

Optimizing Trace Contaminant Water Sampling with a LISST-100X Sediment Sensor

Sequoia Scientific, Inc.



Application Note L2013-016

Measuring trace contaminants in water is a challenging task. By definition, trace contaminants appear in very low concentrations. Accurate measurements require collection and filtration of large volumes of water with suspended particles (sediment) in order to collect enough material for analysis. The analysis allows for detection of contaminants adhered to the filtered particles, as well as of dissolved organics in the filtered water.

Before the water sampling begins, it is necessary to estimate the concentration of suspended particles. This in turn guides the total water volume one must sample and filter. If the volume is too small, there are not enough particulates for analysis. If the volume is too large, filtration takes longer and filters may clog or break from particle loading. Sampling optimization thus requires a tool providing real-time measurements of the concentration of suspended particles.

The LISST-100X from Sequoia Scientific, Inc. is an effective tool for monitoring suspended sediment concentrations in situ and in real-time. The real-time concentration information from the LISST-100X enables optimization of High Volume Sampling (HVS). The LISST-100X is able to provide a continuous concentration profile or time history of the sediment being sampled on the HVS filters. Also logged are particle size distributions, which is critical to contaminant fate and transport modeling.

The LISST-100X submersible particle size sensor from Sequoia Scientific, Inc.



Gravity Consulting (WA, USA) has used the LISST-100X on more than 15 HVS programs. The results have been so convincing that Gravity has now permanently incorporated the LISST-100X as part of its Standard Operating Procedure for this sampling method. Gravity has worked in cooperation with the US Environmental Protection Agency (EPA) and multiple national laboratories to establish quality control methods.

Gravity's staff have extensive experience in planning, designing and implementing water sampling programs that includes the LISST-100X. Gravity have also developed numerous protocols and field sampling equipment to collect samples for trace analysis, protocols of which the LISST-100X is now a standard instrument.

Gravity personnel sampling for trace metals in NY, using the LISST-100X for optimizing the filtration procedure.



Gravity Consulting specializes in the acquisition of quality, defensible data for aquatic projects, and the development of technology for the collection and analysis of water and sediment samples. Gravity supports geotechnical, oceanographic, environmental and hydrographic field studies providing equipment and technological solutions to clients in-water challenges.

For two decades, Sequoia Scientific, Inc. in Bellevue, WA, has been the world's only manufacturer of portable and submersible laser particle sizers for environmental monitoring, industrial, and scientific applications. There is a LISST for you, too!

