

**Hamilton County's  
May 9, 2014 Responses to  
MSDGC's April 11, 2014  
Comments**

MEMORANDUM

TO: Tony Parrott

FROM: Dave Meyer

DATE: May 9, 2014

SUBJECT: Hamilton County Storm Water Separation Policy;  
Response to MSD Comments

COPY: MaryLynn Lodor  
Leisha Pica

---

Thank you for your comments on the draft Hamilton County Storm Water Separation Policy (Policy) dated April 11, 2014. We appreciate your review of the Policy and have taken the comments and concerns into consideration. The County's responses to MSD's comments are provided below.

We believe any questions about the Policy can be worked out during the first time the Policy is implemented and the required analyses are performed for a particular project. We look forward to working with MSD in implementing the Policy. A meeting to plan the first set of analyses is a good idea. After the Policy is adopted by the Board in the next couple of weeks, I will contact you for some proposed dates for a "kick off" planning meeting.

It is important to note that over the life of the WWIP, there will be a significant amount of "separated out" storm water that will be discharged to the Mill Creek and other waters as a result of separation projects. The separated storm water will be regulated under the Ohio EPA MS4 General NPDES permit, as opposed to being regulated as part of the combined sewer system under the Consent Decree, CSO NPDES Permit and or WWTP NPDES permits. The MS4 Permit was issued to all of the members of the Hamilton County Storm Water District, and each member is a co-permittee under the MS4 Permit, including the City of Cincinnati. In order for the storm water discharges to be authorized under the MS4 General Permit, the discharges cannot cause or contribute to water quality standard exceedences. The Policy ensures that this permitting demonstration is performed, and that appropriate and effective water quality BMPs/controls be evaluated, designed and constructed as part of a separation project to reduce storm water pollutants to the maximum extent practical and minimize water quality impacts. The County believes that the Policy will assist us in meeting our CWA and permit obligations not only for our generation, but for future generations as well, and will ensure the improvements are sustainable and provide the greatest environmental benefit for the dollars expended by our ratepayers.

### Critical Aspects of a Separation Project Need to be Analyzed

One purpose of the Policy is to prevent the undesirable situation where a CSO discharge is addressed by separating all or part of the storm water flow from the sanitary wastewater flow, only to create a problem somewhere else as a result of the re-directed storm water discharge. The Policy requires certain analyses be performed during the planning and design phase so that critical issues can be identified and evaluated as part of the Business Case Evaluation for the project. The analyses include water quality, water quantity/flooding, short and long term costs, and the ownership/responsibility for old and new pipes involved with the project. All of these issues are critical in understanding the real costs and risks of a separation project.

The Policy is consistent with the HCSWD draft storm water design manual philosophy where adequate storm water quality and quantity controls are required to be evaluated and included into the design to control storm water runoff from development and redevelopment sites before construction starts and a discharge occurs to a combined sewer or separate storm sewer. The County's Policy follows the same philosophy where before a decision is made to separate storm water critical analyses should be performed to control and mitigate risks, ensure maximum improvement of water quality is achieved given the money being spent, all costs are determined, including life cycle costs which will necessarily involve who has ownership/responsibility for new and old pipes.

### Internal Analyses Do Not Encroach Upon Authority of Regulatory Agencies

MSD and the County can perform whatever internal analyses they want to do (within reason) in order to plan for separated and re-directed storm water flow. The internal analyses can help to achieve compliance with the consent decree and Ohio EPA issued MS4 permit. This internal work can include determining impacts related to water quality and water quantity. This can include calculating in-stream target pollutant concentrations (based on State WQSs) as goals to meet that the County, as a matter of policy is striving to attain for all waters in Hamilton County.

The County does not believe permission is required from any state, federal or local regulatory agency for the County to set this Policy or to perform our own in-stream target goals as part of the ultimate strategy to reach attainment of WQSs. The County has sufficient legal authority under Ohio Revised Code Chapter 3 and Chapter 6117 to preserve and promote public health and welfare, and to adopt rules the Board deems appropriate and necessary for sanitary and drainage facilities. The Board also has an obligation to comply with the CD, MS4 permit, and water quality requirements under the CWA and R.C. Chapter 6111. It is common for consultants to perform water quality and quantity analyses and several MSD consultants can do this work. The Policy does not require extensive water quality sampling and analyses.

Under Part I, paragraph C.5 of the Ohio EPA NPDES MS4 Permit issued to the County and the members of the HCSW District as co-permittees, storm water discharges that cause or contribute to in-stream exceedances of water quality standards are not authorized to be discharged. The permit also states that Ohio EPA has the authority to require additional actions or to require an application be submitted for an individual NPDES permit (instead of using the MS4 permit) for the project/discharge, if the MS4 will cause an in-stream exceedance of water quality standards.

Furthermore, the MS4 Permit does not authorize storm water discharges that do not comply with the Ohio Antidegradation Policy (which is designed to prevent degradation of existing water quality). The County is concerned that separated storm water contains pollutants which will cause or contribute to WQS exceedances and nonattainment of the waterways in Hamilton County or will violate the Antidegradation Policy when introduced into the receiving stream. The County's Policy is designed to address these concerns.

MSD shares the same concern. In the 2006 LTCP Update, MSD indicated that once the recommended LTCP is implemented, storm water will be the main wet weather source of E. coli. See, WWIP, LTCP Update Volume II Pg. 9-2 Item 9. MSD also pointed out in the 2006 LTCP the following:

“The importance of storm water quality has been well documented through the development of the CSO LTCP Update study process. The water quality assessment has shown that storm water plays an important role in water quality compliance and will play a more prominent role as CSO discharges are reduced, treated, or eliminated. As such in order to achieve discernible water quality benefit, storm water management practices throughout the County and in adjacent jurisdictions should be supported.” 2006 WWIP Volume II, Pages 10-35 - 10-36.

In addition, U.S. EPA has stated in their response to public comments on the LMCPR that the storm water system and discharges will be managed as part of the local MS4 program. They noted that the local MS4 program is covered by an Ohio EPA NPDES MS4 permit, and the storm water discharges will need to comply with the MS4 permit and be managed consistent with the applicable water quality standards for the local water bodies.

#### An Assessment of Potential Future Requirements on a Project's Plan and Design is Needed

The impact of the separated storm water discharges needs to be analyzed in terms of potential future risks. Quality of storm water discharges is now regulated by several types of Ohio EPA permits, including under Ohio EPA MS4 permits, Construction site NPDES permits and Industrial Activities Permits. The industrial activities storm water permit includes numeric benchmarks for certain heavy metals, and if the benchmarks are exceeded, the permittee is required to amend its Storm Water Pollution Prevention Plan to implement new controls or increase the effectiveness of existing controls. The County believes that the regulation and permitting of the quality of storm water will become more restrictive in the future, following the trend experienced in the last few years with the mentioned permits.

In addition, the emphasis on preparation of TMDLs has changed the landscape of water pollution regulation. A TMDL is required for waterbodies that have failed to reach attainment with WQSSs despite use of permit limits or other control requirements (i.e., impaired waters). A pollutant load allocation for nonpoint sources, for example from urban runoff or agricultural runoff, is determined when a TMDL is prepared. States have the discretion to develop implementation requirements for nonpoint source load allocation reductions. Many of the waterbodies in Hamilton County are classified as non-attainment. An Ohio EPA TMDL already exists for Mill Creek Watershed (September 2004). The TMDL process followed a phased approach, with the first phase focusing on nutrients (phosphorus and nitrogen), and load allocations were calculated for non-point sources. OEPA has indicated this TMDL will be updated starting at the end of

2017, and the TMDL will address other impairments, which will include bacteria and the other pollutants impairing the waterway from achieving applicable water quality standards. US EPA has started a bacteria TMDL on the main stem of the Ohio River, and this TMDL could lead to a loading calculation for bacteria from the Hamilton County tributaries. Moreover, Ohio EPA has proposed a state-wide strategy to reduce nutrient pollution (phosphorus and nitrogen) from various sources, which can include storm water discharges.

The County believes that increasing pressure will be placed on dischargers to control and/or remove storm water pollutants like nutrients, bacteria and metals, that may be causing impairment, so that the impaired waterbodies will ultimately achieve or make further progress to achieve attainment with WQSs. The Policy calls for a best efforts approach to identify cost effective and feasible opportunities to address potential future requirements, which might require expensive facilities and/or difficult retrofits as opposed to implementing BMPs now as part of a separation project. This analysis can also identify opportunities to make a greater improvement to water quality in the waterbody than would otherwise be achieved for the same or slightly more amount of money.

#### Benefits Outweigh the Negatives

The County believes that Ohio EPA and US EPA will welcome the County's Storm Water Separation Policy. It focuses on the "big picture" of preserving and improving water quality in the entire waterbody. The Policy requires a water quality analysis be performed on the separated storm water discharge, so that if the separated discharge is determined to cause or contribute to WQS exceedances or will violate the Antidegradation Policy, the project scope and design can be modified to address the issue, or the issue can be addressed in the Integrated Watershed Action Plan (IWAP) for the watershed at issue. A determination needs to be made that the resulting separated storm water discharge will be authorized under the MS4 permit, or whether additional actions may be necessary to protect existing water quality (e.g., scope change for a project or non-separation that may be more cost effective), or whether an individual NPDES permit will be needed for the separated storm water discharge. The analysis might identify something that can be easily added to the project to lessen any negative impact to existing water quality or that will gain greater improvement of water quality for the same amount of money.

Similarly, if water quantity problems are identified, such as increased overland flooding, uncontrolled erosion or channel scouring or other negative hydromodifications, the project can be modified during the planning and design stages to address and mitigate identified potential problems. Quantity/flooding analyses presently performed do not adequately assess the risks of the redirected flow. This type of quantity analysis has already been performed by MSD in planning and designing the Lower Mill Creek Partial Remedy and in planning sustainable projects in other watersheds, including the Rapid Run sustainable solution. It should be performed for all separation projects.

The water quality and quantity analyses data will allow MSD and the County to be proactive in addressing water quality and quantity problems, and meet its obligations under the Ohio Revised Code, CWA, CD and MS4 Permit. It is better to know at the project planning and design stage, whether the separated storm water will cause a problem rather than wait until later when costs

could be significantly higher to modify the project or install new or retrofitted facilities. The County does not believe the Policy encroaches on authority of the regulatory agencies or will add any new or increased liabilities. The Policy will reduce liabilities and risks because of the Business Case Evaluation (BCE) methodology outlined in the Policy. The County's Policy will close data gaps in the wet weather program and result in better BCE decisions. The benefits of performing the analyses outweigh any negative aspects.

#### Consent Decree Requires Compliance with Clean Water Act and Ohio Water Pollution Control Law

The consent decree requires co-defendants to come into and remain in full compliance with the requirements of the Clean Water Act, Ohio Revised Code and permits. This is stated in the consent decree many times and is a chief objective of the consent decree (e.g., see paragraph IV). The goal of the CSO and SSO programs is to achieve compliance with the CWA, including protection of designated uses and water quality standards. The underlying strategy of the National CSO Policy, which is now section 402(q) of the CWA, is ultimate compliance with the CWA, which was enacted to protect and restore the chemical, physical and biological integrity of our waterways. The full impact of selected CSO measures should be evaluated, particularly when storm water is being separated and will be re-directed. It is not the intent of the CD and WWIP to fix one problem and create another problem, so an analysis should be performed to make sure this does not occur when a CSO measure is implemented. This is consistent with the National CSO Policy where the ultimate goal is to meet appropriate health and environmental objectives for the watershed.

#### Ownership/Operation of any Storm Water Infrastructure Needs to be Determined as Part of the Project's Planning and Design

MSD will be planning and designing the separation project, and this will require decisions to be made on if, where and how, to re-direct the separated flow using new or existing drainage infrastructure. The separated storm water will ultimately be discharged to a receiving stream/water of the State. Storm water drainage and management through separate storm sewers is usually under the control of local jurisdictions. The local jurisdictions will have an interest in how and where the storm water flow (from streets and parking lots, etc.) is ultimately redirected and managed. The new or existing storm water infrastructure may be an important part of the local jurisdiction's drainage system, and they may want some or more control over the storm water drainage system than they had in the past when the drainage was handled by the combined sewer system.

The costs, including life cycle costs for operation/repair/maintenance/replacement, of new or existing separate storm water drainage infrastructure is a necessary part of the project planning and design. In order to develop these costs, MSD will have to decide who will pay for such costs so that the correct costs are included in the project scope and budget. MSD is in the best position to recommend an approach in terms of who should own and/or operate any new or existing drainage system consistent with MSD's planning and design for the project, and discussions with the local jurisdictions. The County believes this is an appropriate aspect of the Policy and should be analyzed as part of any separation project.

### Incremental Costs to Implement the Policy are Critical to Success

MSD routinely performs sampling and flow monitoring related to the WWIP projects and NPDES permits. The recent work by Midwest Biodiversity Institute in preparing the Biological and Water Quality Study of Mill Creek and Tributaries in 2011, is an example of the type of sampling and monitoring. By understanding the project's impact on water quality, costs can ultimately be reduced both in the short-term and long-term. The costs to perform the required water quality and quantity analyses and modeling to understand the project's impact on water quality and resultant compliance with the MS4 Permit, CD, and CWA is critical to success. The County believes that the extra cost is warranted to prevent substantial re-do costs later on or to mitigate future problems. The recent results of the Lick Run flow monitoring are a testament to the need to collect sufficient and accurate data. A dry run to perform the steps outlined in the Policy on a typical small scale sewer separation project was performed by the County and the cost was found to be less than 2% of the total project capital cost based on the lowest cost alternative .

### Water Quality Analyses Can be Used in Other Applications

The County acknowledges that the water quality analyses can be used in other applications of the WWIP or MS4 permit program. The results will probably be useful to develop, calibrate, validate, and maintain in-stream flow and water quality models. The results can assist in assessing the effectiveness of the storm water separation projects or other measures after construction and implementation. MSD has already produced a number of these types of models as required by the CD. The results will also prove valuable when implementing the required post-construction monitoring program to verify compliance with the CD.

### Source Control is an Option

The County agrees with MSD that a practical solution to storm water pollution may be to address the pollution at the source. Therefore, storm water separation projects that convey the water to the nearest waterway may not be the most cost-effective and sustainable solution in each case. The analyses required under the Policy will provide the information needed to perform the Business Case Evaluation to make this informed decision.

### Model Development is Not Complicated

Attachment I of the Policy, Item 3 on page 2 of 8, indicates that water quality models are only required for storm water separation project discharges to waterways that have more than 600 acres of tributary area. MSD is correct that there is no formal "industry standard" single document for water quality modeling, just as there is no formal hydraulic modeling industry standard. For hydraulic modeling, most utilities in the Industry have adopted the WAPUG standards to follow even though it is not a formal industry standard. Many of MSD's Consultants can readily advise MSD on the development of a water quality model. There are several reference standards that are used in the industry including:

- Chapra’s Surface Water Quality Modeling
- Thomann and Mueller’s Principles of Surface Water Quality Modeling and Control
- Water Quality Modeling Article by Thomann in the Journal of the Environmental Engineering Division, 1982
- EPA Guidance on the Development, Evaluation, and Application of Environmental Models, Council for Regulatory Environmental Modeling, 2009.

The Policy requires the water quality models be based on standards to be developed by MSD that are consistent with industry standards and approved by the County Administration. MSD has experience in developing models and sampling/monitoring programs. The County is confident that MSD and its consultants will be able to develop WQ modeling standards for use under the Policy.

#### Undefined Terms Not a Problem

MSD references certain undefined terms in the Policy, such as “reasonable level”, “excessive”, and “acceptable” criteria. The intent of the Policy is to achieve a well grounded Business Case Evaluation for storm water separation projects. The terms mentioned by MSD are intended to be defined using a standard dictionary. For example, “reasonable” simply refers to being “fair and sensible or not too expensive.” This can be applied in the selection and sizing of a BMP in a BCE for a separation project. “Excessive” means “exceeding a normal limit.” In the Policy, the term “excessive” is used in the context of determining the impacts of in-stream hydromodification. MSD currently conducts hydromodification analyses and makes judgments as to whether hydromodifications are excessive or not. The Policy does not ask MSD or its Consultants to do anything different in this regard. The County believes these terms are commonly used in the engineering field and do not present a problem in performing the required analyses under the Policy. MSD is free to use its best judgment to determine what is reasonable or excessive as those terms are presented in the Policy.

#### Policy Ensures Informed Decisions Will be Made Protecting the Interests of the City and County

Every separation project is different. The Policy outlines the analyses for the Business Case Evaluation to be performed for each separation project recognizing that each project will have its unique characteristics and results. The Policy does not require or assume that the lowest cost solution will result in the best water quality. The Policy allows storm water separation projects to be compared on an apples-to-apples basis to traditional conveyance and treatment projects. With overflow reduction projects that utilize conveyance and treatment of the storm water, risk of a quality problem is mitigated because a significant volume of the captured storm water is treated. With storm water separation projects, the CSO volume may be reduced, but storm water problems related to the re-directed flow, in terms of both quality and quantity, are potentially created and typically left unmitigated, which then cannot be directly compared to a conveyance and treatment solution. Therefore, with the evaluation as specified in the Policy, the County and MSD will be able to directly compare storm water separation solutions to conveyance and treatment solutions, and ultimately reach the most cost-effective balance that

focuses on maximizing improvement to in-stream water quality at the lowest reasonable short-term and long-term costs.

Storm water control includes both quality and quantity considerations. The HCSWD draft design manual goes into detail about both. One of the considerations of the Policy is that rate payers get maximum value for the vast amount of money being spent on wet weather controls. As a result, the County believes opportunities to make greater improvements to water quality for low cost or no additional cost, should be explored as part of the planning and designing of separation projects.

### Summary

The County believes the Policy does not encroach on the authority of regulatory agencies. The Policy is technically sound and practical, and will lead to further progress towards achieving attainment of water quality standards for Hamilton County waterbodies while maximizing limited rate payer dollars. The required analyses will reduce uncertainty and result in better Business Case Evaluations for separation projects protecting the interests of the County, City and rate payers. The costs to implement the Policy are low and reasonable, and the benefits to performing the analyses outweigh the negatives. The County has high confidence in MSD that it can develop appropriate models based on industry standards and practices.