

## Analysis Process and Questions

- I. Take samples from environment.
  - A. How many samples?
  - B. Where should the samples be taken?
  - C. When should the samples be taken?
  - D. Are there special precautions to prevent contamination?
  - E. What device will be used to take the samples?
  - F. What containers will samples be placed in?
  - G. Do samples need be cooled, warmed, sealed etc. before reaching the lab?
  
- II. Log the samples in a notebook.
  - A. Date of sampling.
  - B. Person who took sample
  - C. Location of sample
  - D. Other pertinent information.
  
- III. Store Samples
  - A. What containers will be used to store samples i.e. plastic, glass etc.?
  - B. What conditions are needed to store samples i.e. temperature, humidity, light?
  
- IV. Pretreat Samples
  - A. How will samples be dried?
  - B. How will samples be ground or blended?
  - C. Should samples be neutralized or preserved in some way through physical or chemical treatment e.g. adding acid to prevent microbial growth.?
  
- V. Extract analyte\* from samples
  - A. Dry ashing with a muffle furnace? (Temperature and Duration)
  - B. Wet ashing – What reagents, temperature, and duration?
  - C. Extraction- What solvent, filter or centrifuge will be used to separate the analyte from the matrix\*\*?
  
- VI. Analyze Samples.
  - A. What method will be used? Is it an approved method?
  - B. What is the principle of analysis?
  - C. What instrument will be used?
    1. What is the resolution and working range?
    2. What is the accuracy and precision?
  - D. Interference- What other constituents of the sample may interfere with the analysis. How will these interferences be minimized?
  
- VII. Interpret results
  - A. What calculations or graphs will be used?
  - B. What statistical analysis will be used e.g. ANOVA, regression etc.?

\*Analyte is the name of the element or compound that is being measured e.g. sodium in sea water.

\*\* Matrix is everything in the sample except the analyte e.g. everything except the sodium in the sea water.