Smart & Digital Water Solutions

JORNADA

RETEMA
REVISTA TÉCNICA DE MEDIO AMBIENTI

JORDI RAICH MONTIU S::CAN

#SDWaterSolutions

WHO IS S::CAN?

- 1999 University Spin-Off from Univ. Boku Wien
- Family-originated, Headquarters in Vienna, Austria
- 4 Subsidiaries in USA, Mexico, Spain, France, and Offices in India, China, Italy, and Portugal.
- 45 Sales partners globally
- We unite R&D, manufacturing, sales, and services
- 75 staff globally, 10 in R&D



University of Natural Resources and Life Science ("Boku"), Vienna, Austria

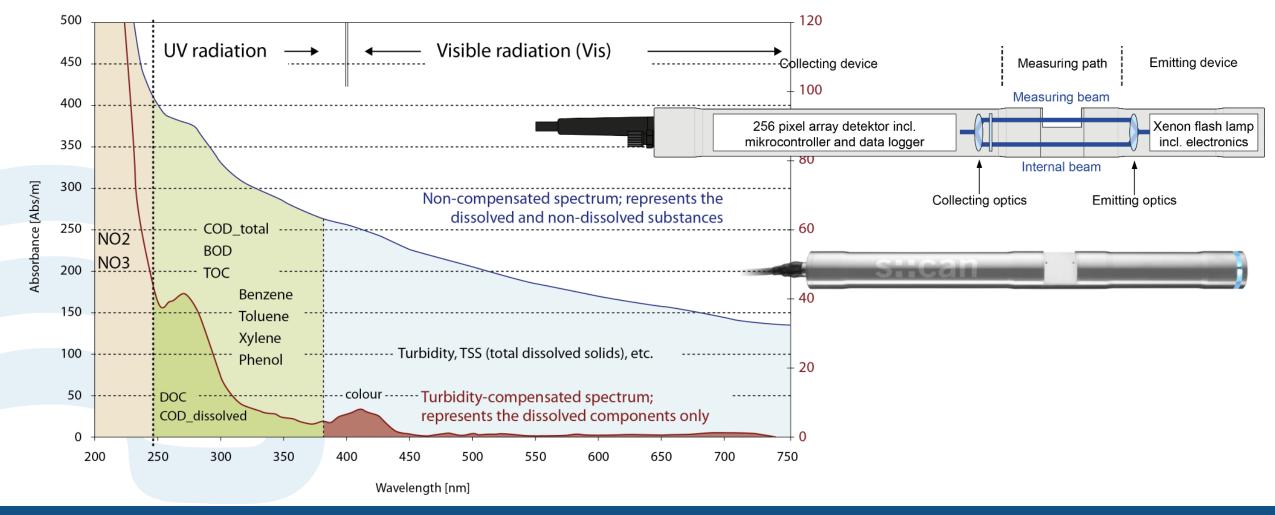








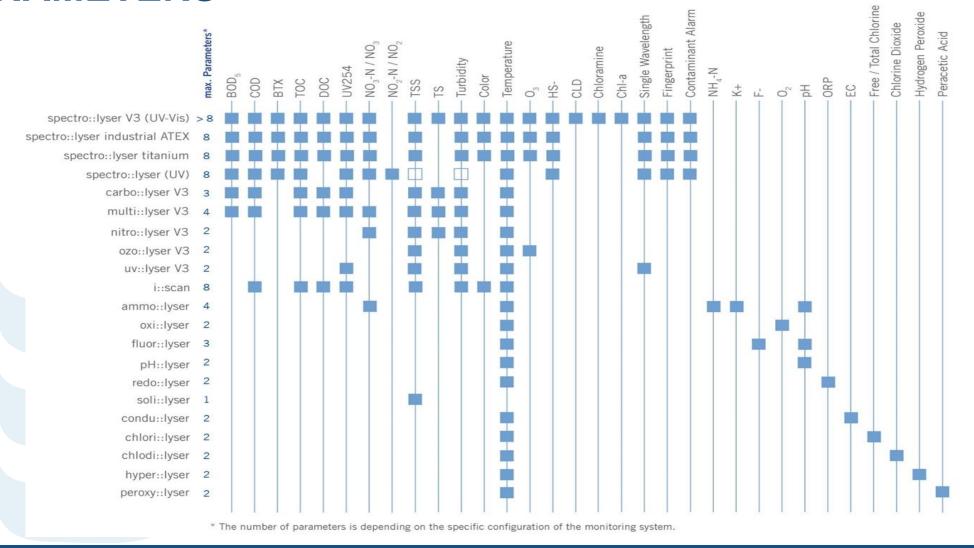
MEASURING PRINCIPLE







PARAMETERS









BADGER METER A GLOBAL ORGANIZATION













We, with our global network of Sales Partners, provide presales and post sales consultations, services and support







CONTINUOUSLY INVESTING IN GROWTH PLATFORMS

Driving Enhancements in Smarter Measurement & Actionable Data The Enhanced Operational Efficiencies

Static Metering

- Smarter meters flow, pressure, temperature, valves
- 2nd generation platform releases started in 2020
- Vertical integration of chip sets in order to control the evolution of smarter devices
- Improved accuracies

Innovation Centers: Lulea, Sweden Milwaukee, WI, USA



Water Quality

- Low maintenance, reagent-less sensors
- Advanced IoT edge computing detects events
- 60+ parameters for water and gas
- 20+ years of leadership in optical spectrometry, 30+ years in electrochemical

Innovation Centers: Vienna, Austria Philadelphia, PA, USA



Cellular & IoT

- 5th generation endpoint released in 2021
- 18-24 month iterative development cycles
- Pioneer in market; first generation debut was 2014
- Millions of cellular endpoints deployed

Innovation Center: Milwaukee, WI, USA



Software & Analytics

- Cloud software for utility operations, sustainability
- Holistic view of water systems
- Real time detection of anomalies and events
- Decision dashboards
- Process automation









WHY W.Q. MONITORING IS IMPORTANT? EPA SOURCE

REASONS TO IMPLEMENT SOURCE WATER MONITORING

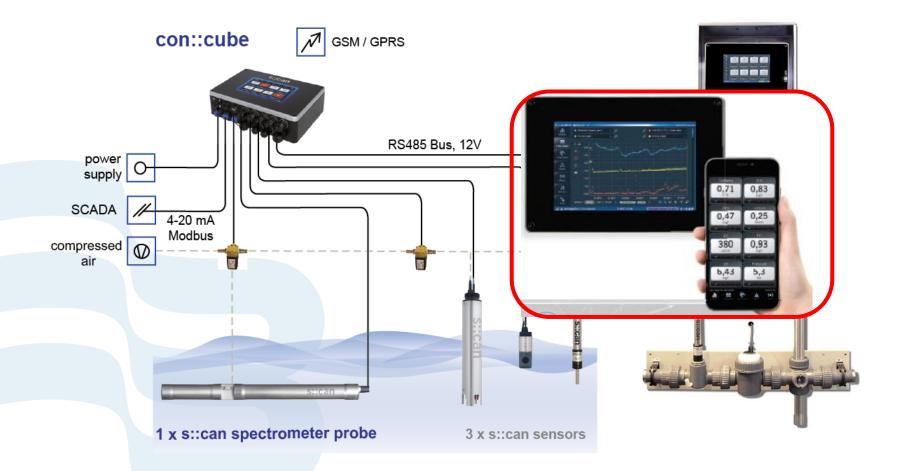
- Provide information to facilitate protection of the public water supply for all intended uses
- Observe long-term trends in source water quality to prepare for future challenges or regulations
- Detect and respond to contamination incidents
- Optimize treatment processes to improve finished water quality and reduce costs
- Develop information that supports regulatory compliance
- Investigate and identify pollution sources and potentially responsible parties







INSTALLATION AND CONNECTIVITY















CASE STUDY: NITRATE CONTAMINATION IN DUBLIN ROAD DWTP – COLUMBUS, OH





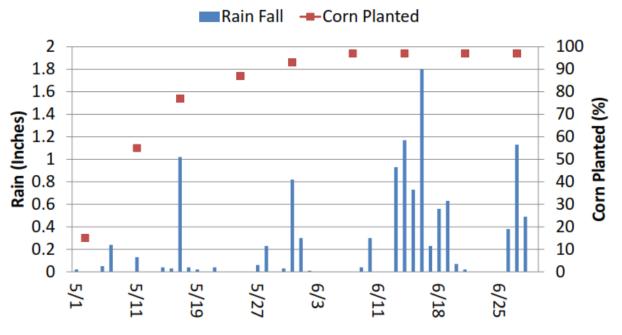






- Nitrogen is applied as a fertilizer to agricultural & residential land;
 bacteria in the soil convert N to NO3
- Highly leachable and moves readily through the soil
- Maximum Contaminate Level = 10mg/L NO3-N

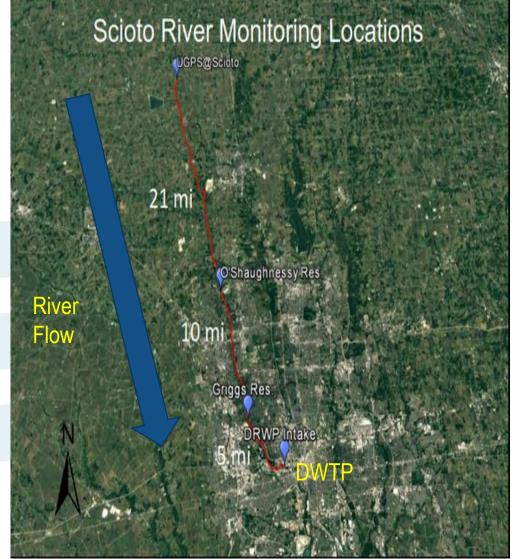
Rainfall vs. Corn Planted

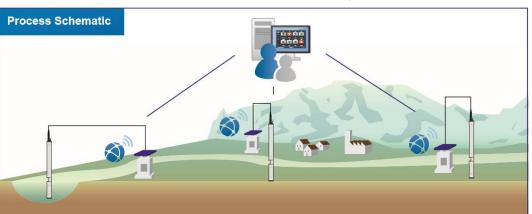










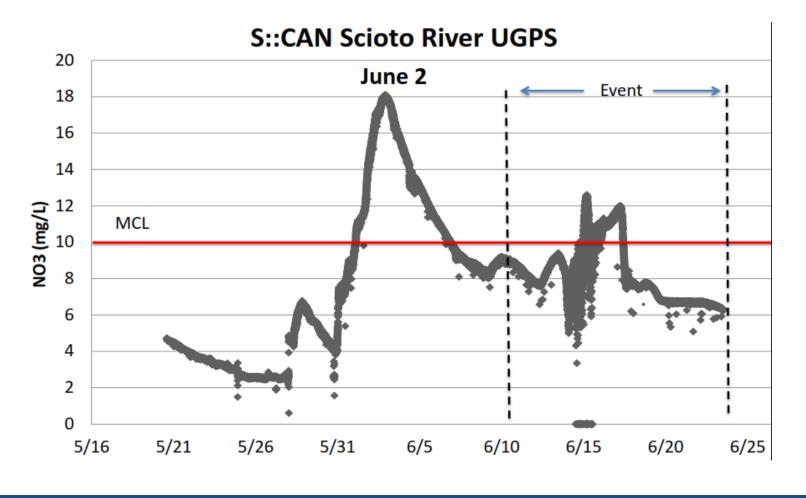


- NO3 is not removed with current treatment at DWTP
- 4 s::can Remote Monitoring Stations deployed along 30 miles of the Scioto River
- Each Station monitoring NO3, TOC, DOC, NTU via a single instrument the spectro::lyser
- Data is transmitted back to DRWP via 3G communication.







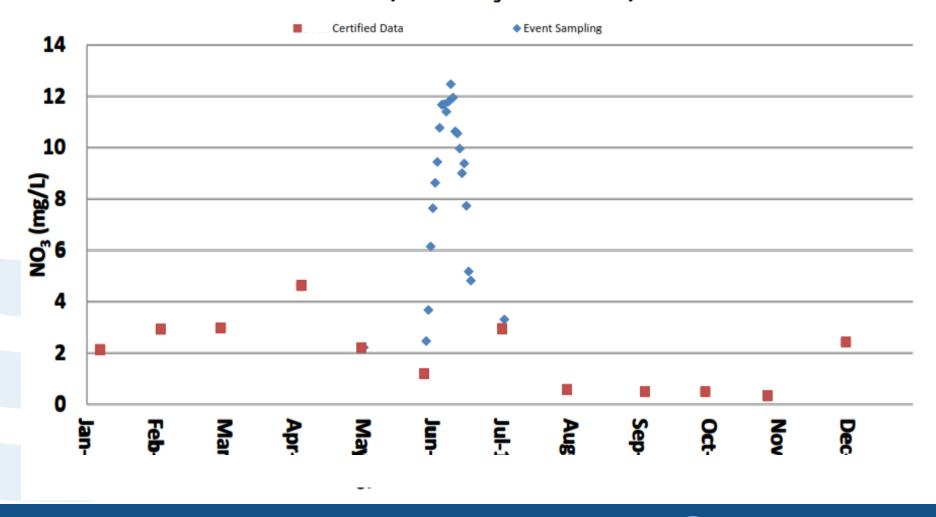








Compliance NO₃ For DRWP Tap











iows Release

June 30, 2016

Web - Facebook - Twitter

NITRATE DRINKING WATER ADVISORY FOR CERTAIN POPULATIONS IN THE COLUMBUS DUBLIN ROAD WATER PLANT SERVICE AREA

The Columbus Division of Water is issuing this nitrate advisory to certain populations receiving water from the Dublin Road Water Plant: do not give tap water to infants below the age of six months or use it to make infant formula, juice or cereal. Women in these areas who are over 30 weeks pregnant should also avoid drinking tap water or any beverages made from tap water. The affected area includes portions of downtown, west and southwest Columbus: Grandview Heights, Grove City, Hilliard, Lincoln Village, Marble Citf, Upper Arington, Urbancrest and Valleyview (see attached map). Water supplied to the rest of the Columbus water distribution system does not contain elevated nitrate levels.

Ohio Environmental Protection Agency regulations require that the public be notified within 24 hours when nitrate levels in a public water supply exceed the maximum contaminant level, which is 10 parts per million (ppm). The nitrate level in tap water tested at the Dublin Road plant registered 10.5 ppm. The Division of Water will continue to monitor the Scioto River surface water supply and will notify the public when the advisory may be lifted. This advisory remains in effect until farther notice.

As required by the Ohio EPA, the city issues the following health effects notification: infants below the age of six months who drink water containing nitrates in excess of the maximum contaminant level could become seriously iff and, if untreated, may die. Symptoms include shortness of breath and "blue baby syndrome."

Residents who live in the designated service area and have an infant below the age of six months are advised to use bottled water to use in baby formula, juice or cereal. Pregnant women in these areas who are over 30 weeks pregnant should also avoid drinking tap water or any beverages made from tap water. Those who have medical conditions or take prescriptions that may involve a nitrate concern should consult their doctor. DO NOT BOIL THE TAP WATER; boilting increases nitrate levels. Healthy adults and older children can consume higher levels of nitrate because they have fully developed digestive systems. Nitrate is commonly consumed by adults and older children; it is contained in many foods such as processed meats and salads.

The cause of the elevated nitrate levels in the Scioto River is believed to be related to last week's major storm and resulting stormwater runoff from rural and urban areas. Treatment plant expansions at the Dublin Road Water Plant have been underway the past few years and include a new treatment facility.



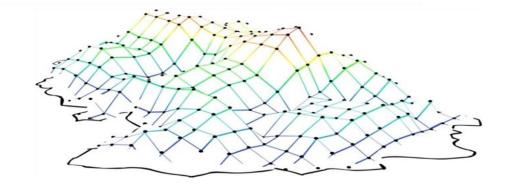


- * Investment for such a solution (NO3, TOC, DOC, NTU) is around 20.000 €
- * OPEX is very low, almost zero
- * Lifetime is more than 10 years





OTHER REFERENCES LARGE MONITORING NETWORKS



Country , City	Application	Stations
Spain , Madrid	WW	96
Spain , Madrid	DW	40
Spain , Valencia	DW	35
Spain , Tarragona	DW	25
Spain , Barcelona	DW	51
England, London	WW	123
Belgium	WW	115
Italy, Milano	DW	30
Beijing, China	DW	40





TAKE HOME MESSAGE

- **Digitalization** journey is a reality and COVID-19 pushed it forward.
- Investments in water quality control can help protecting population, keep your water utility reputation as well as protect your assets.
- Technology is **ready**. It "only" needs to be embraced.









IMUCHAS GRACIAS POR VUESTRA ATENCIÓN!

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