

Quality Assurance Project Plans

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Outline

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Definition of Terms

QUALITY ASSURANCE (QA)

The Scope of QA encompasses the plans, specifications, and policies affecting the collection, processing, and reporting of data. This allows for a decision to be made with the available data OR that a decision cannot be reached because the data is not reliable.

QA is the total integrated program to assure that the uncertainties of data are known (documented).

Examples: QA Project Plan, SOPs, QA Program Plans

Definition of Terms

QUALITY CONTROL (QC)

QC is an overall system of technical activities that measure the attributes and performances of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer. QC also involves analytical frequency requirements and control limits.

Quality Control is the routine application of operational techniques to reduce random and systemic errors.

Examples: field blanks, lab duplicates, and oven /freezer temperatures taken at predetermined times

Quality System



Water Boards Quality System



QA Project Plan -Goals

It is a tool allowing for:

- **Making correct decisions**
- **Conserving/optimizing resource use**
- **Defensible data**
- **Ensuring that environmental programs and decisions are supported by the data of the type and quality needed for their intended use**
- * **The protection of human health and the environment**

QA Project Plan – Why Required?

Why is a Project Plan required?

- **ANSI/ASQC E4-1994 Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs**
 - ✓ **Collection, evaluation, and use of environmental data**
 - ✓ **Planning, implementing and assessing data operations including the collection, handling, analysis, and evaluation of data**

The Questions To Ask

1. What are the decisions to be made with the data?

- ✓ **Describe the purpose of the environmental investigation or reason to collect data.**
- ✓ **Discussion should describe how this sampling effort will support these decisions.**

2. What are the criteria on which these decisions are to be based?

~~~~~*Data Quality Objectives*~~~~~

# Data Quality Objectives

*Also known as DQOs*

- **For Beach Monitoring, DQOs are straightforward.**

**WHY → describe why the data is collected--AB 411**

**WHAT → the decisions that need to be made-beach posting or closure**

**WHO → is involved?-- Agencies, counties, specific personnel**

**WHERE → county beach areas, GPS lat/longs of 1° and 2° sampling stations**

**WHEN → sampling schedule, frequency-- include the days of the week and times of sampling**

# DQOs Continued

- **Suggest staff meet to answer questions**
- **The result will be the determination of the DQOs**
  - ✓ **Identify the individuals**
  - ✓ **Define problem and background, project needs**
  - ✓ **Describe decisions to be made with the data**
  - ✓ **Define study boundaries, when/where data should be collected.**
  - ✓ **Include criteria on which decisions will be made, i.e., regulatory standards.**

# DQOs Continued

- **Please include tables**
  - ✓ **Table of Contents**
  - ✓ **List of definitions and acronyms**
  - ✓ **All analytes or pollutants**
  - ✓ **Water quality goals or limits**
  - ✓ **Analytical procedures**
  - ✓ **Sampling Schedules**
  - ✓ **Training/Special Certifications**

# Data Quality Indicators

*Also known as DQIs*

- Describe what these indicators are for your specific project.
- ✓ Precision → How reproducible do the data need to be?
- ✓ Accuracy/ Bias → How well do the measurements reflect what is actually in the samples?

# DQIs Continued

- ✓ **Representativeness** → How well do the data reflect environmental conditions?
- ✓ **Comparability** → How similar do the data need to be to those from other studies?
- ✓ **Completeness** → What amount (percentage) of the data is critical/necessary to meet project needs?
- ✓ **Sensitivity** → Are the field/laboratory methods sensitive enough to “see” or enumerate the bacteria of concern?

# Sampling Design

**Key information to be provided includes:**

- ✓ **Where → list sampling stations**
- ✓ **What → list analytes**
- ✓ **How many → list matrix and number**
- ✓ **Rationale for locations and analytes (FIB)**
- ✓ **Provide 1° and 2° sampling stations**

*This section is closely related to the DQOs discussed previously*

# Analytical Requirements

**Discuss analytical support, including:**

- ✓ **Analyses requested (pollutant, unit, analytical method)**
- ✓ **Potential difficulties with samples arriving in time to be set up**
- ✓ **Lab turn around times**
- ✓ **Entire process is five days**



# Quality Control

- ✓ **Identify QC quality controls samples to be collected**
- ✓ **Identify locations (can be done at same time with regular sampling sites)**
- ✓ **Provide rational for locations**
- ✓ **Frequency of collection**

# Sampling Procedures and Protocols

- ✓ **List field equipment**
- ✓ **Describe calibration of field equipment, if applicable**
- ✓ **Describe decontamination procedures**
- ✓ **You can reiterate sampling safety protocol**
- ✓ **Describe the sample containers, preservation, and storage for each type of samples collected**

# Chain-of-Custody, Shipping & Handling

- ✓ **Describe Sample Documentation**
- ✓ **Field notes → suggest a template of a field note sheet**
- ✓ **Labeling → may be provided by lab.**
- ✓ **Sample Chains-of-Custody forms and Custody Seals**
- ✓ **Describe Sample Packaging and Shipment (be specific)**

# Data Validation and Usability

- **Data Review, verification, and validation**
- **Verification and validation methods?**
- **Reconciliation of user requirements...will this data work for your project? Were your DQOs attained?**

## *Guidance Document*

**“Guidance for Quality Assurance Project Plans-EPA QA/G-5”**

**<https://www.epa.gov/sites/production/files/2015-06/documents/g5-final.pdf>**

# Questions ?

# Contact

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