Congratulations and Welcome!!

EEI would like to recognize the following employees for their milestone anniversaries with the company:

10 Years: **Todd A. Wells, P.E., CPII**
Sr. Prj. Engineer II

15 Years: **C. Larry Nolan**
Sr. Prj. Technician (CAD)

20 Years: **Christopher E. Peterson, P.L.S.**
Sr. Prj. Surveyor II

EEI congratulates **Kyle D. Welte, P.E., CPII** on his promotion to Senior Project Engineer II and **Josh M. Boatman** on his promotion to Senior Project Technician II.

EEI welcomes the following individuals to our staff:

Matthew J. Taylor, GIS Technician.

Tyler A. Meyer, E.I., Grant R. Johnson, E.I., and **Brandon C. Stahl, E.I.,** as Project Engineers.

Did You Know?

Enterprises Trivia Challenge

Q: What year was Chicago positioned to become the first large American city to build a comprehensive sewer system?

Send your answer to **eei@eeiweb.com** or fax to **(630) 466-6701** August 31st to be entered in a drawing for a $50 American Express gift card!

Engineering Enterprises, Inc. (EEI), founded in 1974, provides consulting engineering services throughout northern Illinois. Our expertise includes water, wastewater, transportation, stormwater, construction management, land surveying and GIS.

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What Is a CMOM Plan?

In this Edition:

You may have seen or heard the term "CMOM" mentioned lately and wondered what it is and why it may matter to you. In Illinois, Capacity, Management, Operations and Maintenance (CMOM) plans have become consistently assigned as a special condition within the National Pollutant Discharge Elimination System (NPDES) permits for communities with wastewater treatment plants that discharge to receiving waters. In Illinois, the Illinois Environmental Protection Agency (IEPA) writes NPDES permits.

In the past few years, the IEPA has integrated the CMOM special condition into virtually all major wastewater treatment facility (WWTF) NPDES permits (a major WWTF has a design average flow capacity of the 1.0 million gallons per day or greater, which often serves a population of 10,000 people or greater) and all minor permits that have reported sanitary sewer overflows (SSOs), combined sewer overflows (CSOs) and/or have excess flow treatment processes at the WWTF. The IEPA typically gives a wastewater treatment provider twelve (12) months to complete and submit the CMOM plan, but some communities have obtained 15 - 18 month submittal time frames.

The main goal of a CMOM plan is to lay the groundwork to manage, operate and maintain a sanitary sewer collection system to provide uninterrupted sanitary sewer service for all users in the service area. The plan also is meant to assist a community in eliminating, or at least reducing, overflow events. Overflows occur when the sanitary sewer system conveyance capacity is overwhelmed and cannot pass all of the flows through the pipe network. When the pipe network is overwhelmed, sewage overflows can occur at manholes and sometimes into basements.

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Enterprises

What Is a CMOM Plan?, Cont'd.

It is important to control overflow events because raw sewage contains various bacteria and viruses which can cause sickness or even death in people or animals. Sewer backups can also lead to property damage for both private residences and industrial or commercial properties. Finally, excessive flows in the sanitary sewer system can overwhelm lift stations and the wastewater treatment facility. This often results in damage to property or equipment, permit violations, unnecessary over sizing of pumps or treatment equipment, and inefficient operations. Each of these consequences comes at a price - monetary or otherwise. Potential regulatory consequences of SSOs could provoke the regulators to develop consent agreements or administrative orders, and possibly criminal and/or civil fines.

While the goal of the CMOM plan is to eliminate overflows, older pipe networks that are not in the best condition can be besieged with extraneous flows during excessive rainfall events. The extra flow within the pipe network is often the root cause of overflows. In cases where systems have high wet weather flows, the CMOM plan will develop a process for reducing the wet weather flows. While eliminating overflows is certainly the main goal, there still can be extreme situations that cause them to occur. If an overflow were to occur, the CMOM plan provides the community's processes for public and regulatory notification.

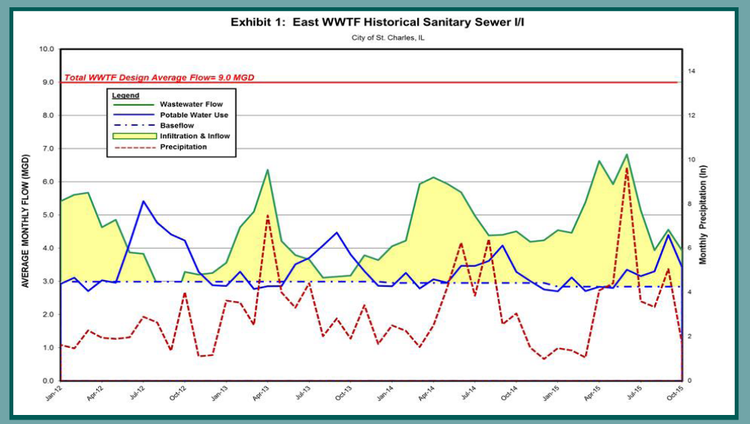
The CMOM plan also will identify where poor sanitary sewer system conveyance occurs and develop a plan for resolving the conveyance issues. Prioritization of capacity and structural deficiencies in the sanitary sewer system, and implementation of cost-effective rehabilitation action on identified and prioritized structural or capacity deficiencies also is a goal of the CMOM plan. A final goal of the plan is to continually update it. Since inputs to sanitary sewer networks change, the system expands to serve a larger area and they system continues to age, the plan needs to be updated on a regular basis so efficient sanitary sewer operation can continue within the community.

How Is a CMOM Plan Developed?

While the CMOM NPDES permit special condition provides a brief summary as to what components should be included in the CMOM plan, there is no set format for a CMOM plan. The USEPA has issued some guidance manuals and checklists, and some states have further supplemented the guidance documents. In review of the special condition and guidance manuals, EEI has developed the work items and a format for the development of CMOM plans. EEI has completed one CMOM plan for one community and is the majority of the way through development of a second one. The first community has already successfully made it through a CMOM audit from the IEPA.

The first work item for the CMOM plan is to prepare, or update, the sanitary sewer collection system base map and inventory the wastewater collection system. Ideally the map includes sub-basin delineations, lift station locations and pipe sizes. If available, the map also can include pipe ages. The lift station inventory should include the maintenance history of each lift station, so maintenance can be forecasted and prioritized. The plan also should include an inventory of equipment that is utilized to operate and maintain the sanitary sewer system. The plan should also include a map that documents existing and historical challenges with the system. This could include grease build-up areas, structural concerns and known SSO locations.

Next, the plan should characterize the level of I/I within the system. By comparing the potable water usage within the community to the sanitary sewer flows at the WWTF, system wide I/I can be quantified. By comparing the system wide I/I values to excessive I/I metrics, a determination can be made of whether I/I is a major issue within the system. Continual updates of the I/I characterization graphs will help a community determine if I/I is getting worse, or if their efforts to reduce I/I have been successful.



The CMOM plan also should document the historical and projected operation, maintenance and rehabilitation plan and costs of the sanitary sewer network. The plan should include a review of the sanitary sewer ordinance to confirm its legal authority limitations and determine if any updates would be appropriate. If I/I is a major issue for the sanitary sewer network, the plan should include I/I reduction program, which will most likely be established over multiple fiscal years. The plan also should document the notification process of emergency O&M activities, including public notification and third party notification. Lastly, the plan should document the sanitary sewer system capacity, management, operation and maintenance personnel organizational structure and training. Finally, the plan should identify the approach for updating the CMOM plan. It is typically recommended that the inventories, maps, I/I characterization and budget tables and exhibits be updated on an annual basis. A full update of the plan likely would take place every five (5) years.

Who to Call for CMOM Plan Help?

All CMOMs have the similar goal of reducing SSOs by promoting best practices, but each CMOM will be unique to a community's particular collection system. If your WWTP NPDES permit requires a CMOM, or if you're interested in evaluating your sanitary sewer system, consider consulting with **Steve Dennison, or Jeff Freeman at (630) 466-6700.**

President's Message

Peter G. Wallers, P.E., CFM

Get the Lead Out!

The water quality crisis that occurred in Flint, Michigan was an epic failure of the system. What compounds the tragedy even more is the fact that rules were, and continue to be, in place to prevent this type of disaster. Unfortunately, the rules were not followed. A regulatory structure was in place to monitor the situation, but due to breakdowns in the regulatory process this unfortunate situation was not prevented at a higher level, either. There was a lot that went wrong to enable this tragedy to occur, but the reality is that it did occur.

When a tragedy occurs, reflection on the events that led to the tragedy need to take place. If reasonable changes can be instituted to further protect against the tragedy occurring again, then it is wise to embrace those changes.

It is well documented that lead exposure can cause devastating effects on humans - especially children. While lead in drinking water has been cited to be a lower incidence exposure pathway than other lead exposure pathways (i.e. ingestion of lead paint and soil with lead are much higher), under the right circumstances, it can be a major problem. The reality is that most water sources and water distributed to water services have very low lead content, if any at all. The problem of lead in drinking water really rests with the old lead service lines and internal plumbing, and not (except in rare cases) the water supply. For the consumer, this is a distinction without a difference, though.

We need to understand that the general public is not as tuned into water issues as we would like to think. They want to know their water is safe and that their children are protected. Water suppliers and water professionals need to be cognizant of the big picture and work on educating the public. If a building has a lead service, internal lead plumbing and/or lead containing fixtures, we need to help the building owner understand what that means. Water, even very stable water, if left dormant in a lead service line or fixture for long enough will pick-up lead from that line. In order to mitigate the potential of lead containing plumbing components adding lead to the water, we need to make sure the water we are distributing is reasonably stable and help our consumers understand those lines need to be flushed out completely when they have not been used in a while. Of course, it is best to replace those service lines and fixtures, but in the interim, the problem must be managed. The American Water Works Association has many resources to help us better understand how to address the lead in water issue, many of which can be found here: http://www.drinktap.org/water-info/whats-in-my-water/lead-in-water.aspx

In the coming months, there will be lead and copper corrosion regulatory changes at the federal and state levels. The USEPA is currently evaluating changes to the lead and copper rule, and expect to issue a revised rule in 2017. The Illinois Legislature also has been considering a lead and copper corrosion control bill. While the logistics and funding challenge of the proposed legislation have not been fully worked through, it still seems likely something will get passed. The revised rules likely will require all lead service lines to be replaced. Presumably there also will be discussion about replacement of internal lead piping and high lead containing fixtures within the homes, businesses and institutions. The modified regulations also likely will include requirements for additional sampling throughout Water Works Systems, most likely including a higher level of sampling at schools. While the regulatory changes relative to lead in drinking water will a big expense for water utilities (one estimate puts the nationwide cost of lead service line replacement at $23 Billion), it will be important for water providers to be active in the regulatory process, provide insight as to what is practical and embrace cost-effective, appropriately distributed public and private replacement investment over reasonable time frames.

Ultimately, water suppliers will be required to make it happen. There is no doubt in my mind that they will.