Quality Assurance Project Plans
For
Grant Recipients

EPA Region 10 Quality Assurance
December 2020

What is Covered Here

Goal: Provide an Understanding of the QA Planning process

- When is a QA Project Plan (QAPP) required for a Grant?
- What is the purpose of a QAPP?
- How do we develop and write a QAPP for our Grant? (guidance?)

When do we need a QAPP?

- A QAPP is required under the Grant Regulations (40 CFR parts 30 & 31) for projects that ***generate or collect environmental data***.
- **Environmental data** are any measurements or information that describe environmental processes, location, or conditions; ecological or health effects and consequences; or the performance of environmental technology. Examples: monitoring data, model outputs, GIS points, etc.
- **Generate or Collect** means the production of new data or the acquisition of existing data

What is the Purpose of a QAPP?

- The QAPP is a ***Tool for Project Planning***
- It assists in the determination, documentation and establishment of:
  - Project goals, objectives, data needs and intended data use (expectations)
  - Project personnel, tasks, major milestones and schedule
  - Data quality objectives (formal/regulatory, or flexible/informational)
  - Data collection strategy (monitoring design & methods)
  - Data management, evaluation and reporting

How do we Develop & Write a QAPP

Before writing the QAPP, we need to decide on our data quality objectives:

What is the overall purpose and goal for the project?

What question needs to be answered to achieve the project goal?

What are the data needs required to answer the question?

How will the data be used?

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What question needs to be answered to achieve the project goal?

Question: How much of a pollutant is in the environment?

What are the data needs required to answer the question?

Data Needs: Measure a pollutant in a representative area

How will the data be used?

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What question needs to be answered to achieve the project goal?

Question: How much of a pollutant is in the environment?

What are the data needs required to answer the question?

Data Needs: *Measure a pollutant in a representative area*

How will the data be used?

Intended Data Use: *Report pollutant measurements to community*

How do we Develop & Write a QAPP

Section A - Project Management	Section B - Data Generation and Acquisition	Section C - Assessment and Oversight
A1 Title and Approval Sheet	B1 Sampling Process Design (Experimental Design)	C1 Assessments and Response Actions
A2 Table of Contents	B2 Sampling Methods	C2 Reports to Management
A3 Distribution List	B3 Sample Handling and Custody	
A4 Project/Task Organization	B4 Analytical Methods	**Section D - Data Validation and Usability**
A5 Problem Definition and Background	B5 Quality Control	D1 Data Review, Verification, and Validation
A6 Project/Task Description	B6 Instrument/Equipment Testing, Inspection, and Maintenance	D2 Verification and Validation Methods
A7 Quality Objectives and Criteria	B7 Instrument/Equipment Calibration and Frequency	D3 Reconciliation with User Requirements
A8 Special Training/Certifications	B8 Inspection/Acceptance of Supplies and Consumables	
A9 Documentation and Records	B9 Non-direct Measurements	
	B10 Data Management	

How do we Develop & Write a QAPP

Project Management	Setup QAPP Format (title page, lines of organization & agency approval, table of contents, plan/data distribution list). Determine the Project Organization & Personnel.
	Background Information (context for data collection), Project Goals, Question to be Answered (*problem statement*), Data Needs *(intended use of the data),* DQOs, Major Tasks, Training & Documentation *(records)* requirements.
Data Generation & Acquisition	Setup the sample design, sample handling, Custody considerations (*formal*), measurement methods, QC (*method/DQO driven*), test equipment procedures, data management *(data flow).*
Assessment & Oversight	Check to see if the sampling & measurement procedures are correctly working. If not, then make corrections.
Data Validation & Usability	Verify that the data measurements were correct and sufficiently precise and accurate enough to meet the project goals.

Project Management [A]

Project / Task Organization (A4)

- List persons & their responsibilities including tasks such as sample collection, shipping, measurements, data review, data reporting, training and internal audits.
- Identify any external Contractors & their contact information *(e.g., laboratories)*

Problem Definition / Background (A5)

- Background Information (*provides context for data collection)*
- State the project goals, data needs, intended data use

Project / Task Description (A6)

- Summarize the major project tasks to be performed
- Provide a schedule for major milestones
- Provide a map depicting the sample & measurement locations/area *(if relevant)*

Project Management [A]

Quality Objectives and Criteria for Measurement Data (A7)

- Provide *Precision & Accuracy* requirements for each test method based on project and testing requirements *(i.e., duplicates, spike recoveries, etc.)*
- Determine *Sensitivity* requirements (*detection limit/quantitation limits*) for the test methods as they relate to project data needs (e.g., measurements are sufficiently sensitive to detect below a project's water quality criteria)
- Document *Representativeness* of media to be sampled & measured
- Document *Comparability* of test methods used to obtain measurements
- Determine an acceptable *Completeness* objective *(as a percentage)* needed to obtain a sufficient number of measurements to achieve the project goals

Project Management [A]

Qualification & Training of Personnel (A8)

- Describe the training requirements for project personnel and how training records are documented and maintained *(e.g., use of sampling equipment, measurement devices, etc.)*

Documents and Records (A9)

- Determine the record keeping requirements for the project. Identify critical Project records and describe how they are maintained *(e.g., field data sheets, logbooks, QAPP, Health & Safety Plan, chain of custodies, testing results, etc.)*

Data Generation and Acquisition [B]

Sampling Process Design (B1)

- Detail the project's sample collection / analytical approach based on the intended use of the data *(e.g., collect & analyze "X" number samples at certain location, date and time to represent a specific environmental condition)*

Sampling Methods (B2)

- Describe the sample collection procedures
  - Identify the type of sample collection technique (e.g., grab, composite, GW, etc)
  - Indicate special sample collection requirements for test methods and any quality control samples *(e.g., trip blanks for VOCs, transfer blanks E.coli)*
  - List out the sample equipment needed and decontamination procedures
- Identify corrective actions in case of sample loss *(determine critical samples)*

Data Generation and Acquisition [B]

Sample Handling and Custody (B3)

- Describe the sample handling requirements including the sample container, sample preservation & holding time requirements *(test method defined)*
- Sample label information *(sample ID, location, date, time, preservation)*
- Sample Custody procedures *(Legal samples)*

Analytical Methods (B4)

- Identify the Test Methods that will meet the project data needs

Quality Control (B5)

- Describe the QC (*blanks, spikes, duplicates*) requirements and required QC limits for both field and lab QC samples *(these may be test method defined or project required as defined in Section A7)*

Data Generation and Acquisition [B]

Instrument/Equipment Testing, Inspection, and Maintenance (B6)

- List out the testing equipment that requires maintenance & describe how maintenance is performed

Instrument/Equipment Calibration and Frequency (B7)

- List out the measurement equipment that require calibration
- Describe the method & frequency of instrument calibration and any certifications that are required *(some equipment may be sent out for calibration & certification)*

Inspection/Acceptance of Supplies and Consumables (B8)

- Identify supplies and consumables that are critical to monitoring
  - Examples: contaminant and powder free gloves, preservation vials, disposable wipes, sample bottles *(clean or sterile),* calibration standards *(expiration date)*

Data Generation and Acquisition [B]

Data Management (B10)

- Description of how data is recorded, transferred, stored & retrieved
- Identify any digital systems, software and/or devices used to manage the data
- Identify & describe the reporting requirements for lab data
  - Analytical sample data
  - Quality Control results
  - Chain of Custody Records *(Legal samples)*

Assessment and Oversight [C]

Assessments and Response Actions (C1)

- How are assessments of the sample collection, sample testing and records management processes performed for the project?
  - Independent observations of sample collection & field testing
  - Accreditation requirements for environmental testing Labs
  - Review of sample collection & testing records (e.g., field data sheets)

Reports to Management (C2)

- How is project management informed of the results of these assessments?

Data Validation and Usability [D]

Data Review, Verification and Validation (D1)

- Describe the acceptance criteria for the review of data *(e.g., test method criteria, project specific data quality indicators, adherence to SOPs, etc.)*

Verification and Validation Methods (D2)

- Describe how the data review criteria will be applied to:
  - Laboratory data
  - Field measurements

Reconciliation with User Requirements (D3)

- Describe how data will be assessed prior to reporting *(e.g., minimum levels/reporting limits are sufficiently low, all required analyses are present, sample & testing requirements were met, test results not rejected by failed QC, etc.)*

Closing Summary

- Quality Assurance Project Plans (QAPPs) are required under assistance agreements where environmental data are collected or acquired.
- QAPP development is a planning process that is tailored to the specific goals of the project *(flexible)* and is focused on the data needs and intended data use
- QA planning, implementation & oversight leads to the collection of data that is suitable for its intended use and can withstand scrutiny *(quality of data is known)*

QAPPs for Tribes in Region 10 – (guidance, checklists, instructions,..)

https://www.epa.gov/r10-tribal/quality-assurance-project-plans-tribes-region-10

Tribal Air Monitoring Assistance Center – (planning tools, templates, examples,..)

http://www7.nau.edu/itep/main/tams/Tools