PATENT PENDING

Mueller, Myers invention patent pending

Paul Mueller and Tony Myers combined two existing water treatment processes to make a space-saving, costeffective water treatment process that currently has a patent pending.

The technology pairs a vacuum-driven hollow fiber ultrafiltration process, which provides state-of-the-art removal of disease-causing microorganisms, with a suspension of small ion-exchange resin beads that absorb dissolved organic compounds.

Although both ultrafiltration and ion exchange are commonly used in drinking water treatment, what differentiates the Mueller/Myers invention is combining the two processes in a single compact treatment tank. The ion exchange resin is magnetic, which allows it to quickly settle out once removed from the main process tank. The aeration system typically used to agitate the ultrafiltration fibers and keep them from plugging with solids

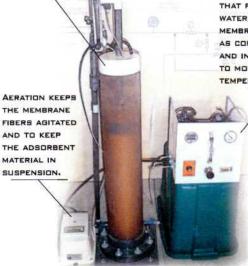
was redesigned to keep the magnetic resin beads in suspension in the process tank.

The combined process takes up less space than other treatment alternatives

WATER IS PUMPED INTO THE CHAMBER, WHICH CONTAINS THE WATER BEING TREATED, THE HOLLOW FIBER MEMBRANES AND THE ADSORBENT MATERIAL.

where both microorganism removal and organics control are required, and may help municipalities and private treatment facilities reduce the cost of upgrading or expanding their water treatment facilities.

THE CONTROL UNIT
CONTAINS THE PUMP
THAT PULLS TREATED
WATER THROUGH THE
MEMBRANES, AS WELL
AS CONTROL VALVES
AND INSTRUMENTATION
TO MONITOR PRESSURE,
TEMPERATURE AND FLOW.



Mueller built this prototype water treatment system in his Corvallis, Ore., garage.

Infrastructure & Environment Intellectual Property Office

Dan Arvizu, chief technology officer for the Energy, Environment & Systems Business Group, has also been tapped to be the I&E corporate executive for the IP Office.

His background includes 25 years at Sandia National Laboratories, where he directed their corporate IP program servicing more than \$1.5 billion of annual budget.

Arvizu's IP role includes:

- identifying cross-business group opportunities for the firm's patents
- seeking out strategic partnerships, licensing and IP acquisitions
- analyzing market trends and emerging technologies
- providing centrally managed IP processes, tools and methods

Arvizu assumes the executive sponsorship role previously held by Mike Kennedy. He will work closely with Michelle Girts, who is director of the IP Office, Alan Wilson, senior advisor for the IP program, and Rob Hoge, Legal Department.

Chronology of events

Concept conceived by Tony Myers in June 2000, which led to a discussion with Water Business Group technologists during a technology meeting in Denver.

The adsorbent material manufacturer was contacted; a nondisclosure agreement was signed.

A cursory industry search was conducted.

Mueller in July 2000 built a test pilot system in his garage that included an auxiliary aeration mixing device. A mathematical model was developed, showing how the proposed process is unique. WBG provided funding for demonstration testing of the prototype through the CH2M HILL Applied Sciences Laboratory in Corvallis. Additional industry research conducted.

In August 2000 Myers and Mueller submitted their application to the CH2M HILL Intellectual Properties office. An internal review panel approved the technology for a patent application.

Legal Department conducted a patent search.

Mueller and Myers worked with a patent attorney to write a thorough description of the device.

A provisional patent filing was made to the U.S. Patent and Trademark Office. At this point, the technology received a patent-pending designation. (During a one-year period following a provisional filing, modifications can be made and the product can be marketed.)

A formal filing was submitted, which can take a year or more to receive the patent.