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# DEPARTMENT OF NATURAL RESOURCES

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## MEMORANDUM

DATE: SEP 17 2014

TO: John Madras, Director  
Water Protection Program

THROUGH: Chris Wieberg, Section Chief  
Operating Permits Section *CW*

FROM: Lacey Hirschvogel, Environmental Specialist *LH*  
Domestic Wastewater Unit

SUBJECT: Guidance for Conducting and Developing a Cost Analysis for Compliance

*Please proceed. This looks very good. Let's revisit the topic after some experience with it and in anticipation of the next stakeholder meeting. Thanks. JM 9/17/14*

The Guidance for Conducting and Developing a Cost Analysis for Compliance document has been updated with the current process and language. The Cost Analysis for Compliance warranted updates after the signing of Senate Bill 642 and Senate Bill 664. The following changes have been incorporated to the attached draft "Guidance for Conducting and Developing a Cost Analysis for Compliance":

- Title of document has been changed from "Finding of Affordability" to "Cost Analysis for Compliance";
- Inclusion of a new requirement for the permit writer to use the actual flow in lieu of the design flow if the actual flow is a more representative flow based on the number of connections to the facility and the population trends show that the community is declining and will continue to decline;
- Inclusion of a land application treatment system (up to 150,000 gallons per day) and an extended aeration package plant (up to 50,000 gallons per day) into the cost calculator and cost estimate discussion. This allows a more representative estimate of the financial burden of smaller communities;
- The requirement for the permit writer to include a range of cost estimates for four different mechanical treatment types has been removed. Permit writers will now pick the most practical mechanical treatment option for community based on the design (actual if appropriate) flow of the facility. The estimated cost associated with the most practical mechanical treatment type will be used to complete the analysis along with the cost estimated for land application treatment if applicable;



Recycled Paper

- The guidance now directs the permit writer to use the State of Missouri’s median household income (MHI) to complete the analysis, if the community’s MHI is larger than the State’s MHI per Senate Bills 642 and 664;
- The guidance incorporates the addition of the new Criteria 4 per Senate Bill 642 and 664. “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 guidance now includes the addition of the two socioeconomic indicators (% of households in poverty and % of households relying on food stamps) to the Table in Criteria #7; an assessment of factors set forth in the U.S. Environmental Protection Agency guidance, including but not limited to, the Combined Sewer Overflow’s *Guidance for Financial Capability Assessment and Schedule Development* that may ease the cost burdens of implementing wet weather control plans, including but not limited to, small system considerations, the attainability of water quality standards, and the development of wet weather standards;
- The decision process for choosing the length of the schedule of compliance has changed. Permit writers are to choose the schedule of compliance based on the most practical and affordable treatment option;
- Permit writers are to state whether or not the Department has estimated a cost which meets the definition of affordable for their community in the conclusion section of the analysis;
- Permit writers are to include a timeline and suggested milestones to meet the schedule of compliance in the conclusion section of the analysis

We are seeking management approval of this document prior to posting to the website. If you have any questions regarding this memorandum and or the enclosed attachment please contact Mr. Chris Wieberg at (573) 526-5781 or Mrs. Lacey Hirschvogel at (573) 571-9391.

LH/sm

Attachment

## **Draft Guidance for Conducting and Developing a Cost Analysis for Compliance**

### **Requirement:**

Section 644.145 requires the Department of Natural Resources (the Department) to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws pertaining to any portion of a combined, separate sanitary, or separate storm sewer systems for publically owned treatment works. The “finding of affordability” will be titled “Cost Analysis for Compliance.” Attachment 1 contains Section 644.145, RSMo, as established in House Bill 89 (2011), amended in House Bill 1251 (2012) and again in Senate Bills 664 and 642 (2014). The Department will conduct a cost analysis associated with compliance with permit functions (new permit, renewals, and modifications) and enforcement actions for publically owned combined or separate sanitary treatment works, or separate sanitary treatment works, or separate storm sewer systems (hereinafter, referenced as the “entity”). A permit applicant in a community with three thousand and three hundred (3,300) or more residents may voluntarily certify that the applicable requirements are affordable to implement or may waive the requirement for a cost analysis.

The Department is not required to complete a cost analysis for compliance when: 1) issuing a collection system extension permit; 2) issuing a National Pollutant Discharge Elimination System permit renewals that include no new environmental requirements; 3) the permit applicant certifies that the applicable requirements are affordable to implement or otherwise waives the requirement for an affordability finding. A construction permit that does not include new environmental requirements beyond what are already required by an existing compliance schedule is not required to have an affordability finding; or 4) when permit modifications or permit renewals do not impose new requirements.

Municipal separate storm sewer system (MS4) permits will be addressed on a case by case basis. When new regulations require permittees to spend additional resources to comply with new permit requirements, the procedure set forth in this guidance in addition to storm sewer system guidance will be used to address the affordability finding for storm sewer permits. The Department will offer the permittee an opportunity to review a draft cost analysis for compliance and the permittee may suggest changes and provide additional supporting information within a reasonable time frame.

Under Section 644.145, the Department must consider the following criteria as the basis for the finding:

- 1) A community’s financial capability and ability to raise or secure necessary funding.
- 2) Affordability of pollution control options for the individuals or households of the community.
- 3) An evaluation of the overall costs and environmental benefits of the control technologies.

- 4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment systems, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates.
- 5) An inclusion of ways to reduce economic impacts on distressed populations on the community, including but not limited to low – and fixed – income populations. This requirement includes but is not limited to:
  - a. Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations; and
  - b. Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportional financial hardship in light of the environmental benefits to be gained.
- 6) An assessment of other community investments relating to environmental improvements.
- 7) An assessment of factors set forth in the U.S. Environmental Protection Agency (EPA) guidance, including but not limited to, the *CSO 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.
- 8) An assessment of any other relevant local community economic condition.

It is beneficial for Department staff to have input from the entity and staff may request information relevant to or necessary to develop the finding. The Financial Questionnaire is located on the MDNR website and is to be completed and submitted as a supplemental part of the application (Form B and Form B2). An application will be deemed as incomplete and returned to the applicant if the Financial Questionnaire Form is not submitted with the application for renewal. It is beneficial for the community to fill out the information within the questionnaire to gain the most accurate results from the Cost Analysis for Compliance.

**Purpose:**

This guidance document provides a uniform and consistent approach to conducting cost analysis for compliance consistent with the statutory requirements, provide a meaningful platform to consider unique challenges facing communities/systems, respond to community needs through the examination of factors impacting immediate and long-term affordability, and explore options to reduce financial impacts while remaining protective of the environment. While there are many objective statistics and formulas that are indicators of affordability, there is no formula or statistic that can be used as a stand-alone measure of affordability in this cost analysis. Objective and subjective factors should be considered together to develop the conclusion and to help communities implement and prioritize cost-effective, affordable approaches in achieving Missouri Clean Water Law and Clean Water Act objectives.

**Process:**

The Department will use the format described within this document to develop the cost analysis for compliance.

The analysis will be based on reasonably verifiable data. A questionnaire is located within the application for renewal (Form B and Form B2).

A draft finding will be completed by the Department and shared with the entity for the review and comment prior to issuing the final cost analysis for compliance (typically during the comment period for a permit or during the negotiation process for an enforcement action). A final cost analysis for compliance will be issued after considering and incorporating relevant comments and additional information.

**Format for the Cost Analysis for Compliance:**

A draft format to serve as a basis for consistent cost analyses is included as Attachment 2.

**Pre-screening Tool:**

The Department has developed a pre-screening tool (in Microsoft Excel) to aid in the development of the finding. This tool will provide key statistical information (census data, unemployment data, etc.) this will be used throughout the development of the cost analysis for compliance. This information is useful to identify distressed communities/populations.

To use the prescreening tool, open the Excel document titled "Pre-screening tool." This document is updated monthly. Open the tab entitled "Comparison Chart." Select the target community from the drop down list. A copy of this chart will be included in the Criteria #5 of the analysis.

The pre-screening tool will return information on:

- Change in Population (20 year trend);
- Poverty Level;
- Unemployment Level;
- Reliance on Food Stamps;
- Median Age;
- Change in Median Age (20 year trend);
- Median Household Income
- Change in Median Household Income (20 year trend)
- Population; and
- The value per acre of cropland and pastureland for county

The pre-screening tool compares values for the selected community to the overall Missouri figure and plots the difference based upon the number of standard deviations away from the statewide figures. The difference is plotted on a color gradient from green to red. Values falling “red” (greater than one standard deviation away from the statewide figure) will indicate areas of concern. Multiple values in the red may indicate that the community is substantially challenged and that it may be difficult for the entity to afford major investments.

Staff preparing the cost analysis for compliance should consider the statistics individually and as a set. For example, a sharp decline in population paired with an increase in median age may indicate that younger generations are leaving the community thereby decreasing the community’s financial capabilities.

Another feature of the tool is individual charts that plot the curve for all Missouri communities and show the statewide figure as well as the deviation. These charts may provide a beneficial visual aid especially when seeking to quantify measures for a distressed population. To access the individual charts, select the target community from the drop down list in the comparison chart (same as above) and open the worksheet (tab) corresponding to the chart for the statistic that is of interest.

Other worksheets include raw statistics and the source information.

#### **Gathering Data and Developing the Cost Analysis for Compliance:**

- Prior to developing the draft analysis, the entity should have submitted the Financial Questionnaire Form with the application for renewal. If the questions have not been answered or have not been completely answered, staff may contact the entity and request basic information that may include; A copy of the entity’s most recent financial statement; the number of residential connections; the number of commercial connections; current residential rate per 5,000 gallon per month; whether or not the entity has a commercial bond rating (and what the rating is); a list of major infrastructure or other investments in environmental projects (include clear indication or project timing and costs, and indicate any possible overlap or complications); and any other relevant local community economic conditions that may impact the entity’s ability to afford the project.

The “Financial Questionnaire” is located on the MDNR website under the Forms and Permits tab with all other POTW applications. If the “Financial Questionnaire” is not submitted by the POTW along with the application for renewal, the application will need to be returned as “incomplete” by the permit writer. This is because; gathering this material in advance will allow staff to develop a more accurate and meaningful cost analysis. If requested information is not made available, a disclaimer should be included in the analysis that efforts made to obtain such information were unsuccessful; therefore some level of generalization was necessary in the determination.

- **Basic Information** – Staff should identify the entity involved and described with reasonable specificity within the permit or enforcement action for which the analysis is being developed. This should typically include a description of any significant new permit requirements, or the requirements being enforced, and the cost of the most practical treatment option to achieve compliance with new requirements for the community based on the design flow or actual flow if more appropriate based on the number of connections. If land application is an option (facilities up to 150,000 gpd) the estimated costs for this option will be described here as well. The number of residential, commercial, and industrial connections will need to be included within this section. This allows for justification of whether it is more appropriate to use design or actual flow to complete the analysis. If the actual flow is more appropriate, permit writers will need to narrate this within this section. Location information and a description of any unique geographic boundaries may also be important if the permit covers multiple (or partial) jurisdictions. Normally this information is contained in the permit or relevant enforcement documents.
- **First Criteria** – Assess the entity’s financial capability and ability to raise or secure necessary funding.

Staff should first consider whether the entity has already identified or secured necessary funding (such as a combination of reserves or revenue stream from existing fees, or both; an existing loan; existing bond financing) sufficient to complete the project. This is usually not the case when drafting a NPDES permit renewal. If funding has already been secured, the entity has already demonstrated the ability to raise or secure necessary funding and an appropriate statement should be inserted into the finding document.

If the entity has not yet demonstrated an ability to secure funding, staff should gather key data to indicate whether the capacity exists to pursue and secure capital. Such data may include:

- Current User Rate (suggest using rate per 5,000 gallons, if not provided by entity staff should use the rate provided by MPUA located on the CAPDEWORKS excel sheet);
- Rate Capacity or Pay-as-you-go Option;
- Municipal Bond Rating (if available, staff can use this website as a reference: <http://emma.msrb.org/IssuerView/IssuerDetails.aspx?cusip=795169>);
- Bonding Capacity (*General Obligation Bond capacity allowed by constitution*)
  - *Cities – up to 20% of taxable tangible property.*
  - *Sewer districts – up to 5% of taxable tangible property);*
- Current Outstanding Debt (suggested source – most recent financial statements); other upcoming bonds or debt as may be identified by the entity;
- Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure

- Consideration of integrated planning to address the most significant needs of the municipality; and
- Other factors

In instances where a need to raise capital exists, the entity will likely need to obtain voter approval. Reasonable time has been built into schedules to allow for acquisition of funding.

In the instances when the facility has not supplied information to the Department, the permit writer should note “Not provided by community” on the answer line of the cost analysis.

Any decisions made need to be clearly documented.

- **Second Criteria** – Assess the affordability of pollution control options for the individuals or households of the community.

Staff should identify approximate costs of pollution control options and include in the opening section of the Cost Analysis for Compliance. The most accurate information may come from the engineering reports or cost estimates provided by the entity, if available. If none are available, staff should estimate the most practical cost by utilizing a cost estimate matrix based on design peak flow for various technologies. See document entitled “2014 Affordability Spreadsheet.xls”

Staff should consider whether the existing reserves and rate structure is sufficient to finance the project and/or to service any loans or bonds that may be needed. If the cost estimator calculates a user rate lower than that of the current user rate, staff are to note that it is unlikely the entity will lower rates, therefore, the current rate will be used to complete the cost analysis.

Within the second criteria, staff will use CAPDEWORKS to estimate the costs associated with the most practical mechanical treatment option and if applicable, the costs associated with a land application system (land application pollution control options are considered for plants up to 150,000 gpd). Staff will document the estimated capital cost for pollution control options, annual cost for operation and maintenance, estimated resulting user cost per household per month, estimated resulting user cost per household per month plus the amount within the current user rate used toward payments on outstanding debt, median household income, cost per household as a percent of median household income, and the estimated cost per household per month plus the amount within the current user rate used toward payments on outstanding debt as a percent of median household income for both treatment options. The cost per household as a percent of median household income or if available, the estimated cost per household per month plus the amount within the current user rate used toward payments on outstanding debt as a percent of median household income for both treatment options is considered to be the “residential indicator” used in Criteria 7 below.



The costs generated by CAPDEWORKS assume a 5% interest rate over 20 years for the mechanical treatment option and 30 years for the land application treatment option. CAPDEWORKS has been set to meet ammonia limits of less than 1.0 mg/L and losing stream criteria for BOD5 and TSS. Sludge handling, sludge treatment, and disinfection have not been included in the capital, operations and maintenance, and present worth costs.

If the cost per household as a percent of median household income is above two percent (2%), staff is to consider a schedule of compliance ten years and above. Staff will need to calculate how many years over the default 20 year term of loan will bring the percentage below 2% in order to mitigate the financial burden on the distressed populations of the community. Staff will incorporate the compliance assistance program into the schedule of compliance for justification of a schedule longer than 10 years (two permit cycles).

In some cases, though a high burden has been determined a shorter schedule may be more appropriate due to the other criteria within this analysis. For example, if an analysis shows a “high burden” yet the Department has information that the community already had hired an engineer or held a bond election. Details relating to the specific situations of each community used in determining the financial burden and schedule of compliance need to be clearly documented.

Any decisions made need to be clearly documented.

**Third Criteria** – An evaluation of the overall costs and environmental benefits of the control technologies.

Staff should identify and describe the environmental benefits of any required project, including water quality impacts on the receiving stream. Environmental benefits associated with land application should include the fact that the discharge has been discontinued which lends to compliance with future more stringent discharge requirements.

Any decisions made need to be clearly documented.

**Fourth Criteria** – 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.

If no information for this criterion has been supplied by the entity with the submission of the “Financial Questionnaire,” then it is important for staff to contact the entity ask for the information. Permit writers will need to clearly document within this section if the community does not cooperate and submit information to the Department.

Staff should consider lengthening the schedule of compliance if a substantial amount of debt exists. Another option staff should narrate is a long term schedule in the form of a variance.

Any decisions made need to be clearly documented.

- **Fifth Criteria** -

Ways to reduce economic impacts on distressed populations in the community, including but not limited to, low and fixed income populations, include consideration of: a) allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations; and b) allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

Staff will use the socioeconomic prescreening tool to fill out the Table below.

**Socioeconomic Data**<sup>7-10:</sup>

Potentially Distressed Populations – City of XXXXXX	
Unemployment	%
Adjusted Median Household Income (MHI)	\$
Percent Change in MHI (1990-2012)	+/-%
Percent Population Growth/Decline (1990-2012)	+%
Change in Median Age in Years (1990-2012)	+/-
Percent of Households in Poverty	%
Percent of Households Relying on Food Stamps	%

Staff should examine projects and may identify potential suggestions for cost savings in narrative statements, including the incorporation of complementary green infrastructure practices designed to reduce environmental impacts from inflow, infiltration and related sources.

Particularly where medium/high financial burdens will result from the permit or enforcement action, staff should consider the following options that may reduce impacts to distressed populations:

- Adjusting schedules of compliance as a method to mitigate the burden associated with the new permit conditions;
- Supporting new technology and green infrastructures (see Missouri Guide to Green Infrastructure; Integrating Water Quality into Municipal Operations. May 2012.)
- Developing a Use Attainability Analysis (UAA);
- Developing site specific criteria;
- Obtaining a variance based upon widespread socio and economic impact.

Note: A schedule of compliance cannot be made to allow for time to complete a UAA, develop site specific criteria or obtain a variance.

Any decisions made need to be clearly documented.

- **Sixth Criteria** – An assessment of other community investments and operating costs relating to environmental improvements and public health protection;

Staff should identify any items they are aware of that may impact the entity’s ability to raise necessary funding.

Information is first inquired through the Financial Questionnaire. The “Financial Questionnaire” is a supplemental Form located on MDNR’s website to accommodate the application (Form B and Form B2). Staff should provide the opportunity for the entity to provide a list of other investments or projects (including the schedule and cost if given) and explain any connection to the affordability of the wastewater project.

Staff should generate a concluding statement to summarize the other investments and identify possible overlap or complications.

Any decisions made need to be clearly documented.

- **Seventh Criteria** – An assessment of factors set forth in EPA guidance, including but not limited to, the *CSO 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.

Staff should analyze the “Financial Capability Indicators” as identified in EPA’s *CSO Guidance for Financial Capability Assessment and Schedule Development*. See pages 20 through 41: <http://www.epa.gov/npdes/pubs/csofc.pdf>. This is a difficult process to complete if little or no information has been provided by the entity. If no information has been provided, an explanation needs to be included in the analysis under this criterion.

For each item, staff should calculate the statistic for the entity and log the appropriate score of 1, 2, or 3 for each item or specify that the information was not provided by the applicant. However, some of the items are not applicable for the entity, if this is the case; staff need to specify this finding. It is important that staff maintain accurate notes, documenting the source of the data and the calculations as part of their file/backup material.

- Determine most recent bond rating (if available, staff can use this website as a reference: <http://emma.msrb.org/IssuerView/IssuerDetails.aspx?cusip=795169>);

- Calculate overall net debt as a percent of full market property value (debt information should be available on most recent financial statements);
- Compare the unemployment rate to the Missouri average (see pre-screening tool);
- Compare the median household income to the Missouri average (see pre-screening tool)
- Compare the percent of households in poverty to the Missouri average\*(see pre-screening tool)
- Compare the percent of households relying on food stamps to the Missouri average\* (see pre-screening tool)
- Determine property tax revenue as a percentage of full market property value (provided by entity); and
- Determine the property tax collection rate (provided by entity)

\* Items are specific to State of Missouri “Cost Analysis for Compliance.”

Note: Make sure to update table with the correct averages for the State of Missouri from the Prescreening Tool.

Staff will calculate the average score (total the numeric values and divide the sum by the number of entries that have a valid numeric value). This result is considered the “financial capability indicator (FC).”

Using the resulting user cost as a percent of median household income or if available the estimated cost per household per month plus the amount within the current user rate used toward payments on outstanding debt as a percent of median household income for both treatment options “Residential Indicator” (RI) and the average of the financial capability indicators, determine the suggested burden using the “Financial Capability Matrix” by plotting the results on the respective axis.

Any decisions made need to be clearly documented.

- **Eighth Criteria** – An assessment of any other relevant local community economic conditions.

Staff should use the information provided by the entity. If staff is aware of any relevant information that has had an impact on economic conditions it is important to note them here. Example items might include knowledge that a major local employer is ceasing operation, significant population loss, or natural disaster.

Any decisions made need to be clearly documented.

- **Conclusion** – Staff should develop a narrative conclusion and issue a Cost Analysis for Compliance. The conclusion should consider any significant

subjective factors along with the objective measures that are formula driven. The conclusion should reference any extensions to compliance schedules.

The conclusion must include a description on whether or not the “finding of affordability” meets the definition of affordable for their community. If the CapDet cost estimator estimates that the estimated user cost is above 2% of the MHI, then the permit writer will need to determine the appropriate schedule that will allow enough time to mitigate the financial burden placed on the community bringing the analysis to meet the definition of “affordable”. The appropriate schedule will be the number of years added to the 20 year life of facility (mechanical) and/or 30 year life of facility (land application) in order to bring the percentage down to just below the 2% mark in addition to the 5 year default for planning. The first five years (permit cycle, unless first permit cycle is cut short due to permit synchronization) will allow for financial education, hiring an engineer, evaluation of rate structure and flow if treatment plant, etc... These suggested milestones will be included in the conclusion section of this analysis.

(# of years it takes to pull the % MHI to below 2% - 20) + 5 years for first permit cycle = SOC

A discussion of the timeline should be included in the narrative. The timeline is to include suggested milestones the community should meet in order to stay in compliance with the permit. The timeline is only placed in the cost analysis for compliance as an example. The schedule of compliance placed in the NPDES will only ask for an annual report each year. The timeline for a “high burden” community should illustrate how a longer schedule of compliance will mitigate the high financial burden. Permit writers should include in the list of suggested milestones the dollar amount the community should raise user costs to after the first permit cycle.

The discussion within the conclusion is to include how a longer schedule of compliance will mitigate any financial burden the community may incur due to the new permit requirements. Staff will also include a statement discussing how the Department has committed to reassessing the cost analysis during renewal.

The maximum schedule of compliance given should be 20 years. If a longer amount of time is necessary to allow for the mitigation of financial burdens, then we will need to hold the permit until the Department figures out how a “multi discharger variance” will work for that specific community.

Staff will need to include all decisions made in the conclusion of the analysis. Any decisions made need to be clearly documented.

