

*Safer water, saving lives:
Making water quality analysis cheaper and easier.*

Ensuring safe water for people and for the planet

Daily intake of clean drinking water is critical for human life, and it is important for communities to provide safe potable water, as well as safe treated wastewater in order to prevent fouling of other community's water sources.

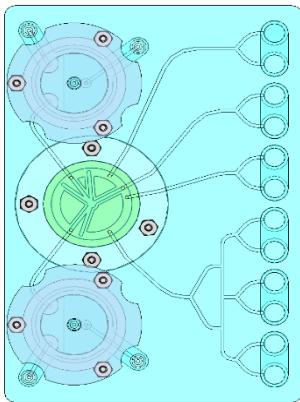
The United States Army shares these concerns because traveler's diarrhea is the leading cause of illness and missed days amongst deployed forces. The Army has developed portable systems to provide safe drinking water supplies for its personnel, and portable wastewater treatment to be able to discharge water back into local sources in an environmentally responsible way. These activities work towards fielding healthier warfighters, and also work to reduce supply lines by eliminating the need for tanker trucks.

In every effort to purify water, there needs to be rapid testing to ensure it has met quality standards for drinking or discharge. Water quality testing is a hands-on task with many steps requiring trained personnel. Developing an automated system to perform water analysis would enable more rapid testing to be done more often and ensure better health of both warfighters and the environment.



Luna Innovations is developing an automated water quality analysis system, capable of multiple simultaneous measurements and designed to be run by non-experts with minimal training. The automated system automatically reads and interprets the various water quality parameters, processes the data, and electronically outputs the information.

Ensuring that water quality testing can be done anywhere by anybody will make for healthier people and a healthier planet.



A schematic of a disposable cartridge for automated water analysis. Fluid flows from two large chambers (purple) are directed by a central rotary valve (green) to be portioned out to 12 smaller chambers on the right side of the cartridge containing reagents necessary for water quality measurements

Automated Water Analysis

Triple mode of measurement

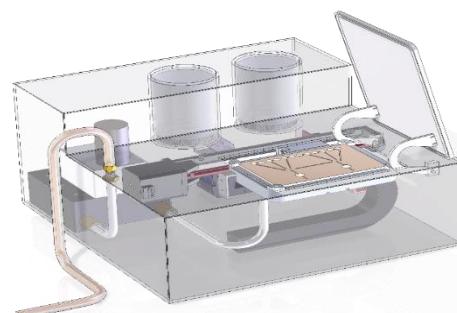
- TOC, BOD and E. coli

Ease of system operation

- Disposable cartridges, push button operation for BOD, E. coli, continuous measurement for TOC

Electronic data output

- Data recorded electronically and output to mobile devices or USB-tethered data collectors



The envisioned automated water analysis system. Cartridges insert into a top panel, and electronics drive the cartridge actuation, process the results, and electronically output data.