SWPP&MP Assessment

This section is an annual review of the current SWPP&MP. Revised in June 2007, we conclude that no modification to the SWPP&MP is required at this time. Discussion in this section includes substantive program improvements and successful programs.

Public Education

Partnerships

The NPDES Section contracts with several non-profit organizations to assist with development of education and outreach programs. The Partnership for the Delaware Estuary, the Appoquinimink River Association (ARA) and the Delaware Nature Society have specialties in watershed and water quality education. Partnering with these organizations has proven to be an effective means of expanding our limited staff resources in a cost effective manner.

With many watersheds facing TMDLs for nutrients and bacteria, we decided to pilot an outreach effort in a two-phased approach to commercial lawn care companies and property owners as well as a pet waste campaign to reduce bacteria. We therefore executed an agreement with the ARA to (1) develop an educational/outreach campaign to reduce fertilizer application by changing watershed residents' lawn care practices, and (2) a pet waste campaign to reduce bacteria from pet waste.

As a cost saving measure, we are in discussion with our co-permittee, New Castle County, to partner on the public education/outreach program once the new NPDES permit becomes effective. We have approached the Delaware Water Resources Center to investigate cost effective social marketing options that are feasible in Delaware to meet the minimum general public "impressions" required by the new permit.

Public Events

Part of our public outreach effort is participating in public events. Because we have limited budget and staff, we focus on large, multi-day events where there is substantial foot traffic. The biggest event each year is the Delaware State Fair where we participate for 10 days. We developed an interactive touch screen water quality game that tracks the number of times the game is played. Each participant receives a high-quality prize that displays our stormwater website. We assessed the pre- and post event number of site visits and found no difference concluding that the free giveaways had no impact on increasing public interest in visiting our website. Although we feel there is a benefit of the face-to-face interaction, we have reduced the quality and quantity of prizes as a cost saving measure.

Teacher's Packet

A popular free service we provide to educators is "Teacher's Packets" containing stormwater and watershed education information. The packets contain stormwater/watershed videos, kid's activity booklet, brochures, book mark, our "Delaware Nonpoint Source Educational Materials Survey" and "Delaware Nonpoint Source Public

Events and Programs Survey" booklets and CD. The free packets were mailed to 53 teachers who registered at our public events.

Public Participation/Involvement

Door Hanger

Our door hanger campaign has brought awareness to the public and allows them to be proactive in reporting illicit discharges in their neighborhood. When illegal substances are found in storm inlets or are reported by the public, we distribute door hangers to the surrounding neighborhood. We have found this to be a very effective program for generating public awareness and public involvement. This typically generates phone calls to our office where we explain the program and direct them to our web site. In 2009, we distributed 50 door hangers statewide, but none were required in Kent and Sussex County Phase II areas.

Illicit Discharge Detection and Elimination

Map Viewer

We have gone through two iterations of the NPDES map viewer. Issues with non-supported software and database incompatibility that causes malfunctions, have provided less than stellar functionality. We are working with our consultant to develop a more functional viewer. When the application is complete, we will conduct staff training on its use to increase the number of maintenance staff who take advantage of this valuable tool.

Pesticide, Herbicide, Fertilizer

The NPDES Section began discussions in January 2007 with the Roadside Environmental Section seeking ways to develop additional PHF reduction strategies. As a result of these discussions, the following programs have been initiated:

1. Guardrail Projects: Review of DelDOT's assets that are treated with herbicide showed that guardrails comprise a significant amount of chemicals applied over an estimated 250 guardrail miles on an annual basis. Often retreatment is necessary. We believe this was a way to effect a significant overall reduction, as well as eliminating treatment altogether at sections that met certain environmental qualifiers. Therefore, we concluded that our program required a statewide inventory and a pilot study to investigate various methods of ground treatment under guardrail.
    a. Guardrail inventory – This is a statewide inventory. Attributes collected will include material under guardrail and surrounding landscape and environmental features. With this information we can determine a course of action to apply the treatment methods, in lieu of or to reduce herbicide, as described in the guardrail pilot study and identify "no-spray" zones.
    b. Guardrail pilot study – This study will investigate methods to reduce the use rates of pesticides and carriers used to treat guardrail vegetation without compromising safety and aesthetics. We will select and apply treatments to

compare the effectiveness, ease of implementation, aesthetics, cost and longevity. Treatments will include weed control barriers, low-growing vegetation and cutting existing vegetation. Herbicide will be used on treatment plots as a measure against non-chemical treatments.

2. IRVM manual – DelDOT 's NPDES and Roadside Environmental Sections determined DelDOT's Division of Maintenance and Operations needed a manual that outlined consistent protocols and policies for maintenance staff and crews to manage roadside vegetation optimizing efficiency and provide pesticide reducing strategies. To that end, DelDOT hired the University of Delaware to develop an Establishment and Maintenance Manual incorporating Integrated Roadside Vegetation Management principles.
3. Herbicide SOP – The Roadside Environmental Section is preparing a herbicide standard operating procedure to be used by DelDOT and contractor staff that includes the following objectives:
    - To ensure the appropriate and effective application of herbicides as a management tool
    - To ensure the safety of all individuals participating in the use of herbicides
    - To use herbicides only when they contribute to the perpetuation of species, communities, and ecosystems targeted for preservation or when they provide the most efficient and/or environmentally compatible method in the following situations: (1) maintain traffic line of sight, (2) treat noxious species legally requiring control and (3) protection and maintenance of assets.
    - Minimize the detrimental effects to the environment
4. Contract language – New language was added to all contracts that specify using EPA-approved drift control agents and only using formulations of glyphosate with a full aquatic label.
5. Mowing Standard Operating Procedure – The NPDES Section conducted a study to determine the impact that grass length has on stormwater runoff quality. Overall, the study showed a water quality improvement in reducing the amount of sediment released and associated metals and that the higher grass releases road salt more slowly. To that end, the Roadside Environmental Section has begun revising the mowing policy last written in 1984. Improvements will include:
    - Maintain utility turf at a height of 6 inches. Utility turf constitutes the majority of mowed areas.
    - Mow one mower width on either edge when median is greater than 40-feet wide, leaving a "beauty strip" along the edge. The unmowed portion will act as a filter to improve water quality.
    - Maintain a 10-foot buffer around stormwater ponds; mow biofiltration swales to a 6" height minimum.
6. Training – DelDOT staff held a "Basic Herbicide Application" training workshop for 25 DelDOT employees.

Construction Site Runoff

E & S Plan Compliance and BMP Performance

Erosion and sediment control at DelDOT construction sites falls under the purview of the Division of Transportation Solutions (DOTS). However, the NPDES Program, through its permit and consent decree, is responsible for ensuring E & S control compliance. The NPDES Program staff assessed the E & S program again in 2009:

1. Currently, the contractor provides the CCR for major construction jobs. This has proven to be, on occasion, ineffective. Reports are not completed weekly or after storm events and often contractors do not provide a daily crew to maintain and/or correct deficiencies for E & S. We therefore are considering establishing an agreement to hire third party CCR consultants to manage the daily construction CCR duties in lieu of the contractor.

2. Changes to the DelDOT Standard Specifications, as well as new E & S control requirements and BMP standard details, have made the current version of the *DelDOT Erosion and Sediment Control Field Guide* somewhat obsolete. Therefore, the NPDES Program initiated an Agreement with Whitman, Requardt and Associates this past year to completely rewrite the *Field Guide* and put it into a more user-friendly format. Along with increased CCR training for DelDOT staff, we hope that the new guide will help improve compliance with E&S plans on our construction sites.

3. The EPA has mandated new effluent limit guidelines for all effluent leaving construction sites with 10 acres or more of disturbance. DNREC will begin enforcing the effluent limit guidelines when the state construction general permit is revised in summer 2011.

   In order to ensure that our road construction projects are in compliance it is necessary to begin educating our design and construction staff in advance, enabling us to advertise plans that meet the requirements. In order to do this, the NPDES group will purchase hand-held turbidity meters so that we can get an idea of our baseline effluent turbidity. We will measure the effluent at the outflow of our erosion and sediment controls and where the discharges meet the surface waters.

   Once we have a baseline of the turbidity discharging from our E&S controls, we will research methods to decrease the turbidity to meet the proposed effluent guidelines which may include adding new specifications. We will compile our findings and present them to our design and construction inspection staff so that they are aware of the new requirements and what they can do to meet them during design and ensure that the design plans are implemented during construction.

4. In 2009 we installed two YSI EcoNet Data Acquisition Systems immediately upstream and downstream of the service plaza site in order to provide continuous in-stream turbidity monitoring during construction of the new rest area. This proved useful on one occasion when insufficient E&S controls were used during a well drilling operation, and we received alerts that turbidity downstream of the construction area had risen dramatically. Inspectors were sent to the site, and the situation was corrected by the contractor.

Pollution Prevention and Good Housekeeping for Municipal Operations

Street Sweeping Program

Under the current NPDES permit DelDOT sweeps on an annual 4:2:1 frequency on primary, secondary and tertiary roads. A new Phase I permit, scheduled to be issued soon, requires DelDOT to quantify the expected pollutant load reductions from all controls (e.g. sweeping) to meet the TMDL (Total Maximum Daily Load) and Waste Load Allocation goals. In order to obtain the required information we will need to retrofit our sweepers with GPS units. Through the use of GPS units we will:

1. Determine number of miles swept,
2. Identify roads by name, maintenance number or type,
3. Obtain estimates of pollutant load reductions resulting from sweeping to meet the TMDL and WLA goals as required by the NPDES permit.

NPDES Program staff will be able to evaluate and optimize the sweeping program so we get maximum pollutant removal for the least amount of cost by determining what roads, if any, can be excluded from sweeping (e.g. sweep only: roads with closed drainage, subdivisions, beach resorts, interstates, etc.).

Stormwater Conveyance Systems

DelDOT's inspection consultants report deficient components of the storm sewer system and enter them into our work order system, Maximo. When this project began we erred towards reporting any defect regardless of severity. As a result, the Districts received thousands of work orders that were very low priority, had no immediate effect on functionality or water quality and given the limited resources, remained as an unapproved work order in Maximo for years.

KCI presented a range of system maintenance deficiencies for the Districts to review and rank. A consensus was achieved and the Districts now receive consistent, credible work orders from the consultant.

When the Districts receive and process storm system maintenance work orders from consultants or staff, we currently don't track their completion. As we recognize the need to document and assess this work, we are currently working towards developing a procedure to query our Maximo database to obtain this data. As the storm system inventory program generates work orders through the inspection process, we will look for ways to complete more of the work orders that have remained open in the past perhaps through supplementing the districts with our NPDES budget. There is also a need to have completed work orders reflected in our NPDES map viewer database. So far we have been unsuccessful in this effort but will continue to work with our OIT staff.

Vehicle Wash Plan

The use of the *Statewide Vehicle Wash Water Practices for DelDOT maintenance Yards* manual, developed in July 2005, has resulted in designated locations for vehicle washing that are treated via a stormwater treatment train series of BMPs. We will begin construction at the Harrington maintenance facility in summer 2010. This will complete the wash water retrofits in the Phase II permit area.

Pollution Prevention Plans

Major programmatic and operational changes that occurred as a result of the PPP's for area maintenance yards are listed below:

- Security fence for all maintenance yards: prohibits illegal entry and possible illegal dumping;
- Purchased spill decks for fluid storage and spill kits for vehicles;
- More knowledgeable staff as a result of training resulting cleaner yards complying with state regulations;
- Quarterly inspections: Obtaining compliance with wet and dry inspections was an issue when the PPP's were first implemented. While the NPDES project manager sent periodic reminders prior to the end of the quarter, some PPP teams were delinquent in submitting reports. If a team's reports were not submitted, the NPDES Program Manager sent emails to the team and the District supervisors/engineers. This proved to be an effective means of assuring future submittals. We now routinely receive all reports.

In assessing the PPP's, we determined that many of the plans need to be updated to include new maps of facilities and drainage systems, new BMPs, and new staff responsible for PPP implementation. We will be updating these plans in 2010.

Salt Plan

DelDOT's *Statewide Salt Best Management Practices for DelDOT's Maintenance Yards* has resulted in the purchase of salt structures to comply with storing salt under roof. Quarterly inspections and increased training through SWPP&MP videos and maintenance bulletin posters have also resulted in greater awareness of and compliance with the provisions of the salt plan by maintenance staff.

DelDOT Maintenance and Operations staff have also begun to investigate the feasibility of incorporating salt alternatives such as beet juice derivatives into its snow and ice control program.

Stormwater Retrofits

Now that the maintenance yard retrofits called for in the Vehicle Wash Water Plan are being completed, we will be looking for new retrofit opportunities in the Phase II permitted area. Our program has been partnering with DNREC's Watershed Assessment Section to conduct a comprehensive assessment of the St. Jones watershed. Duffield Associates and the Center for Watershed Protection are doing the assessment. A major goal of the watershed assessment is to identify sites where stormwater retrofits would greatly benefit water quality in the St. Jones. The consultants have been asked to look particularly at DelDOT-owned or DelDOT-impacted sites during their watershed walks and stream condition assessments. Thus we anticipate that this work will identify at least a few new retrofit opportunities for us to consider in the near future.