

Municipal Separate Storm Sewer Systems (MS4s): *What's It All About?*

by Steven P. Eidt, P.E.

As the implementation of the Clean Water Act moved toward the overall objective of all waters of the United States being fishable and swimmable, it was necessary to segue from dealing with just the industrial, municipal, and private-commercial-institutional point sources into traditionally “non-point source” discharges. The benefits to New York waters from the tremendous effort over a 30-year period are evident in looking at the differing nature of the problems that still exist. In the early ‘70s most of the pollution in waters was grossly evident from municipal sewage and industrial waste. Today those waters are much cleaner but in many cases still short of the swimmable and fishable goal.

Many of the water quality problems today stem from the types of discharges associated with stormwater runoff. To address these issues nationally and statewide, permitting was developed for agriculture, industry, construction and municipal stormwater discharges. There are over 450 municipal governments identified for the first stage of Municipal Separate Storm Sewer Systems, or MS4s, permitting. Most

were selected on the basis of census tracts related to population density while others were selected based on total maximum daily loads (TMDL) requirements or proximity to sensitive waters.

Setting Minimums at Point of Source

Unlike the original State Pollution Discharge Elimination System (SPDES) permitting, the criteria for discharge is not based on individual pollutant concentrations or loading at the point of discharge. Rather than submitting a standard permit application, municipalities may seek coverage under the permit through a Notice of Intent (NOI). These general permits were designed to provide pollutant reduction through the implementation of management practices. Management practices are designed for each of the minimum measures categories providing methods to address the pollutants at the source rather than through end-of pipe treatment. This is consistent with the growth in the wastewater field to orient toward pollutant



A turbid discharge from a residential subdivision under construction that flowed into a Class C trout stream.

Photo by Ellen Hahn, DEC Region 7

reduction rather than merely larger, more intricate and expensive systems.

Storm sewer discharges convey pollutants from roads, cars, lawns, pets, litter and various other activities. The pollutants include oils, greases, sediments, suspended solids, floatables and nutrients. These pollutants would be impossible to deal with in an end-of-pipe fashion. Imagine trying to link together the hundreds or thousands of outfalls from storm sewers, then designing a treatment process that would remove highly variable types of wastes coming in at extremely low concentrations at extremely high flow rates. Sounds like an engineer's nightmare!

Instead, the approach being taken reflects a thoughtful mechanism for dealing with the sources and pollutants in a less expensive, more pragmatic fashion. Permit compliance is based on meeting to the *maximum extent practicable* (MEP) six minimum measures defined in the permit. It is important to note that MEP is not fully defined. The six *minimum measures*, however, are well defined:

1. Public Education and Outreach on Stormwater Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Acceptance and Challenges

When the Department of Environmental Conservation (DEC) first rolled out the MS4 permitting program in early 2003, it provided a 48-page guidance package that thoroughly explained the process for completing the NOI. The NOI required the municipalities to select the anticipated management practices that they would employ to fully implement each minimum measure. Also included in the guidance were suggested timeframes for developing and implementing the practices to ensure that the municipality would meet the March 2008 full implementation deadline. The outreach and education program the DEC initiated led to an amazing compliance rate in excess of 90 percent of NOIs being accepted to provide coverage for the MS4s at the March 2003 filing deadline. Municipalities are required to submit an annual report documenting their progress toward full compliance.

This program has not been without its pitfalls. It originally came with no federal dollars for implementation forcing New York State to establish its own grants program through the Environmental Protection Fund. Over 75 percent of the MS4s in New York sought and received funding for program development and implementation. At the same time, the DEC was attempting to develop additional guidance and answer regulatory questions on a daily basis. While many would say that the DEC did not deliver the guidance as quickly as they would have liked, the needed documents were developed and provided.

The stormwater general permitting programs have been a rapidly growing segment of regulatory responsibility. As the regulated community strives to be in compliance, the DEC has worked with them and their representatives to assist them in a full understanding of the MS4 program. Full compliance is not only important to the permitted MS4s and the state, but it is equally important to the environment.

The implementation of this program more than any other relies on concerned and involved citizens. Quality of life is a hot topic

*It is the little things
that can be done at home
that will make a big difference
in the value
of the MS4 program.*

today. So is personal responsibility. It is the little things that can be done at home that will make a big difference in the value of the MS4 program. Neighbors working with neighbors; reducing fertilizer and pesticide applications; washing cars responsibly; proper disposal of waste fluids – all of these are opportunities for individuals to participate in cleaning up their environment. As professionals in the field, it has long been our purview to clean up and protect the environment. This program will require everyone to partner with environmental professionals to be successful. This will be a challenge to us to integrate the public into our domain. Let's work together to turn that corner and bring everyone onboard with us.

Steven P. Eidt, P.E. is the Regional Water Engineer for DEC Region 7. He is the facilitator for the Department's Stormwater Implementation Team. He may be contacted at speidt@gw.dec.state.ny.us.

TODAY'S MOST VERSATILE METER IS THE ONE THAT WILL MEASURE EVEN MORE PARAMETERS TOMORROW.

LDO[™] pH/ORP Conductivity Conductivity pH/ORP LDO[™]

Hach's new versatile HDO-series of meters and probes offers the versatility to take up to two simultaneous measurements of pH, ORP, conductivity, and Luminescent Dissolved Oxygen (LDO[™]) with a single meter. The unparalleled expandability of Hach's HDO-series means you can purchase just the probes you need now, and you're free to expand your parameters later!

To learn more about our new HDO-series, call toll-free 1-800-227-4224 ext. 8045 or visit www.hach.com