16.0 Reports to Management

This section provides guidance and suggestions to air monitoring organizations on how to report the quality of the aerometric data, and how to convey personnel information and requests for assistance concerning quality control and quality assurance problems. The guidance offered here is primarily intended for PQAOs that provide data to one or more of these national networks:

- SLAMS (State and Local Air Monitoring Stations)
- PAMS (Photochemical Air Monitoring Stations)
- PSD (Prevention of Significant Deterioration stations)
- NCore (National Core Monitoring Network)
- Chemical Speciation Network
- NATTS (National Air Toxic Trend Stations)

This guidance may also be useful in preparing reports that summarize data quality of other pollutant measurements such as those made at Special Purpose Monitoring Stations (SPMS) and state-specific programs.

Several kinds of reports can be prepared. The size and frequency of the reports will depend on the information requested or to be conveyed. A brief, corrective action form or letter-style report might ask for attention to an urgent problem. On the other hand, an annual quality assurance report to management would be a much larger report containing sections such as:

- executive summary
- network background and present status
- quality objectives for measurement data
- quality assurance procedures
- results of quality assurance activities, and
- recommendations for further quality assurance work, with suggestions for improving performance and fixing equipment problems, personnel training, infrastructure needs, etc.

A report to management should not solely consist of tabulations of analyzer-by-analyzer precision and bias check results for criteria pollutants. This information is required to be submitted with the data each quarter and is thus already available to management through AQS. Instead, the annual quality assurance report to management should summarize and discuss the results of such checks. These summaries from individual PQAOs can be incorporated into additional reports issued by the state, local, tribal and/or the EPA Regional Office.

This section also provides general information for the preparation of reports to management and includes:

- the types of reports that might be prepared, the general content of each type of report, and a suggested frequency for their preparation
- sources of information that can be tapped to retrieve information for the reports, and
- techniques and methods for concise and effective presentation of information.

Appendix I presents examples of two types of reports to management; the annual quality assurance report to management and a corrective action request.

16.1 Guidelines for Preparation of Reports to Management

16.1.1 Types of QA Reports to Management

Listed in Table 16-1 are examples of typical QA reports to management. An individual reporting organization may have others to add to the list or may create reports that are combinations of those listed below.

Table 16-1 Types of QA Reports to Management

Type of QA Report to Management	Contents	Suggested Reporting Frequency				
		As required	Week	Month	Quarter	Year
Corrective action request	Description of problem; recommended action required; feedback on resolution of problem.	x				
Control chart with summary	Repetitive field or lab activity; control limits versus time. Prepare monthly or whenever new check or calibration samples are used.	x		x	x	x
National Performance Evaluation Program results	Summary of PEP,NPAP, NATTS PT and CSN audit results.	x				x
State and local organization performance audits	Summary of audit results; recommendations for action, as needed.	x				x
Technical systems audits	Summary of system audit results; recommendations for action, as needed.	x				x
Quality assurance report to management	Executive summary. Precision, bias, and system and performance audit results.				x	x
Network reviews (by EPA Regional Office)	Review results and suggestions for actions, as needed.	x				x

Comment [ZJW1]: Mike, in my opinion this is basically a Quality System Audit, and the frequency should be annually only.

16.1.2 Sources of Information

Information for inclusion in the various reports to management may come from a variety of sources, including: records of precision and bias checks (AMP255 reports), results of systems and performance audits, laboratory and field instrument maintenance logbooks, NPAP audits, etc. Table 16-2 lists useful sources and the type of information expected to be found.

Table 16-2 Sources of Information for Preparing Reports to Management

Information Source	Expected Information and Usefulness
State implementation plan	Types of monitors, locations, and sampling schedule.
Quality assurance program and project plans	Data quality indicators and goals for precision, bias, completeness, timeliness.
Quality objectives for measurement data document	Quality objectives for measurement data. Audit procedures and frequency.
Laboratory and field instrument maintenance logbooks	Record of maintenance activity, synopsis of failures, recommendations for equipment overhaul or replacement.
Laboratory weighing room records of temperature, humidity	A record of whether or not environmental control in the weighing room is adequate to meet goals.
Audit results (NPAP, local, etc.)	Results of audit tests on ambient air pollutant measurement devices.
Quality control data on local information management systems or AQS	Results are generally considered valid and can be used to determine achievement of data quality objectives.

16.1.3 Methods of Presenting Information

Reports to management are most effective when the information is given in a succinct, well-summarized fashion. Methods useful for distilling and presenting information in ways that are easy to comprehend are listed in Table 16-3. A 2008 Guidance Document, designed to assist Tribes in developing monitoring programs contains an expanded section (Section 7) that discusses many of the statistical techniques described in Table 16-3[1]. Several of these methods are available on-line in AQS; others are available in commercially available statistical and spreadsheet computer programs.

Comment [ZJW2]: AirData?

Table 16-3 Presentation Methods for Use in Reports to Management

Presentation Method	Typical Use	Examples
Written text	Description of results and responses to problems	Appendix I
Control chart	Shows whether a repetitive process stays within QC limits.	Figure 10.2 of this Handbook
Black box report	Shows if project goals were met.	Executive Summary of Appendix I
Bar charts	Shows relationships between numerical values.	Included in most graphic and spreadsheet programs
X Y (scatter) charts	Shows relationships between two variables.	Included in most graphic and spreadsheet programs
Probability limit charts and box and whisker plots	Show a numerical value with its associated precision range.	Figure 1 of Appendix I

16.1.4 Annual Quality Assurance Report

The annual quality assurance report (an example is provided in Appendix I) should consist of a number of sections that describe the quality objectives for measurement data and how those objectives have been met. A suggested organization might include:

Executive Summary of Report to Management - The executive summary should be a short section (no more than two pages) that summarizes the annual quality assurance report to management. It should contain a checklist graphic that lets the reader know how the reporting organization has met its goals for the report period. In addition, a short discussion of future needs and plans should be included.

Introduction - This section describes the quality objectives for measurement data and serves as an overview of the reporting organization's structure and functions. It also briefly describes the procedures used by the reporting organization to assess the quality of field and laboratory measurements.

Quality Information for each Ambient Air Pollutant Monitoring Program - These sections are organized by ambient air pollutant category (e.g., gaseous criteria pollutants, air toxics). Each section includes the following topics:

- program overview and update
- quality objectives for measurement data
- data quality assessment

[1] Technical Guidance for the Development of Tribal Monitoring Programs
http://www.epa.gov/ttn/oarpg/t1/memoranda/techguidancetribalattch.pdf

16.1.5 Corrective Action Request

A corrective action request should be made whenever anyone in the reporting organization notes a problem that demands either immediate or long-term action to correct a safety defect, an operational problem, or a failure to comply with procedures. A typical corrective action request form, with example information entered, is shown in Appendix I. A separate form should be used for each problem identified.

The corrective action report form is designed as a closed-loop system. First it identifies the originator; the person who reports and identifies the problem, states the problem and may suggest a solution. The form then directs the request to a specific person or persons (i.e., the recipient), who would be best qualified to "fix" the problem. Finally, the form closes the loop by requiring that the recipient state how the problem was resolved and the effectiveness of the solution. The form is signed and a copy is returned to the originator and other copies are sent to the supervisor and the applicable files for the record.