Paul Mueller and Tony Myers combined two existing water treatment processes to make a space-saving, cost-effective 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.

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.

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 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.