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NPDES Phase II Permit Regulations

Municipal officials have been busy learning about the new federal regulations regarding the National Pollution Discharge Elimination System (NPDES) Phase II stormwater management permitting for municipal separate storm sewer systems (MS4s) and what is needed to comply with the regulations over the next few years.

The NPDES Phase II regulations are intended to provide a comprehensive stormwater program that designates and controls sources of stormwater discharges to protect water quality and to facilitate and promote watershed planning as a framework for implementing water quality programs wherever possible. In Pennsylvania permit applications, including a notice of intent, were due to PA DEP by March 10, 2003. ARRO assisted a number of municipalities with preparation of the permit applications and will assist with implementation of the permit requirements. Affected municipalities will have a five-year period in which to implement various aspects of the program and demonstrate compliance.

ARRO is currently assisting several clients with the development of a stormwater management program to meet the implementation requirements of the NPDES Phase II permit. The program will simplify the municipalities' tasks in knowing what, when, where, and how the requirements should be implemented over the next five years. The program will address issues associated with public education and participation, illicit discharge detection and associated mapping, stormwater ordinance preparation and revisions, and municipal operation and maintenance plans.

For more information visit the PA DEP website at www.dep.state.pa.us, direct link: "stormwater," contact Cory L. Rathman, P.E. at (717) 560-6079 or via email at cory.rathman@thearrogroup.com.



QB

The Pennsylvania Rural Water Association (PRWA) has a new training staff member. He's QB. QB is the Security Chief and will help PRWA's security committee with community education and outreach.

QB was drawn by Daniel Mylin, Manager for the Borough of Quarryville, Lancaster County, PA. Quarryville Borough has been a client of ARRO's for 47 years. A water circuit rider for PRWA happened to notice the drawing in Dan's office one day and asked for permission to use the likeness that Dan called the "Water Police" and QB was born. For more information on PRWA, visit the PRWA website at www.prwa.com.



NOTABLE QUOTE

Success without honor is an unseasoned dish, it will satisfy your hunger but it won't taste good.

Joe Paterno



ARRO Projects

Contract Operations Awards for ARRO Environmental Services, Inc.

ARRO Environmental Services, Inc. (AES) was recently awarded a contract with the Lewisberry Area Joint Sewer Authority to continue the operation and maintenance of the Authority's 100,000 gallons per day activated sludge wastewater treatment plant. The plant consists of a main influent submersible pump station, flow equalization, extended aeration, final clarification, and effluent disinfection utilizing ultraviolet light technology. AES has been providing service to the Authority since 2000.

The Conewago Township Sewer Authority reappointed AES to provide the contract operations and maintenance services for the Authority's wastewater facilities. The sequencing batch reactor plant consists of two 0.25 MGD units followed by chlorine contact tanks and a cascading outfall, and two aerobic sludge digesters. At the treatment plant, ARRO is responsible for the normal operation and maintenance of the facility, including staffing, operator licensing, sampling, analyses, discharge monitoring report preparation, routine equipment maintenance, general housekeeping, and other miscellaneous tasks. The collection system consists of 87 individual residential grinder pump stations and five major submersible pump stations, all operated and maintained by AES.

For more information about AES, contact Paul F. Ruffini, L.O. at (717) 560-2772 or via email at paul.ruffini@thearrogroup.com.

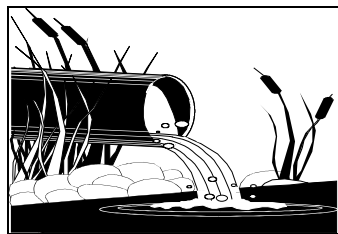
New Appointment

ARRO has been appointed the new wastewater engineer for the Borough of Shippensburg (PA). ARRO will provide basic and general engineering services on an as-needed basis and will also serve as the sewage enforcement officer.



Shippensburg Wastewater Facilities

For more information about ARRO, please contact Darla Benner at (717) 569-7021 or via fax: (717) 560-0577 or e-mail: info@thearrogroup.com



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ARRO provides advice, design, project management, and consulting services for a wide range of infrastructure, including water, wastewater, and transportation services.

Visit our Web Site at
www.thearrogroup.com

Why the Buzz on Biological Nutrient Removal?

Do you operate a wastewater treatment plant or own a small business? Are you interested in saving money? If so, this article is for you.

What's So Bad About Nutrients?

Everything in moderation- the phrase has been applied to countless indulgences, reminding us that it is indeed possible to get too much of a good thing. In fact, the concept is not limited to human activity. It extends to the ecosystem around us, as the balance between nutrients and organisms must be carefully maintained.

Nitrogen and phosphorus are nutrients required, at some level, for virtually all forms of life. Without these crucial elements, aquatic life cannot be sustained. At the same time, excessive nutrient loadings result in eutrophication, the enrichment of waters by a previously scarce nutrient. During eutrophication, algae and bacteria grow unchecked. Algae blooms cloud the water and block sunlight, killing underwater grasses that provide food and shelter for certain aquatic creatures. The subsequent decomposition of algae depletes the water of oxygen, thereby reducing or eliminating populations of aquatic species. Due to the adverse effects of eutrophication, the US EPA is encouraging increasingly strict nitrogen and phosphorus limits on wastewater treatment plant (WWTP) discharges.

What Could This Mean for My WWTP?

The quality of receiving waters has always been the driving force behind WWTP discharge requirements. One treatment process that is often required for WWTP's to meet their discharge limits is nitrification, the conversion of ammonia (NH₃) to nitrate (NO₃) by microorganisms through a process that consumes dissolved oxygen. Although nitrification eliminates the oxygen demand that the ammonia would have imposed on the receiving water, the nitrate-nitrogen produced is still present in the WWTP effluent, and therefore will contribute to potential nutrient overloading and subsequent eutrophication. Therefore, in order to meet a total nitrogen (TN) limit, an additional aspect of biological treatment is required in order to totally remove nitrogen from the effluent. This biological treatment typically must include some form of anoxic treatment, that is, an un-aerated reaction between microorganisms and nitrate-containing wastewater. By either adapting the operation of an existing biological treatment process, or by adding an additional phase of biological treatment, most WWTPs with secondary treatment can be converted to provide treatment for the removal of nitrate.

The removal of phosphorus, which is the other nutrient of primary concern, can be achieved via biological processes or by chemical precipitation. Both of these options result in the phosphorus being removed with the sludge that is normally removed from the process each day.

What Are My Options for Nutrient Removal?

As a result of the growing demand for nutrient removal at WWTPs, an almost dizzying number of biological nutrient removal processes have been developed. In order to identify the best and most cost effective alternative for their facility, many WWTP owners are performing biological nutrient removal (BNR) studies. BNR studies can be tailored in focus and extensiveness to meet the needs of an individual WWTP owner. However extensive it may need to be, a BNR study may be just what you need if and when you are informed that your WWTP is providing the ecosystem with "too much of a good thing."

For more information on BNR, please contact Jacob L. Rainwater via telephone at (717) 560-6058 or via email at jacob.rainwater@thearrogroup.com.

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ARRO Consulting, Inc. provides advice, design, project management, and consulting services for a wide range of infrastructure including water, wastewater, and transportation systems.

ADDRESS CORRECTION REQUESTED



ARRO's Hagerstown Office has a New Home



Front Row: Lucinda Rini-Stevens, Jean Rohrer, Joe Moss, Richard Parks. Back Row: Rod Winebrenner, J.R. Hawkins, and Alice Martin.

ARRO recently relocated its Hagerstown office to the newly constructed Hub Plaza, 1101 Opal Court, Third Floor, Hagerstown, MD 21740. Situated along the busy corridor of Eastern Boulevard and easily accessed from I-70 and I-81, this new state-of-the-art facility is

consistent with ARRO's commitment to raise the standard of performance in all phases of its business in order to provide its clients with quality, cost-effective service.

Swatara State Park Improvements

The Pennsylvania Department of Conservation and Natural Resources (DCNR) recently approved a recreational master plan for the 3,516-acre Swatara State Park located in Lebanon and Schuylkill Counties. The master plan recommends the development of parking areas, picnic groves, multi-user trails with regional trail connections, campsites and cabins, a swimming pool, a visitor center and office, canoe launches, comfort

stations, wetland and avian boardwalks, an amphitheatre, meadow management areas, and reforestation areas. Future improvements would include environmental education and recreation facilities.

ARRO was the prime consultant for the park project. For more information on Swatara State Park visit the DCNR website at www.dcnr.state.pa.us/stateparks/parks/swatara.asp.

