Union, KY (June 28, 2013) – Today Okeanos Technologies announced its newest Sponsored Agreement, a Sponsored Development Agreement (SDA) with the University of Cincinnati Research Institute (UCRI) on the campus of the University of Cincinnati, Cincinnati, OH. Under this agreement, Okeanos staff will be developing WaterChip™ prototypes with the assistance of the UCRI at the university’s facilities to allow a new process for the desalination of brackish water.

“The availability and accessibility of potable water is a multi-pronged world-wide crisis that kills millions of people each year and affects entire countries politically, economically and environmentally,” said Tony Frudakis, CEO of Okeanos Technologies. “Through extensive research we’ve found a way to curb this rapidly growing epidemic by employing a brand new desalination technology capable of world-record efficiency and off-grid implementation.”

Up until now, desalination technologies have been limited by macro-scale dimensionality – where the work of desalination takes place in volumes we are accustomed to dealing with in our everyday lives (e.g. liters at a time). Desalinating in this scale imposes severe thermodynamic limitations resulting in low cost-efficiencies. Okeanos believes that dramatic enhancements in efficiency require a shift in focus to the micro and nanoscale, where newly characterized, ultra-efficient physical processes are possible.

Taking advantage of recent advances in microdevice fabrication, and under a separate Sponsored Research Agreement (SRA) with the University of Texas, the Company has previously developed a bench-scale version of a novel microdesalination element design.
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capable of world-record desalination efficiency. It is believed that the design is capable of dramatic efficiency because the microelectrochemical process employed is limited by the flow of electrons in solid-state, rather than the flow of salt ions in solution. Properly up-scaled, this efficiency is expected to help the Company leverage operational, maintenance and capital savings to forge new desalination markets and invert cost-efficiencies that have limited the adoption of desalination to date.

The work subject of the present SDA with UCRI is aimed at up-scaling these new elements to create a prototype platform capable of commercial scale water flows. Resulting WaterChip™ prototypes developed at UCRI will incorporate a dense array of massively paralleled microdesalination “elements” working in tandem to produce liter per minute volumes of fresh water from seawater. During the next stages of development, Okeanos will stack, or further parallel, WaterChips to create modules reminiscent of modern-day reverse osmosis vessels, but capable of about an order of magnitude improvement in specific desalination operating efficiency (Watt-Hour per Liter).

UCRI will be providing tenured staff and world-class microdevice engineering and microfluidics expertise to guide Okeanos’ PhD level engineers in the prototyping process. Under a separate arrangement, mathematical and computational expertise under the guidance of one of the world’s foremost electrochemists from the University of Texas will form a crucial theoretical foundation for this nine month process. Upon finalizing an optimized design, Okeanos will then invest in the equipment infrastructure to mass produce the prototypes and modules at its new Union, Kentucky facility.

With only 2.53% of the Earth’s water naturally fresh and world populations growing exponentially, humans are rapidly depleting the natural supply of drinkable water. According to Casey Research, the U.S. alone used approximately 328 billion gallons of water per day in 2005 and since then the number has only increased. Furthermore, 40-percent of the global population has little to no access to clean water. If this reliance on and depletion of naturally fresh water continues on this same trajectory, researchers project this figure will reach 50-percent by the year 2025.

“At Cincinnati, we are at the forefront of highly-manufacturable electrofluidics, and have previously applied that to applications such as consumer electronics and medical devices” says Jason Heikenfeld, a participating faculty member of UCRI. “we are excited to find that our rapid prototyping capability and deep understanding of device design can now be targeted toward the global grand challenge of creating economical and environmentally sound sources for fresh...
water."

About the University of Cincinnati Research Institute

The University of Cincinnati Research Institute (UCRI) is located on the University of Cincinnati campus and serves to connect UC experts to industry partners, facilitate commercialization of research and enhance cooperative and experiential learning experiences for UC students. UCRI, designated an independent nonprofit 501(c)3, prides itself as a place where partners bring ideas and university experts help drive them forward.

About Okeanos Technologies

Okeanos was formed in 2010 to develop and commercialize a next-generation, ultra-efficient desalination technology. Our solid-state WaterChip™ platform harnesses and redirects the corrosive potential of seawater to separate salts from water with world-record efficiency. Our disruptive/transformative WaterChip™ platform is expected to enable a more distributive water distribution model and simultaneously address a number of profound environmental, economic and human health related problems. For more information about us please visit our website at www.okeanostech.com.