Chelsea Technologies Group

Sensor Applications for the **Environmental Sector**

Algae Monitoring

The **ALGAE-Wader** and **ALGAE-Station** systems enable *in situ* or in-line real-time reporting of Algae within natural water systems. As well as Chlorophyll *a*, these *in situ* fluorometer systems can detect cyanobacterias, such as Phycocyanin and Phycoerythrin, which are often associated with algae groups of a toxic nature. These systems can inform on nutrient loading into water, eutrophication, early warning bloom detection, *in situ* Chlorophyll and algae class studies and monitoring spatial and temporal changes in algae class composition.

Bacterial Monitoring

The **BACTI-Wader** and **BACTI-Station** systems enable *in situ* or in-line real-time reporting of Bacteria within natural water systems. The monitor detects fluorescent proteins that are found within sewage and slurry. The principle behind the measurement is the excitation of Tryptophan-like fluorescence at UV wavelengths, which is highly sensitive and has been shown to correlate with bacterial contamination. These systems can inform river pollution surveillance and investigative monitoring, bathing water quality monitoring, point source pollution surveys, farm run-off detection and tracking, assessment of bathing & shellfish waters, groundwater quality monitoring, combined sewage overflow detection and faecal indicator monitoring.

CDOM Monitoring

The **CDOM-Wader** and **CDOM-Station** systems enables *in situ* or in-line real-time reporting of Coloured Dissolved Organic Material (CDOM) within natural water systems. The monitor detects Fluorescent Dissolved Organic Matter (FDOM) providing highly sensitive CDOM measurements that have been shown to correlate with organics within the water. These systems can inform on assessing organic content in natural waters and the health of the water ecosystem.

Dye Tracing

Monitoring the dilution and movement of a tracer introduced into the water column provides an excellent means of determining the path that may be followed by a discharge and the rate at which dilution is likely to take place. These dye tracing systems are commonly used for river flow and dispersion studies. CTG can offer portable systems based on the **UniLux** *in situ* fluorometer configured to measure common such as Rhodamine WT or Fluorescein. The high sensitivity obtained from these sensors allows for minimum volumes and/or concentrations of these chemical to be introduced.

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Turbidity Monitoring

The CTG **Turbidity-Wader** and **Turbidity-Station** systems enables *in situ* or in-line real-time reporting of Turbidity within natural water systems. Two alternative sensors are available for use within the **Turbidity-Station,** one based on backscatter (**UniLux**) and one based on 90° scatter (**TurbiLux**). The Lux range of turbidity sensors can be deployed in a wide range of applications including *in situ* deployments in rivers, lakes and oceans and flow-through systems for process monitoring.

Monitoring Misconnections

Misconnections are a growing concern in both urban and rural catchments. CTG has addressed the challenges detecting Polluted Surface Water Outfalls (PSWOs) in natural waters with the new low cost **Cross-Check** system. **Cross-Check** allows surveyors and regulators to detect foul water contamination in surface water drains and track the source of the misconnection. This is achieved using UV fluorescence to detect either Tryptophan, which correlates with faecal contamination, and/or Optical Brighteners associated with household detergents.

Oil in Water Monitoring

The **Oil-Station** and **Oil-Wader** systems enable *in situ* or in-line real-time reporting of Hydrocarbon contamination into natural water systems. The principle behind the measurement is the excitation of polycyclic aromatic hydrocarbon fluorescence at UV wavelengths, which has been shown to correlate with hydrocarbon contamination with high sensitivity. These systems can inform on hydrocarbon pollution from industrial activity in rivers, lakes, estuaries, ports and harbours.

Contact us today to see how we can help you

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