

Charlie Matlack, Jacqueline Linnes



# Here Comes the Sun

Charlie Matlack and Jacqueline Linnes recently won a competition seeking a low-cost progress indicator for monitoring solar disinfection of water in plastic bottles. Rebecca Wilhelm, managing editor of *Water Quality Products (WQP)*, spoke to them about their winning design and what the future holds for their technology.

**Rebecca Wilhelm:** Who is involved in this project? How did it begin?

**Matlack & Linnes:** The project began with an Internet-based design competition for a solar disinfection indicator, and took on its current form when we saw the need and opportunity to bring our design to production rather than leave that hurdle to the sponsoring organization, SODIS.

Together with Tyler Davis, a public policy grad student at the University of Washington, we have now begun the process of developing PotaVida into a product that can be brought to market for use in low resource settings.

**Wilhelm:** Tell me more about the international contest your team recently won.

**Matlack & Linnes:** In early 2010, Fundación SODIS para América Latina, a multinational NGO, under the direction of Eawag, the Swiss Federal Institute of Aquatic Science and Technology, held an international Internet-based design competition.

Fundación SODIS sought a low-cost progress indicator for monitoring the solar disinfection (SODIS) of water in plastic PET bottles. Our design was selected as the winner from more than 70 proposals.

**Wilhelm:** Describe the product you developed and the technology used.

**Matlack & Linnes:** PotaVida is an electronic sunlight dose indicator that continuously monitors received radiation and presents visual indications of whether disinfection is taking place and when the exposure has been sufficient to disinfect the water. The indicator uses a variation on the internals of a solar-powered calculator to provide certainty about the water safety.

**Wilhelm:** Please tell me more about the SODIS method of disinfection.

**Matlack & Linnes:** Solar

disinfection, or SODIS, uses the combination of visible sunlight, ultraviolet light (UV-A) from the sun and heat to destroy pathogens in drinking water. By placing plastic water bottles on rooftops for 6 hours on sunny days, or for two consecutive days when it is cloudy out, the exposure inactivates microbial contaminants in the water. While UV exposure is the dominant factor, generated heat increases the speed of the process so that water can be safe to drink in as little as 2 to 4 hours.

**Wilhelm:** Please tell me about some of the challenges you faced in the development process.

**Matlack & Linnes:** Initially, we dealt with a very short time frame; from learning about the competition to submitting our proof-of-concept, we had only a month and a half. Since winning the competition, we have been developing PotaVida as a product completely on our own time, and so far, without external funding.

**Wilhelm:** Why is this important for the water industry, and why is it important for public health?

**Matlack & Linnes:** More than a billion people in the world lack access to safe water and while SODIS is an incredibly cheap method to disinfect water, users have to guess when the process is completed or consistently follow a very conservative procedure. PotaVida provides certainty about the process that users would not otherwise have.

**Wilhelm:** What are your plans for producing the product?

**Matlack & Linnes:** We have won a design competition, but we still have a long way to go before we have a viable product that is cheap enough for those who need it. At this point we are looking for donations and partners to help get us to our next milestone, a

field-testable prototype. More information is available at <http://potavida.org>.

**Wilhelm:** What are your aspirations for the future?

**Matlack:** I would like to continue developing PotaVida into a provider of a variety of water disinfection products, including disaster relief and point source treatment products. After I finish my Ph.D., I'd like to start more organizations which bring low-cost engineering solutions to bear on global resource problems.

**Linnes:** I am excited to continue working on the development of our SODIS indicator and have just begun a new post-doctoral fellowship designing UV light fixtures to prevent tuberculosis transmission in developing countries. I am looking forward to a career at the interface of global health and engineering in order to develop and implement appropriate health technologies in resource-limited settings.

Charlie Matlack is a co-founder of PotaVida and a Ph.D. student in electrical engineering at the University of Washington in Seattle. Matlack can be reached at [charlie@potavida.org](mailto:charlie@potavida.org) or 206.406.3558.

Jacqueline Linnes has a bioengineering Ph.D. from the University of Washington and is currently a Fogarty fellow in the Division of Global Health Equity at the Brigham and Women's Hospital and Harvard Medical School. Linnes can be reached at [jackie@potavida.org](mailto:jackie@potavida.org) or 206.300.5451.

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## WQA Announces Annual Award Winners

The Water Quality Assn. (WQA) announced its award winners for 2011:

- Hall of Fame: Bill Hall, Sr.;
- Lifetime Membership: Peter Cartwright;
- Key Award: Richard Mest;
- Ray Cross Award: Doug White;
- Regents Award: Mark Felton and Doug Oberhamer; and
- International Award of Merit: Scott McDonald.

## Foundation to Install Filtration Systems in South Africa



WISHING WELL  
International Foundation

Wishing Well International Foundation (WWIF) will supply water filtering systems and coolers to

the township of Wallacedeme in Cape Town, South Africa. H<sub>2</sub>O Intl. Inc. will donate the equipment, which will be installed by WWIF during an event to educate residents on safe drinking water.

## Pacific Ozone Expands International Markets



Pacific Ozone and the U.S. Commercial Service completed a Trade Mission to expand exports of U.S.-developed and manufactured ozone technologies. The operation provided market intelligence, business-matching services and export credit insurance for Pacific Ozone in Brazil, Argentina, South Africa and Spain.

## Mac Leads Celebrates 20th Anniversary

Mac Leads by Mac Marketing this month will celebrate its 20th anniversary as a full-service leads provider in residential water treatment. To celebrate, they are offering a 20% new customer trial order discount in March.

## Networking News

Watts Water Technologies Inc. elected Merilee Raines to the board of directors.

John Fetzer was appointed general manager of the Hellenbrand Retail Division of the Hellenbrand Water Center.

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