

PROJECT PLANS

3.1 QAPPs

Each Division or program QAPP developed must be consistent with the QMP. QAPPs must be developed as specified in *EPA Requirements for Quality Assurance Project plans, EPA QA/R-5, EPA/240/B-01/003, March 2001* (Reissued May 2006.) The QAC is responsible for reviewing the completeness of the QAPPs.

The following 24 elements must be adequately addressed:

Project Management

- A1 Title and Approval Sheet
- A2 Table of Contents
- A3 Distribution List
- A4 Project/Task Organization
- A5 Problem Definition/Background
- A6 Project/Task Description
- A7 Data Quality Objectives (DQO) and Criteria
- A8 Special Training/Certification

Measurement/Data Acquisition

- B1 Sampling Process Design (Experimental Design)
- B2 Sampling Methods
- B3 Sample Handling and Custody
- B4 Analytical Methods
- B5 Quality Control
- B6 Instrument/Equipment Testing, Inspection, and Maintenance
- B7 Instrument/Equipment Calibration and Frequency
- B8 Inspection/Acceptance of Supplies and Equipment
- B9 Non-direct Measurements (Secondary Data)
- B10 Data Management

Assessment/Oversight

- C1 Assessments and Response Actions
- C2 Reports to Management

Data Validation and Usability

- D1 Data Review, Verification, and Validation
- D2 Verification and Validation Methods
- D3 Reconciliation with Data Quality Objectives and User Requirements

Because the level or degree of QA/QC activities needed for each Division or program differ, UDEQ believes the graded approach should be employed in planning the work. As such, one or more of the 24 elements may not apply, or it may be more appropriate to combine one or more elements into a single item. In that case, a reference to the combined items should be made.

3.2 Control of Data Collection Activities

Certain practices are required to control environmental data collection activities. These include the following:

- Development and approval of a QAPP.
- Development of DQOs.
- Production of a report documenting reconciliations with DQO.
- Satisfaction of minimum analytical QA and deliverable requirements.

3.2.1 Approved QAPPs

QAPPs should be technically adequate and comply with the QMP. As new QAPPs are drafted, each member of the QAC will be assigned to do a peer review of one QAPP using the EPA assessment tool. In no circumstance will a person be assigned to do a peer review of a QAPP for their own program or Division. The completed assessment form will then be reviewed by the QAC as a group, issues or questions will be identified and resolved, and an approval recommendation made to the Executive Director. Once approved, the QPC will send a notice to EPA Region 8's Quality Assurance Office.

Project-specific QAPPs will be approved as outlined in Division or Program QAPPs and will not be sent to the QAC.

3.2.2 Data Quality Objectives

DQOs are intended to accomplish the following:

- Clarify the study objectives.
- Define the most appropriate types of environmental samples or data to collect.
- Determine the most appropriate conditions for collecting the environmental samples or data.
- Specify the level of uncertainty that is acceptable as the basis for establishing the quantity and quality of the data needed.

For many projects, DQOs may be a simple statement of why data are being collected and what data outputs will be considered significant.

3.2.3 Documentation of DQOs Reconciliation

Elements D1, D2, and D3 of Section 3.1 require that QAPPs identify data assessment procedures. These elements specifically include items on how data will be reviewed, validated, and quantified. Element D3 requires reconciliation with stated DQOs and user requirements. An assessment of the usability and limitations of the filed and analytical data collected, with respect to the original DQOs, must be documented after completion of all data collection activities.

3.2.4 Minimum Analytical QA and Deliverable Requirements

All analytical work must be performed as specified in the approved QAPP and must meet minimum standards as defined in the Utah Certification Rules (R444-14). Available on the web at <http://www.rules.utah.gov/publicat/code/r444/r444-014.htm>. Failure to comply with these requirements may result in rejection of data and, where applicable, nonpayment for the deficient products.

3.3 Standard Operating Procedures

UDEQ staff is encouraged to incorporate the use of a SOP whenever a task is to be repeated frequently. The use of SOPs promotes reproducible work products and consistency in and among UDEQ project operations. An SOP may be prepared by any staff member whenever such SOP is desirable. SOPs are then approved by the program manager. QAPPs may include SOPs.

3.4 Quality System for Data Collected from Modeling, Electronic, and Database Sources

3.4.1. Computer Modeling Data

UDEQ staff frequently makes use of mathematical and computer based environmental models for the prediction of certain environmental events and effects. The reliability of the outputs of such modeling efforts is dependent upon the accuracy of the input data, on the suitability of the model, and on the accuracy of the modeling process. UDEQ staff should use well known or established models which employ best engineering practices and/or those recommended by EPA.

When computer models are used to predict events or effects, certain documentation of the input data and the model used is required. Within the project documentation, the DPM must indicate the name, source, and identification information for the model used, including version number, if appropriate. In addition, the DPM must indicate whether the data used as model input were collected by UDEQ under the applicable provisions of this document or whether the data were obtained from a "secondary" source such as an agency, industry, a database, or a publication. If a secondary source was used and more than one source or appropriate secondary data was available, the DPM must explain why that particular source was selected.

A description of the computer hardware and software that are used by UDEQ is contained in Section 7.0.

3.4.2 Environmental Database Systems

Each Division is responsible for verifying the accuracy and validity of its environmental database system.

3.4.3 Data Obtained from Outside Sources

UDEQ staff may use data and information collected or generated by sources outside of UDEQ. These sources are frequently referred to as “secondary” data sources. There are numerous possible sources including – but not limited to – toxicological data used in risk assessments, climatological and meteorological data, emissions inventories, historic stream flow and monitoring data collected by other federal and State agencies, new technological and scientific issues covered in the scientific literature, and data collected by other parties without the use of UDEQ funds.

When using secondary data, it may not be possible for UDEQ to validate or review all of the data. In this situation, UDEQ requires that the DPM assure that project files and records indicate the source of the data and any efforts that may have been taken to review or validate the data. If multiple sources of the same or similar information are available, the project records should indicate why the source used was chosen.

3.5 Quality System for Remediation Systems

3.5.1 Construction Quality Assurance Plan

UDEQ may require the preparation of a Construction Quality Assurance Plan (CQAP) when UDEQ funds are used to design, construct, or operate a remediation system. A remediation system is any system intended for storage, handling, or treatment of wastes or contaminated media prior to discharge to the environment. These systems may include facilities constructed as a surface impoundment, waste pile, landfill, waste isolation system, artificial wetlands, treatment facility, or similar system. This requirement is not to be applied to actions conducted in response to a true emergency or as a time-critical response.

The CQAP must be reviewed and approved by the DPM with authority over the site or grant. A CQAP must address the following elements:

- Responsibilities and authorities of organizations and key personnel involved.
- Personnel qualifications.
- Inspection activities.
- Sampling strategies and corrective actions.
- Documentation.

Although the preparation of a CQAP is not required of regulated entities that do not receive UDEQ funds, it is strongly advised that this item be included as part of negotiated agreements, as appropriate. An explanation of each component of the CQAP is provided in the following sections.

3.5.2 Responsibilities and Authorities

All organizations involved in the design, construction, and operation of the system shall be identified. To the extent known, key personnel should also be identified. A discussion of authorities and responsibilities of the organizations, as they relate to the plan, shall be included. Responsibilities of key personnel, such as the Construction QA Manager and the DPM, shall also be included.

3.5.3 Personnel Qualifications

Qualifications of key project personnel, such as the Construction QA Manager and the construction inspector, will be presented in the CQAP.

3.5.4 Inspection Activities

The CQAP shall present the observations, tests, and inspections which will be used to assure that the installation meets or exceeds all design criteria, plans, and specifications. Schedules or periodic frequencies for these activities shall also be established. Any system which is designed to treat or remediate waste material or a waste stream must also include tests to measure the efficiency of the waste treatment/reduction process or show that effluents are in compliance with appropriate State or federal regulations. Typically, inspection activities will be visual observations, field testing and measurements, laboratory testing and evaluation of test data. Most often these will be associated with:

- Inspection of materials used to certify that design criteria is met.
- Construction Quality Control to measure conformance with project plans, specifications, and design criteria.
- Construction Quality Assurance to determine final product quality and conformance with project specifications. For larger products, it is recommended that periodic inspections be conducted at the completion of various phases rather than waiting until final completion.
- Regulatory Inspections performed to ensure compliance with all applicable codes, regulations, and permits.

3.5.5 Sampling Strategies and Corrective Actions

The CQAP must address sampling methods, sample size, methods for determining sample locations, frequencies of sampling, test methods, and acceptance and rejection criteria for compliance with design specifications. The corrective actions to be taken due to failed tests must be addressed in the CQAP.

3.5.6 Documentation

This portion of the CQAP will describe what QA reports are to be made during various phases of design and construction and also those produced while the system is in operation. It shall include a discussion of the content of the report, the frequencies of the reports, responsibility for production of the reports, and to whom the reports are to be directed.