

INSTITUTE FOR TRIBAL ENVIRONMENTAL PROFESSIONALS

Tribal Air Monitoring Support (TAMS) Center

Mission statement

The mission of the TAMS Center is to develop tribal capacity to assess, understand, and prevent environmental impacts that adversely affect health, culture, and natural resources. Prioritizing tribal environmental concerns and issues, and responding to shifting tribal air quality needs, are two key processes that will help to accomplish the TAMS mission



TAMS History

- TAMS was established in 1999
- Cooperative agreement between US EPA, and NAU/ITEP
- Utilize EPA ORIA facilities to offer technical air monitoring training to tribal professionals



Steering Committee (SC)

Steering Committee Goals:

- Provide a centralized point of contact for tribal air monitoring training, technical support
- Respond to evolving tribal environmental program needs by developing and implementing recommendations reflecting current tribal air monitoring issues
- Promote and strengthen tribes' efforts to better manage environmental programs through technical training and support and building tribal program capacity
- Facilitate inter-tribal dialogue among environmental professionals, encouraging the exchange of knowledge and information



Steering Committee Membership

- Composed of seven voting members and seven ex-officio members
- Meets twice a year in person
- All voting members are affiliated with a federally recognized tribe or inter-tribal association
- Composition of ex-officio members
 - 1 by Institute for Tribal Environmental Professionals (ITEP)
 - 1 by the EPA headquarters OAR
 - 1 by the EPA ORIA Las Vegas Office Director
 - 1 by the EPA OAQPS Office Director
 - 1 by the regional EPA Tribal Air Coordinator
 - 1 by National Tribal Environmental Council
 - 1 by National Tribal Air Association



Training Courses

- On average, 10 training course are offered by the TAMS center annually
- During first 3 years, Particulate Matter training dominated TAMS curricula
- Gradually data management courses, met station trainings were added
- Courses addressing other pollutants (SO_x, NO_x, O₃, air toxics) have been offered



Courses (continued)

- **Currently TAMS offers**
 - Air Pollution Technology
 - Quality Assurance Project Plans
 - Data Management (both on-line and in Classroom)
 - Air Quality System (AQS)
 - PM Monitoring and Instrument Operation
 - Gaseous Pollutant Monitoring
- **New courses added for this year**
 - Data Analysis and Interpretation
 - Air Pollution and Ecosystems



Professional Training and Assistance

- Complements the air quality training courses
 - When schedule or topics do not meet the needs of trainees
 - Short-term training with specific goals established between AIAQTP and trainee
- Individualized training for tribal professionals with host site that meets interns' needs
 - Include tribal agencies, EPA regions, OAQPS and state/local agencies
- National Tribal Forum brings Tribes/EPA/State/Locals together to discuss air quality management issues of national, regional and local concern



TAMS-Technical Support Services

On-site Training – Las Vegas



Field Services/Training



Gravimetrical Laboratory

- R&IE Grav. Lab was first operational in 2003
- Five Tribes originally utilized lab services during the first year by sending their PM2.5 filters for weighing
- Number of tribes receiving filter weighing services has increased to 10 up to date



Monitoring equipment loan program

- TAMS center has an inventory of samplers/analyzers that can be loaned out to a tribe for a period of time
- These samplers include
 - PM2.5 FRM (single channel and sequential)
 - PM 10 HiVol sampler
 - TEOM
 - BAM 1020
 - Met Tower & sensors
 - SO₂ , NO_x, O₃, CO analyzers
 - Indoor air monitoring instrumentation



Contact information

- For TAMS assistance contact Farshid Farsi, TAMS Co-Director
- farshid.farsi@nau.edu, (702)784-8263, (702)784-8261 fax
- For lab services, Robert Mosley, mosley.robert@epa.gov (702)784-8266, (702)784-8231 fax



2 Tools for Tribes:

(1) Tribal Data Toolbox: Free
Comprehensive Data Base
for Tribes

Includes AQS data
formatting!!!

(2) Turbo-QAPP: Software for
QAPP Writing

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The Toolbox's Main Switchboard:

Main Switchboard

Administrative

Create New
Monitoring Program

Modify or Add Site
And Sampler
Information

Modify or Add
Personnel
Information

Import Data From A
Previous Toolbox
Version

Data Operations

Continuous Based and
Meteorological
Monitoring

Filter Based
Monitoring

Reporting

Quality Control and Data
Reports and Charts

AQS Raw Data File
Submittal

Help files are hyperlinked:

Setting Up A New Air Monitoring Program

- Enter Personnel Data
- Enter Site Data
- Enter Sampler Data

CLICK HERE FOR HELP FILE

Help for Create New Monitoring Program Operations

Table of Contents:

[Introduction \(Page 1\)](#)

[Enter Personnel Data \(Page 2\)](#)

[Enter Site Data \(Page 2\)](#)

[Enter Sampler Data \(Page 3\)](#)

- From the Main Switchboard, click on the "Create New Monitoring Program" button under the Administrative category.



QC data entry and immediate flagging and charting:

Gaseous Pollutants Quality Control Data

Pollutant	Frequency	QC Employee	QC Organization	QC Date	QC Time	Site Name
O3	bi-weekly	ASQ	tribe	5/29/2006	10:00:00 AM	housing development

QC Device Make	QC Device Model	QC Device Sampler Number	QC Device Full Scale	Shelter Temperature
API	49c	IN7	500	

Conc. Units	Zero Input	Zero Device Display	Zero DAS Output	Zero Qualifier
PPB	0	0	0	

Span 1 Input	Span 1 Device Display	Span 1 DAS Output	Span 1 Precision (%)	Span 1 Qualifier
90	108.25	108.25	20.28	L1S

Span 2 Precision (%)	Span 2 Qualifier
5.48	

Span 3 Precision (%)	Span 3 Qualifier

Span 4 Precision (%)	Span 4 Qualifier

Span 5 Precision (%)	Span 5 Qualifier

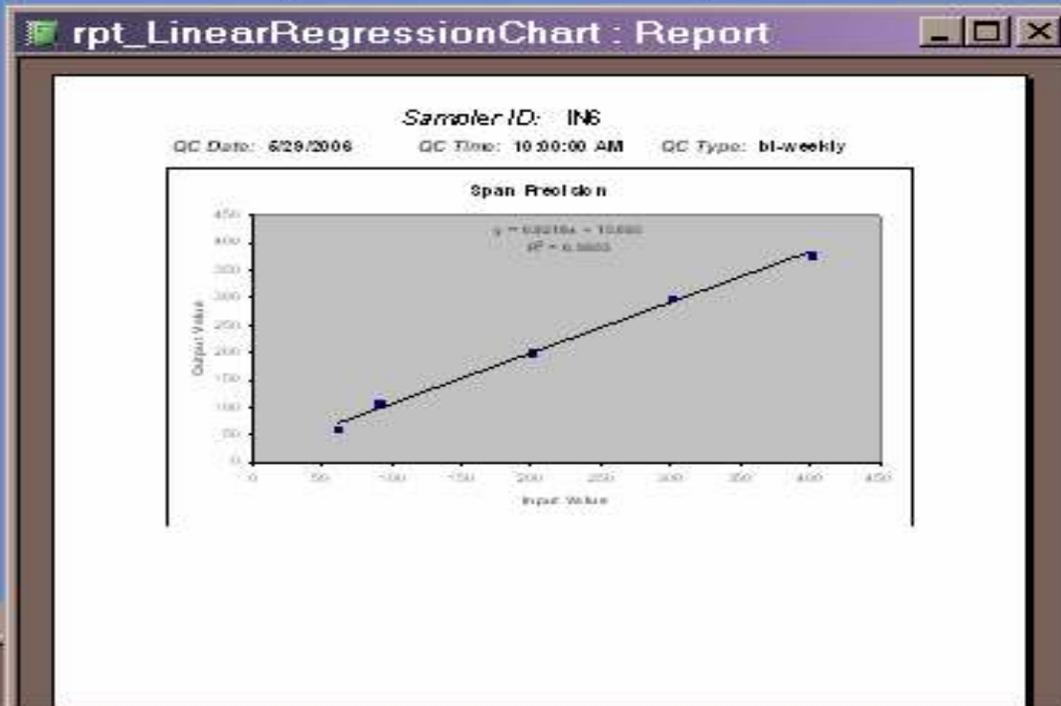
Span 6 Precision (%)	Span 6 Qualifier

Span 7 Precision (%)	Span 7 Qualifier

Span 8 Precision (%)	Span 8 Qualifier

Span 9 Precision (%)	Span 9 Qualifier

Span 10 Precision (%)	Span 10 Qualifier



Flag for level one span check

Every step of PM (this can be easily adapted for any sample collection data) is tracked:

Filter Based Monitoring Data Operations

Pre Field Placement

Enter QC and
Maintenance Check Data

Enter COC Data for
Unexposed Tared Filters

Post Field Placement

Enter Field Placement
Data from COC

Post Sample Collection

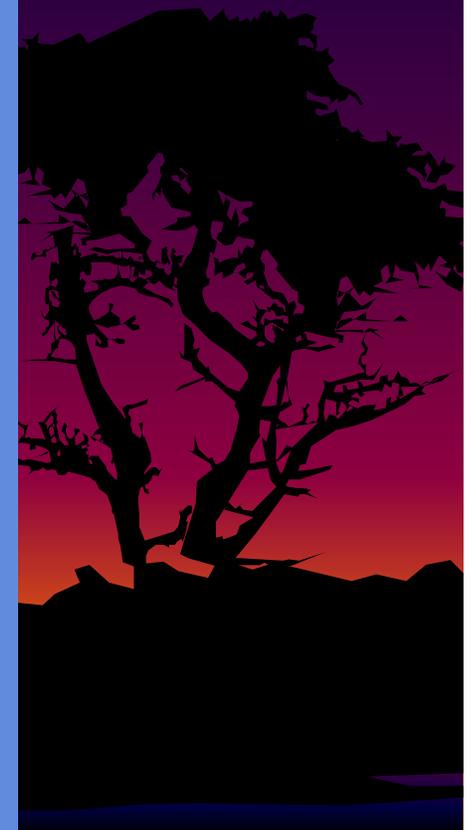
Enter Shipping Data
from COC

Enter Field Data Sheet
Information

Import Data from
Analyzer

Post Receipt of Lab Report

Import Data from
Weighing Lab



Sub-menus for each step:

Filter Based Monitoring Data Operations

Pre Field Placement

Enter QC and Maintenance Check Data

Enter COC Data for Unexposed Tared Filters

Post Field Placement

Enter Field Placement Data from COC

Post Sample Collection

Enter Shipping Data from COC

Enter Field Data Sheet Information

Import Data from Analyzer

Post Receipt of Lab Report

Import Data from Weighing Lab

Filter Based QC and Maintenance Check Data

Enter 5 Day Maintenance Check Data

Enter Monthly QC Check Data

Enter Quarterly FR QC Check Data

Enter Six Month Maintenance Check Data

Enter Annual Maintenance Check Data

[CLICK HERE FOR HELP FILE](#)

Drop-down lists, auto-complete makes accurate data entry easy;

Filter Based QC and Maintenance Check Data

Enter 5 Day Maintenance Check Data

Enter Monthly QC Check Data

Enter Quarterly FR QC Check Data

Enter Six Month Maintenance Check Data

Enter Annual Maintenance Check Data

[CLICK HERE FOR HELP FILE](#)

tbIPM2_5MaintenanceFiveDay

5 Day Maintenance Check

Sampler ID	Pollutant	Maintenance Check Date	Maintenance Check Time	Initials
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

External Leak Check Comments Ext Leak Check

Clean WIIS Impactor Comments Clean Impactor

Passed 5 Day Check?:

Record: 1 of 1 (Filtered)

QC Reports and Charts:

Main Switchboard

Administrative

- Create New Monitoring Program
- Modify or Add Site And Sampler Information
- Modify or Add Personnel Information
- Import Data From A Previous Toolbox Version

Data Operations

- Continuous Based and Meteorological Monitoring
- Filter Based Monitoring

Reporting

- Quality Control and Data Reports and Charts
- AQS Raw Data File Submittal

frm_QC_Reports : Form

Quality Control and Data Reports

- Continuous Based Monitoring
- Filter Based Monitoring

EMAIL ITEP

Report for ozone daily max at 1 site:

Daily Max Eight-Hour Average Ozone Concentrations (PPM) For the 2003 Sampling Year

Site ID: S2

Site Name: casino

Sampler ID: IN3

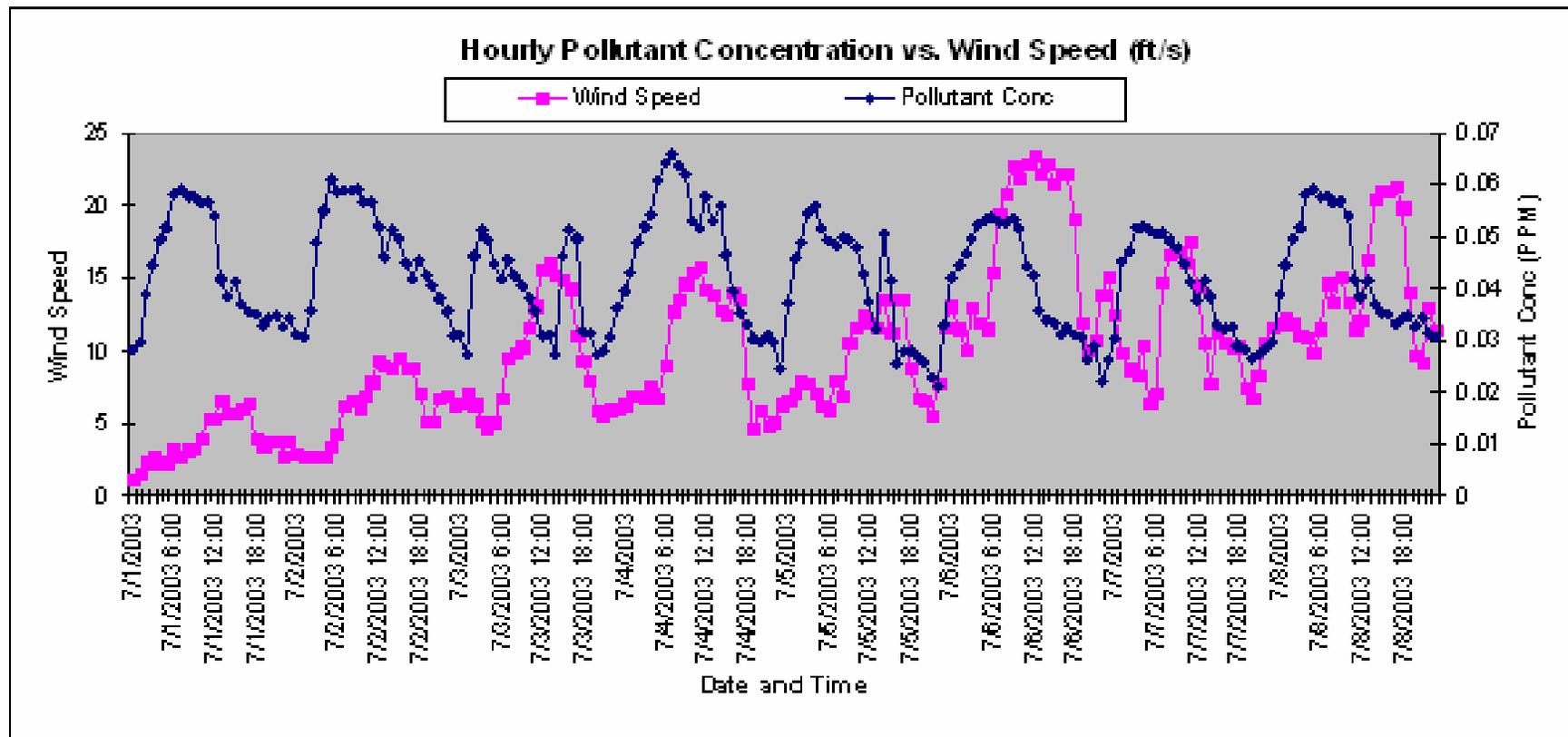
Monitoring Day	Maximum 8-Hour Average O3 Concentration (PPM)	Percentage of Valid 8-Hour Averages	Valid Ozone Monitoring Day?
5/14/2003	0.038	25	No
5/15/2003	0.052	100	Yes
5/16/2003	0.05	100	Yes
5/17/2003	0.056	100	Yes
5/18/2003	0.058	100	Yes
5/19/2003	0.045	100	Yes
5/20/2003	0.051	100	Yes
5/21/2003	0.052	100	Yes
5/22/2003	0.05	100	Yes
5/23/2003	0.056	100	Yes
5/24/2003	0.058	100	Yes

Concentration vs. wind speed:

Site ID: S2

Sampler ID: IN3

Pollutant O3



AQS Formatting!

Main Switchboard

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AQS Raw Data File
Submittal

EMAIL ITEP

After you are confident of your data validation, you can create and upload an AQS-formatted file:

Create AQS Raw Data Text File

FIRST TIME USERS! CLICK HERE FOR HELP FILE!

Input REQUIRED!

AQS Site ID	POC
0002	1
Parameter	
88101	
Method	
850	
Reported Units	
105	
Sample Duration	
7	

All preset AQS codes are already in the Toolbox in drop-down boxes

The Tribal Data Toolbox gives you power to manage and report your data, however you want.

- Online courses beginning in June
- Help files linked within the software or readable on their own
- Support available via email and phone
- Email us for updated versions and tutorials
- Melinda.ronca-battista@nau.edu
- Angelique.luedeker@nau.edu

2nd project:

**TURBO-QAPP: Making
QAPPs Work For You**

Melinda Ronca-Battista
NAU ITEP Tribal Air Monitoring Support
Center

Example text for each section:

Summary | Project Information | Project Schedule

Description of work to be performed

The measurement goal of this O₃ Ambient Air Quality Monitoring Program is to estimate the concentration, in units of parts per million (ppm), of O₃ in ambient air. The primary goal is to compare the O₃ concentrations to the 1-hour average and 8-hour rolling average NAAQS. The national primary and secondary ambient air quality standards for O₃ are 0.12 PPM for the 1-hour standard and 0.08 ppm for the 8-hour rolling average concentration measured in ambient air. The following sections describe the measurements required for the routine field activities for the network.

Accept Example Clear

Tip

 Summary of the work to be done and information, sampling locations, etc... briefly describe the measurement processes and techniques used to collect the information.

Walks the user through all 7 steps of the Data Quality Objectives Process

Stating the problem | Identifying the decision | Identify the inputs to the decision | Define the boundaries of your project

Stating the problem

Data Quality Objectives are an important component of planning a data-gathering project. Basically, developing DQO is a sort of systematic planning process to decide on what questions you have that you want to use your data to answer. This planning process can be a series of meetings held between the people involved in the project, and notes taken during the meetings to help decide. It can also be more formal, involving statistics and evaluating options and choices. The QAPP is where the process is documented. If you hold a series of meetings to go through this process, the results of your notes can be entered into the screens for element 7 in the form of brief (or lengthy) statements.

The first step of developing DQOs is to decide what condition exists that you are concerned about. In other words, what are the measurements? (This is called 'stating the problem.')

For example, you may be concerned with rising asthma rates in a community, or possible emissions from a coal burning plant, or want baseline conditions to be documented in case air quality changes.

STATE YOUR PROBLEM IN A FEW SENTENCES

There has been concern recently that air quality conditions have deteriorated on tribal land. This office has received reports of decreased visibility and there have been many more cases of asthma in the population in recent years. In addition, there is an increase in development and vehicle traffic, leading to concern about the air quality. We do not have information on whether conditions continue to change we will not be able to track whether changes in health or general visibility are related to the air quality.

Links to websites and included reference files:

Define the boundaries of your project | Deciding on a decision rule | Specifying tolerable limits on decision errors | Optimize the design

Specifying tolerable limits on decision errors

The 6th step is to decide how much risk you want to take in being "wrong" about your decision. There is going to be some error in your measurements, and you may not make measurements 24 hours a day, so you are really only estimating the "true" pollutant concentration. A statement of decision error could be "we accept that our annual average may be only within 10% of the true annual average, 95% of the time." (This is called "specifying tolerable limits on decision errors"). This is where, if you are making measurements to determine if your air meets the EPA's NAAQS, you can use what they have developed for data quality objectives. If you are making measurements for the sole purpose of determining if the air on your land meets the NAAQS, the example text below should suffice. If you are making other decisions, EPA does have a tool to calculate the statistics that is very useful and can give you an idea of how these calculations are done. Click the link below (*) to download the DEFT and the user's guide.

DESCRIBE YOUR LIMITS ON DECISION ERRORS

Data Quality Objectives are being developed by the EPA for a determination of whether or not a particular location meets the national ambient air quality standards. These data quality objectives are still in draft form (**). EPA decided that there should be a 5% (or less) chance of being wrong about whether a site meets or does not meet the standard. One possibility is if the true concentration is below the NAAQS but what you measure is above. This may be due to measurement bias, imprecision, or incomplete data. The other possibility is that the true concentration is above the NAAQS but your measurement is below. The general goal is to keep the rate of these decision errors (whether or not you have met the standard) to below 5%. In order to do this, EPA looked at all the data from the past few years in terms of bias and imprecision, and calculated that if each site keeps bias and precision both under 7%, this overall goal of limiting the decision error rate to 5% will be met. In this case, the DQO is a decision error rate of 5%, and this was translated by EPA into the measurement quality objective (MQO) for each individual site of 7%. This document does not describe the derivation of these objectives, nor how they have been translated into MQOs. The idea is that you can be confident that if you meet the MQOs of 7% for precision and 7% for bias, you can assume that the DQOs have been met.

WARNING: THE PROVIDED INFORMATION IS THE SAME AS IN THE TEMPLATE

Accept Example Clear

Tip

(*) http://www.epa.gov/quality1/qa_docs.html

(**) [Ozone DQO Scenarios Report_3_25_04.pdf](#)

Back Next

Turbo-QAPP uses EPA numbering system and BOTH “real-world” and EPA terms

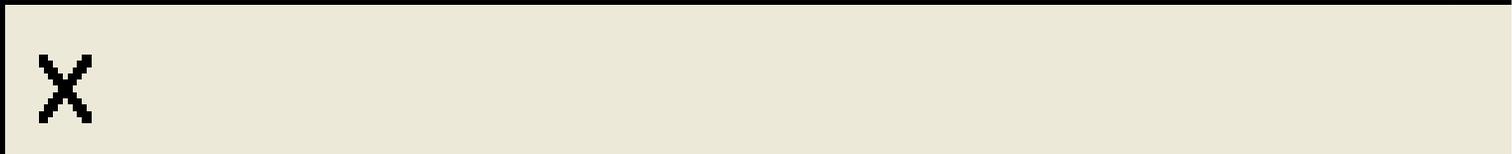


B10. DATA MANAGEMENT

B10. DATA MANAGEMENT SECTIONS

- ◆ Recording
- ◆ Transformation and Reduction (A)
- ◆ Transformation and Reduction (B)

How you will calculate and summarize your data



Select if you want to choose the method by name, designation number or method code (i.e. Beckman 866; RFCA-0876-012; 012)

- Name
- Designation Number
- Method Code

The list below shows the component(s)

Ozone (O3)

Methods can be edited if you have a special situation (for example, the Alaska shelters due to the extreme cold)

The list below is based on the component(s) you selected in the previous panel. Select the method(s) you will be using.

- Advanced Pollution Instr. 400/400A/400E
- Beckman 950A
- Bendix 8002
- Columbia Scientific Industries 2000
- Dasibi 1003-AH, -PC, -RS
- Dasibi 1008-AH, -PC, -RS
- DKK-TOA Corp. GUX-113E, GUX-113E-1
- Ecotech ML9810/EC9810, -9810B, -9811, -9812
- Environics 300
- Environnement S.A O341M
- Environnement S.A O342M
- Environnement S.A SANOA
- Horiba APOA-360
- McMillan 1100-1
- McMillan 1100-2
- McMillan 1100-3

Add

Edit

Remove

3-tiered validation criteria for all methods:

Table 14-1. CRITICAL DATA TABLE

Requirement	Frequency	Acceptance Criteria	Information/Action
<p>A. Quality Control Check Zero/span check -level 1 for those systems that automatically update the slope and intercept after each check</p> <p>OR Zero/span check -level 1 for those systems that are set up to use a manual update to change the slope and intercept after each check</p>	Automatically, may be once nightly every two weeks	Zero drift $\leq \pm 2\%$ of full scale and span drift $\leq \pm 15\%$ Zero drift $\leq \pm 10$ to 15 ppb, and span drift $\leq \pm 15\%$	If results are outside these acceptance criteria, invalidate all data to the data from before the last check that produced acceptable results, and perform a multipoint calibration (see analyzer calibration requirement). If the level 1 checks continue to fail, then corrective action may be required by the manufacturer.
B. Precision manual OR Automated	Once every two weeks manual or automated	Goal is within 15% of "known" concentration for each check	Concentration of the checks = 0.08-0.10 ppm.
C. Completeness	Daily calculation	75% values from 9:01 AM to 9:00 PM (LST)	

Operational and systematic validation criteria:

Critical Criteria

Operational Criteria

Systematic Criteria

Systematic Criteria

Table 14-3. SYSTEMATIC DATA TABLE

Requirement	Frequency	Accuracy
Data Completeness	quarterly	≥ 95%
Standards Recertifications. Field Thermometer	1 /yr	0.1°C
Standards Recertifications. Field Barometer	1 /yr	mi
Standards Recertifications. Barometer accuracy		±
Standards Recertifications. Transfer standard for flow rate	1 /yr (at least)	±2% st
Standards Recertifications. Clock/timer Verification	1 /yr	ac

Delete All

Remove

View / Edit

“Other” category

- Lab analysis option leads user thru elements needed in a QAPP that has samples sent to a lab
- Field analysis option leads user thru writing a QAPP for on-site probes

Turbo-QAPP lets you:

- Export into Word or .pdf at any point and save, edit, or print
- Not hassle with TOC, EPA numbering, document control headers
- Turbo-QAPP saves your project so that you can go back later and add additional methods, change siting, etc.

Tribes lead the way:

- START with QA (WHY are we making these measurements?)
- Early attention to QA help you SAVE time and \$
- Integrated pollutants/personnel
- Huge interest from state and local organizations
- EPA OAQPS is using TAMS Center model QAPPs in this software as applicable for states and locals





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