Water Reuse

Water Reuse Workgroup Kickoff Meeting
Long Island Nitrogen Action Plan
Date and Time: Thursday, November 9th 2017, 11:00 am
Location: Suffolk County Water Authority Education Center
• Long Island Nitrogen Action Plan (LINAP)
  • Provide assessment of conditions based on existing ground- and surface water data
  • Determine nitrogen load targets as well as alternatives and strategies to meet those goals

**LINAP Scope, Section 6.17** - water reuse practices for additional nitrogen removal
Purpose of Workgroup

• Discuss potential opportunities and challenges for water reuse on Long Island, as it relates to additional nitrogen removal
Water Reuse

• Why reuse?

• **Environmental Protection**
  • *Manage nutrients in treated effluent*
  • Maintain environmental flows

• Water Scarcity/Water Conservation

• Energy Efficiency and Sustainability

(photo source: www.cityofnorthport.com/government/city-services/utilities-3076)
Current Framework for Reuse in NY

• New York State – Water Quality Standards
  • Nutrients regulated by narrative water quality standard
    • Nitrogen Standard: “none in amounts that result in the growths of algae, weeds and slimes that will impair the waters for their best usages”

• SPDES Program
  • DEC regulates reclaimed wastewater from WWTPs through State Pollutant Discharge Elimination System (SPDES) permits on a case-by-case basis
    • SPDES permits must meet all applicable water quality standards and effluent limitations
Potential Sources of Water for Reuse

• Reclaimed water derived from treated sanitary effluent

• Greywater
Jurisdiction

- Reclaimed water derived from treated sanitary effluent
  - DEC administers SPDES permits, but has authorized Nassau and Suffolk County Health Departments to administer the permits for discharges to groundwaters from PCIs and some industrial facilities
    - DOH in an advisory role to the DEC for treatment and water quality criteria as they apply to reuse under SPDES permits

- Greywater
  - Jurisdiction over in-building and small household wastewater design resides with:
    - Department of State for building and plumbing codes;
    - Department of Health for onsite waste treatment and disposal standards

*Generally, oversight is delegated to local agencies*
Urban Reuse

- Irrigation of:
  - Golf Courses
  - Residential Fields and Landscaping
  - School Yards
  - Large office parks
  - Cemeteries
  - Highway Medians
  - Athletic Fields
  - Parks

- Ornamental Fountains
- Fire Protection
- HVAC Processes

- Toilet Flushing
- Car Washes
- Commercial Laundries
- Street Sweeping
- Construction and Dust Control

Gillette Stadium in Massachusetts reuses water for toilet flushing
(photo source: www.gillettestadium.com)
Industrial Reuse

• Cooling Towers
• Boiler Feed Water
• Cleaning
• Process Water
  • Electronics
  • Prepared Food Manufacturing/Processing
  • Pulp and Paper Facilities
  • Textile Facilities
• Power Generation

• Flushing toilets and site irrigation

Xcel Energy’s Cherokee Station in Denver, Colorado where reclaimed water feeds the plant’s cooling towers
(photo source: Xcel Energy)
Agricultural Reuse

• Irrigation of Food Crops
• Irrigation of Processed Food Crops
• Irrigation of Non-Food Crops
  • Seed Crops
  • Industrial Crops
  • Fodder Crops
  • Sod Farms
  • Plant Nurseries
• Pasture Land Irrigation
• Livestock Watering

Environmental Reuse

• Wetlands
  • Habitat Restoration
• Supplement Stream and River Flows
• Increase Lake Levels
  • Infiltration Basins
  • Injection Wells
• Saltwater Intrusion Barrier

E.L. Huie Constructed Wetlands in Clayton County, Georgia
(photo source: Aerial Innovations of Georgia, Inc., found in EPA 2012 Guidelines for Water Reuse)
Recreational Reuse

- Recreational Impoundments
  - Contact - beaches, swimming areas
  - Non-Contact – boating, fishing
- Landscape Impoundments
- Snowmaking
- Manufacturing Ice for Ice Rinks

Other

- Indirect Potable Reuse
- Direct Potable Reuse/Drinking Water
- Urine Separation
Greywater

• The New York State Department of State (DOS) regulates greywater reuse within buildings through the state’s plumbing code
  • Enforced by local building inspectors
References


• [www.dec.ny.gov](http://www.dec.ny.gov)


• 2015 International Residential Code (2nd Printing as adopted by New York State)

• 2015 International Plumbing Code (3rd Printing as adopted by New York State)
Summary of Reuse Opportunities

• Reclaimed water derived from treated sanitary effluent
  • Urban
  • Industrial
  • Agricultural
  • Environmental
  • Recreational

• Greywater

• Urine Separation

• Indirect Potable Reuse

• Direct Potable Reuse