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Digester/Over the Spillway

"for optimum operation/maintenance of all water and wastewater facilities"

Phase II
Stormwater
Rules Effective March 10, 2003

Effective March 10, 2003, there are new stormwater permit requirements for small construction sites, small municipalities and municipal separate storm sewer systems.

Beginning March 10, construction sites that disturb one acre or more must have coverage under the NPDES general permit for storm water runoff, to meet requirements of Phase II of the stormwater requirements under the Clean Water Act, and after that date, municipalities with populations under 100,000 will no longer be exempt from the storm water construction site requirements.

March 10, 2003, is also the deadline for wastewater treatment plants designed to treat one million gallons or more a day to apply for coverage under the Illinois NPDES general permit for industrial storm water.

Municipalities located in urban areas, as defined by the Census Bureau, will be required to submit permit applications by March 10, 2003, to IEPA for NPDES permit coverage for discharges from municipal separate storm sewer systems. Additional municipalities will be required to obtain coverage based on urban area maps resulting from the 2000 census. Municipalities may also be designated by the NPDES permitting authority.

Municipalities applying for coverage under the municipal separate storm sewer systems permits must submit completed and signed Notice of Intent for General Permit for Discharges From Small Municipal Separate Storm Sewer Systems forms, and must identify the best management practices to be used, and measurable goals for each best management practice. Also required will be a timetable for implementation, identification of the person or persons responsible for implementation, and identification of any qualifying local programs.

For coverage under the General Storm Water Industrial Permit, or the General Storm Water Construction Permit, applicants will need to submit only the completed and signed Notice of Intent for their appropriate permit.

Additional information on the Phase II storm water program including forms and permits can be obtained by contacting the IEPA's Permit Section in the Division of Water Pollution Control at 217-782-0610.

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Nominees Named for Prestigious Wastewater Plant, Operator Awards

Awards will be presented during annual conference in April

Twenty public, municipal and industrial wastewater treatment plants have been nominated for recognition by their peers as the outstanding operations in their categories, and six individuals have been selected as nominees for "Operator of the Year" by the Illinois Association of water Pollution Control Operators (IAWPCO).

Winners of the annual wastewater awards will be announced, and trophies presented during the IAWPCO conference in April. The 2003 conference will be held April 21-24 at the Crowne Plaza in Springfield.

Nominees are selected by personnel from each of the Agency's regional offices. At the annual conference, winners each receive a traveling trophy which they have custody of for one year. At the end of the year, they receive a permanent plaque which they can display as they see fit.

The purpose of the annual awards is to emphasize the relationship between adequate wastewater treatment and clean receiving waters and to give public recognition and encouragement to communities and businesses, their officials and the operating personnel who have operated their wastewater facilities in an especially effective manner.

Because of the number of possible contenders in each category, selection as a nominee is itself a significant recognition of the efforts of operators and public officials to promote good wastewater treatment and protect receiving waters.

In Group 1, from among a possible 168 facilities, the nominees selected were the cities of Robinson, Wood River and Mount Vernon, and the Devlin waste water treatment plant of the village of Roselle.

Nominees in Group 2, which has a total of 284 eligible facilities, include the city of Red Bud and Plant #2 in the city of Pinckneyville, as well as the villages of Dwight and German Valley.

Group 3, with 151 eligible facilities, has as its nominees the city of Fulton, the village of Browns, the Fox Ridge State Park, and the North plant of the city of Mount Olive.

Five nominees were chosen among 670 Group 4 facilities, including the cities of Henry, Breese and Lanark, as well as the treatment facilities at Kickapoo State Park and the Rend Lake Conservancy District.

In the Group K—industrial facilities category, three nominees were selected from among 1,622 eligible operations. The nominees are Caterpillar, Mapleton; Snap-On Tools Corp., Mt. Carmel and National Starch and Chemical Co., Meredosia.

Six nominees are in the running for the Operator of the Year award. They include:

Dave Sullivan –Pontiac
Dennis Splitorff –Albion
Tim Allgire –Millstadt
Ron Merriman –Hillsboro
Mike Turley –New Lenox
Jennifer Becker, East Dubuque

Q & A on Arsenic

Q: The EPA has ruled on the new arsenic standard, lowering it from 50 ug/L to 10 ug/L. What potable water systems will be affected, and what are the methods for arsenic removal?

A: Affected systems will have to be in compliance with the new MCL of 10 ug/L (ppb) by January 22, 2006, and this rule applies to the non-transient non-community water systems as well as the community water systems. Most of the affected systems are small systems.

The most prevalent and toxic forms of inorganic arsenic in drinking water are arsenite (+3 valence), and arsenate (+5 valence). Arsenite (As III) oxidized to arsenate (As V)is more readily removed then by a subsequent treatment process. Many of the best available technologies (BATs) for arsenic removal involve combinations of oxidation with coagulation, adsorption, lime softening, filtration, or ion exchange. Arsenic's effects on health include increased cancer risk, circulatory and cardiovascular problems, and skin problems.

What effects can nitrogenous materials have on the environment?

(The following was submitted for publication by the Environmental Resources Training Center at Southern Illinois University/Edwardsville.)

All forms of life need nitrogen-containing compounds. These compounds are found in a variety of forms including proteins, amino acids, nitrates, and ammonia. The earth's major source of nitrogen is air which is about 79 percent nitrogen gas (N2).

Unfortunately most organisms cannot use nitrogen as nitrogen gas; the nitrogen needs to be "fixed" or combined in compounds such as nitrate (NO3). Nitrogen is "fixed" atmospherically by lightning, biologically by certain microbes, and can be manufactured by man. Ammonia (NH3) is the nitrogenous compound of most concern to wastewater operators. Ammonia even in relatively low concentrations is poisonous to aquatic life. Fortunately, nature has provided us with nitrifying bacteria.

Nitrification is the process where nitrifying bacteria convert ammonia to nitrates using oxygen. In healthy aquatic systems there is enough oxygen to supply both the nitrifying bacteria and the remaining aquatic life with oxygen. When additional sources of ammonia are added, the oxygen is depleted by the nitrifying bacteria which create anaerobic conditions, that kills other forms of life. The nitrates, formed during nitrification, can have detrimental effects on the environment also.

Nitrates are necessary nutrients for algae and phytoplankton growth. The discharge of excessive nitrates to surface water bodies greatly accelerates the growth of algae and phytoplankton causing algal blooms. Algal blooms hasten eutrophication, which is the natural aging of lakes.

Nitrates also pose a problem to drinking water supplies. High levels of nitrates in water can be of grave concern to families with infants. "Blue baby" disease is a condition where nitrates are converted to nitrites by bacteria that live in the digestive system of children during the first few months of life. The nitrites prevent the transfer of oxygen to all parts of the body, which eventually can cause suffocation.

Water Information Now Available on Free CD-ROM

Provided by U.S. EPA's "Drinking Water Academy"

Barbara Liebman of the Water Supply Operator Certification section at the IEPA provided the following information for the Certification Advisory Board's October 17, 2002, meeting. Her description: "This is an awesome amount of information on one CD-ROM and it is absolutely free."

The Drinking Water Resources CD-ROM contains more than 85 drinking water documents and Internet links in 6 areas:

- General Information
- National Primary Drinking Water Regulations
- PWSS Program Implementation file has:
  - Consumer Confidence Reports and Public Notification
  - DWSRF Fact Sheets
  - NPDWR Guidance and Implementation Information
  - Operator Certification
  - Small Systems and Capacity Development
  - Technical Guidance Documents
- Sanitary surveys
- Source Water Protection file has a number of documents:
  - Sole Source Aquifer Protection
  - Source Water Assessment
  - Local Source Water Protection
  - Federal Funding for Land Acquisition
  - Susceptibility Guidance and Training
  - Source Water Protection Tools
- UIC (Underground Injection Program)
  - Code of Federal Regulations
  - General Information
  - Fact Sheets and Guidances for UIC

The CD-ROM is provided by EPA's Drinking Water Academy – for more information, see the DWA Web site at http://www.epa.gov/safewater/dwa.html

Operators Get Microscope Training And Free Microscopes in Program

Intel Corp. and ILMA providing free computer microscopes

Operator training was held on July 18, 2002, at the Davis Lodge, adjacent to Bloomington's Public Water Supply Plant, in conjunction with Illinois Section AWWA Visitation Day. Fifteen individuals watched as the H2O'C Engineering instructional team of John and Tom O'Connor brought to life the world that exists in water.

Free microscope for each attendee

Each attendee received a free Intel QX3+ USB Microscope courtesy of Intel Corporation and the Illinois Lake Management Association. This impressive little microscope, once jacked into any computer capable of running Windows 98, displays water samples on the computer screen in living color. Images can be saved as a file which can be sent as an e-mail attachment to a lab technician with the request, "What is this in my raw water?"

During the demonstration, a stereo microscope allowed users to watch Daphnia (tiny, tan flea-like organisms that only survive in unpolluted water) feed inside their petri dish. Also on display was a compound microscope where staining techniques were demonstrated.

Heart of the demonstration was the computer microscope

There was considerable information packed into the short course on water microbiology, including the fact that cells can divide every 20 minutes, and that there are more than 3,000 species of bacteria. The demonstrators explained that viruses are susceptible to high pH and that exposure to chlorination for 30 to 60 minutes at a concentration of 0.5 ppm results in a 99.99 percent kill.

A diverse rock display by Dr. John O'Connor reminded those attending that characteristics of surface and groundwater are determined by the rock formations over and through which the water passes.

Rick Twait, superintendent of water purification for the city of Bloomington, presented a series of micrographs transitioning from raw to the finished water. He explained the use of a fluorescent stain that is added to filtered samples and attaches itself to biological organisms in the sample. Ultraviolet light excites the stain in the algal cells, bacteria, and other microlife and causes the release of a photon visible under the microscope.

This workshop encourages the use of microscopes by breaking down the wall of intimidation that many feel when approaching this technology. "New federal regulations, recent waterborne disease outbreaks, and advancing technology are now forcing a reappraisal of the methods by which water treatment plant microbiological efficiency is evaluated," O'Connor said.

Several more of these workshops are planned in 2003, with microscopes to be given away at each workshop.

(Information for this article was contributed by Barb Liebman, in the operator certification unit of the IEPA's Bureau of Water. Barb, who left the Agency recently, was a frequent contributor to Digester/Over the Spillway. Her contributions will be missed.)

Digester/Over the Spillway

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Candidates Successfully Pass Potable Water Operator Exams

The following candidates successfully passed the examination for certified water treatment operators in exams given on May 6, May 24, May 28, June 3, July 1, Aug. 5, Oct. 7, Nov. 4, Dec. 2, Dec. 4, and Dec. 19, 2002. Some operators may have taken exams for more than one classification, so some names may appear more than once. The listing includes the operator's facility, if known; -0- indicates the information was not available.

Class A

Anderson, Ryan, Morris
Bess, Andrew L., Paris
Blackman, Roger, Kirkwood
Bode, Brad, Goodfield
Brantley, Dan , Vandalia
Brinkman, Kristine, Barry
Brown, Brandon, Chester
Bruning, Michelle L., Downs
Buskirk, Phyllis, Mound Water and Sewer District
Colclosure, Jonathon, Greenville
Coleman, Timothy, North Chicago
Cox, William G., Steger
Dado, Kenneth A., Orland Park
Dankowski, Brad H., Richton Park
Goode, Michael, Carrollton
Goodin, David, Vandalia
Harding, Jeffrey T., Highwood
Hartzog, Scott E., Carpentersville
Hedrick, Thomas, Fox Developmental Center
Hensley, Carl V., Country Estates Assn.
Hosfeldt, Herbert R., Vienna
Humphrey, Jr., William, Village of Payson
Huskey, Martin, Vandalia
James, Jeffrey, Gardner
Jamison, Rick W., Kinmundy WTP
Jones, Geoff, Carlyle
Kahl, Barry G., Moline
Keith, Stephen E., Illinois American Water/Cairo
Lappe, Steven, Carlyle
McCart, Kenneth J., Athens
Medland, Douglas P., Orland Park
Miller, Steven J., Edwardsville
Moore, Gale, -0-
O'Connor, Michael, Fox Developmental Center
Owens, David A., Moline
Persons, Karl J., Hazel Crest
Phillips, Stephen K., Herrin
Releford, Christopher, Gillespie
Richards, Frances M., Consumers IL Water Co. Vermillion
Russell, Keith A., Oak Forest
Salinas, David M., Riverdale
Schlenker, Andre J., Lk. Barrington Shores Sub.
Smith, William D., Huntley
Sneade, Fred A., Sauk Village
Stabile, Benny J., Orland Park
Thurman, Anthony A., Chrisman
Vesper, Sr., Joseph, Sauk Village
Wallace, Nicky (Dale), Effingham
Zurcher, Ray, East Moline

Class B

Castillo, John, Consumers IL Water Co. – Candlewick
Dabney, Donald R., Mackinaw
DeRose, Anthony, Harvard
Ellington, Richard D., Martinsville
Genseal, Chad S., Danvers
Maynard, David L., Matherville
Molitor, Timothy L., Schaumburg
Pryde, Alexander J., -0-
Richards, Frances M., Consumers IL. Water. Co. – Vermillion
Wilson, Timothy L., E. Dundee
Wirch, Steven R., McHenry

Class C

Arroyo, Michael, Lake in the Hills
Austin, Michael, Barrington
Beaty, Greg A., Nokomis
Behrman, Albert J., Carlyle
Behrman, Clinton, Okawville
Blaylock, Steve C., Northbrook
Buchholz, Charles S., Fountain Water Dist.
Burris, John N., Marquette Heights
Cajigas, Peter, Franklin Park
Carter, Christopher, Lindenhurst
Clinton, John K., Neoga
Colletti, Christopher, Niles
Conant, Gary L., FMC Water Co.
Congoran, Matthew, Romeoville

Candidates Successfully Pass Potable Water Operator Exams
Continued

Davis, Ross A., Riverside
Davis, Ross A., Riverside
Eastin, Kevin D. , Andover
Elam Jr., Richard A., Hillsboro
Elstner, Brian F., Lisle
Ernsting, Dale P., Steeleville
Ferguson, Timothy D., -0-
Fink, Shawn, Batavia
Fitzgerald, Steven, Aurora
Goodsom, Roger, Aurora
Greene, Rodney B., Fairfield
Grenchik, Tom W., New Lenox
Hansen, Keith, Palatine
Hoelscher, Curtis D., -0-
Holtmann, Josh D., -0-
Hopper, William D., Clinton
Jones, Geoff K., Carlyle
Jones, Lucas C. , -0-
Joslin, Joseph D., -0-
Kinder, Scott L., -0-
King, Joseph, Montgomery
Knight, Gerald E., Panama
Kruse, Eric J., -0-
Lanning, Adam L., -0-
Lappe, Steven J., Carlyle
Lato Jr., Sam, Kaskaskia
Lekander, Jason, Batavia
Marcott, Daniel L., Sheldon
McCoy, Andrew J., IL-American - Peoria
McFadden, Christopher L., Normal
McGuire, Robert E., Romeoville
Melby, Edward, New Lenox
Meyer, Jason, Lakewood
Milano, Phillip D., Sandoval
Miller, David L., Carlyle
Moore, Gary S., Melvin
Mull, George E., Gillespie
Palm, Jeffrey, DesPlaines
Payton, Geoffrey C., Sugar Grove
Pazdzioch, William J., River Grove
Pieper, Tonya C., Staunton
Plese, Jacque (Jack) D., Wilmington
Rakers, Gary R., Aviston
Rice, Shawn A., DuPage Water Comm.
Riippi, Steven L., DeKalb
Ross, Justin S., Lisle
Ross, Terry L., Roodhouse
Roswell, Thomas D., Bunker Hill
Rudloff, Randall S., Maeystown
Schneider, William R., -0-
Schoenhard, Lisa, Wienen Estates
Shetley, Nathan P., Fosterburg
Sisson, David A., -0-
Sramek, Scott, Woodridge
Stasch, David, DesPlaines
Stauter, Dennis J., Gridley
Stewart, James L., -0-
Stone, Todd E., Warren
Thacker, Warren E., Gillespie
Thompson, David L., Tonica
Thurston, Craig R., Jersey County Rural Water
Voelkel, Brian W., Sandwich
Walker, Jonathon A., -0-
Winkelmann, David A., Fountain Water Dist.

Class D

Adams, Larry P., Ill. American Water/Sterling
Andrews, Kyle D., Central Lake Co. JAWA
Carriger, Laurence, Franklin
Crawford, Stanley W., Otter Lake Water Comm.
Douglas, Terry, Sparta
Duncan Jr., Robert E., Fairfield
Gailes, Cynthia D., -0-
Hildinger,Michael L., Lindenhurst
Insko, Chad J., Pecatonica
Mertes, Donald V., Beaver Creek Village
Newbury, Randall L., Sesser
Nugent, Patrick W., Wilmington
Samuel, Marilyn K., Crest Hill
Schwartz, William, Sparta
Smith, Andy, Waverly
Sullivan, Amy M., -0-
Weidman, Emmet C., -0-
Winka, Gary A., Nashville

Operator News

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Kish-Rock Operators Association

(The Kish-Rock Operators Association is a group of drinking water and wastewater treatment operators in the north-central portion of Illinois. Currently the group includes approximately 60 practicing and retired operators. They meet at noon on the third Thursday of alternating months, with a business session at 1 p.m. following lunch. Jennifer Murphy is secretary-treasurer of the group, and can be contacted at 3543 S. Mill Road in Cherry Valley, Illinois 61016)

The July meeting of the Kish-Rock Operators Association was held July 19 at Shabbona State Park with the group's annual picnic and a golf outing at Indian Oaks. The business session was a short informal meeting

Thirty-three members attended the September 19 meeting at the fire station in Poplar Grove. Dennis Connor of the Rockford IEPA regional office discussed the electronic transmission of monthly DMR reports, expected to be available soon, and Phase II stormwater regulations that will be effective early in 2003. Geza Ehrentreu, of Viking Chemical, discussed liquid sodium hypochlorite as an alternative to gas chlorine. The meeting adjourned after a drawing for a donated doorprize.

Southern Illinois Wastewater Operators

One hundred thirty operators and guests attended a meeting of the Southern Illinois Wastewater Operators Group on August 22, 2002, a picnic meeting held at the Rend Lake North Marcum Recreation Area.

Guest speaker was Daniel Higgins, Midwest Regional Manager, RDP Technologies, who discussed various lime addition processes. Lime addition was reviewed for both water and wastewater treatment plants. The batch lime slaking system was introduced and compared to those of continuous paste and detention types. In addition, EnVessel Pasturization for lime stabilization of wastewater treatment plant residuals and incorporation of water treatment plant residuals into the process as a means to improve the end product and facilitate recycling was reviewed.

The presentation was followed by a BBQ rib and chicken dinner catered by "Great Boars of Fire" from Anna, Illinois. A drawing was held for door prizes donated by various vendors.

The next meeting of the Southern Illinois Wastewater Operators will be in March of 2003.

A presentation on lime addition preceded the Southern Illinois Operator group's annual picnic.

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