

Grant Special Terms and Conditions Quality Assurance Project Plan (QAPP) Guidance

Overview

The QAPP requirements described in this document are for work funded under WRP or OCR grants, specifically projects involving the collection of environmental measurement data with no water quality sampling.

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Special accommodations

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-7668. Persons with impaired hearing may call Washington Relay service at 711. Persons with speech disability may call TTY at 877-833-6341.

Introduction

These guidelines comply with Department of Ecology (Ecology) Policy 22-01 - Establishing Quality Assurance, and the agency's Quality Management Plan (Ecology Publication 10-03-056).

According to the General Terms and Conditions found in Ecology grant and loan agreements, recipients must prepare a Quality Assurance Project Plan (QAPP) when a project involves the collection and/or use of environmental measurement data. Those requirements further specify that this QAPP must be developed based on Ecology Publication No. 04-03-030, *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* (Ecology, 2004). However, for work funded under Water Resources Program (WRP) or Office of Columbia River (OCR) grants, the QAPP can be developed based on the requirements described in this document for projects involving the collection of environmental measurement data with no water quality sampling. Examples of such projects are those involving streamflow gauging, lake-level monitoring, groundwater-level monitoring, well/aquifer capacity testing, etc. If a project involves water quality sampling then a QAPP should be developed based on the guidelines in Publication No. 04-03-030.

In general the size, cost, and complexity of the QAPP must be in proportion to the magnitude of the sampling effort and intended use of the data. Once the QAPP has been submitted, Ecology must approve this prior to start of the work. The information provided in the QAPP must be sufficiently detailed to allow reviewers and those who implement the plan to understand what is to be done and the reasons for doing so.

The following information must be provided in QAPPs for projects covered under these special terms and conditions:

1. Title Page and Approvals

Present the following information on the title page of the plan:

- title
- author
- author's organization
- date the plan was prepared or revised, and
- other information useful in identifying the study (e.g., a document, grant, geographic location, or contract identifier).

Provide a signature page for plan approvers, including spaces for:

- the responsible local governmental agency or consultant project manager
- an authorized grant recipient representative
- the Water Resources or Office of Columbia River Quality Assurance Coordinator, and
- other key staff, as appropriate.

2. Table of Contents

A table of contents should be included if it would help those using the plan, particularly with longer plans.

3. Background and Project Description

Describe the background of the study area, including a project history, parameters being studied and why they are of concern, relevant criteria or standards, and the results and conclusions of any previous studies.

Also describe the nature of the problem(s) being studied, reasons for conducting the project, and what the project is expected to accomplish. It is essential to document the overall project objectives, since clear objectives increase the likelihood of project success. This section should:

- identify study area boundaries
- describe information that will be collected and is needed to meet the objectives
- summarize the tasks that will be required to collect the data
- identify any practical constraints on the study design, and
- describe any decisions that are likely to be made using the project data.

If applicable this section should also mention any anticipated logistical problems.

4. Organization and Schedule

Identify individuals that will implement the study and assess the data, and the relevant training and/or field experience of key personnel. This section must provide the complete project schedule, and describe, if appropriate, any potential factors that may constrain the schedule, including weather and seasonal conditions, limited site access, personnel or equipment availability, etc.

5. Quality Objectives

Quality objectives provide qualitative and quantitative information regarding the measurement accuracy required to meet the goals and objectives of the project. Since all measurement procedures include inherent uncertainty, this section must provide Measurement Quality Objectives (MQOs) stating the acceptable data variability. Information in this section must include a table listing the methods to be used, the associated MQOs, and the anticipated method accuracy.

Decision Quality Objectives (DQOs) apply when data will be used to select between two clear alternative conditions or to determine compliance with a standard. DQOs specify how good a decision must be, but do not directly set criteria for the quality of the data. If applicable, DQOs should be provided for this project.

6. Study Design

Describe the process to be used in the study, including measurements to be made in the field and locations and schedule for measurements (including maps or diagrams, as appropriate). Also discuss the reasoning behind how the study was designed and how this relates to the study objectives and site/area characteristics. Indicate any underlying assumptions, and whether the proposed measurement frequency and locations were determined based on probability or professional judgment. Context for the discussions should include quality considerations made during the design process, such as anticipated representativeness and completeness of the measurements.

7. Field Procedures

Provide a detailed set of written procedures, potentially in the form of standard operating procedures (SOPs), describing tasks and procedures to be conducted during the study. This includes what equipment will be used, how measurements will be made, the frequency of measurements, and how frequently equipment will be calibrated/verified for accuracy. In order to assure data quality, the methods selected must have performance characteristics designed to meet project MQOs.

Ecology's Environmental Assessment Program conducts many types of groundwater and streamflow monitoring, and SOPs for their field methods are available at: <https://ecology.wa.gov/About-us/How-we-operate/Scientific-services/Quality-assurance>. SOPs for methods followed by the Water Resources Program when making water-level measurements on its well circuits are available at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1711005.html>. Additionally, links to descriptions of field procedures used by the U.S. Geological Survey are available at: <https://pubs.usgs.gov/twri/index090905.html>. Procedures described in any of these sources may be referenced in the QAPP.

8. Quality Control

Provide a table describing the types and frequency of steps to be taken to ensure that quality in the field will be maintained. In general these actions fall into two categories, including:

Steps in preparation of field work – Some types of field equipment can be tested by staff prior to going to the field. Other types of instruments, such as flow meters or pressure gauges, should be periodically checked and calibrated by qualified and/or certified technicians. The frequency of equipment testing must be adequate to meet project MQOs.

Steps taken in field – Some instruments include automated software that conducts routine field checks (e.g. flow meters that check for accuracy during each measurement), and field staff may make other field checks (e.g. collecting multiple e-tape measurements at each well to determine whether wells are recovering or influenced by nearby pumping, or checking any results for missing or anomalous values before leaving field site).

In addition to describing the steps that will be taken to ensure quality in the field, the table provided must include descriptions of corrective actions that will be taken if issues are detected. In some instances, this table may reference field SOPs that describe quality control steps in detail.

9. Data Management Procedures

Describe the procedures that will be followed for the management of data collected during this study. Data management addresses the path of data from field recording to final use and archiving.

Ecology's Environmental Information Management (EIM) system is the agency's main environmental data repository. This section must describe steps that will be taken to manage data that is collected and entered into EIM.

Information on the first steps for submitting data to EIM can be found at a link titled "[WRP/OCR Grantee Responsibilities for Submitting Data to EIM \(PDF\)](#)" that can be found on the EIM Help Center web page at: <https://fortress.wa.gov/ecy/eimhelp/HelpDocuments>. Additional instructions for uploading data into EIM can be found at: <https://ecology.wa.gov/Research-Data/Data-resources/Environmental-Information-Management-database/EIM-submit-data>, and a link toward the bottom of that website provides videos from recent training.

10. Reporting and Field Activity Assessments

Describe the reporting that will be made on the data collected, including information on how data were collected and analyses were performed, and what information will be presented to ensure that the quality of information and conclusions drawn are commensurate with the techniques used.

11. References

Ecology, 2000. Quality Management Plan. Washington State Department of Ecology, Olympia, WA. Publication No. 00-03-012. www.ecy.wa.gov/biblio/0003012.html

Ecology, 2004. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, Washington State Department of Ecology, Publication No. 04-03-030). <https://fortress.wa.gov/ecy/publications/summarypages/0403030.html>

USGS, 2003. Techniques of Water Resources Investigations Reports. U.S. Geological Survey, U.S. Government Printing Office. https://pubs.usgs.gov/wdr/WDR-WA-03-1/pdf/ADR_O.pdf. Links to descriptions of the procedures listed are available at: <https://pubs.usgs.gov/twri/index090905.html>.