



## “A Good Environmental Sample”

To fulfill the purposes of any sampling program, the sample must be truly representative. The composition of the sample must closely match the composition of the body of water or soil from which it is taken.

The two most important quality control aspects between collection and laboratory delivery are sample preservation and the precision and accuracy of sampling. These determine the quality of the sample. Good sampling technique minimizes impact on the sample and potential impact to quality of the analytical results.

### Four components of “A Good Environmental Sample” -

#### 1. Representative

- ❖ Representative of native material.
- ❖ Small quantity embodies characteristics of whole.
- ❖ Minimize introduction of bias. Fraction of the total mass or volume.

#### 2. Homogenous

- ❖ Same throughout, reduces variability and results into consistent data.



#### 3. Unaltered

- ❖ Avoid introducing bias such as aeration.
- ❖ Clean anything that contacts samples to avoid possible contamination.
- ❖ Collect in properly preserved containers required per the analytical method.
- ❖ Chemical change is continuous, proper sample handling = better data.

*Note: Sample degradation starts immediately after collection for most chemical species; therefore, complete stability can never truly be achieved. At best, methods of preservation are used to retard biological action and hydrolysis of chemical compounds and complexes, reduce absorption effects and volatility of constituents. These methods only slow the changes that inevitably continue after the sample is removed from the source location.*

#### 4. Location

- ❖ Location makes a difference, choose wisely!
- ❖ Collect from the path of flowing water.
- ❖ Avoid stagnant eddies and pools.



## Grab and Composite Samples

### Grab Sample



Discrete aliquot, specific location, specific “instant in time” or “snapshot”. Container and/or preservation specific, analyte appropriate collection method conducted (VOCs, O&G, Cyanide, Sulfide, etc.).

### Composite Sample



Multiple aliquots combined in specific fashion such as time, flow, mass, etc. Variation due to time, distance, area, etc.