Cover Sheet
Standard Operating Procedure

Operation Title: **Requirements for the Development of a Site-Specific Quality Assurance Project Plan**

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1.0 Applicability

This Standard Operating Procedure (SOP) applies to all programs in the Maine Department of Environmental Protection's (MEDEP) Division of Remediation (DR). It may be utilized by other Divisions within MEDEP, as determined by the respective Division Directors or their designees.

This SOP is not a rule and is not intended to have the force of law, nor does it create or affect any legal rights of any individual, all of which are determined by applicable statutes and law. This SOP does not supersede statutes or rules.

2.0 Purpose

The purpose of this document is to describe the MEDEP/DR procedure for developing a Site-Specific Quality Assurance Project Plan (SSQAPP) for site activities where an SSQAPP is deemed necessary.

An SSQAPP will be generated for a specific site if the Quality Assurance Coordinator (QAC), the MEDEP/DR project manager and supervisor, and/or the appropriate project personnel at the United States Environmental Protection Agency (USEPA) Region I determine one is necessary. Examples when a site specific SSQAPP may be generated are a site which will likely be listed on the USEPA's National Priority List (NPL) or a site in which there is a possibility of litigation.

3.0 Key Definitions

MEDEP/DR: Maine Department of Environmental Protection's Division of Remediation

SSQAPP: Site Specific Quality Assurance Project Plan

QAC: Quality Assurance Coordinator

QAM: Quality Assurance Manager

USEPA: United States Environmental Protection Agency

DQO: Data Quality Objectives

SOP: Standard Operating Procedure

QC: Quality Control

4.0 Responsibilities

All MEDEP/DR Staff must follow this procedure when performing this task. All Managers and Supervisors are responsible for ensuring that their staff are familiar with and adhere to this SOP. MEDEP/DR staff reviewing data by outside parties should ensure that this SOP (or an equivalent) was followed, depending on the specific Data Quality Objectives (DQOs) of the task.

Other MEDEP SOPs may also apply when performing this task, The SSQAPP should consider quality assurance and quality control (QA/QC) samples and measures, the specifics of which will depend on the DQOs for the task. Types of QA/QC samples are discussed in more detail in the DR Quality Assurance Plan (QAP). SSQAPP development includes creating a Health and Safety Plan (HASP) associated with the activity, including compliance with Dig Safe notifications when disturbing soil with powered equipment or tools (i.e., not hand tools). A HASP template is included as an attachment to MEDEP/DR SOP RWM-DR-014 - *Development of a Sampling and Analysis Plan*. Dig Safe notification does not include public utility clearance requests which must be completed separately (e.g., sewer and water lines). These utility marking requests typically do not extend onto marking private property (i.e., they may only mark lines in the public right of way), so hiring a private utility marking company may be necessary, depending on site specifics. Fieldwork and data collection tasks must be properly documented in accordance with applicable MEDEP SOPs and policies.

5.0 Guidelines and Procedures

This procedure outlines the minimum specific requirements that must be included in an SSQAPP. It is intended to ensure that the data generated will meet the Data Quality Objectives (DQOs) that are required (and identified in the SSQAPP) for a specific project and/or site. For reference, a link to the US EPA Guidance for Quality Assurance Project Plans can be found here: EPA Quality Assurance Project Plan (QAPP) Guidance

5.1 Guidelines

Prior to developing an SSQAPP, MEDEP/DR staff will develop DQOs as described in the QAP. An SSQAPP must have the following elements:

5.1.1 Title Page

The following elements shall be included on the title page: title of plan, site name, program authority, and name of organization implementing the plan. Additionally, names, titles and signatures of staff completing the SSQAPP and any approving officials, including the date signed.

5.1.2 Table of Contents

This section should list all sections, figures, tables, references and appendices, along with page numbers indicating the location of each.

5.2 Introduction

5.2.1 Project Organization

The Project Organization must identify data generators, data-users and decision makers, as well as specific organizations, job categories, and job responsibilities. Also, authorities associated with the SSQAPP, relationship between organizations, and lines of communication should be defined.

5.2.2 Project Goal and Data Use

The goal of the project and the end use of the data as described in the DQO section of the SSQAPP will be stated in the introduction. The regulatory or exposure situation that determined the need for the project will be described in this section.

5.2.3 Background

This section will include historical and background information related to the site.

5.2.4 Project Description

An identification of all proposed measurements, including physical measurements and characteristics, chemical analyses, and a schedule for performance of the activities will be contained in this portion of the document.

5.2.5 Sampling Process Design (Experimental Design)

This section will present the rationale for sampling design. Sampling design can include the elements of sample location, sample matrices, measurement parameters, geographical spacing, sampling methods and equipment, monitoring device design and installation

(e.g. monitoring wells), sampling intervals (vertical, horizontal and time), sample frequency, sample documentation, corrective action and schedule of work.

5.2.6 Sampling Methods Requirements

This section will present the rationale for sampling design. Sampling design can include the elements of sample location, sample matrices, measurement parameters, geographical spacing, sampling methods and equipment, monitoring device design and installation (e.g. monitoring wells), sampling intervals (vertical, horizontal and time), sample frequency, sample documentation, corrective action and schedule of work.

This section should provide justification for the measurements and activities proposed in the project description to meet the project DQOs.

5.2.7 Sample Handling and Custody Requirements

A description of the documentation, sample packaging, and shipping procedures will be contained in this section. All observations regarding sample location will be recorded in a field logbook or log sheets.

5.2.8 Analytical Method Requirements

The methods used to analyze both field and laboratory samples are cited or described in this section. A reference to the identification number and source of the laboratory method(s) must be stated. However, the method itself need not be reproduced.

If several analyses are proposed, a table identifying each analysis for each sample location and medium is recommended.

5.2.9 Quality Control Requirements

This section refers to both the number of Quality Control (QC) samples that will be collected in the field and the QC samples analyzed in the laboratory to allow for data validation. Field QC samples, such as field duplicate and rinsate blanks, are collected at a rate of 5%, or at least one per sampling event. The procedures indicated below in Section 5.1.14 of this document should be performed where appropriate.

5.2.10 Field Quality Control

The sampling component of the SSQAPP shall include:

1. Procedures for documenting and justifying any field actions contrary to the SSQAPP

2. Documentation of all pre-field activities, such as equipment check-out, calibrations, and container storage and preparation

3. Documentation of field measurement QC data

4. Documentation of field activities

5. Documentation of post-field activities, including sample shipment and receipt, field team de-briefing and equipment check-in

6. Generation of QC samples, including duplicate samples, field blanks, equipment blanks, and trip blanks. Table 1 shows the frequency and number of QC samples that should be collected during a sampling event

5.2.11 Instrument Calibration and Frequency

A description of the calibration procedures and frequency for field instruments used must be included in this section. For instruments that have an approved MEDEP/DR SOP, which includes a description of calibration of the instrument, the SOP number will be included here. At a minimum, calibration procedures and frequency must meet the manufacturer's requirements. The manufacturer's instructions for calibration may be included as an attachment to the SSQAPP. Calibration of laboratory equipment used for sample analysis will be described in the laboratory SOPs. If the analytical method selected prescribes the calibration procedures and frequency, citation of the method number is adequate in the SSQAPP.

Table 1
Guidelines for Minimum QA/AC Samples
For Field Sampling Programs

Medium	Duplicates	Field Blanks	Trip Blanks	Rinsate Blanks	Background Sample
Aqueous	1 in 20	As conditions necessitate	1 per shipping container with VOC samples	1 per 20 decontamination procedures	Minimum of 1 per sampling event per medium
Soil, Sediment	1 in 20	As conditions necessitate	1 per shipping container with VOC samples	1 per 20 decontamination procedures	Minimum of 1 per sampling event per medium
Air	1 in 20	N/A	1 per shipping container with VOC samples	1 per 20 decontamination procedures	Minimum of 1 per sampling event per medium
Source Material	1 in 20	As conditions necessitate	N/A	1 per 20 decontamination procedures	N/A

Notes:
1) QA/QC requirements on a site-specific basis may dictate a more stringent frequency. Laboratory blanks and spikes are method-specific and are not included in this table. However, as a minimum, 10% of laboratory analyses must be QC samples.

2) Field Blanks are required when background contamination of the breathing zone is detected. One should be collected from each different industrial or functional area sampled during the most active time of day.

3) Duplicate and rinsate samples are collected at the minimum rate of 1 per 20 samples/decontamination procedures. If fewer than 20 samples are collected, 1 duplicate and 1 rinsate sample must be collected.

4) Trip blanks are prepared in the laboratory or at another off-site location from de-ionized water. They are never prepared on-site, or from soils or other solid material.

5.2.12 Assessment and Response Actions

Assessments required for most projects include:

1. Management systems reviews
2. Technical systems audits
3. Performance evaluation samples

Reviews and audits are conducted periodically to check that activities described in the field SSQAPP and in the QA Program Plan have been appropriately conducted and documented.

In addition to describing the components of each type of review/audit, the section must describe how appropriate response actions for non-conformance will be addressed and documented, and who is responsible for implementing corrective actions. The QAC or QAM may conduct management systems reviews or technical systems audits at any time during a project.

5.2.13 Data Review, Validation and Verification Requirements

5.2.13.1 Data Review

This section should state the criteria used by the project manager to review and validate data; (i.e., accept, reject or qualify data). Additionally, the following questions should be answered: What recovery and other standards must the lab meet? How much precision and accuracy are desired/required of the analytical data to be acceptable? What percent of the data must be laboratory analytical data for it to be acceptable?

The project DQOs should be considered when all data is reviewed.

5.2.13.2 Validation and Verification Methods

This section will describe how the data reviews identified above will be conducted. The equations for precision, accuracy and completeness are included in the general QAP, and equations for any other DQOs evaluations will be included in the SSQAPP.

This section should also describe how the data is handled if the described criteria are not met, and answer the following questions: At what point is the data rejected? At what point is it qualified? What types of qualifiers are applied? When is re-analysis by the lab required if the standards are not met? What are the consequences if an adequate sample is not available, and/or holding times have been exceeded?

5.2.14 Reconciliation with DQOs

After each phase or major portion of a sampling event or project, the results must be compared with the quantitative and qualitative DQOs and project objectives identified in the SSQAPP. Any limitations on the data, the usefulness of the data, and changes to DQOs as a result of any limitations must be addressed. Applicable uses of the data that have been qualified will be compared to the original uses desired. Additional data collection activities may be required if the usability of the data is not satisfactory. This section should identify the criteria for determining that additional data collection is needed.

5.2.15 Distribution List

At a minimum, the following people will receive and/or review copies of an SSQAPP:

- MEDEP/DR Site Project Manager
- MEDEP/DR QAC
- Site Geologist
- Project Field Staff
- USEPA Project Manager

Anyone else determined necessary by the MEDEP/DR Site Project Manager, QAC, or USEPA Project Manager may also be involved in the receipt and/or review. A distribution list stating the names of the people receiving copies and/or reviewing the SSQAPP and their position will be included in the SSQAPP.

5.2.16 Specialized Training

Need for specialized training will be stated in the SSQAPP. Documentation of staff attending training will be placed in the project file upon completion of said training**.**

5.2.17 Documentation

Any variations or modifications to the documentation procedure will be stated in the SSQAPP.

5.2.18 Inspection of Supplies and Consumables

A list of expected consumable supplies will be included in the SSQAPP. All consumable supplies will be inspected upon their receipt, and again prior to being taken into the field by field staff. Any supplies that are determined to be not acceptable will not be used for the project. If it becomes necessary to use material that may not meet specifications, this shall be stated in the field notes of the person conducting the inspection.

5.2.19 Final Report

A final report will be generated at the end of the project that will summarize the data generated during the project by the project manager. Included in this report will be a recommendation for additional work, and the appropriate entity to conduct the additional work. If no additional work is determined to be necessary, a "no further action" conclusion will be stated, with the rationale for such a conclusion.

6.0 References

None