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# Westchester County Airport Meets Tough International Standards

Protecting one of the world's most important watersheds is a formidable task for a county airport close to New York City's drinking-water supply.

By Judy I. Shane

Ten years ago, Westchester County was one of more than 80 governmental agencies and environmental groups to sign a historic memorandum of agreement to protect New York City's drinking-water supply for 9 million New Yorkers without compromising the economic vitality of the watershed communities.

A decade later, Westchester County's commitment continues to strengthen as demonstrated by its many environmental protection programs—and the fact that the Westchester County Airport is only the third in the nation to be certified by the ISO 14001 Standard. The scope of the airport's ISO-certified Airport Environmental Management System (AEMS) includes all activities at the Westchester County Airport, which is a 703-acre facility owned by Westchester County providing corporate aviation, light general aviation, and commercial airline services with related aviation support facilities.



The Hudson River runs between two reservoir systems; the Catskill/Delaware watershed is west of the river, and the Croton watershed is east of it.

## Protecting New York's Watershed

According to Michael Parletta, Westchester County Airport's environmental officer, "New York City's drinking-water-supply watershed provides water to the most important city in the world and to many Westchester communities. Because water-quality issues go beyond the political or geographical boundaries of any one municipality or agency, we all must work together to protect water quality throughout the watershed."

The New York City watershed covers an area of over 1,900 square miles in the Catskill Mountains and the Hudson River Valley. The watershed is divided into two reservoir systems: the Catskill/Delaware watershed located west of the Hudson River and the Croton watershed located east of the Hudson River.

The Kensico Reservoir (see sidebar) is located in Westchester County and is the final stop for 90% of New York City's drinking-water supply before it enters the water tunnels that carry it to household faucets.

The two reservoir systems deliver approximately 1.4 billion gallons of water each day to the people in New York City; areas of Orange, Putnam, and Ulster counties; and much of Westchester County. The Westchester County Airport Environmental Department coordinates with the New York City Department of Environmental Protection (DEP), which is charged with protecting the water quality of the Kensico Reservoir along with the rest of the New York City water supply system.

Parletta explains that with about one-third of the northern portion of the airport located within the Kensico watershed, the airport's water-quality protection program is critical. "In addition to developing an AEMS, which incorporates environmental sensitivity into all areas of our procedures and operations, the county spent several years developing a system that would measure the airport's environmental activities and conform to ISO 14001 standards recognized worldwide," he says.

### Addressing Environmental Impacts

Parletta describes the Westchester County Airport's actions to protect the surrounding waterways from stormwater runoff and how the AEMS helps minimize environmental impacts. In addition, he explains Westchester County's rationale and process for achieving ISO 14001 certification and what it means to the AEMS.

He says that the county's AEMS consists of a management structure and processes that allow the Westchester Airport to better identify, analyze, avoid, and reduce the environmental impact of all airport activities. "Our AEMS provides a set of procedures that give us a systematic way to evaluate and manage the immediate and long-term impacts that our operations could have on the environment. All of the people who work or oversee people who work at the airport are involved," he says.

Some of the programs in place that relate to protecting waterways from potentially polluted stormwater runoff include the following:

- Protecting Rye Lake and Blind Brook through sediment and erosion controls and monitoring the quality of stormwater and groundwater
- Finding better ways to capture deicing fluid
- Installing spill protection filters on storm drains
- Ensuring the proper disposal of wastes
- Improving the airport recycling program
- Protecting the important wetlands in the vicinity of the airport

### Capturing Deicing Fluid

In regard to environmental concerns related to capturing deicing fluid, Parletta says it was an especially important issue. "In New York, with an ice and snow season stretching from October through April, we must practice deicing procedures to ensure safety. Although we can't compromise safety, we must avoid the possible environmental consequences that can result from deicing fluid's potential impacts to surface waters. Our goal is to address both issues effectively."

The Federal Aviation Administration doesn't mandate specific deicing processes, but it does prohibit any aircraft from taking off with even a small amount of ice, frost, or snow adhering to its external surfaces. In general, there are two types of aircraft deicing fluids—one is based on propylene glycol and the other on ethylene glycol, the latter being more toxic.

Parletta notes that the biggest issue with deicing is elevated carbonaceous biochemical oxygen demand concentrations in stormwater. "We use the less toxic propylene glycol deicing fluid, and we test the runoff near the ramp and gates where we deice. After testing, we discharge small amounts to a sanitary sewer under strict permitted limits or we haul it away to be treated. In the event that some deicing fluid ends up in our stormwater runoff, we have designed engineering controls such as detention basins and stormwater control valves in place as a first line of defense." (For more information on deicing, see "[Deicing by Design](#)" by David Richardson in the October 2006 issue of *Stormwater*.)



Westchester County Airport's Parletta removes an AbTech Ultra-Urban Filter for inspection.

## Storm Drain Filters

To protect waterways surrounding the airport from polluted runoff caused by chemicals such as fuel spills, Parletta says, the county had installed catch basin inserts in the critical storm drains as a part of its AEMS activities.

“In 2002, we started a pilot program with 18 Ultra-Urban Filters, produced by AbTech Industries. The filtration material, called the Smart Sponge, comprises a blend of polymers that looks like popcorn and effectively absorbs contaminants from water.”

Smart Sponge technology has a molecular structure based on polymer technologies that are chemically selective to hydrocarbons. Polymers are composed of molecules that chemically react to form large molecules. The non-leaching Smart Sponge permanently bonds with oil, gasoline, and grease, transforming these liquid petroleum hydrocarbons into a manageable solid waste that forms a gel-like structure. The filtration material is recyclable and provides a complete, closed-loop solution for removing pollutants from water. The filter comes in two standard designs, one a modular unit geared toward curb inlet openings and the other a single unit designed for typical drop-in catch basin drains.



Photo: Michael Parletta

These two outfalls drain to the Blind Brook.

Parletta says, “As a result of our successful pilot program where we monitored the effectiveness of the filters, today we have 54 Ultra-Urban Filters in place. We’ve targeted critical storm drains—curbside, roadside, along taxiway areas, and on the open tarmac. When spills occur within these areas, we use the filters as a first line of defense. Each filter can handle 5- to 8-gallon spills, which suits our needs because most spills at this facility are fewer than 5 gallons. We know that despite our aggressive spill prevention and response program, if we don’t get to a spill before it reaches the storm drain, the filters can handle them.”



Smart Sponge filtration media before exposure to contaminants (right) and after (left)

According to Parletta, with the extreme weather events in New York and with the possibility for spills, it’s essential that the county’s catch basin inserts are easy to install and maintain. “For the filters to do their job, we have to perform regular maintenance. During the pilot program, we found Ultra-Urban Filters easy to maintain.”

### Recycling and Waste Disposal

Parletta says that the filters were also easy to replace and easy to monitor. “We can physically see the filters and can determine the capacity that remains by lifting them out, cleaning out the sediment, and weighing them. The inspection program is important for maintaining the filter’s effectiveness. After a spill, we immediately replace the filter. If it’s reached its saturation point, we remove it and just pop a new one back in. After we remove saturated filters, we sample them to ensure they have no hazardous materials, and then we use a company to haul them away for recycling or to a landfill.”

He notes that if there were no spills, the filters would be good for about two years. “They are perfect for capturing hydrocarbons, oil, and grease in stormwater runoff.”

Glenn Rink, AbTech Industries’ president and chief executive officer, says the EPA has included the company’s Ultra-Urban Filter series with Smart Sponge technology as a best management practice (BMP) under the federal guidelines for local governments. “The majority of our current customers are municipalities using AbTech’s stormwater catch basin inserts,” he notes. “However, because the Smart Sponge is nonhazardous and malleable, it can be used in a wide variety of applications. For example, the Smart Sponge is used as a filtration medium in outfall pipes and vaults to treat stormwater polluted with oil, grease, sediment, debris, and bacteria.” Rink says the Westchester County Airport was the first of many airports and fueling facilities to use Smart Sponge technology.

### Restoring Natural Resources

Part of the Westchester County Airport's Environmental Policy Statement includes a commitment to the "conservation of natural resources, sustainable operations and prevention of pollution." Protecting and restoring wetlands to aid in natural filtration of stormwater runoff, assisting in erosion control, and monitoring water quality is a strong mission countywide and extends to the airport's important wetlands.

The Westchester County Department of Planning and the Soil and Water Conservation District designed their first natural resources and water-quality restoration projects in 1998, focusing on restoring streams and wetlands. Since that time, many projects have been completed, including streambank stabilization, freshwater and tidal wetland restoration, coastal dune creation, native meadow restoration, and pond restoration. Additional projects are focused on improving water quality by filtering polluted stormwater runoff from impervious surfaces such as parking areas and roadways.

In most cases, bioengineering techniques are used to restore natural resources. These include using biodegradable soil stabilization fabrics made of natural fibers, which protect banks, slopes, and other areas from erosive waves and currents. For long-term soil stabilization and to improve water quality and fish and wildlife habitats, bioengineering techniques rely on the use of native plants.

### Water Monitoring

From April to October, more than 250 volunteers throughout Westchester County extract water samples through the Westchester County Citizens' Volunteer Monitoring Program (CVMP). The program's mission is to create an important historical baseline of water-quality information and to connect communities with their water resources through education and hands-on involvement.



Kneeling by a stream course that drains into Rye Lake from the airport, Parletta inspects a turbidity curtain that helps reduce sediment load in areas that might be disturbed upstream.

The program begins each spring with training sessions, where volunteers learn the details on collecting physical, chemical, and biological data that are needed to assess water quality in streams throughout the county. The data the volunteers accumulate, over time, will allow the county to track trends and changes in the quality of the water and health of the streams. The Westchester County Planning Department, which organized, trained, and supported the CVMP volunteers, has received some valuable monitoring results from many of the local streams as a result of the program.

Although many of the county's aquatic resources are used for recreation, for wildlife habitats, and for commercial transportation, they also help provide drinking water for Westchester County and New York City. The results of the water monitoring will also provide a basic understanding of local water quality, which will be used to protect and assess the impacts of human activity on them.

At the airport, surface-water-quality monitoring is conducted monthly by the Environmental Department staff under a New York State permit, and those sampling results are submitted to the New York State Department of Environmental Conservation. Airport groundwater monitoring is conducted semiannually by a contractor collecting samples from about 50 monitoring wells, and these reports are also submitted to the state. The groundwater monitoring program is not required by law but was undertaken voluntarily by the airport as part of its environmental management system.

### ISO 14001 Certification

To ensure the success of its AEMS, the airport worked hard for its ISO 14001 certification, achieving it in 2004. The ISO 14001 Environmental Management Standard is an internationally recognized standard developed under the auspices of the International Organization for Standardization in Geneva, Switzerland. It's based on the Deming "Plan-Do-Check-Act" model for the continual improvement of an organization, which includes defining goals, conducting strategic planning activities, implementing an environmental policy, training staff, and monitoring performance. It also focuses on methods for measuring and improving progress.

The ISO 14001 standard is recognized by government organizations, including the EPA, as well as corporate and environmental organizations worldwide, as an effective method to improve an organization's environmental performance.

Parletta explains that becoming certified by the ISO 14001 international standard meant developing a system that would measure the environmental activities at the airport of all tenants, contractors, vendors, and eight county departments that have airport responsibilities. The airport achieved certification on its first try; however, creating the environmental management system took several years and involved hundreds of people.

"After we established our environmental management system, we contracted with TÜV America Inc., an authorized independent firm, to audit every element of it," Parletta says. The airport had to demonstrate a commitment to provide adequate resources for the implementation, maintenance, and continual improvement of AEMS.

### Environmental Policy System

The airport's Environmental Policy System involves the following:

- Environmental policy
- Definition of roles and responsibilities
- Identification and prioritization of environmental impacts
- Establishment of measurable objectives and targets and programs to achieve them
- Establishment and verification of operational controls
- Emergency preparedness and response
- Monitoring and measuring activities and progress
- Continual improvement in environmental performance

Parletta says that TÜV America will continue to carry out annual surveillance audits as a part of the process. "The county is committed to achieving excellence in protecting the environment at the airport. With our ISO 14001 system in place, we are committed to integrating environmental values into all airport activities as well as to improving our environmental practices and to providing environmental education of employees. We feel we have all of Westchester County behind us in this endeavor. One of the county's highest priorities is to protect the environment. Our success results from the commitment of all employees and support from the community," Parletta says.



Aerial shot of Westchester County Airport showing Rye Lake in the background



Photo: Michael Parletta

The Westchester County Airport provides corporate aviation, light general aviation, and commercial airline services with related aviation support facilities.