Missouri Department of Natural Resources

Quality Assurance Project Plan (QAPP) Guidance for Missouri's Section 319 Nonpoint Source Projects

A QAPP is a written document that describes the quality assurance procedures, quality control specifications, and other technical activities that must be implemented to ensure that the results of the project or task to be preformed will meet project specifications. A QAPP documents the results of a project's technical planning process, providing in one place a clear, concise, and complete plan for the sampling event/monitoring event and its quality objectives and identifying key project personnel. It applies to all projects which are funded by the U.S. EPA through grants, contracts, or other financial assistance agreements.

A QAPP must be submitted by the subgrantee, and approved and signed by the Department of Natural Resources (the Department) prior to any water quality sampling through a section 319(h) grant. For subgrantees unfamiliar with QAPP procedures and protocol, a meeting with 319 NPS QAPP staff can be coordinated in order to facilitate the process. Please contact your 319 NPS Project Manager to make those arrangements.

The following QAPP format is provided to assist subgrantees in the development and packaging of the document in order to minimize approval time. Once the project has been approved to be funded and as part of the projects first milestones, a draft QAPP must be developed by the subgrantees and submitted to the Department's 319 NPS Project Manager in order to begin the review process.

No water quality monitoring shall begin until the QAPP has been approved. Any sampling done prior to securing an approved QAPP will not be considered within the project's scope of work and the subgrantee will not receive financial reimbursement for such monitoring activities.

Once the subgrantee has received comments from the Department, the subgrantee shall revise the QAPP as necessary to address the comments then resubmit for follow-up review. Once the draft QAPP has been approved by the 319 NPS Project Manager, the subgrantee shall sign three copies and submit them to the 319 NPS Project Manager. The 319 NPS Project Manager will then secure all Department signatures, forward the subgrantee two signed originals, and retain one for the Department's project file.

These guidance documents were developed based on the U.S. EPA's document entitled "EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5" (EPA/240/R-02/009). For additional information regarding QAPPs please refer to the USEPA website **www.epa.gov/quality/** .

Quality Assurance Project Plans (QAPP) Overview

A QAPP is organized into four basic sections. The order of these sections will follow the following layout: Group Project Management, Data Generation and Acquisition, Assessment and Oversight, Data Validation and Usability

The four basic sections are further subdivided into 24 required elements covering different topics that define and describe the following:

- Who will use the data
- What the project's goals/objectives/questions or issues are
- What decision(s) will be made from the information obtained
- How, when, and where project information will be acquired or generated
- What possible problems may arise and what actions can be taken to mitigate or minimize their impacts on the project
- What type, quantity, and quality of data are specified
- How "Good" the data has to be to support the decision to be made
- How will the data be analyzed, assessed, and reported.

Not all 24 elements will pertain to every project; it depends upon the type of project, the data to be obtained, the decisions to be made, etc.

The Department's Section 319 Nonpoint Source Program has four levels of QAPPs. The level of a QAPP will be determined by the 319 NPS Project Manager based upon how the data will be used and/or the project objectives:

1. Law making, enforcement
2. Support laws, policy, and regulation
3. Interim studies
4. Biological studies and soil sampling

A level 1 QAPP is the highest level document and will require standards of quality, detail, accuracy, and precision that are necessary to make law making or enforcement decisions. A level 4 QAPP is the lowest level where the document will require less stringent quality control requirements and the information collected will be used mainly for informational purposes.

Below is a summary table of the 24 required QAPP elements, the required element for QAPP level, and suggested content for each element. The table can also be used as a reviewer's checklist.

	QAPP Element	QAPP Level Requirement	Suggested Content
1. PROJECT MANAGEMENT			
1.1	Title and Approval Sheet	All	Project title; organization name; names, position titles, signatures, and signature dates of the approving officials.
1.2	Table of Contents	All	Table of contents; list of figures and tables; references and appendices; document control format.
1.3	Distribution List	All	Names of individuals and organization(s) to receive a copy of the approved QAPP.
1.4	Project/Task Organization	All	List of individuals and organizations involved with the project, and their roles and responsibilities; documentation of project quality control manager's independence; identification of individual responsible for maintaining the official, approved QAPP; organizational chart showing relationships and lines of communication among project personnel.
1.5	Problem Definition/Background	All	Statement of specific problem(s) to be solved, decision(s) to be made, or outcome(s) to be achieved; background information.
1.6	Project/Task Description	All	Summary of work to be performed and products generated; project schedule, maps, tables etc. showing geographic locations.
1.7	Data Quality Objectives for Measured Data	All	Decision(s), population parameter(s) of interest, action level(s), summary statistics and acceptable limits on decision errors.
1.8	Special Training Requirements/ Certifications	1	Any specialized training or certifications needed by personnel, plans for providing, documenting and assuring this training.
1.9	Documentation and Record	All	Description of how the most current approved quality assurance project plan will be distributed to project staff, list of records to be included in the data report package, list of any other project documents to be produced, information on the final disposition of records and documents, including storage, location, and retention schedule.
2. MEASUREMENT/DATA ACQUISITION			
2.1	Sampling Process Designs (experimental design)	All	Description of project's experimental design.

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2.2	Sampling Methods Requirements (field sampling)	All	Description of sample/data collection procedures, list of equipment needed, identification of performance requirements, Description of corrective actions to be taken if problems arise.
2.3	Sample Handling and Custody Requirements	All	Description of sample handling requirements, transfer, and ultimate disposal
2.4	Analytical Methods Requirements (lab analysis)	All	Description of analytical methods to be used, identification of any performance criteria, and description of corrective actions when problems arise.
2.5	Quality Control Requirements	All	List of quality control activities needed for sampling, analytical, or measurement techniques, along with their frequency; description of control limits for each quality control activity and corrective actions when these are exceeded; identification of any applicable statistics to be used.
2.6	Instrument/Equipment Testing Inspection and Maintenance Requirements	1 & 2	List of equipment and/or systems needing periodic maintenance, testing, or inspection, and the schedule for such; description of how inspections and periodic preventive maintenance procedures will be performed and documented; discussion of how critical spare parts will be supplied and stocked; description of how re-inspections will be performed and effectiveness of corrective actions; identification of those responsible.
2.7	Instrument/Equipment Calibration and Frequency	All	List of all project tools, gauges, instruments, and other sampling, measuring, and test equipment which shall be calibrated; description of calibration method and identification of any certified equipment and/or standards to be used; details of how calibration record will be maintained and traceable to the instrument/equipment; identification of those responsible.
2.8	Inspection of Supplies	1	A list of project supplies and consumables that may directly or indirectly affect the quality of the results; the acceptance criteria for them; identification of those responsible to maintain them.
2.9	Data Acquisition Requirements (non direct measurements)	All	Identification of any existing data that will be obtained from non-measurement sources, such as literature files and historical databases; description of how you intend to use the data; your acceptance criteria and any limitations for using such data.

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	Data Management	1 & 2	Description of the project data management process; description of or reference to the office's standard record-keeping procedures and document control, data storage, retrieval, and security systems; identification of data handling equipment and procedures to process, compile, and analyze project data; discussion of data handling procedures to detect and correct errors and loss during data processing; examples of forms and checklists to be used, identification of any specific computer hardware/software performance requirements and how configuration acceptability will be determined; description of how applicable information resource management requirement(s) will be satisfied.
3. ASSESSMENT/OVERSIGHT			
3.1	Assessment and Response Action	All	Description of project assessments planned and a brief discussion of the information expected; approximate schedule for these assessments and their reports; for any planned self-assessments, identification of potential participants and their relationship within the project organization; for independent assessments, identification of the organization and person(s) that will conduct assessments; identification of how, when, and to whom the results of each assessment will be reported.
3.2	Reports to Management	All	Frequency and distribution of reports to inform management (MoDNR, EPA or otherwise) of the project status; identification of report preparer and recipients, as well as any specific actions or recommendations recipients are expected to make.
4. DATA VALIDATION AND USABILITY			
4.1	Data review, Validation, and Verification Requirements	All	State the criteria for deciding to accept, reject, or qualify project data in an objective and consistent manner.
4.2	Validation and Verification Methods	1 & 2	Description of how project data will be verified and validated; discussion of how any issues will be resolved and identification of who has the authority for resolving them; description of how results will be conveyed to data users; explanation of how validation issues differ from verification issues for this project; examples of any forms or checklists to be used and identification of any project specific calculations.

QAPP Element		QAPP Level Requirement	Suggested Content
4.3	Reconciliation with User Requirements	All	Description of how project result(s) will be reconciled with the requirements defined by the data user or decision maker; an outline of methods proposed to analyze the data and determine possible anomalies or departures from assumptions made when the project was planned; description of how reconciliation with user requirements will be documented, issues will be resolved, and how limitations on the use of data will be reported to decision makers.