Tribal Data Toolbox: Free Comprehensive Data Base for Tribes

NAU Institute for Tribal Environmental Professionals

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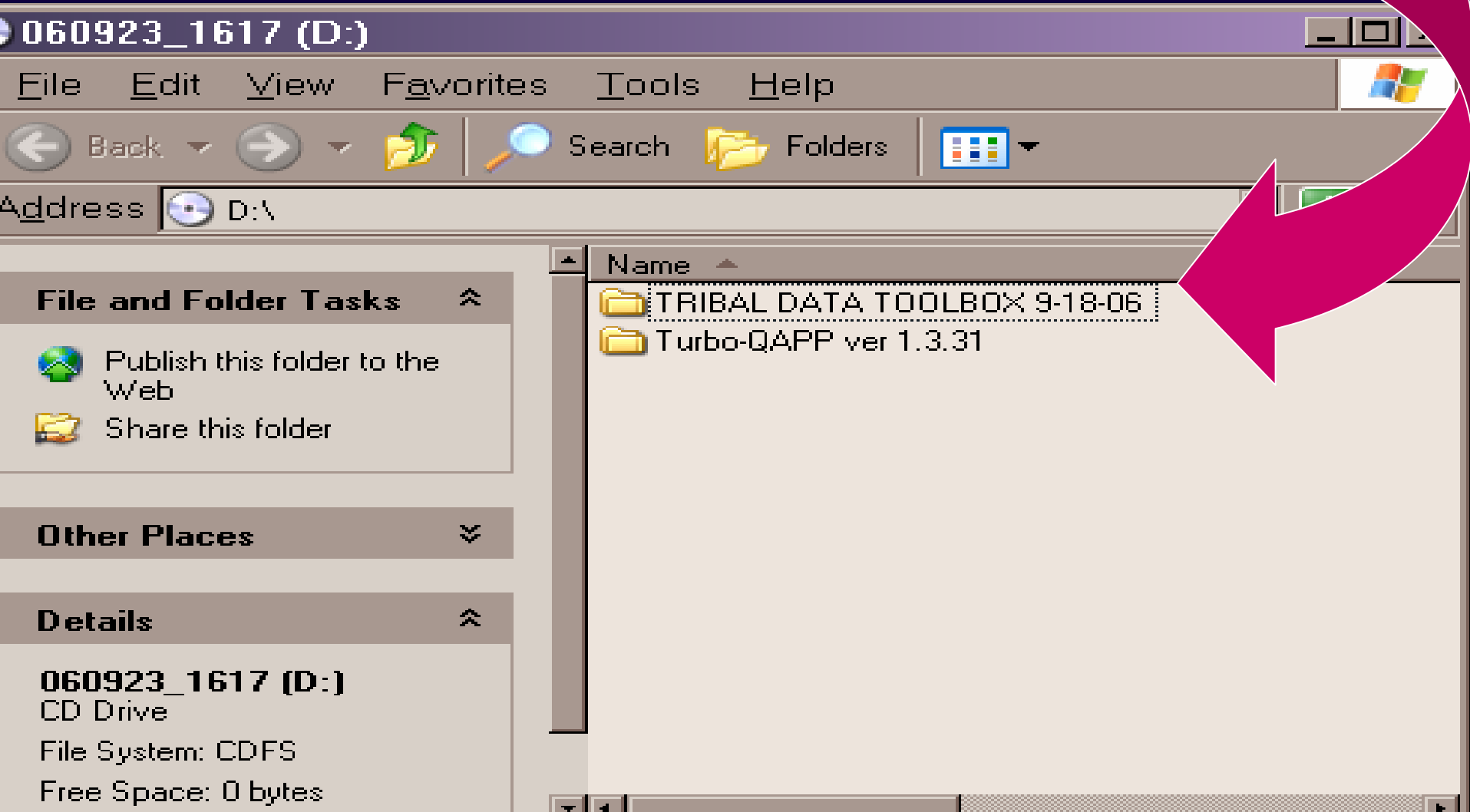
Includes AQS data formatting!!!

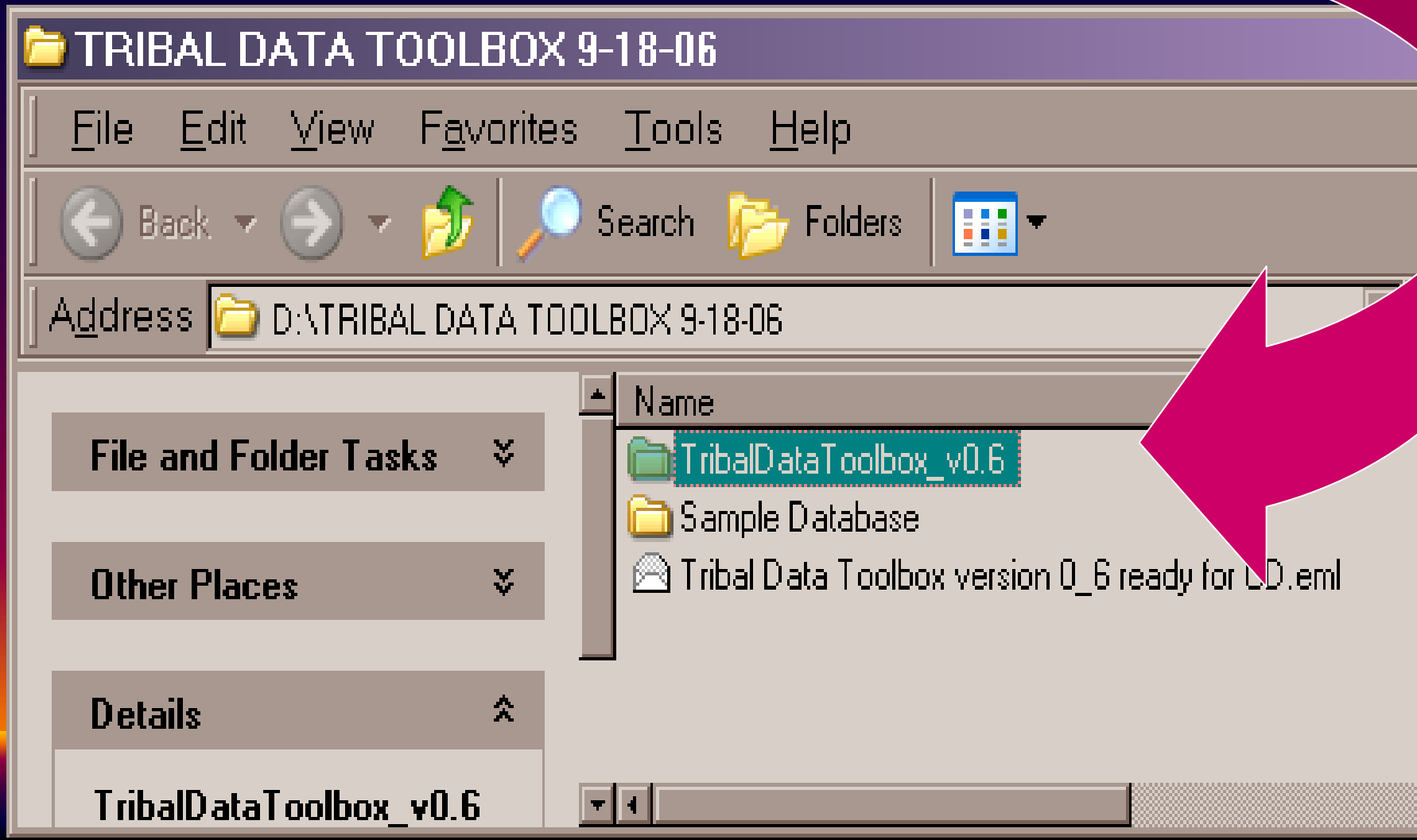
Version 0.6 on CD



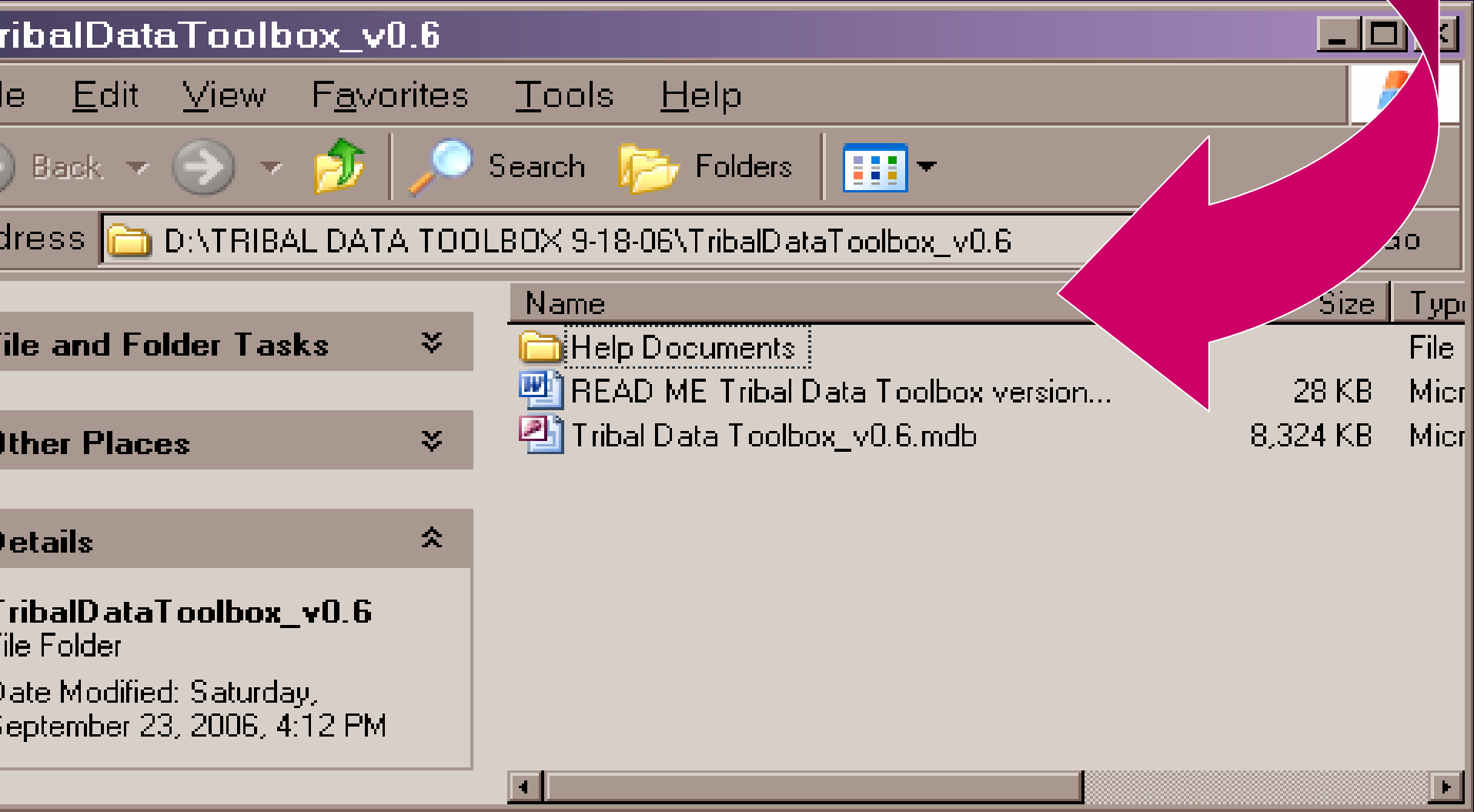
2 copies of the database on CD:

- ***Sample Database*** contains an example tribal air monitoring program with data
- ***TribalDataToolbox_v0.6*** is empty for your use
- Instructions for saving the database are printed on the paper included in the CD and in the "Read Me" file on the CD – **copy the *Toolbox_v0.6* folder to your C: drive**

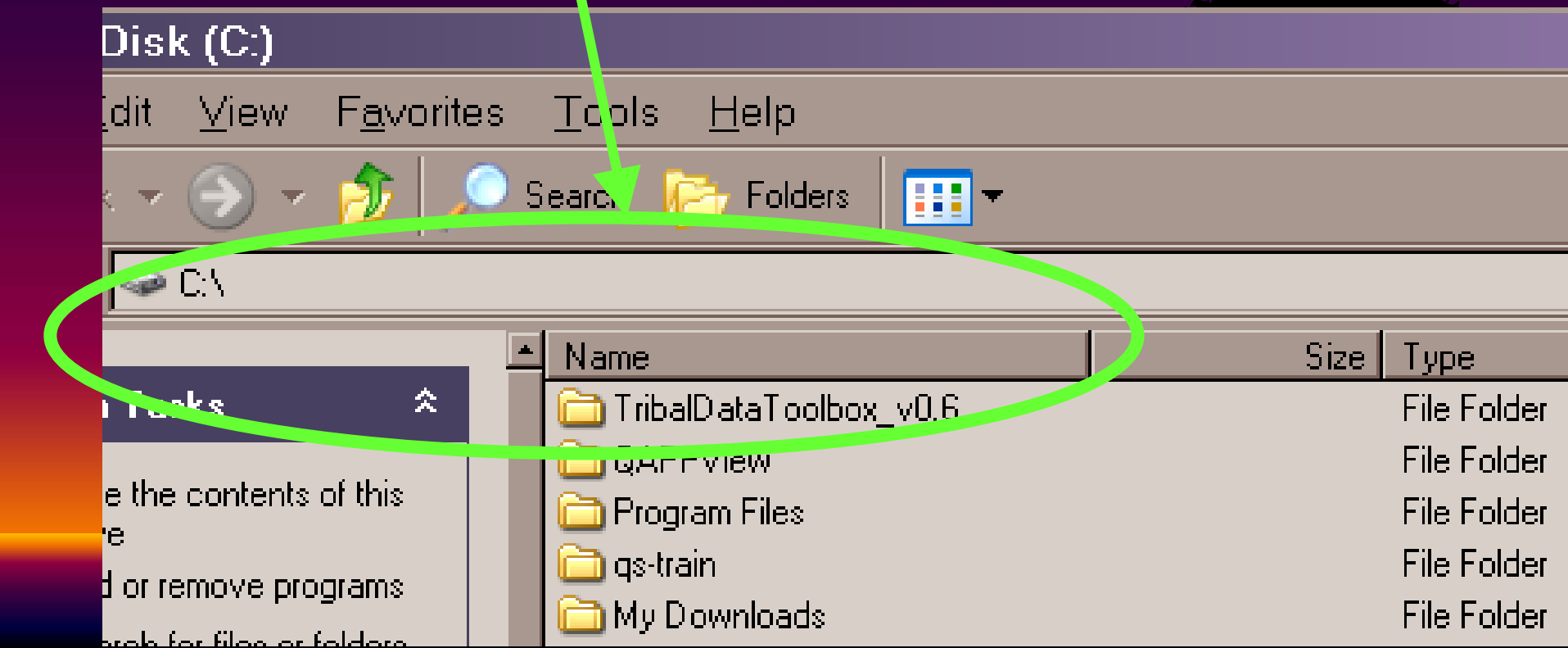
The “Read Me” file is within the blank database:



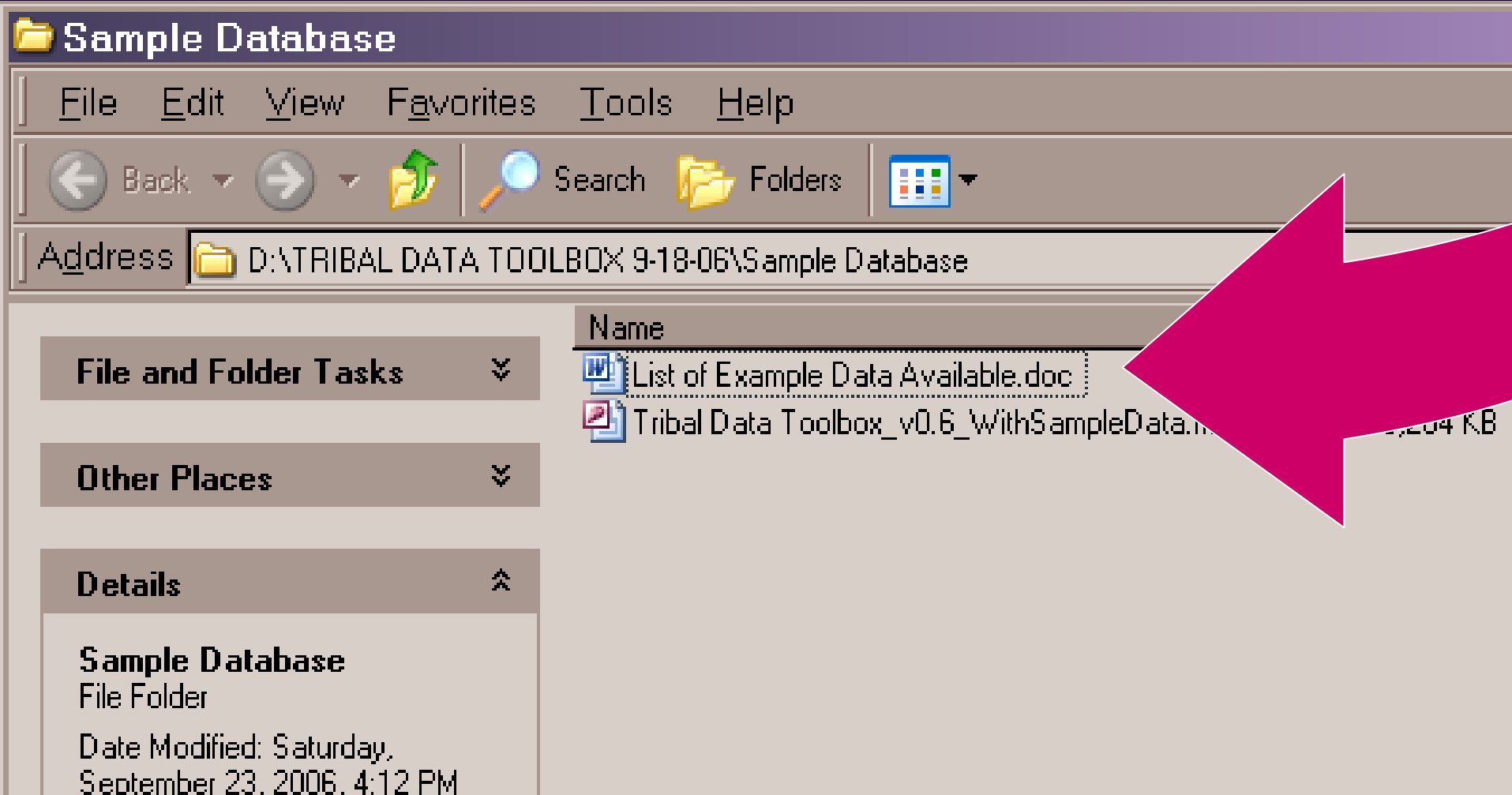
READ ME file is within folder:



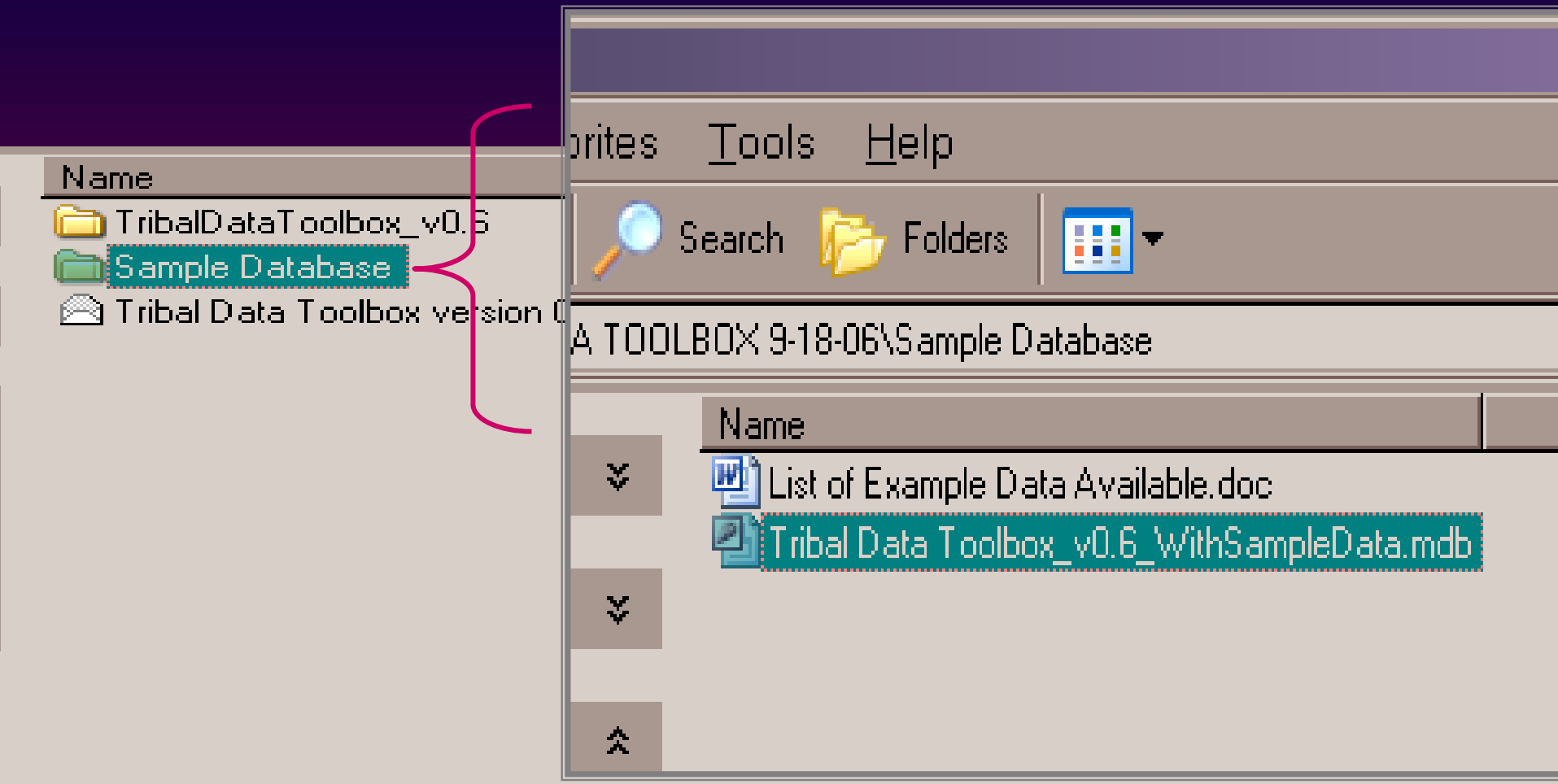
For the Help file hyperlinks to work, follow the Read Me directions and copy the ***Toolbox_v0.6*** folder to your C:\ drive:



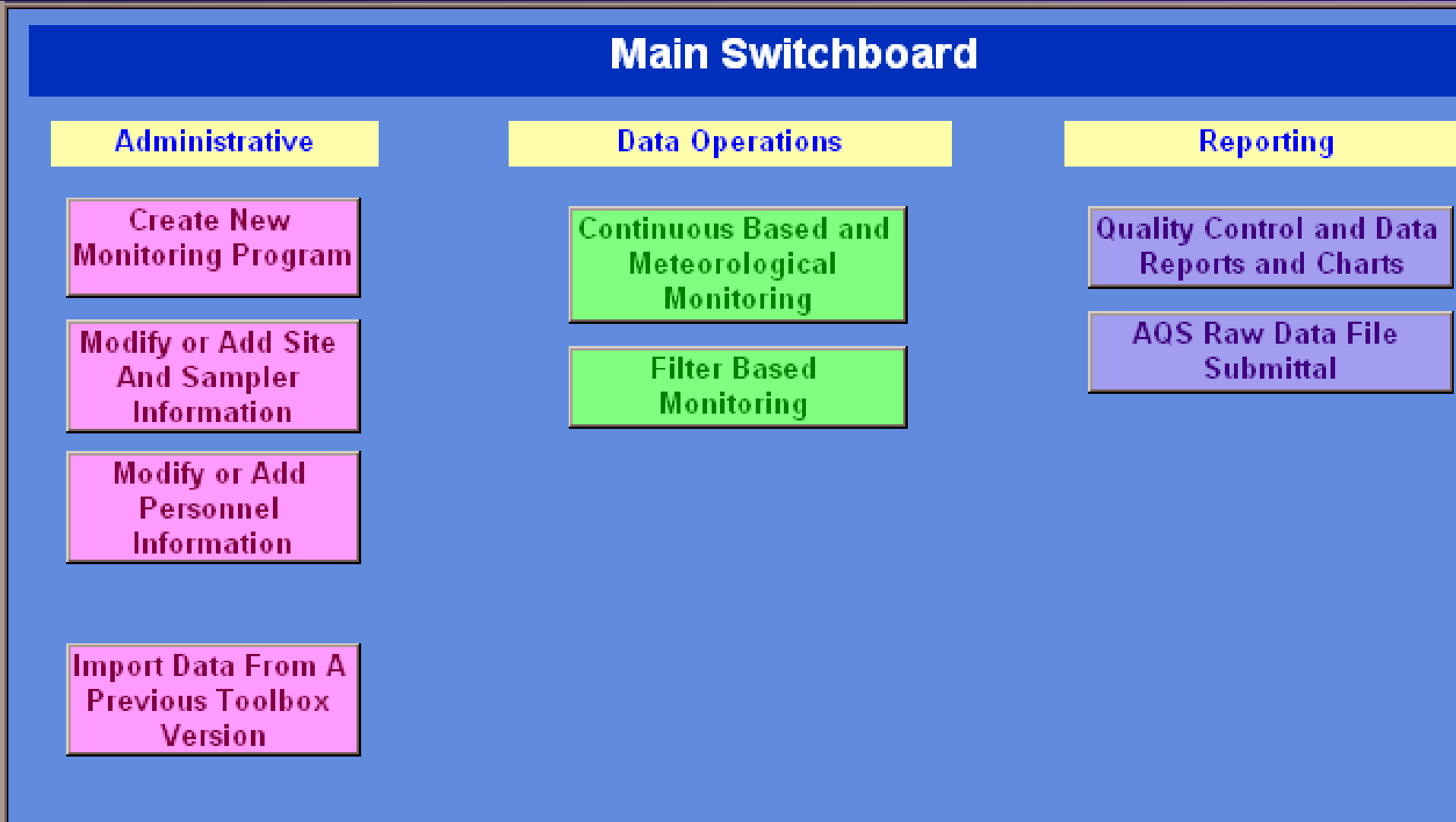
Within the Sample Database there is a list of the example data (ozone, met, PM)



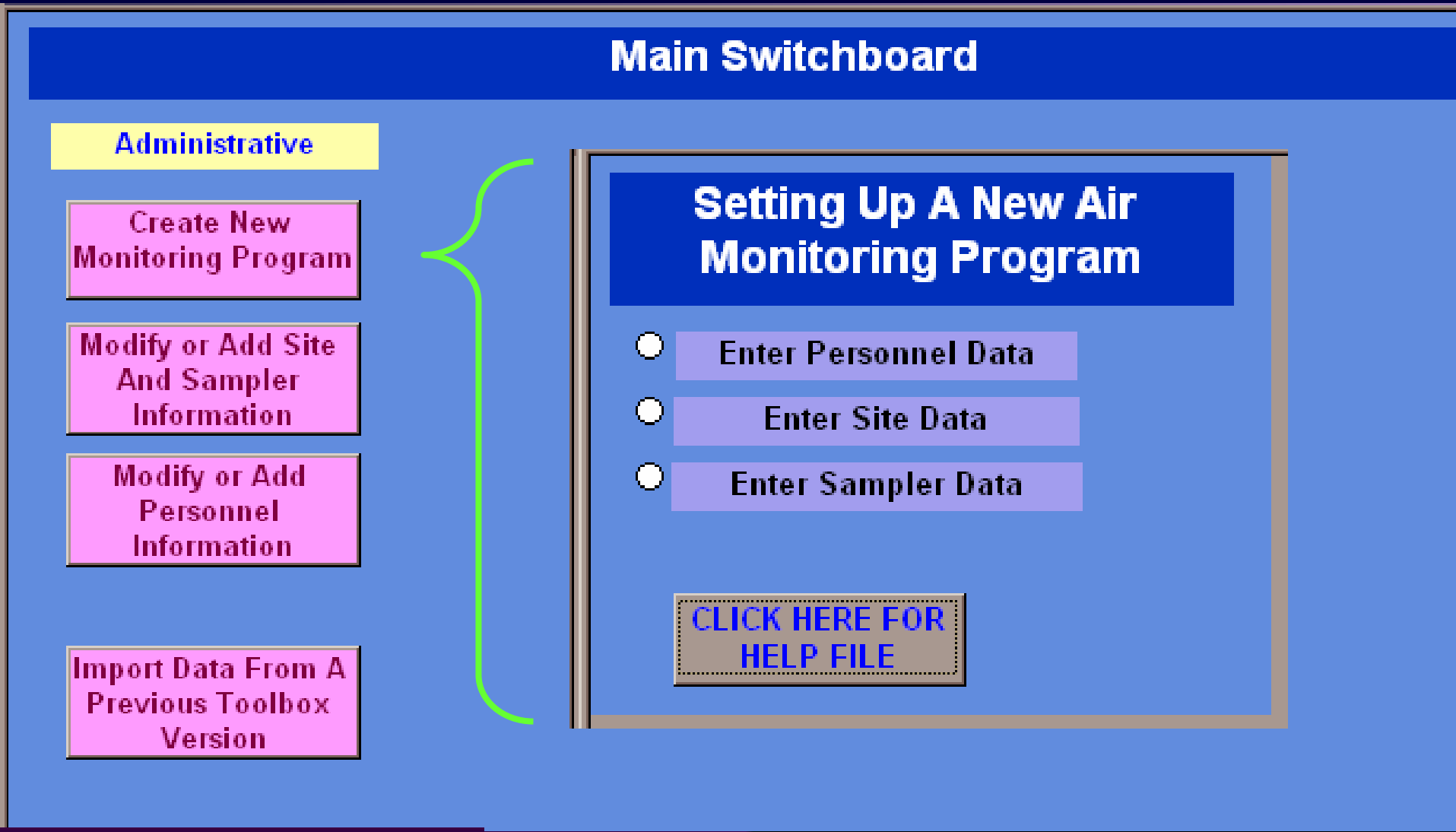
Open the Sample Database from your CD to see how the toolbox can be used:



Say “open” and “ok” to all questions, and you’ll open the Main Switchboard:



Administrative data management:

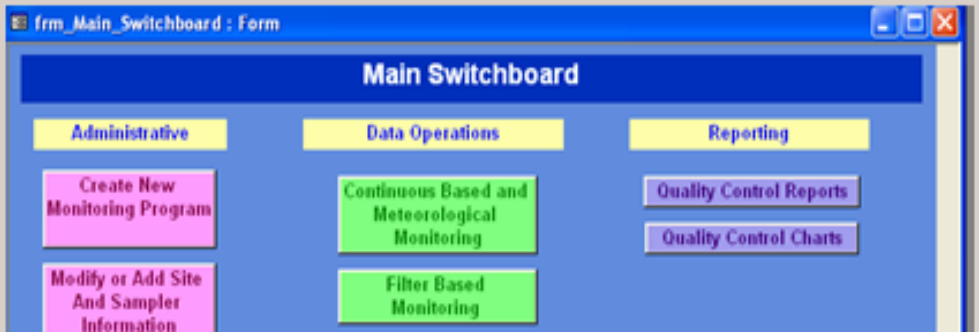


Help files are hyperlinked:

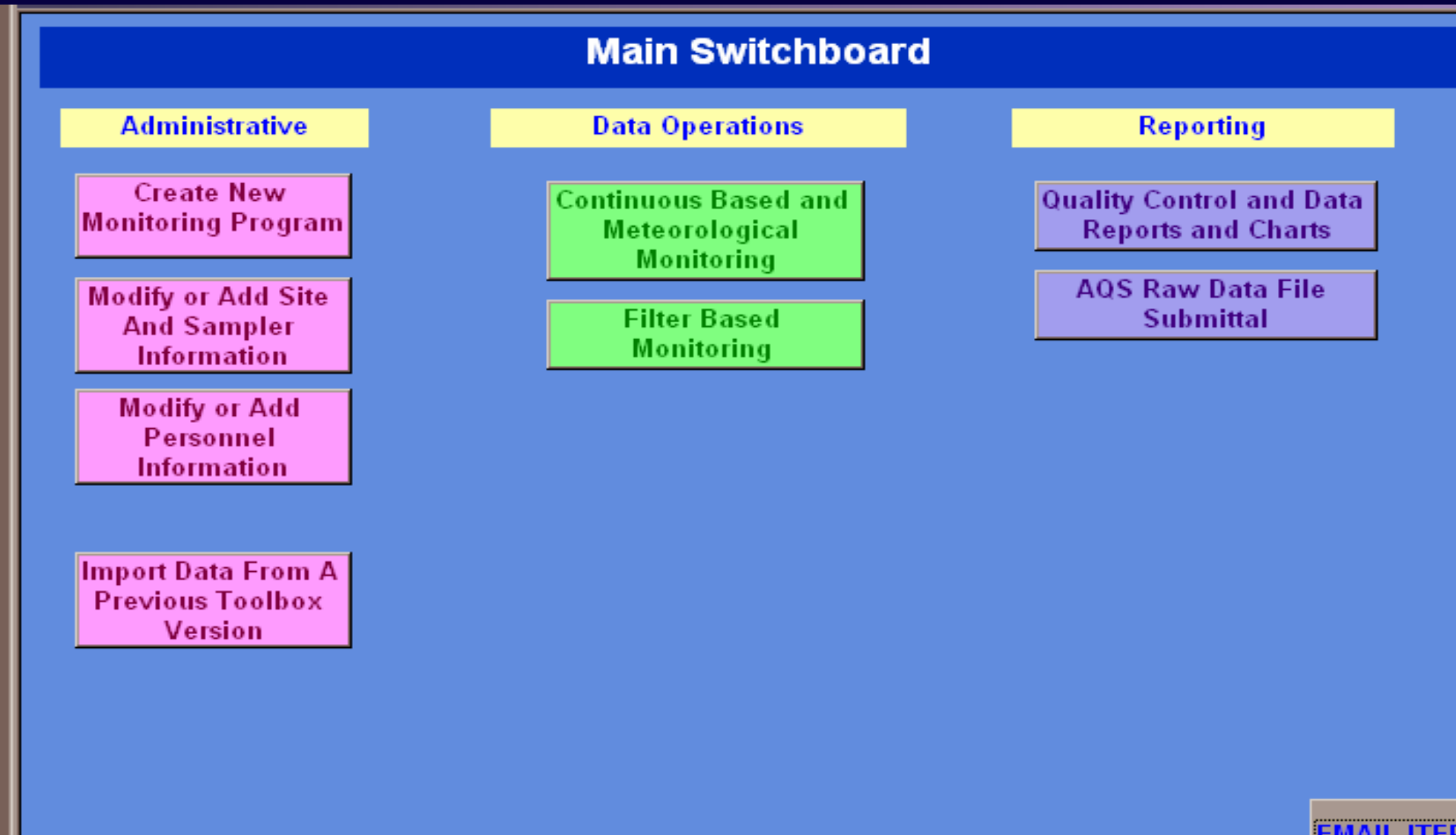
Help for Create New Monitoring Program Operations

Table of Contents:

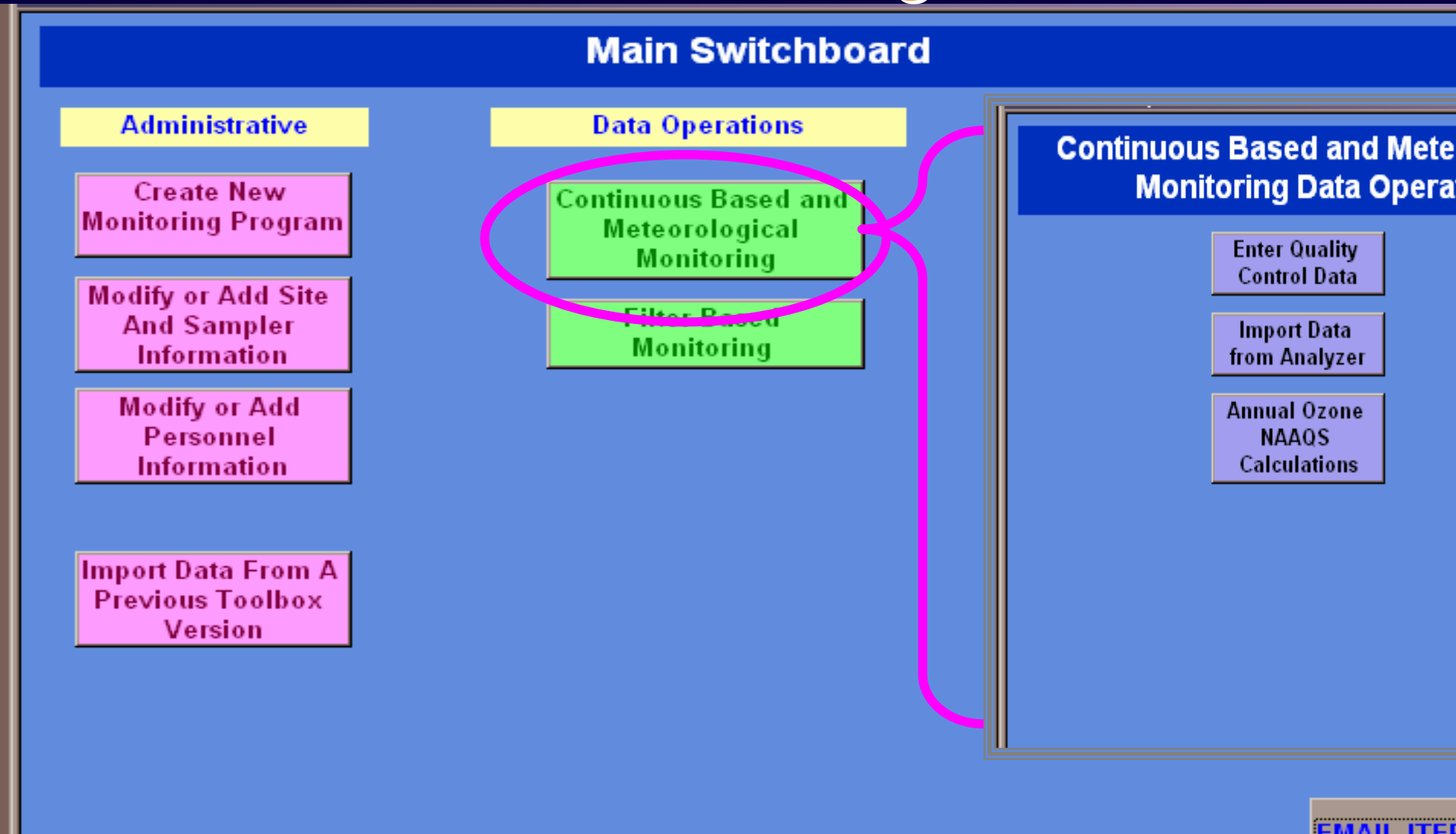
1. From the Main Switchboard, click on the "Create New Monitoring Progra button under the Administrative category.



To see the awesome power of the Data Operations, jump in:



From Main Switchboard, click on Continuous Monitoring:



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 Temperat
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

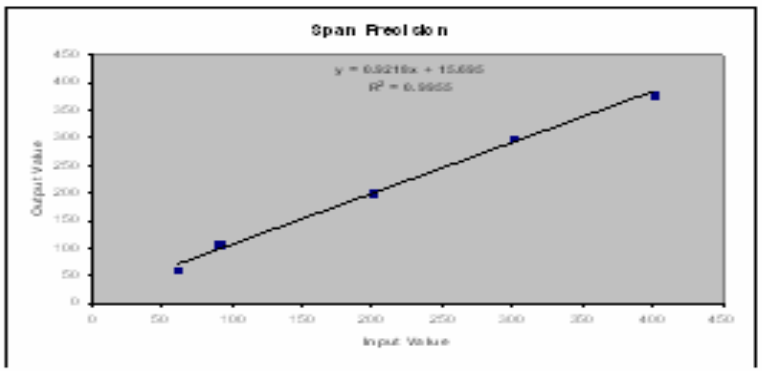
Linear Regression Chart

Flag for level one span check

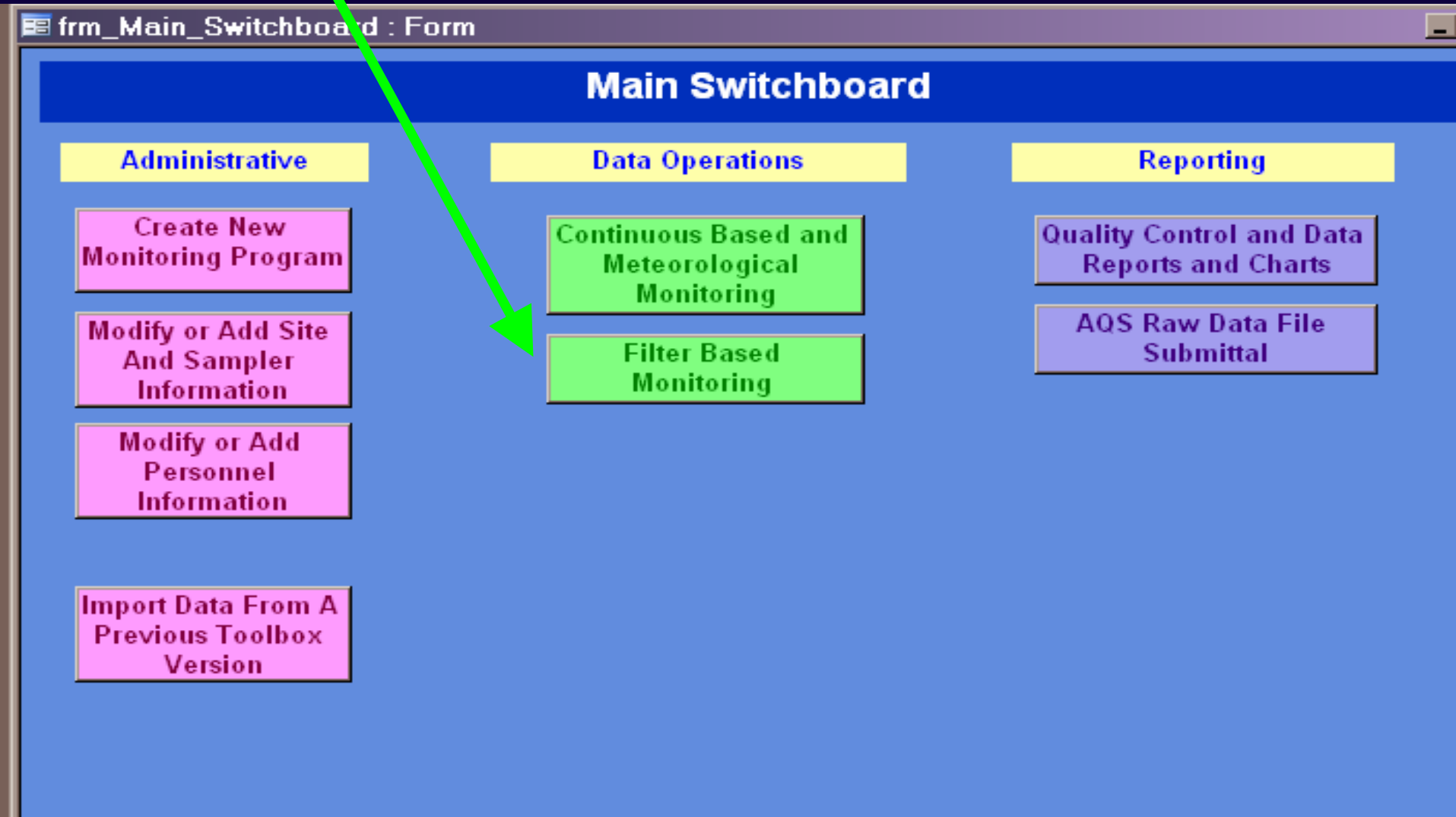
rpt_LinearRegressionChart : Report

Sampler ID: IN6

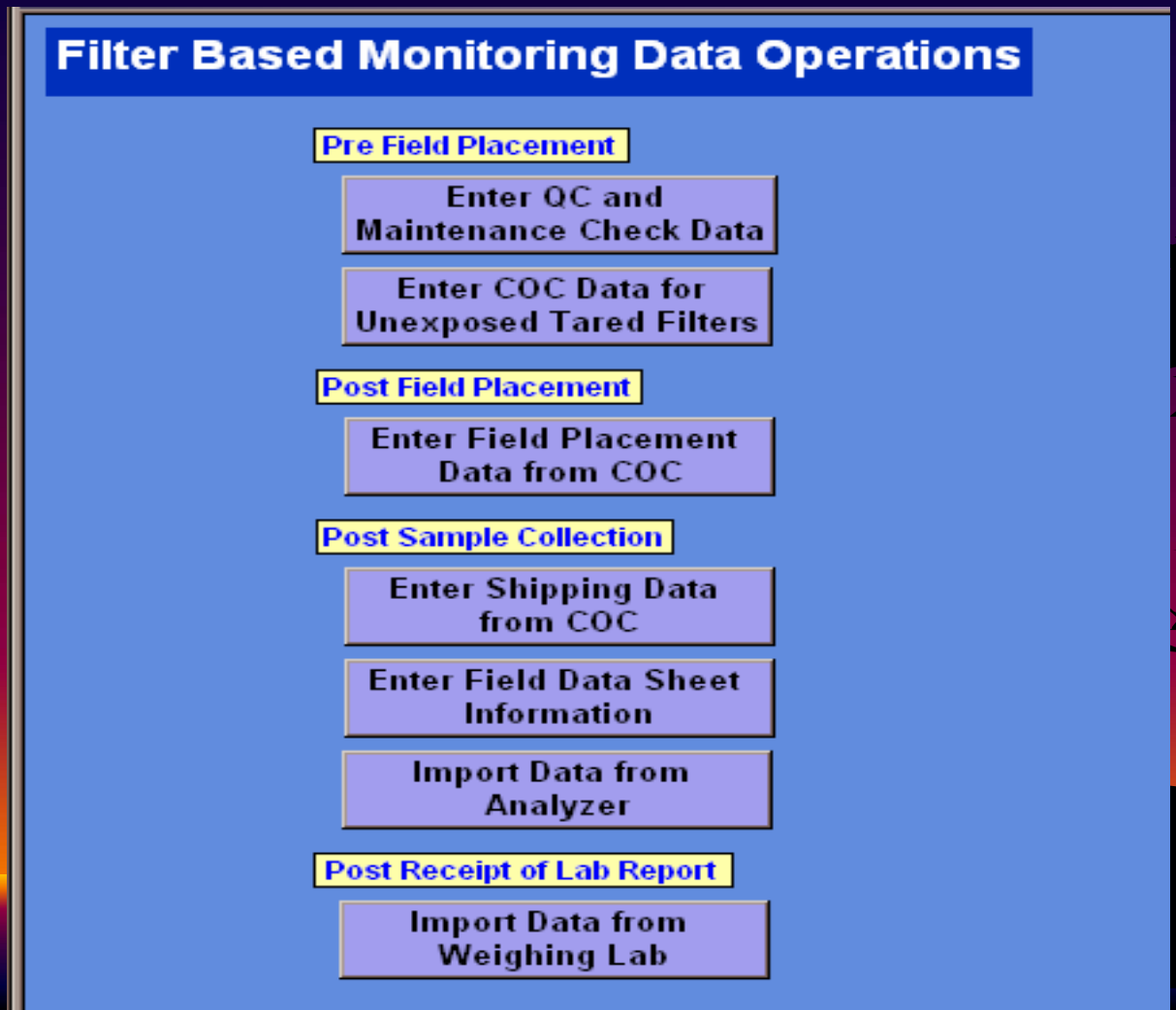
QC Date: 5/29/2006 *QC Time:* 10:00:00 AM *QC Type:* bi-weekly



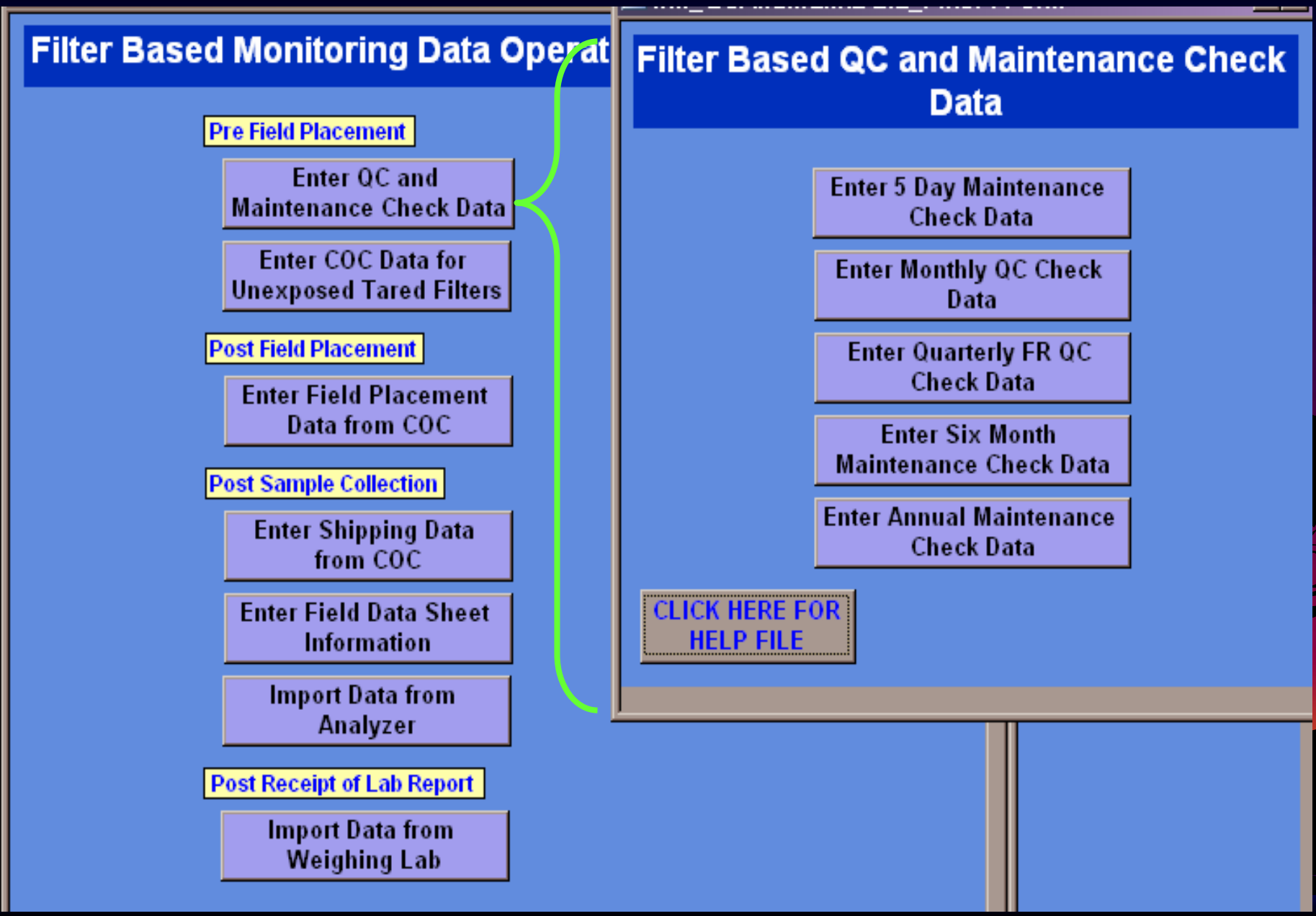
To see PM filter monitoring, go back to the main switchboard and click on:



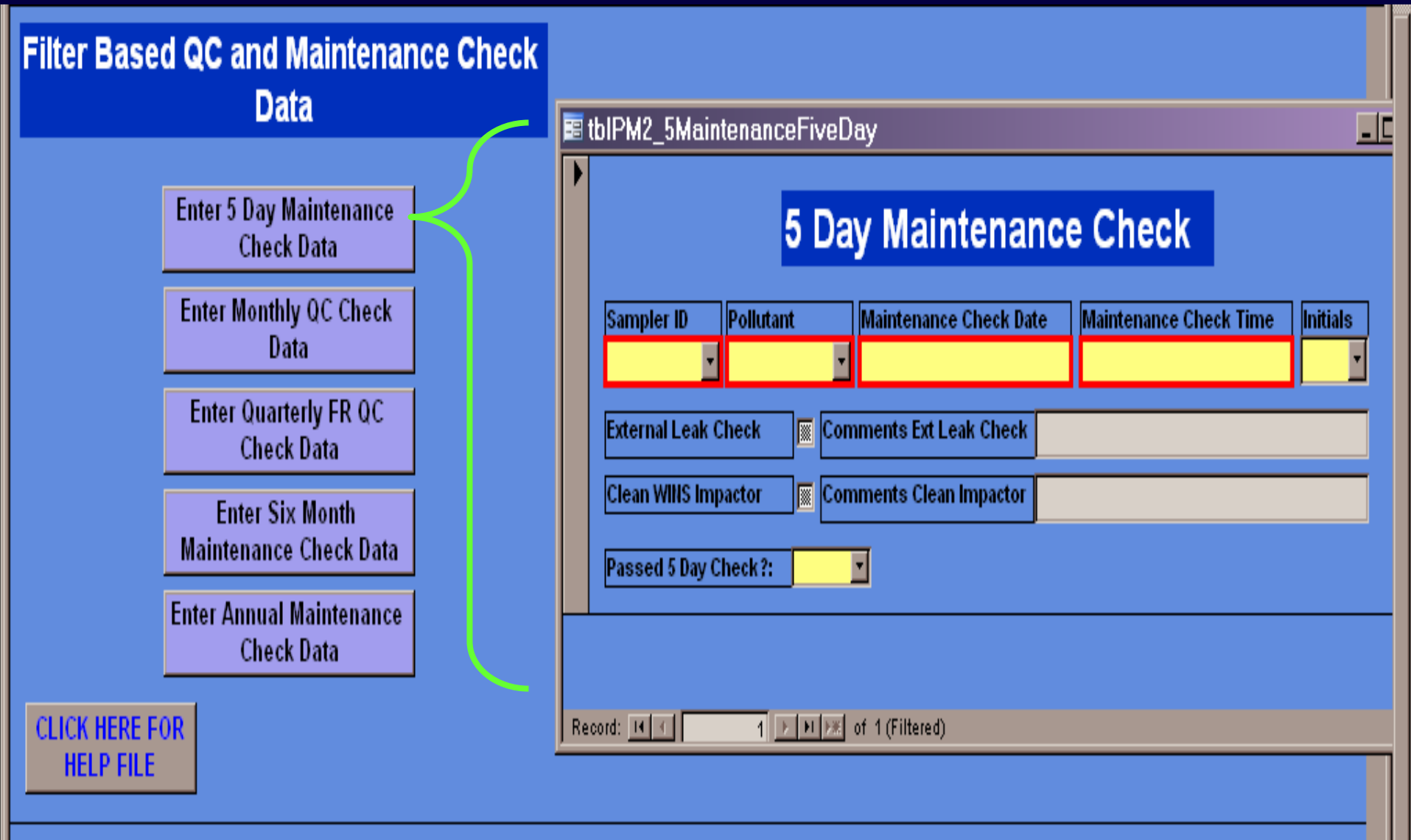
Every step of PM (this can be easily adapted for any sample collection data) is tracked:



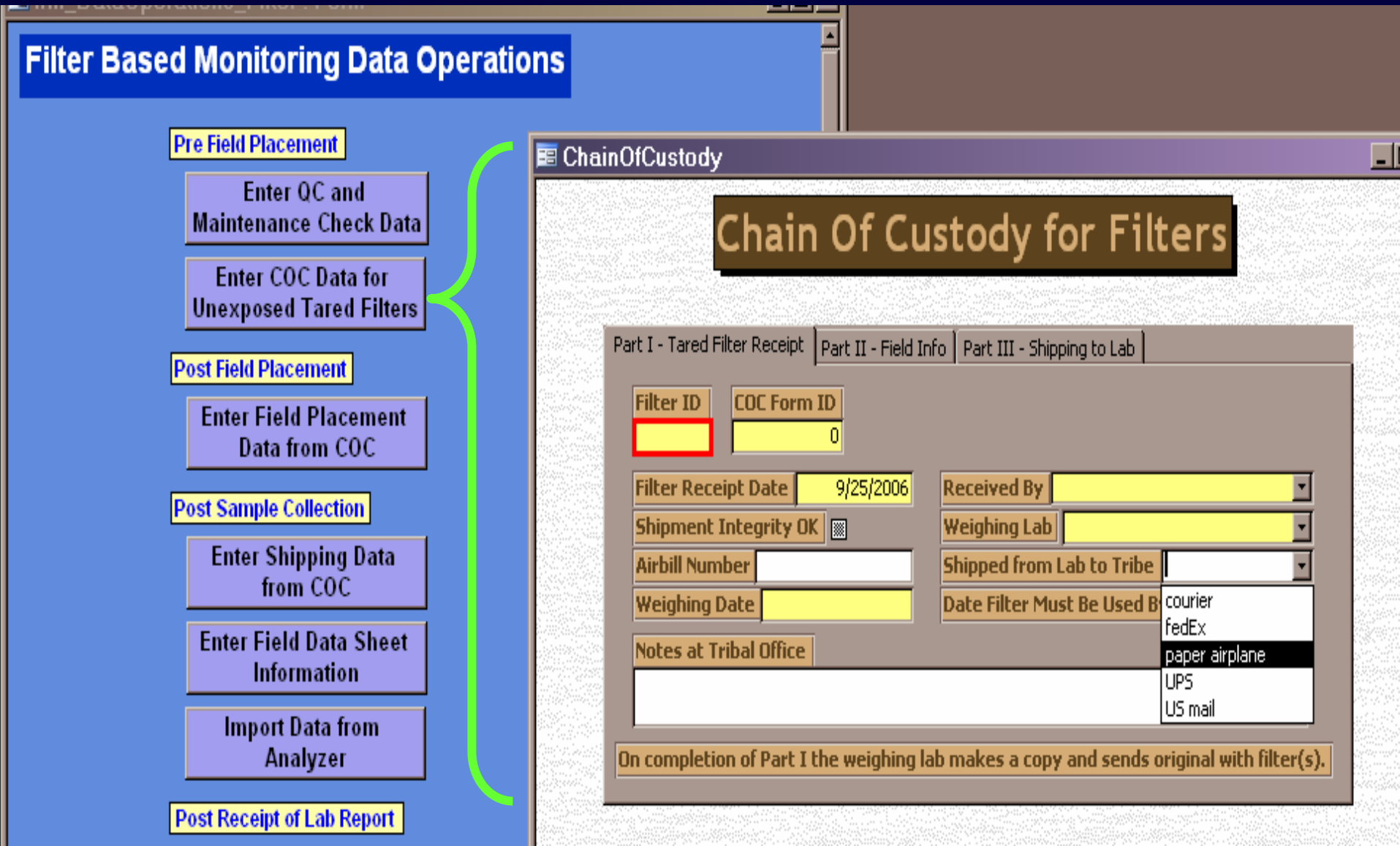
Sub-menus for each step:



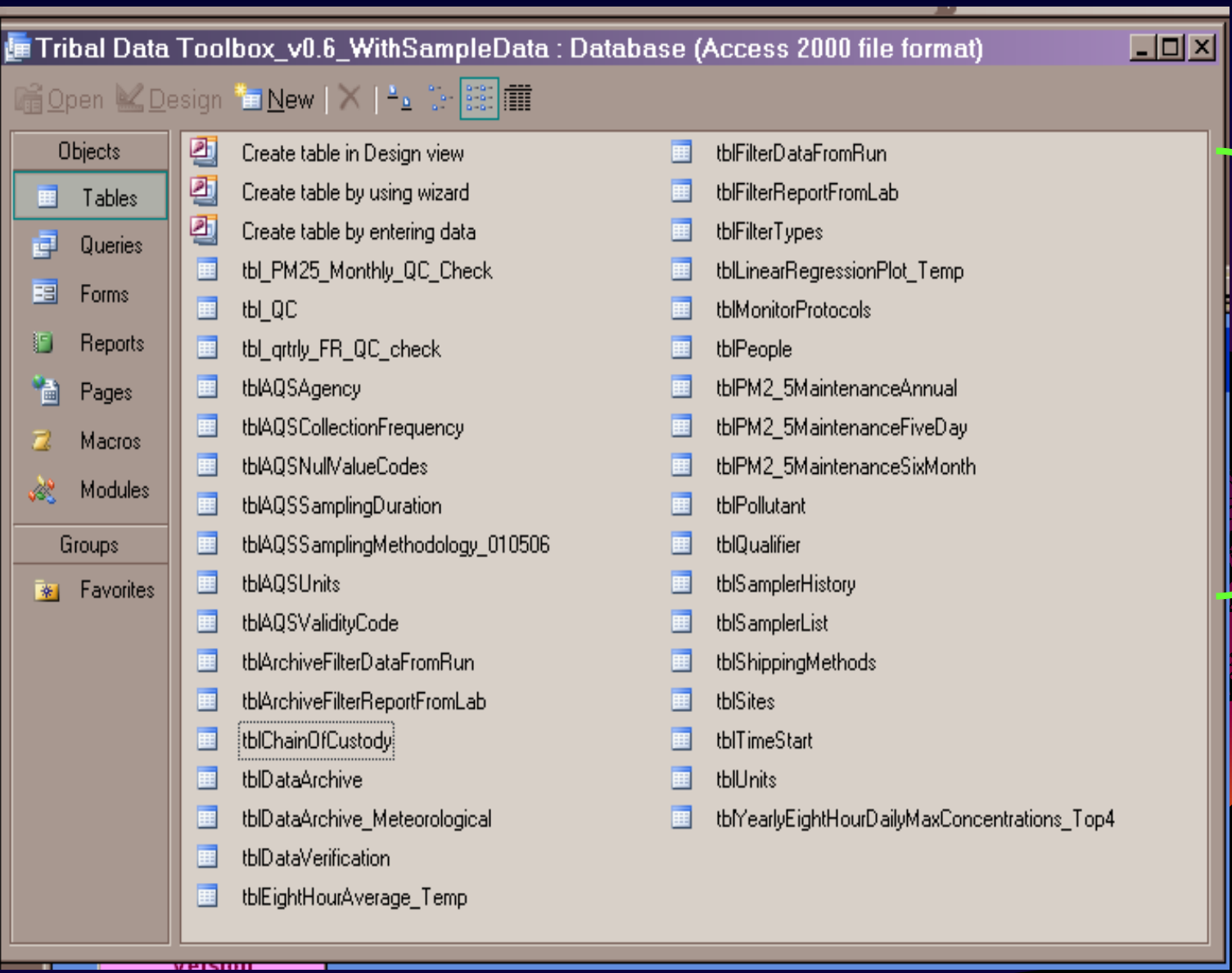
Drop-down lists, auto-complete makes accurate data entry easy;



COC can be manually keyed in or imported from excel files:

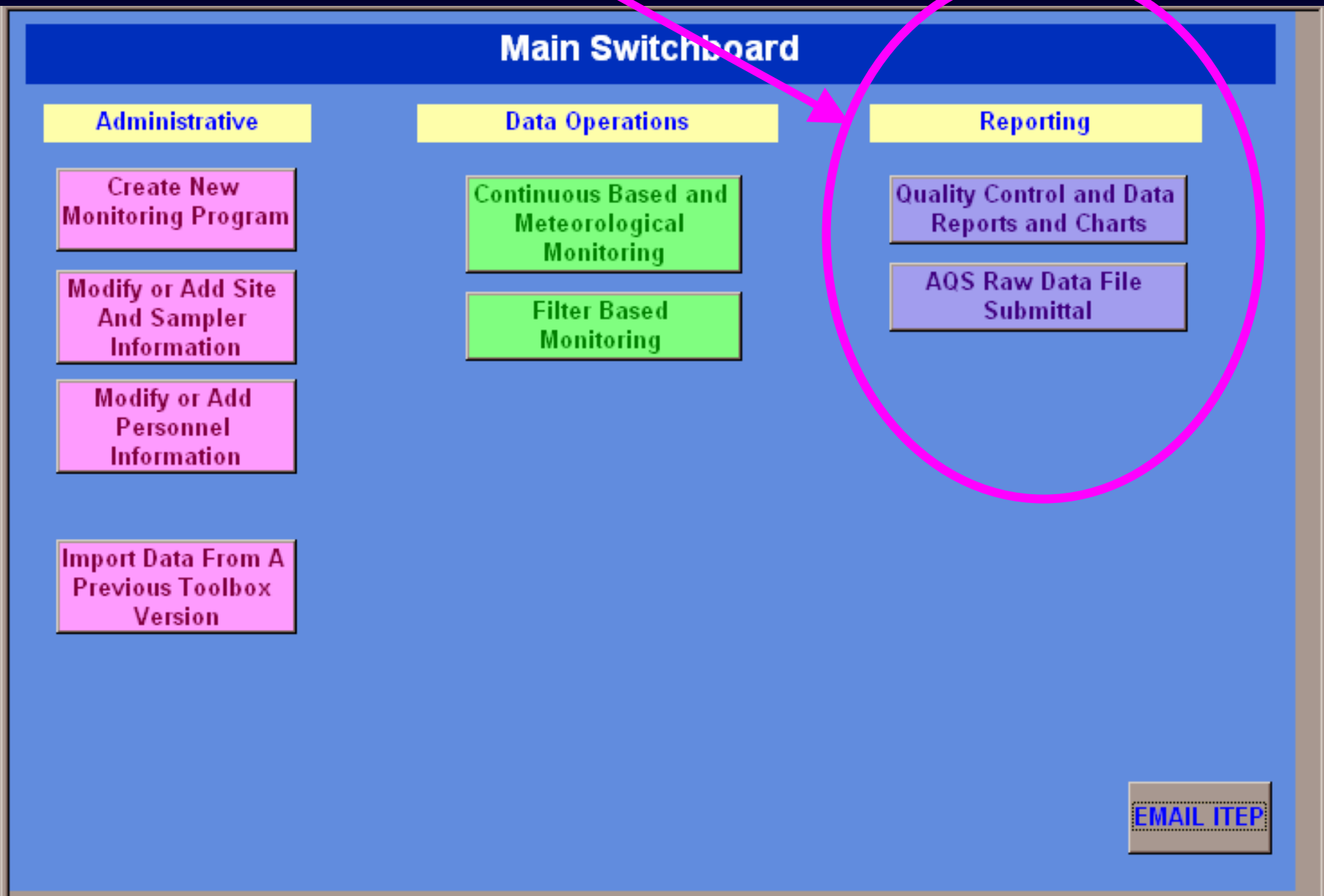


Where does this data go?

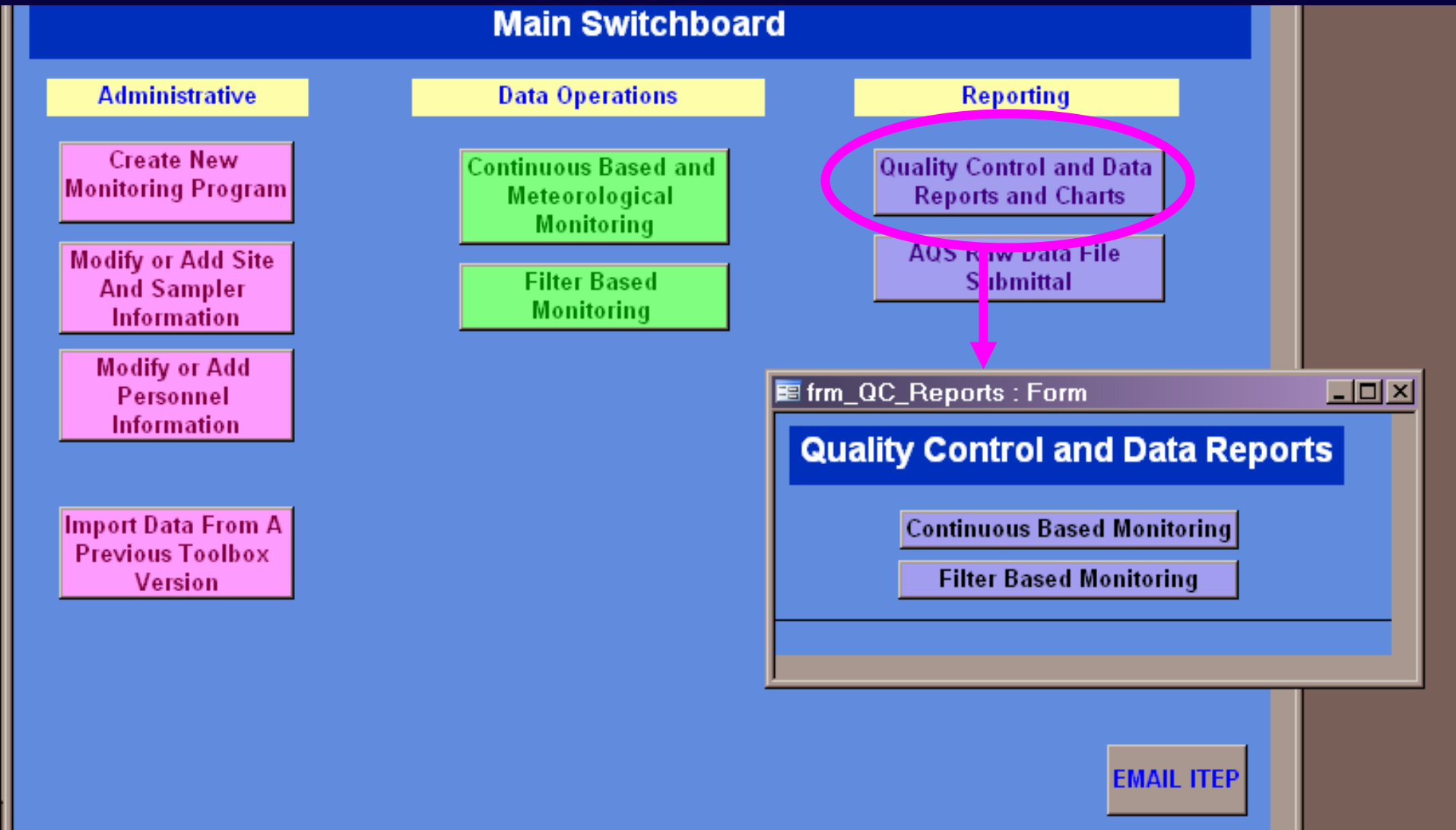


tables

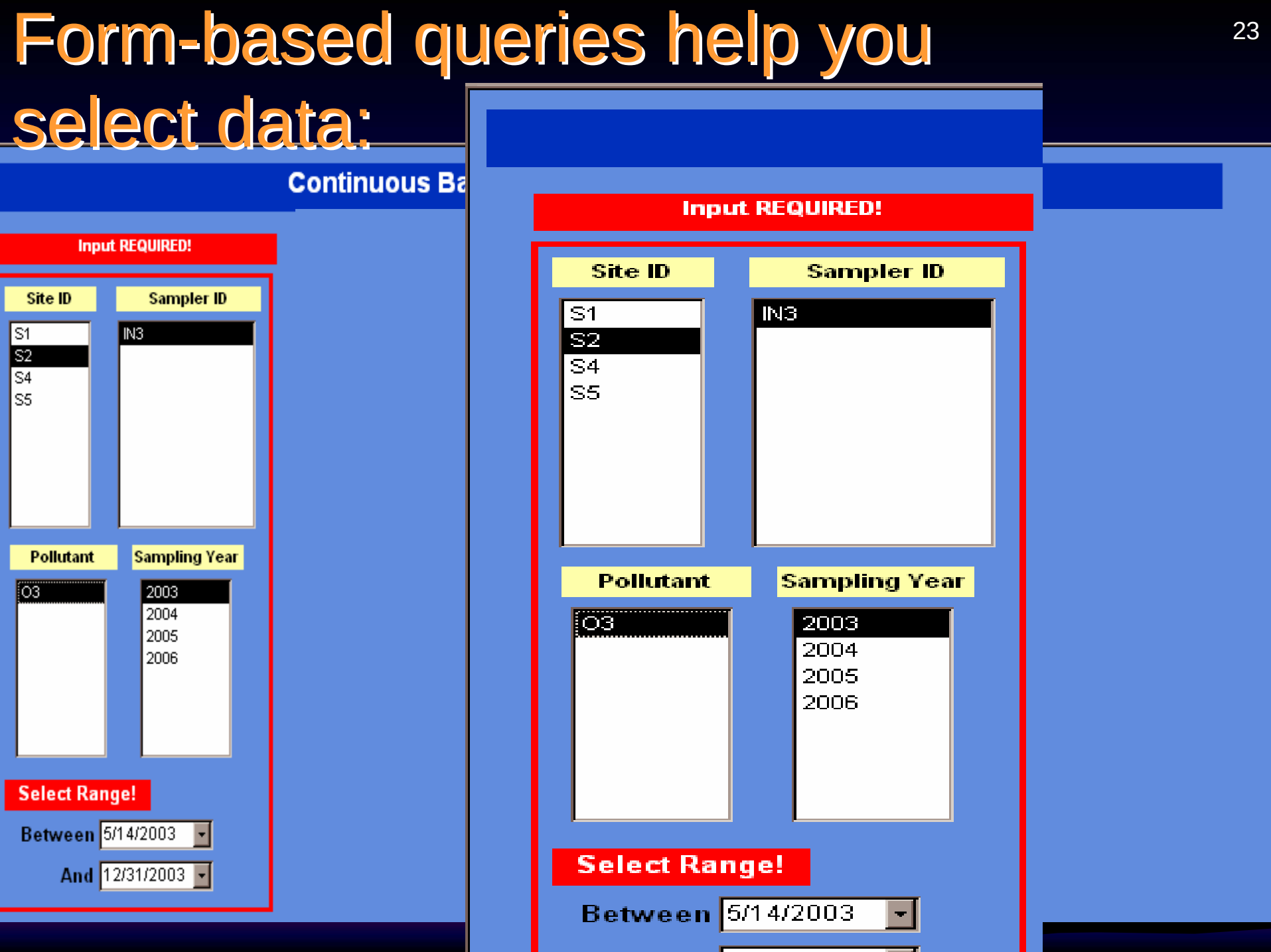
How about reporting?



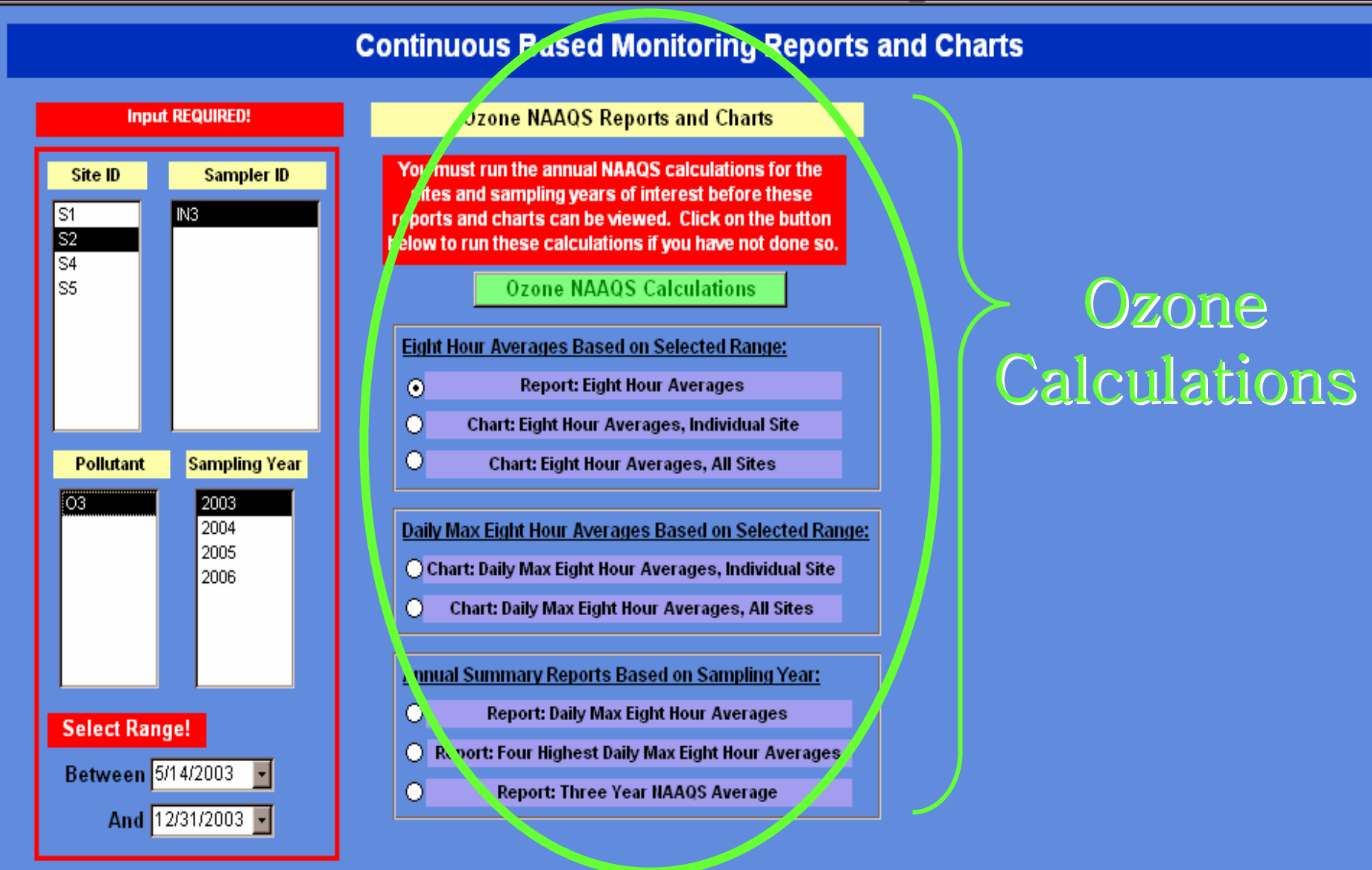
QC Reports and Charts:



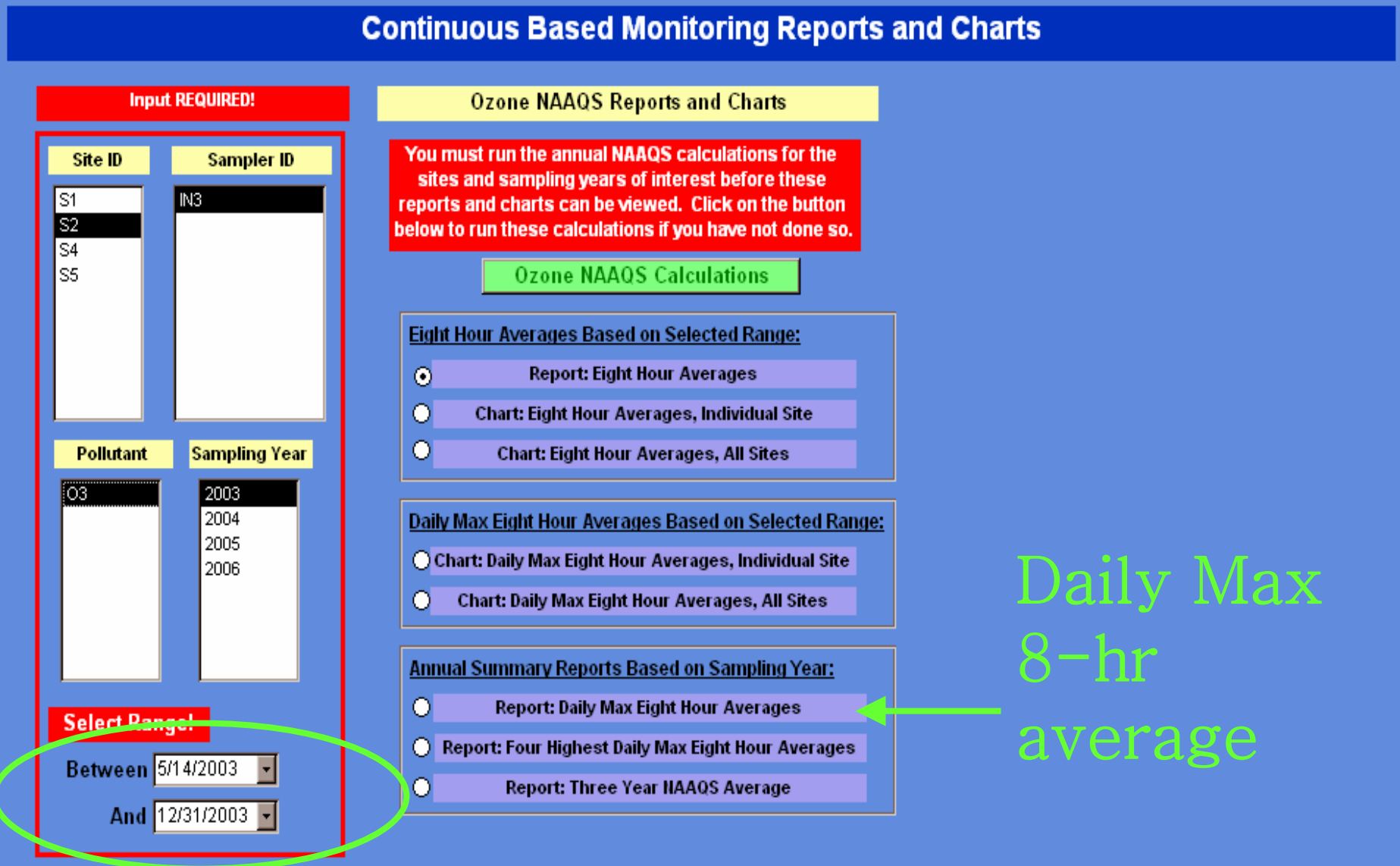
Form-based queries help you select data:



Reports and Charts for Ozone:



Customizable reports:



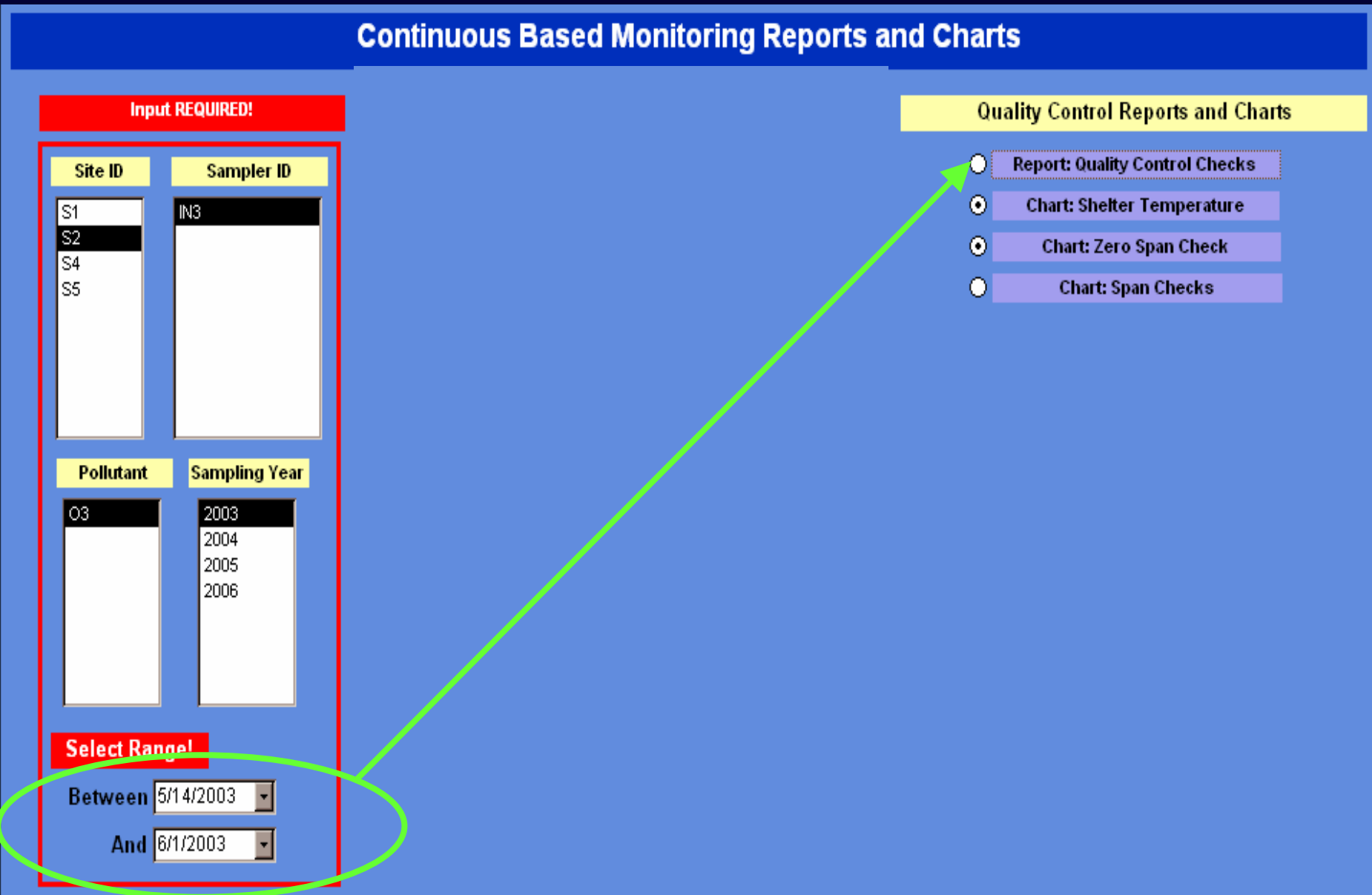
Report for ozone daily max at 1 site:

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

QC Reports and Charts:



QC Report for this 2-week check:

Continuous Monitoring Sampler QC Evaluation

Site Name: casino *Sampler ID:* IN3 *Pollutant:* O3

Technician: Qat *QC Date and Time:* 5/15/2003 7:45:00 AM

QC Frequency: bi-weekly

Shelter Temperature QC Check: PASS

Shelter Temperature (C): **26.5** (Shelter Temperature must be between 20 and 30 C to pass.)

Zero QC Check: PASS

Zero Input (PPB): **0**

Zero Output (PPB): **0** (Absolute value of Output must be less than 0.01 PPM to pass.)

Point 1 Span Audit: PASS

Point 1 Span Input (PPB): **90**

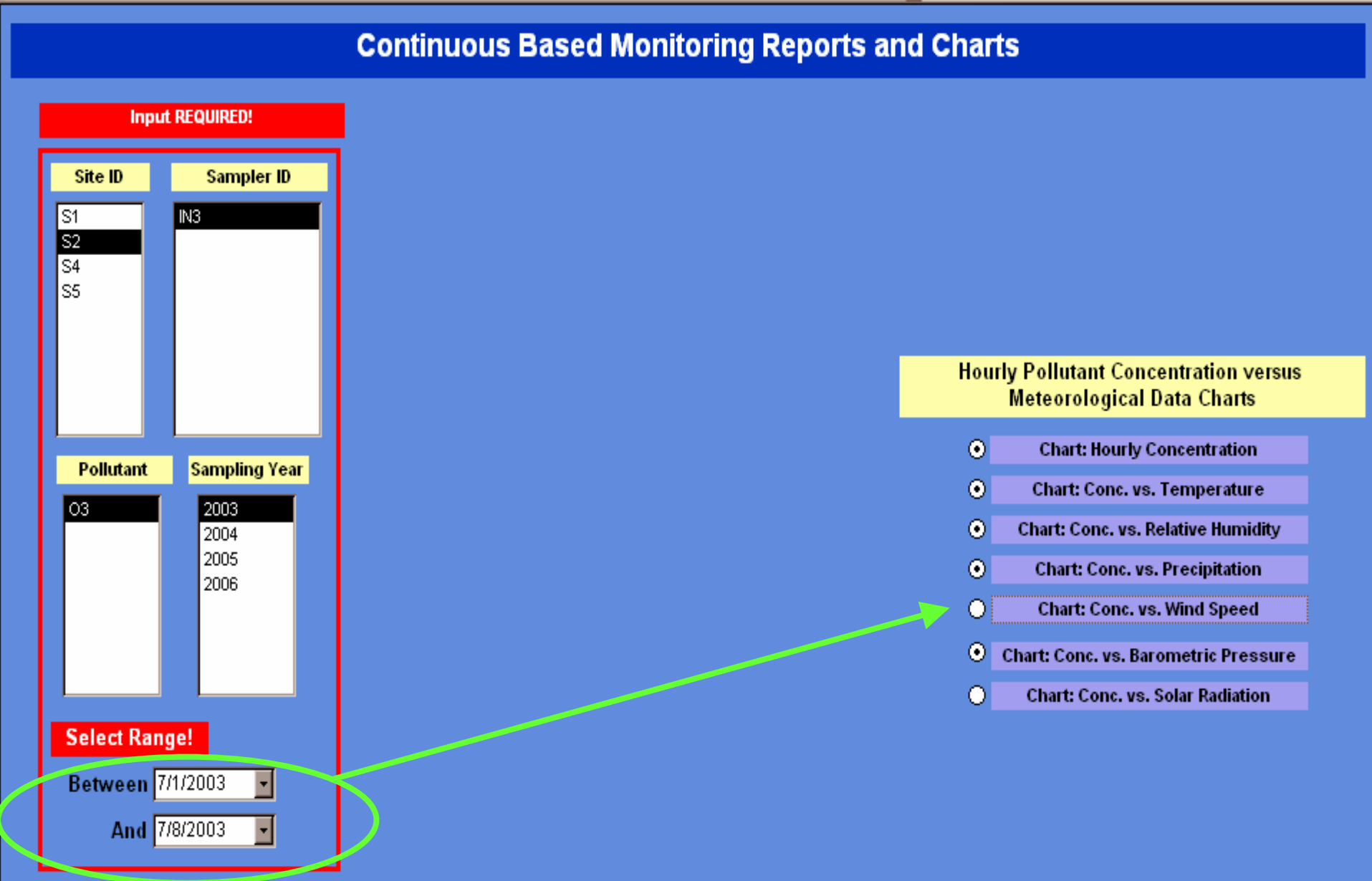
Point 1 Span Output (PPB): **100.5153**

Point 1 Span Precision (%): **11.68** (Absolute value of Precision must be less than 15 to pass.)

Point 2 Span Audit: PASS

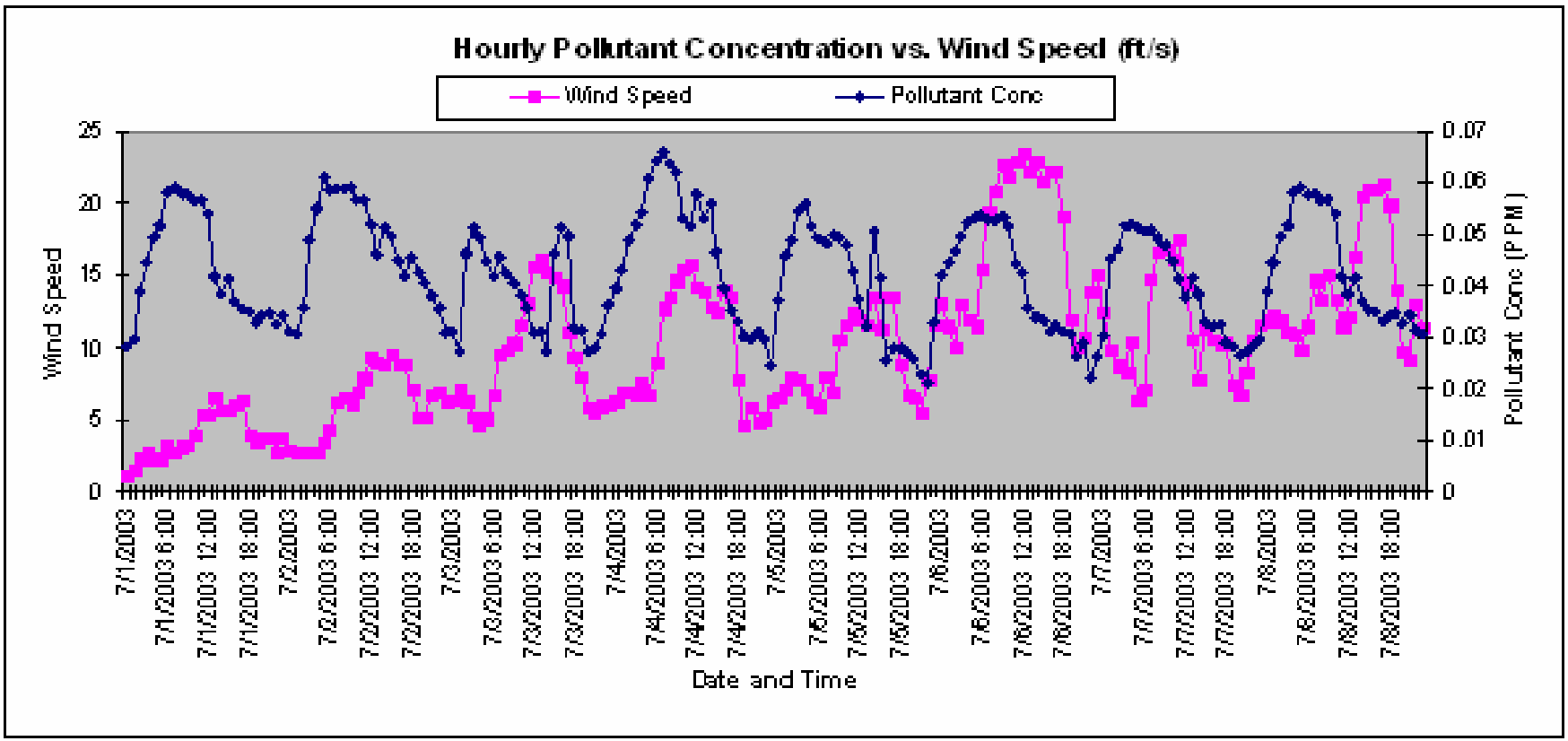
Point 2 Span Input (PPB): **400**

Charts with met data:

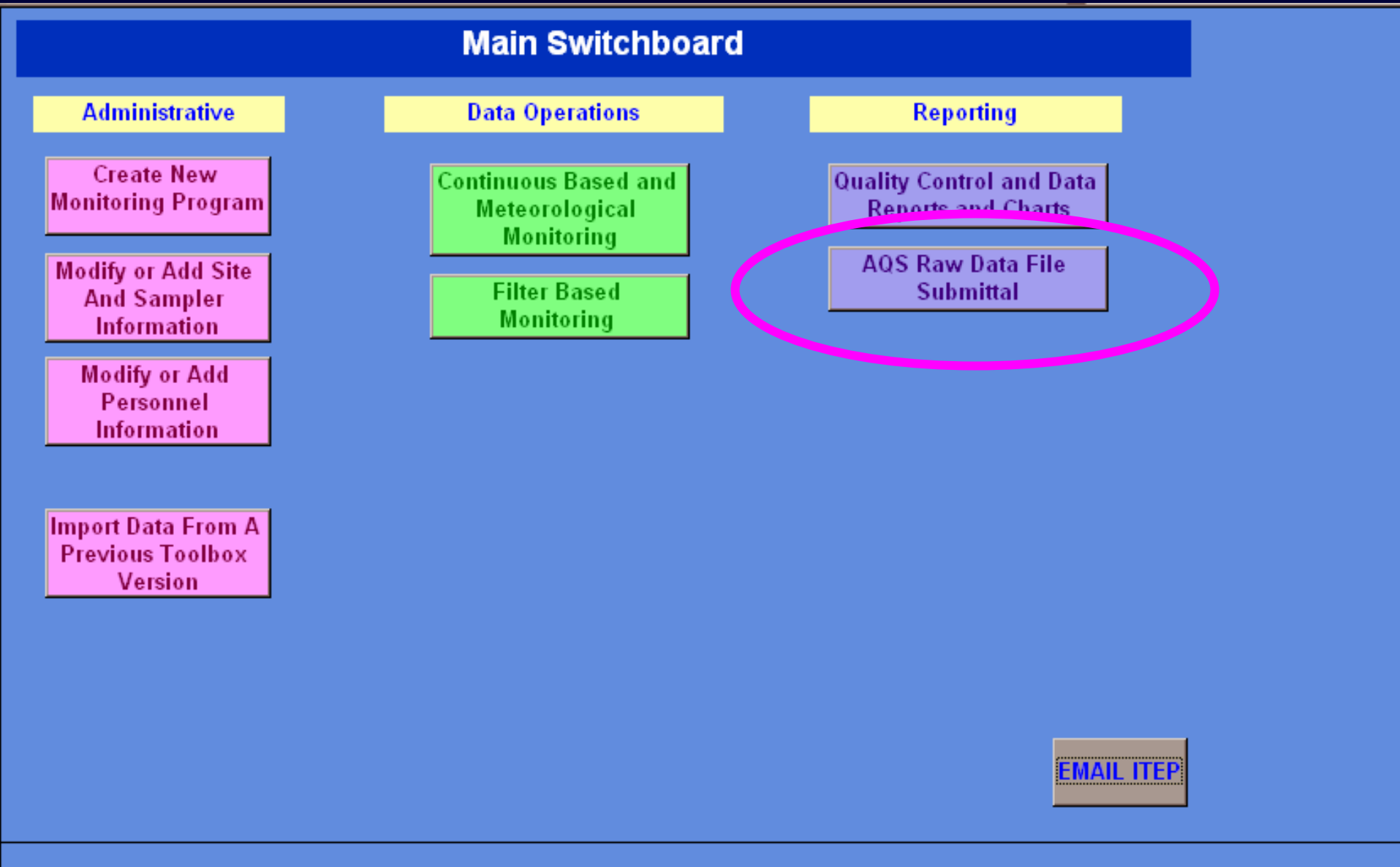


Concentration vs. wind speed:

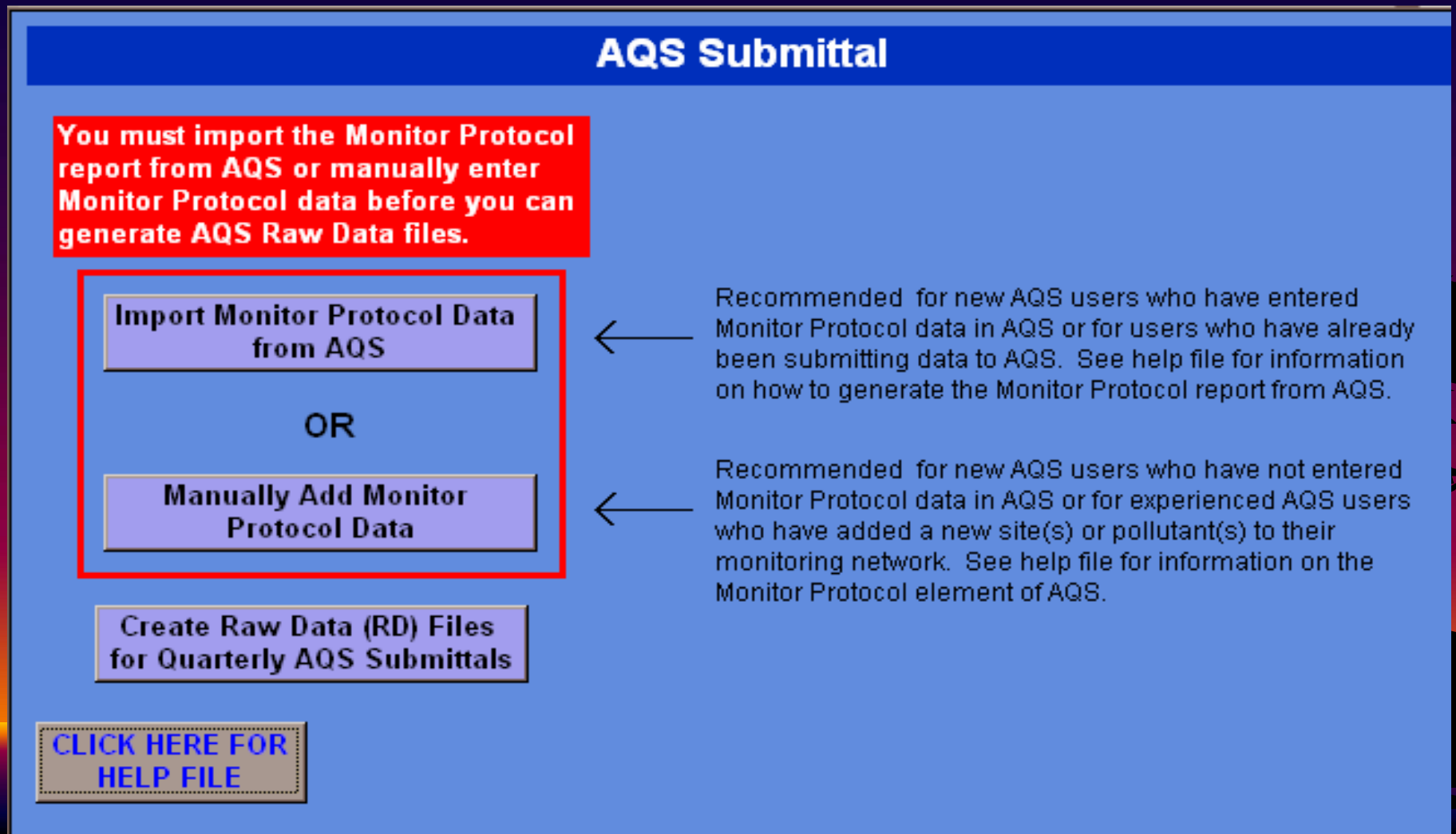
Site ID: S2 *Sampler ID:* IN3 *Pollutant* O3



AQS Formatting!



Toolbox has steps for adding the Protocol values that are a necessary 1st step for AQS entry:



Set up AQS data formatting:

Enter New Monitor Protocol Record

Input REQUIRED!

FIRST TIME USERS! CLICK HERE FOR HELP FILE!

Tribe ID

117	Quinault Tribe of Quinault Reservation, WA
597	Ramona Band or Village of Cahuilla Mission Indians of California
F37	Rampart Village
435	Red Cliff Band of Lake Superior Chippewa Indians of Wisconsin
409	Red Lake Band of Chippewa Indians, Minnesota
538	Redding Rancheria, California
539	Redwood Valley Rancheria of Pomo Indians of California
653	Reno/Sparks Indian Colony, NV

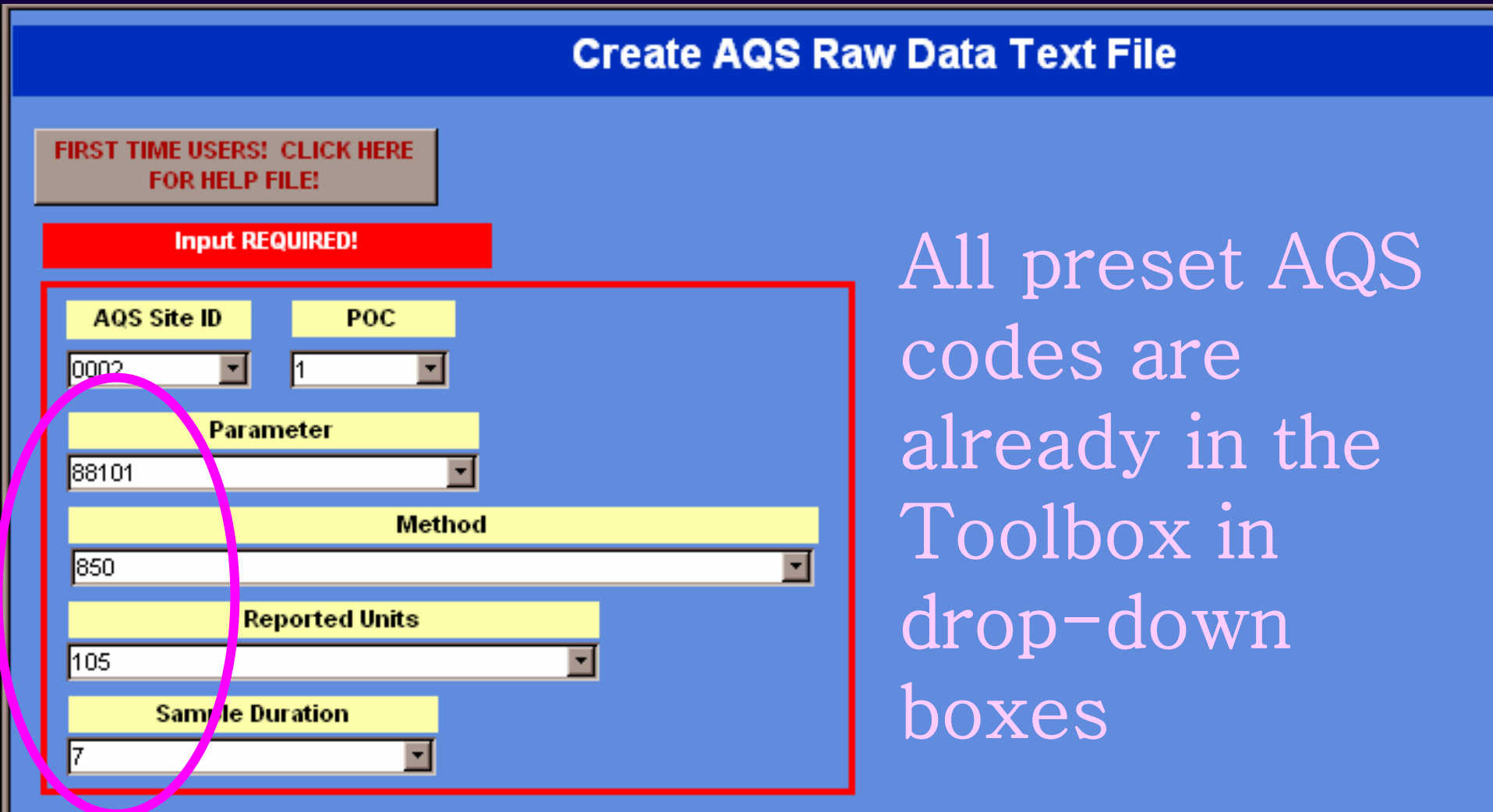
AQS Site ID

Method

Reported Units

Sample Duration

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



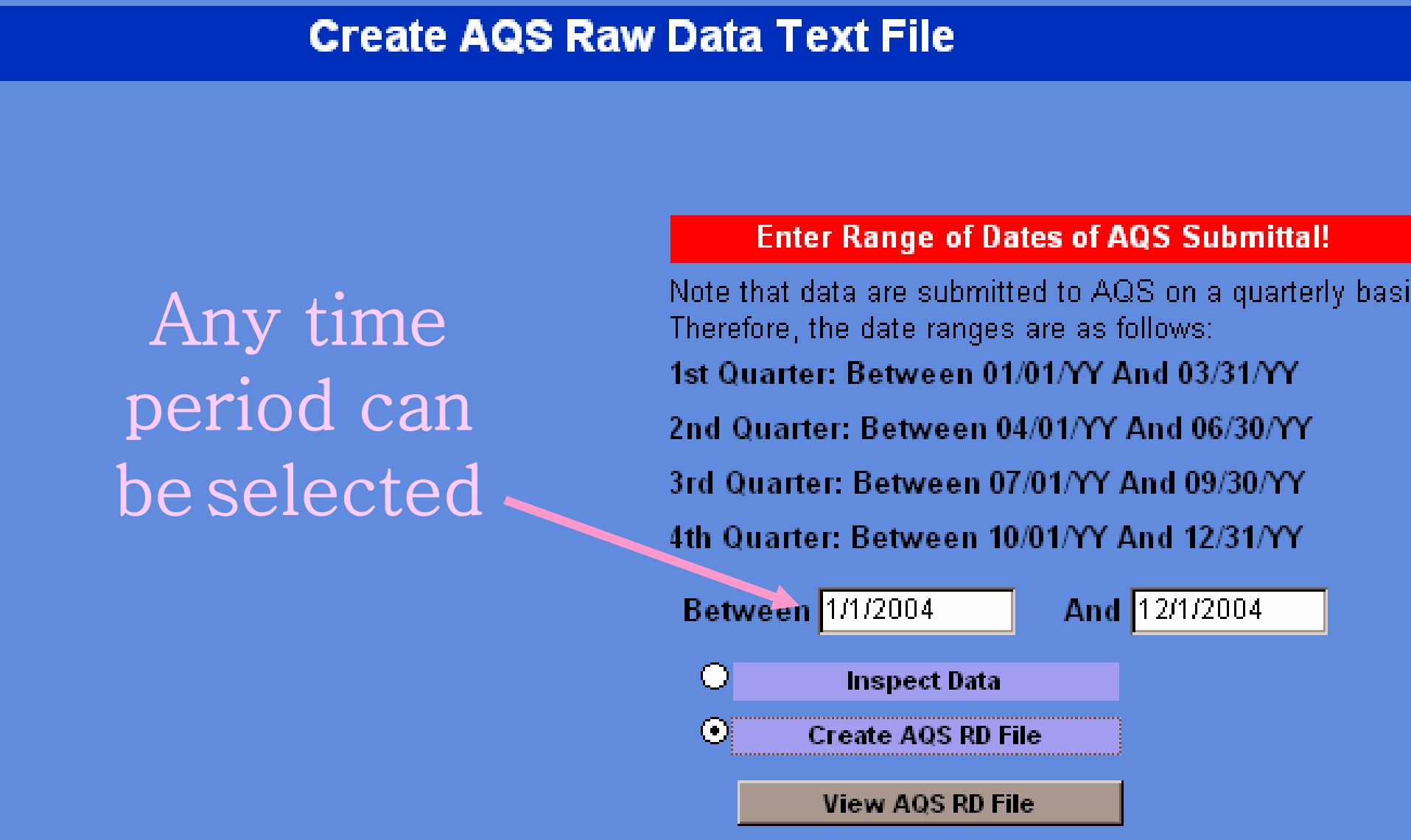
All preset AQS codes are already in the Toolbox in drop-down boxes

View the data anytime:

qryAQSData_FilterPM25 : Select Query

AQSSiteCode	SiteID	Sample	FilterType	POC	Act Start Date	Act Start Time_	PollutantCode	Calculate	AirC
0002	S2	IN1	RO	1	1/1/2004	0:00	PM25-FILT	9.41667	ug/m
0002	S2	IN2	CO	2	1/4/2004	0:00	PM25-FILT	11.0417	ug/m
0002	S2	IN1	RO	1	1/4/2004	0:00	PM25-FILT	10.9959	ug/m
0002	S2	IN1	RO	1	1/7/2004	0:00	PM25-FILT	16.888	ug/m
0002	S2	IN2	CO	2	1/10/2004	0:00	PM25-FILT	2.50000	ug/m
0002	S2	IN1	RO	1	1/10/2004	0:00	PM25-FILT	2.58333	ug/m
0002	S2	IN1	RO	1	1/13/2004	0:00	PM25-FILT	5.04167	ug/m
0002	S2	IN1	RO	1	1/16/2004	0:00	PM25-FILT	8.70833	ug/m
0002	S2	IN2	CO	2	1/16/2004	0:00	PM25-FILT	8.08333	ug/m
0002	S2	IN1	RO	1	1/19/2004	0:00	PM25-FILT	12.125	ug/m
0002	S2	IN1	RO	1	1/22/2004	0:00	PM25-FILT		
0002	S2	IN2	CO	2	1/22/2004	0:00	PM25-FILT		
0002	S2	IN1	RO	1	1/25/2004	0:00	PM25-FILT	5.79167	ug/m
0002	S2	IN2	CO	2	1/28/2004	0:00	PM25-FILT	7	ug/m
0002	S2	IN1	RO	1	1/28/2004	0:00	PM25-FILT	6.39004	ug/m
0002	S2	IN1	RO	1	1/31/2004	0:00	PM25-FILT	9.20833	ug/m
0002	S2	IN1	RO	1	2/3/2004	0:00	PM25-FILT		
0002	S2	IN2	CO	2	2/3/2004	0:00	PM25-FILT		
0002	S2	IN1	RO	1	2/6/2004	0:00	PM25-FILT	5.58333	ug/m
0002	S2	IN1	RO	1	2/9/2004	0:00	PM25-FILT		
0002	S2	IN2	CO	2	2/9/2004	0:00	PM25-FILT		

With one click, prepare AQS-formatted data over any time period:



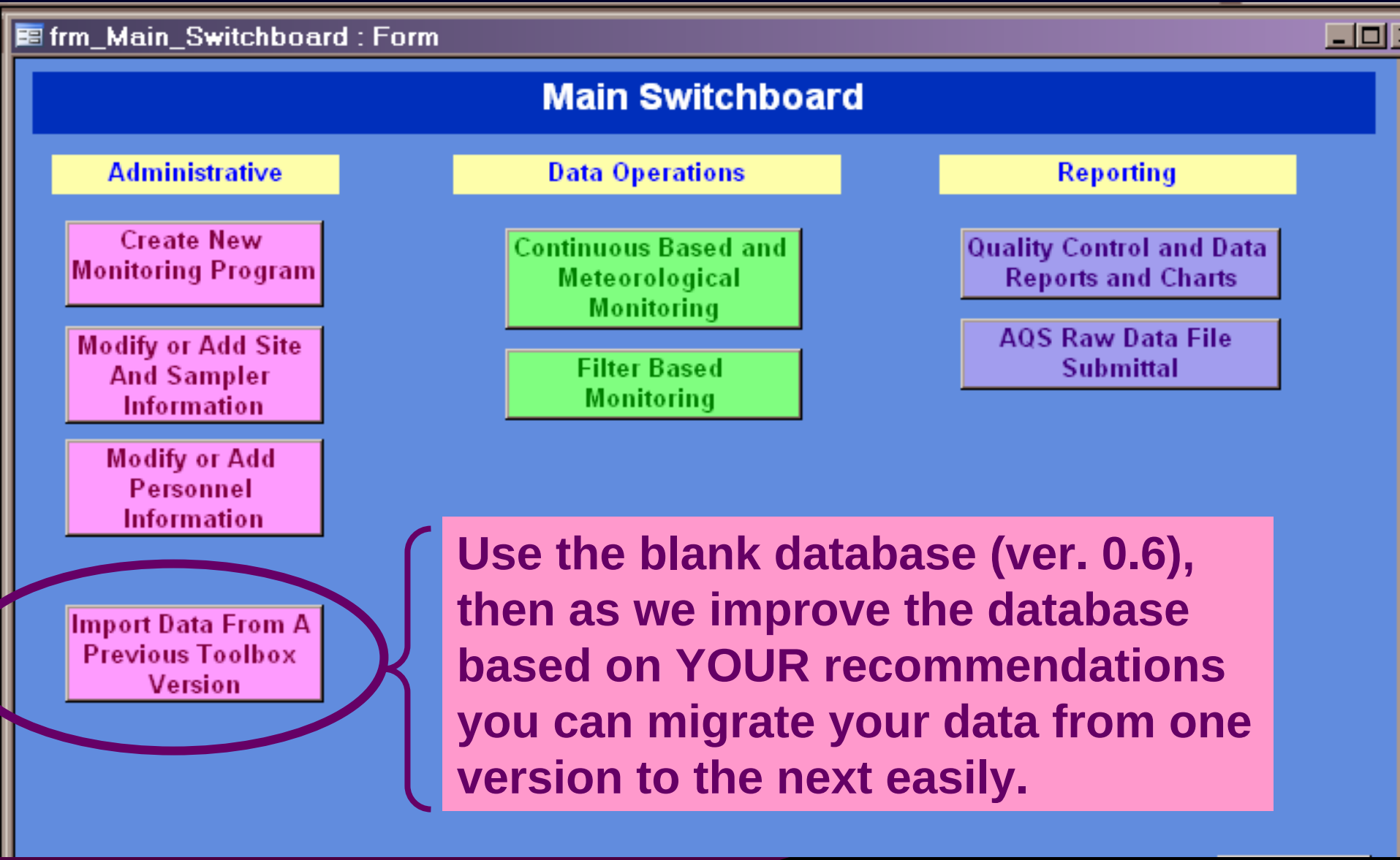
Notepad file ready for uploading:

AQS_RD.txt - Notepad

File Edit Format View Help

```
RD|I|TT|1262|0002|88101|1|7|105|850|20040101|00:00|9.4|||||||||
RD|I|TT|1262|0002|88101|2|7|105|850|20040104|00:00|11||||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040104|00:00|11||||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040107|00:00|16.9|||||||||
RD|I|TT|1262|0002|88101|2|7|105|850|20040110|00:00|2.5|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040110|00:00|2.6|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040113|00:00|5||||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040116|00:00|8.7|||||||||
RD|I|TT|1262|0002|88101|2|7|105|850|20040116|00:00|8.1|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040119|00:00|12.1|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040122|00:00||AX|||||||||
RD|I|TT|1262|0002|88101|2|7|105|850|20040122|00:00||AX|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040125|00:00|5.8|||||||||
RD|I|TT|1262|0002|88101|2|7|105|850|20040128|00:00|7||||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040128|00:00|6.4|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040131|00:00|9.2|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040203|00:00||AX|||||||||
RD|I|TT|1262|0002|88101|2|7|105|850|20040203|00:00||AX|||||||||
RD|I|TT|1262|0002|88101|1|7|105|850|20040206|00:00|5.6|||||||||
```

Plans for revising this database:



Use the blank database (ver. 0.6), then as we improve the database based on YOUR recommendations you can migrate your data from one version to the next easily.

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

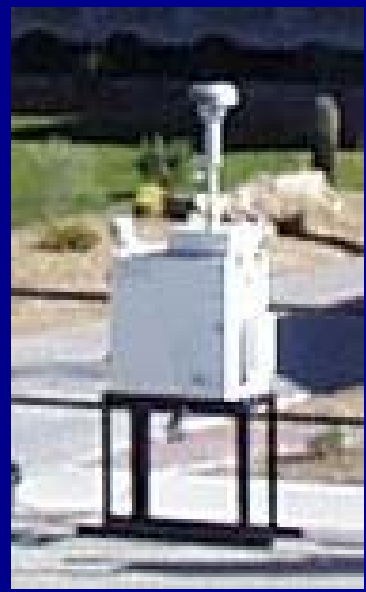
- Classroom and online courses planned
- Help files linked within the software or readable on their own
- Support available via email and phone
- Email us for updated versions and tutorials
- Melinda.ronca-battista@nau.edu
- Angelique.luedeker@nau.edu

TURBO-QAPP: Making QAPPs Work *For* You

Melinda Ronca-Battista
NAU ITEP Tribal Air Monitoring Support Center

Why is this needed?

- Everyone wants to start sampling, BUT
- Data gathered before a Quality Assurance Project Plan (QAPP) is in place is SUSPECT
- Small staff sharing duties, so QAPP writing is difficult
- QAPPs are *mandatory*



Writing a QAPP the old way:

If you are lucky:

- Everyone on the project writes and approves the QAPP
- The QAPP reflects what you actually plan to do and then do

The TAMS Center obtained $50 k from EPA:

- The software designer for TEISS is completing the first test version of Turbo-QAPP
- OAQPS will “approve” it, so it will be acceptable* by all EPA regions
- Will be FREE to all tribes

The software makes it fun!

- STARTS with what must be the driving question—WHY are we making these measurements?
- Uses TAMS Center QAPP templates, so that example text can be used
- Tool tips, links, definitions, and references all included

Turbo-QAPP is flexible:

- Multiple pollutants
- All FRM and FEM options
- “other” category
- Various organization types, sizes, working relationships

Turbo-QAPP gives you confidence:

- Uses both EPA terms and their common sense translation—PLAN, DO, CHECK, FIX, WRITE IT DOWN
- Uses latest guidance from EPA
- Fully explained examples
- Excel formulas for copying
- Field data sheets, etc. for copying

File Tools Help

New Open Report Help

PROJECT POLLUTANTS

Ozone (O3)

I. INTRODUCTION

Introduction to the QAPP

An EPA approved Quality Assurance Project Plan is required to implement any work funded by the EPA that involves the acquisition of environmental data generated from direct measurement activities, collected from other sources, or compiled from computarized 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 writting. Select from Ambient Air or Other in the pick list below.

ENTER YOUR TRIBE NAME, TRIBAL OFFICE AND DEPARTMENT IN THE BOXES BELOW:

Creating a QAPP for ... Ambient Air

Enter Name of the Tribe ** Ronca

Enter the name of your Tribal Office ** Ronca Environmental Office

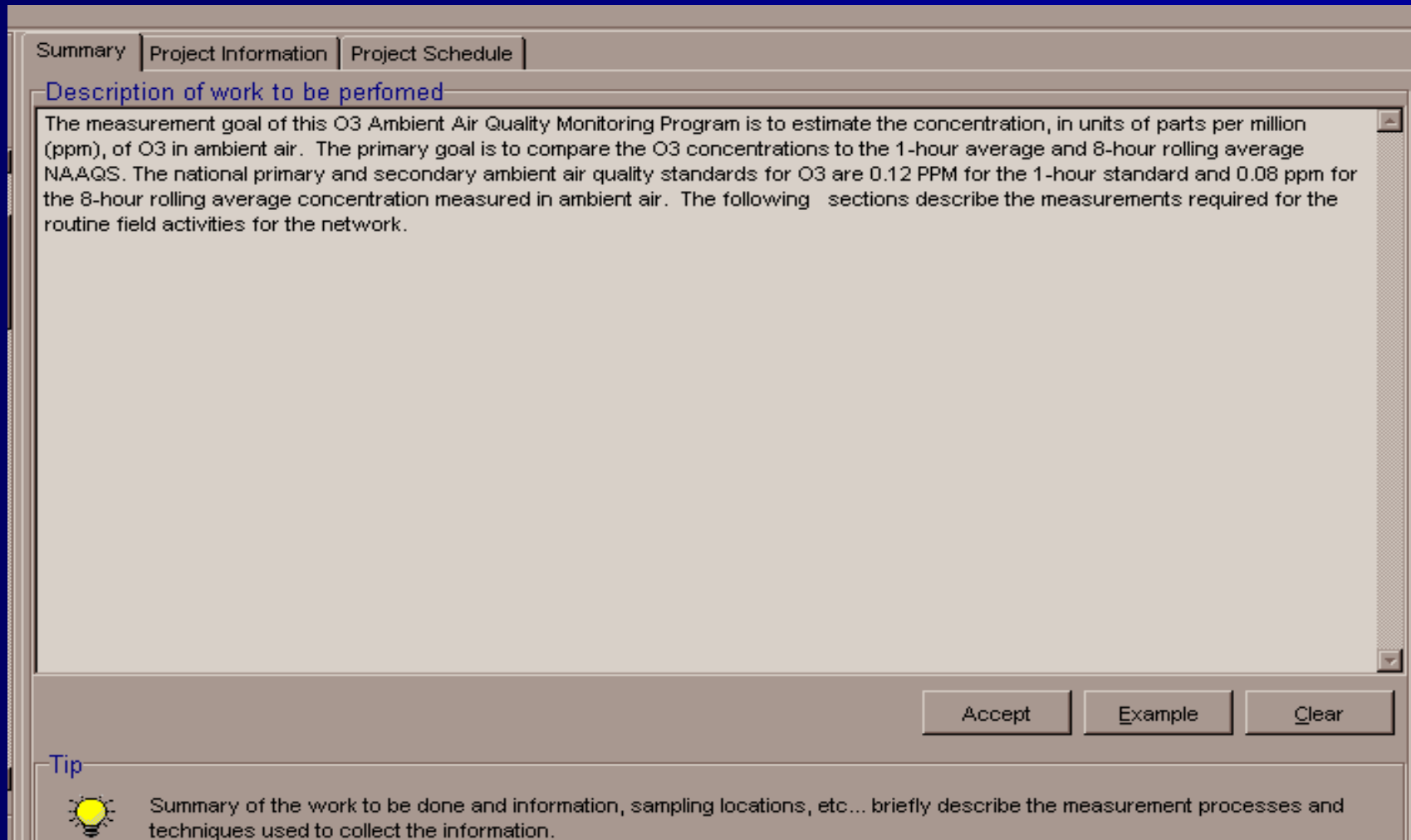
Enter the name of tribal department ** Ronca Tribal Air Quality Department

** These are your Organization, Office and Department names that will be repeated throughout the rest of the QAPP automatically, once you type them into these boxes.

Institute for Tribal Northern Arizona University

QAPP View

Example text for each section:



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 pr

Stating the problem

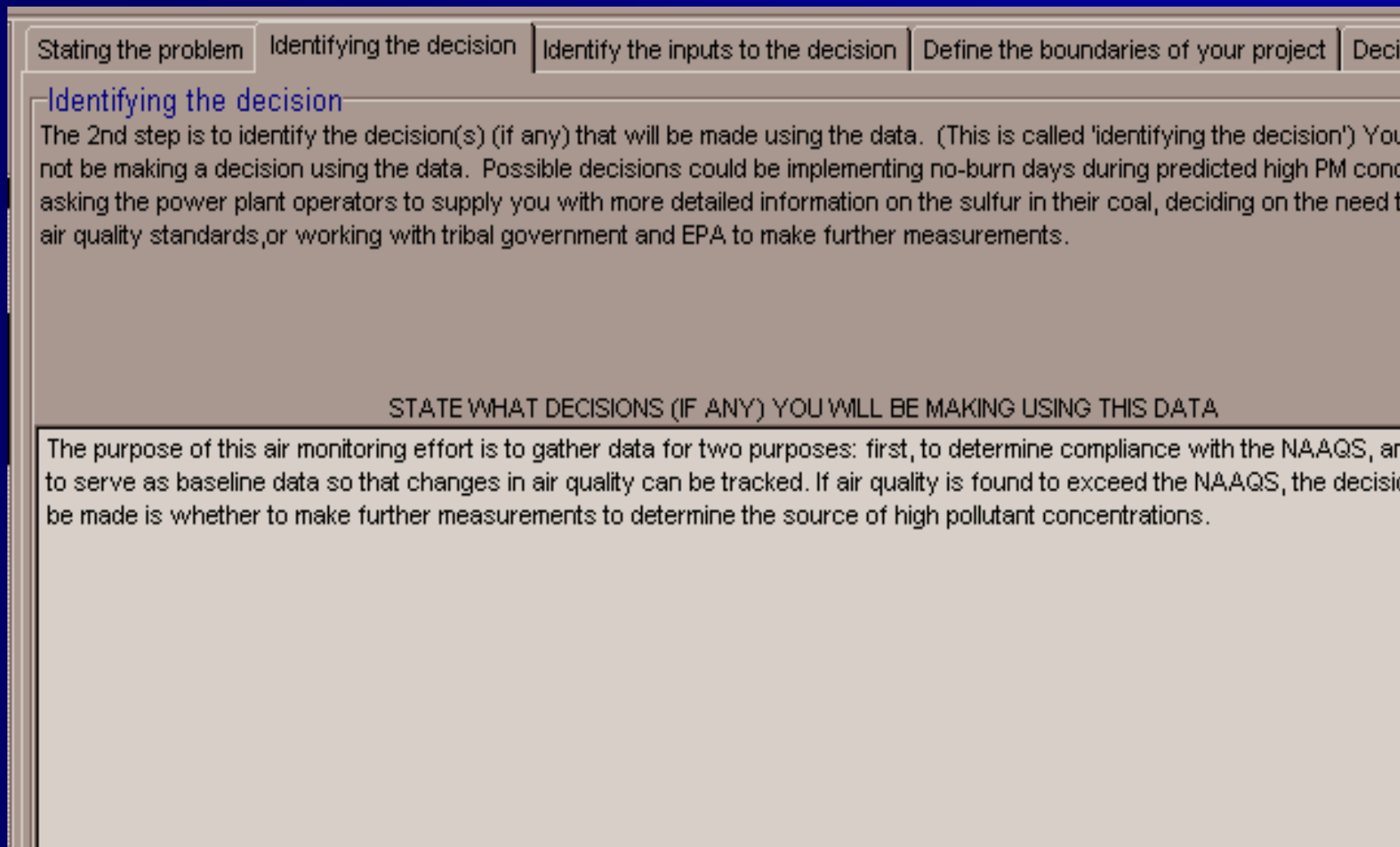
Data Quality Objectives are an important component of planning a data-gathering project. Basically, developing DQ
sort of systematic planning process to decide on what questions you have that you want to use your data to answ
planning process can be a series of meetings held between the people involved in the project, and notes taken do
decide. It can also be more formal, involving statistics and evaluating options and choices. The QAPP is where the
documented. If you hold a series of meetings to go through this process, the results of your notes can be entered
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 word
measurements? (This is called 'stating the problem.') For example, you may be concerned with rising asthma rates
possible emissions from a coal burning plant, or want baseline conditions to be documented in case air quality cha

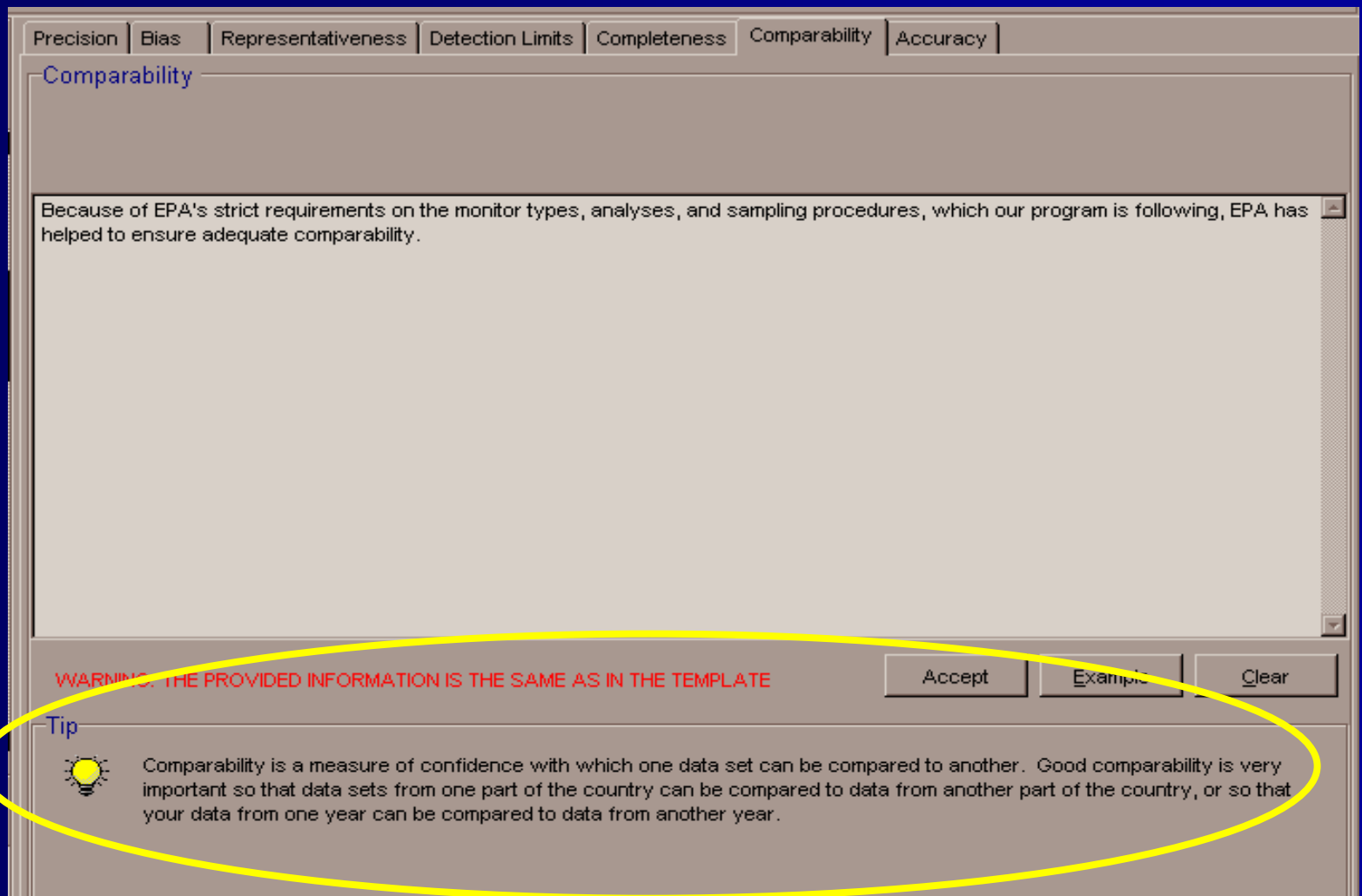
STATE YOUR PROBLEM IN A FEW SENTENCES

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

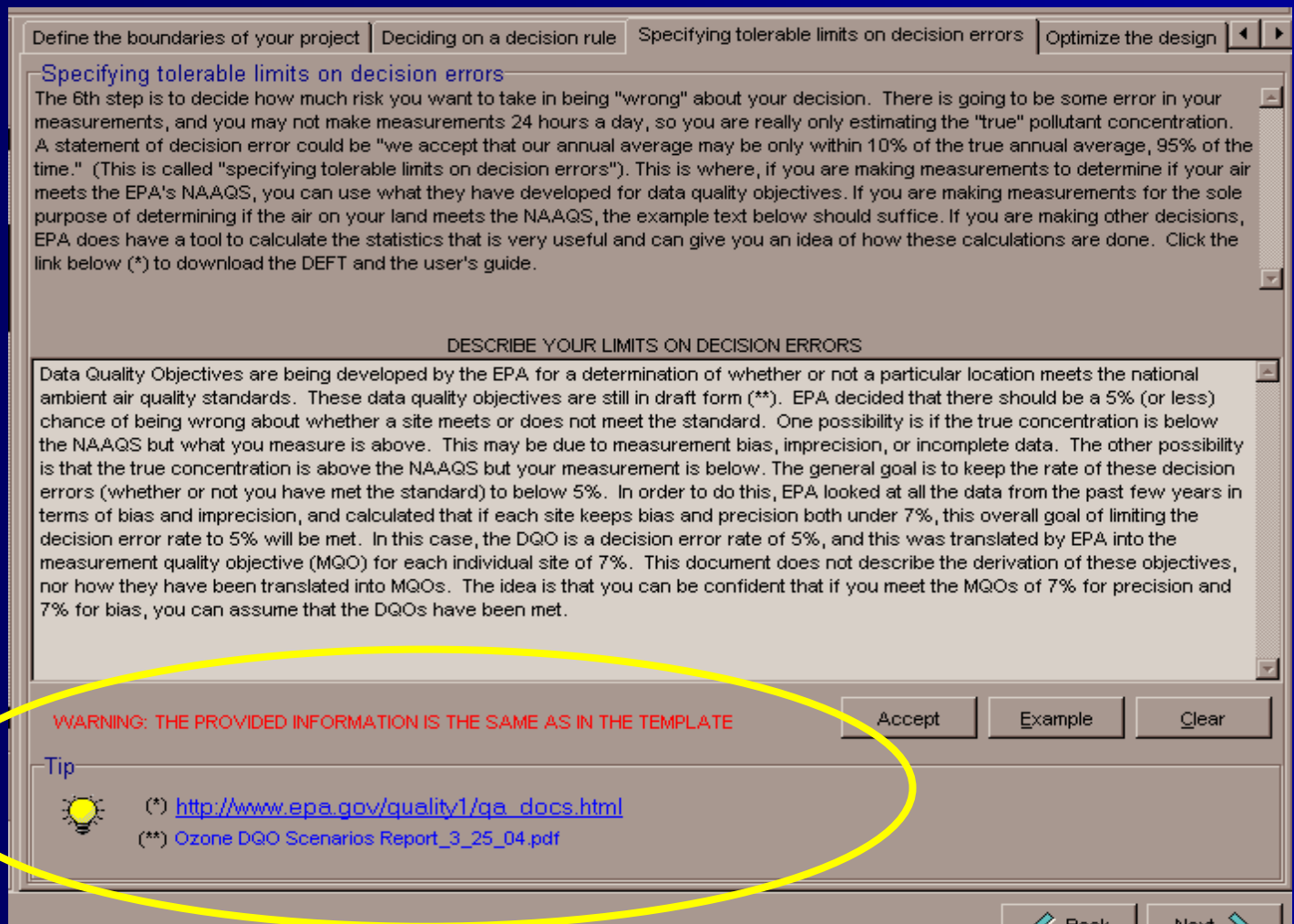
Tabs for each DQO step:



Tips for each section:



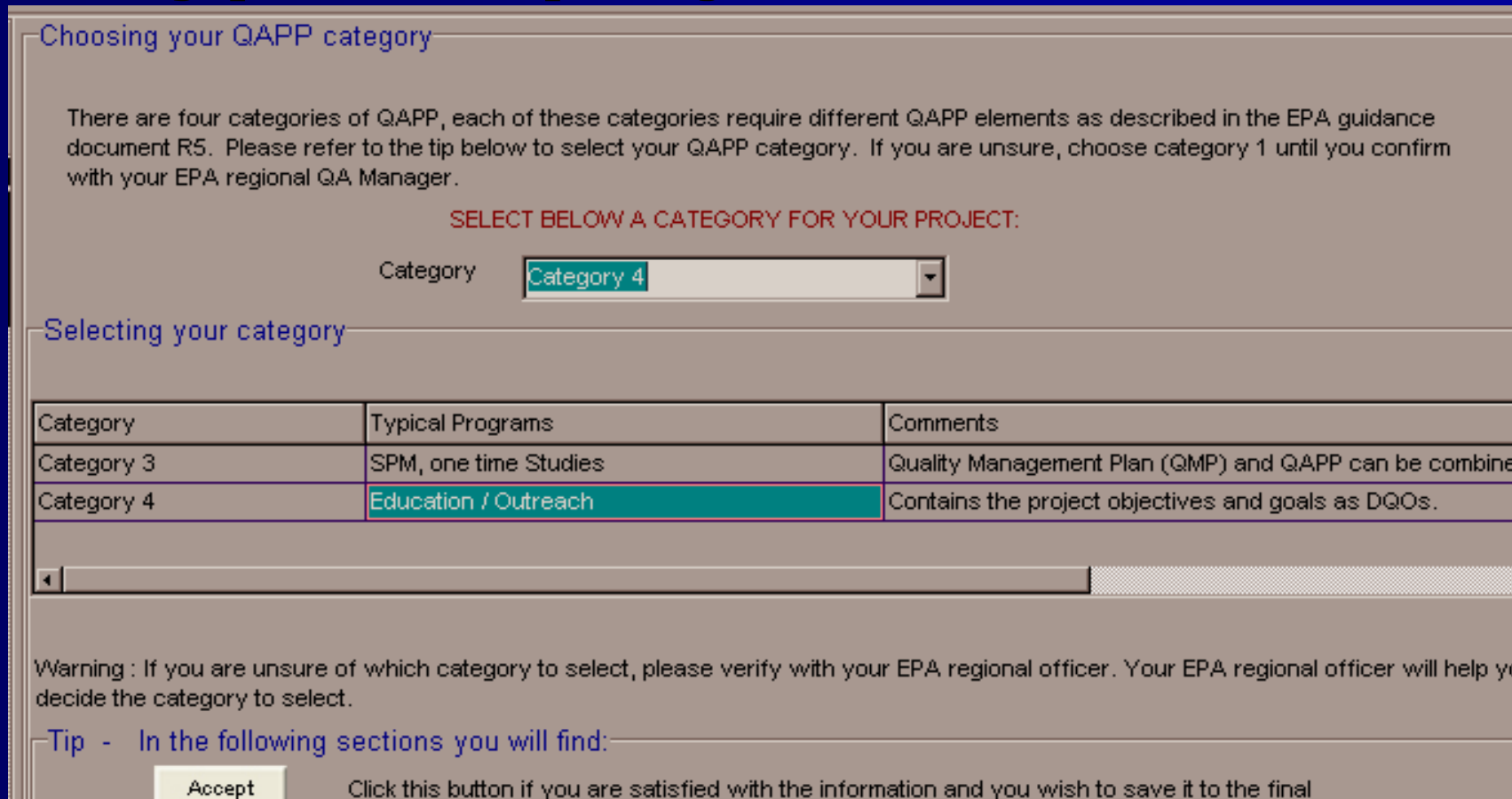
Links to websites and included reference files:



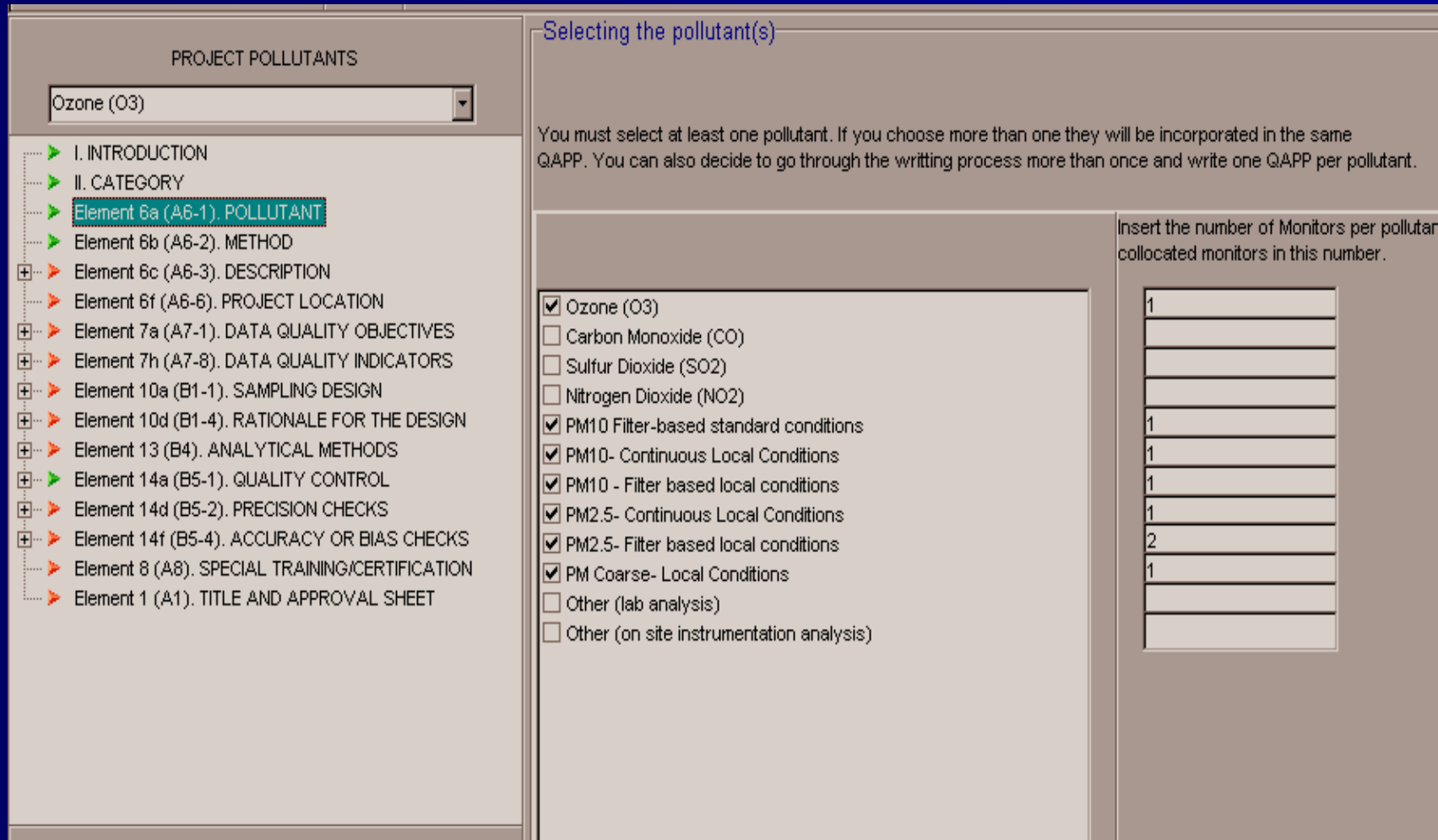
Software walks user through:

- Writing a QAPP
- Integrating QA with planning and implementation of your project
- Frees you up to actually do the work and look at your data!

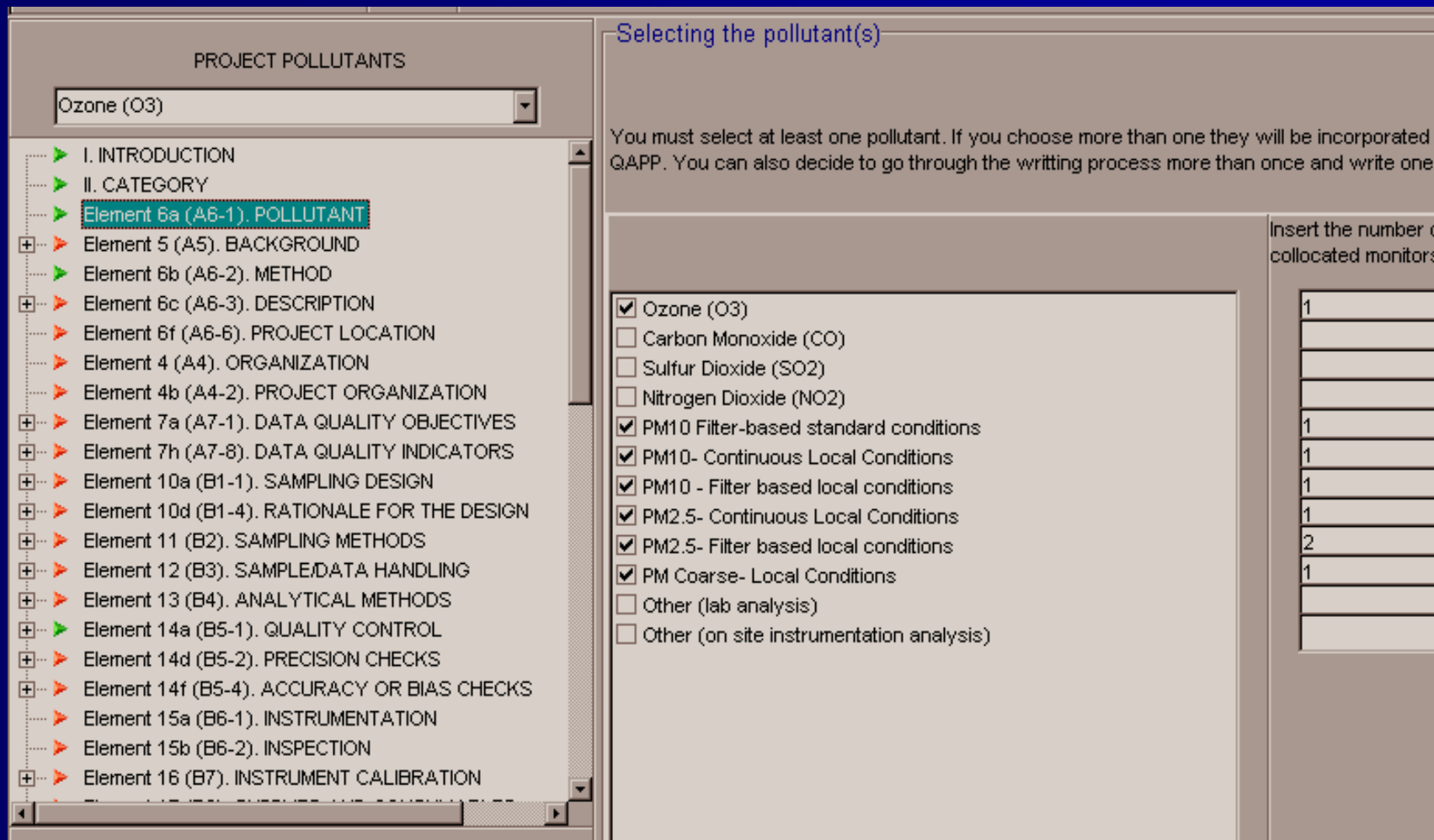
Uses the EPA Graded Approach, in which all 24 elements are not needed for all types of projects



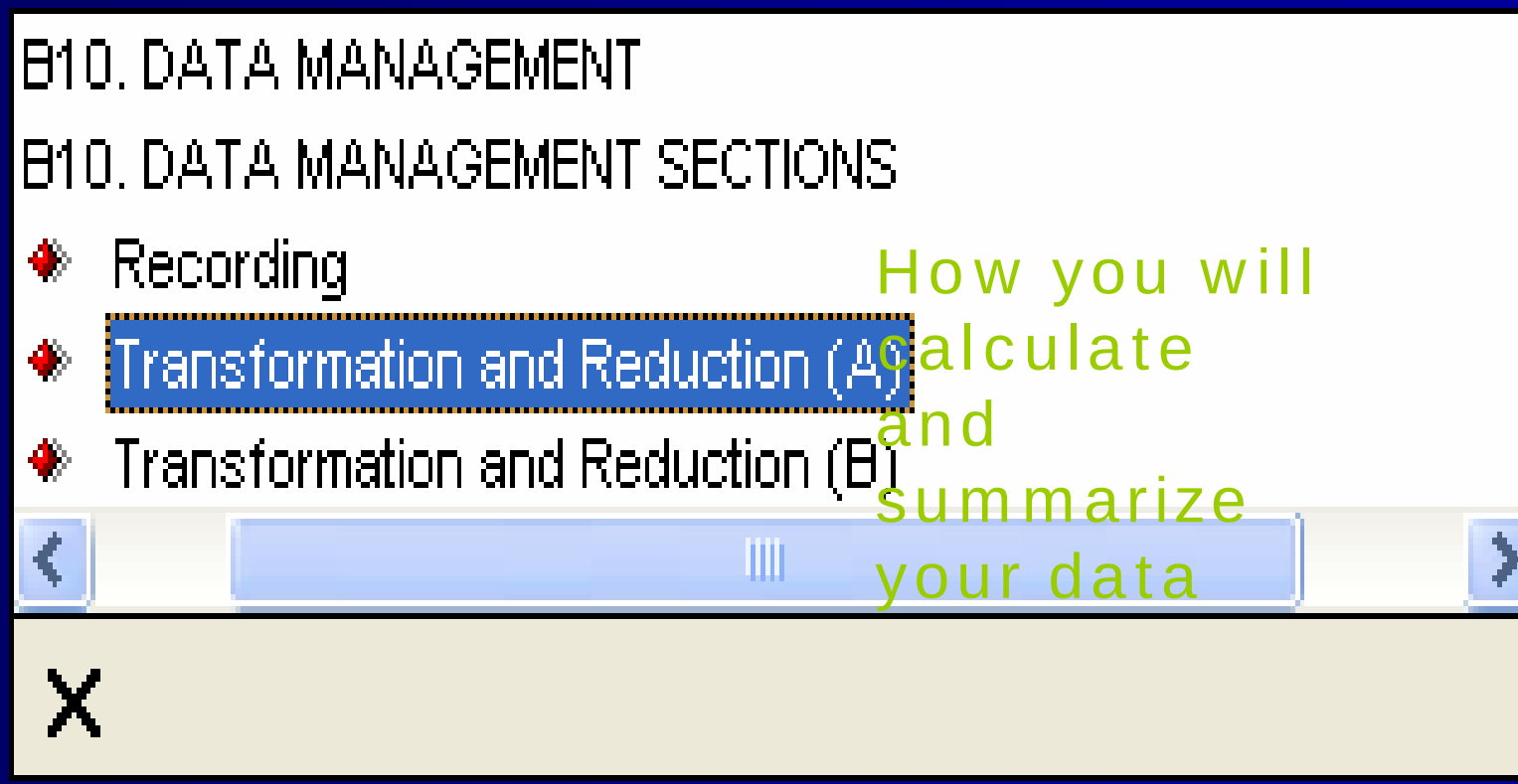
Example: Education/Outreach would not need a full-blown QAPP



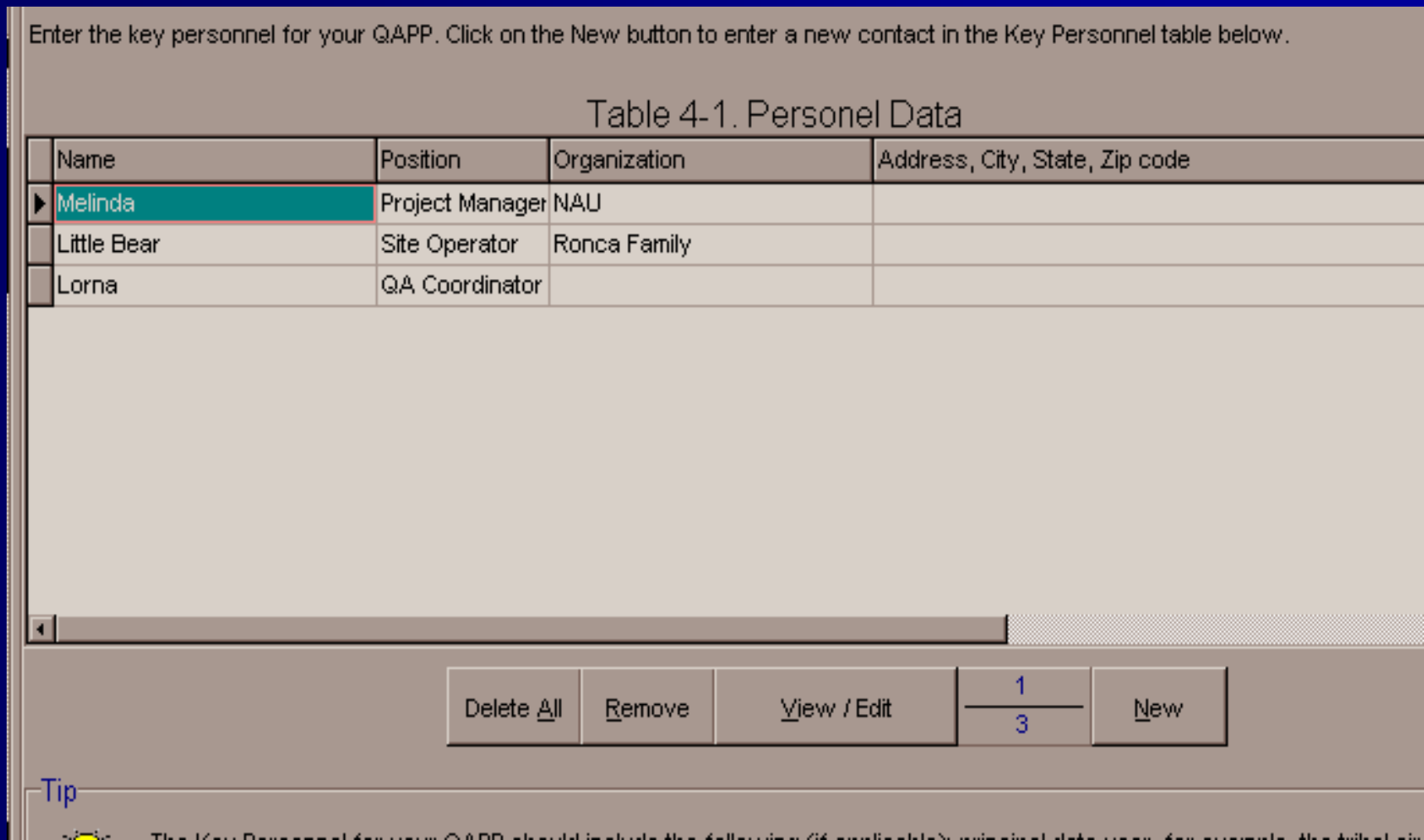
But a category 1 (NAAQS monitoring) does need all 24 elements:



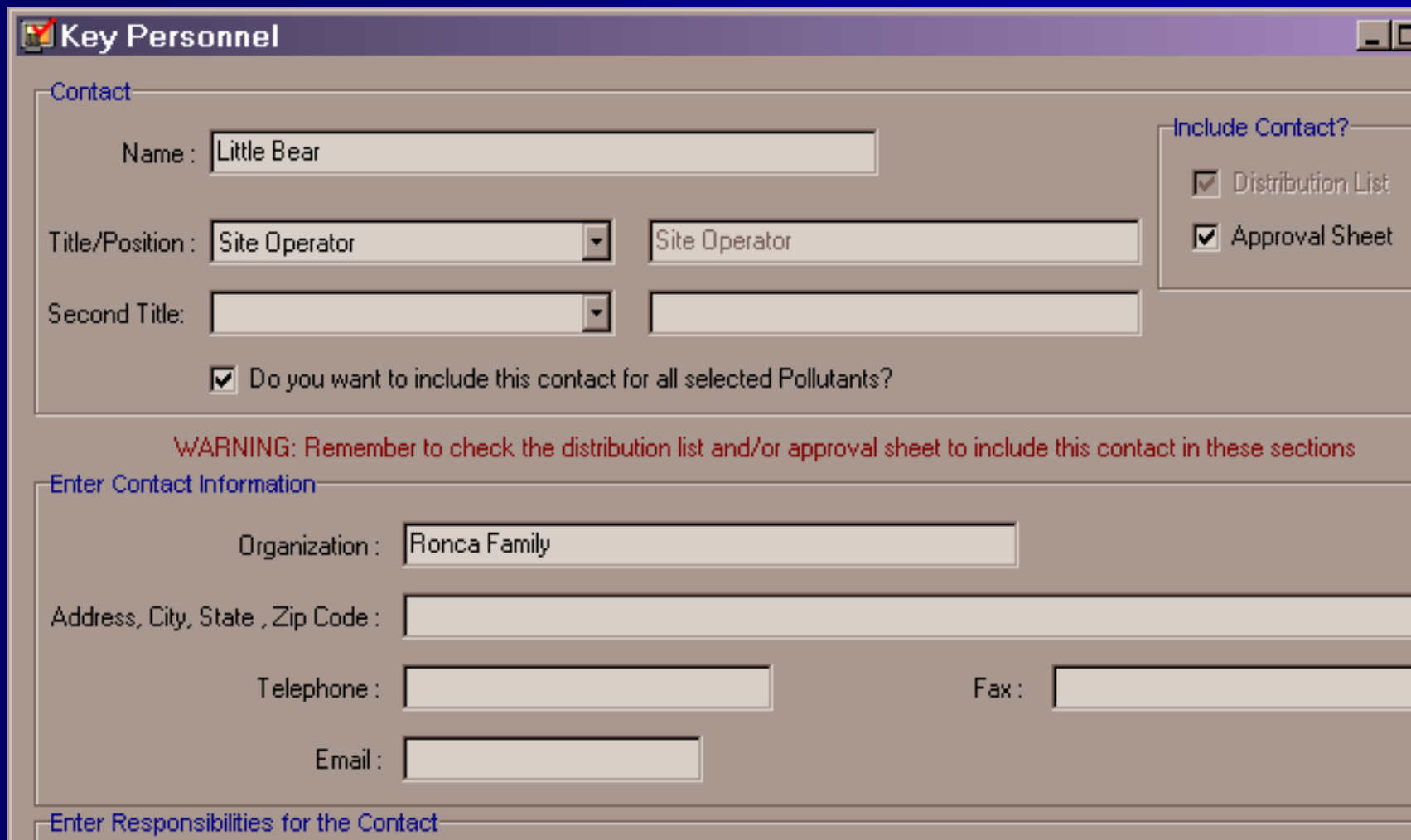
Turbo-QAPP uses EPA numbering system and BOTH “real-world” and EPA terms



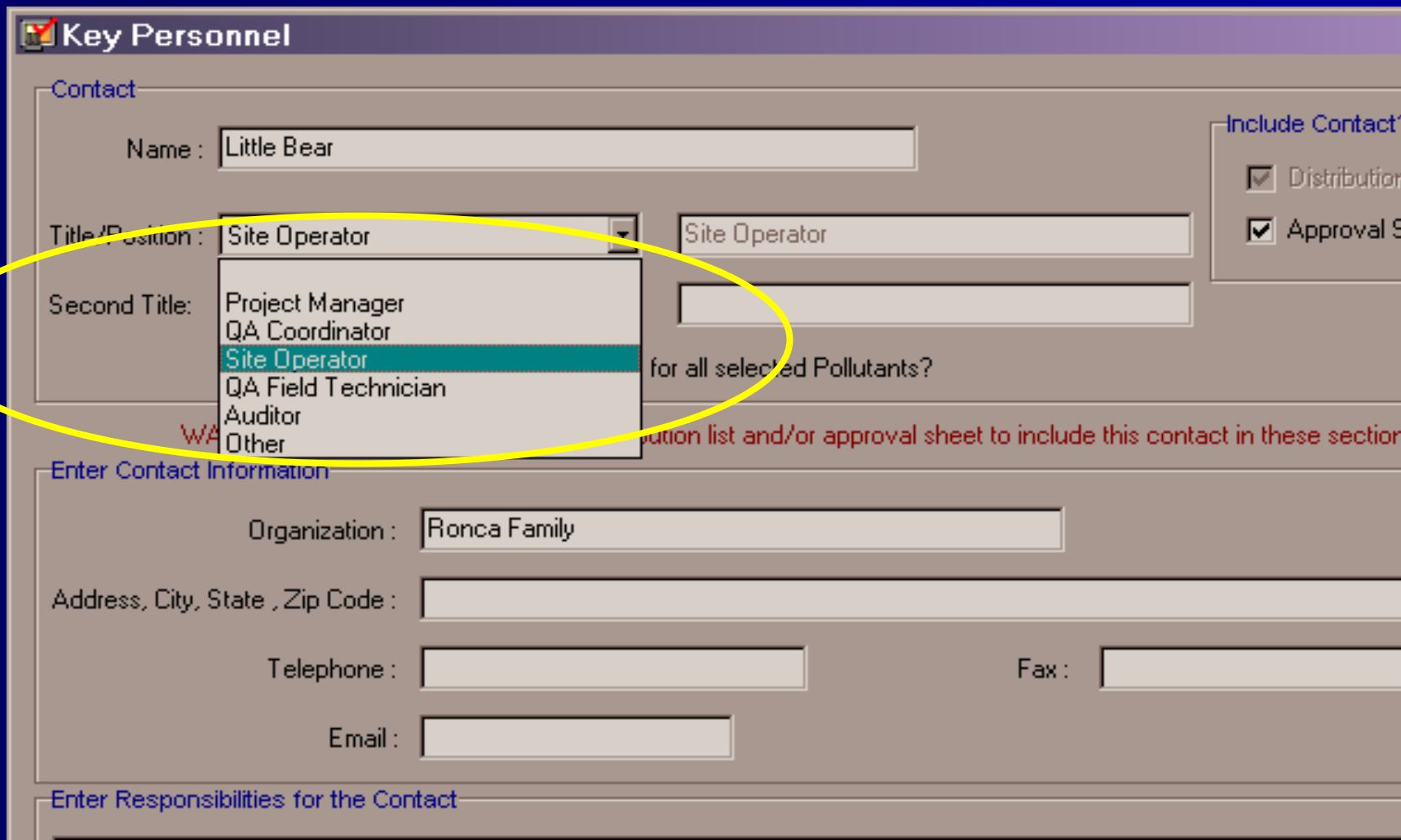
Emphasis on putting information into tables:



Project personnel are stored in rows, edited in a screen:



Drop-down boxes with suggestions:



Multiple pollutants and methods:

You must select at least one pollutant. If you choose more than one they will be incorporated in the same QAPP. You can also decide to go through the writting process more than once and write one QAPP per pollutant.

	Insert the number of Monitors per pollute monitors in this number.
☑ Ozone (O3)	1
☐ Carbon Monoxide (CO)	
☐ Sulfur Dioxide (SO2)	
☐ Nitrogen Dioxide (NO2)	
☑ PM10 Filter-based standard conditions	1
☑ PM10- Continuous Local Conditions	1
☑ PM10 - Filter based local conditions	1
☑ PM2.5- Continuous Local Conditions	1
☑ PM2.5- Filter based local conditions	2
☑ PM Coarse- Local Conditions	1
☐ Other (lab analysis)	
☐ Other (on site instrumentation analysis)	

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.

- [x] 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

Inspection of Equipment During Field Operations

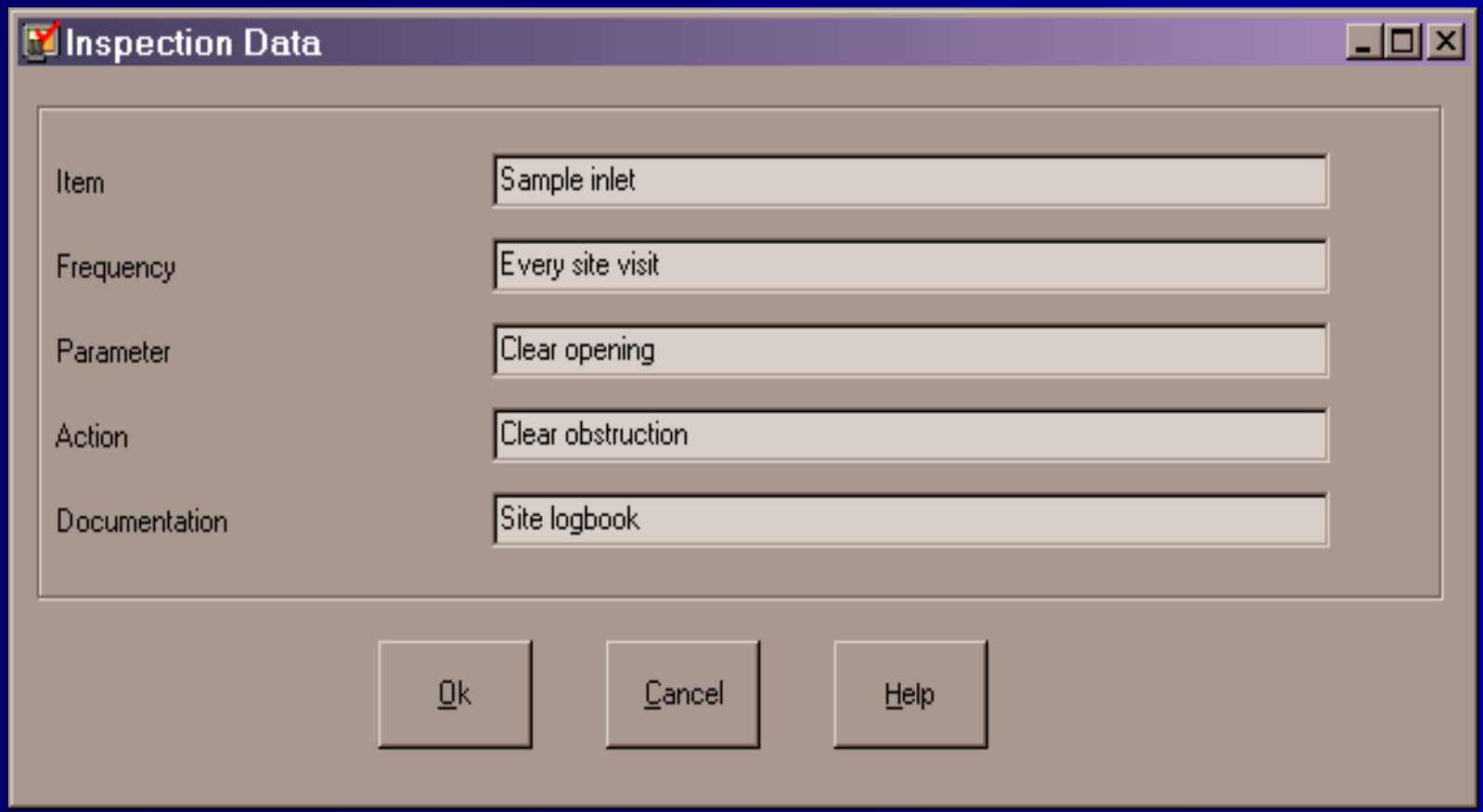
Item	Inspection Frequency	Inspection Parameter	Action if Item Fails Inspection	Documentation
Shelter temp.	Weekly, each visit	Thermometer	Check HVAC	Site logbook
Air Conditioner	Monthly	Adjust range	Check HVAC	Site logbook
Heater	Monthly	Thermostat	Repairman	Site logbook
Sample inlet	Every site visit	Clear opening	Clear obstruction	Site logbook
Meteorological sensors	Every site visit	Sensor output	Repair, calibrate	Site logbook
Sample pump	Each site visit	Vacuum	Repair	Site logbook
Dirty filter(s)	Each site visit	Clear flow	Clean	Site logbook

Change Title | Delete All | Remove | View / Edit

Tip

In the text field provided, give details of various equipment and component inspections. Fill or modify the table above to relate inspection information suit your program. You can change the names of the column and you can add rows to this table.

Each item is editable:



BT - 2

Definitions | Calibration Hierarchy | Local Primary Standards | Standards for Pressure and Temperature

Calibration Hierarchy

NIST STANDARD REFERENCE PHOTOMETER

US EPA STANDARD REFERENCE PHOTOMETER

Annual 6-point verification and, if necessary, calibration—see the first row of the Calibration Criteria Table.

L STANDARD THAT IS MOVED – A **TRANSFER STANDARD**.
transfer standard is a transportable device or apparatus, which,
r with associated operational procedures, is capable of accurately
ucing O^3 concentration standards of O^3 concentrations which are
atively related to a primary O^3 standard. The transfer standard is
nterchanged for the ozone analyzer used to routinely measure
concentrations.

Compared every 3 months or at the beginning and end of ozone season, whichever is more frequent and possible. See the second row of the Calibration Criteria Table

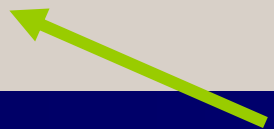
Use this space if you want to provide details to complement the diagram above such as specifying what type of apparatus you are using.

Network Reviews | Performance Evaluations | Technical Systems Audits | Data Quality Assessments | Others

Performance Evaluations

Performance evaluations are a type of audit in which the quantitative data generated in a measurement system are obtained independently and compared with routinely obtained data to evaluate the proficiency of an analyst or laboratory. They may involve side-by-side intercomparisons of concentrations or flow rate, but they result in quantitative numeric values. In general, the difference between the parameter from your instrument is compared against the parameter from the auditor's instrument and a statistic such as relative percent difference is calculated.

A performance evaluation is a quantitative comparison of results between the tribe's equipment and equipment calibrated by another primary standard. This is done through the EPA regional office in the form of participation in the National Performance Evaluation Program (NPEP). Successful participation requires an agreement of less than 15% between the auditor's equipment and the tribe's equipment. This Ronca Environmental Office will participate in NPEP as feasible and as arranged and agreed to with the EPA regional office.



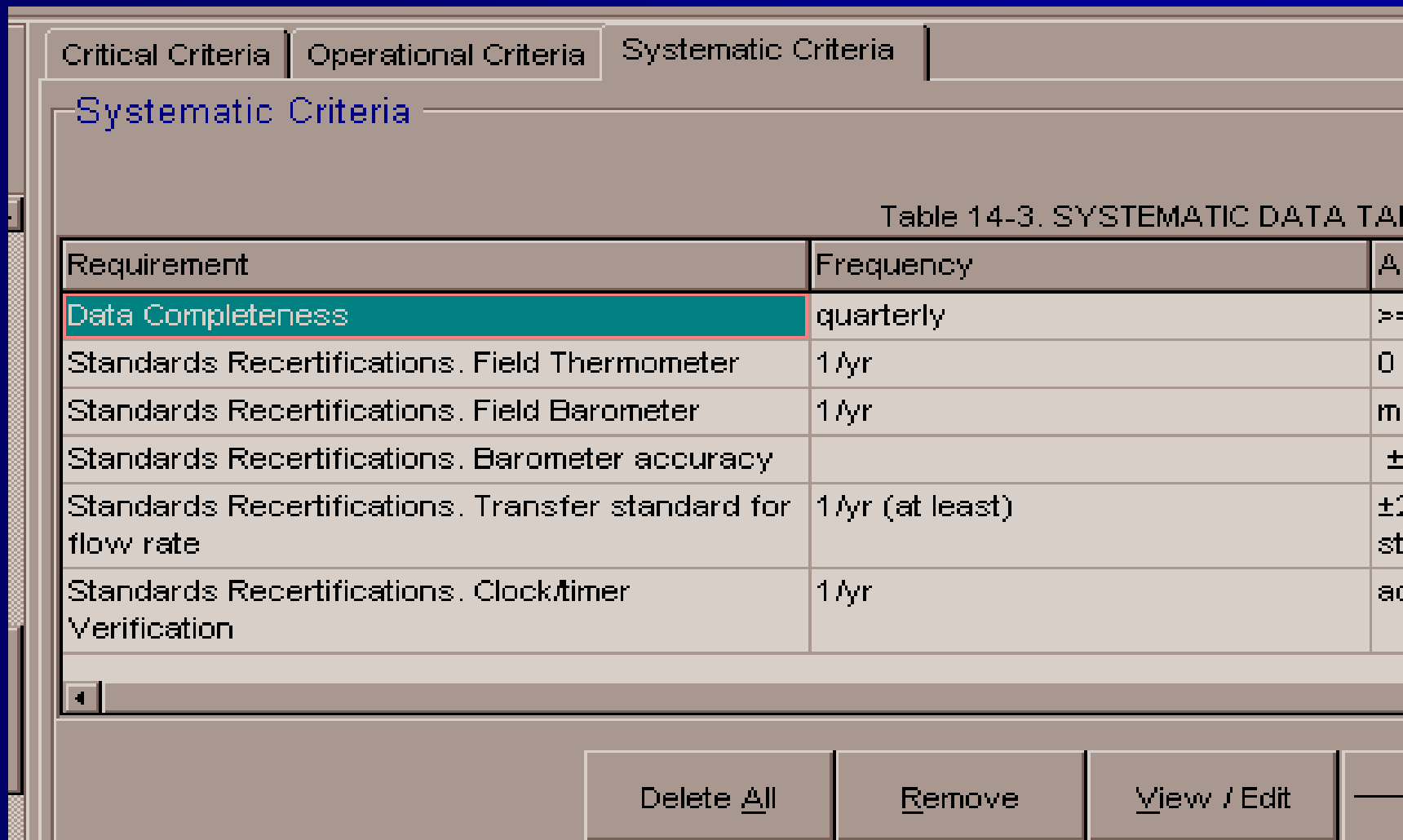
Examples of report descriptions are provided for you to modify

3-tiered validation criteria for all methods:

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 <= ± 2% of full scale and span drift <= ± 15% Zero drift <= ± 10 to 15 ppb, and span drift <= ± 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)	

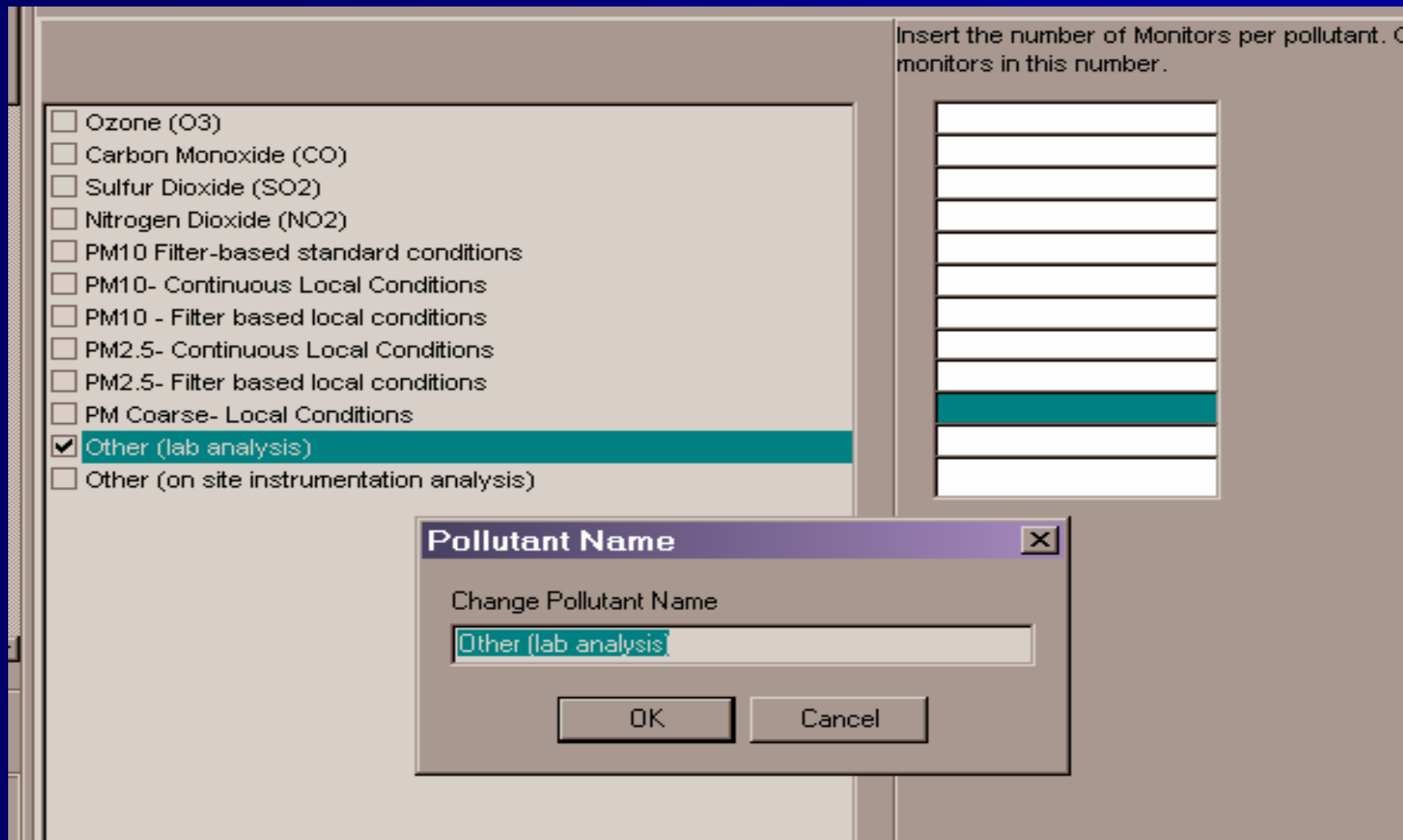
Operational and systematic validation criteria:



“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

“Other” category guides you to enter all information and formats it:



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.

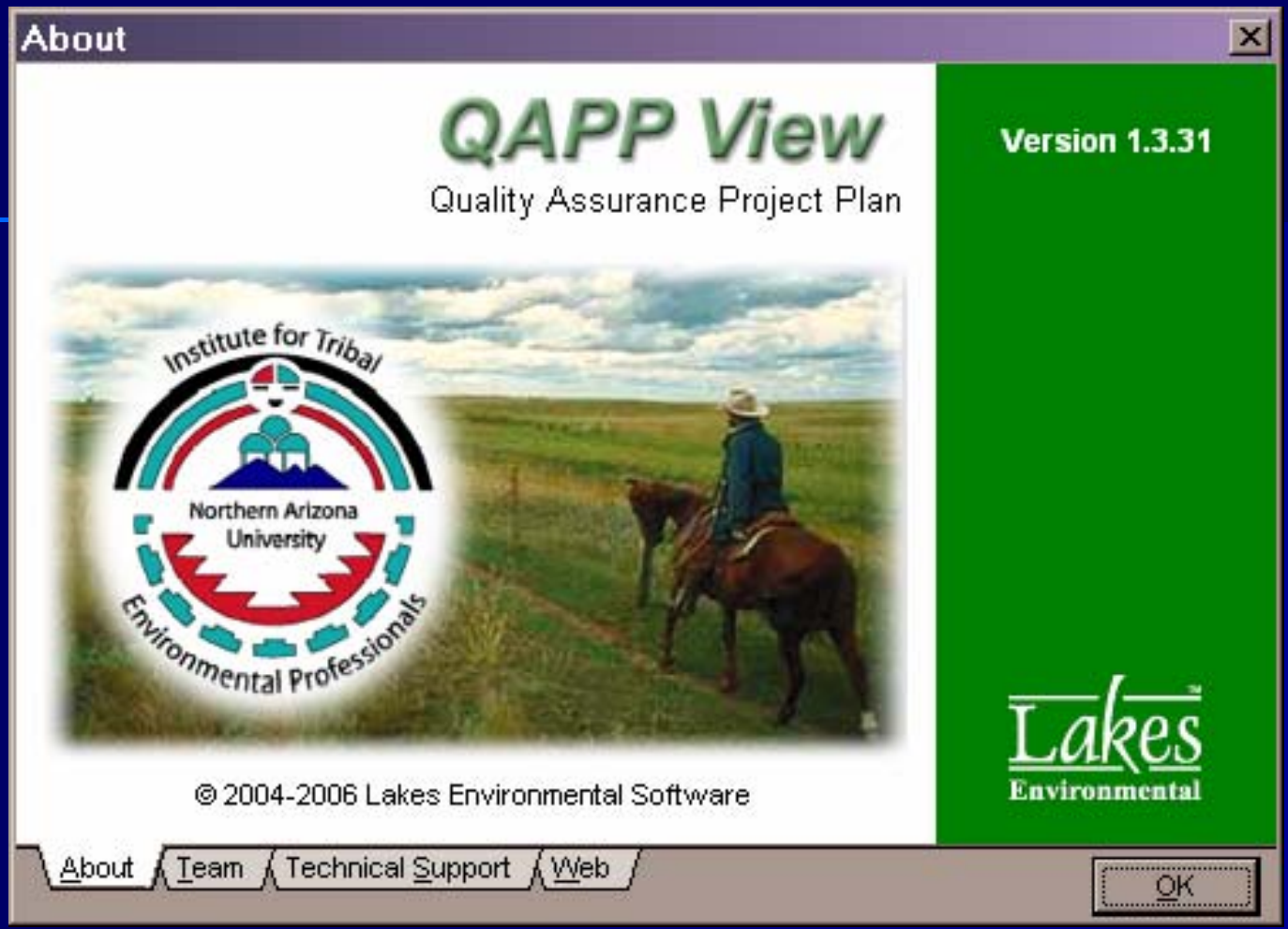
Tribes lead the way:

- 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

Tribal Air Monitoring Support Center

Turbo-QAPP evaluation and testing:

- Since August several dozen tribes have used the program
- Series of WebEx demos to EPA regions
- Available on CD here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