Missouri Clean Water Commission Meeting
Department of Natural Resources
Lewis and Clark State Office Building
LaCharrette/Nightingale Creek Conference Rooms
1101 Riverside Drive
Jefferson City, Missouri
January 8, 2014

City of Fulton Variance Request CWC-V-2-12
Fulton Wastewater Treatment Facility
Callaway County, Missouri

Issue: The city of Fulton submitted a variance request. The variance is intended to facilitate compliance with water quality standards, as implemented through a total maximum daily load incorporated into their permit.

Background: The Department received a variance application from the city of Fulton, Missouri on November 7, 2013. The city submitted the application pursuant to Section 644.06 1, RSMo. Fulton's application requests variance from the Stinson Creek Total Maximum Daily Load (TMDL) Wasteload Allocations (WLA) for total nitrogen, total phosphorus, carbonaceous biochemical oxygen demand, and total suspended solids based on substantial and widespread economic and social impact. Additional information submitted with the application details social and economic data for the city as compared to cost for different levels of wastewater treatment and its impact to user rates over the average life of a wastewater treatment facility. The Stinson Creek TMDL was approved by the Environmental Protection Agency (EPA) on May 26, 2010. The city is planning an upgrade the current facility and believes that attainment of the WLA from the TMDL are not feasible thus leading to a substantial and widespread economic and social impact. The pollutant parameter values expressed in the variance request represent the highest attainable effluent quality that can be achieved without causing substantial and widespread economic and social impact.

Missouri regulations, 10 CSR 20-7.015(8)(C) states "When a wasteload allocation study is conducted for a stream or stream segment, all permits for discharge in the study area shall be modified to reflect the limits established in the wasteload allocation study." Additionally, Section 301 of the Clean Water Act and federal regulations at 40 CFR §122.44(d), which requires each National Pollution Discharge Elimination System (NPDES) permit to include effluent limitations developed to protect the narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available WLA for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The Department reviewed and investigated the petition as required by 644.061.4, RSMo, and determined that the variance application is complete and meets the regulatory criteria associated with substantial and widespread economic and social impact as addressed by the city in its variance application. In the variance application the city request that the WLA from the TMDL be modified until December 31, 2035 as follows:

Pollutant Parameter	TMDL WLAs		Variance Requested Permit Limitations*
	Concentration	Mass	
Total Nitrogen	0.855 mg/L	20.95 lbs/day	4.0 mg/L Quarterly Average
Total Phosphorus	0.092 mg/L	2.25 lbs/day	0.10 mg/L Quarterly Average
Carbonaceous Biochemical Oxygen Demand	9 mg/L	200 lbs/day	9 mg/L Monthly Average
Total Suspended Solids	5 mg/L	122.51 lbs/day	5 mg/L Monthly Average

*Based on substantial and widespread economic and social impact

Recommended Action: Information only.

Suggested Motion Language: None.

List of Attachments:

- Exhibit 1 – City of Fulton Variance Application
- Exhibit 2 – Substantial and Widespread Economic and Social Impact evaluation spreadsheet

Exhibit 1

RECEIVED

NOV 07 2013

WATER PROTECTION PROGRAM

MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
VARIANCE APPLICATION – 644.061 RSMo 1986

FOR DEPARTMENT USE ONLY
DATE RECEIVED 11/7/13

This application must be accompanied by a $250.00 filing fee. Make your check, money order, or bank draft payable to the State of Missouri. Cash cannot be accepted. Mail to:

Director of Staff
Missouri Clean Water Commission
Missouri Department of Natural Resources
Water Protection Program, Water Pollution Branch
P.O. Box 176
Jefferson City, MO 65102-0176

Please complete and return. Use separate sheets, if necessary.

COUNTY	PHONE WITH AREA CODE	FAX
Callaway	573-592-3111	

ADDRESS STREET CITY STATE ZIP

18 East Fourth Street, Fulton MO, 65251

FACILITY NAME

Fulton, MO Wastewater Treatment Facility

ADDRESS STREET CITY STATE ZIP

1025 Worsham Circle, Fulton, MO 65251

2. NPDES PERMIT NUMBER (IF APPLICABLE)

MO- 0103331

3. POINT OF DISCHARGE

SW 1/4, NE 1/4, SEC 21, T 47N, R 9W, COUNTY Callaway

NAME OF RECEIVING STREAM

Stinson Creek

Classification of receiving stream Class C (Waterbody ID - 0710) under Missouri Water Quality Standards 10 CSR 20-7.031.

4. CITE SPECIFIC SECTION OF LAW OR REGULATION FOR WHICH A VARIANCE IS SOUGHT.

Wasteload allocations for Total Nitrogen and Total Phosphorus presented in Table 10 of the Stinson Creek TMDL, Approved 5/26/10.

5. IF VARIANCE PROPOSED A CHANGE OF POLLUTANT LIMITATION, LIST THE TYPE, QUALITY AND QUANTITY OF POLLUTANT AND PROPOSE ALTERNATE LIMITATIONS USING APPROPRIATE LIMITS.

Total Nitrogen Wasteload Allocation from TMDL = 0.855 mg/L
Final Total Nitrogen limit of 4.0 mg/L on a quarterly average proposed in Draft NPDES Permit Issued for Public Notice 6/28/13, if required based on adaptive management approach. Per the permit this limit would be effective 12/31/35.

Total Phosphorus Wasteload Allocation from TMDL = 0.092 mg/L
Final Total Phosphorus limit of 0.10 mg/L on a quarterly average proposed in Draft NPDES Permit Issued for Public Notice 6/28/13, if required based on adaptive management approach. Per the permit this limit would be effective 12/31/35.

6. DESCRIBE THE WATERWATER FACILITY.

The existing facility consists of an influent pump station, screening and grit removal, two oxidation ditches with rotors, four final clarifiers, and an effluent pump station. Solids are aerobically digested and dewatered in a centrifuge. Sludge is land applied. An excess flow holding lagoon is adjacent to the plant.

MO 780-0181 (06-04)

7. STATE THE REASON A VARIANCE IS BEING SOUGHT. BE SPECIFIC.

A variance is sought because the TMDL wasteload allocations (WLAs), particularly the Total Nitrogen WLA, are beyond the limits of available technology. Current technology can remove Total Nitrogen to approximately 2.0 mg/L on an annual average basis. This approach would include membrane treatment (reverse osmosis) for half of the effluent flow, which was shown to be prohibitively expensive and would still not meet the TMDL Total Nitrogen WLA. An adaptive management approach is proposed which includes iterative treatment investments followed by stream studies to determine if water quality standards related to nutrient discharges are achieved. Further treatment improvements will not be implemented if attainment of water quality standards is observed. If preceding steps do not result in water quality standards attainment, final nutrient limits of 4.0 mg/L (Total Nitrogen) and 0.1 mg/L (Total Phosphorus) will be implemented on a quarterly basis, taking effect on December 31, 2035. Specific information about this adaptive management approach is included within the TMDL Memorandum of Understanding between the City of Fulton and the Missouri Department of Natural Resources. Costs presented in Section 7a. are those associated with reverse osmosis treatment and enhanced nutrient removal processes to meet final effluent limits. Cost calculations for these treatment processes are attached. It should be noted that the cost for "Complying with the law or regulation" is the estimated cost for reverse osmosis treatment and would not meet the TMDL Total Nitrogen WLA.

7a. WILL COMPLIANCE WITH THE APPROPRIATE LAW OR REGULATION RESULT IN UNREASONABLE COST WITHOUT COMPARIABLE PUBLIC BENEFIT?

☑ Yes ☐ No

If the answer is yes, provide a cost of the operation:

Complying with the law or regulation	$ $52,000,000
Using the proposed limitations	$ $25,000,000
Cost Difference	$ $27,000,000

Include consultant reports and vendor information supporting these costs.

7b. WILL THE LAW OR REGULATION RESULT IN ECONOMIC HARDSHIP FOR THE INDUSTRY?

☐ Yes ☑ No

If yes, attach the following information:

Federal income tax returns for each of the three years immediately preceding the application; or
an annual fiscal report; or
a list of the principal officers and their salaries; or
all income derived from the operation.

This information may be submitted as confidential and the agency shall respect the confidential rights of the applicant.

8. IF THIS IS AN EXISTING DISCHARGE, PROPOSE A COMPLIANCE SCHEDULE TO UPGRADE THIS FACILITY TO MEET THE APPLICABLE LAW OR REGULATION OR TO ELIMINATE THE DISCHARGES(S).

Refer to the Draft Missouri State Operating Permit issued for public notice on June 28, 2013, which includes an adaptive management approach to lowering limits to 4.0 mg/L Total Nitrogen and 0.10 mg/L Total Phosphorus on a quarterly basis. Technology to remove Total Nitrogen to a level of 0.855 mg/L is not technically feasible at this time. As stated previously, Total Nitrogen values below 4.0 mg/L are prohibitively expensive.

9. FURNISH THE NAMES OF ALL ATTORNEYS, CONSULTANTS, VENDORS, AGENTS AND ALL OTHER PARTIES WHO HAVE RENDERED SERVICE OR FURNISHED INFORMATION. INCLUDE THEIR ADDRESSES, TELEPHONE NUMBER, AND NATURE OF SERVICE OR INFORMATION PROVIDED.

HDR Engineering, Inc.
c/o Patrick Denning
3741 NE Troon Drive
Lee's Summit MO, 64064.
816-347-1134

10. I believe that the above information is correct and complete.

SIGNATURE: [signature] DATE: Sept. 12, 2013

NOTARY PUBLIC EMBOSSER SEAL

STATE OF

COUNTY

SUBSCRIBED AND SWORN BEFORE ME,

DAY OF YEAR

NOTARY PUBLIC SIGNATURE

MY COMMISSION EXPIRES

USE RUBBER STAMP IN CLEAR AREA BELOW.

NOTARY PUBLIC NAME (TYPED OR PRINTED)

MO 780-0181 (06-04)

VARIANCE APPLICATION
Summary of Section 644.061 RSMo 1986

1. Application form is complete.
2. $250.00 filing fee paid.
3. The Executive Secretary shall investigate and make a recommendation to the Clean Water Commission within sixty days.
   - Granted – go to 4, then 5.
   - Denied – go to 4, then 6
4. Notify petitioner of staff decision and send notification to those people on the mailing list from the petitioners county.
5. Recommendations to grant variance:
   A. The Clean Water Commission may grant the variance without a hearing, at which time a 30 day public notice must be allowed to receive public comments. If a petition is filed against the variance, a hearing must be held. Go to 7.
   B. The Clean Water Commission may set the matter for hearing. Go to 7.
6. If the staff recommends denial, the petitioner may request a hearing within the 30 day notice period to be held before the Clean Water Commission. Go to 7.
7. A hearing will be held according to Section 644.066 and the Administrative Procedures Act.

CONDITIONS OF A VARIANCE

1. No variance shall be granted where the effect of a variance will permit the continuance of a condition that may unreasonably cause or contribute to adverse health effects on humans or upon fish or other aquatic life or upon game or other wildlife.
2. The commission shall exercise a wide discretion in weighing the equities involved and the advantages and disadvantages to the applicant and to those affected by water contaminants emitted by the applicant.
3. Variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission.

NOV 07 2013

MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
VARIANCE APPLICATION – 644.061 RSMo 1986
WATER PROTECTION PROGRAM

FOR DEPARTMENT USE ONLY
DATE RECEIVED 11/13

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Director of Staff
Missouri Clean Water Commission
Missouri Department of Natural Resources
Water Protection Program, Water Pollution Branch
P.O. Box 176
Jefferson City, MO 65102-0176

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Total Phosphorus Wasteload Allocation from TMDL = 0.092 mg/L
Final Total Phosphorus limit of 0.10 mg/L on a quarterly average proposed in Draft NPDES Permit Issued for Public Notice 6/28/13, if

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CITY OF FULTON
GENERAL ACCOUNT
P.O. BOX 130
FULTON, MISSOURI 65251

CENTRAL BANK
FULTON, MISSOURI
80-63/865

132464

Date 11/05/2013
Amount 250.00

Pay: TWO HUNDRED FIFTY AND XX / 100

To the order of:

Mo Dept of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176

VOID AFTER 180 DAYS

SECURITY FEATURES INCLUDED. DETAILS ON BACK.

HDR ONE COMPANY

May 8, 2013

Mr. Chris Wieberg
Operating Permits Section Chief
Water Protection Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Re: Fulton WWTP Nutrient Removal Costs

Dear Mr. Wieberg:

On March 29, 2013, the City of Fulton, MNDR, and HDR met to discuss the Fulton NPDES Permit, EPA objection, and the next steps forward. As a part of that meeting, you requested that HDR provide you with the expected construction costs for the "Tier 1" and "Tier 2" nutrient removal improvements to the Fulton WWTP. A discussion of each follows.

2013 Facility Plan Improvements

The 2013 Facility Plan improvements consist of improvements which will address issues identified in the Abatement Order on Consent (AOC) No. 2011-WPCB-1122. Improvements include the elimination of Outfall 002 as well as ammonia and disinfection improvements. Improvements are also designed to meet the current draft operating permit which reduces the allowable BOD and TSS limits. While this project will decrease the effluent ammonia levels and will be capable of being operated to achieve some denitrification, it will not significantly decrease the effluent Total Nitrogen (TN) and Total Phosphorus (TP) effluent levels. The expected capital cost of the project (in 2013 dollars) is $12,980,000.

Tier 1 Improvements – Biological Nutrient Removal

Once the 2013 Facility Plan improvements are operational, it is proposed that the receiving stream (Stinson Creek) be allowed to assimilate and that the Stinson Creek TMDL be re-evaluated to determine if biological nutrient removal is necessary. If required, the biological nutrient removal improvements will consist of a RAS selector basin, aeration basin baffle walls and mixers, replacement of RAS pumps, aeration basin distribution box replacement, an alum system, and site piping modifications. These improvements are expected to limit effluent concentrations to a monthly average of 8 mg/L TN and 1.0 mg/L TP. The 2013 cost of the improvements is $3,500,000. Per our discussions on implementation, biological nutrient removal improvements are proposed to be constructed by 2026. At a 3% cost inflation per year, the 2026 cost of the improvements is $5,200,000.

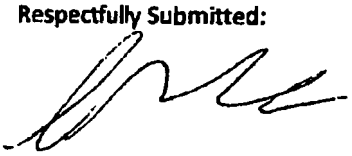
Tier 2 Improvements – Enhanced Nutrient Removal

Once the Tier 1 biological nutrient removal improvements are operational, it is proposed that Stinson Creek again be allowed to assimilate and that the Stinson Creek TMDL again be re-evaluated to determine if enhanced nutrient removal is necessary. If required, the enhanced nutrient removal

improvements will consist of a denitrifying sand filtration facility, an intermediate pumping station, and associated sitework and site piping. These improvements are expected to limit effluent concentrations to a monthly average of 4 mg/L TN and 0.1 mg/L TP. The 2013 cost of the improvements is $7,500,000. Per our discussions on implementation, enhanced nutrient removal improvements are proposed to be constructed by 2035, if required. At a 3% cost inflation per year, the 2035 cost of the improvements is $14,400,000.

We appreciate the Department's efforts to work with the City to resolve these regulatory issues. Please let me know if you have any additional questions or concerns.

Respectfully Submitted:



Stan Christopher, PE
HDR Engineering, Inc.

CC: Bill Johnson, Fulton
Greg Hayes, Fulton
Darrell Dunlap, Fulton
Patrick Denning, HDR
Trent Stober, HDR

Biological Nutrient Removal - Cost Estimate			
RAS Selector Basin	1 LS	$370,000	$370,000
Baffle Walls	187.5 CY	$750	$141,000
Piping to RAS Selector (18")	250 LF	$280	$70,000
RAS Pumps	2 EA	$100,000	$200,000
New Distribution Box	1 LS	$90,000	$90,000
Mixers	4 EA	$40,000	$160,000
Plug RAS ports in oxidation Ditch	1 LS	$15,000	$15,000
Alum System for TP	1 LS	$250,000	$250,000
Bypass Pumping	120 $/Day	$1,500	$180,000
Piping from RAS Selector (12")	80 LF	$220	$18,000
Piping from Distribution Box (18")	200 LF	$280	$56,000
Alum Building for Storage	1 LS	$150,000	$150,000
Sitework (15%)	1 LS	$255,000	$255,000
Subtotal:			$1,955,000
Electrical (25%)			$489,000
Contingency (20%)			$489,000
Engineering and Legal (17%)			$499,000
Total (2013 Dollars):			**$3,432,000**
Escalated Cost (2026 Dollars):			**$5,140,000**

Enhanced Nutrient Removal - Cost Estimate			
Intermediate Pump Station	1 LS	$850,000	$850,000
Denitrification Filters	1 LS	$2,600,000	$2,600,000
Piping for Improvements	250 LF	$280	$70,000
Sitework (20%)	1 LS	$704,000	$704,000
Subtotal:			$4,224,000
Electrical (25%)			$1,056,000
Contingency (20%)			$1,056,000
Engineering and Legal (17%)			$1,078,000
Total (2013 Dollars):			**$7,414,000**
Escalated Cost (2026 Dollars):			**$14,371,000**

Exhibit 2

Uses and Variances - Evaluating Substantial and Widespread Economic and Social Impacts: Public Sector Entities

Purpose

The purpose of this spreadsheet is to help states, tribes, and stakeholders implement the recommendations in EPA's Interim Economic Guidance for Water Quality Standards, Workbook (1995).

Federal regulations allow the lowering or removal of certain designated uses if the pollution controls needed to attain those uses will result in substantial and widespread economic and social impacts (CFR 40 131.10(g)(6)). The EPA developed guidance (EPA-823-B-95-002 Interim Economic Guidance for Water Quality Standards, Workbook (1995)) to help states, tribes, and stakeholders evaluate the potential for substantial and widespread economic and social impacts (hereafter termed "The Guidance"). The Guidance recommends methods for calculating socioeconomic and financial indicators and ways to evaluate and interpret them. Worksheets are provided in the appendix to facilitate the calculation, evaluation, and interpretation of these recommended indicators.

This spreadsheet supplements The Guidance by guiding the user through the necessary calculation steps to successfully implement The Guidance recommendations. The spreadsheet provides instructions on what information needs to be obtained and how to obtain it, organizes and stores the information in a sensible and relevant format, performs the required calculations on numeric information wherever feasible, and evaluates the results. The spreadsheet also clearly displays the information, methodology, and analytical results in a way that can be used to compile needed documentation when applying for variances or changes in designated uses.

Below are general instructions on how to use this spreadsheet. The worksheet tabs along the bottom of the screen provide access to each sequential step in the analysis that is recommended in the Guidance. In all worksheets, only **cells marked with an asterisk (*)** require input. Worksheets that do not require input refer to information from other cells for the purpose of providing supplementary information and documentation. Information is automatically transferred to the appropriate worksheets for analysis and display of results.

Instructions

1. Enter information about the proposed project in the tab named: "1. Project Information" (only **cells marked with an asterisk (*)** require input).

The most cost-effective approach to meeting water quality standards should be considered in the analysis. The analysis should include assumptions about excess capacity, population growth, and consideration of alternative technologies. An accurate estimate of project costs may be available from the project's design engineers. If site-specific engineering cost estimates are not available, preliminary project cost estimates can sometimes be derived from a comparable project in the State or from the judgment of experienced water pollution control engineers. See Section 2.1.a in the Guidance for more information.

2. Enter information that will be used to calculate the municipal preliminary screener (MPS) value in the tab named: "2. MPS Inputs" (only **cells marked with an asterisk (*)** require input).

The MPS is the average annualized pollution control cost per household within the affected community. The affected community is defined as those who will pay the compliance costs. Current costs of pollution controls must be considered along with the projected annual costs of the proposed pollution control project. The existing cost per household usually can be obtained from municipal records. If project costs were estimated for a prior year, these costs should be adjusted to reflect current year prices using the average annual national Consumer Price Index (CPI) inflation rate for the period available from the Bureau of Labor Statistics. See Section 2.3 in the Guidance for more information.

3. Evaluate the MPS in the tab named: "3. MPS."

The MPS helps determine whether or not the community can clearly afford the pollution control project. The MPS is an estimate of the total annual pollution control costs per household (existing annual pollution control costs per household plus the incremental cost related to the proposed project) as a percentage of median household income. If the MPS is less than 1.0 percent, the project is unlikely to impose a substantial economic hardship on households; do not continue to the secondary analysis. If the MPS exceeds 2.0 percent, then the project may place an unreasonable financial burden on households within the community; continue with the Secondary affordability test to demonstrate substantial economic impacts. If the MPS is between 1.0 and 2.0 percent, the project may or may not impose a substantial economic hardship on households; continuing to the Secondary Test is optional. See Section 2.3 in the Guidance for more information.

4. **If the MPS indicates substantial impacts may occur** (i.e. it exceeds 1.0%), continue with the Secondary Test by entering socioeconomic data for the affected community in the tab named: "4. Secondary Test Inputs" (only **cells marked with an asterisk (*)** require input).

The resulting Secondary Test Score is calculated on tab "5. Secondary Test Score." See Section 2.4 in the Guidance for more information.

5. Evaluate the combined outcome of the MPS and Secondary Test in the tab named: "6. Substantial Impacts Matrix."

If the matrix suggests that substantial economic impacts are unlikely, then do not continue with the widespread analysis. If the matrix indicates that impacts may be or are likely to be substantial, proceed with evaluating whether the impacts are also likely to be widespread.

6. **If the substantial impacts matrix suggests that impacts may be substantial**, determine if the impacts will be widespread in the tab named: "7. Widespread Impact Analysis" (**cells marked with an asterisk (*)** require input).

There are no standard economic tests or benchmarks to evaluate whether or not substantial economic impacts will also have widespread effects. Instead, describe relative changes in socioeconomic conditions such as unemployment, local economic activity, household income, tax revenues, indirect effects on other businesses, and sewer fees. This worksheet helps collect and organize the types of information that can be considered when evaluating impacts on the surrounding community. See Section 4 in the Guidance for additional information.

Explanation of Tabs		
Name	**Description**	**Requires Input?**
Summary Checklist	Steps and information required for demonstrating substantial and widespread economic and social impacts of attainment of designated uses (**Table 4-1** in the Guidance).	No
Overview	Overview of the steps involved in determining if the costs of the proposed project will likely result in substantial and widespread impacts (**Figure 2-1** in the Guidance).	No
1. Project Information	Information regarding the proposed pollution control project and other projects considered. (See Section 2.1.a and **Worksheet A** in the Guidance.)	Yes
2. MPS Inputs	Numerical data needed to calculate the MPS, which helps to determine whether or not the community can clearly pay for the project without incurring any substantial impacts. (See Section 2.3 in the Guidance.)	Yes
3. MPS	Calculates and evaluates the MPS. (See Section 2.3 and **Worksheet D** in the Guidance.)	No
4. Secondary Test Inputs	Numerical data needed to calculate the secondary test scores. (See Section 2.4 and **Worksheet E** in the Guidance.)	Yes
5. Secondary Test Score1	Calculates the secondary test score. (See Section 2.4 and **Worksheet F** in the Guidance.)	No
6. Substantial Impacts Matrix1	Determines whether substantial impacts are likely using the MPS and secondary test score.	No
7. Widespread Impact Analysis	Descriptions of estimated change in socioeconomic conditions due to the substantial economic impacts resulting from the proposed pollution control project. This information is used to describe how substantial economic impacts would affect the community. (See Section 4 and **Worksheet M** in the Guidance.)	Yes
Supplementary Information		
Annualized Project Cost	Calculation of total annualized project costs, based on inputs in other worksheets; provided for informational purposes. (See Section 2.1.b and **Worksheet B** in the Guidance.)	No
Per-Household Cost	Calculation of total annual pollution control costs per household; provided for informational purposes (See section 2.2 and **Worksheet C** in the Guidance.)	No
Potential Data Sources	Additional information on potential sources of data for tab "4. Secondary Test Inputs" (**Worksheet E**).	No
Example Data Sources	Example data sources for "4. Secondary Test Inputs" (**Worksheet E**).	No

Comparison to Worksheets in the Guidance
These worksheets provide suggested information and methods to conduct an analysis of potential substantial and widespread economic and social impacts when public sector entities must meet certain water quality standards. The worksheets are not exhaustive of all appropriate economic analyses. Alternative or additional information and tests may be necessary or desirable in certain circumstances. The principles and methods used to evaluate substantial and widespread economic impacts in this spreadsheet are the same principles and methods used in the Guidance. Although the EPA attempted to maintain the same general structure as the Guidance, it adopted some organizational and format modifications to increase clarity and functionality. Whenever possible, see the appropriate pages in the Guidance for assistance on specific topics or calculations. The EPA intends for this spreadsheet to be used in conjunction with the complete Guidance and not as a substitute.

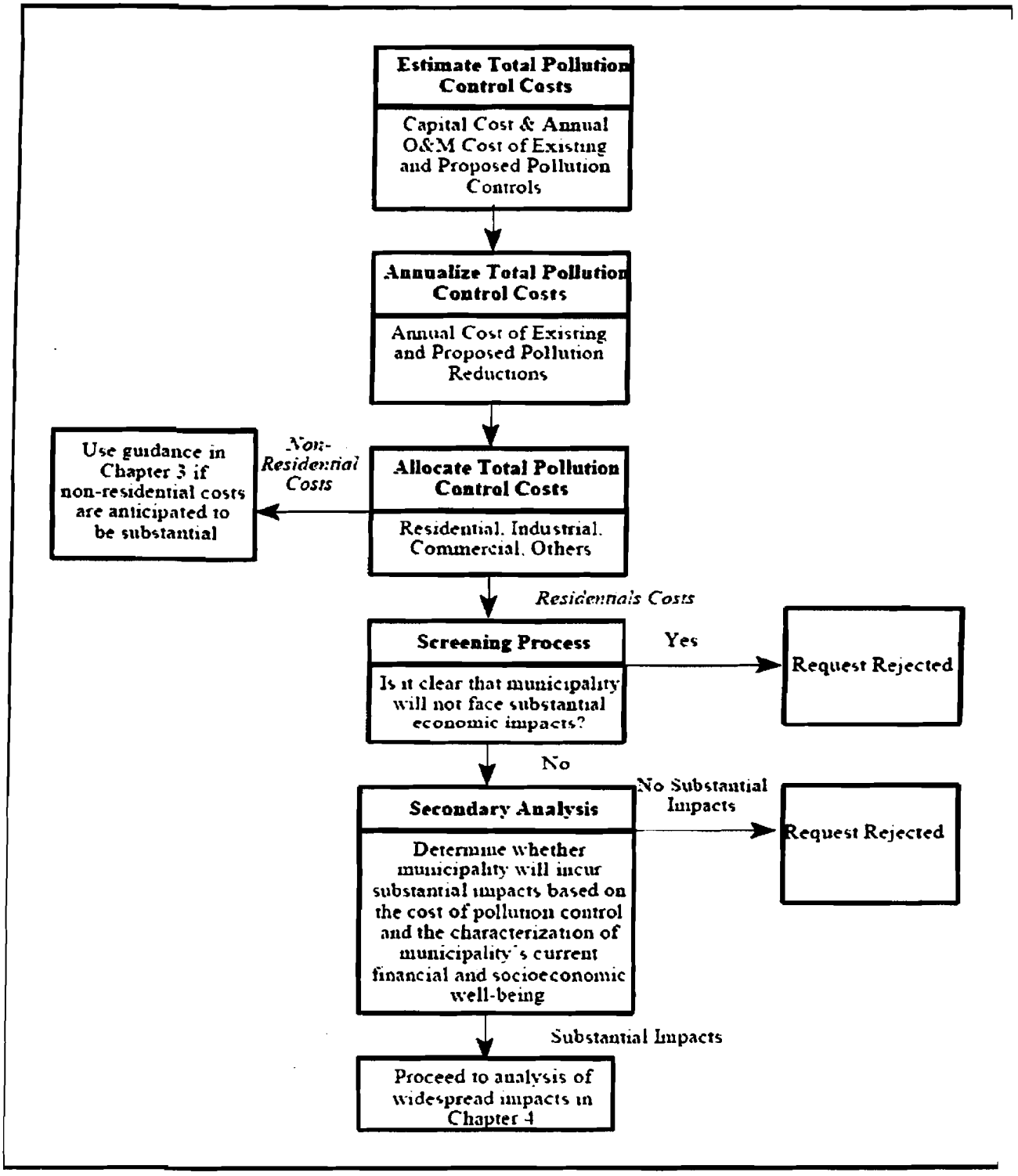
[1]The Guidance is available at:
http://water.epa.gov/scitech/swguidance/standards/upload/2007_08_18_standards_econworkbook_complete.pdf

Demonstration of Substantial and Widespread Economic and Social Impacts of Attainment of Designated Uses (Table 4-1 from the Guidance) Checklist
Description: This sheet lists the steps and information required for demonstrating substantial and widespread economic and social impacts of attainment of designated uses. No input is required.

Steps	Information That Will be Required
1. Demonstrate that designated use is a potential use and not an existing use.	Data from State Water Quality Assessment Documents and water quality standards regulations.
2. Demonstrate that entity will incur substantial economic impacts.	
a. Identify all reasonable pollution reduction options.	Information on end-of-pipe treatment, possible treatment upgrades, additions to existing treatment, and pollution prevention activities including the following: • change in raw materials, • substitution of process chemicals, • change in process, • water recycling, reuse and efficiency, • pretreatment requirements, and • public education
b. Evaluate costs of all reasonable pollution reduction options.	Assumptions about water demand, treatment capacity, expansion plans, population growth, and effectiveness of control in reducing pollution for each option. Estimate of project costs from design engineers, costs of comparable projects in the State, or judgement of experienced water pollution control engineers.
c. Identify lowest cost pollution reduction option that allows entity to meet water quality standards.	Information on treatment efficiencies for alternative pollution reduction techniques. Cost estimates for all alternatives.
3. Evaluate entity's financial health:	
a. determine method of financing.	Information on user fee financing mechanisms such as Revenue Bonds. Information on tax based financing mechanisms such as General Obligation Bonds.
b. annualize pollution reduction project costs.	Information on appropriate interest rates and period of financing.
c. allocate project costs.	Information on user groups, wastewater flow by user group, and surcharges on industrial users.
d. apply Municipal Preliminary Screener test.	Information on average total annual pollution control cost per household and median household income.
e. Depending on the results of the Municipal Preliminary Screener test, apply Secondary Test.	Information on results of Municipal Preliminary Screener test, overall net debt as a percent of full market value of taxable property, median household income, bond rating, community unemployment rate, property tax collection rate, and property tax revenues as a percent of full market value of taxable property.
4. Determine whether impacts are widespread:	
a. Evaluate change in socioeconomic conditions that occur as a result of compliance.	Information on changes in median household income, community unemployment rate, overall net debt as a percent of full market value of taxable property, percent of households below the poverty line, impact on community development potential, and impact on community property values resulting from compliance.
5. Evaluate economic benefits of cleaner water.	Information on potential benefits of cleaner water including enhanced recreational opportunities, reduced treatment costs for downstream users, and increased property values.
6. Public comment and debate period.	Be prepared to supply backup information on the application to modify or change a designated use to the public.
7. If substantial and widespread economic and social impacts are demonstrated, determine which pollution reduction option should be implemented.	Information on the cost and efficiency of affordable pollution reduction alternatives.
8. Redesignate uses.	Uses will be determined by the level of "affordable" pollution reduction.
9. Standards will be adopted to protect new uses.	Once uses are established, standards should be revised to protect those uses.
10. Effluent limits and permits will be modified.	Limits will be modified to reflect effluent concentrations associated with the "affordable" pollution reduction technique.
11. Re-evaluate water quality standards in three years.	Per federal regulations, water quality standards must be revised every three years to determine if there is any new information or technology that allows attainment of the full designated uses without causing a substantial and widespread economic and social impact.

Evaluating Substantial and Widespread Impacts: Overview (Figure 2-1 from the Guidance)

Description: This flowchart is an overview of the steps involved in determining if the costs of the proposed project will likely result in substantial and widespread impacts. No input is required.



Pollution Control Project Summary Information (Worksheet A in the Guidance)
Description: This worksheet identifies and documents the pollution control project(s) needed to meet water quality standards. See the Guidance documentation below for more information. **Instructions:** Enter information in the **cells marked with an asterisk (*)** about the most cost-effective approach to meet water quality standards. The most accurate estimate of project costs may be available from the discharger's design engineers. If site-specific engineering cost estimates are not available, preliminary project cost estimates may be derived from a comparable project in the State or from the judgment of experienced water pollution control engineers. Discharge management options to consider include: • Pollution prevention • End-of-pipe treatment • Upgrades or additions to existing treatment. Types of pollution prevention activities to consider are: • Public education • Change in raw materials • Substitution of process chemicals • Change in process • Water recycling and reuse • Pretreatment requirements. Whatever the approach, the information should demonstrate that the proposed project is the most appropriate means of meeting water quality standards and fully document project cost estimates. If at least one of the options that meets water quality standards will not have a substantial financial impact, then do not proceed with the analysis.

Current Capacity of the Pollution Control System (MGD)	2.33 *
Design Capacity of the Pollution Control System (MGD)	2.93 *
Current Excess Capacity (%)	20.5%
Expected Excess Capacity after Completion of Project (%)	20.5% *
Projected Groundbreaking Date (MM/DD/YYYY)	7/1/2014 *
Projected Date of Completion (MM/DD/YYYY)	12/30/2016 *

Describe the proposed pollution control project.

The proposed pollution control project is an adaptive management approach to meeting the TMDL limits based on the limits of technology. The proposed pollution control alternative consists of three steps 1) Abatement Order on Consent Improvents, 2) Tier 1 Biological Nutrient Removal, and 3) Tier 2 Enhanced Nutrient Removal. After each step, the receiving stream is to re-evaluated to determine if an impairment remains. If impairment remains, the next step is implemented through Step 3. Step 4 would be to add a reverse osmosis (RO) treatment plant to half of the effluent with brine disposal via deep well injection. Step 4 constitues the limits of available technology and was not considered due to capital costs, operational costs, operational complexity, and the challenges associated with brine disposal. *

Describe the other pollution control options considered, explaining why each option was rejected.

Step 4, described above, was rejected due to capital costs, operational costs, operational complexity, and challenges associated with brine disposal. For the purposes of this spreadsheet only, the Step 4 will be evaluated. Step 4 requires the implementation of Steps 1-3. Step 4 capital costs include the following costs (rounded to the nearest million dollars) : Step 1) $13,000,000; Step 2) $4,000,000; Step 3) $8,000,000; and Step 4) $27,000,000; Total = $52,000,000 (2013 Dollars) *

Guidance Documentation		
Component	***Section***	***Page***
Verify Project Costs	2.1.a	2-3
Documentation of Other Options Considered	2.1.a	2-3
Annual Cost of Pollution Control (overview)	2.1.b	2-4

Data Needed to Calculate the MPS (Worksheets B and C in the Guidance)

Description: This worksheet contains the information needed to calculate the municipal preliminary screener (MPS). The MPS is the average annualized pollution control cost per household in the affected community. The MPS helps to determine whether or not the community can clearly pay for the project without incurring any substantial impacts. See the Guidance documentation below for additional information.

Instructions: Enter the requested information into the **cells marked with an asterisk (*).** The affected community is the governmental jurisdiction or jurisdictions responsible for paying compliance costs. Current costs of pollution controls can also be considered in addition to the projected annual costs of the proposed pollution control project. The existing cost per household usually can be obtained from municipal records. If project costs are estimated for a prior year, these costs should be adjusted to reflect current year prices using the average annual national Consumer Price Index (CPI) inflation rate for the period available from the Bureau of Labor Statistics.

Capital Cost	
Capital Cost of Project ($)	$52,000,000 *
Other One-Time Costs of Project (list below, if any):	
Description of Cost Element	*Cost ($)*
*	*
*	*
*	*

Capital Costs to be Paid by Grants ($)	$0 *
Type of Financing (e.g., G.O. bond, revenue bond, bank loan)	Revenue Bonds *
Interest Rate for Financing (%)	4.00% *
Time Period of Financing (years)	20 *

Annual costs of operation and maintenance (including but not limited to: monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement; list below.)

Description of Cost Element	*Cost ($)*
*	$10,500,000 *
*	*
*	*
*	*
*	*

Total Annual Cost of Existing Pollution Control ($)	$2,100,000 *
Amount of Existing Costs Paid by Households ($)	$1,190,000 *
Number of Households (do not use number of hook-ups)	3,680 *

Will households provide revenues for the new pollution control project in the same proportion that they support existing pollution control? (Check a, b or c, below.)

☒ a) **Yes**		*
☐ b) No, they will pay a different percentage. Enter to right.		*
☐ c) No, they will pay based on flow. Answer three questions to right. (Corresponds to **Worksheet C, Option A.**)	1. Total Usage of Project (e.g., MGD for wastewater treatment)	*
	2. Usage Due to Household Use (MGD of household wastewater)	*
	3. Industrial Surcharges, if any ($ total per year)	*

Median Household Income (from Census)	$41,155 *
Current CPI	232.95 *
CPI for the year of the Census	216.69 *
Adjustment Factor [current CPI / CPI for the year of the Census]	1.08
Adjusted Median Household Income [Median Household Income x Adjustment Factor]	$44,243

Municipal Preliminary Screener (Worksheet D in the Guidance)

Description: This worksheet calculates and displays the Municipal Preliminary Screener (MPS), which is the total annual pollution control costs per household (existing annual cost per household plus the incremental cost related to the proposed project) as a percentage of median household income.

*Total Annual Pollution Control Cost per Household / Adjusted Median Household Income * 100*

The MPS indicates if a public entity would clearly not incur substantial economic impacts as a result of the proposed pollution control project.

Instructions: Evaluate the MPS by noting which cell is highlighted in **orange and marked with an asterisk (*).** If the MPS is less than 1.0 percent of median household income, the EPA does not expect the pollution control project to impose a substantial economic impact on the community; do not continue to the secondary affordability test. If the MPS is greater than 2.0 percent of median household income, then the pollution control project may result in a substantial economic impact to the community; continue to the secondary affordability test. If the MPS is between 1.0 and 2.0 percent of median household income, the community may incur a mid-range economic impact; continuing to the secondary affordability test is optional. See the Guidance documentation below for more information.

A. Calculation of the MPS

Total Annual Pollution Control Cost per Household [**Worksheet C**, (11) or **Worksheet C: Option A**, (10)]	$2,529.40	(1)
Adjusted Median Household Income	$44,243	(2)
MPS [(1) / (2)] * 100]	5.7%	(3)

B. Evaluation of the MPS

Note column of cell highlighted in **orange and marked with an asterisk (*)** below:

Little Impact	Mid-Range Impact	Large Impact
Less than 1.0%	1.0% - 2.0%	[redacted]
Indication of no substantial economic impacts	----------> Proceed to Secondary Test	

Guidance Documentation

Component	*Section*	*Page*
MPS	2.3	2-6
Annual Pollution Control Cost per Household	2.2	2-5
Median Household Income	2.3	2-7
Census	2.3	2-7
Interpreting MPS	2.3	2-7
Determining Need for Secondary Test	2.3	2-7

Data Needed to Calculate the Secondary Test Score (Worksheet E in the Guidance)

Description: This worksheet contains the numerical data necessary to calculate the secondary test score. The secondary test score characterizes the community's current financial and socioeconomic condition. See the Guidance documentation below for additional information.

Instructions: If the MPS indicates substantial impacts may occur (i.e. it exceeds 1.0%), proceed with the secondary test by entering socioeconomic data for the affected community in the **cells marked with an asterisk (*)**. Additional information on potential sources of data are provided in the tab named: "Potential Data Sources," and example data sources are provided in the tab named: "Example Data Sources." If one or more of the six indicators is not developed, provide an explanation as to why the indicator is not appropriate or not available.

A. Socioeconomic Data

Data	Potential Source	Value	
Direct Net Debt ($)	Community Financial Statements Town, County or State Assessor's Office	$1,075,000	* (1)
Overlapping Debt ($)	Community Financial Statements Town, County or State Assessor's Office	$9,315,285	* (2)
Market Value of Taxable Property ($)	Community Financial Statements Town, County or State Assessor's Office	$430,515,756	* (3)
Bond Rating (for uninsured bonds)	Standard and Poor's or Moody's		* (4)
Community Unemployment Rate (%)	Census of Population Regional Data Centers	6.8%	* (5)
National Unemployment Rate (%)	Bureau of Labor Statistics	7.6%	* (6)
Community Median Household Income (not adjusted for inflation)	Census of Population	$41,155	(7)
State Median Household Income (for same time period as Community MHI) ($)	Census of Population	$47,202	* (8)
Property Tax Collection Rate (%)	Community Financial Statements Town, County or State Assessor's Office	95.0%	* (9)
Property Tax Revenues ($)	Community Financial Statements Town, County or State Assessor's Office		* (10)

If any cell above is left blank, explain why the indicator is not appropriate or not available:

City has no bond rating. Only overlaping debt related to the school system. No direct debt in the general obligation fund.

Some states have statutory limits on property tax collections and/or rates, or data on full-market value of taxable property are not available. If this is the case, select "yes" below and provide the number of people residing in the affected community.

Are there statutory limits on property tax collections and/or rates in the state, or are data on the full-market value of taxable property not available?

☐ a) No

☐ b) Yes (enter the number of residents in the effected community below)

Population (#)	Census of Population	12,780	* (P)

B. Calculated Indicators (for informational purposes only)

1. Overall Net Debt as a Percent of Full Market Value of Taxable Property

Overall Net Debt [(1) + (2)]	$10,390,285
Overall Net Debt as a Percent of Full Market Value of Taxable Property [[(11)/(3)] x 100]	2.41%

1a. Overall Net Debt Per Capita (Alternative Indicator)

Overall Net Debt Per Capita [[(11) / (Pop)] x 100]	$812

2. Property Tax Revenues as a Percent of Full Market Value of Taxable Property

Property Tax Revenues as a Percent of Full Market Value of Taxable Property [[(10)/(3)] x 100]	0.00%

Guidance Documentation

Component	*Section*	*Page*
Secondary Test (overview)	2.4	2-7
Net and Overlapping Debt	2.4	2-9
Bond Rating	2.4	2-8
Unemployment Rate	2.4	2-9
Median Household Income	2.4	2-10
Property Tax	2.4	2-10
Alternative Indicators	2.4	2-11
Use of Secondary Test	2.4	2-11

Calculation of the Secondary Test Score (Worksheet F in the Guidance)

Description: This worksheet calculates the secondary test score, which characterizes the affected community's current financial and socioeconomic condition. The secondary test score is used in combination with the MPS to evaluate whether or not substantial economic impacts are likely to occur. See the Guidance documentation below for additional information.

Instructions: Verify that the appropriate cell is selected in each row and in the "Score" column to be summed below (highlighted in **orange** and **marked with an asterisk (*)**).

Indicator	Secondary Indicators			Score
	Weak [a]	Mid-Range [b]	Strong [c]	
Bond Rating **Worksheet T, (4)**	Below BBB (S&P) Below Baa (Moody's)	BBB (S&P) Baa (Moody's)	Above BBB (S&P) Above Baa (Moody's)	N/A
Overall Net Debt as Percent of Full Market Value of Taxable Property **Worksheet T, (12)**	Above 5%	[redacted]	Below 2%	[redacted]
Overall Net Debt Per Capita[1] **Worksheet T, (12 Alt.)**	Greater than $3,000	$1,000 - $3,000	Less than $1,000	N/A
Unemployment[2] **Worksheet T, (5) & (6)**	Above National Average	[redacted]	Below National Average	[redacted]
Median Household Income[3] **Worksheet T, (7) & (8)**	[redacted]	State Median	Above State Median	[redacted]
Property Tax Revenues as a Percent of Full Market Value of Taxable Property[4] **Worksheet T, (13)**	Above 4%	2% - 4%	Below 2%	N/A
Property Tax Collection Rate[4] **Worksheet T, (9)**	< 94%	[redacted]	> 98%	[redacted]
Average of Financial Management Indicators[4] **Worksheet T, (13) and (9)**	[redacted]	[redacted]	[redacted]	N/A

a. Weak is a score of 1 point
b. Mid-Range is a score of 2 points
c. Strong is a score of 3 points

SUM 7

AVERAGE 1.8

Notes:

[1] If the state has statutory limits on property tax collections and/or rates or data on full-market value of taxable property are not available, "Overall Net Debt as Percent of Full Market Value of Taxable Property" is replaced with "Overall Net Debt Per Capita" and "Property Tax Revenues as a Percent of Full-Market Value of Taxable Property" is dropped.

[2] If the community's employment rate is equal to the national average unemployment rate, plus or minus 1%, then the community's unemployment rate is assessed as being equal to the national rate.

[3] If the community's median household income is equal to the state median, plus or minus 10%, then the community's median household income is assessed as being equal to the state's median household income.

[4] If one of the debt or socioeconomic indicators is not available, the two financial management indicators are averaged and this averaged value is used as a single indicator with the remaining indicators.

Guidance Documentation		
Component	***Section***	***Page***
Calculating Secondary Test Score	2.4	2-11
Interpreting Secondary Test Score	2.4	2-11
Missing Indicators	2.4	2-12
Determining Need for Widespread Analysis	2.5; Figure 2-1	2-12; 2-14

Conclusion for Community
Description: This matrix evaluates the likelihood of substantial economic impacts due to implementation of the pollution control costs. See the Guidance documentation below for additional information. **Instructions:** Evaluate the combined results of the MPS and the secondary test by noting which cell in the Substantial Impacts Matrix below is highlighted in **orange** and **marked with an asterisk (*)**. If the matrix indicates the pollution control project is not likely to impose a substantial economic impact on the community, do not continue to the widespread analysis. If the matrix indicates the pollution control project is likely to impose a substantial economic impact on the community, continue to the widespread analysis. If the matrix indicates the pollution control project may or may not impose a substantial economic impact on the community, continuing to the widespread analysis is optional.

Assessment of Substantial Impacts Matrix (Table 5-2 from the Guidance)

MPS: 5.7%
Secondary Test Score: 1.8

Secondary Test Score	MPS		
	Less than 1.0 Percent	Between 1.0 and 2.0 Percent	Greater than 2.0 Percent
Less than 1.5	?	X	X
Between 1.5 and 2.5	✓	?	[redacted]
Greater than 2.5	✓	✓	?

Key:
✓ : Impact is not likely to be substantial
X : Impact is likely to be substantial
? : Impact is unclear

Guidance Documentation		
Component	***Section***	***Page***
Using Substantial Impacts Matrix	2.5	2-12
Determining Need for Widespread Analysis	2.5; Figure 2-1	2-12; 2-14

Qualitative Description of Estimated Change in Socioeconomic Indicators Due to Pollution Control Costs (Worksheet M in the Guidance)
Description: This worksheet indicates whether the substantial economic impacts will also be widespread. The EPA considers substantial economic impacts to be widespread if they will have significant adverse impacts on the local community. See the Guidance documentation below for additional information. **Instructions:** Enter information in the **cells marked with an asterisk (*)** to determine if the substantial economic impacts would result in widespread adverse economic impacts to the local community. Because there are no standard economic tests or benchmarks that evaluate socioeconomic impacts for the widespread demonstration, describe the relative changes in indicators such as unemployment, the local economy, household income, tax revenues, indirect effects on other businesses, and sewer fees. This worksheet will help collect and organize the types of information that can be used to determine and demonstrate whether substantial economic impacts will also be widespread.

Estimated change in Median Household Income (MHI)	No significant change to MHI is expected.	*
Estimated change in the unemployment rate	Unemployment could rise as industrial and commercial base may move due to extremely high sewer rates needed to fund and operate wastewater improvements.	*
Estimated change in overall net debt as a percent of full market value of taxable property	Project would increase municipal debt significantly without accounting for other needed investments in City needs (e.g., education, transportation, water, emergency services, etc.).	*
Estimated change in % of households below the poverty line	No significant change in households below poverty line is expected.	*
Impact on commercial development potential	Commercial and industrial development would be severely impacted by high wastewater utility rates.	*
Impact on property values	Property values would decrease as high wastewater utility rates could result in flight of residences from the City.	*

Calculation of Total Annualized Project Costs (Worksheet B in the Guidance)
Description: This worksheet displays the total annualized project costs. This worksheet is for informational purposes only. No input is required.

A. Capital Costs		
Capital Cost of Project	$52,000,000	
Other One-Time Costs of Project (please list, if any):		
	$0	
	$0	
	$0	
Total Capital Costs (sum column)	$52,000,000	(1)
Portion of Capital Costs to be Paid with Grant Monies	$0	(2)
Capital Costs to be Financed [(1) - (2)]	$52,000,000	(3)
Type of Financing (e.g., G.O. bond, revenue bond, bank loan)	Revenue Bonds	
Interest Rate for Financing	4.00%	(i)
Time Period of Financing (in years)	20	(n)
Annualization Factor = $i/((1+i)^n - 1) + i$	0.0736	(4)
Annualized Capital Cost [(3) × (4)]	$3,826,251	(5)

B. Operating and Maintenance Costs		
Annual Costs of Operation and Maintenance (including but not limited to: monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement; list below).		
	$10,500,000	
	$0	
	$0	
	$0	
	$0	
Total Annual O & M Costs (sum column)	$10,500,000	(6)

C. Total Annual Cost of Pollution Control Project		
Total Annual Cost of Pollution Control Project [(5) + (6)]	$14,326,251	(7)

Calculation of Total Annual Pollution Control Costs Per Household (Worksheet C)
Description: This worksheet displays the total annual pollution control costs per household calculated from data entered in other spreadsheets. This worksheet is for informational purposes only. No input is required. If the option in the tab named "2. MPS Inputs" indicates that households will provide revenues for the pollution control project in the same or different proportion that they support existing pollution control (choice a or b), then the spreadsheet uses **Worksheet C** parts A, B, and C. However, if households pay based on flow (choice c), then the spreadsheet uses **Worksheet C** part A and **Worksheet C: Option A**.

A. Current Pollution Control Costs		
Total Annual Cost of Existing Pollution Control	$2,100,000	(1)
Amount of Existing Costs Paid by Households	$1,190,000	(2)
Percent of Existing Costs Paid by Households	56.7%	(3)
Number of Households *	3,680	(4)
Annual Cost Per Household [(2)/(4)]	$323.37	(5)
* Do not use number of hook-ups.		

B. New Pollution Control Costs			
Will households provide revenues for the new pollution control project in the same proportion that they support existing pollution control?			
X	a) Yes [fill in percent from (3)]	56.7%	(6a)
	b) No, they will pay	0.00%	(6b)
	c) No, they will pay based on flow. (Continue on Calculation of Total Annual Pollution Control Costs Per Household Based on Flow.)		
Total Annual Cost of Pollution Control Project [Line (7), **Worksheet B**]		$14,326,251	(7)
Proportion of Costs Paid by Households [(6a) or (6b)]		0.57	(8)
Amount to be Paid by Households [(7) × (8)]		$8,118,209	(9)
Annual Cost per Household [(9)/(4)]		$2,206.04	(10)

C. Total Annual Pollution Control Cost per Household		
Total Annual Cost of Pollution Control Project per Household [(5) + (10)]	$2,529.40	(11)

Calculation of Total Annual Pollution Control Costs Per Household Based on Flow (Worksheet Q: Option A)		
A. Calculating Project Costs Incurred by Households Based on Flow		
Total Usage of Project (e.g., MGD for wastewater treatment)	0.0	(1)
Usage Due to Household Use (MGD of household wastewater)	0.0	(2)
Percent of Usage Due to Household Use [(2)/(1)]	0.00%	(3)
Total Annual Cost of Pollution Control Project	$14,326,251	(4)
Industrial Surcharges, if any	$0	(5)
Costs to be Allocated [(4) - (5)]	$14,326,251	(6)
Amount to be Paid by Households [(3) × (6)]	$0	(7)
Annual Project Cost per Household [(7) / **Worksheet C**, (4)]	$0.00	(8)

C. Total Annual Pollution Control Cost per Household		
Annual Existing Costs per Household [**Worksheet C**, (5)]	$323.37	(9)
Total Annual Cost of Pollution Control per Household [(8) + (9)]	$323.37	(10)

Guidance Documentation		
Component	***Section***	***Page***
Defining Affected Community	2.2	2-5
Adjusting Prior Year's Estimates	2.2	2-5
Impact of Cost Distribution in Community	2.2	2-6
Approaches to Calculating Current Costs	2.2	2-6
Total Annual Cost of Pollution Control Project	2.1.a	2-3
Industrial Surcharges	2.2	2-6

Potential Data Sources for Secondary Test Inputs
Description: This worksheet provides potential sources for the socioeconomic data required to perform the calculations in this spreadsheet. This worksheet is for informational purposes only. No input is required.

Indicator	Potential Data Source
Direct Net Debt	Community Financial Statements
Overlapping Debt	Community Financial Statements
Market Value of Property	Community Financial Statements. If community-specific information cannot be found, median property values by state can be found through American Community Survey Reports: http://www.census.gov/prod/2009pubs/acsbr08-6.pdf Combine data with the number of properties in the community.
Bond Rating	Standard and Poor's or Moody's
Community Unemployment Rate	U.S. Department of Labor, Bureau of Labor Statistics: Local Area Unemployment Statistics: http://www.bls.gov/lau/#tables
National Unemployment Rate	U.S. Department of Labor, Bureau of Labor Statistics: Labor Force Statistics from the Current Population Survey: http://data.bls.gov/timeseries/LNS14000000
Community Median Household Income	U.S. Census Bureau: State & County QuickFacts (select state, then county or city within state): http://quickfacts.census.gov/qfd/index.html
State Median Household Income	U.S. Census Bureau: State Median Income: http://www.census.gov/hhes/www/income/data/statemedian/
Property Tax Collection Rate	Community Financial Statements. If community-specific information cannot be found, statewide data can be found at the U.S. Census Bureau's Quarterly Summary of State & Local Taxes: http://www.census.gov/govs/qtax/
Property Tax Revenues	Community Financial Statements. If community-specific information cannot be found, statewide data can be found at the U.S. Census Bureau's Quarterly Summary of State & Local Taxes: http://www.census.gov/govs/qtax/ Scale according to size of community relative to state.

Example Data Sources for Secondary Test Inputs
Description: This worksheet provides two specific examples of where socioeconomic data required to perform the calculations in this spreadsheet may be obtained for two communities. This worksheet is for informational purposes only. No input is required.

Indicator	Example Data Sources for Fairfax County, Virginia	Example Data Sources for Brookings County, South Dakota
Direct Net Debt	Fairfax County's 2011 Comprehensive Annual Financial Report (CAFR) is available from the county's Finance website: http://www.fairfaxcounty.gov/finance/cafr.htm It provides detailed financial information for the county's primary government, including debt (page 20).	The Community Financial Statement is not available online; however the financial statements were audited in 2010 for the year ending in December 2009, and the audit report is available online: http://legislativeaudit.sd.gov/Reports/County/Brookings%20County%202009.pdf As such, the 2009 financial data, including debt, from 2009 can be used.
Overlapping Debt	Fairfax County's 2011 Comprehensive Annual Financial Report (CAFR) is available from the county's Finance website: http://www.fairfaxcounty.gov/finance/cafr.htm It provides detailed financial information for "component units" such as public schools, park authorities, and others which may be counted as overlapping entities (page 21).	The Community Financial Statement is not available online; however the financial statements were audited in 2010 for the year ending in December 2009, and the audit report is available online: http://legislativeaudit.sd.gov/Reports/County/Brookings%20County%202009.pdf This includes financial data on component units. As such, the 2009 financial data, including debt, from 2009 can be used.
Market Value of Property	Fairfax County's 2011 Comprehensive Annual Financial Report (CAFR) is available from the county's Finance website: http://www.fairfaxcounty.gov/finance/cafr.htm It provides detailed financial information for the county, including an additional statistical section which shows the assessed value of all taxable and nontaxable property in the county (page 246).	The Community Financial Statement is not available online; however, the state of South Dakota provides a recapitulation of property tax statistical information, and Brookings County has links to those documents available on its property tax website: http://www.state.sd.us/drr2/propspectax/property/publications.htm (page 60 contains the relevant information on the market value of property, as well as the property tax collection).
Bond Rating	Fairfax County's 2011 Comprehensive Annual Financial Report (CAFR) is available from the county's Finance website: http://www.fairfaxcounty.gov/finance/cafr.htm provides the county's credits cores from both Standard and Poor's and Moody's (page XVII).	Standard and Poor's: http://www.standardandpoors.com/ratings/en/us/ Allows a search of government entities (by state under "Public Finance U.S.) to registered users (at no cost) and provides a summary of credit issuances and their associated ratings.
Community Unemployment Rate	The American Factfinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml Allows the user to find specific census data sets. To identify the community unemployment rate for Fairfax County, select the topic "People:Income/Earnings (Households)"; narrow the geography to Fairfax County, Virginia; and within the Search results, search for: DP03: Selected Economic Characteristics.	The American Factfinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml Allows the user to find specific census data sets. To identify the community unemployment rate for Brookings County, select the topic "People:Income/Earnings (Households)"; narrow the geography to Brookings County, South Dakota; and within the Search results, search for: DP03: Selected Economic Characteristics.

National Unemployment Rate	The Bureau of Labor Statistics provides national unemployment rate: http://data.bls.gov/timeseries/LNS14000000	The Bureau of Labor Statistics provides national unemployment rate: http://data.bls.gov/timeseries/LNS14000000
Community Median Household Income	The American Factfinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml Allows the user to find specific census data sets. To identify the community median household income for Fairfax County, select the topic "People:Income/Earnings (Households)"; narrow the geography to Fairfax County, Virginia; and within the Search results, search for: DP03: Selected Economic Characteristics.	The American Factfinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml Allows the user to find specific census data sets. To identify the community median household income for Brookings County, select the topic "People:Income/Earnings (Households)"; narrow the geography to Brookings County, South Dakota; and within the Search results, search for: DP03: Selected Economic Characteristics.
State Median Household Income	The American Factfinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml Allows the user to find specific census data sets. To identify the community median household income for Virginia, select the topic "People:Income/Earnings (Households)"; narrow the geography to Virginia; and within the Search results, search for: DP03: Selected Economic Characteristics.	The American Factfinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml Allows the user to find specific census data sets. To identify the community median household income for South Dakota, select the topic "People:Income/Earnings (Households)"; narrow the geography to South Dakota; and within the Search results, search for: DP03: Selected Economic Characteristics.
Property Tax Collection Rate	Fairfax County's 2011 Comprehensive Annual Financial Report (CAFR) is available from the county's Finance website: http://www.fairfaxcounty.gov/finance/cafr.htm and provides the county's property tax collection rate on page 247.	The Community Financial Statement is not available online; however the state of South Dakota provides a recapitulation of property tax statistical information, and Brookings County has links to those documents available on its property tax website: http://www.state.sd.us/drr2/propspectax/property/publications.htm (page 60 contains the relevant information on the market value of property, as well as the property tax collection).
Property Tax Revenues	Fairfax County's 2011 Comprehensive Annual Financial Report (CAFR) available from the county's Finance website: http://www.fairfaxcounty.gov/finance/cafr.htm and provides the county's property tax revenue data (page 8).	The Community Financial Statement is not available online; however the state of South Dakota provides a recapitulation of property tax statistical information, and Brookings County has links to those documents available on its property tax website: http://www.state.sd.us/drr2/propspectax/property/publications.htm (page 60 contains the relevant information on the market value of property, as well as the property tax collection).

Variance Spreadsheet Entry	Value	Source
Current Capacity of Pollution Control System	2.33	Draft Operating Permit MO-0103331 (June 28, 2013) Page 2 of 10 - Actual Flow
Design Capacity of Pollution Control System	2.93	Draft Operating Permit MO-0103331 (June 28, 2013) Page 2 of 10 - Design Flow
Expected Excess Capacity after Completion of Project (%)	20.5%	Same as Current Excess Capacity - No additional dry weather capacity is planned, wet weather capacity will be increased to maximize secondary treatement during wet weather and eliminate Outfall #002.
Project GroundBreaking Day	8/1/2014	Draft Operating Permit MO-0103331 (June 28, 2013) Appendix 4: Abatement Order on Consent and Permit Requirement Implementation Schedule
Project Date of Completion	12/30/2016	Draft Operating Permit MO-0103331 (June 28, 2013) Appendix 4: Abatement Order on Consent and Permit Requirement Implementation Schedule; A detailed analysis on the length of construction of a Reverse Osmosis treatment facility was not undertaken, and may extend the construction timeframe.
Capital Cost of Project	$52,000,000	Draft Operating Permit MO-0103331 (June 28, 2013) Appendix #3. Capital costs include the following costs (rounded to the nearest million dollars) : Step 1) $13,000,000; Step 2) $4,000,000; Step 3) $8,000,000; and Step 4) $27,000,000; Total = $52,000,000. All costs are in 2013 dollars.
Capital Costs to be Paid by Grants	$0	It is assumed that grants will not fund the project.
Type of Financing	Revenue Bonds	Revenue Bonds are assumed due to the size of the project.
Intrest Rate for Financing	4.0%	Revenue Bonds may vary from 4% - 5% based on current economic conditions.
Time Period of Financing (years)	20	Typical period of financing for reyenue bonds.
Annual Costs of Operation and Maintenance	$10,500,000	"Striking a Balance Between Nutrient Removal and Sustainability", Falk MW, Reardon DJ, Jimenex J, Neethling, JB. Water Environment Federation. Presented at the Nutrient Recovery and Management Conference, 2011. Cost estimation found Step 4 would require 3.5 times - 6.2 times greater O&M cost than ammonia removal treatment. A factor of 5.0 times was assumed.
Total Annual Cost of Existing Pollution Control	$2,100,000	http://fultonmo.org/wp-content/uploads/2012/12/2013_COF_Budget.pdf
Amount of Existing Costs Paid by Households	$1,186,500	From general legder (refer to reference above). Residential revenue was $1,220,000 of a total of $2,426,000. 0.5% Sales tax collected was $724,000. Assumed half of sales tax is devoted to wastewater = $362,000. ($1,220,000+$362,000]/($2,426,000+$362,000)= 56.7%; $2,100,000*.567 = $1,190,000
Number of Households	4,305	http://quickfacts.census.gov/qfd/states/29/2926182.html
Median Household Income	$41,155	http://quickfacts.census.gov/qfd/states/29/2926182.html
Current CPI	232.95	ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt
CPI for the Year of the Census	216.69	ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt
Direct Net Debt	$1,075,000	Kathy Holschlag City of Fulton - Direct Net Debt is for golf course.
Overlapping Debt	$9,315,285	Kathy Holschlag City of Fulton - overlapping from school district
Market value of taxable property	$77,492,836	Assessed value per Callaway County Collector Pam Oestreich on 6/28/13 (Phone conversation).
	$430,515,756	Actual value (assessed value is 18% of actual valve)
	$99,403	Average actual value per assessed lot
Fulton unemployment	6.8%	http://www.missourieconomy.org/pdfs/urel1112.pdf
National unemployment	7.6%	http://www.google.com/publicdata/explore?ds=r1ebipgk2654c1_&met_y=unemployment_rate&idim=country:US&fdim_y=seasonality:S&dl=en&hl=en&q=national%20unemployment%20rate
State MHI	$47,202	http://quickfacts.census.gov/qfd/states/29/2926182.html
Property Collection Rate	95%	Estimated collection rate per Callaway County Collector Pam Oestreich on 6/28/13 (Phone conversation).
Population	12,790	http://quickfacts.census.gov/qfd/states/29/2926182.html