

Quality Assurance/Quality Control Procedures

Air quality research projects must include a formal quality assurance (QA) and/or quality control (QC) program that will ensure products are of known and acceptable quality. These QA/QC requirements are consistent with the applicable elements of *ANSI/ASQ E4-2004: Specifications and Guidelines for Quality Systems for Environmental Data Collection and Technology Programs* and the TCEQ Quality Management Plan. If Contractor/Grantee is aware of any additional requirements which will be applicable to the work being performed, Contractor/Grantee shall include them in its documentation. If Contractor/Grantee becomes aware of any additional applicable requirements after TCEQ has approved the project, Contractor/Grantee shall notify the TCEQ and submit a revised documentation.

The project shall identify a Quality Assurance Project Plan (QAPP) as a deliverable and key QA checks to be utilized during the project. The required QAPP elements and associated audit types, frequencies, and quality reports are further described in this section. A project may not commence technical activities until the QAPP is approved, unless the TCEQ Project Manager/Liaison and the Air Quality Division Quality Assurance Officer both provide specific prior written approval.

The QAPP shall establish appropriate requirements for various types of air quality division research activities, according to the categories shown below. The intended use of the data dictates the required level of control quality. For example, the quality controls of a developmental research program are different from that of a regulatory compliance program because the purpose or intended use of the data is different. The four QA categories are:

- **Category I** – establishes QAPP requirements for projects involving areas such as enforcement activities or litigation;
- **Category II** – establishes QAPP requirements for important, highly visible Agency projects involving areas such as supporting the development of environmental regulations or standards;
- **Category III** – establishes QAPP requirements for projects involving applied research or technology evaluations; and
- **Category IV** – establishes QAPP requirements for projects involving basic research or preliminary data gathering activities.

For QA Categories I and II, QAPPs shall meet the EPA requirements specified in [EPA Requirements for QA Project Plans \(QA/R-5\) \(PDF\)](#) (40 pp, 121 KB) and follow the guidance outlined in [Guidance for Quality Assurance Project Plans, EPA QA/G-5](#). For QA Categories III and IV, QAPPs shall meet a subset of the above requirements (depending on the type of project), which must be consistent with the EPA National Risk Management Research Laboratory QAPP requirements (<http://www.epa.gov/nrmrl/qa/qappreq.html>) shown below / next page:

QAPP Category	Type of Project ^a	Required QAPP
I, II	Monitoring for NAAQS Compliance	EPA Requirements for QA Project Plans (QA/R-5) (PDF)
I, II	Modeling for NAAQS Compliance	Guidance for Quality Assurance Project Plans for Modeling, EPA QA/G-5M (PDF)
I, II	Geospatial	Guidance for Geospatial Data Quality Assurance Project Plans, EPA QA/G-5G (PDF)
III, IV	Measurement	NRMRL QAPP Requirements for Measurement Projects (PDF)
III, IV	Data Evaluation or Use for Secondary Purpose	NRMRL QAPP Requirements for Secondary Data Projects (PDF)
III, IV	Software Evaluation, Software Related Research, Software Maintenance, or Software Development	NRMRL QAPP Requirements for Software Development Projects (PDF)
III, IV	Method Development	NRMRL QAPP Requirements for Method Development Projects (PDF)
Footnotes	a. Project descriptions can be found at: http://www.epa.gov/nrmrl/qa/qappreq.html	

In addition, the QAPP must address technical systems audits, audits of data quality, and reports of QA findings in accordance with the requirements shown in the following table:

QA Requirement	Category I	Category II	Category III*	Category IV*
Technical Systems Audits	Required for each project	Required for each project	Not Required for the Project	Not Required for the Project
Audits of Data Quality**	Required (50% of the data sets)	Required (25% of the data sets)	Required (10%)	Not Required
Report of QA Findings	Required in draft final and final report	Required in draft final and final report	Required in final report	Required in final report

*Additional sets of requirements may also be required depending on the nature of the project.

**If problems are found, all data sets will be audited. This includes independent verification of every spreadsheet or automated calculation once and the percentage shown of manual calculations.