Sample Collection
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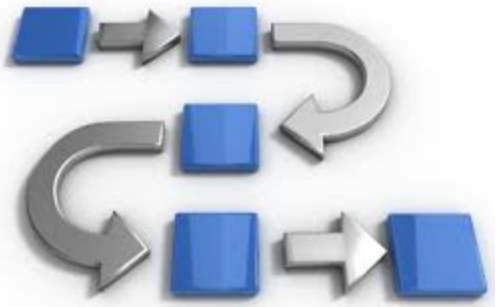
Robson Forensic
Engineers, Architects, Scientists & Fire Investigators

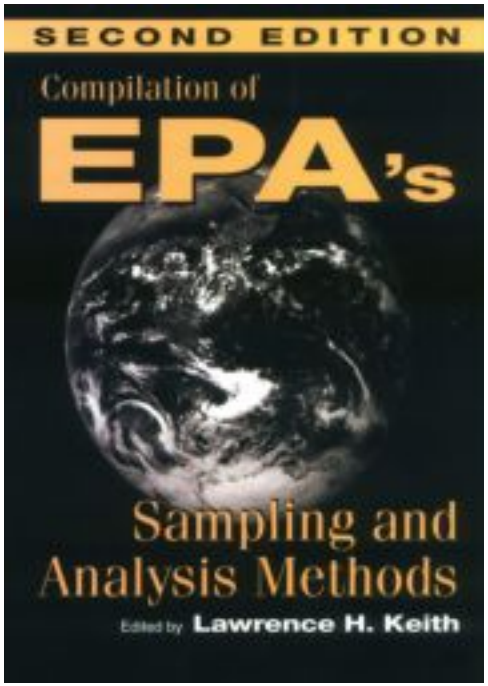
Components of a Sampling and Analysis Plan

- **Provides guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on a project**
- **Site Information and Background**
- **Problem that the data collection project is designed to solve and/or the decisions to be made (i.e., the project objectives)**
- **Field investigation activities – they are designed to characterize conditions in environmental media**
- **Characteristics of the site, such as site location, site use history**



Components of a Sampling and Analysis Plan

- **Suspected locations and identification of contaminants**
- **Range of contaminant concentrations**
- **Media that may be affected**
- **Likely migration routes, the surrounding zoning area (rural, residential, industrial)**
- **Regulatory history**

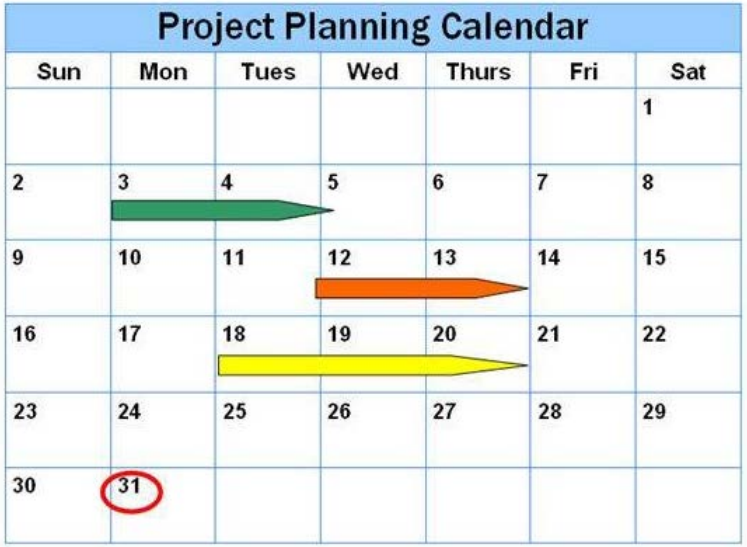


Project Description

- **Description of the work to be performed**
- **Identify the media to be sampled**
- **Summary of the Data Quality Objectives (DQO) process: identify the decision(s) to be made; identify what information is needed**
  - To make informed, defensible decisions; define the boundaries of this investigation (geographical extent and time/budget)
  - Statement of the decision rule (if...then@ statment(s) that relate the data to the decision to be made;
  - Provide an estimate of how much uncertainty will be tolerated in the site decision(s)

Project Timeline

- **Tracked from its inception through implementation the progress of the sample plan development and approval, sample collection, laboratory analysis and data interpretation**

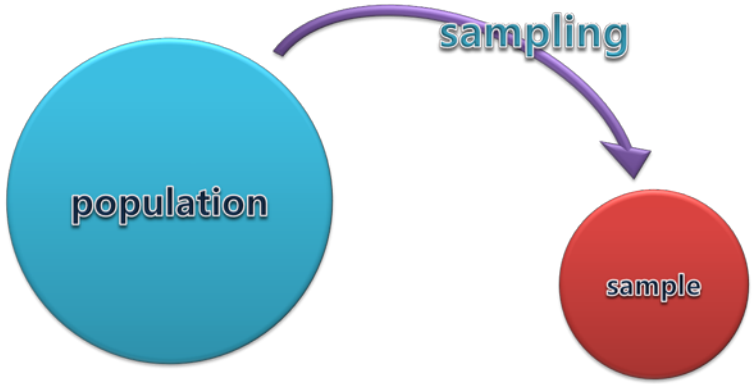


Training requirements and certification

- **Individuals collecting sample are to be trained and qualified in the sampling methods that are performing**

Sampling Method Requirements

- **How will you collect the samples to be analyzed?**
- **For continuous monitoring equipment, what results recording interval will you use? (1 hour, 30 minutes, etc.)**
- **If you will be compositing samples define how you will composite samples?**
- **Geophysical and sampling techniques that will be used for this project?**



Sample Design and Identification

- **Design of the sampling network and the rationale for the design**
- **List of the locations to be sampled, frequencies and sample matrices**
- **Sample designation - is a unique number that identifies each sample under the analytical program**
- **Location: This will be a two digit code consisting of numbers, letters or a combination (e.g., 01, 15, C2)**
- **Sample Depth - sample depth - identify using a two digit number (e.g., 05 representing 5 feet below grade). Where sample depth involves an interval, this identifier identifies the starting depth of the interval only. The number "00" will represent surface samples.**

Sample Design and Identification

- **Sample Type - The last character of the sample ID will represent the sample type:**
  - N - Field sample
  - R – Field duplicate
  - Q –Quality control (QC) sample (e.g., equipment blank, trip blank)

- **Equipment Blank "EB" followed by date (e.g., EB - 070110)**

- **If multiple EBs are collected on the same day for differing types of sampling equipment, numerical designations are used to differentiate the type of equipment blank (e.g., EB01-070110, EB02-070110), with the type of sampling equipment associated with each type of equipment blank documented in the field log book**

Sample Design and Identification

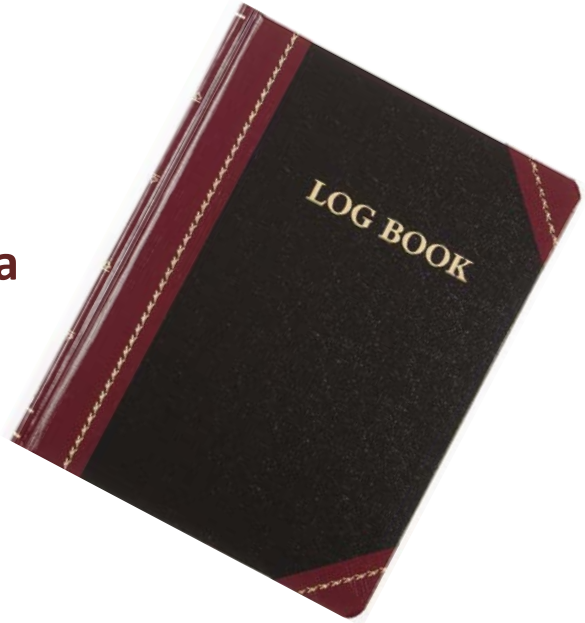
- **Sample numbers typically consist of a four part identification system that describes the sampling method, location ID, depth, and sample type**

- **Trip Blank – "TB" followed by date (e.g., TB-070110). If multiple TBs are collected on the same day for multiple coolers of VOC samples, numerical designations will be used to differentiate the different trip blanks (e.g., TB01-070110, TB02-070110)**

- **Samples being designated for matrix spike and matrix spike duplicate (MS/MSD) analysis will not include an identifier as part of the sample code, but will be identified as such on the chain- of -custody in the comments section on the same row as the parent sample**

Field Supplies Required

- **Field log book (steno pad or hardbound notebook)**
- **Pen - obtain locally**
- **Camera - obtain locally**
- **Audio recorder or video ca mera (optional - obtain locally)**



Quality Assurance Project Plan

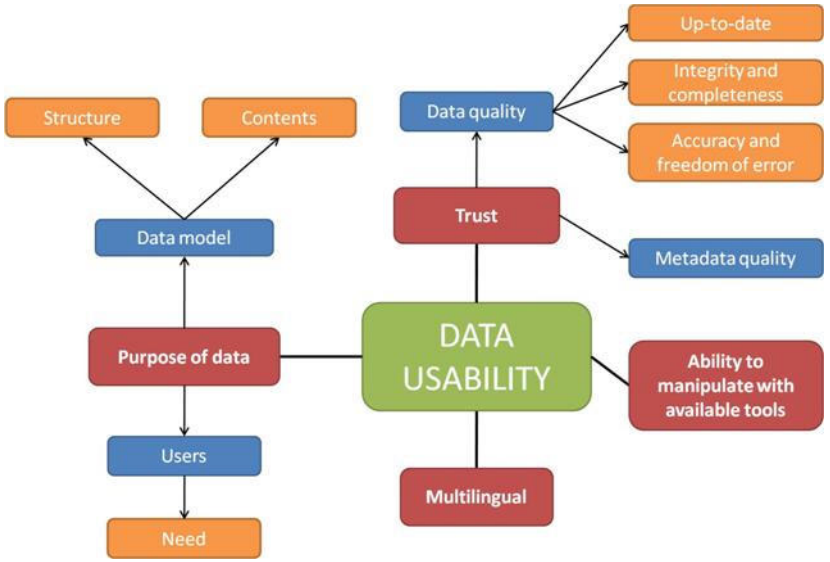
- **Samples will be collected and preserved in accordance with the Quality Assurance Project Plan (QAPP)**
- **Purpose of the QAPP is to present the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with sampling activities**
- **Specific protocol for sampling, sample handling and storage, Chain of Custody, laboratory and field analysis are described in the QAPP.**
- **Field quality control requirements for sampling activity are found in the QAPP**

Analytical Methods Requirements

- **Analytical methods (including any extraction or digestion methods) being used for this project**

- **Additional information about analytical methods requirements (MDL, PQL, etc.)**

Data Usability



- **Reporting Limit (RL or RDL) - the limit of detection for a specific target analyte for a specific sample after any adjustments have been made for dilutions or percent moisture**

- **Regulatory programs require a laboratory to prove it can reliably "see" down to its RL by setting the RL at the lowest point on the calibration curve**

- **Method Detection Limit or MDL is lower than the RL (often much lower) and is a *statistical calculation***

- **Since the MDL is below the point of calibration, results reported down to the MDL are not reliable and must be qualified as estimated values and, as such, carry a "J" qualifier designation**

Questions