

## **Appendix C**

### **Using the Graded Approach for the Development of QMPs and QAPPs in Ambient Air Quality Monitoring Programs**

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EPA policy requires that all organizations funded by EPA for environmental data operations (EDOs) develop quality management plans (QMPs) and quality assurance project plans (QAPPs). In addition, EPA has provided flexibility to EPA organizations on how they implement this policy, allowing for use of a graded approach. The following proposal explains the graded approach for data collection activities related to ambient air monitoring. OAQPS proposes a graded approach for the development of QAPPs and QMPs.

### **The Graded Approach**

The QMP describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing activities involving EDOs. Each program should provide appropriate documentation of their quality system. Here are a few ways that this could be handled.

Concept - Small organizations may have limited ability to develop and implement a quality system. EPA should provide options for those who are capable of making progress towards developing a quality system. If it is clear that the EDO goals are understood and that progress in quality system development is being made, a non-optimal quality system structure, for the interim, is acceptable. The concept is to work with the small organization to view the QMP as a long-term strategic plan with an open ended approach to quality system development that will involve continuous improvement. The graded approach to QMP development is described below and is based on the size of the organization and experience in working with EPA and the associated QA requirements.

1. Small organization that just received its first EPA grant or using a grant for a discrete, small, project-level EDO. Such organizations could incorporate a description of its quality system into its QAPP.
2. Small organization implementing EDOs with EPA at more frequent intervals or implementing long-term monitoring programs with EPA funds. If such an organization demonstrates capability of developing and implementing a stand-alone quality system, it is suggested that an appropriate separate QMP be written.
3. Medium or large organization. Develop QMP to describe its quality system and QAPPs for specific EDOs. Approval of the recipient's QMP by the EPA Project Officer and the EPA Quality Assurance Manager may allow delegation of the authority to review and approve Quality Assurance Project Plans (QAPPs) to the grant recipient based on acceptable procedures documented in the QMP.

## **Quality Assurance Project Plans**

The QAPP is a formal document describing, in comprehensive detail, the necessary QA/QC and other technical activities that must be implemented to ensure that the results of work performed will satisfy the stated performance criteria, which may be in the form of a data quality objective (DQO). The quality assurance policy of the EPA requires every EDO to have written and approved quality assurance project plans (QAPPs) prior to the start of the EDO. It is the responsibility of the EPA Project Officer (person responsible for the technical work on the project) to adhere to this policy. If the Project Officer gives permission to proceed without an approved QAPP, he/she assumes all responsibility. If a grantee's QMP is approved by EPA and provides for delegation of QAPP approval to the grantee, the grantee is responsible to ensuring approval of the QAPP prior to the start of the EDO.

The Ambient Air Monitoring Program recommends a four-tiered project category approach to the Ambient Air QA Program in order to effectively focus QA. Category I involves the most stringent QA approach, utilizing all QAPP elements as described in EPA R5<sup>a</sup> (see Table 2), whereas category IV is the least stringent, utilizing fewer elements. In addition, the amount of detail or specificity required for each element will be less as one moves from category I to IV. Table 1 provides information that helps to define the categories of QAPPs based upon the data collection objective. Each type of ambient air monitoring program EDO will be associated with one of these categories. The comment area of the table will identify whether QMPs and QAPPs can be combined and the type of data quality objectives (DQOs) required (see below). Table 2 identifies which of the 24 QAPP elements are required for each category of QAPP. Based upon a specific project, the QAPP approving authority may add/delete elements for a particular category as it relates to the project but in general, this table will be applicable based on the category of QAPP.

### **Flexibility on the systematic planning process and DQO development**

Table 1 describes 4 QAPP/QMP categories which require some type of statement about the program or project objectives. Three of the categories use the term data quality objectives (DQOs), but there should be flexibility with the systematic planning process on how these DQOs are developed based on the particular category. For example, a category 1 project would have formal DQOs. Examples of category I projects, such as the State and Local Monitoring Stations (SLAMS), have DQOs developed by OAQPS. Category II QAPPS may have formal DQOs developed if there are national implications to the data (i.e., Speciation Trends Network) or less formal DQOs if developed by organizations implementing important projects that are more local in scope. Categories 3 and 4 would require less formal DQOs to a point that only project goals (category 4) may be necessary.

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<sup>a</sup> EPA Requirements for QA Project Plans (QA/R-5) [http://www.epa.gov/quality/qa\\_docs.html](http://www.epa.gov/quality/qa_docs.html)

### **Standard Operating Procedures- (SOP)**

SOPs are an integral part of the QAPP development and approval process and usually address key information required by the QAPP elements. Therefore, SOPs can be referenced in QAPP elements as long as the SOPs are available for review or are part of the QAPP.

**Table 1. Ambient Air Monitoring Program QAPP/QMP categories**

Categories	Programs	QAPP/QMP Comments	DQO
<p><b>Category 1</b>  Projects include EDOs that directly support rulemaking, enforcement, regulatory, or policy decisions. They also include research projects of significant national interest, such as those typically monitored by the Administrator. Category I projects require the most detailed and rigorous QA and QC for legal and scientific defensibility. Category I projects are typically stand-alone; that is, the results from such projects are sufficient to make the needed decision without input from other projects.</p>	<p>SLAMS  PSD  NCORE  IMPROVE  CastNet</p>	<p>Most agencies implementing Ambient Air Monitoring Networks will have separate QMPs and QAPPs. However, a Region has the discretion to approve QMP/QAPP combination for small monitoring organizations (i.e., Tribes)</p>	<p>Formal DQOs</p>
<p><b>Category 2</b>  Projects include EDOs that complement other projects in support of rulemaking, regulatory, or policy decisions. Such projects are of sufficient scope and substance that their results could be combined with those from other projects of similar scope to provide necessary information for decisions. Category II projects may also include certain high visibility projects as defined by EPA management</p>	<p>Speciation Trends  Toxics Mon.</p>	<p>Most agencies implementing Ambient Air Monitoring Networks will have separate QMPs and QAPPs. However, a Region has the discretion to approve QMP/QAPP combination for small monitoring organizations (i.e., Tribes)</p>	<p>Formal DQOs for national objective,  Flexible DQOs for localized objectives</p>
<p><b>Category 3</b>  Projects include EDOs performed as interim steps in a larger group of operations. Such projects include those producing results that are used to evaluate and select options for interim decisions or to perform feasibility studies or preliminary assessments of unexplored areas for possible future work.</p>	<p>SPM  One time Studies  Local Scale Air  Toxics Grants</p>	<p>EDOs of short duration. QMP and QAPP can be combined.</p>	<p>Flexible DQOs</p>
<p><b>Category 4</b>  Projects involving EDOs to study basic phenomena or issues, including proof of concepts, screening for particular analytical species, etc. Such projects generally do not require extensive detailed QA/QC activities and documentation</p>	<p>Education/Outreach</p>		<p>Project Objectives or Goals</p>

**Table 2 QAPP Elements**

QAPP Element	Category Applicability
A1 Title and Approval Sheet	I, II, III, IV
A2 Table of Contents	I, II, III
A3 Distribution List	I,
A4 Project/Task Organization	I, II, III
A5 Problem Definition/Background	I, II, III
A6 Project/Task Description	I, II, III, IV
A7 Quality Objectives and Criteria for Measurement Data	I, II, III, IV
A8 Special Training Requirements/Certification	I
A9 Documentation and Records	I, II, III
B1 Sample Process (Network) Design	I, II, III, IV
B2 Sampling Methods Requirements	I, II, III,
B3 Sample Handling and Custody Requirements	I, II, III
B4 Analytical Methods Requirements	I, II, III, IV
B5 Quality Control Requirements	I, II, III, IV
B6 Instrument/Equipment Testing, Inspection & Maintenance	I, II, III
B7 Instrument Calibration and Frequency	I, II, III
B8 Inspection/Acceptance Requirements for Supplies and Con.	I,
B9 Data Acquisition Requirements for Non-direct Measurements	I, II, III
B10 Data Management	I, II
C1 Assessments and Response Actions	I, II,
C2 Reports to Management	I, II,
D1 Data Review, Validation, and Verification Requirements	I, II, III
D2 Validation and Verification Methods	I, II
D3 Reconciliation and User Requirements	I, II,