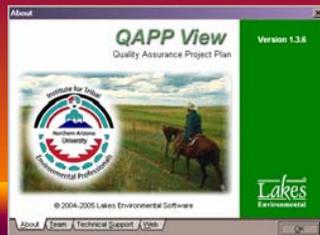


Three Tribal Air Monitoring Projects available by 9/06:



The Tribal Data Tool
Kit

On-Line Data
Management
Courses



Turbo-QAPP

1st Project: Tribal Data Toolbox

- Tribal Data Toolbox
- MS Access/Excel Database
- Modules for:
 - Filter-based monitoring
 - Continuous data
 - Meteorological data
 - Sites
 - Personnel
 - Equipment
 - QC data



Main Switchboard

Administrative

Create New
Monitoring Program

Modify or Add Site
And Sampler
Information

Modify or Add
Personnel
Information

Data Operations

Continuous Based and
Meteorological
Monitoring

Filter Based
Monitoring

Reporting

Quality Control Reports

Quality Control Charts

[CLICK HERE
FOR HELP FILE](#)

[EMAIL ITEP](#)

Modifications to Site And/Or Sampler Information

Add New Sites

Add New Samplers

**Modify Existing Site
Information**

**Modify Existing Sampler
Information**

**Return Inactive Samplers To
The Field**

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 Data from Lab Upload

FIRST TIME USERS! CLICK HERE FOR HELP FILE!

1. Import Data from Lab

Make sure your text file is named NewImport.txt and is saved on your "C" Drive! If the data are in Excel, you cannot use the "Import Text File" buttons. You must do a manual import, see help file.

Import Text File

Inspect Data Import Table

2. Transfer to Data Verification Table

Set Up Transfer to Data Verification

Transfer from Data Import to Data Verification

Check Filter IDs Against COC

Inspect Data Verification Table

3. Update Pollutant and Units

Input REQUIRED!

Pollutant

PM10-FILT
PM25-FILT

Filter Mass Units

mg
ug

Temperature Units

C
F

Update Selected Pollutant and Units

Continue to Next Step of Data Import

3. Update Met Units

4. Data Range Checks

Please Enter Acceptable Ranges or Use Defaults

Wind Speed

ft/s
cm/hr
knots
m/s
mph

Temperature

C
F

Precipitation

in
mm

Barometric Pressure

mmHg
kpa
mbar
mmHg

Solar Radiation

watt/m2

Clear All Selections

Update Selected Met Units

Dates: Between Anc Display Out of Range Dates

Relative Humidity: Between 0 Anc 100 % Display Out of Range Qualify

Wind Speed: Between 0 Anc 999 Display Out of Range Qualify

Wind Direction: Between 0 Anc 360 degrees Display Out of Range Qualify

Ambient Temperature: Between -40 Anc 120 Display Out of Range Qualify

Internal Temperature: Between 0 Anc 90 Display Out of Range Qualify

Precipitation: Between 0 Anc 999 Display Out of Range Qualify

Barometric Pressure: Between 0 Anc 999 Display Out of Range Qualify

Solar Radiation: Between 0 Anc 999 Display Out of Range Qualify

Display All Out of Range Met Data Qualify All Out of Range Met Data

5. Transfer to Meteorological Data Archive Table

Inspect Data Verification Table

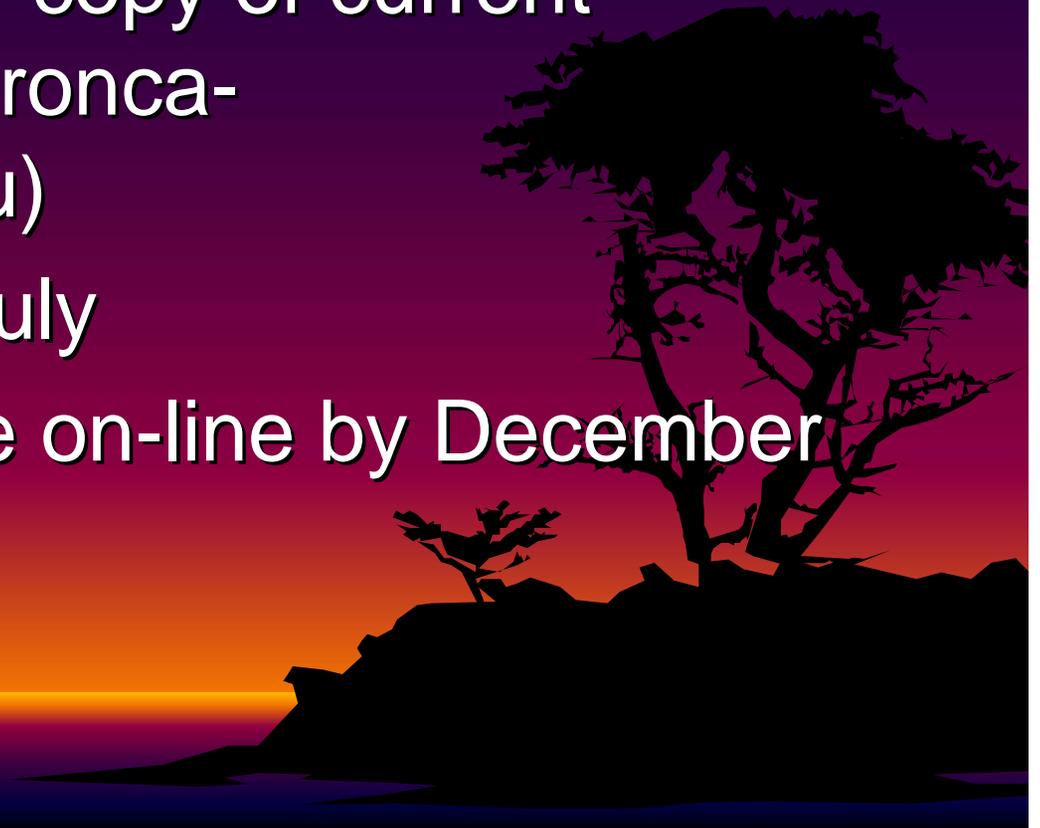
Transfer from Data Verification to Data Archive

Inspect Data Archive Table

Clear Data Verification Table

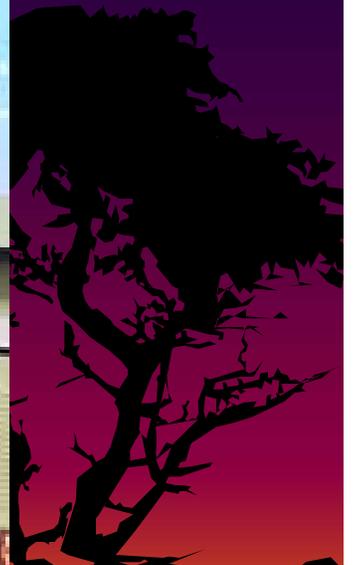
Schedule for Tribal Data Tool Box:

- First version to OAQPS in April
- Email Melinda for copy of current version (melinda.roncabattista@nau.edu)
- Final version in July
- Training available on-line by December



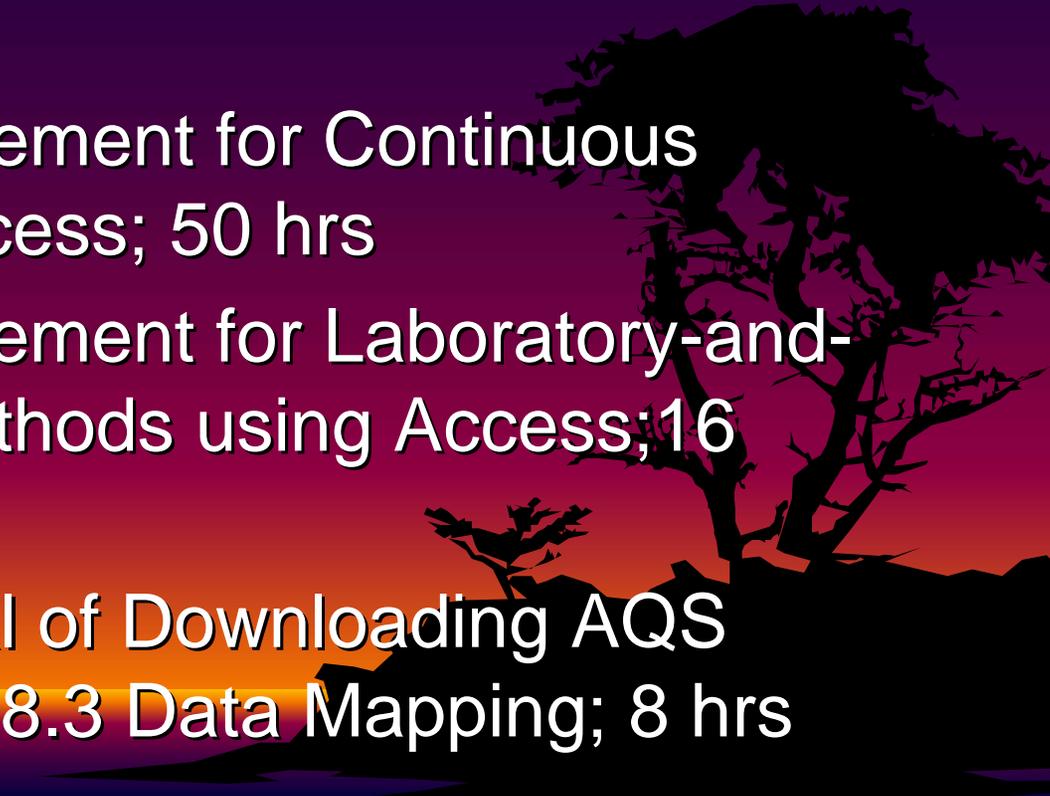
2nd project: On-line Data Management Courses







ON-LINE DATA MANAGEMENT TRAINING

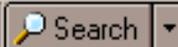
- DM1: Fundamentals; 24 hrs
 - DM2: Introductory Data Management using Excel; 20 hrs
 - DM3: Data Management for Continuous Methods using Access; 50 hrs
 - DM4: Data Management for Laboratory-and-Monitor-Based Methods using Access; 16 hours
 - DM5: Fundamental of Downloading AQS Data and ArcView 8.3 Data Mapping; 8 hrs
- 
- A silhouette of a tree is positioned on the right side of the slide, set against a background of a sunset or sunrise. The sky transitions from a deep purple at the top to a bright orange and yellow near the horizon, with dark silhouettes of hills or mountains at the bottom.

DM1: Fundamentals

- Project Planning,
- Project Operations,
- Measurement Data Management



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https://www4.nau.edu/itep/trainings/FADM/index.asp

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AutoFill



Options



ITEP

Web Training

**WELCOME to
Fundamentals of Air Data Management -- Online Web course**

Please login to continue

** Remember to logout upon completion **

UserName:

Password:

Login

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Last updated: April 21, 2006



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Web Training

institute for tribal env

Course Menu

Course Information
Course Introduction

Modules:

Project Planning
Project Operations
Measurement Data Mgmt

Announcements
Staff
Communication
Resources

» Home
Logout

Homepage

Welcome to Fundamentals of Air Data Management (DM1)

Fundamentals of data management, presenting non-computational (no Excel or Access) elements of good data management for either a continuous or lab-generated (filter-based) data management program. Material to be presented will follow that delivered in previous data management courses, and use the outline of the guidance to be incorporated into the revised EPA redbook. The course will include three modules of several sections each. The three modules are:



1. [Project Planning](#)



2. [Project Operations](#)



3. [Measurement Data Management](#)



Edit View Favorites Tools Help

Back [Navigation icons] Search [Search icon] Favorites [Star icon] [Navigation icons]

Web Search [Search box] Search [Dropdown] Address https://www4.nau.edu/itep/trainings/FADM/fadm_pp1.1D.asp Go [Go button]

Google [Search box] Search [Dropdown] PageRank [Dropdown] Check [Dropdown] AutoLink [Dropdown] AutoFill [Dropdown] Options [Dropdown]

Exercise for DM1.1D:

Why is this documentation necessary?

For each of the six categories listed, identify a situation in which having the documentation would be helpful or necessary.

Submit Answer Reset

Submit from: itep itep
email: itep@nau.edu



Course Menu

- Course Information
- Course Introduction
- Rules:**
- Project Planning
- Project Operations
- Measurement Data Mgmt
- Measurements
- Communication
- Resources
- Sign out

Homepage » Project Planning » 1.1B Planning-Measurement Objectives

 **Project Planning - 1.1B Planning-Measurement Objectives**

Documenting Measurement Objectives

C. Standard Operating Procedures

SOPs should be short, so that they can be posted on the wall, or slid into a sheet protector and put into a binder for reference in the field. After you have figured out the basics of how to use your equipment one easy way to write an SOP is to use a tape recorder. Go through the process that you are writing an SOP for, and narrate your actions. Then transcribe your tape into a document, add sections, a title and approval page, and you are finished.

SOPS must be easily used to be useful! Remember that if you are audited the auditor will want to see the SOPs and then follow you around to see if you are actually following the SOPs. Also, the SOPs must be officially approved (this may be just approved by you) and then checked every year (at least) in case they need to be revised. Between revisions, changes to the SOPs can be made in pen, initialed and dated on the master copy.

Official copies of SOPs should be filed in a project notebook or file, labeled and kept updated with any changes.

An example SOP can be downloaded [here](#).

 [Section B](#)

[Section D](#) 

ITEP Web Training - Fundamentals of Air Data Management - Project Planning - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites

My Web Search Search Address https://www4.nau.edu/itep/trainings/FADM/fadm_pp1.1C.asp Go Links

Google Search PageRank Check AutoLink AutoFill Options

drawers with contents so that others can find them if you are not available.

Field data sheets are generally stored with the results of measurements made at that site. However, when something happens at a site (like a tree falls into the monitor) and that is noted on the field data sheet, a copy of the field data sheet can be inserted into the file to document when this condition started.

Exercise for DM1.1C:
The following are field data sheets from one month of monitoring, when four site visits were made. Select which field data sheet(s) should be photocopied and placed into the siting folder. Click on the icons to open, and then drag and drop the ones you want in the siting folder to that folder.

-  FieldDataSheet1 exercise for DM1C
-  FieldDataSheet2 exercise for DM1C
-  FieldDataSheet3 exercise for DM1C
-  FieldDataSheet4 exercise for DM1C

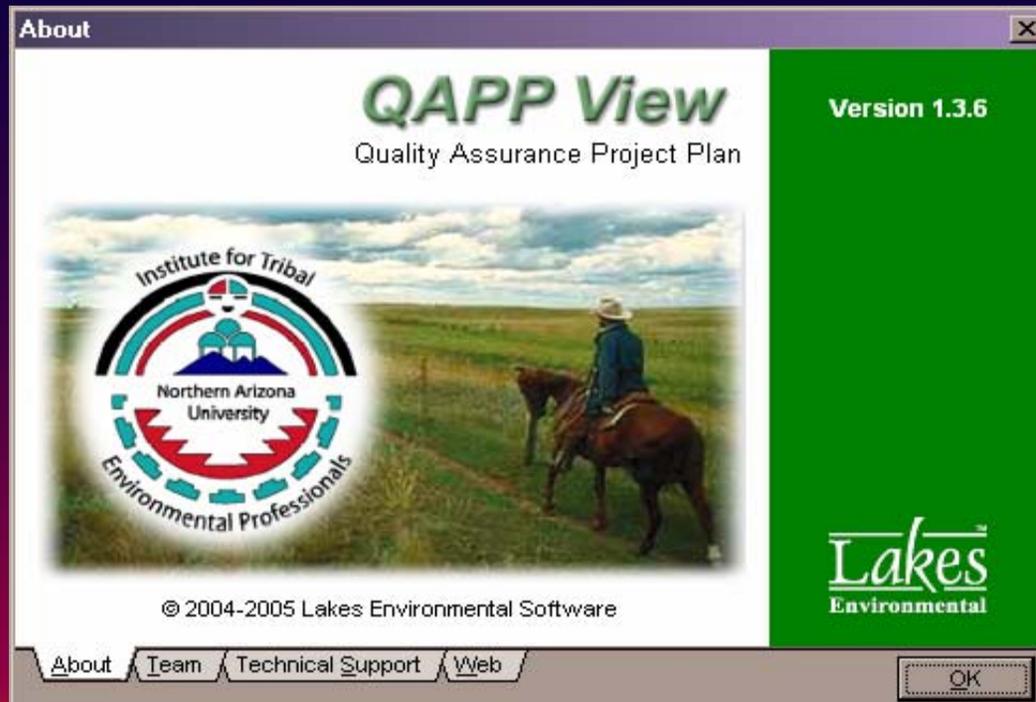
   

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Last updated: April 19, 2006

Done Internet

3rd project: TURBO-QAPP



Current methods to assist tribes with QAPP preparation:

- On-site QAPP course
- Use of template QAPPs written for tribal use for all criteria pollutants, metals, sensors, minivols
- Review and assistance via phone and email
- One-on-one assistance via PA

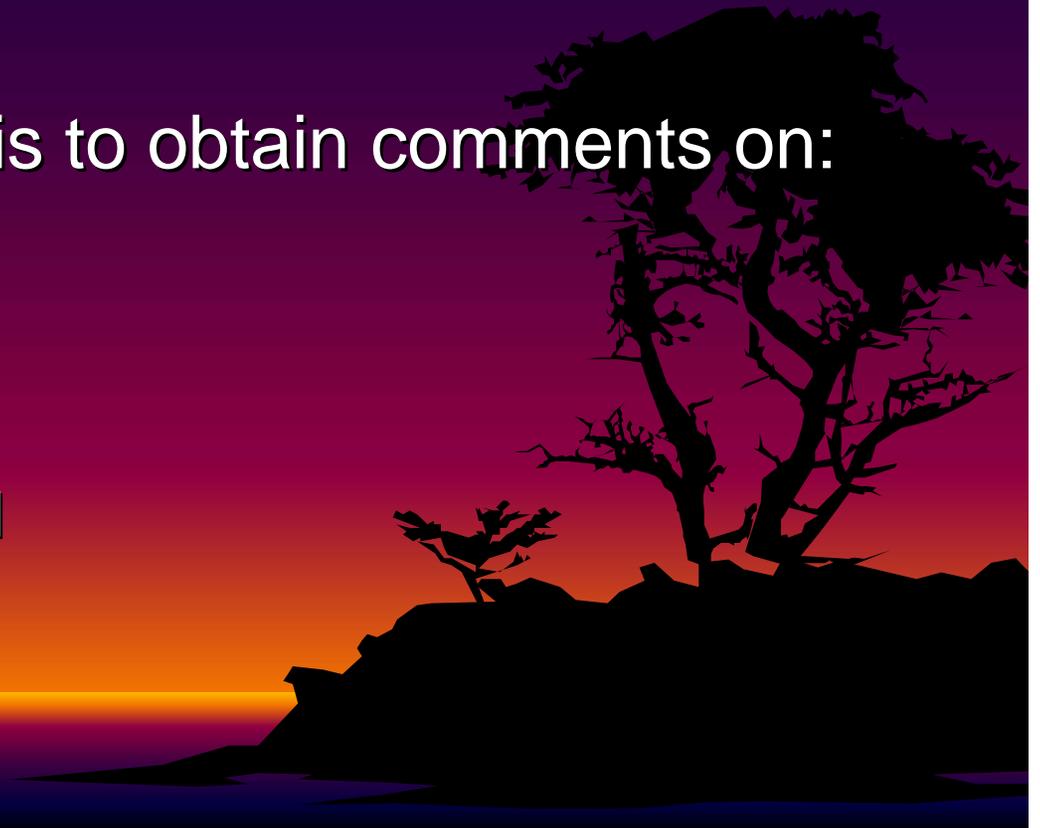


Turbo-QAPP assists tribes:

- Focuses on the important aspects rather than drudge paperwork,
- Provides all EPA FRM and FEM method codes/names/equipment, guidance material, tables, CFR references and equations embedded in the program,
- Provides example text for all sections,
- Links to example excel data tools in CD

First beta version available for download on an ftp site

- Beta-1 version complete for ozone only
- Workgroup of reviewers (OAQPS, Tribes, Regions)
- Purpose for beta-1 is to obtain comments on:
 - Format,
 - Structure
 - Level of detail
 - Resources provided



QAPP View

Quality Assurance Project Plan

Version 1.3.6



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About

Team

Technical Support

Web

OK

|

ABC

PROJECT POLLUTANTS

Ozone (O3) ▾

- I. INTRODUCTION
- II. CATEGORY
- Element 6a (A6-1). POLLUTANT
- Element 5 (A5). BACKGROUND
 - ▶ Problem Definition
 - ▶ Problem Background
- Element 6b (A6-2). METHOD
- Element 6c (A6-3). DESCRIPTION
 - ▶ Summary
 - ▶ Project Information
 - ▶ Project Schedule
- Element 6f (A6-6). PROJECT LOCATION
- Element 4 (A4). ORGANIZATION
- Element 4b (A4-2). PROJECT ORGANIZATION
- Element 7a (A7-1). DATA QUALITY OBJECTIVES
 - ▶ Stating the problem
 - ▶ Identifying the decision
 - ▶ Identify the inputs to the decision
 - ▶ Define the boundaries of your project
 - ▶ Deciding on a decision rule
 - ▶ Specifying tolerable limits on decision errors
 - ▶ Optimize the design

Introduction to the QAPP

An EPA approved Quality Assurance Project Plan is required to implement any work funded by the EPA that involve acquisition of environmental data generated from direct measurement activities, collected from other sources, or collected from computerized databases and information systems.

This software will guide you through the creation of a Quality Assurance Project Plan (QAPP). A good QAPP is used to communicate the specifications for implementation of the project design and to ensure that the project's quality objectives are achieved.

Before you begin to create your QAPP you will need to select which kind of QAPP you will be writing. Select from Ambient Air or Other in the pick list below.

Creating a QAPP for ... Ambient Air ▾

Enter Name of the Tribe MELINDA'S TRIBE

Enter the name of your Tribal Office MELINDA'S ENVIRONMENTAL OFFICE

Enter the name of tribal department MELINDA'S AIR OFFICE



Northern Arizona
I In'aa'wii'itku



QAPP Visuals

Project Progress 14.2%

||
ABC

PROJECT POLLUTANTS

Ozone (O3)

- ▶ **CATEGORY**
- ▶ Element 6a (A6-1). POLLUTANT
- ▣ ▶ Element 5 (A5). BACKGROUND
 - ▶ Problem Definition
 - ▶ Problem Background
- ▶ Element 6b (A6-2). METHOD
- ▣ ▶ Element 6c (A6-3). DESCRIPTION
 - ▶ Summary
 - ▶ Project Information
 - ▶ Project Schedule
- ▶ Element 6f (A6-6). PROJECT LOCA
- ▶ Element 4 (A4). ORGANIZATION
- ▶ Element 4b (A4-2). PROJECT ORG/
- ▣ ▶ Element 7a (A7-1). DATA QUALITY
 - ▶ Stating the problem
 - ▶ Identifying the decision
 - ▶ Identify the inputs to the decisio
 - ▶ Define the boundaries of your j
 - ▶ Deciding on a decision rule
 - ▶ Specifying tolerable limits on de
 - ▶ Optimize the design
- ▣ ▶ Element 7h (A7-8). DATA QUALITY

Choosing your QAPP category

There are four categories of QAPP, each of these categories require different QAPP elements as described in the EPA guidance document R5. Please refer to the tip below to select your QAPP category. If you are unsure, choose category 1 until you confirm with your EPA regional QA Manager.

Category Category 1

Selecting your category

Category	Typical Programs	Comments
Category 1	SLAMS, NAMS, PSD, Ncore, IMPROVE, etc.	These projects generally have a separate GMP and QAPP but ca approved by their EPA Region. Contains formal DQOs.
Category 2	Speciation Trends, Toxics Mon, Super Sites	Generally separate GMP and QAPP but can be combined for sma EPA Region. Contains formal and flexible DQOs.
Category 3	SPM, one time Studies	Quality Management Plan (QMP) and QAPP can be combined, co

Warning : If you are unsure of which category to select, please verify with your EPA regional officer. Your EPA regional officer will help you decide the category to select.

Tip - In the following sections you will find:

Accept

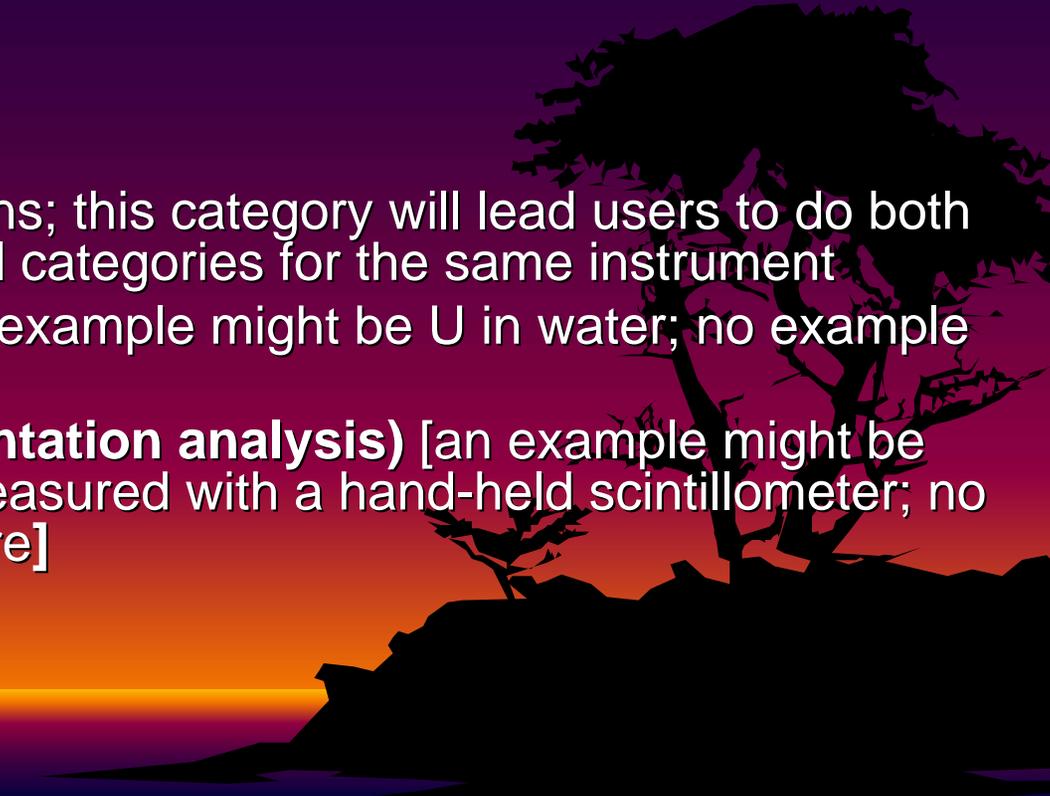
Click this button if you are satisfied with the information and you wish to save it to the final QAPP report.

Example

Click this button if you would like to see a template for the current section.

Project Progress 14.2%

Measurement Methods:

1. **PM2.5 filter-based** local conditions
 2. **PM10 filter-based** local conditions
 3. **PM10 filter-based** standard conditions
 4. **PM10 continuous** local conditions
 5. **PM2.5 continuous** local conditions
 6. **SO2**
 7. **NO2**
 8. **CO**
 9. **O3**
 10. **PM coarse** local conditions; this category will lead users to do both the PM10 and PM2.5 local categories for the same instrument
 11. **Other (lab analysis)** [an example might be U in water; no example text, only structure]
 12. **Other (on-site instrumentation analysis)** [an example might be gross gamma from soil measured with a hand-held scintillometer; no example text, only structure]
- 
- A silhouette of a tree is positioned on the right side of the slide, set against a background of a sunset or sunrise. The sky transitions from a deep purple at the top to a bright orange and yellow near the horizon, with a dark blue area at the bottom. The tree's branches are clearly visible against the lighter sky.

PROJECT POLLUTANTS

Ozone (O3)

- ▶ Problem Definition
- ▶ Problem Background
- ▶ Element 6b (A6-2). METHOD
- [-] ▶ Element 6c (A6-3). DESCRIPTION
 - ▶ Summary
 - ▶ Project Information
 - ▶ Project Schedule
- ▶ Element 6f (A6-6). PROJECT LOCA
- ▶ Element 4 (A4). ORGANIZATION
- ▶ Element 4b (A4-2). PROJECT ORG/
- [-] ▶ Element 7a (A7-1). DATA QUALITY
 - ▶ Stating the problem
 - ▶ Identifying the decision
 - ▶ Identify the inputs to the decisio
 - ▶ Define the boundaries of your j
 - ▶ Deciding on a decision rule
 - ▶ Specifying tolerable limits on de
 - ▶ Optimize the design
- [-] ▶ Element 7h (A7-8). DATA QUALITY
 - ▶ Precision
 - ▶ Bias
 - ▶ Representativeness

Problem Definition

Problem Background

Definition

The MELINDA'S ENVIRONMENTAL OFFICE is initiating regular OZONE monitoring as part of an integrated, Reservation-wide environmental protection plan. Tribal goals for environmental protection are to PROTECT HUMAN HEALTH AND NATURAL RESOURCES. The objective of the OZONE Monitoring Program is to CHARACTERIZE AMBIENT OZONE CONDITIONS WHERE AMBIENT AIR QUALITY MEASUREMENTS ARE MADE. The OZONE data are then used to (INSERT AS APPROPRIATE) AIR MONITORING PROGRAM, FIRE MANAGEMENT, SMOKE CONTROL, AERIAL DRIFT OF PESTICIDES, OR WATER MANAGEMENT. The OZONE monitoring station(s) will be located ...

Location(s) of the analyzers and the rationale for these location(s) can be found in Section 10.

Accept

Example

Tip



Give a description of the specific problem to be solved. Indicate why the project is being done. This should include the decisions to be made and the outcome to be achieved i.e. goals and objectives. Example: The sampling network is designed to determine if there are any violations of NAAQ standards and, in addition, to meet the following objectives: Determine the highest concentrations to occur in the area covered by the monitoring network.

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 is based on the pollutant(s) you selected in the previous screen.
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
- Enviroline 200

Add

Edit

Remove

Tip

Walks user through the Data Quality Objectives process:

- Follows 7-step method
- User enters information and the program organizes it
- Provides a record of the systematic planning process



tolerable limits on decision errors

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 the measurements 24 hours a day, so you are really only estimating the "true" pollutant concentration. A statement of decision error could be "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 decision error 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 describes how you can do this. 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 are done. Click the link below (*) to download the DEFT and the user's guide.

DESCRIBE YOUR LIMITS ON DECISION ERRORS

Decision error 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 location does 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 overall 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 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 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 data 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 decision error rate will be met.

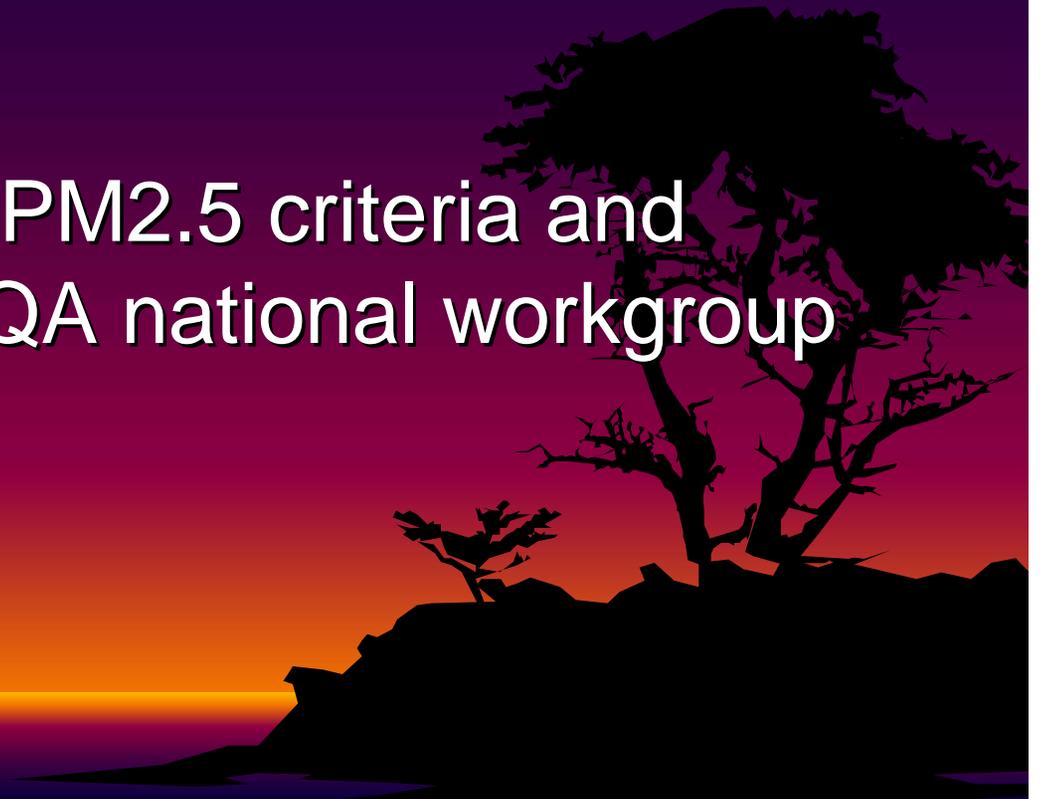
Accept

Example

Clear

Provides 3-tier measurement quality objectives system for all pollutants:

- Critical
- Operational
- Systematic
- System parallels PM2.5 criteria and uses latest EPA QA national workgroup guidance



Critical Criteria

Quality Control (QC) is the overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that requirements established by the tribe. Day-to-day quality control is implemented through the use of various checks or instruments that are used for comparison. A Quality Control Table lists the procedures that will be followed. Criteria are Critical, Systematic or Operational and are shown in the tables 14-1, 14-2 and 14-3.

Table 14-1. CRITICAL DATA TABLE

Requirement	Frequency	Acceptance Criteria	Information/Action
A. Quality Control Check Zero/span check -level 1 for those systems that automatically update the slope and intercept after each check 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	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)	

Delete All

Remove

View / Edit

1

3

New

Tip



If the Criteria in the table are not met you must invalidate your results.

Equations

The following algorithms will be used to evaluate precision data from the results of the one-point checks, and the results will be compared to performance evaluations. These algorithms are included in 40 (58 Appendix A.

Criterion	Equation	Equation Name
Average Absolute Percent Difference. The quantity AB is the mean of the absolute values of the relative percent differences and will be calculated from equation 14.9 or using the AVERAGE function in an Excel spreadsheet.	$AB = \frac{1}{n} \sum_{i=1}^n d_i $	Eqn. 14.9
Standard Deviation of the Absolute Relative Percent Differences. AS is the standard deviation of the absolute values of the relative percent differences and will be calculated from equation 14.10 or using the STDEV function in an Excel spreadsheet.	$AS = \sqrt{\frac{1}{n-1} \left[\sum_{i=1}^n d_i ^2 - \frac{1}{n} \left(\sum_{i=1}^n d_i \right)^2 \right]}$	Eqn. 14.10
Bias Estimate. Bias is estimated using an upper bound on the mean absolute value of the relative percent differences where n is the number of one-point checks; $t_{0.95,n-1}$ is the 95th percentile of a one-tailed t-distribution with n-1 degrees of freedom.	$ bias = AB + t_{0.95,n-1} \frac{AS}{\sqrt{n}}$	Eqn. 14.11
Assigning a Sign (Positive/Negative) to the Bias. The absolute bias upper bound should be signed as positive if both 25th and 75th	if $z_{0.25} > 0$ and $z_{0.75} > 0 \rightarrow + bias $	Eqn. 14.12



For example of statistics calculations, please see the sample spreadsheet QC_Statistics.xls located under the Resources folder. Detailed description of the example is provided in the help

Turbo-QAPP schedule:

- Series of 3 beta versions scheduled for release between now and September
- Final release in September
- EPA is investigating an ongoing agreement to allow the incorporation of changes in EPA laws and recommendations to be incorporated



Download beta version and comment please:

- <ftp://ftp.weblakes.com>.
- Right click and Login As and use:
Login : qapp
Password : [b4nkt3ll3r], type characters between []

go to folder February2006.
- copy the installation file
QAPP_View_V.1.3.6_Install.exe
to your computer, then double-click on it. The installation
password is [11qapp22]

