Proposal for Development of a Nutrient Management Program for Application of Biosolids on Agricultural Land

Background

Many POTWs in Illinois and throughout the US manage a large portion of their biosolids through application as fertilizer on farmland. The biosolids are typically land-applied using two types of programs:

- Application to land owned and operated by the POTWs - For example at the Metropolitan Water Reclamation District of Greater Chicago (MWRD), biosolids from its Hanover Park Water Reclamation Plant (WRP) are applied to dedicated farm fields located on property owned by MWRD and leased to farmers.

- Application to land operated by individual farmers, through a land application contractor- For example most of the biosolids from MWRD’s Stickney, Calumet and Egan WRPs are applied to farmland by a land application contractor. The contractor is responsible for enrolling farmers’ fields in the program. The MWRD oversees the contractor’s operations to ensure compliance with regulations, and the public relations (PR) program to ensure the social and long-term sustainability of the program.

The application rates of biosolids are typically based on meeting the nitrogen (N) needs of the crop. In Illinois, this approach is stipulated in the Part 391 biosolids land application guidelines. This method of determining application rates of biosolids typically results in over application of biosolids phosphorus (P) because crops need lower amounts of P compared to N. As POTWs implement nutrient removal technologies at wastewater treatment facilities to reduce nutrient discharge, this can increase the amount of P in biosolids and further aggravate the problem.

Many states are implementing regulations and guidelines to minimize losses of biosolids P from agricultural land. In Illinois, the only requirement pertaining to biosolids phosphorus is that biosolids application is not recommended on land having phosphorus soil test levels greater than 400 pounds per acre for sandy soils or 800 pounds for non-sandy soils. Over the past few years there has been increasing demands on the agricultural sector to reduce loss of excess nutrients from agricultural land due to manure application from confined animal feeding operations and from fertilizer application. POTWs are currently gearing up to further reduce the loading of nutrients to receiving waters resulting from discharge of their treated wastewater effluent. With respect to phosphorus, much of the additional load reduction will result in increased concentration in biosolids. Therefore to ensure that the reduction in nutrient loading to receiving waters is realized, POTWs must begin to proactively address this issue in their biosolids land application practices as an approach to complement nutrient load reduction in their treatment facilities. This will enable POTWs to more effectively partner with the agricultural sector in working towards meeting the goals of the Illinois Nutrient Loss Reduction Strategy (Strategy).

To begin to address the biosolids P issue, over the past 10 years, MWRD conducted a series of studies aimed at developing guidelines that can be implemented so that land application
of biosolids remains a feasible option, but with minimal potential for environmental impacts. The results of those studies are documented in a draft comprehensive report. The goal is to finalize this report to include some recommendations that are acceptable statewide. This report and the recommendations will be made available to IEPA as reference for any future guidelines or regulations pertaining to land application of biosolids P. The MWRD is establishing an initiative to develop and implement a biosolids nutrient management program based on recommendations generated from these studies and on the review of information obtained from its experience of over 40 years of operation of land application programs.

Purpose

The purpose of the biosolids nutrient management program is to proactively implement and document practices aimed to minimize the potential for discharge of nutrients from biosolids applied to fertilize agricultural land. This program will not pertain to other types of land application practices such as application of biosolids in urban settings. It is envisioned that this program will be tailored to be adaptable to statewide implementation and have minimal economic burden on operation of POTWs and the land application practice. Activities under this program will be documented as one of MWRD’s contributions to the statewide Strategy. As MWRD begins to develop this program, MWRD is pursuing participation of POTWs throughout the state. Participation in this program will be on a voluntary basis.

Benefits of a Biosolids Nutrient Planning Program

Overall, this program will strengthen the point source commitment to the statewide Strategy and help to decrease the potential for tighter regulatory nutrient limits on point sources. Specifically, this program will:

1. Serve as an addition to the list of efforts that POTWs are already undertaking towards the Strategy
2. Build point source partnership and credibility with the non-point source sector towards the Strategy
3. Serve to demonstrate how the concept of the Watershed Protection Utility, which is proposed in the Strategy and being developed, can work as a statewide approach to address the goals of the Strategy
4. Minimize the chances of regulatory controls on P loading being developed for land application of biosolids P that might be unfavorable to point sources

Activities

To kick off this effort, MWRD is organizing a one-day workshop to be held in January 2016, tentatively either at the MWRD Stickney laboratory auditorium or at the LASMA visitors center located in Willow Springs. Potential dates for the workshop are January 12, 20, or 25. The workshop will focus on the following:

- Review results of MWRD studies and other information and develop recommendations of practices that MWRD and other POTWs can begin to adopt
• Plan the development of a biosolids nutrient management fact sheet to include guidelines for use by POTWs and their contractors

• Develop a statement of how this biosolids nutrient management plan is an important active part of the point source contribution to the Strategy

MWRD would like to get a list of POTWs and their contractors that will be interested in participating in the workshop and/or the adoption of the biosolids nutrient management plan. These will primarily be major POTWs that manage their biosolids through application on farmland. As indicated in the Strategy, there are about 117 major POTWs (>1 MGD) in the state and they contribute ~70% point source discharge. For those POTWs interested in participation in development and adoption of the biosolids nutrient management plan, they should provide the following aspects of their biosolids management program to MWRD as preliminary information for organizing the workshop:

• Amount of biosolids land applied annually

• Land owner/operator (POTW-owned or farmer)

• Land applier (self or contractor)

Contact

POTWs and land application contractors who would like to participate in the workshop or to further discuss the development of the nutrient management plan should contact:

Albert Cox, MWRD at 708-588-4068 or coxa@mwr.org.