WWLC
Standard Operating Procedures

Presented by Frank Hall,

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Where To Start?

Effective SOPs

- The best SOPs are the ones that easy for follow and follow a step by step procedure to complete a task!
- An effective SOP is a one stop shop for completing a task!
- An effective SOP is one that is used daily!

Elements of an SOP

Table of Contents

Procedures

Scope & Applicability

- Describing the purpose of the process or procedure and any organization or regulatory requirements, as well as any limits to the use of the procedure.

Summary of Method

- Briefly summarize the procedure

Definitions

- identify any acronyms, abbreviations, or specialized terms used in the SOP.

Health & Safety Warning

- Indicate any operations that could result in personal injury or loss of life and explaining what will happen if the procedure is not followed or is followed incorrectly; listed here and at the critical steps in the procedure.

Cautions

- Indicate any activities that could result in equipment damage, degradation of sample, or possible invalidation of results; listed here and at the critical steps in the procedure.

Interferences

- Describe any component of the process that may interfere with the accuracy of the final product

Personnel Qualifications/Responsibilities

- Denote the minimum experience the user should have to complete the task satisfactorily, and cite any applicable requirements, like certification

Equipment & Supplies

- List and specify, where necessary, equipment, materials, reagents, chemical standards, and biological specimens necessary to complete the SOP procedure completely

Step By Step Procedures

- List all pertinent steps, in order and the materials needed to accomplish the task
    - **Instrument or Method Calibration and Standardization** – list and describe any instrument or method utilized in the SOP that requires calibration and/or standardization prior to use. Provide explicit instructions to ensure that accurate measurements are obtained.
    - **Sample Collection** – provide any information or instruction necessary to successfully complete the sample collection task. This may be an area where a table is best suited which lists all media, sample container type/size, volume requirements, headspace requirements, etc.
    - **Sample Handling and Preservation** – this section typically refers to how samples, once collected, are handled and preserved prior to and during shipment (or delivery). This may be an area where a table is best suited which lists all media, special handling, preservation, holding times, etc.
    - **Sample Preparation and Analysis** – this section refers to laboratory activity that may include extraction, digestion, analysis, identification, and counting procedures.
    - **Troubleshooting** – typically this section is used for laboratories performing analysis where certain known interferences may present themselves and degrade the quality of the analysis. This area may also be used for field measurements, if applicable, that may have a known interference and a particular method or technique of correcting the issue.
    - **Data Acquisition, Calculations & Data Reduction Requirements** – such as listing any mathematical steps to be followed.
    - **Computer Hardware & Software** – used to store field sampling records, manipulate analytical results, and/or report data.

Data & Records Management

- Identify any calculations to be performed, forms to be used, reports to be written, and data and record storage information.

- Records retention schedule may also apply here

Quality Control & Quality Assurance Section

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QA/QC

- QC activities are designed to allow self-verification of the quality and consistency of the work.
- Describe the preparation of appropriate QC procedures (self-checks, such as calibrations, recounting, re-identification) and QC material (such as blanks – rinsate, trip, field, or method; replicates; split samples; spikes; and performance evaluation samples) that are required to demonstrate successful performance of the method.
- Specific criteria for each should be included.
- Describe the frequency of required calibration and QC checks and discuss the rationale for decisions.
- Describe the limits/criteria for QC data/results and actions required when QC data exceed QC limits or appear in the warning zone (control charts).
- Describe the procedures for reporting QC data and results.

Reference Section

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References

- Documents or procedures that interface with the SOP should be fully referenced (including version number), such as they relate to the SOP, published literature, or methods manuals.
- Citations cannot substitute for the description of the method being followed in the organization.
- Attach any that are not readily available.
- References should be numbered (1, 2, 3, … etc.) and may be used as a footnote.
- Use an acceptable format for citing a reference (see examples provided below).

- **Examples:**

R1. 40 CFR 30, Code of Federal Regulations, "Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations."

R2. ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*, American National Standard, January 1995.

R3. U. S. Environmental Protection Agency, 2000a. *Guidance for Data Quality Assessment: Practical Methods for Data Analysis (QA/G-9)*, EPA/600/R-96/084, Office of Environmental Information.

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Questions?? Comments??

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