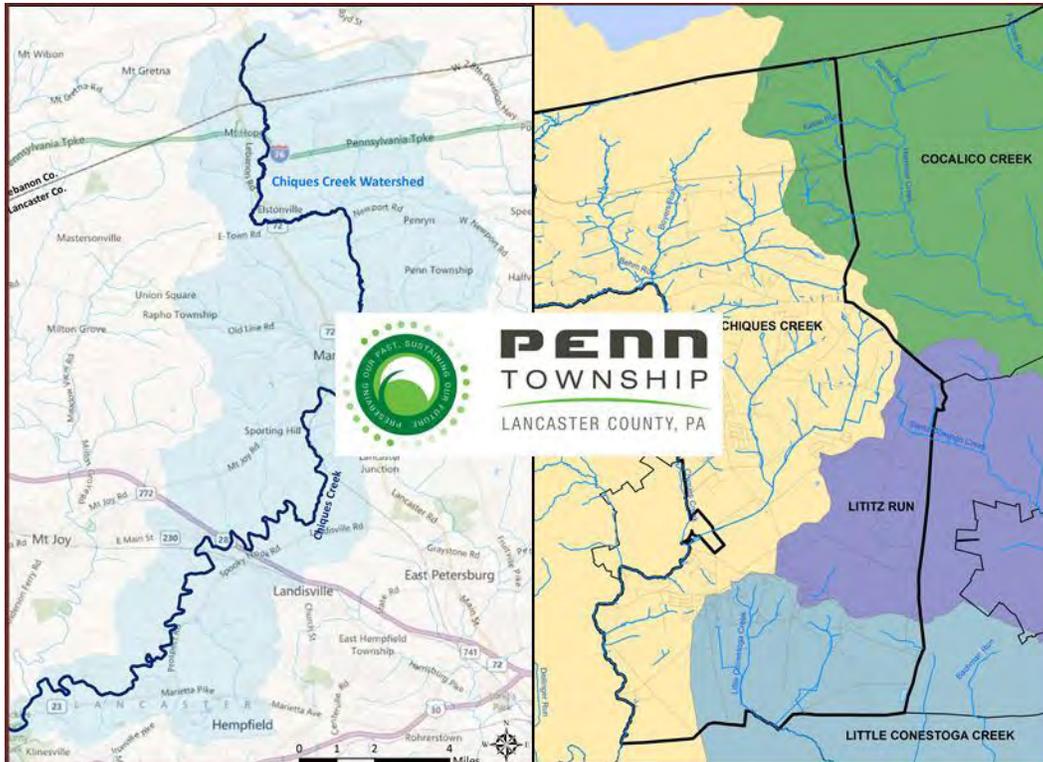


# Stormwater Management Program (SWMP)



Penn Township, Lancaster County

Adopted January 14, 2013

Last Updated December 22, 2014

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## Background

### Program Intent

This document has been created to provide a framework for the Penn Township Stormwater Management Program (SWMP), and guide the Township's implementation of the six Minimum Control Measures (MCMs) contained in Appendix A of the Township's Municipal Separate Storm Sewer System (MS4) Authorization to Discharge under the National Pollutant Discharge Elimination System (NPDES). The SWMP is organized by the six MCMs so that the Township can track progress and plan future activities to maintain and/or achieve compliance with its NPDES permit (PAG #1333567).

The NPDES is intended to reduce pollution to water resources, and its application to Penn Township's MS4 ties water quality goals to traditional flood control needs. Understanding how improving water resources can have positive health, safety, and economic benefits for our residents and businesses resonates with local leadership. Therefore, the SWMP will also be used to identify cost-effective, results-oriented methods to implement water quality goals and achieve compliance with the NPDES General Permit. The Township has integrated similar policies into its land use controls and Comprehensive Plan, as seen below:

- **Manheim Central Region Comprehensive Plan:**

Pursue an integrated approach to stormwater management in the Region that includes land management, structural best management practices and non-structural strategies, such as rain gardens, bio-swales, stream setbacks and others.

- **Chapter 22 of the Penn Township Municipal Code (Subdivision and Land Development):**

To secure the protection of water resources and watercourses.

- **Chapter 23 of the Penn Township Municipal Code (Stormwater Management):**

Control accelerated runoff and erosion and sediment pollution problems at their source by regulating activities which cause such problems.

- **Chapter 27 of the Penn Township Municipal Code (Zoning):**

Conserve, protect, and preserve valuable natural resources within the Township in accordance with the goals and objectives of the Comprehensive Plan.

## Program Maintenance

Penn Township's SWMP is evolving, and this document will track the programmatic progress through regular updates occurring at a frequency of no less than a year. Compliance with the MS4 Authorization to Discharge requires annual reporting to the PA DEP, so these updates will feed into the reporting as well as form an ongoing assessment of the program. The timing of this document's creation coincides with the Township's renewal of coverage under the Commonwealth's NPDES General Permit and increased awareness of the importance of a formalized SWMP.

Activities undertaken to achieve compliance with the MCMs up to January 1, 2012 are documented as a baseline for which future initiatives are built upon. Additional progress made throughout the 2012 calendar year is marked as such, as will subsequent years' actions. Due to the nature of some initiatives, expansive documentation (e.g., SWM Ordinance, Good Housekeeping BMP Manual) will be referenced in this document but kept in the SWMP Compliance Documents binders.

Penn Township's Geographic Information System (GIS) is also a work in progress, and the realm of water resources is one that has a natural connection to the GIS. The Township has built the MS4 conveyance system and a Post-Construction Stormwater Management Best Management Practices (PCSM BMP) database into the GIS, providing a spatial link to this wealth of information. Hard copies will be kept in an accessible location, but only as periodic snapshots of the data. In case that members of the public or other regulatory agencies desire to view the data at any given time, Township Staff will fulfill such requests in a manner consistent with Township policy.

Appendix A serves as the revision log for this document, and the latest revision date is to be noted on the cover. Furthermore, a collection of SWMP Compliance Documents will be maintained in binders for quick-reference in hard-copy format. These volumes are organized according to the six MCMs and are also accessible upon request of the public or other agencies in a manner consistent with Township policy.

## MCM #1: Public Education and Outreach on Stormwater Impacts

### *BMP #1: Develop, implement and maintain a written Public Education and Outreach Program*

The Public Education and Outreach Program (PEOP) is designed to be a multimedia approach to informing our residents and businesses as to the state of water quality in our area and how it must be improved. With limited resources, the methods must be effective and utilize the wealth of material made possible by other leading organizations looking to spread their message of water quality.

EPA's "Getting In Step, A Guide for Conducting Watershed Outreach Campaigns", as recommended by the PA DEP, will serve as the framework for the PEOP. Additionally, the following are principles that Penn Township feels are central themes to tying outreach efforts to community-based initiatives:

- Awareness
- Homeowner Behavior
- Municipal Works
- Monitoring & Reporting

2012 – A PEOP was created and integrated with the PIPP (see MCM #2) and can be found in the SWMP Compliance Documents for reference.

2013 – The Plan guided several actions of the Township, as discussed throughout this document.

2014 – In addition to continued Plan implementation, the Township strengthened its partnerships with the Chiques Creek Watershed Alliance and the Lititz Run Watershed Alliance. These local watershed groups play important roles in public education, outreach, and involvement as detailed in the following sections.

*BMP #2: Develop and maintain lists of target audience groups that are present within the areas served by your regulated small MS4s. In most communities the target audiences shall include residents, businesses (including commercial, industrial and retailers), developers, schools, and municipal employees.*

The Township maintains a master spreadsheet of all postal addresses within the municipal boundaries that is updated as new addresses are created through subdivision, land development, or other means. This is used as a mailing list for the Township Newsletter and other such notices. Sub-lists of businesses and other institutions should be created and maintained for targeted communications.

Pre-2012 – An Excel spreadsheet containing all mailing addresses in the Township was created, and is maintained as new addresses are created. This is located on the local network, making it accessible to all Township Staff.

2012 – Collection of email addresses began with solicitations through the Township Newsletter.

2013 – Collection of contact information for residents continued.

2014 – Township Staff assisted the Chiques Creek Watershed Alliance by preparing a focused mailing list for the Third Annual Watershed Expo. The list targeted property owners along the Chiques Creek and Little Chiques Creek for special mailed invitations to the Watershed Expo, a water resource stewardship educational event.

*BMP #3: You must annually publish at least one issue of a newsletter, a pamphlet, a flyer, or a web site that includes general stormwater educational information, a general description of your Stormwater Management Program, and/or information about your stormwater management activities. The list of publications and the content should include a list of references (or links) to refer the reader to additional information (e.g., PA DEP and US EPA stormwater websites, and any other sources that will be helpful to readers). You must implement at least one of the following alternatives:*

- a. Publish and distribute in printed form a newsletter, a pamphlet or a flyer containing information consistent with this BMP.*
- b. Publish educational and informational items including links to DEP's and EPA's stormwater websites on your municipal website.*

Publication and distribution of the Township Newsletter on a regular basis is important to keep an open line of communication between the municipal administration and its residents and businesses. Each edition should contain messages incorporating water quality and stormwater management, ensuring that every recipient has an opportunity to receive them. A critical task of the Township is to keep the content relevant, fresh, and actionable – that is, embed facts and replicable techniques to gain momentum and effect change.

Additionally, the Township understands the importance of providing resources, current events, and other news to the local audience via its digital footprint. The website and social media are low-cost techniques for broadcasting links, documents, updates, news, and other content to subscribers. Linking the periodic newsletter to the online presence (and vice versa) should leverage these efforts and reach a larger audience more often.

Pre-2012 – Penn Township began embedding this message in the newsletter in 2005 through the Winter 2010 edition. No newsletters were mailed in 2011. However, in that year the Township

Community Map was published and distributed to every household containing material entitled “*Storm Water Management: What Everyone Can Do to Help*”.

2012 – Township Staff continued the newsletter with a goal to publish it quarterly. Each edition in 2012 included features on water quality and/or stormwater management, and is archived on the Township website and as hard copies in the SWMP Compliance Documents.

2013 – Four quarterly editions of the newsletter were published, then posted to the Township website, distributed electronically, and made available at the township office.

2014 – Four quarterly editions of the newsletter were published, then posted to the Township website, distributed electronically, and made available at the township office. Water quality-related topics included local watershed group activity, environmental stewardship tours, turf-to-meadow conversions, the NWLCA/MBA Source Water Protection Plan, and the Township’s new Stormwater Management Ordinance.

*BMP #4: Distribute stormwater educational materials and/or information to the target audiences using a variety of distribution methods, including but not limited to: displays, posters, signs, pamphlets, booklets, brochures, radio, local cable TV, newspaper articles, other advertisements (e.g., at bus and train stops/stations), bill stuffers, posters, presentations, conferences, meetings, fact sheets, giveaways, storm drain stenciling.*

As noted in BMP #3, keeping “the content relevant, fresh, and actionable” is recognized as an important technique in reaching the public, maintaining their attention, and influencing behavior. Understanding that the PA DEP requires two additional distribution methods per year beyond the newsletter and website, Penn Township’s goal is to comply with this metric.

Pre-2012 – The annual Community Day event has been held since 2007 as an opportunity for the public to meet local officials, service providers, and community groups. Township Staff has also used the gathering to distribute pamphlets and information about water quality and stormwater management. Many of these pamphlets, including “*When it Rains, it Drains*” continue to be made available in the Township Office lobby.

2012 – In addition to providing information at Community Day, Penn Township established a Facebook page to create another link between the administration and citizenry. Status updates include event postings of the Chiques Creek Watershed Alliance (e.g. Rife Run cleanup), forwarded posts from organizations like StormwaterPA, and notices of updated content on the Township’s website – including pages related to this topic.

2013 – At Community Day, the *Backyard Conservation* brochure was made available, the NWLCA Sustainability Site was promoted, and the Chiques Creek Watershed Alliance’s (CCWA) stream restoration project unveiled. A major overhaul was made online with the creation of a series of nine “Water Resources” pages on the township website containing topics that range from stormwater management to drinking and waste water. Significant contributions were made to

making the CCWA's Watershed Expo II a success, including being part of the planning committee, mailing invitations to streamside residents, and actively participating in the event to promote watershed health and water quality.

2014 – Township Staff and facilities were the centerpiece for two unique public education opportunities with a key stakeholder group. Both events were spearheaded by the Lancaster-Lebanon Intermediate Unit 13 (IU13) and involved the educational sector. Staff led a group of about 50 math and science teachers on a tour of the Township's Sustainability Park as part of the two-week PULSE (Partnership for Understanding and Leading STEM Education) program. The second event brought about two dozen students from the region to various sites, including the Sustainability Park and Mummau Park, the site of a recent floodplain restoration project. Both tours provided the audiences with in-field demonstration of how runoff affects our waterways, which can then impact the quality of drinking water through infiltration and/or karst geology.

Penn Township contributed to the planning and staffing of the Chiques Creek Watershed Alliance (CCWA) booth at the Manheim Farm Show. The Farm Show is a prime opportunity to reach a significant amount of people in the region and introduce them to the organization. By displaying live fish from the adjacent Chiques Creek, showing the construction plans for the Logan Park Floodplain Restoration project, and offering ways for people to become Alliance members or be on its contact list, the organization is able to effectively communicate the importance of clean water resources. This direct contact supplements the other efforts that the Township undertakes and helps to achieve the Plan's goal to "Work with the agricultural community to reduce sediment and nutrient runoff to waterways."

Involvement with the CCWA also included planning and executing the Third Annual Watershed Expo at the Lancaster Liederkrantz. Unlike the Manheim Farm Show, this event was created with the specific intent to improve water quality awareness for area families. The Expo consisted of approximately twenty exhibitors, food, and live music in an educational and entertaining environment. Several area watershed groups as well as a range of agencies and organizations provided informative displays and hands-on educational opportunities for people of all ages.

## MCM #2: Public Involvement / Participation

*BMP #1: Develop, implement and maintain a written Public Involvement and Participation Program (PIPP) which describes various types of possible participation activities and describes methods of encouraging the public's involvement and of soliciting the public's input.*

Penn Township recognizes the value in reaching out to its citizenry in order to inform the growing population on a variety of issues. In the context of the SWMP, it is understood that MCM #1 encompasses best practices of outreach. Taking the next step to inspire a level of engagement that results in public participation of water quality improvement activities is the foundation of the PIPP.

2012 – A PIPP was created and integrated with the PEOP (see MCM #1) and can be found in the SWMP Compliance Documents for reference.

2013 – The Plan guided several actions of the Township, as discussed throughout this document.

2014 – The Plan guided several actions of the Township, as discussed throughout this document.

*BMP #2: Prior to adoption of any ordinance required by this General Permit, provide adequate public notice and opportunities for public review, input, and feedback.*

The adoption or amendment of any Township ordinance must comply with the procedural requirements of §1601 of the Pennsylvania Second Class Township Code, as amended. However, the Township may involve an expanded review or comment procedure for stormwater or water quality-based ordinances as established within the PIPP.

2013 – No ordinance required by the General Permit was adopted or amended during the year.

2014 – The public review process of the Stormwater Management Ordinance consisted of posting the draft ordinance online, providing a copy at the Township Office, and conducting several discussions at regularly-scheduled Board of Supervisors meetings. This was done over and above the statutorily-required public hearing for ordinance adoption.

*BMP #3: Regularly solicit public involvement and participation from the target audience groups. This should include an effort to solicit public reporting of suspected illicit discharges. Assist the public in their efforts to help implement your SWMP. Conduct public meetings to discuss the on-going implementation of your SWMP.*

Public involvement and participation initiatives should be addressed under the umbrella of the PIPP, which is designed to evolve with the SWMP to meet water quality goals. Specific accomplishments will be reported below and in the MS4 Annual Report to the PA DEP.

2013 – No public meetings specific to stormwater management or illicit discharges were conducted during the year.

2014 – No public meetings specific to stormwater management or illicit discharges were held by the Township during the year. However, Penn Township has been contributing to the development of the Little Conestoga Watershed Action Plan. In this circumstance, Township Staff is serving as a target audience group with local knowledge about its IDD&E program, land uses, and opportunities for water quality enhancements.

### MCM #3: Illicit Discharge Detection and Elimination (IDD&E)

*BMP #1: You shall develop and implement a written program for the detection, elimination, and prevention of illicit discharges into your regulated MS4s. Your program shall include dry weather field screening of outfalls for non-stormwater flows, and sampling of dry weather discharges for selected chemical and biological parameters. Test results shall be used as indicators of possible discharge sources. The program shall include the following:*

- *Procedures for identifying priority areas. These are areas with a higher likelihood of illicit discharges, illicit connections or illegal dumping. Priority areas may include areas with older infrastructure, a concentration of high-risk activities, or past history of water pollution problems.*
- *Procedures for screening outfalls in priority areas during varying seasonal and meteorological conditions.*
- *Procedures for identifying the source of an illicit discharge when a contaminated flow is detected at a regulated small MS4 outfall.*
- *Procedures for eliminating an illicit discharge.*
- *Procedures for assessing the potential for illicit discharges caused by the interaction of sewage disposal systems (e.g., on-lot septic systems, sanitary piping) with storm drain systems.*
- *Mechanisms for gaining access to private property to inspect outfalls (e.g., land easements, consent agreements, search warrants).*
- *Procedures for program documentation, evaluation and assessment.*

In the course of preparing its 2013 MS4 permit renewal submission package, Penn Township heightened its awareness of the responsibilities of operating the system; not only in regard to what pollutants are coming out of outfalls, but as to their source. The effectiveness of an IDD&E program is rooted in procedure and the reliability of protocol.

2012 – An IDD&E program was created, and can be found in the SWMP Compliance Documents for reference. This will serve as the written methodology to guide a revived testing program beginning in 2013.

2013 – The written IDD&E program guided the Township’s field testing regimen, as discussed below.

2014 – The written IDD&E program guided the Township’s field testing regimen, as discussed below.

*BMP #2: Develop and maintain a map of your regulated small MS4. The map must also show the location of all outfalls and the locations and names of all surface waters of the Commonwealth (e.g., creek, stream, pond, lake, basin, swale, channel) that receive discharges from those outfalls.*

Through the GIS, the Township has the ability to manage its MS4 digitally and integrate the conveyance system, outfalls, and related features with other spatial information such as watersheds, waterways, and impaired streams. This mapping is central to several SWMP elements like the previous BMP, and maintaining it is in the best interest of the Township.

Pre-2012 – Hand-drawn conveyance system maps for the entire Township (not just the MS4) were maintained by the Public Works Department, noting information such as length, condition, diameter, and inlet/outlet types. These had been organized in a binder of 8-1/2" x 11" road maps and updated as features were replaced or added and as inspections revealed issues.

In 2004, the Township Engineer created a 103-feature outfall map and spreadsheet created to guide the 2005-2008 IDD&E program. This is included with the SWMP Compliance Documents for historical reference.

2012 – Hand-drawn Township-wide maps were digitized in the GIS, and data integrated into the shapefile's attribute table. Additionally, a GPS unit was used to field locate 134 control points (e.g., inlets and outlets) to tie the system down.

An 11" x 17" hard copy of the Township's storm sewer system has been included in the SWMP Compliance Documents collection with intent to include periodic updates, as necessary. However, the GIS serves as the master database for this information.

2013 – Regular maintenance of this aspect of the Township's GIS was conducted throughout the year.

2014 – Other than general database management and updating the storm sewer system replacement activity, minimal changes were necessary in 2014.

*BMP #3: In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), new permittees shall show, and renewal permittees shall update, the entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, and any other features of the permittee's storm sewer system including municipal boundaries and/or watershed boundaries.*

Due to the efficiencies afforded by maintaining a municipal GIS, the elements of BMP #3 have been incorporated into the map prepared for BMP #2.

*BMP #4: Following the IDD&E program created pursuant to BMP #1, the permittee shall conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges using procedures developed under BMP #1.*

Penn Township conducted an initial four-year circuit of field screenings to monitor the 103 identified outfalls from 2005-2008. A revived IDD&E screening program, as identified in the written

program (see BMP #1), will be conducted in accordance with the procedures and schedule outlined in said program.

Pre-2012 – Field testing of the 103 MS4 outfalls commenced in 2005, and a four-year testing program resulted in all outfalls visited and inspected for dry-weather discharges. Documentation from this series of screenings is included in the SWMP Compliance Documents.

2012 – Preparations for the next series of screenings began by mapping 17 additional outfalls, including ten “private” outfalls that directly connect to the MS4.

2013 – Outfall testing and documentation processes were reinitiated by conducting 28 outfall inspections in August. 15 of the tested outfalls were identified in the Township’s IDD&E program as those needing annual inspection due to being located in an IDP Priority Area. The other 13 outfalls were slated for inspection during this first year of the current five year cycle. The resultant Outfall Reconnaissance Inventory/Sample Collection Field Sheets and photographs are included in the SWMP Compliance Documents.

Additionally, two illicit discharge cases were opened and investigations conducted: Bucknoll Road/Rt. 72 and Junction Road. Each case remains open and Township Staff will monitor the situations.

2014 – 28 outfalls were screened in accordance with the five year cycle, 15 of which are annual checks due to the IDP Priority rankings. The resultant Outfall Reconnaissance Inventory forms and photographs have been included in the SWMP Compliance Documents.

The Junction Road illicit discharge case from 2013 was closed out as a result of the landowner correcting the issue through a land development project. A new case was opened on Bucknoll Road in September, but remains open due to not being able to determine the source of the contamination. Lancaster County Conservation District Staff investigated the adjacent farm as a potential source, but the landowner indicated that the dairy farm was discontinued several years ago.

*BMP #5: Enact a stormwater management ordinance to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.*

It is Penn Township’s intent to maintain compliance with the stormwater management standards set forth by agencies like the PA DEP and Lancaster County, specifically in regard to water quality, through Chapter 23 of the Township’s Code of Ordinances (Stormwater Management). Additionally, the Township finds it essential to bridge the gap between regulations and the citizens’ understanding of how they relate to flood control and conservation of water resources. There is a legitimate nexus between this principle and the work being done to meet MCM #1.

Pre-2012 – §23-607 through §23-610 of the Code of Ordinances addresses the issue of prohibited discharges and connections into the municipal storm sewer system. Chapter 23 has been included in the SWMP Compliance Documents for reference.

2013 – Chapter 23 of the Township’s Code remains effective.

2014 – Chapter 23 (Stormwater Management) of the Township Code was overhauled to be compliant with the recently-adopted Lancaster County Integrated Stormwater Management Plan, which also serves as an Act 167 Plan. The new ordinance replaced the previous version, and is included in the SWMP Compliance Documents for reference.

*BMP #6: Provide educational outreach to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges.*

*Educational outreach should include:*

- *Distribution of brochures and guidance for target audiences including schools;*
- *Programs to encourage and facilitate public reporting of illicit discharges;*
- *Organizing volunteers to locate and visually inspect outfalls and to stencil storm drains; and*
- *Implement and encourage recycling programs for common wastes such as motor oil, antifreeze and pesticides.*

As set forth in the IDD&E and PEOP program documentation, outreach should be conducted regularly to incrementally eliminate pollutants (intentional or otherwise) from the MS4, and ultimately, from our surface waters.

Pre-2012 – The Township website has been used to post informational materials on this topic, including a call for residents to keep an eye on dumping into storm sewers and what to do if this is observed. Publicizing the Lancaster County Solid Waste Management Authority’s Household Hazardous Waste facility continues through the website and newsletter, informing residents of this important service that accepts many potential pollutants that should be eliminated from the MS4 and surface waters.

2013 – In the past year, the Township made website updates to provide more information on these topics, and continued its partnership with the Lancaster County Solid Waste Management Authority.

2014 – The efforts initiated in previous years were continued.

## MCM #4: Construction Site Stormwater Runoff Control

The Township is relying upon DEP's statewide QLP (Qualifying Local Program) for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy all requirements under MCM #4 and under BMPs #1 through #3 of MCM #5; therefore, all requirements are met for both this MCM #4 and BMPs #1 through #3 of MCM #5.

Through an executed Memorandum of Understanding, Penn Township acknowledges the Lancaster County Conservation District's responsibility to review Erosion & Sedimentation Control Plans and issue NPDES permits for projects located in the Township. The MOU can be found in the SWMP Compliance Documents.

Pre-2012 – MOU executed May 9, 2011.

2012 – MOU executed May 4, 2012.

2013 – MOU executed March 25, 2013.

2014 – MOU executed March 24, 2014. In addition, copies of the Township Engineer's construction observations for land development projects were centralized with the Township's MS4 compliance documents and were copied to the Lancaster County Conservation District as part of the normal distribution protocol. Since a representative from the Township Engineer's office performs observations on a frequent basis (depending on size of project), any Erosion & Sedimentation Control violations will be identified in a timely manner. These reports are being included in the Compliance Documents to demonstrate that the Township is taking extra measures to ensure that E&S measures are effectively protecting water quality on active construction sites.

## MCM #5: Post-Construction Stormwater Management (PCSM) in New and Re-Development Activities

The Township is relying upon DEP's statewide QLP for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy all requirements under BMPs #1 through #3 of MCM #5; therefore, all requirements are met for BMPs #1 through #3 of this MCM #5 and for all requirements under MCM #4.

See MCM #4 for compliance information with BMPs #1 through #3 of this MCM.

*BMP #4: The permittee shall enact, implement, and enforce an ordinance or other regulatory mechanism to address post-construction stormwater runoff from new development and redevelopment projects, as well as sanctions and penalties associated with non-compliance, to the extent allowable under State or local law.*

As mentioned in BMP #5 of MCM #3, the Township has enacted such a regulatory mechanism found in Chapter 23 of the Code of Ordinances. All activities identified in §23-104 fall under the authority of the Board of Supervisors to enforce the Stormwater Management Chapter that addresses post-construction stormwater runoff.

Pre-2012 - The entirety of Chapter 23 was amended in 2006 to implement the Conestoga Creek Act 167 Plan to ensure the Township's satisfaction of all applicable MS4-NPDES requirements. Chapter 23 has been included in the SWMP Compliance Documents for reference.

2013 – Chapter 23 of the Township's Code remains effective as a regulatory instrument for these purposes.

2014 – An updated Chapter 23 was adopted by the Township on April 28, 2014 to be compliant with the Lancaster County Integrated Water Resources Plan, which serves as a countywide Act 167 Plan.

*BMP #5: Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new and redevelopment. Measures also should be included to encourage retrofitting LID into existing development. DEP's Pennsylvania Stormwater Best Management Practices Manual provides guidance on implementing LID practices.*

Municipal leadership acknowledges the role that LID plays in accommodating an expanding population within the local and countywide growth management scheme. The Township has established policies involving retention and enhancement of existing water resources, integration of green infrastructure solutions for stormwater management, and efficient use of land within the Urban Growth Area. Not only are these guidelines for municipal decision-making, but they have

been incorporated into the three major land use controls: Zoning, Subdivision and Land Development, and Stormwater Management.

Pre-2012 – Adoption of entirely new Form-Based Codes in the Zoning and Subdivision and Land Development Ordinances in 2011 took LID principles and made many of them requirements for development within the Urban Growth Area. Part 6 (Design Standards) and Part 10 (Form Based Code) of the Subdivision and Land Development Ordinance provide the vast majority of this concept, and have been included with the SWMP Compliance Documents.

2013 – These land use controls remain in place. Discussions were begun with the Brandywine Conservancy to determine additional ways to promote Low Impact Development in Penn Township.

2014 – During the course of 2014, the Brandywine project was re-evaluated to determine the practicality of integration with the Township's land use controls. Township Staff concluded that the existing controls did a thorough job of protecting natural resources (including water resources) through the land development and/or stormwater management planning processes. If resumed, the project will focus on seeking a more effective way to conserve resources within the existing regulatory scheme rather than creating separate processes.

*BMP #6: Ensure adequate operation and maintenance of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects (including those owned or operated by the permittee).*

As the need for post-construction stormwater management BMPs (PCSM BMPs) increases, the number and variety of these features in the municipality expands greatly. Tracking and ensuring adequate operation are institutional responsibilities that require coordination and procedure in order for the Township to oversee. In conjunction with a GIS-based BMP database, a monitoring program is necessary to effectively manage this collective piece of stormwater infrastructure.

Pre-2012 – The Township instituted the use of Storm Water Management Agreements as part of all development activities requiring such facilities. These recorded agreements establish responsibility for proper functionality and help ensure that they will not be adversely altered.

2012 – A PCSM BMP database was developed and is included in the collection of SWMP Compliance Documents. The database was integrated into the GIS, and an 11" x 17" location map accompanies the spreadsheet printout in the binder for quick reference.

2013 – To supplement the PCSM database, copies of 23 recorded Stormwater Management Agreements were made and organized in a binder next to the Township's MS4 Compliance Documents. Three agreements were executed and recorded in 2013, and the remaining 20 were recorded in previous years. As future agreements are required for development projects, that information will be logged into the database and copies maintained in the compliance records.

2014 – The BMP database was updated with ongoing development activity that constructed or will construct stormwater management BMPs. A 2014 year-end map was printed and put in the centralized MS4 compliance documents (139 documented BMPs constructed or planned as of December 2014). Copies of nine recorded Stormwater Management Agreements executed in 2014 were also included in the compliance documents.

Township Staff was involved in discussions with representatives from the Lancaster Clean Water Consortium and the Lancaster County Conservation District regarding data formatting and other management issues. These topics are pertinent to the countywide goal of having a centralized database for local storm sewer systems and installed BMPs. Some of these efforts have begun in the more urbanized areas around Lancaster City, and could grow outwards to improve the knowledge base and reporting capability throughout the county.

## MCM #6: Pollution Prevention/Good Housekeeping for Municipal Operations

*BMP #1: Identify and document all facilities and activities that are owned or operated by the permittee and have the potential for generating stormwater runoff to the regulated small MS4. This includes activities conducted by contractors for the permittee. [List of activities and facilities omitted.]*

Identification of Township-owned facilities is an integral part of tailoring effective “Good Housekeeping” policies and procedures targeted at eliminating pollution from entering the MS4 and surface waters. Such documentation should be updated as new facilities are acquired and capital improvements are made to existing facilities.

2012 – A Municipal Facilities and Functions Inventory has been included in Appendix B of the O&M Program (BMP #2 below).

2013 – No additional facilities were added under municipal ownership or control during the year.

2014 – No additional facilities were added under municipal ownership or control during the year.

*BMP #2: Develop, implement, and maintain a written operation and maintenance (O&M) program for all municipal operations and facilities that could contribute to the discharge of pollutants from the regulated small MS4s, as identified under BMP #1. This program (or programs) shall address municipally owned stormwater collection or conveyance systems, but could include other areas (as identified under BMP #1). The O&M program(s) should stress pollution prevention and good housekeeping measures, contain site-specific information, and address the following areas:*

- *Management practices, policies, procedures, etc. shall be developed and implemented to reduce or prevent the discharge of pollutants to your regulated small MS4s. You should consider eliminating maintenance-area discharges from floor drains and other drains if they have the potential to discharge to storm sewers.*
- *Maintenance activities, maintenance schedules, and inspection procedures to reduce the potential for pollutants to reach your regulated small MS4s. You should also review your procedures for maintaining your stormwater BMPs.*
- *Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt / sand (anti-skid) storage locations and snow disposal areas.*
- *Procedures for the proper disposal of waste removed from your regulated small MS4s and your municipal operations, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, and other debris.*

The Lancaster Inter-municipal Committee’s *Municipal Operations & Maintenance Good Housekeeping Guidance & BMP Manual* was developed as a model for municipalities to customize

and adopt to satisfy the entirety of MCM #6. To ensure compliance with the MS4 program's requirements and consistency with other municipalities in Lancaster County, this document serves as the basis for the local manual.

2012 – The *Penn Township Good Housekeeping Operations & Maintenance (O&M) Program* was created, using the LIMC manual as a template. A key modification includes the addition of the Municipal Facility Detail Sheets in Appendix B (and described above in BMP #1), addressing the components of and activities taking place on municipally-operated facilities.

2013 – A short-term municipal yard improvements plan was drafted to recognize areas that can be addressed in the following several years.

2014 – O&M implementation continued, including general maintenance as specified in the manual and further investigation of the municipal yard improvements plan. The Township Engineer helped evaluate options for enhancing the existing sediment trap and providing an intercept for runoff from the salt shed.

*BMP #3: Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from municipal operations to your regulated small MS4s. The program may be developed and implemented using guidance and training materials that are available from federal, state or local agencies, or other organizations. Any municipal employee or contractor shall receive training. This could include public works staff, building / zoning / code enforcement staff, engineering staff (on-site and contracted), administrative staff, elected officials, police and fire responders, volunteers, and contracted personnel. Training topics should include operation, inspection, maintenance and repair activities associated with any of the municipal operations / facilities identified under BMP #1. Training should cover all relevant parts of the permittee's overall stormwater management program that could affect municipal operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.*

Training on the SWMP is essential for effective implementation at Township facilities by municipal staff. In conjunction with the manual addressed in BMP #2, a training program must be designed, updated, and implemented. An annual update process should include a forward-looking schedule of events as well as documentation of the previous year's activities to meet those goals.

2013 – A two-year training program was established (Appendix E of the manual) for in-house training with the Public Works Department on the manual. Four training sessions were conducted, addressing a general overview of the manual and seven of the 24 individual "good housekeeping" measures. The remaining 17 measures will be covered in 2014 to complete an overview of the department's responsibilities for MCM #6. The seven measures covered in the training sessions were:

- GH-1 Employee Training and Education
- GH-5 Non-Stormwater Discharges

- GH-7 Waste Handling and Disposal
- GH-8 Hazardous Materials
- GH-10 Spill Prevention and Control
- GH-12 General Housekeeping
- GH-13 General Material Storage

2014 – Due to scheduling challenges and personnel availability, the O&M Manual training program was suspended during 2014. The Annual Municipal Employee Training and Education Plan (Appendix E of the Manual) was established for 2015 with the goal to complete training on the O&M measures with the Public Works Department.

## Appendix A: Dates of Updates to SWMP

Initial Adoption of Comprehensive Stormwater Management Program (SWMP)	January 14, 2013
2013 Update	January 3, 2014
2014 Update	December 22, 2014

Appendix B: PA DEP's PAG-13 "Appendix A – Stormwater Management Program"



## PAG-13 Appendix A Stormwater Management Program

This Appendix A contains the specific Best Management Practices (BMPs) and Measurable Goals that make up each permittee's Stormwater Management Program (SWMP) and that are required for the permittee to comply with this NPDES Municipal Separate Storm Sewer System (MS4) General Permit. There are six Minimum Control Measures (MCMs), which are required by Federal Regulations. Within each MCM, Pennsylvania is requiring the implementation of several BMPs under this General Permit. Associated with each BMP are Measurable Goals, which represent the means by which the permittees' accomplishments shall be reported and evaluated. For supplemental information on the six MCMs, permittees are encouraged to refer to [www.depweb.state.pa.us](http://www.depweb.state.pa.us), keyword: Stormwater. For a national perspective on guidance for setting measurable goals, please refer to EPA's publication "Measurable Goals Guidance for Phase II Small MS4s," available from EPA's website: <http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm>.

Permittees implementing an approved local or tribal Qualifying Local Program (QLP) pursuant to 40 CFR 122.44(s) are not eligible to use General Permit (PAG-13). Permittees currently operating under this General Permit who wish to propose a local or tribal QLP shall submit a complete written application for an Individual NPDES MS4 Permit together with complete documentation of their proposed local or tribal QLP.

### **MCM #1: Public Education and Outreach on Stormwater Impacts**

The following are the requirements for MCM #1 that are included in the Federal Regulations:

- *Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff (40 CFR Part 122.34(b)(1)(i)).*

The following requirements, Best Management Practices (BMPs) and Measurable Goals are to be implemented and achieved:

**BMP #1:** Develop, implement and maintain a written Public Education and Outreach Program.

Measurable Goal: For new permittees a Public Education and Outreach Program (PEOP) shall be developed and implemented during the first year of coverage under this General Permit and shall be re-evaluated each permit year thereafter and revised as needed. For renewal permittees, the existing PEOP shall be reviewed and revised as necessary. The permittee's PEOP shall be designed to achieve measurable improvements in the target audience's understanding of the causes and impacts of stormwater pollution and the steps they can take to prevent it.

Recommendation: Refer to the EPA document, "[Getting In Step, A Guide for Conducting Watershed Outreach Campaigns](#)" (EPA 841-B-03-002, December, 2003), for guidance on developing and implementing the PEOP.

**BMP #2:** Develop and maintain lists of target audience groups that are present within the areas served by your regulated small MS4s. In most communities, the target audiences shall include residents, businesses (including commercial, industrial and retailers), developers, schools, and municipal employees.

Measurable Goal: For new permittees, the lists shall be developed within the first year of coverage under the permit and reviewed and updated as necessary every year thereafter. For renewal permittees, the lists shall continue to be reviewed and updated annually.

Recommendation: Utilize databases or spreadsheets to record and track this information and to allow for easy identification and creation of mailing lists easily retrievable.

**BMP #3:** You must annually publish at least one issue of a newsletter, a pamphlet, a flyer, or a web site that includes general stormwater educational information, a general description of your Stormwater Management Program, and/or information about your stormwater management activities. The list of publications and the content of the publications must be reviewed and updated at least once during each year of permit coverage. Publications should include a list of references (or links) to refer the reader to additional information (e.g., PA DEP and US EPA stormwater websites, and any other sources that will be helpful to readers). You must implement at least one of the following alternatives:

- a. Publish and distribute in printed form a newsletter, a pamphlet or a flyer containing information consistent with this BMP.
- b. Publish educational and informational items including links to DEP's and EPA's stormwater websites on your municipal website.

Measurable Goals: For new permittees, stormwater educational and informational items shall be produced and published in print and/or on the Internet within the first year of permit coverage. In subsequent years (and for renewal permittees), the list of items published and the content in these items shall be reviewed, updated, and maintained annually. Your publications shall contain stormwater educational information that addresses one or more of the 6 MCMs.

Recommendation: There are numerous example educational resources available from the sources listed at: [www.depweb.state.pa.us](http://www.depweb.state.pa.us), keyword: Stormwater. Periodically you should review and consider distributing or republishing stormwater information available from DEP, EPA and other sources. Your stormwater materials can be published in print format or electronically on the internet. Permittees can partner with other MS4s to meet this BMP.

**BMP #4:** Distribute stormwater educational materials and/or information to the target audiences using a variety of distribution methods, including but not limited to: displays, posters, signs, pamphlets, booklets, brochures, radio, local cable TV, newspaper articles, other advertisements (e.g., at bus and train stops/stations), bill stuffers, posters, presentations, conferences, meetings, fact sheets, giveaways, storm drain stenciling.

Measurable Goal: All permittees shall select and utilize at least two distribution methods in each permit year. These are in addition to the newsletter and website provisions of BMPs #3 and #4.

Recommendations: Abundant educational resources and examples are available from numerous sources (see [www.depweb.state.pa.us](http://www.depweb.state.pa.us), keyword: Stormwater) that can be adapted for use, including the DEP brochure titled "When It Rains, It Drains." Since school districts frequently cross MS4 boundaries, seek out watershed groups or other qualified service providers to help assist and/or implement school education on behalf of the group of permittees. Permittees also can partner with other permittees to jointly arrange for school education.

## **MCM #2: Public Involvement / Participation**

The following are the requirements for MCM #2 that are included in the Federal Regulations:

- *Comply with applicable state and local public notice requirements when implementing a public involvement / participation program (40 CFR Part 122.34(b)(2)(i)).*

The following requirements, Best Management Practices (BMPs) and Measurable Goals are to be implemented and achieved by MS4 permittees in Pennsylvania:

**BMP #1:** Develop, implement and maintain a written Public Involvement and Participation Program (PIPP) which describes various types of possible participation activities and describes methods of encouraging the public's involvement and of soliciting the public's input.

Measurable Goal: New permittee's PIPP shall be developed and implemented during the first year of coverage under this General Permit. All permittees shall re-evaluate the PIPP each permit year and revise as needed. Your PIPP shall include, but not be limited to:

- a. Opportunities for the public to participate in the decision-making processes associated with the development, implementation, and update of programs and activities related to this General Permit.
- b. Methods of routine communication to groups such as watershed associations, environmental advisory committees, and other environmental organizations that operate within proximity to the permittee's regulated small MS4s or their receiving waters.
- c. Making your periodic reports available to the public on your website, at your municipal offices, or by US Mail upon request.

**BMP #2:** Prior to adoption of any ordinance required by this General Permit, provide adequate public notice and opportunities for public review, input, and feedback.

Measurable Goal: Advertise any proposed MS4 Stormwater Management Ordinance, provide opportunities for public comment, evaluate any public input and feedback, and document the comments received and the municipality's response.

**BMP #3:** Regularly solicit public involvement and participation from the target audience groups. This should include an effort to solicit public reporting of suspected illicit discharges. Assist the public in their efforts to help implement your SWMP. Conduct public meetings to discuss the on-going implementation of your SWMP.

Measurable Goals: Conduct at least one public meeting per year to solicit public involvement and participation from target audience groups. The public should be given reasonable notice through the usual outlets a reasonable period in advance of each meeting. During the meetings, you should present a summary of your progress, activities, and accomplishments with implementation of your SWMP, and you should provide opportunities for the public to provide feedback and input. Your presentation can be made at specific MS4 meetings or during any other public meeting. Under this MCM, you should document and report instances of cooperation and participation in your activities; presentations you made to local watershed organizations and conservation organizations; and similar instances of participation or coordination with organizations in your community. You also should document and report activities in which members of the public assisted or participated in your meetings and in the implementation of your SWMP, including education activities or organized implementation efforts such as cleanups, monitoring, storm drain stenciling, or others.

### **MCM #3: Illicit Discharge Detection and Elimination (IDD&E)**

The following are the requirements for MCM #3 that are included in the Federal Regulations:

- *Develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4 (40 CFR Part 122.34(b)(3)(i)).*
- *Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and locations of all surface waters of the Commonwealth that receive discharges from those outfalls (40 CFR Part 122.34(b)(3)(ii)(A)).*
- *To the extent allowable under State or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-stormwater discharges into your storm sewer system and implement appropriate enforcement procedures and actions (40 CFR Part 122.34(b)(3)(ii)(B)).*
- *Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, to your system (40 CFR Part 122.34(b)(3)(ii)(C)).*
- *Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste (40 CFR Part 122.34(b)(3)(ii)(D)).*

The following requirements, Best Management Practices (BMPs) and Measurable Goals are to be implemented and achieved:

**BMP #1:** You shall develop and implement a written program for the detection, elimination, and prevention of illicit discharges into your regulated MS4s. Your program shall include dry weather field screening of outfalls for non-stormwater flows, and sampling of dry weather discharges for selected chemical and biological parameters. Test results shall be used as indicators of possible discharge sources. The program shall include the following:

- Procedures for identifying priority areas. These are areas with a higher likelihood of illicit discharges, illicit connections or illegal dumping. Priority areas may include areas with older infrastructure, a concentration of high-risk activities, or past history of water pollution problems.
- Procedures for screening outfalls in priority areas during varying seasonal and meteorological conditions.
- Procedures for identifying the source of an illicit discharge when a contaminated flow is detected at a regulated small MS4 outfall.
- Procedures for eliminating an illicit discharge.
- Procedures for assessing the potential for illicit discharges caused by the interaction of sewage disposal systems (e.g., on-lot septic systems, sanitary piping) with storm drain systems.
- Mechanisms for gaining access to private property to inspect outfalls (e.g., land easements, consent agreements, search warrants).
- Procedures for program documentation, evaluation and assessment.

Measurable Goal: For new permittees, the IDD&E program shall be developed during the first year of coverage under this General Permit and shall be implemented and evaluated each year thereafter. For renewal permittees, the existing IDD&E program shall continue to be implemented and evaluated annually. Records shall be kept of all outfall inspections, flows observed, results of field screening and testing, and other follow-up investigation and corrective action work performed under this program.

Recommendation: For information on development and implementation of an IDD&E program, refer to: *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (CWP, October 2004). <http://cfpub.epa.gov/NPDES/stormwater/idde.cfm>

**BMP #2:** Develop and maintain a map of your regulated small MS4. The map must also show the location of all outfalls and the locations and names of all surface waters of the Commonwealth (e.g., creek, stream, pond, lake, basin, swale, channel) that receive discharges from those outfalls.

Measurable Goals: For new permittees, develop the map(s) of your regulated small municipal separate storm sewer systems and the information on all outfalls from your regulated small MS4 by the end of the fourth (4<sup>th</sup>) year of permit

coverage. For renewal permittees, the existing map(s) of your regulated small MS4 shall be updated and maintained as necessary during each year of coverage under the permit.

**BMP #3:** In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), new permittees shall show, and renewal permittees shall update, the entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, and any other features of the permittee's storm sewer system including municipal boundaries and/or watershed boundaries.

Measurable Goals: For new permittees, develop the map(s) by the end of the fourth (4<sup>th</sup>) year of coverage under the permit and update and maintain the map(s) as necessary each year of permit coverage thereafter. For renewal permittees, update and maintain the map(s) as necessary during each year of permit coverage.

**BMP #4:** Following the IDD&E program created pursuant to BMP #1, the permittee shall conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges using procedures developed under BMP #1.

Measurable Goals: For new permittees, all of the identified regulated small MS4 outfalls shall be screened during Dry Weather on at least two different occasions during the permit coverage term. In each permit coverage year, at least forty percent of the total number of outfalls should be screened.

For renewal permittees, each of the identified regulated small MS4 outfalls shall be screened at least once during each permit coverage term. For areas where past problems have been reported or known sources of dry weather flows occur on a continual basis, outfalls shall be screened annually.

For each outfall, if the screening reveals dry weather flow, the discharge from the outfall and the area around the outfall shall be inspected visually for color, turbidity, sheen, floating or submerged solids; for adverse effects on plants or animals in proximity to the outfall; and for odor. If the outfall produces any odor, or if the visual inspection shows any indication that the discharge may contain pollutants, then samples of the discharge shall be collected for field and / or lab testing of selected chemical and biological parameters as part of a process to determine if the dry weather flow is illicit. Common parameters include pH, conductivity, E. Coli bacteria, fecal coliform bacteria, metals, suspended solids, dissolved solids, oils, ammonia, surfactants; chlorine; and fluoride.

You shall implement the IDD&E plan that you developed to address any non-storm water discharges. If an outfall does not have any dry weather flow, then sampling and testing are not needed.

For all permittees, outfall inspections need to be prioritized according to the perceived chance of illicit discharges within the outfall's contributing drainage area. Observations of each outfall shall be recorded each time an outfall is screened, regardless of the presence of dry weather flow. Proper quality assurance and quality control procedures shall be followed when collecting, transporting or analyzing water samples. All outfall inspection information shall be recorded on the Outfall Reconnaissance Inventory/Sample Collection field sheet (attached below) excerpted from the *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments* (CWP, October 2004). Adequate written documentation shall be maintained to justify a determination that an outfall flow is not illicit. If an outfall flow is illicit, the actions taken to identify and eliminate the illicit flow also shall be documented.

The results of outfall inspections and actions taken to remove or correct illicit discharges shall be summarized in periodic reports.

Recommendation: All permittees should consider conducting some outfall screenings during varying seasonal and meteorological conditions since it is possible for illicit discharges/connections to occur during different times of the year and during or just after rain events. Seasonal outfall screenings conducted during periods of both low and high groundwater conditions can be beneficial in identifying illicit discharges that can occur during these times.

**BMP #5:** Enact a stormwater management ordinance to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.

Measurable Goal: Within the first year of coverage under the permit, new permittees shall enact and implement an ordinance from an Act 167 Plan approved by the Department in 2005 or later, the MS4 Stormwater Management

Ordinance; or an ordinance that satisfies all applicable requirements in a completed and signed MS4 Stormwater Management Ordinance Checklist.

Renewal permittees must continue to maintain, update, implement, and enforce a Stormwater Management Ordinance that satisfies all applicable requirements.

Measurable Goal: New permittees shall submit a letter signed by a municipal official, municipal engineer, or the municipal solicitor as an attachment to their first year report certifying the enactment of an ordinance that meets all applicable requirements of this permit. Renewal permittees shall update their existing ordinance, if necessary, and submit documentation of completion to the Department.

**BMP #6:** Provide educational outreach to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges.

Educational outreach should include:

- Distribution of brochures and guidance for target audiences including schools;
- Programs to encourage and facilitate public reporting of illicit discharges;
- Organizing volunteers to locate and visually inspect outfalls and to stencil storm drains; and
- Implement and encourage recycling programs for common wastes such as motor oil, antifreeze and pesticides.

Measurable Goals: During each year of permit coverage, appropriate educational information concerning illicit discharges shall be distributed to the target audiences using methods outlined under MCM #1. If not already established, set up and promote a stormwater pollution reporting mechanism (e.g., a complaint line with message recording) by the end of the first year of permit coverage for the public to use to notify you of illicit discharges, illegal dumping or outfall pollution. Respond to all complaints in a timely and appropriate manner. Document all responses, include the action taken, the time required to take the action, whether the complaint was resolved successfully.

#### **MCM #4: Construction Site Stormwater Runoff Control**

If you checked Option MCM #4.A in Section E(4)-(5) of the NOI, then you are relying on DEP's statewide QLP for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy all requirements under this MCM #4 and under BMPs #1 through #3 of MCM #5; therefore, all requirements are met for both this MCM #4 and BMPs #1 through #3 of MCM #5.

If you checked Option MCM #4.B in Section E(4)-(5) of the NOI, you are not relying on DEP's QLP for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy this MCM #4 and BMPs #1 through #3 of MCM #5; therefore, you must implement and achieve all of the requirements in this MCM #4 and all of the requirements in MCM #5, including the Best Management Practices (BMPs) and the Measurable Goals.

The following are the requirements for MCM #4 that are included in the Federal Regulations:

- *Develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale that equals one acre or more (40 CFR Part 122.34(b)(4)(i)).*
- *Develop and implement an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law (40 CFR Part 122.34(b)(4)(ii)(A)).*
- *Require construction site operators to implement appropriate erosion and sediment control best management practices (BMPs) (40 CFR Part 122.34(b)(4)(ii)(B)).*
- *Develop and implement requirements for construction site operators to control waste at the construction site that may cause adverse impacts to water quality. These wastes can include discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste (40 CFR Part 122.34(b)(4)(ii)(C)).*
- *Develop and implement procedures for site plan review which incorporate consideration of potential water quality impacts (40 CFR Part 122.34(b)(4)(ii)(D)).*
- *Develop and implement procedures for receipt and consideration of information submitted by the public (40 CFR Part 122.34(b)(4)(ii)(E)).*
- *Develop and implement procedures for site inspections and enforcement of control measures (40 CFR Part 122.34(b)(4)(ii)(F)).*

Under 25 Pa. Code, Chapter 102 of Department regulations issued under the authority of the Pennsylvania Clean Streams Law, the permittee (a municipality or a county) may not issue a building or other permit or final approval to those proposing or conducting earth disturbance activities requiring a DEP permit until the DEP has issued an individual NPDES Permit, or DEP or a delegated county conservation district (CCD) has approved coverage under the general NPDES Permit for Stormwater Discharges Associated With Construction Activities.

**BMP #1:** Develop your program consisting of all procedures necessary to comply with the requirements of this MCM. Your program shall provide for construction stormwater permitting, construction inspection, and enforcement of installation and maintenance of the necessary E&S control measures. Your program shall describe clearly how your program will be coordinated with DEP's NPDES Construction Stormwater Permitting program.

**Measurable Goals:** For new permittees, the written program for this MCM shall be developed during the first year of permit coverage; nevertheless, you are responsible for implementation of this MCM during entire term of this permit, including the time you are developing your program.

For all permittees, your program shall be reviewed and updated during each year of permit coverage. The purpose of the written program is to establish clear roles and responsibilities for the implementation of the MCM #4 requirements. An agreement between the permittee, the CCD, and any other resources to be used by the permittee that clearly defines roles for each entity is recommended. If an agreement is made, you shall place and keep a written copy in your file, consistent with the Retention of Records requirements in this Permit. Please note that in

accordance with Section A.2.h in Part A of the Authorization to Discharge, as the permittee you are responsible to ensure that implementation of all requirements under this Permit are fulfilled.

Recommendation: Develop a tracking system that summarizes your actions to comply with this BMP (e.g., number of active construction sites, inspections, enforcement actions, etc.) and which can be described in a summary report format.

**BMP #2:** The permittee shall enact, implement, and enforce an ordinance to require the implementation of erosion and sediment control BMPs, as well as sanctions to ensure compliance. (If Box 4A is checked, this is not required of those MS4s?)

Measurable Goal: Within the first year of coverage under the permit, new permittees shall enact and implement an ordinance that meets all applicable requirements of this permit.

Measurable Goal: Permittees shall submit a letter signed by a municipal official, municipal engineer or the municipal solicitor as an attachment to their first periodic report certifying the enactment and implementation of a stormwater management ordinance that meets all requirements of this permit.

**BMP #3:** Develop and implement requirements for construction site operators to control waste at the construction site that may cause adverse impacts to water quality. While sediment is the most common pollutant of concern for MCM #4, there are other types of pollutants that also can be a concern and the intent of this BMP is to address these other types of pollutants, such as, but not limited to, discarded building materials, washout from concrete trucks, chemicals, litter, and sanitary waste.

Measurable Goal: New permittees shall establish requirements to address this BMP by the end of the first year of permit coverage. Renewal permittees shall continue to implement existing requirements and update as necessary. This could be implemented by written municipal ordinance/code provisions, by standard notes on the site plans, by any other written format that accomplishes the objectives of this BMP, or by any combination of these measures. The goal of this BMP shall be communicated to construction site operators during pre-construction meetings. This BMP shall be implemented during each year of the MS4 permit. Permittees must prepare and maintain records of site inspections, including dates and results and you must maintain these records in accordance with the Retention of Records requirements in this Permit.

Recommendation: Verification of proper waste handling procedures can be determined at the same time that site E&S control inspections are conducted under BMP #1, described above.

**BMP #4:** Develop and implement procedures for the receipt and consideration of public inquiries, concerns, and information submitted by the public (to the permittee) regarding local construction activities. The permittee shall demonstrate acknowledgement and consideration of the information submitted, whether submitted verbally or in writing.

Measurable Goal: Permittees shall establish and implement a tracking system to keep a record of any submitted public information as well as your response, actions, and results. This BMP shall be implemented during each year of coverage under this General Permit and information should be submitted with the each periodic report.

Recommendation: Develop a tracking system that can keep a record of information submitted by the public as well as your responses to such public inquiries. The tracking system should be capable of producing periodic summary reports.

## **MCM #5: Post-Construction Stormwater Management (PCSM) in New and Re-Development Activities**

If you checked Option MCM #4.A in Section E(4)-(5) of the NOI, then you are relying on DEP's statewide QLP for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy all requirements under BMPs #1 through #3 of this MCM #5; therefore, all requirements are met for BMPs #1 through #3 of this MCM #5 and for all requirements under MCM #4.

If you checked Option MCM #4.B in Section E(4)-(5) of the NOI, you are not relying on DEP's QLP for issuing NPDES Permits for Stormwater Discharges Associated with Construction Activities to satisfy the requirements in BMPs #1 through #3 of this MCM #5; therefore, you must implement and achieve all of the requirements in this MCM #5 and all of the requirements in MCM #4, including the Best Management Practices (BMPs) and the Measurable Goals.

The following are the requirements for MCM #5 that are included in the Federal Regulations:

- *Develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program shall ensure that controls are in place that would prevent or minimize water quality impacts (40 CFR Part 122.34(b)(5)(i)).*
- *Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your community (40 CFR Part 122.34(b)(5)(ii)(A)).*
- *Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law (40 CFR Part 122.34(b)(5)(ii)(B)).*
- *Ensure adequate long-term operation and maintenance of BMPs (40 CFR Part 122.34(b)(5)(ii)(C)).*

The following requirements, Best Management Practices (BMPs) and Measurable Goals are to be implemented and achieved:

Note: Please refer to the definitions section of this PAG-13 permit for clarification of terms used in this MCM. In the following language, the term "**BMPs**" refers to **post-construction stormwater management controls and best management practices**.

**BMP #1:** Develop a written procedure that describes how the permittee shall address all required components of this MCM. Guidance can be found in the Pennsylvania Stormwater Best Management Practices Manual. This plan shall include the following components:

- Minimum requirements for use of structural and/or non-structural BMPs in plans for development and redevelopment;
- Criteria for selecting and standards for sizing stormwater BMPs;
- Implementation of an inspection program to ensure that BMPs are properly installed;

**Measurable Goal:** The written procedure shall be developed by the end of the first year of permit coverage and be reviewed and updated every permit year thereafter, as needed. The intent of BMP #1 is for the permittee to describe how the listed tasks will be accomplished.

**BMP #2:** Require the implementation of a combination of structural and/or non-structural BMPs that are appropriate to the local community, that minimize water quality impacts, and that are designed to maintain pre-development runoff conditions. This requirement can be met by ensuring that the selected BMPs comply with the municipal Stormwater Management Ordinance that meets the requirements of this General Permit.

**Measurable Goal:** All qualifying development or redevelopment projects shall be reviewed to ensure that their post-construction stormwater management plans and selected BMPs conform to the applicable requirements. A tracking

system (e.g., database, spreadsheet, or written list) shall be maintained to record qualifying projects and their associated BMPs. In your records, you shall note if there are no qualifying projects in a calendar year.

**BMP #3:** Ensure that controls are installed that shall prevent or minimize water quality impacts.

Measurable Goal: All qualifying development or redevelopment projects shall be inspected during the construction phase to ensure proper installation of the approved structural PCSM BMPs. A tracking system (e.g., database, spreadsheet, or written list) shall be implemented to track the inspections conducted and to track the results of the inspections (e.g., BMPs were, or were not, installed properly). Permittees not relying on DEP's statewide QLP to satisfy requirements under this BMP shall summarize construction inspections and results in periodic reports. See BMP #6 for requirements related to post-construction inspection and tracking of PCSM BMPs to ensure that the operation and maintenance plan is being implemented.

**BMP #4:** The permittee shall enact, implement, and enforce an ordinance or other regulatory mechanism to address post-construction stormwater runoff from new development and redevelopment projects, as well as sanctions and penalties associated with non-compliance, to the extent allowable under State or local law.

Measurable Goal: Within the first year of coverage under this permit, new permittees shall enact and implement a stormwater management ordinance that meets the requirements of this General Permit.

Measurable Goal: All permittees shall submit a letter signed by a municipal official, municipal engineer or the municipal solicitor as an attachment to their first periodic report certifying the enactment of a stormwater management ordinance that meets the requirements of this General Permit.

**BMP #5:** Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new and redevelopment. Measures also should be included to encourage retrofitting LID into existing development. DEP's Pennsylvania Stormwater Best Management Practices Manual provides guidance on implementing LID practices.

Measurable Goal: In your inventory of development and redevelopment projects authorized for construction since March 10, 2003, that discharge stormwater to your regulated MS4s, indicate which projects incorporated LID practices and for each project list and track the BMPs that were used.

Measurable Goal: Enact ordinances consistent with LID practices and repeal sections of ordinances that conflict with LID practices. Progress with enacting and updating your ordinances to enable the use of LID practices shall be summarized in the periodic reports.

Recommendations: The U.S. EPA website provides publications on LID, including Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices Publication Number EPA 841-F-07-006, December 2007 at <http://www.epa.gov/owow/nps/lid/costs07/>. The Pennsylvania Standards for Residential Site Development, Pennsylvania Housing Research/Resource Center, The Pennsylvania State University, April 2007 at <http://www.engr.psu.edu/phrc/>.

**BMP #6:** Ensure adequate operation and maintenance of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects (including those owned or operated by the permittee).

Measurable Goal: Within the first year of coverage under this permit, new permittees shall develop and implement a written inspection program to ensure that stormwater BMPs are properly operated and maintained. The program shall include sanctions and penalties for non-compliance. All permittees shall review and update the inspection program annually and shall continue to implement this BMP.

Measurable Goal: An inventory of PCSM BMPs shall be developed by permittees and shall be continually updated during the term of coverage under the permit as development projects are reviewed, approved, and constructed. This inventory shall include all PCSM BMPs installed since March 10, 2003 that discharge directly or indirectly to your regulated small MS4s. The inventory also should include PCSM BMPs discharging to the regulated small MS4 system that may cause or contribute to violation of water quality standard. The inventory shall include:

- all PCSM BMPs that were installed to meet requirements in NPDES Permits for Stormwater Discharges Associated with Construction Activities approved since March 10, 2003.
- the exact location of the PCSM BMP (e.g., street address);

Appendix A

- information (e.g., name, address, phone number(s)) for BMP owner and entity responsible for BMP Operation and Maintenance (O&M), if different from BMP owner;
- the type of BMP and the year it was installed;
- maintenance required for the BMP type according to the Pennsylvania Stormwater BMP Manual or other manuals and resources;
- the actual inspection/maintenance activities for each BMP;
- an assessment by the permittee if proper operation and maintenance occurred during the year and if not, what actions the permittee has taken, or shall take, to address compliance with O&M requirements

Recommendation: Develop a single system that supports recording and tracking the information specified in BMPs #3, #4 and #5.

## **MCM #6: Pollution Prevention/Good Housekeeping for Municipal Operations**

**The following are the requirements for MCM #6 that are included in the Federal Regulations:**

- *Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations (40 CFR Part 122.34(b)(6)(i)).*
- *Provide employee training to prevent and reduce stormwater pollution from activities such as parks and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance (40 CFR Part 122.34(b)(6)(i)).*

**The following requirements, Best Management Practices (BMPs) and Measurable Goals are to be implemented and achieved:**

**BMP #1:** Identify and document all facilities and activities that are owned or operated by the permittee and have the potential for generating stormwater runoff to the regulated small MS4. This includes activities conducted by contractors for the permittee. Activities may include the following: street sweeping; snow removal/deicing; inlet/outfall cleaning; lawn/grounds care; general storm sewer system inspections and maintenance/repairs; park and open space maintenance; municipal building maintenance; new construction and land disturbances; right-of-way maintenance; vehicle operation, fueling, washing and maintenance; and material transfer operations, including leaf/yard debris pickup and disposal procedures. Facilities can include streets; roads; highways; parking lots and other large paved surfaces; maintenance and storage yards; waste transfer stations; parks; fleet or maintenance shops; wastewater treatment plants; stormwater conveyances (open and closed pipe); riparian buffers; and stormwater storage or treatment units (e.g., basins, infiltration/filtering structures, constructed wetlands, etc.).

**Measurable Goal:** By the end of the first year of permit coverage, new permittees shall identify and document all types of municipal operations, facilities and activities and land uses that may contribute to stormwater runoff within areas of municipal operations that discharge to the regulated small MS4. Renewal permittees should have completed this list during the previous permit term. For all permittees, this information shall be reviewed and updated each year of permit coverage, as needed. Part of this effort shall include maintaining a basic inventory of various municipal operations and facilities.

**BMP #2:** Develop, implement and maintain a written operation and maintenance (O&M) program for all municipal operations and facilities that could contribute to the discharge of pollutants from the regulated small MS4s, as identified under BMP #1. This program (or programs) shall address municipally owned stormwater collection or conveyance systems, but could include other areas (as identified under BMP #1). The O&M program(s) should stress pollution prevention and good housekeeping measures, contain site-specific information, and address the following areas:

- Management practices, policies, procedures, etc. shall be developed and implemented to reduce or prevent the discharge of pollutants to your regulated small MS4s. You should consider eliminating maintenance-area discharges from floor drains and other drains if they have the potential to discharge to storm sewers.
- Maintenance activities, maintenance schedules, and inspection procedures to reduce the potential for pollutants to reach your regulated small MS4s. You also should review your procedures for maintaining your stormwater BMPs.
- Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt / sand (anti-skid) storage locations and snow disposal areas.
- Procedures for the proper disposal of waste removed from your regulated small MS4s and your municipal operations, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, and other debris.

**Measurable Goal:** During the first year of permit coverage, new permittees shall develop and implement a written O&M program that complies with BMPs #1 and #2. Renewal permittees shall continue to implement their existing program. All permittees shall review the O&M program annually, edit as necessary, and continue to implement during every year of permit coverage.

**Guidance:** Permittees may develop a single all encompassing written O&M program or they may develop separate programs for their stormwater system and for their vehicles.

**BMP #3:** Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from municipal operations to your regulated small MS4s. The program may be developed and implemented using guidance and training materials that are available from federal, state or local agencies, or other organizations. Any municipal employee or contractor shall receive training. This could include public works staff, building / zoning / code enforcement staff, engineering staff (on-site and contracted), administrative staff, elected officials, police and fire responders, volunteers, and contracted personnel. Training topics should include operation, inspection, maintenance and repair activities associated with any of the municipal operations / facilities identified under BMP #1. Training should cover all relevant parts of the permittee's overall stormwater management program that could affect municipal operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.

Measurable Goal: During the first year of permit coverage, new permittees shall develop and implement a training program that identifies the training topics that will be covered, and what training methods and materials will be used. Renewal permittees shall continue to operate under their existing program. All permittees shall review the training program annually, edit it as necessary, and continue to implement it during every year of permit coverage.

Measurable Goal: Your employee training shall occur at least annually (i.e., during each permit coverage year) and shall be fully documented in writing and reported in your periodic reports. Documentation shall include the date(s) of the training, the names of attendees, the topics covered, and the training presenter(s).

Guidance: The training requirements of this BMP can be met in various ways. Training can be:

- formal or informal;
- conducted on-site or off-site;
- conducted on-the-job or during dedicated training periods;
- conducted one-on-one or in a group setting (including with staff from other MS4s);
- conducted by municipal staff or consultants/volunteers;
- conducted via oral presentations/instructions and/or via written materials (e.g., SOP's, guidance manuals, tests).

Recommendation: For efficiency and cost savings, you may wish to arrange and schedule joint training events with other nearby operators of regulated small MS4s.

## OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

### Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.):	Last 24 hours:	Last 48 hours:
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	
Land Use in Drainage Area (Check all that apply):			
<input type="checkbox"/> Industrial		<input type="checkbox"/> Open Space	
<input type="checkbox"/> Ultra-Urban Residential		<input type="checkbox"/> Institutional	
<input type="checkbox"/> Suburban Residential		Other: _____	
<input type="checkbox"/> Commercial		Known Industries: _____	
Notes (e.g., origin of outfall, if known):			

### Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE	DIMENSIONS (IN.)	SUBMERGED
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP <input type="checkbox"/> PVC <input type="checkbox"/> HDPE <input type="checkbox"/> Steel <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	<input type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____  In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully  With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully
<input type="checkbox"/> Open drainage	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> rip-rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____	Depth: _____ Top Width: _____ Bottom Width: _____	
<input type="checkbox"/> In-Stream	(applicable when collecting samples)			
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If No, Skip to Section 5</i>			
Flow Description (If present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial			

### Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER	RESULT	UNIT	EQUIPMENT	
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
<input type="checkbox"/> Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature		°F	Thermometer	
pH		pH Units	Test strip/Probe	
Ammonia		mg/L	Test strip	

### Outfall Reconnaissance Inventory Field Sheet

**Section 4: Physical Indicators for Flowing Outfalls Only**

Are Any Physical Indicators Present in the flow?  Yes  No *(If No, Skip to Section 5)*

INDICATOR	CHECK IF Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
			1 - Faint	2 - Easily detected	3 - Noticeable from a distance
Odor	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/sour <input type="checkbox"/> Petroleum/gas <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turbidity	<input type="checkbox"/>	See severity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floatables -Does Not Include Trash!!	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Suds <input type="checkbox"/> Petroleum (oil sheen) <input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls**

Are physical indicators that are not related to flow present?  Yes  No *(If No, Skip to Section 6)*

INDICATOR	CHECK IF Present	DESCRIPTION	COMMENTS
Outfall Damage	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping <input type="checkbox"/> Peeling Paint <input type="checkbox"/> Corrosion	
Deposits/Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Other:	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Odors <input type="checkbox"/> Colors <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Suds <input type="checkbox"/> Excessive Algae <input type="checkbox"/> Other:	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Orange <input type="checkbox"/> Green <input type="checkbox"/> Other:	

**Section 6: Overall Outfall Characterization**

Unlikely  Potential (presence of two or more indicators)  Suspect (one or more indicators with a severity of 3)  Obvious

**Section 7: Data Collection**

1. Sample for the lab?  Yes  No

2. If yes, collected from:  Flow  Pool

3. Intermittent flow trap set?  Yes  No If Yes, type:  OBM  Caulk dam

**Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?**