent limitations for Fecal Coliform during the months of August and September 2014; and April, May, September, and October 2015.

8. Monthly DMRs submitted to the department document that the city failed to submit complete, timely, and accurate DMRs for the months of July, August, September, and October 2014.

9. On July 5, 2011, the department received a preliminary engineering report submitted by Schultz & Summers Engineering, on behalf of the city, with recommendations for upgrading the WWTF. The recommended alternative was to rehabilitate the existing WWTF by increasing the aeration capacity, covering the lagoon cells with HDPE modular insulated covers, constructing a polishing reactor, and constructing an ultraviolet disinfection system.

10. On July 7, 2011, the department sent correspondence to the city approving the preliminary engineering report for wastewater improvements.

11. On May 16, 2013, department staff conducted a routine compliance inspection of the city's WWTF. During the inspection, staff documented that the city failed to comply with permitted effluent limits contained in Part "A" of the MSOP, the city failed to complete upgrades to comply with the final effluent limits, and a single aeration lateral in the lagoon was blocked.

12. On August 6, 2013, the department issued Notice of Violation No. 19276 SE to the city for violations documented during the May 16, 2013, inspection.

13. On June 10, 2014, department staff conducted a routine compliance inspection of the WWTF. During the inspection, staff documented that the city failed to comply with permitted effluent limits contained in Part "A" of the MSOP, failed to complete upgrades to comply with permitted effluent limits, failed to submit timely DMRs, failed to perform Whole Effluent Toxicity (WET) testing once every five years, and failed to operate and maintain WWTFs to comply with the MCWL and applicable permit conditions.

14. To date, the department has not received a complete application for a construction permit for WWTF upgrades or an MSOP renewal application from the city.

15. Section 644.076.1, RSMo makes it unlawful to violate the MCWL and regulations promulgated pursuant thereto and establishes penalties up to \$10,0000.00 per day per violation.

#### **STATEMENT OF VIOLATIONS**

The department finds that the city has violated the MCWL and its implementing regulations as follows:

16. Failed to submit a construction permit application which includes plans and specifications, a construction activity schedule, and the applicable fee by December 31, 2011, as required in Part "E", SOC, of MSOP No. MO-0052132, in violation of Section 644.076.1, RSMo, and 10 CSR 20-6.010(7)(A).

17. Failed to comply with the effluent limits contained in Part "A" of MSOP No. MO-0052132, in violation of Sections 644.051.1(3) and 644.076.1.

18. Caused pollution of Old Channel Little River, waters of the state, or placed or caused or permitted to be placed, a water contaminant in a location where it is reasonably certain to cause pollution of waters of the state, in violation of Sections 644.051.1(1) and 644.076.1, RSMo.

19. Failed to submit complete, timely, and accurate DMRs as required in Part "A" of MSOP No. MO-0052132, in violation of Section 644.076.1, RSMo, and 10 CSR 20-7.015(9)(D)1.

20. Failed to operate and maintain the WWTF to comply with the MCWL and applicable permit conditions, in violation of Section 644.076.1, RSMo, and 10 CSR 20-6.010(8)(A)4.

21. Failed to perform WET testing once within a five year period as required by Special Condition No. 9 of MSOP No. MO-0052132, in violation of Section 644.076.1, RSMo.

22. Failed to apply for renewal of the MSOP at least 180 days before expiration of MSOP No. MO-0052132, in violation of Sections 644.051.1 and 644.076.1, RSMo, and 10 CSR 20-6.010(5)(C).

## AGREEMENT

23. The department and the city desire to amicably resolve all claims that may be brought against the city for violations alleged above in Statement of Violations.

24. The provisions of this AOC shall apply to and be binding upon the parties executing this AOC, their successors, assigns, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under; through; or for the parties. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of the city under this AOC.

25. The city, in compromise and satisfaction of the department's claims relating to the above referenced violations, agrees, without admitting liability or fault, to pay a civil penalty in the amount of \$6,000.00. The department and the city further agree that \$6,000 of such penalty shall be suspended for a period of two years on the condition that the city does not violate the terms of this AOC. Upon determination that the city has failed to meet the terms of this AOC, including the terms set out in Paragraphs 26 through 30, the department shall send a written demand for the suspended penalty in the amount of \$6,000.00 to the city. The city shall have 15 days from receipt of the written demand to submit the suspended penalty, made payable to the "Pemiscot County Treasurer, as custodian of the Pemiscot County School Fund," which shall be delivered to:

Accounting Program  
Department of Natural Resources  
P.O. Box 477  
Jefferson City, MO 65102-0477

26. In the period of time from the effective date of this AOC until the new or upgraded WWTF is completed, the city shall operate and maintain the existing WWTF at all times so as to produce the best effluent quality possible and comply with the terms and conditions of the MSOP. All units or components of the existing WWTF shall be maintained in an operable condition, even if this requires the purchase and installation of new parts or equipment and the repair of the WWTF.

27. The city agrees and is ordered to submit timely, accurate, and complete DMRs to the department as required by the conditions and requirements of MSOP No. MO-0052132. The city also agrees to conduct and record all operational tests to comply with the requirements of the MSOP, MCWL, and their implementing regulations.

28. Within 30 days of the effective date of this AOC, the city agrees and is ordered to submit to the department a MSOP renewal application.

29. Within 180 days of the effective date of this AOC, the city agrees and is ordered to submit a Facility Plan to the department for review and approval. The Facility Plan shall be signed and sealed by a professional engineer licensed to practice in the state of Missouri and recommend improvements or upgrades that will eliminate the discharge or enable the effluent to comply with all final effluent limitations contained in MSOP No. MO-0052132. Although not required at this time, the plan may also include alternatives that will result in compliance with final effluent limitations for Ammonia as Nitrogen based on the Environmental Protection Agency's April 2013 Final Aquatic Life Ambient Water Quality Criteria for Ammonia- Freshwater. The Facility Plan shall include a schedule of completion dates for major project milestones, including but not limited to: i) placement of bond issue on a ballot to be

presented for public vote; ii) submittal of construction permit application; and iii) completion of construction. Within 30 days of receipt of department comments on the Facility Plan, the city shall respond in writing to the department addressing all department comments on the Facility Plan to the department's satisfaction. The city agrees and is ordered to implement the schedule as approved by the department, which shall be enforceable as a condition of compliance of this AOC.

30. Within 90 days of completing construction of the improvements, the city shall achieve compliance with the final effluent limitations contained in Part "A" of the applicable MSOP and submit a Statement of Work Complete Form signed, sealed and dated by a professional engineer registered in the state of Missouri certifying the project is complete and operable in accordance with the engineering plan and specifications.

31. The city is ordered and agrees to comply with the MCWL, Chapter 644, RSMo, and its implementing regulations at all times in the future.

#### **SUBMISSIONS**

32. All other documentation submitted to the department for compliance with this Order shall be submitted within the timeframes specified to:

Ms. Lauren Lewis  
Department of Natural Resources  
Water Protection Program  
Compliance and Enforcement Section  
P.O. Box 176  
Jefferson City, Missouri 65102-0176

#### **OTHER PROVISIONS**

33. Immediately upon becoming aware that a deadline or milestone as set forth in this AOC will not be completed by the required deadline, the city shall notify the department by

telephone or electronic mail i) identifying the deadline that will not be completed; ii) identifying the reason for failing to meet the deadline; and iii) proposing an extension to the deadline.

Within five days of notifying the department, the city shall submit to the department for review and approval a written request containing the same information. The department may grant an extension if it deems appropriate. Failure to submit a written notice to the department may constitute a waiver of the city's right to request an extension and may be grounds for the department to deny the extension.

34. Should the city fail to meet the terms of this AOC, including the terms set out in Paragraphs 26 through 30, the city shall be subject to pay stipulated penalties in the following amount:

<u>Days of Violation</u>	<u>Amount of Penalty</u>
1 to 30 days	\$50.00 per day
31 to 90 days	\$100.00 per day
91 days and above	\$250.00 per day

Stipulated penalties will be paid in the form of a check made payable to "Pemiscot County Treasurer, as custodian of the Pemiscot County School Fund". Any such stipulated penalty shall be paid within ten days of demand by the department and shall be delivered to:

Accounting Program  
Department of Natural Resources  
P.O. Box 477  
Jefferson City, MO 65102

35. Compliance with this AOC resolves only the specific violations described herein, and this AOC shall not be construed as a waiver or modification of any other requirements of the MCWL and regulations, or any other source of law. Nor does this Order resolve any future violations of this Order or any law or regulation. Consistent with 10 CSR 20-3.010(5), this

Order shall not be construed as satisfying any claim by the state or federal government for natural resource damages.

36. Nothing in this AOC forgives the city from future non-compliance with the laws of the state of Missouri, nor requires the department or state of Missouri to forego pursuing by any legal means any non-compliance with the laws of the state of Missouri. The terms stated herein constitute the entire and exclusive agreement of the parties. There are no other obligations of the parties, be they express or implied, oral or written, except those within are expressly set forth herein. The terms of this AOC supersede all previous memoranda or understanding, notes, conversations, and agreements, express or implied. This AOC may not be modified orally.

37. By signing this AOC, all signatories assert that they have read and understood the terms of this AOC, and that they have the authority to sign this AOC on behalf of their respective party.

38. The effective date of the AOC shall be the date the department signs the AOC. The department shall send a fully executed copy of this AOC to the city for their records.

#### **COST ANALYSIS FOR COMPLIANCE**

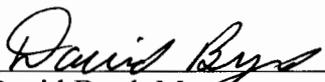
Pursuant to Section 644.145, the Cost Analysis for Compliance (CAFCom), which addresses the obligations included within this AOC based upon the department's cost estimate of \$1,613,753 - \$1,925,502 to convert the current WWTF to a land application system, is attached hereto as Exhibit 1. This AOC requires the city to complete upgrades to the WWTF in accordance with a department approved facility plan, designs, and specifications.

**NOTICE OF APPEAL RIGHTS**

By signing this AOC, the city consents to its terms and waive any right to appeal, seek judicial review, or otherwise challenge the terms and conditions of this AOC, including the Cost Analysis of Compliance referenced herein, pursuant to Sections 621.250, 640.010, 640.013, 644.056.3, 644.079.2, Chapter 536 RSMo, 644.145, RSMo, 10 CSR 20-1.020, 10 CSR 20-3.010, 10 CSR 20-6.020(5), the Missouri Constitution, or any other source of law.

**SIGNATURE AUTHORITY**

Agreed to and Ordered this 11<sup>th</sup> day of August, 2016

  
\_\_\_\_\_  
David Byrd, Mayor  
City of Wardell

Agreed to and Ordered this 25<sup>th</sup> day of August, 2016

  
\_\_\_\_\_  
DEPARTMENT OF NATURAL RESOURCES  
John Madras, Director  
Water Protection Program

- c: Mr. Jackson Bostic, Director, Southeast Regional Office
- Ms. Diane Huffman, Environmental Protection Agency
- Mr. Chris Wieberg, Chief, Operating Permit Section
- Ms. Hannah Humphrey, Community Services Coordinator
- Missouri Clean Water Commission

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

**Wardell Wastewater Treatment Facility**  
**City of Wardell**  
**Missouri State Operating Permit #MO-0052132**

Section 644.145 RSMo requires the Department of Natural Resources to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works.”

This cost analysis is based on data available to the department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the department with current information about the city’s financial and socioeconomic situation.

**Current Facility Description:**

The city owns and operates a wastewater treatment facility (WWTF) consisting of a three-cell aerated lagoon, with the sludge retained in the lagoon<sup>1</sup>. The lagoon has a design flow of 130,000 gallons per day and an actual flow of 76,000 gallons per day. The design population equivalent is 1,026 and the design sludge production is 15 dry tons/year. Effluent from the facility discharges to Old Channel Little River, a class C waterbody.

**Flow evaluated:**

Residential Connections:	_____ 252 <sup>ii</sup>
Commercial Connections:	_____ 15 <sup>ii</sup>
Industrial Connections:	_____
Total Connections for this facility:	_____ 267 <sup>ii</sup>

**Requirements Now Being Enforced:**

Missouri State Operating Permit (MSOP) No. MO-0052132, issued to the city on December 31, 2009, included final effluent limitations for Ammonia as Nitrogen, Fecal Coliform, and total residual chlorine that became effective on December 31, 2012<sup>1</sup>. Section “E”, Schedule of Compliance (SOC), of the MSOP required the city to: 1) submit a preliminary engineering report to the department prepared by a registered professional engineer in the state of Missouri by December 31, 2010, recommending upgrades to enable the WWTF to comply with the new effluent limits; 2) submit a construction permit application to the department by December 31, 2011; and 3) complete construction by December 31, 2012.

Discharge Monitoring Reports (DMRs) document exceedances of effluent limits for Ammonia as Nitrogen in January, February, March, and May 2013; January and February 2014; and January and February 2015. DMRs document significant non-compliance with effluent limits for Fecal Coliform in October 2013; August and September 2014; and April and May 2015.

The city will be required to submit to the department, for review and approval, a complete application for a construction permit including the applicable fee, design summary, plans and specifications signed and sealed by a professional engineer licensed to practice in the state of Missouri. The city will be required to complete upgrades or replacement of its WWTF that will enable the effluent to comply with the Missouri Clean Water Law and all conditions of the operating permit. The preliminary engineering report submitted on behalf of the city in June 2011, recommended that the city upgrade the existing lagoon to increase the aeration capacity and add ultraviolet disinfection. The preliminary engineering report also considered the option of converting the current WWTF to a land application system.

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

Total Project Cost to Convert to Land Application: \$1,613,753 - \$1,925,502<sup>iii</sup>

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

Current User Rates:	\$32.00 for Wardell \$10.44 for Homestown <sup>ii</sup>
Municipal Bond Rating (if applicable):	No Bond Rating <sup>ii</sup>
Bonding Capacity: <i>(General Obligation Bond capacity allowed by constitution: cities=up to 20% of taxable tangible property sewer districts or villages=up to 5% of taxable tangible property)</i>	No Bonding Capacity <sup>ii</sup>
Current outstanding debt for the City:	\$349,719.98 <sup>ii</sup>
Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure:	\$2,052.75 <sup>ii</sup>
Consideration of integrated planning to address the most significant needs of the municipality	On-going drinking water upgrades <sup>ii</sup>
Other indicators:	None <sup>ii</sup>

The department considers Integrated Planning a very important tool when balancing multiple new environmental requirements. Please contact the community services coordinator by email at [Hannah.Humphrey@dnr.mo.gov](mailto:Hannah.Humphrey@dnr.mo.gov) for further guidance on financial planning.

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

**A Current Costs**

Current operating costs (exclude depreciation):	\$41,500 <sup>ii</sup>
Current user rate:	\$32.00 for Wardell \$10.44 for Homestown <sup>ii</sup>

**B Estimated Costs for Land Application**

Estimated total present worth of pollution control:	\$1,747,130 - \$2,291,965 <sup>iii</sup>
Estimated capital cost of pollution control:	\$1,613,753 - \$1,925,502 <sup>iii</sup>
Annual cost of operation and maintenance:	\$35,139 - \$54,723 <sup>iii</sup>
Estimated resulting user cost per household per month plus the amount within the current user rate used toward payments on outstanding debt*:	\$45.29 - \$55.51 <sup>iv</sup>
Median household income(MHI):	\$36,686 <sup>v</sup>
Cost per household as a percent of median household income**:	1.48% - 1.82% <sup>vi</sup>

- \* This estimated monthly user cost will be used throughout this analysis
- \*\* The cost per household as a percent of median household income for the conversion of the current WWTF to a land application system will be used throughout this analysis and as the residential indicator in Criteria 7 below

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

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the National Pollutant Discharge Elimination System. This permit renewal requires final effluent limitations for Ammonia as Nitrogen based on Missouri Water Quality Standards (WQS) 10 CSR 20-7.031 and the Clean Water Act. Ammonia (NH<sub>3</sub>) is toxic to early stages of aquatic life. NH<sub>3</sub> removal prevents damage to aquatic life and enables the receiving stream to support a healthier and diverse aquatic life community. Please see the Water Protection Program fact sheet titled “Changes to the Water Quality Standard for Ammonia” at <http://dnr.mo.gov/pubs/pub2481.htm>.

E. coli is an indicator of the presence of fecal contamination in water and possible disease-causing bacteria and viruses in water and wastewater. The receiving stream has a WBC (B) designated use to protect human health in accordance with WQS (10 CSR 20-7.031) and the Clean Water Act. Disinfection benefits human health by reducing exposure to disease-causing bacteria and viruses. The city of Wardell will have to upgrade the WWTF with a disinfection system in order to meet the final effluent limitations.

The discharge of effluent that does not comply with permitted effluent limitations contributes to the further impairment of the receiving stream and endangers the aquatic life in the stream, livestock, wildlife, and public health. Such discharges have the potential to contaminate lakes and streams causing serious water quality problems that negatively impact the beneficial uses.

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

The community reported their outstanding debt for their current wastewater collection and treatment systems to be \$349,719<sup>ii</sup>. The community reported that each user pays \$32.00 each month (or \$10.44 for Homestown residents), \$7.69 of which is used toward payments on the current outstanding debt.

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

- (a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
- (b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

**Socioeconomic Data:**

Potentially Distressed Populations – City of Wardell	
Unemployment	10.6% <sup>vii</sup>
Adjusted Median Household Income (MHI)	\$36,686 <sup>v</sup>
Percent Change in MHI (2000-2013)	+66.7% <sup>viii</sup>
Percent Population Growth (2000-2013)	+0.2% <sup>ix</sup>
Change in Median Age in Years (2000-2013)	-0.7 <sup>x</sup>
Percent of Households in Poverty	16.9% <sup>xi</sup>
Percent of Households Relying on Food Stamps	25.6% <sup>xii</sup>

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.

The city may apply for State Revolving Fund (SRF) financial support in order to help fund a Capital Improvements Plan. Other loans and grants also exist for which the city may be eligible. Contact information for the department's Financial Assistance Center (FAC) and more information can be found on the department's website at <http://dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm>.

Opportunity for changes to implementation/compliance schedule:

The Abatement Order on Consent allows the city to request an extension of milestones, should the city become aware of a milestone date that they will not be able to meet.

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

The city is currently in the process of completing a drinking water project that will upgrade the water system for the entirety of the city. The project is estimated to have a total cost of \$2,976,950 with a loan amount of \$1,655,950. The drinking water monthly user rate is expected to increase by \$18.89.

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

**Secondary indicators for consideration:**

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond Rating Indicator <sup>ii</sup>	Above BBB or Baa	BBB or Baa	Below BBB or Baa	N/A
Overall Net Debt as a % of Full Market Property Value <sup>ii, xiii</sup>	Below 2%	2% - 5%	Above 5%	<b>3</b> \$23,000/\$1,736,962 = 0.132 0.132 x 100 = 1.32%
Unemployment Rate <sup>vii</sup>	>1 below Missouri average of 5.8%	± 1 of Missouri average of 5.8%	>1 above Missouri average of 5.8%	<b>1</b> City rate = 10.6% 10.6%-5.8% = 4.8
Median Household Income <sup>v</sup>	More than 25% above Missouri MHI (\$49,078)	± 25% of Missouri MHI (\$49,078)	More than 25% below Missouri MHI (\$49,078)	<b>1</b> City MHI = \$33,686 \$33,686-\$49,078 = -15,392 -15,392/49,078 = -0.314 -0.314x100 = -31.4%
Percent of Households in Poverty <sup>*xi</sup>	>10 below Missouri average of 11.7%	± 10 of Missouri average of 11.7%	>10 above Missouri average of 11.7%	<b>2</b> City rate = 16.9% 16.9%-11.7% = 5.2
Percent of Households Relying on Food Stamps <sup>*xii</sup>	>5 below Missouri average of 10.6%	± 5 of Missouri average of 10.6%	>5 above Missouri average of 10.6%	<b>1</b> City rate = 25.6% 25.6%-10.6% = 15
Property Tax Revenues as a % of Full Market Property Value <sup>ii, xiii</sup>	Below 2%	2% - 4%	Above 4%	<b>3</b> City Tax Revenues = \$7,685.06 Tax Revenues/Full Market Property Value = (\$7,685.06/\$1,736,962)x100 = 0.44%
Property Tax Collection Rate <sup>ii, xiii</sup>	Above 98%	94% - 98%	Below 94%	<b>1</b> \$7,685.06/\$11,879 = 0.647

				0.647 x 100 = 64.7%
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Financial Capability (FCI) Indicators Average Score: 1.71  
 Residential Indicator (RI, from Criteria #2 above): 1.48% - 1.82%

\* Financial Capability Indicators are specific to the state of Missouri

**Financial Capability Matrix:**

Financial Capability Indicators Score from above ↓	Residential Indicator (User cost 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	<b>Medium Burden</b>	High Burden
Strong (above 2.5)	Low Burden	Medium Burden	High Burden

Estimated Financial Burden: Medium Burden

The resulting financial burden has been determined by comparing the FCI score with the RI stated in Criteria #2. The cost associated with the WWTF upgrades could result in a medium financial burden placed on the community due to the mid-range FCI paired with the mid-range RI.

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

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

The department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score.

The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri. The range covers 1,191 score points (-245 to 946).

Based on the assessment tool, the city of Wardell has been determined as a category 5 community. This means that the city of Wardell is predicted to be stable over time.

**Conclusion and Finding**

As a result of reviewing the above criteria, the department hereby finds that the actions described above could result in a medium burden with regard to the city’s overall financial capability and a medium impact for most individual customers/households.

The department considered the eight criteria presented in subsection 644.145.3 when evaluating the cost associated with the relevant actions. The department estimates that the resulting monthly user costs for the WWTF upgrades in order to meet Ammonia and bacteria effluent limits could be \$45.29 - \$55.51.

This determination is based on readily available data and may overestimate the financial impact on the community. The community’s facility plan that is submitted as a part of the construction permit process includes a discussion of community details, what the community can afford, existing obligations, future growth potential, an evaluation of options available to the community with cost information, and a discussion on no-discharge alternatives. The cost

information provided through the facility plan process, which is developed by the community and their engineer, is more comprehensive of the community's individual factors in relation to selected treatment technology and costing information.

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<sup>i</sup> Missouri State Operating Permit No. MO-0052132

<sup>ii</sup> Information provided by the city in the "Cost Analysis for Compliance (CAFCom) Questions for City of Wardell" returned to the department on June 29, 2015.

<sup>iii</sup> Department of Natural Resources' CAPDEWORKS cost estimator was used to estimate the total project cost and annual operation and maintenance costs based on a design flow of 100,000 gallons per day.

<sup>iv</sup> The city did not report the estimated user cost per household per month. Department of Natural Resources' CAPDEWORKS cost estimator was used to estimate the user cost then added to the city's current monthly debt retirement per connection.

\$2,052.75 debt retirement per month/267 connections = \$7.69 current debt retirement per connection each month

\$37.60 low cost estimate for land application + \$7.69 = \$45.29 per connection per month

\$47.82 high cost estimate for land application + \$7.69 = \$55.51 per connection per month

<sup>v</sup> The Median Household Income was found using the American Community Survey by the U.S. Census Bureau

<http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

<sup>vi</sup>  $(\text{Cost per household per month}/(\text{MHI}/12)) * 100 = \text{Cost per household as a percent of MHI}$

$(\$45.29/(\$36,686/12)) \times 100 = 1.48\%$

$(\$55.51/(\$36,686/12)) \times 100 = 1.82\%$

<sup>vii</sup> Missouri Department of Economic Development (June 2015)

<http://www.missourieconomy.org/indicators/unemp/index.stm>

<sup>viii</sup> 2000 Median Household Income,

[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC\\_00\\_SF3\\_DP3&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_00_SF3_DP3&prodType=table); and American Community Survey, U.S. Census Bureau,

<http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

<sup>ix</sup> Total Population Universe: Total Population American Community Survey B01003,

<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

<sup>x</sup> 2000 Median Age, Demographic Profile 1- Census 2000 – Summary File 1

<http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>; Median Age by Sex – American Community Survey 5-year Estimates – B01002,

<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?ref=geo&refresh=t>

<sup>xi</sup> Poverty data – American Community Survey,

[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_13\\_5YR\\_S1701&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_S1701&prodType=table)

<sup>xii</sup> Food Stamps/SNAP ACS Community Survey 5-year Estimates - S2201,

<http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

<sup>xiii</sup> 2014 Property Tax Rates, Missouri State Auditor, Report No. 2015-004