

CASE STUDY ⁴ NEW JERSEY AMERICAN WATER



PURAFIL ESD RETROFITS EMERGENCY SCRUBBER ⁴ JUMPING BROOK WATER TREATMENT PLANT



ABOUT THE PLANT

For more than a century, the American Water Works & Guarantee Company, which is headquartered in Voorhees, NJ, is the largest investor-owned water and wastewater utility company in the U.S. With more than 700 water treatment plants and 1,000 wells, 99 dams and 45 wastewater treatment facilities among other assets, American Water is undoubtedly intertwined within North America's vast water system. New Jersey American Water is a subsidiary of the parent company, and it serves more than two million customers.

THE PROBLEM

As a part of its continued quality efforts, New Jersey American Water sought to replace its nearly 10-year-old wet, caustic scrubber with a dry scrubber located within its Jumping Brook Water Treatment Plant (WTP) At its maximum capacity, the plant uses chlorine to treat 30 mgd of water.

Wet scrubber systems use a liquid caustic solution to remove chlorine gas (Cl_2) in the event of an accidental release. The liquid caustic material in the wet scrubber system is usually comprised of NaOH and is highly hazardous. Wet scrubbers are maintenance-intensive and require yearly repairs to replace pumps, nozzles and valves. The hazardous liquid caustic is extremely corrosive and can deteriorate pumps and fiberglass. In addition, the liquid caustic reacts with CO_2 to form Na_2CO_3 which can clog nozzles and valves. Replacement of the liquid caustic material is normally required at a minimum of every three years to maintain the correct level of potency and effectiveness for successful chlorine removal. Persons performing maintenance to liquid caustic scrubbers are required to have specialty training and to use specialty equipment. The training and equipment can be costly, which increases the overall maintenance expenses of a liquid caustic wet scrubber.

PURAFIL ESD PROVIDES THE SOLUTION

Purafil's Environmental Systems Division (ESD) developed the Retrofit Plan for Liquid Caustic Scrubbers, which serves as a cost-effective alternative to purchasing new equipment to replace existing, problematic, caustic scrubbers. Purafil's Wet Scrubber Retrofit transforms a hazardous and problematic wet scrubber into a hazard-free and maintenance-free dry-chemical scrubber for a fraction of the cost.

Chlorosorb® Ultra media is at the heart of the dry Emergency Gas Scrubber (EGS) as it removes 15 pounds of the gas for every 100 pounds of accidentally released chlorine. Purafil's Wet Scrubber Retrofit provides the necessary, easy-to-

follow steps to remove the caustic solution, convert the scrubber's key internal elements and add Purafil's improved, dry-scrubbing, Chlorosorb® Ultra media. As a result of the transformation, the retrofit dry-chemical scrubber is hassle-free, hazard-free and maintenance-free.

Purafil ESD professionals accessed Jumping Brook WTP's room that housed the wet scrubber and decided it was too confined to accommodate a one-ton aluminum EGS or an AOC1. As an alternative, they agreed to retrofit the existing unit. Purafil ESD also replaced the blower in the unit to achieve a higher airflow. The overall process was complete in approximately two weeks. The Purafil ESD retrofitted dry-chemical EGS is connected to the plant's chlorine rooms by ducts. In the event of an accidental chlorine release, the EGS will discharge less than 25 ppb, whereas the previous wet scrubber would have discharged 1-4 ppm.

CUSTOMER SATISFACTION

Brian Weir, New Jersey American Water Company Operations Supervisor, explained how the plant documented its temporary and permanent changes to the facility, safety procedures and drawings as well as held personnel training on the new benefits of the EGS. It was also necessary to notify the State of New Jersey Department of Environmental Protection of the facility's changes and the retrofitted unit. Once the retrofit was complete, the immediate savings on maintenance, disposal and labor totaled more than \$25,000. Weir admits, "I really appreciate the reduction in maintenance and the ease of the conversion."

ABOUT PURAFIL ESD

Purafil ESD is the premier single-source provider of clean air throughout North America and Europe. A division of Purafil, Inc., Purafil ESD manufactures a broad range of dry-chemical media and scrubbers that remove odors, prevent toxic gas releases, and prevent corrosion of electronics.

© Purafil 2008 CsStdy--NJ Am Wtr-01

