Incremental Sampling Methodology

Incremental Sampling Methodology (ISM) is a technique designed to statistically reduce or limit variability associated with discrete sampling. It provides a more representative and reproducible estimate of the mean concentration of analytes in a specific area of interest, called a “decision unit”.

EPA Method 8330B includes a requirement for ISM. Some states have approved sampling guidelines that permit or require ISM for sampling of a wider variety of contaminants. For example, both Alaska and Hawaii have sampling guidelines for metals, semi-volatile organics, volatile organics, and petroleum hydrocarbons.

ISM involves two components: field sampling and laboratory subsampling.

Field Sampling

A 1 – 2 kg sample is collected and sent to the laboratory for processing in its entirety. It is composed of 30 to 100 increments of uniform size collected across a grid formation representing the entire decision unit. Determining the appropriate size of the decision unit is a critical aspect of ISM and one that is usually detailed in an approved sampling plan.

Laboratory Subsampling

Laboratory procedures may vary depending on the contaminants of concern. In general, a subsample is prepared by air drying and sieving the sample through a #10 (2 mm) screen to remove the coarse material. Particle size is reduced by milling or grinding. Finally, the sample is spread evenly on a steel tray to a depth of ½ inch and divided into 30 - 50 sections. A one gram aliquot is taken from each section and combined into one sample. The entire sample is then used for sample extraction and analysis.

ISM allows for a uniform, representative sample that reduces heterogeneity and improves sampling precision. Improved sampling techniques lead to more effective decision making at contaminated sites.

Contact ALS Environmental to speak to a Project Manager and learn more about partnering with us to make your analytical programs more effective.