

# AQS Basics

## Retrieving data

AQS Concepts

The AQS user interface (how to navigate)

Help

Your User ID

Screening Groups

Browsing Data

Standard Reports



# AQS Concepts

Background information on AQS



# In This Section We Will Talk About

- AQS Background
- History
- AQS as part of a monitoring program
- Types of Information in AQS
- AQS and Exchange Network (ENSC)
- Database basics
- AQS Data Model
- Tying AQS codes to real-world examples



# What is AQS?

- EPA's Database Application used to House and Store Ambient Air Quality Data
- Centralizes the Location of Data
  - Used to Determine if areas are meeting the National Ambient Air Quality Standards (NAAQS)
  - Used by Universities and Institutes to Perform Health Studies

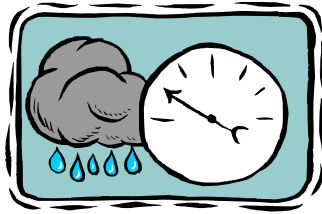


# Brief History of AQS

- **SAROAD** (1970 – 1985)
  - Storage And Retrieval Of Air Data
  - Created in Response to the 1970 Clean Air Act
- **AIRS – AQS** (1985 – 2000)
  - Aeroemetric Information Retrieval System
    - Stored Ambient Air Quality Data (Air Quality Subsystem) as well as Point Source Emission Data
  - Combined the Data from Ambient, Point Source, and Quality Assurance Data Systems
- **AQS** (2000 – Present)
  - Air Quality System
  - Contains Ambient Air Quality Data and Quality Assurance Information



# How Does AQS Fit in the Big Picture?

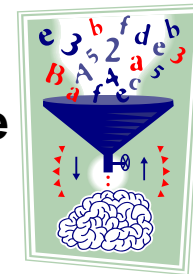


**Monitor  
the Air**



**Acquire Data**

**Handle  
Data**

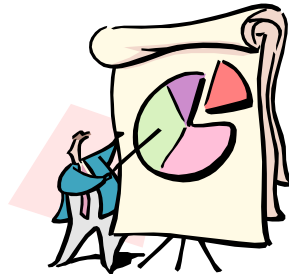


**Report (Load)  
Data**

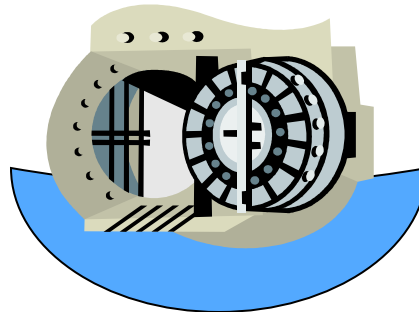


**Regulate**

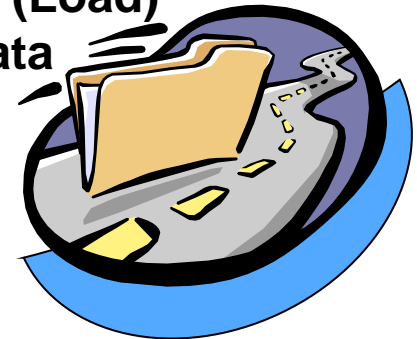
**Analyze**



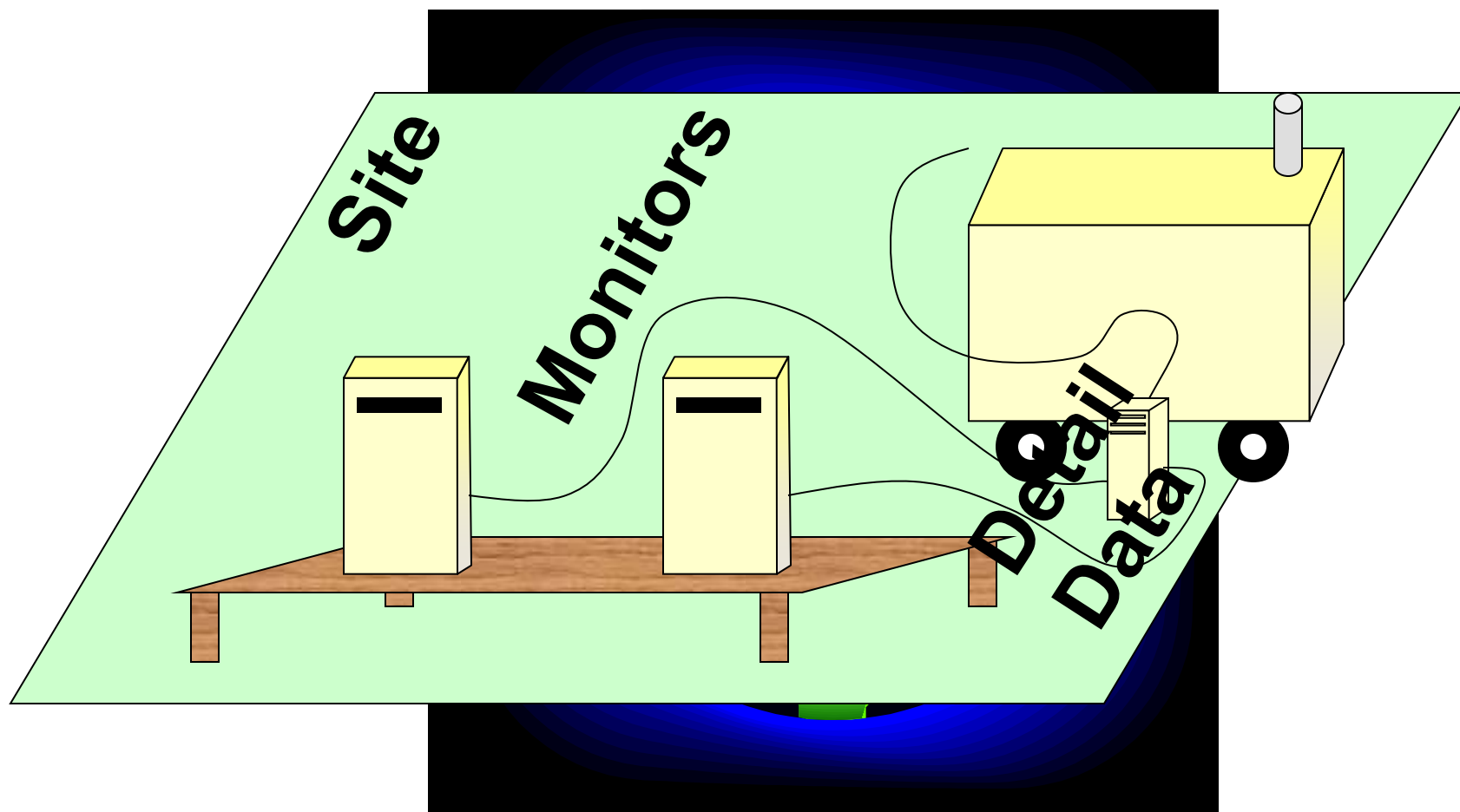
**Store**



**AQS**



# Types of Core Data in AQS



# Site Information

- Physical location – Where is the site?
  - Latitude and longitude
  - Street address
- Characteristics of the site
  - Nearby Streets
  - Open Path Set Up
  - Primary monitor (PM<sub>2.5</sub>, SO<sub>2</sub>, Lead or NO<sub>2</sub>)
- Identified by
  - State Code - County Code - Site ID OR
  - Tribal Code - Site ID



# Monitor Information

- How is a Given Pollutant Measured?
  - When Sampling Began
  - Which Network(s) are associated with the Monitor
  - What Agencies run the Monitor
  - What Are the Monitoring Objectives
  - What Obstructions are Nearby
  - What Nearby Roads May Affect the Monitor
  - If the Monitor is Collocated, is this monitor the Primary or Collocated Monitor?  
If Collocated, which is the Primary?
  - How Frequently Does the Monitor Try to Get a Sample?
- Identified by
  - AQS Site ID + Pollutant Code + Parameter Occurrence Code (POC)  
(Think of it a POC a Sequence Number)



# Detail Data

- Sample Measurement Obtained by the Instrument
  - User Reports:
    - Individual Sample Data (Raw Data)
      - Any Notes & Flags Pertaining to the Sample Data
    - Audit Data (Precision and Bias Data)
  - AQS Computes
    - Multi-hour Averages (e.g. 8-hour running average)
    - Daily Summaries
    - Site Summaries (PM<sub>2.5</sub> and Lead Only)
    - Quarterly Summaries
    - Annual Summaries
    - Site Annual Summaries (PM<sub>2.5</sub> and Lead Only)
- Identified by
  - Individual Sample Data
    - Monitor ID + When the Sample Was Taken (Date & Time) + Status
  - Audit Data
    - Monitor ID + When the Sample Was Taken (Date & Time)
  - Summary Data
    - Monitor ID + Time Period Summarized + Sample Duration + Exceptional Data Type + Pollutant Standard

# Reference Data

- “Extra” Information about the Data in AQS
  - Sets of Codes Available for these Descriptions
  - Standard Codes Used where Available
- Codes are Used to Identify
  - States, Counties, Tribal Lands,
  - Pollutants,
  - Sample Lengths,
  - etc...

# Examples of Commonly Used Codes

- Parameter Codes

- $O_3$  = 44201
- $NO_2$  = 42602
- $SO_2$  hourly = 42401
- CO = 42101
- $PM_{2.5}$  = 88101
- $PM_{10}$  STP = 81102
- Lead (TSP) at LC FRM/FEM = 14129
- Lead ( $PM_{10}$ ) at LC FRM/FEM = 85129

- Units of Measure

- 001 =  $\mu g/m^3$
- 007 = ppm (parts per million)
- 008 = ppb (parts per billion)

- Collection Frequency Codes

- 1 = Every Day
- 3 = Every 3<sup>rd</sup> Day
- 6 = Every 6<sup>th</sup> Day

- Duration Codes

- 7 = 24 Hours
- 1 = 1 Hour
- W = 8-Hour Running Avg.\*
- X = 24-Hour Block Avg.\*
- Y = 3-Hour Block Avg.\*

\* AQS Generated Durations

LC = local conditions

STP = standard temperature and pressure

FRM = Federal Reference Method

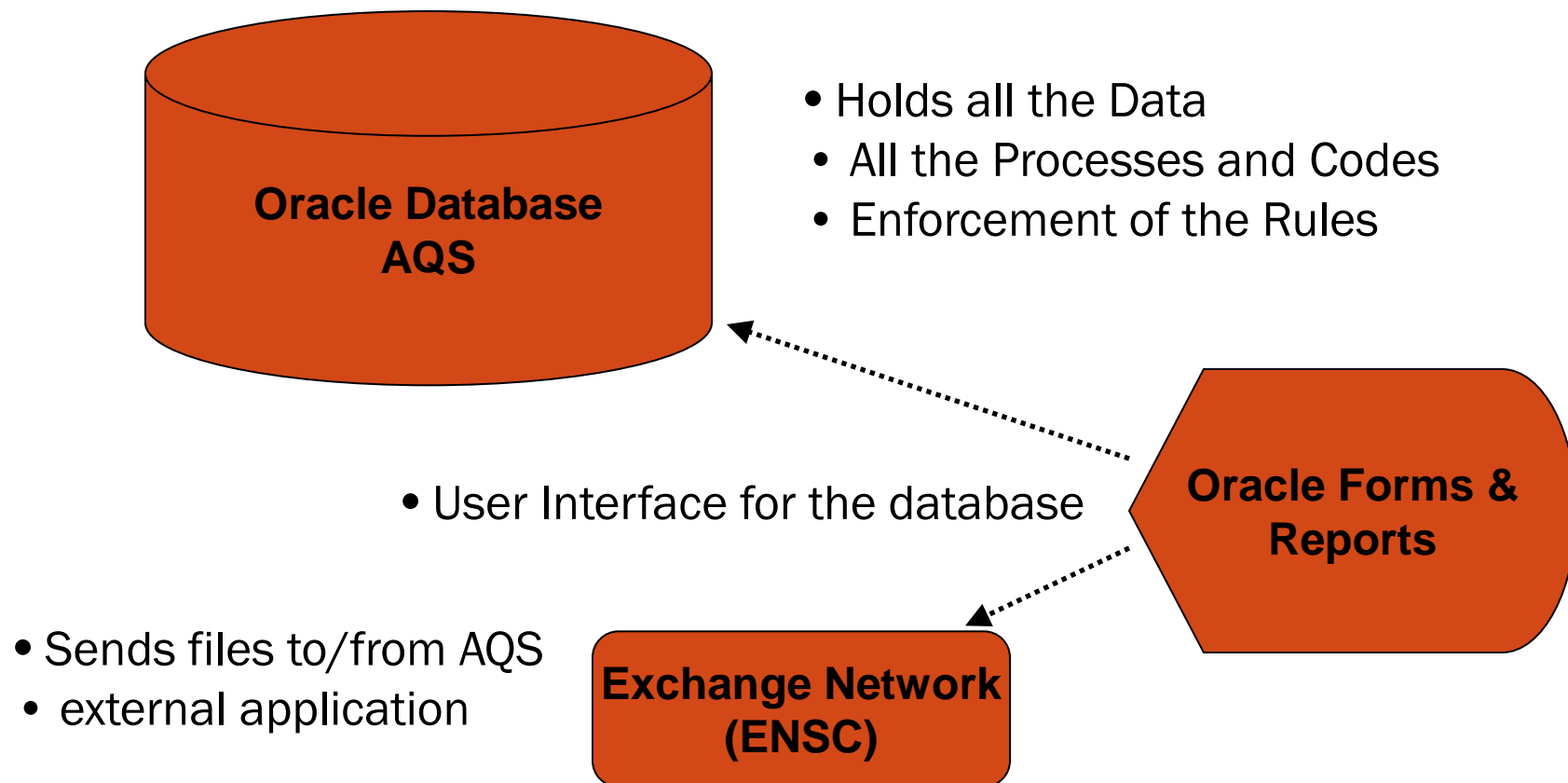
FEM = Federal Equivalent Method

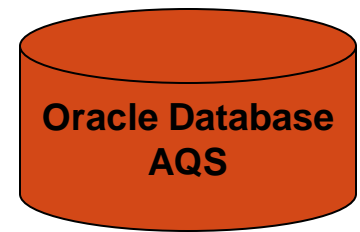


## Core + Reference Information

- An Ozone (44201) Monitor in Wake County(183), North Carolina (37) is represented as  
37-183-0001-44201-1
- A PM10 (81102) Monitor for the St. Regis Band of Mohawk Indians of New York (007) is represented as  
TT-007-1234-81102-1

# Components of AQS



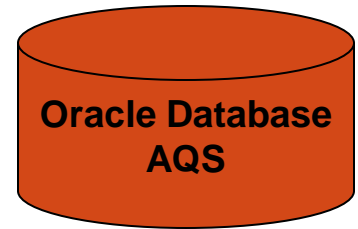


# What is a Database?

- A collection of information about a particular subject stored so that the information can be accessed and organized
- The AQS Database stores information about ambient air quality measurements



# The AQS Database



The AQS database can be considered to have four fundamental types of data:

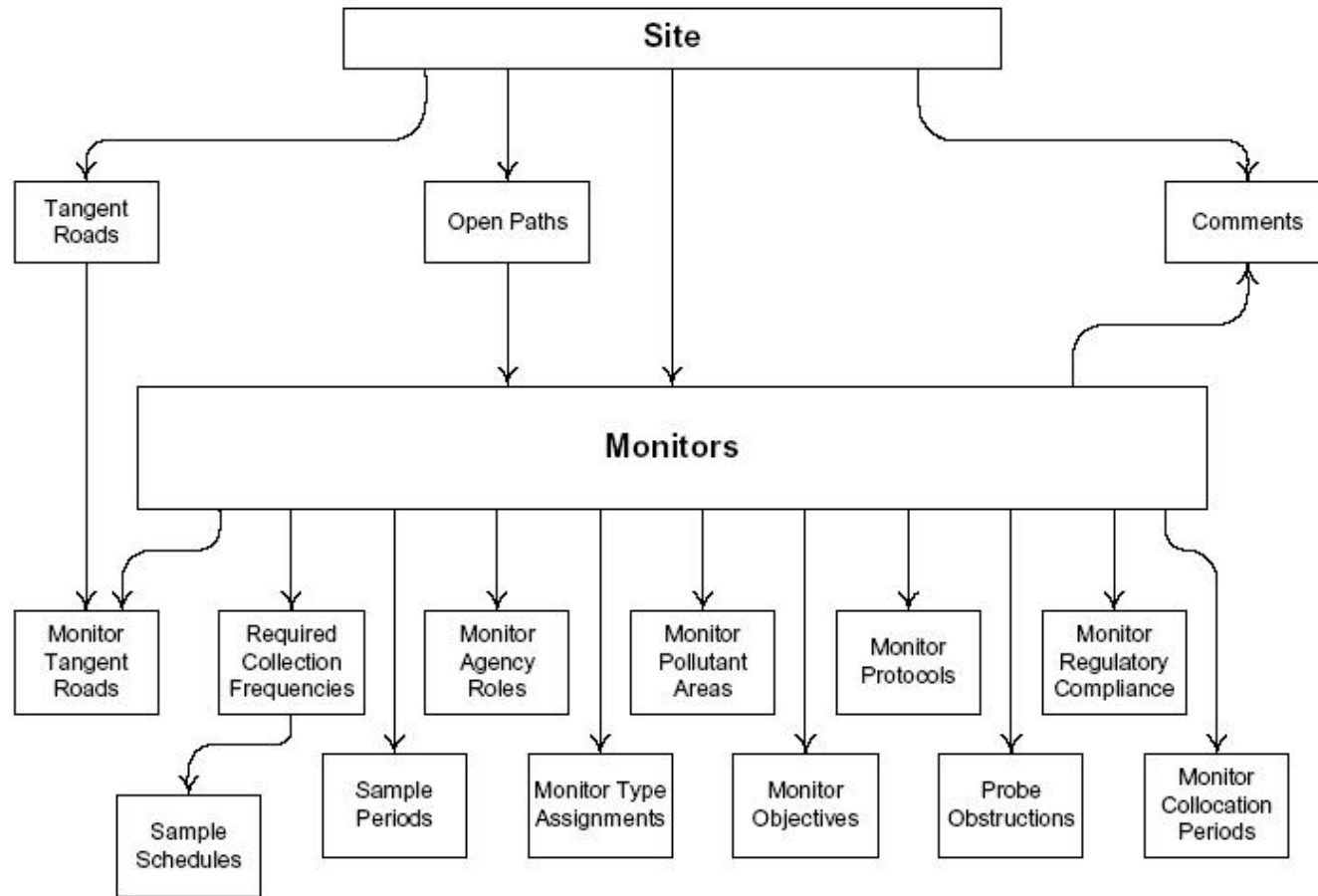
- **Sites:** Information about monitoring locations
- **Monitors:** Information about how measurements are taken
- **Detail Data:** Measurements, Summaries, and QA information
- **Reference Data:** Information about the real-world (e.g., States, Tribes, Pollutants (parameters))





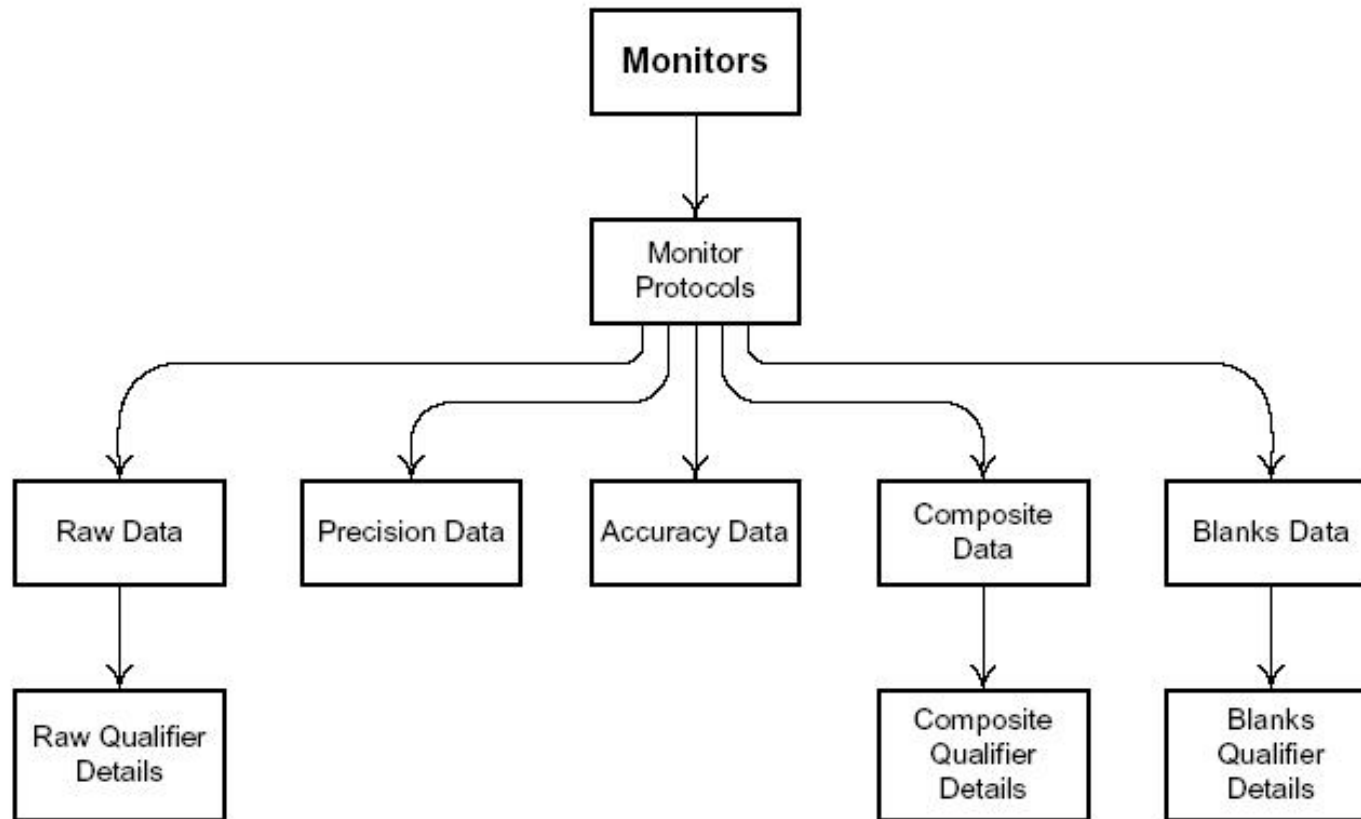
# AQS Site and Monitor Data Model

Oracle Database  
AQS

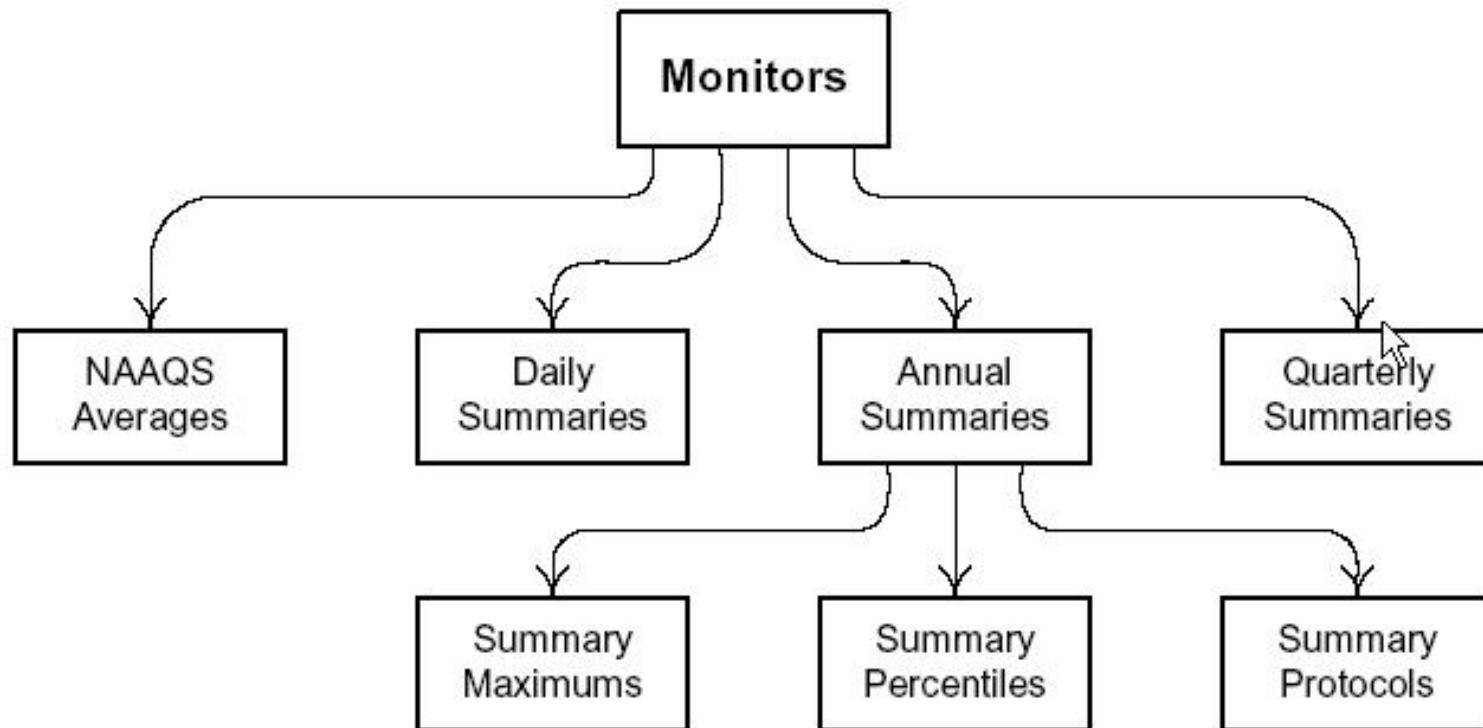
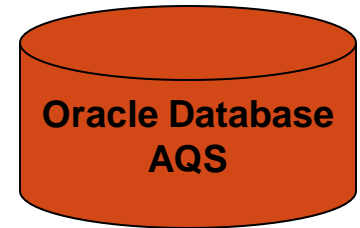


# AQS Data Model – Sample Data

Oracle Database  
AQS



# AQS Data Model – Summary Data



# Exercise 1.1

1. Name the 4 Categories of Data in AQS.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

2. What is meant by a “site”? How do you uniquely define a “site” in AQS?

3. What is meant by a “monitor”? How do you uniquely define a “monitor” in AQS?

4. What would a Summary Record with a Duration Code of “W” and a Parameter Code of “44201” represent?

# The AQS User Interface

Oracle Forms and Reports  
How to get around in AQS



# User Interface Parts

(aka “Oracle Forms and Reports”)

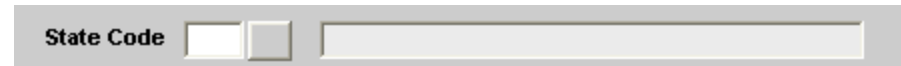
- Forms
  - Present information and accept input.
- Menus
  - Select a form or execute an action
- Icons
  - Execute an action
- Reports
  - Present formatted data for printing (reports) or
  - input by other software (workfiles)



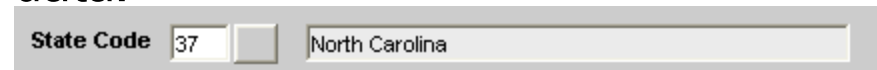
# Forms

- You will use forms to interact with the AQS database.

- You can enter data on them:
- You can see previously entered data:

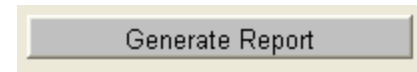


A form with a label "State Code" followed by a text input field and a dropdown menu.



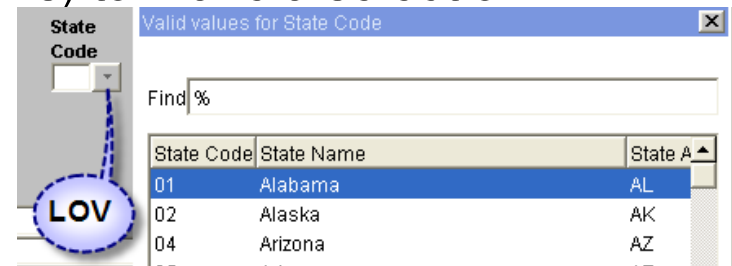
A form showing the "State Code" as "37" in a text field and "North Carolina" in a dropdown menu.

- You can use them to request actions:



A button labeled "Generate Report".

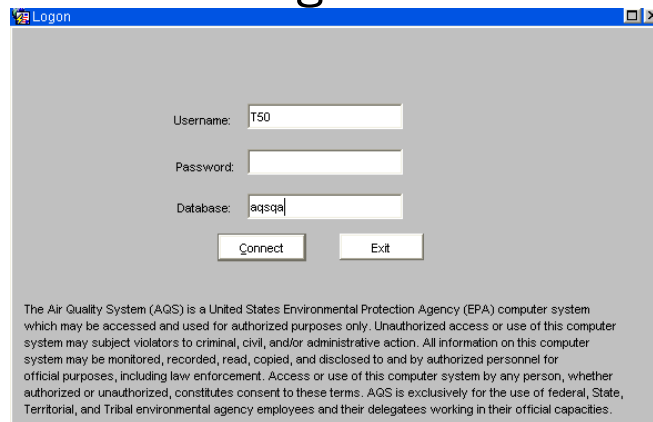
- You can often use a List of Values (LOVs) to make a selection:



A screenshot showing a "State Code" dropdown menu with a blue circle and the text "LOV" next to it. A "Valid values for State Code" dialog box is open, displaying a table of state codes and names.

State Code	State Name	State A
01	Alabama	AL
02	Alaska	AK
04	Arizona	AZ

- You will use a form to login:



A login form titled "Logon" with fields for "Username:" (containing "T50"), "Password:", and "Database:" (containing "aqsbse"). There are "Connect" and "Exit" buttons. Below the form is a disclaimer text.

The Air Quality System (AQS) is a United States Environmental Protection Agency (EPA) computer system which may be accessed and used for authorized purposes only. Unauthorized access or use of this computer system may subject violators to criminal, civil, and/or administrative action. All information on this computer system may be monitored, recorded, read, copied, and disclosed to and by authorized personnel for official purposes, including law enforcement. Access or use of this computer system by any person, whether authorized or unauthorized, constitutes consent to these terms. AQS is exclusively for the use of federal, State, Territorial, and Tribal environmental agency employees and their delegates working in their official capacities.

# Form Types

- Forms that display one record at a time:

**Maintain Site (National Air Data Group)**

Basic Site Data | Additional Site Data | Agency Roles | Tangent Roads | Open Paths | Comments | Primary Monitor Periods

**Site Identification**

State Code: 37 North Carolina  
 County Code: 183 Wake  
 Site Id: 0020  
 Status Ind: P

**User Coordinates**

Horizontal Datum: WGS84  
 Latitude: 35.7288  
 Longitude: -78.6802  
 UTM Zone:   
 UTM Easting:   
 UTM Northing:   
 Lookup Geography

**Standard Coordinates:** Datum: WGS84  
 Latitude: 35.728800  
 Longitude: -78.680200

Horizontal Method: 101 Address Matching  
 Horizontal Accuracy (Meters): 10 Source Map Scale (Non-GPS):   
 Vertical Measure (Meters): 120 Vertical Accuracy (Meters): 1 Vertical Datum: NAVD88  
 Vertical Method: 014 TOPOGRAPHIC MAP INTERPOLATION

Street Address: 3720 Lake Wheeler Rd  
 Land Use Type: AGRICULTURAL Location Setting: RURAL  
 City Code:   
 Urban Area Code:   
 AQCR Code: 166 EASTERN PIEDMONT  
 Site Established Date (YYYYMMDD): 20080101 Time Zone Name: EASTERN

Check Completeness Create Monitor

- Forms that display multiple records at a time:

**Maintain - Raw Data (National Air Data Group)**

Raw Data | Comments

State: 37 County: 183 Site: 0020 Parameter: 88101 POC: 1 Begin Date: 20100601 End Date: 20100630 Standard Units: 105

Raw Data Mp ID	Date	Time	Stat Ind	Reported Sample Value	Standard Sample Value	EPA Ind	Action Ind	Exclusion Ind	Null Ind	Data Code	Description	Uncertainty Value
2	20100628	00:00	P	12.09	12							
2	20100625	00:00	P	15.08	15							
2	20100622	00:00	P	20.75	20.7							
2	20100619	00:00	P	16.04	16							
2	20100616	00:00	P	14.87	14.8							
2	20100613	00:00	P	14.17	14.1							
2	20100610	00:00	P	15.79	15.7							
2	20100607	00:00	P	6.92	6.9							
2	20100604	00:00	P	19.04	19							
2	20100601	00:00	P	4.81	4.8							

**Qualifier Code** **Qualifier Desc** **Qualifier Type**

**Event Description** **Association Date**

**Event Comment**

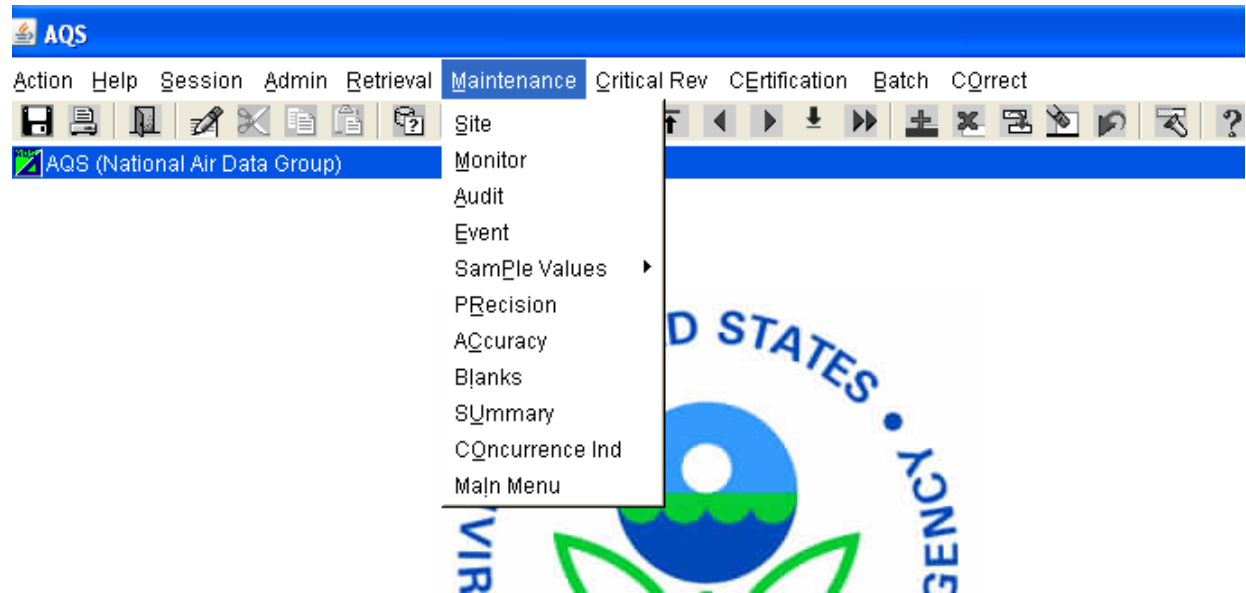
**Event URL**

**Monitor Protocol** Method: 118 Unit: 105 Duration: 7 Coll Frequency: 3 Alt Mdl:



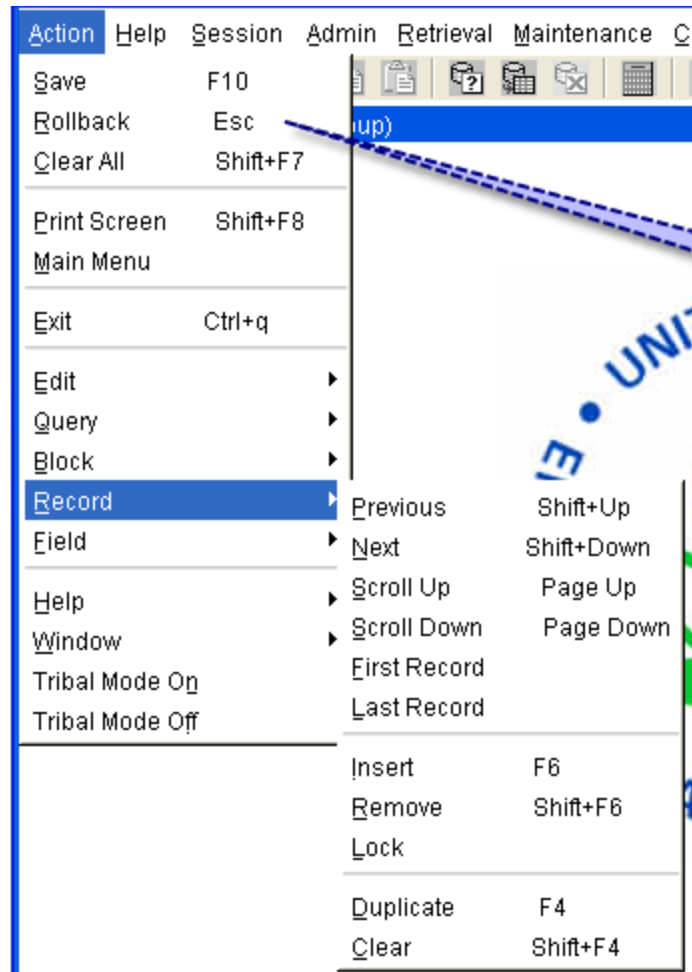
# Menus

- The AQS Main Menu allows access to all forms that are part of AQS:



# AQS Menu (Action):

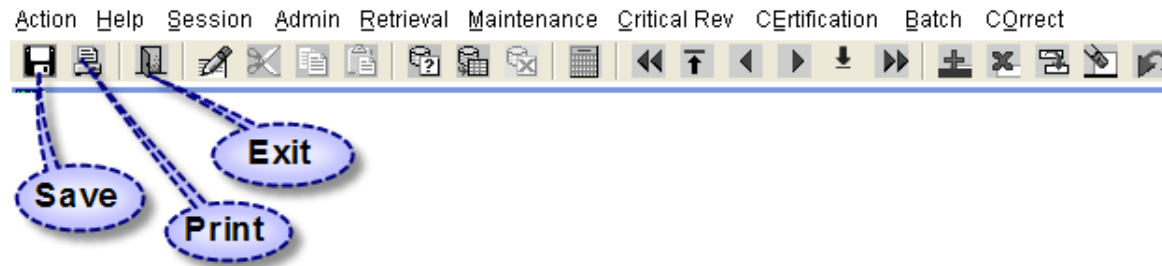
- The Action Menu allows you to request specific operations:



Notice  
Shortcut  
Keys



# AQS Icons

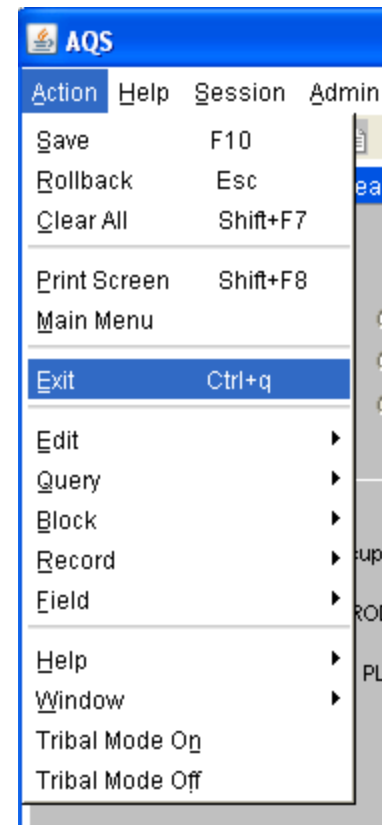
- Use the AQS icons to request actions from the Action Menu.



- Other icons will be covered a little later

# And, three ways to log off

- Use the Exit Icon  from the Main Menu
- Use the red  at the top right corner
- Select Exit from the Action Menu



# Help



# Where to Find AQS Help

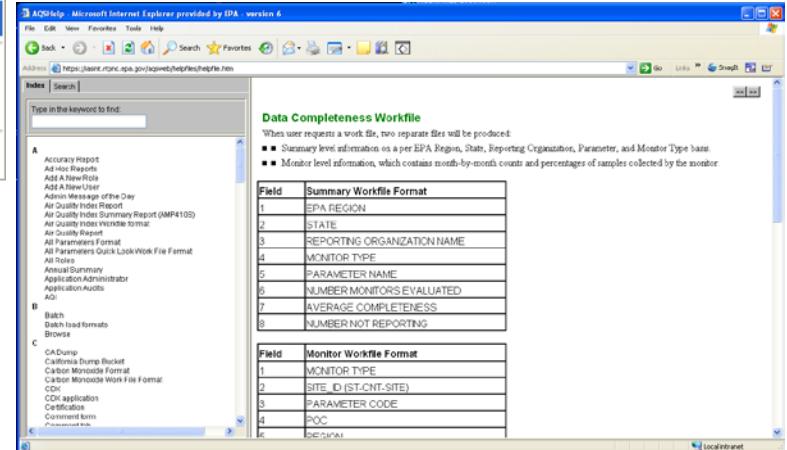
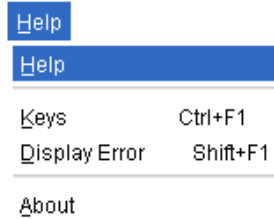
- On-Line Help from the Application
- AQS Documentation
- On the Phone
- AQS Regional Contacts



# From the Application

- “Help” From the Menu

- Short-Cut Keys
- Display Error
- Topics



- Field-Level Help

Horizontal Method: 012 GPS CARRIER PHASE STATIC RELATIVE POSITION

Horizontal Accuracy (Meters): 3.04 Source Map Scale (Non-GPS): 24000

Vertical Measure (Meters): Description of the accuracy as a range of the latitude/longitude reported in meters. Only the least accurate measurement needs to be recorded whether is latitude or longitude.

Vertical Method: 000 UNKNOWN

Street Address: HEALTH DEPT, 300 E MAIN STREET

Enter a valid Dominant Source code that identifies the primary source of the pollutant being monitored.

Record: 1/? ... List of Valu... <OSC>

# Helpdesk User Support



## EPA Helpdesk

- 866-411-4372 or [epacallcenter@epa.gov](mailto:epacallcenter@epa.gov)
- Levels of support
  - Level 1: password resets for AQSProd; opens a problem ticket
  - Level 2: AQS-specific issues → Pamela and Donnie
  - Level 3: server issues → NCC
  - Level 4: software and data issues → AQS Team
- Exchange Network (EN) Helpdesk
  - 888-890-1995 or [nodehelpdesk@epa.cdx.net](mailto:nodehelpdesk@epa.cdx.net)
  - Supports:
    - Node (production) password resets / general Node support

*When in doubt, call the EPA Helpdesk*



# AQS Team

[AQSTeam@epa.gov](mailto:AQSTeam@epa.gov)

- Robert Coats, team lead
- Bill Frietsche (QA & audits)
- Way Poteat
- Chris Chapman
- Nick Mangus (Data Mart)
- Michael Hamlin (user registration)
- Angie Shatas



# AQS Regional Contacts

1: Wendy McDougall

(617) 918-8323

2: Henry Feingersh

(212) 637-3382

3: Pauline DeVose

(215) 814-2186

4: Darren Palmer

(404) 562-9052

5: Jesse McGrath

(312) 886-1532

6: Trisha Curran

(214) 665-8345

7: James Regehr

(913) 551-5063

8: Joe Delwiche

(303) 312-6448

9: Fletcher Clover

(415) 972-3991

10: Jan Noel

(206) 553-1691

# AQS Documentation

- Manuals and Guides

<http://www.epa.gov/ttn/airs/airsaqs/manuals/>

- **Design Value Report (SO<sub>2</sub>) \***
  - **Submit Automation User Guide \***
  - **Data Dictionary \***
  - Data Coding Manual
  - AQS Input Transaction Formats \*\*\*
  - Exceptional Event Tutorial
  - **Fundamentals & User Guide \*\***
  - **Data Retrieval Manual \*\***
  - Codes and Descriptions \*
  - Memos and Software Release Notes \*
- <http://www.epa.gov/ttn/airs/airsaqs/memos/>



\* New/updated

\*\* Near term updates/overhaul

\*\*\* Longer term overhaul

# About Your AQS account



# Your AQS account

- When you register for AQS:
  - The AQS Team assigns your AQS account
    - AQS user ID (3-character ID) is randomly generated
    - AQS Team assigns your screening group(s)
    - Call EPA Helpdesk for initial pw
    - Database for normal use = “AQSPROD”
  - The AQS Team requests an EN account for you
    - Only if you have indicated during registration that you will be submitting data
    - EN user ID will be the email address you supplied with your AQS registration
    - ENSC Helpdesk will contact you with initial pw
    - If your email address changes, ENSC Helpdesk.

For this class, use Training IDs:

Username: “TXX”

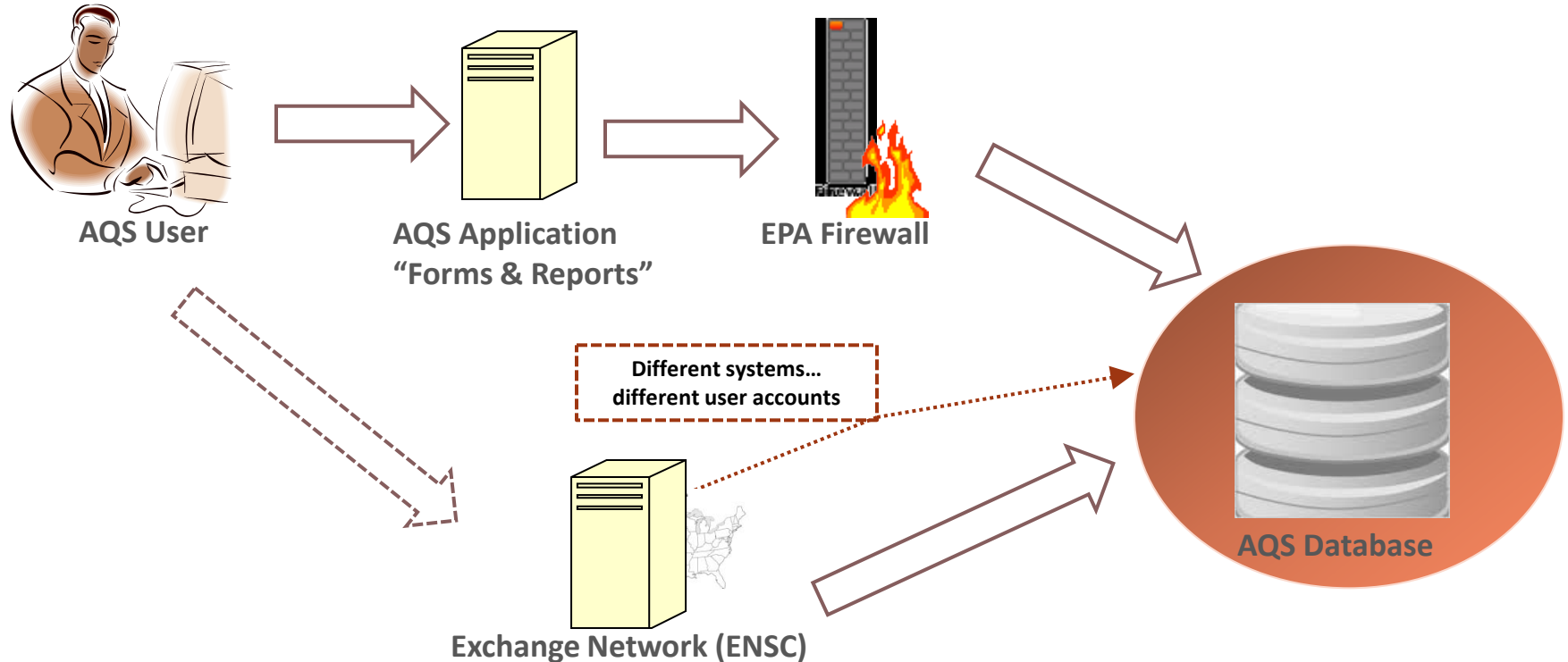
Password:

Database: “AQSQQA”



The screenshot shows a web browser window titled "Login". It contains three input fields: "Username:" with the value "TXX", "Password:" (empty), and "Database:" with the value "AQSPROD". Below the fields are two buttons: "Connect" and "Exit". At the bottom of the window, there is a small disclaimer text: "The Air Quality System (AQS) is a United States Environmental Protection Agency (EPA) computer system, which may be accessed and used for authorized purposes only. Unauthorized access or use of this computer system may subject violators to criminal, civil, and/or administrative action. All information on this computer system may be monitored, recorded, read, copied, and disclosed to and by authorized personnel for official purposes, including law enforcement. Access or use of this computer system by any person, whether authorized or unauthorized, constitutes consent to these terms. AQS is exclusively for the use of federal, State, Territorial, and Tribal environmental agency employees and their delegates working in their official capacities."

# AQS Architecture

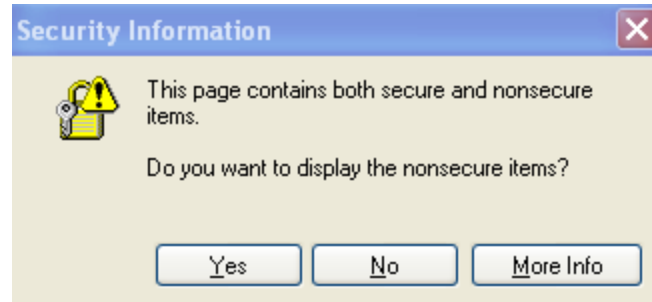


If you are submitting data to AQS, you can use the ENSC. You do not have to login to AQS to load the file.

The AQS Submit Automation project makes it possible for you use the ENSC to both transfer your file and select your final processing step in AQS. If there are no errors in your file, you are done, and you never have to login to AQS.

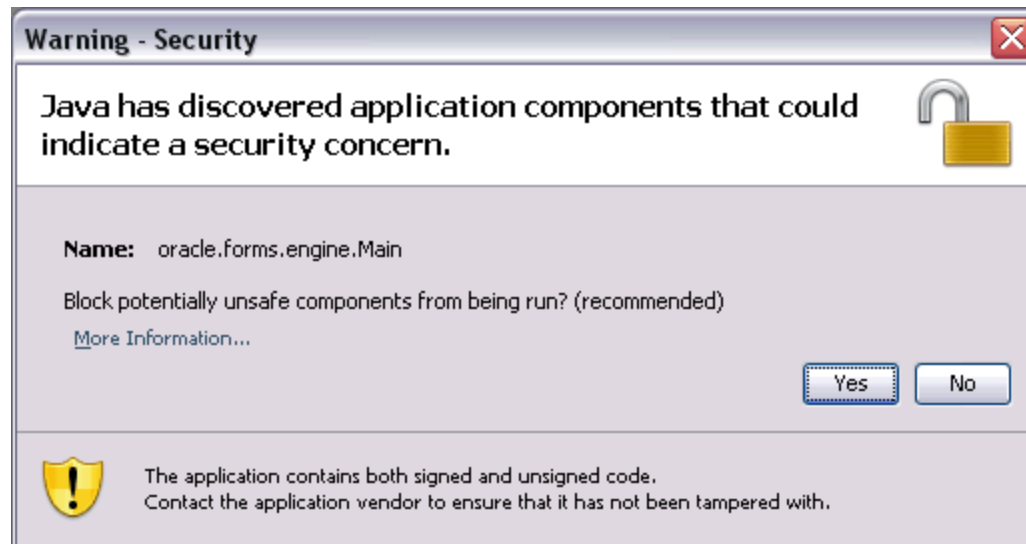
# Logging on to AQS – security pop-up

- Pop-up warning:



- Latest Java versions also display this warning:

Choose "No" or the menu bars in AQS will be blocked



# Account management

- Change password every 90 days (AQS)
  - You receive an automated reminder
  - You can change your passwords in AQS at any time
- After 180 days of inactivity, your AQS user account is locked
  - You receive an automated reminder
  - If your account is locked, you must call the EPA Helpdesk to have it unlocked
- After 365 days of inactivity, your AQS user account is removed
  - You receive an automated reminder
  - You must go through the user registration process





# Accounts and Passwords

- AQS Account

- 3-digit User ID
- Password rules
  - Must be between 8 -15 characters
  - Must contain at least 1 uppercase, 1 lowercase and 1 number
  - Must not BEGIN or END with a number
  - Must be changed every 90 days
  - At least three characters or character positions of the new password must differ from the old
    - “Novemb3r” could be changed to “Decemb3r”
    - “Fido1smydog” could be changed to “mydog1sFido”
  - NOT Allowed:
    - Special characters (eg, !@#\$%^&\*)
    - Your first or last name
    - Any common word found in a dictionary
    - Your 3-digit AQS username (in forward or reverse order)
    - The letters “AQS”
    - The word “password”

○ Forgot AQS password or have account problems?

Call the EPA Call Center at 866-411-4372

- ENSC Account

- EN user ID is not your AQS ID; it is the email address on your AQS Security Profile (you supplied it when you got your AQS account)
- Password is not your AQS password (unless you manually synced them)
- Forgot ENSC password or your email address changed?

Call the EN Helpdesk at 888-890-1996



# Where to Change Your AQS Password

Admin

Security

Reference

User Statistics

Appl Audits

Export Ca Dump Bucket

Maintain Monitoring Season

## Step 1: Select “Admin” → “Security” from the Main Menu

Administration - Application Security (National Air Data Group)

User Profile | Maintain Security | Security Reference Tables | Maintain Roles | User History

First Name: CHRIS | Phone: 919.541.2073 | Zip Code: 27711 | County Code: 063 | AQS User ID: CIX | EN User ID: CHAPMAN,CHRI

Last: CHAPMAN | Address 2: | e Code: 37 | y Code: 1108 | Contact: N | n Code: | al User:

Security - Change Password

-20459: Password changed.

OK

## Step 2: Fill in the “New Password” & “Confirm Password Fields

AQS New Password: | Confirm password: | OK

## Step 3: Click “OK”

# About Your User Profile

- Cannot change
  - Agency Code
  - User ID
  - User Type
  - AQS Contact
  - Status Indicator
- Tribal user setting
  - Determines how you see AQS Site IDs
- Keep email address current
- Make sure your EN\_User\_ID has your email address
- Are you a Node user?
  - EN\_User\_ID = user ID that is used by the Node to submit files.

Administration - Application Security (National Air Data Group)

User Profile | Maintain Security | Security Reference Tables | Maintain Roles | User History

First Name: CHRIS Initial: C. Last: CHAPMAN  
Phone: 919.541.2073 Street Address 1: 109 TW Alexander Drive Street Address 2:  
Zip Code: 27711 City: Research Triangle Park State Code: 37  
County Code: 063 Agency Code: 1108  
AQS User ID: CIX AQS Contact: N  
EN User ID: CHAPMAN.CHRIS@ EPA Region Code: Tribal User:  
E Mail: chapman.chris@epa.gov  
Fax: 919.541.7674 Delete Error Transaction: N

Change Your Oracle Passwords

AQS New Password: Confirm password: OK

**Tribal User "ON"**  
**TT-549-0001**  
**Tribal User "OFF"**  
**36-001-0001**

# Put it into practice: Exercise 1.2

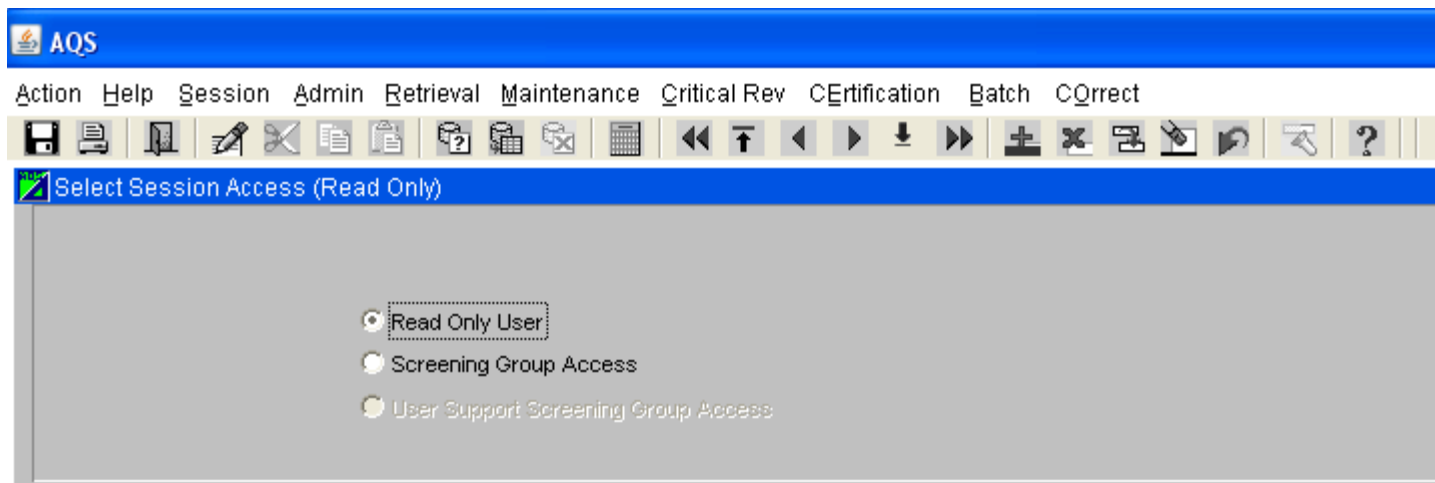


# AQS Screening Groups



# In This Section We Will Talk About

- Access levels in AQS
  - Read-only access
  - Screening group access
  - Choose access level on login



# What is the Difference Between “Read Only” & Screening Group Access?

Menu	Access Type	
	Read-only	Screening Group
Maintenance (browse)	✓ All public data	✓ Only see data (public or not) owned by screening group
Maintenance (update)	✓ No changes can be made	✓ Can change any data in SG
Standard Reports	✓	✓ (plus extra reports)
Batch	✗	✓
Correct	✗	✓

- Signing on With a Screening Group Allows You Into New Areas of the Application
- Using Maintenance in a Screening Group → only access monitors owned by that Screening Group



# Screening Group

- Main Security Mechanism in AQS
  - Defines What Group Owns a Monitor
  - Only One Group Can Own a Monitor
  - Only the Data Owner Can Change Data for This Monitor
- Users Are Assigned to One or More Screening Groups
  - Different Levels of Access Possible
  - Access granted during registration; Can be changed if needed
- A MONITOR Can Only Be “Owned” by One Screening Group
- You Must Select a Screening Group in the Session If You Want to Change Data

In this class. . .

- Each person has a separate Screening Group
- Each person has a unique set of monitors that can be changed
- Screening group is “TRAININGGROUPxx”, where “xx” are last two digits of your Training ID

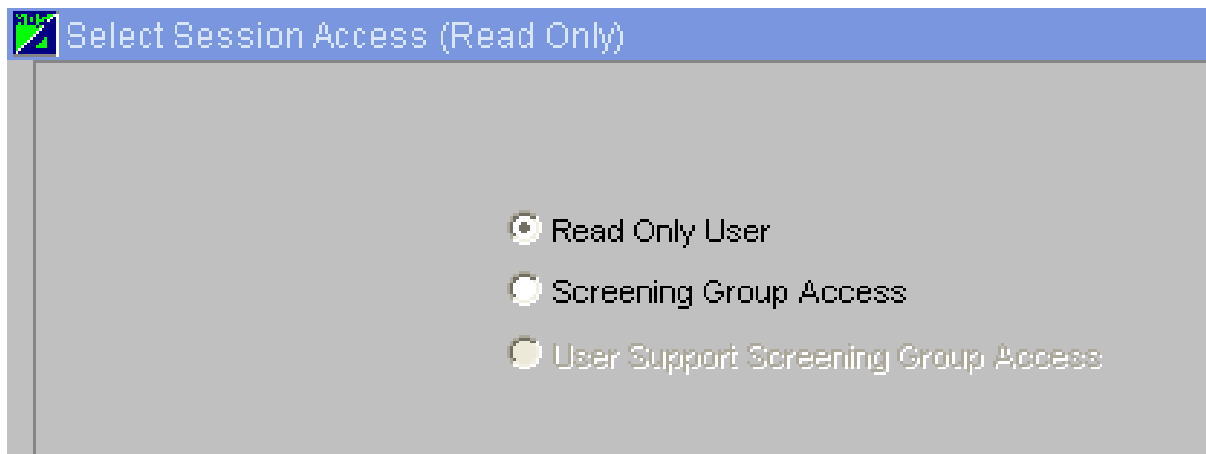




# What If I Want to Change From “Read Only” to “Screening Group” Access?

- From the “Main Menu”

Action Help Session Admin Retrieval Maintenance Critical Rev Certification Batch COrrect



- The window title will tell you what screening group you are in

AQS

Action Help Site Monitor Audit Event Sample Values Precision Accuracy Blanks Summary Concurrence Ind Main M

Maintain Site (SCHOOL AIR TOXICS MET)

Basic Site Data Additional Site Data Agency Roles Tangent Roads Open Paths Comments Primary Monitor Periods

**Site Identification**

State Code 01 Alabama

County Code 073 Jefferson Site Id 5505 Status Ind F

**User Coordinates**

Horizontal Datum WGS84 Latitude 33.55 Longitude -86.8

UTM Zone UTM Easting UTM Northing Lookup Geography

**Standard Coordinates:** Datum WGS84 Latitude 33.550000 Longitude -86.800000

Horizontal Method

Horizontal Accuracy (Meters) Source Map Scale (Non-GPS)

Vertical Measure (Meters) Vertical Accuracy (Meters) Vertical Datum

Vertical Method

Street Address

Land Use Type Location Setting

City Code 07000 Birmingham

Urban Area Code 1000 BIRMINGHAM, AL

AQCR Code

Site Established Date (YYYYMMDD) Time Zone Name

Check Completeness Create Monitor



# Browsing Data in AQS

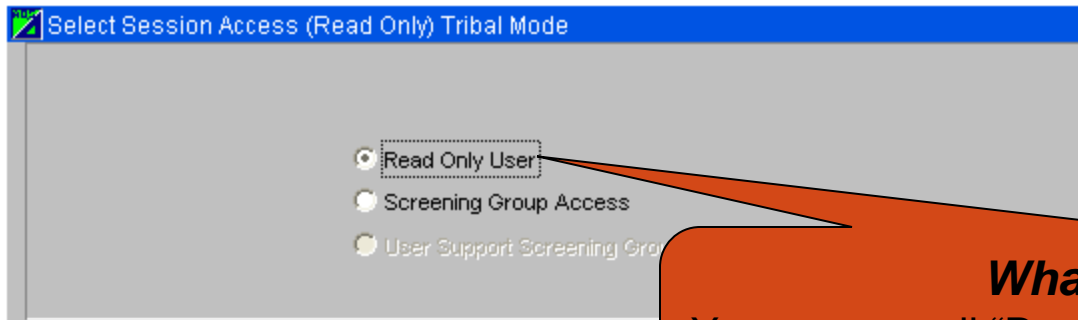


# What Can I Browse?

- Reference Information
  - Codes Used in the System
  - Seasonal Definitions
- Data Supplied to AQS in Small Groups of Information
  - Site
  - Monitor
  - Sample Data
  - Summary Data

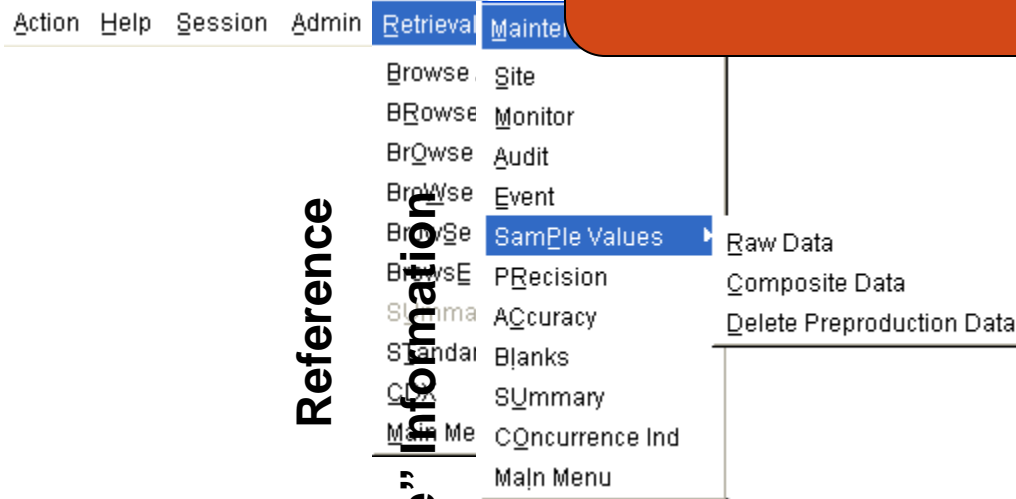


# Where Do I Start?



## ***What does this Mean?***

You can see all “Production” data from Anyone  
You cannot change any data




# What's the Big Idea?

- Select the Type of Data you Want
- Get Only the Records You Need by Specifying Filters
- Execute the Query
- Scroll Through the Records

# How Do I Do That?

- Select the Type of Data (Reference or Core)
- Get Only the Records You Need by Specifying Filters

Tribal Code	<input type="text"/>	State Code	<input type="text" value="01"/>	County Code	<input type="text"/>	Site ID	<input type="text"/>	Parameter Code	<input type="text" value="44201"/>	POC	<input type="text"/>
-------------	----------------------	------------	---------------------------------	-------------	----------------------	---------	----------------------	----------------	------------------------------------	-----	----------------------

- Execute the Query 
- Scroll Through the Records

## Reference

### Retrieval

- Browse Annual Summary
- Browse Monitoring Season
- Browse Sample Methodology
- Browse State Threshold
- Browse Parameter
- Browse Audits
- Summary Data Extraction
- Standard Report Selection
- CDX
- Main Menu

## “Core” Information

### Maintenance

- Site
- Monitor
- Audit
- Event
- Sample Values
  - Raw Data
  - Composite Data
  - Delete Preproduction Data
- Precision
- Accuracy
- Blanks
- Summary
- Concurrence Ind
- Main Menu

# Navigation

## Tabs

Browse Annual Summary (Read Only) Tribal Mode

Monitor Summary Maximums

**Annual Summaries**

Tribal Code  State Code  01 County Code  071 Site ID  0020 Parameter Code  44201 POC  2

Summary Year  2005 Duration Code  WV EDT  0

Obs Lt Half Mdl  Observation Pct  0 Geom Std Dev

Arith Std Dev  Geometric Mean  Arithmetic Mean

Min Sample Value  .017 Observation Cnt  603 Sum Method Cnt

Criteria Ind  N Null Data Obs Cnt  Cert Ind

Exp Data Cnt  Val GT Pri Std  Val GT Sec Std  0

Days GT Alert Lvl  Non Overlap GT  Miss Day LT Std  0

Req Mon Cnt  245 Weighted Mean  Ans Type  CPS

Direct Entry Ind  N Valid Day Cnt  0 Est Days GT Std

**Summary Protocols**

Mp Id  Coll Freq Code  Comp Type  Alt Mdl

Parameter Code  Parameter Desc

Method Code  Coll Desc

Anal Desc

Duration Code  Duration Desc

Rep Unit  Rep Unit Desc

Std Unit  Std Unit Desc

Record: 25/?

## Blocks

## Record in Focus

## Fields

## Records

Monitor Summary Maximums

**Summary Maximums**

Max Level	Max Sample Value	Max Coll Date
1	788	20060306
2	787	20060303
3	774	20060309
4	768	20060126
5	768	20060219

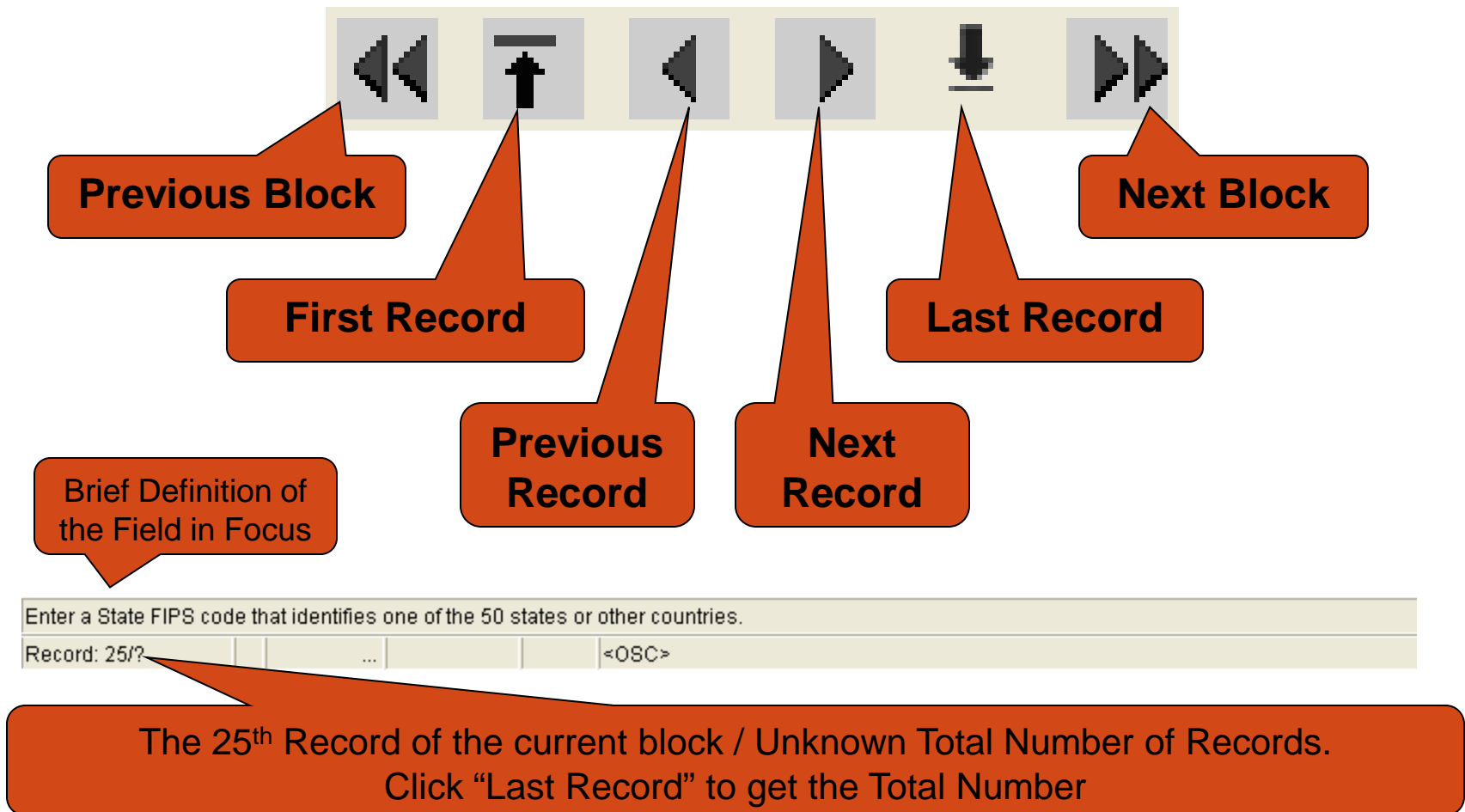
**Summary Percentiles**

Percentile Num	Percentile Sample Value
10	753
25	754
50	757
75	763
90	767





# Form Navigation



# Put it into practice – Exercise 1.3

# Standard Reports



# How to get information out of AQS

- Standard Reports + Examples
  - Site / Monitor Metadata
  - Detail Data Reports
    - “Raw” Data
    - Extraction Reports
  - Summary Data
  - Audit / Precision & Accuracy Data
  - Raw Data Qualifier
  - Data Certification
  - Design Value
- Custom queries via Discoverer or other SQL tool



# Site & Monitor Reports

- Site metadata
  - Location, nearby streets
  - Open Path Set Up
  - Which PM<sub>2.5</sub>, lead or NO<sub>2</sub> Monitor is the Primary Monitor
- Monitor metadata
  - How a given pollutant is measured
  - Sampling length
  - Monitoring frequency
  - Agencies responsible for the monitor and analysis
  - Monitoring objectives
  - Collocation information

AMP380 – Site Description

AMP390 – Monitor Description

Compare with Annual Monitoring Network Plan.

# Detail Data Reports

- “Raw” data from AQS
  - Can import information into spreadsheet for further processing
- Extraction Reports
  - Provide data in AQS transaction format with Insert, Delete or Update codes
  - Very powerful - useful for duplicating and reloading data

AMP350 - Raw Data

AMP500 - Extract Site/Monitor Data

AMP501 - Extract Raw Data

AMP502 - Extract Precision and Accuracy Data

AMP503 - Extract Blanks Data

Reports with delimiters (AMP350, AMP50x) are easy to import into Excel.  
Run your report in AQS with the WORKFILE option checked.  
The file will be emailed to you. Save it.  
Open Excel (or whatever spreadsheet you're using).  
Choose “|” as the field separator.



# Raw Data

(88101) PM2.5 - Local Conditions

SITE ID: 37-183-0020 POC: 1  
 COUNTY: (183) Wake  
 CITY: (00000) Not in a city  
 SITE ADDRESS: 3720 Lake Wheeler Rd  
 SITE COMMENTS: collocated with ARS met station  
 MONITOR COMMENTS:

STATE: (37) North Carolina  
 AQCR: (166) EASTERN PIEDMONT  
 URBANIZED AREA: (0000) NOT IN AN URBAN AREA  
 LAND USE: AGRICULTURAL  
 LOCATION SETTING: RURAL

CAS NUMBER:  
 LATITUDE: 35.7288000009  
 LONGITUDE: -78.6802  
 UTM ZONE:  
 UTM NORTHING:  
 UTM EASTING:  
 ELEVATION-MSL: 120  
 PROBE HEIGHT:

SUPPORT AGENCY: (0776) North Carolina Dept Of Environment And Natural Resources  
 MONITOR TYPE: SLAMS  
 COLLECTION AND ANALYSIS METHOD: (118) R & P Model 2025 PM2.5 Sequential  
 PQAO: (0776) North Carolina Dept Of Environment And Natural Resources

REPORT FOR: 2010

DURATION: 24 HOUR  
 UNITS: Micrograms/cubic meter (LC)  
 MIN DETECTABLE: 2

Day	MONTH											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2				24.7								
3												
4												
5				15.0								
6												
7												
8				8.2								
9												
10												
11				8.6								
12												
13												
14				9.2								
15												
16												
17				AJ								
18												
19												
20				9.2								
21												
22												
23				18.7								
24												
25												
26				7.2								
27												
28												
29												
30												
31												
NO.:	0	0	0	8	0	0	0	0	0	0	0	0
MAX:				24.7								
MEAN:				12.60								
ANNUAL OBSERVATIONS:	8			ANNUAL MEAN:	12.60			ANNUAL MAX:	24.7			

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk ("\*") indicates that the region has reviewed the value and does not concur with the qualifier.



# Raw Data

(44201) Ozone

SITE ID: 37-183-0014 POC: 1

COUNTY: (183) Wake

CITY: (55000) Raleigh

SITE ADDRESS: 3801 SPRING FOREST RD.

SITE COMMENTS: PROGRESS ENERGY METER NO. ACDB68089G35

MONITOR COMMENTS:

STATE: (37) North Carolina

AQCR: (166) EASTERN PIEDMONT

URBANIZED AREA: (6639) RALEIGH, NC

LAND USE: RESIDENTIAL

LOCATION SETTING: SUBURBAN

CAS NUMBER: 10028-15-6

LATITUDE: 35.856111

LONGITUDE: -78.574167

UTM ZONE:

UTM NORTHING:

UTM EASTING:

ELEVATION-MSL: 100

PROBE HEIGHT: 4

SUPPORT AGENCY: (0776) North Carolina Dept Of Environment And Natural Resources

MONITOR TYPE: SLAMS

COLLECTION AND ANALYSIS METHOD: (047) INSTRUMENTAL ULTRA VIOLET

PQAO: (0776) North Carolina Dept Of Environment And Natural Resources

REPORT FOR: APRIL 2010

DURATION: 1 HOUR

UNITS: Parts per million

MIN DETECTABLE: .005

HOUR																										
DAY	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	OBS	MAXIMUM
1	.002	.002	.002	BD	.002	.002	.002	.002	.011	.036	.042	.056	.062	.065	.068	.071	.069	.060	.035	.024	.024	.027	.038	.041	23	.071
2	.041	.043	.040	BD	.028	.017	.009	.022	.025	.031	.041	.054	.065	.073	.070	.069	.068	.064	.047	.030	.039	.057	.057	.061	23	.073
3	.058	.057	.053	BD	.048	.042	.039	.042	.044	.052	.055	.056	.056	.057	.056	.056	.053	.050	.042	.033	.030	.031	.031	.036	23	.058
4	.037	.036	.034	BD	.032	.032	.025	.026	.034	.043	.046	.054	.059	.062	.059	.057	.058	.055	.046	.019	.014	.017	.019	.025	23	.062
5	.026	.029	.028	BD	.024	.016	.005	.013	.022	.030	.043	.053	.059	.059	.057	.054	.050	.046	.034	.025	.035	.037	.040	.037	23	.059
6	.037	.035	.033	BD	.031	.024	.017	.022	.028	.036	.042	.050	.054	.052	.052	.056	.055	.049	.048	.042	.042	.043	.041	.040	23	.056
7	.039	.037	.037	BD	.035	.028	.024	.027	.035	.041	.048	.049	.049	.049	.050	.051	.050	.050	.049	.044	.041	.040	.038	.037	23	.051
8	.036	.036	.034	BD	.032	.027	.021	.023	.028	.036	.041	.041	.038	.038	.039	.038	.040	.039	.037	.037	.039	.031	.031	.038	23	.041
9	.033	.032	.040	BD	.033	.030	.033	BF	BF	.037	.036	.042	.045	.047	.049	.049	.049	.050	.043	.026	.022	.032	.021	.027	21	.050
10	.030	.023	.024	BD	.014	.005	.006	.031	.041	.046	.049	.051	.053	.053	.054	.054	.056	.054	.033	.017	.018	.017	.011	.008	23	.056
11	.019	.016	.016	BD	.018	.010	.008	.026	.036	.049	.052	.054	.058	.059	.059	.057	.057	.053	.041	.027	.029	.022	.018	.029	23	.059
12	.034	.032	.027	BD	.013	.005	.002	.006	.016	.040	.046	.052	.056	.060	.060	.062	.062	.061	.034	.030	.029	.044	.042	.040	23	.062
13	.031	.023	.010	BD	.005	.002	.006	.016	.030	.033	.044	.051	.055	.055	.056	.058	.059	.055	.050	.054	.048	.042	.048	.048	23	.059
14	.044	.043	.044	BD	.045	.043	.042	.040	.041	.044	.046	.043	.038	.040	.041	.040	.039	.038	.037	.026	.018	.017	.017	.009	23	.046
15	.010	.006	.002	BD	.002	.002	.002	.007	.029	.036	.040	.042	.044	.052	.054	.056	.057	.055	.040	.025	.013	.002	.002	.002	23	.057
16	.002	.002	.002	BD	.018	.005	.002	.017	.036	.041	.047	.057	.067	.068	.069	.067	.065	.063	.061	.054	.054	.051	.047	.049	23	.069
17	.048	.049	.050	BD	.045	.037	.033	.034	.040	.042	.043	.043	.045	.047	.049	.050	.052	.054	.051	.045	.048	.053	.052	.049	23	.054
18	.046	.041	.038	BD	.034	.028	.025	.034	AV	.042	.049	.048	.048	.049	.051	.051	.051	.049	.045	.033	.012	.011	.002	.007	22	.051
19	.012	.020	.022	BD	.017	.014	.007	.016	.021	.028	.033	.036	.039	.041	.044	.045	.046	.046	.044	.021	.028	.020	.021	.018	23	.046
20	.011	.002	.002	BD	.002	.002	.002	.002	.015	.039	.048	.050	.053	.055	.056	.056	.052	.049	.041	.031	.031	.035	.037	.034	23	.056
21	.038	.031	.018	BD	.018	.013	.013	.014	.016	.018	.032	.035	.032	.033	.038	.040	.041	.036	.029	.025	.012	.008	.019	.022	23	.041
22	.017	.002	.002	BD	.015	.013	.012	.022	.033	.042	.051	.062	.063	.064	.065	.067	.066	.064	.053	.026	.005	.006	.014	.015	23	.067
23	.029	.043	.036	BD	.012	.002	BF	BF	.006	.021	.034	.032	.037	.039	.043	.044	.044	.046	.040	.027	.010	.002	.002	.002	21	.046
24	.002	.002	.017	BD	.025	.021	.020	.025	.031	.036	.044	.048	.050	.053	.045	.037	.038	.035	.033	.027	.025	.026	.024	.017	23	.053
25	.023	.031	.032	BD	.032	.035	.034	.032	.030	.030	.031	.030	.032	.033	.034	.035	.034	.033	.031	.022	.027	.027	.026	.026	23	.035
26	.026	.024	.020	BD	.021	.012	.012	.022	.033	.040	.044	.045	.045	.047	.048	.046	.048	.045	.043	.037	.038	.038	.036	.033	23	.048
27	.032	.031	.030	BD	.027	.025	.025	.031	.038	.041	.042	.040	.041	.043	.046	.047	.044	.045	.044	.039	.029	.026	.028	.033	23	.047
28	.036	.039	.034	BD	.027	.026	.022	.033	.038	.039	.039	.041	.043	.045	.047	.048	.048	.048	.045	.038	.024	.006	.002	.002	23	.048
29																									0	
30																									0	
31																									0	
NO.:	28	28	28		28	28	27	26	26	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28		
MAX:	.058	.057	.053		.048	.043	.042	.042	.044	.052	.055	.062	.067	.073	.070	.071	.069	.064	.061	.054	.054	.057	.057	.061		
AVG:	.0285	.0274	.0260		.0234	.0185	.0166	.0225	.0291	.0375	.0431	.0470	.0495	.0514	.0521	.0522	.0518	.0497	.0420	.0316	.0280	.0274	.0273	.0280		

MONTHLY OBSERVATIONS: 639 MONTHLY MEAN: .0353 MONTHLY MAX: .073

Note: Qualifier codes with regional concurrence are shown in upper case, and those without regional review are shown in lower case. An asterisk (\*\*\*) indicates that the region has reviewed the value and does not concur with the qualifier.





## Extract Site/Monitor Data

AA||37|183|0014|+35.856111|-78.574167|||103|WGS84|24000|3.04|100|EASTERN|0776|3801 SPRING FOREST RD.|55000|6639|166|  
RESIDENTIAL|SUBURBAN|19890417||27616|13|1033||05400|||E Millbrook Middle School|||NE|13|ON-SITE MET EQUIP|||014|MEAN SEA-LEVEL|5  
AB||37|183|0014|1|SPRING FOREST ROAD|MAJ ST OR HY|25000|2003|S|DOT

MA||37|183|0014|44201|1|01|AREA|NEIGHBORHOOD||4|||||||||

MB||37|183|0014|44201|1|19890417|20050601

MB||37|183|0014|44201|1|20050616|20060807

MB||37|183|0014|44201|1|20060816|

MC||37|183|0014|44201|1|SLAMS|19890417|

MC||37|183|0014|44201|1|NAMS|19890627|20061231

MC||37|183|0014|44201|1|NCORE|20100701|

MD||37|183|0014|44201|1|ANALYZING|0776|19890417|

MD||37|183|0014|44201|1|COLLECTING|0776|19890417|

MD||37|183|0014|44201|1|REPORTING|0776|19890417|

MD||37|183|0014|44201|1|PQAO|0776|20070101|

ME||37|183|0014|44201|1|MAX OZONE CONCENTRATION|||39580|

ME||37|183|0014|44201|1|POPULATION EXPOSURE|6639|||

MG||37|183|0014|44201|1|1|47

MI||37|183|0014|44201|1|RM|Y|19880901

MI||37|183|0014|44201|1|SC|Y|19880901

MI||37|183|0014|44201|1|QC|Y|19890401

MK||37|183|0014|44201|1|1|007|047|||

MK||37|183|0014|44201|1|2|007|014|||

MK||37|183|0014|44201|1|3|007|019|||

MK||37|183|0014|44201|1|4|008|047|||

MK||37|183|0014|44201|1|5|008|019|||

Report generates delimited output.  
Can be used to create additional monitors.



## Extract Raw Data

```
# RD|Action Code|State Code|County Code|Site ID|Parameter|POC|Sample Duration|Unit|Method|Date|Start Time|Sample Value|Null Data Code|Sampling Frequency|Monitor Protocol (MP) ID|Qualifier - 1|Qualifier - 2|Qualifier - 3|Qualifier - 4|Qualifier - 5|Qualifier - 6|Qualifier - 7|Qualifier - 8|Qualifier - 9|Qualifier - 10|Alternate Method Detectable Limit|Uncertainty
# RC|Action Code|State Code|County Code|Site ID|Parameter|POC|Unit|Method|Year|Period|Number of Samples|Composite Type|Sample Value|Monitor Protocol (MP) ID|Qualifier - 1|Qualifier - 2|Qualifier - 3|Qualifier - 4|Qualifier - 5|Qualifier - 6|Qualifier - 7|Qualifier - 8|Qualifier - 9|Qualifier - 10|Alternate Method Detectable Limit|Uncertainty
RD|||37|183|0014|44201|1|1|007|047|20100401|00:00|0.000|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|01:00|0.000|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|02:00|0.001|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|03:00|BD|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|04:00|0.000|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|05:00|0.000|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|06:00|0.001|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|07:00|0.002|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|08:00|0.011|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|09:00|0.036|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|10:00|0.042|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|11:00|0.056|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|12:00|0.062|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|13:00|0.065|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|14:00|0.068|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|15:00|0.071|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|16:00|0.069|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|17:00|0.060|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|18:00|0.035|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|19:00|0.024|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|20:00|0.024|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|21:00|0.027|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|22:00|0.038|||||||
RD|||37|183|0014|44201|1|1|007|047|20100401|23:00|0.041|||||||
```

Report can capture a time range of data.

Use report options to specify “delete” transactions.

Use report options to specify “update” (maybe to add qualifiers?)



# Summary Data Reports

- Contains the calculated summary values from AQS
  - Multi-hour Averages (e.g. 8-hour running average)
  - Daily Summaries
  - Site Summaries (PM<sub>2.5</sub> and Lead Only)
  - Quarterly Summaries
  - Annual Summaries
  - Site Annual Summaries (PM<sub>2.5</sub> and Lead Only)

AMP450 – QuickLook

AMP435 – Daily Summary (ranks daily values for a year)

AMP355 – Combined Site Sample Values (only for NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>2.5</sub>, lead)

AMP440 – Maximum Values Report (top 10 values for a year)

AMP300 – Violation Day Count (reports exceedances for a year)

AMP410 – Air Quality Index Report (look at historical AQI values)

PM2.5 - Local Conditions (88101)

Wisconsin

Micrograms/cubic meter (LC) (105)

24-HOUR															
SITE ID	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	#OBS	1ST MAX	2ND MAX	3RD MAX	4TH MAX	98TH PERCENTILE VALUE	WTD ARITH MEAN	CERT EDT
55-003-0010	1	1175	Not in a city	Ashland	BAD RIVER TRIBAL SCHOOL - ODANAH	2010	117	60	17.9	17.3	15.6	14.0	17.3	5.28	0
55-003-0010	2	1175	Not in a city	Ashland	BAD RIVER TRIBAL SCHOOL - ODANAH	2010	117	60	18.1	17.5	15.6	13.7	17.5	5.34	0
55-009-0005	1	1175	Green Bay	Brown	EAST HIGH, 1415 E. WALNUT	2010	118	336	45.5	42.3	40.5	38.9	35.1	9.97	0

Note: The \* indicates that the mean does not satisfy summary criteria.

98<sup>th</sup> percentile completeness for PM2.5 24-hour (2006) standard. Summary criteria met when all 4 site-level quarterly summaries are present, and one of the following is true: quarters are 75% complete, or Annual 98th percentile value greater than the 24-hour standard (35 ug/m3). "Wtd Arith Mean" for PM2.5 24-annual (2006) standard is based on quarterly means. Summary criteria are met when the percent of observations (quarterly) are >= 75%. (See AQS Data Dictionary section 4.281 and 40 CFR Part 50.13.).

## National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
<a href="#">Particulate Matter (PM<sub>2.5</sub>)</a>	15.0 µg/m <sup>3</sup>	Annual <a href="#">(6)</a> (Arithmetic Average)	Same as Primary	
	35 µg/m <sup>3</sup>	24-hour <a href="#">(7)</a>	Same as Primary	

(6) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m<sup>3</sup>.

(7) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m<sup>3</sup> (effective December 17, 2006).



Nitrogen dioxide (NO2) (42602)

Wisconsin

Parts per billion (008)

	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	COMP QTRS	1ST MAX 1-HR	2ND MAX 1-HR	98TH PCTL	OBS	PCT COMP	ARITH MEAN	CERT	EDT
55-041-0007	1	1175	Crandon	Forest	FIRE TOWER RD, POTAWATOMI SITE	2010	082	2	15.0	9.0	9.0	4364	50	1.20*		0
55-071-0007	1	1175	Two Rivers	Manitowoc	MANITOWOC/WOODL ND DUNES, 2315 GOODWIN RD	2010	075	0	11.0	10.0	10.0	2016	23	2.56*		0
55-079-0026	1	1175	Milwaukee	Milwaukee	DNR SER HDQRTS, 2300 N M. L. KING JR DR	2010	074	4	112.0	92.0	53.0	8608	98	12.90		0

Note: The \* indicates that the mean does not satisfy summary criteria.

“Comp qtrs” are complete quarters. The number of quarterly summaries, with corresponding pollutant standard and exceptional data type, where the summary criterion is met. For NO2, to have a complete quarter, the number of valid days in a quarter compared to number of total days in a quarter must be >= 75%.

“Arith Mean” is arithmetic mean. For NO2, this is the average of the hourly values for the year. This is defined on pages 4-20 and 4-21 of the AQS Data Dictionary.

The "Summary Criteria" column indicates whether or not the annual summary is complete as required by 40 CFR Part 50. i.e. If the mean is valid by these rules, it is set to 'Y', and if it is not, it is set to 'N'. For the NO2 annual standard, 75% of the hours for the year must have values. (See AQS Data Dictionary section 4.278 and 40 CFR Part 50.11.)

## National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
<a href="#">Nitrogen Dioxide</a>	53 ppb <a href="#">(3)</a>	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour <a href="#">(4)</a>	None	

(4) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).



# Quicklook

Ozone (44201)

Wisconsin

Parts per million (007)

1-HOUR

SITE ID	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	VALID DAYS	NUM DAYS REQ	1ST MAX 1-HR	2ND MAX 1-HR	3RD MAX 1-HR	4TH MAX 1-HR	DAY MAX> STD	EST DAYS> STD	MISS DAYS< STD	CERT EDT
55-117-0006	1	1175	Not in a city	Sheboygan	EL2886 TOWER RD KOHLE ANDRE PARK, 1520 OLD PARK ROAD	2010	087	182	184	.100	.099	.096	.093	0	0.0	0	0
55-123-0008	1	1175	Not in a city	Vernon	WILDCAT MTN, HWY 33, ONTARIO	2010	087	182	184	.079	.072	.068	.067	0	0.0	0	0
55-125-0001	1	1175	Boulder Junction	Vilas	TROUT LAKE NURSERY, COUNTY HWY M	2010	087	183	184	.074	.068	.068	.066	0	0.0	1	0
55-127-0005	1	1175	Lake Geneva	Walworth	LAKE GENEVA NADP SITE, RR4 ELGIN CLUB RD	2010	087	183	184	.087	.074	.074	.072	0	0.0	1	0
55-131-0009	1	1175	Slinger	Washington	SLINGER, HWY 60 & SCENIC, POLK TWNSHP	2010	087	184	184	.083	.075	.070	.068	0	0.0	0	0
55-133-0027	1	1175	Waukesha	Waukesha	1310 CLEVELAND AVE	2010	087	184	184	.082	.079	.073	.071	0	0.0	0	0

## National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Ozone	0.075 ppm (2008 std)	8-hour <a href="#">(8)</a>	Same as Primary	
	0.08 ppm (1997 std)	8-hour <a href="#">(9)</a>	Same as Primary	
	0.12 ppm	1-hour <a href="#">(10)</a>	Same as Primary	

(8) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

(9) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(c) EPA is in the process of reconsidering these standards (set in March 2008).

(10) (a) EPA revoked the [1-hour ozone standard](#) in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").

(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is  $\leq 1$ .



# Daily Summary - ozone

## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AIR QUALITY SYSTEM DAILY SUMMARY REPORT

Aug. 16, 2012

Monitor ID	Daily Coll. Date	Duration	EDT ID	Daily Arith Mean	Daily # Obs	Daily % Obs	Daily Coll Hour	Daily Max Sample Value	Daily Ranking Num
37-183-0014-44201-1	20100401	8-HR RUN AVG BEGIN HOUR	0	.03567	24	100.0	10	.0610	27
37-183-0014-44201-1	20100402	8-HR RUN AVG BEGIN HOUR	0	.04704	24	100.0	10	.0630	16
37-183-0014-44201-1	20100403	8-HR RUN AVG BEGIN HOUR	0	.04383	24	100.0	9	.0550	70
37-183-0014-44201-1	20100404	8-HR RUN AVG BEGIN HOUR	0	.03650	24	100.0	10	.0560	58
37-183-0014-44201-1	20100405	8-HR RUN AVG BEGIN HOUR	0	.03596	24	100.0	10	.0520	93
37-183-0014-44201-1	20100406	8-HR RUN AVG BEGIN HOUR	0	.04013	24	100.0	11	.0520	94
37-183-0014-44201-1	20100407	8-HR RUN AVG BEGIN HOUR	0	.04017	24	100.0	10	.0490	113
37-183-0014-44201-1	20100408	8-HR RUN AVG BEGIN HOUR	0	.03417	24	100.0	10	.0390	200
37-183-0014-44201-1	20100409	8-HR RUN AVG BEGIN HOUR	0	.03476	21	88.0	11	.0460	137
37-183-0014-44201-1	20100410	8-HR RUN AVG BEGIN HOUR	0	.03092	24	100.0	10	.0530	86
37-183-0014-44201-1	20100411	8-HR RUN AVG BEGIN HOUR	0	.03563	24	100.0	10	.0560	59
37-183-0014-44201-1	20100412	8-HR RUN AVG BEGIN HOUR	0	.03492	24	100.0	10	.0570	50
37-183-0014-44201-1	20100413	8-HR RUN AVG BEGIN HOUR	0	.04067	24	100.0	12	.0550	71
37-183-0014-44201-1	20100414	8-HR RUN AVG BEGIN HOUR	0	.03067	24	100.0	0	.0430	154
37-183-0014-44201-1	20100415	8-HR RUN AVG BEGIN HOUR	0	.02396	24	100.0	10	.0500	108
37-183-0014-44201-1	20100416	8-HR RUN AVG BEGIN HOUR	0	.04542	24	100.0	11	.0640	11
37-183-0014-44201-1	20100417	8-HR RUN AVG BEGIN HOUR	0	.04442	24	100.0	14	.0500	109
37-183-0014-44201-1	20100418	8-HR RUN AVG BEGIN HOUR	0	.03250	24	100.0	10	.0490	114
37-183-0014-44201-1	20100419	8-HR RUN AVG BEGIN HOUR	0	.02517	24	100.0	11	.0420	166
37-183-0014-44201-1	20100420	8-HR RUN AVG BEGIN HOUR	0	.03246	24	100.0	10	.0520	95
37-183-0014-44201-1	20100421	8-HR RUN AVG BEGIN HOUR	0	.02217	24	100.0	10	.0350	238
37-183-0014-44201-1	20100422	8-HR RUN AVG BEGIN HOUR	0	.03533	24	100.0	11	.0630	17
37-183-0014-44201-1	20100423	8-HR RUN AVG BEGIN HOUR	0	.02335	20	83.0	11	.0400	189
37-183-0014-44201-1	20100424	8-HR RUN AVG BEGIN HOUR	0	.03138	24	100.0	8	.0430	155
37-183-0014-44201-1	20100425	8-HR RUN AVG BEGIN HOUR	0	.02896	24	100.0	1	.0320	267
37-183-0014-44201-1	20100426	8-HR RUN AVG BEGIN HOUR	0	.03513	24	100.0	10	.0460	138
37-183-0014-44201-1	20100427	8-HR RUN AVG BEGIN HOUR	0	.03588	24	100.0	9	.0430	156
37-183-0014-44201-1	20100428	8-HR RUN AVG BEGIN HOUR	0	.02842	24	100.0	11	.0450	144



# Maximum Values – PM10

## MAXIMUM VALUES REPORT

PM10 Total 0-10um STP (81102)

State: Kansas  
Duration: 24-HR BLK AVG  
Year: 2009

Primary: 150  
Secondary: 150  
Unit: Micrograms/cubic meter  
(25 C)

				Maximum Values					(25 C)		EDT ID
Site ID	POC	County Name City Name	Methods	1st Max 6th Max	2nd Max 7th Max	3rd Max 8th Max	4th Max 9th Max	5th Max 10th Max	Num Obs	Num Exc	
20-173-0009	1	Sedgwick Wichita	079	55	44	42	40	40	363	0	1
				03/06:00	10/01:00	07/11:00	02/06:00	04/09:00			
				40	39	39	39	38			
				04/22:00	06/06:00	06/26:00	06/27:00	01/12:00			
				Maximum Values							
20-173-0009	1	Sedgwick Wichita	079	66	55	44	42	40	365	0	2
				04/08:00	03/06:00	10/01:00	07/11:00	02/06:00			
				40	40	39	39	39			
				04/09:00	04/22:00	06/06:00	06/26:00	06/27:00			
				Maximum Values							
20-173-0009	1	Sedgwick Wichita	079	66	55	44	42	40	365	0	5
				04/08:00	03/06:00	10/01:00	07/11:00	02/06:00			
				40	40	39	39	39			
				04/09:00	04/22:00	06/06:00	06/26:00	06/27:00			
				Maximum Values							

Multiple lines are due to multiple event types. Check your report criteria.





# Audit Reports

- Audit Data (Precision and Bias data)
  - 1-Point Quality Control
  - Annual Performance Evaluations
  - Flow Rate Verifications
  - Semi-Annual Flow Rate Audits
  - Collocation information
  - Performance Evaluation Program (PEP)
  - Single and collocated monitor precision checks

AMP255 - Data Quality Indicator\*

AMP250 - P/A Raw Data Report

AMP246 - Precision Report

\* Have report results emailed to you



# Raw Data Qualifier report

- Raw data points that have qualifiers
  - Null data code qualifiers
  - Quality assurance qualifiers
  - Exceptional event qualifiers
  - Includes any Regional Office concurrence information

AMP360 - Raw Data Qualifier Report

Use report options to specify which type of qualifier.

Use to see status of Regional Office concurrence on Exceptional Events.



# Raw Data Qualifiers

United States Environmental Protection Agency  
Air Quality System  
Raw Data Qualifier Report (v 1.1)

Report Date: Aug. 16, 2012

Parameter: Ozone ( 44201 )

Standard Units: Parts per million ( 007 )

Monitor Key / Site Address	Sample Date-Time	Value	Code	Description	Action Date	NAAQS Standard	Concurrence Ind Date
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 09:00	.064	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 10:00	.068	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 11:00	.067	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 12:00	.067	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 13:00	.065	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 14:00	.062	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 15:00	.064	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 16:00	.061	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 17:00	.057	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 18:00	.057	RO	Stratospheric Ozone Intrusion	2011-04-21		
56-039-1011-44201-1 YELLOWSTONE NATIONAL PARK	2010-06-07 19:00	.047	RO	Stratospheric Ozone Intrusion	2011-04-21		



# Design Values Report

- Generates the statistics used for NAAQS determinations.
- Also allows the 1) assessment of the effect of exceptional event flagging on Design Values, and 2) the assessment of attainment issues based on partial data.
- Available for Lead, NO2, Ozone, PM10, PM2.5, and SO2

AMP480 - Design Values Report \*

\* Have report results emailed to you



## Design Values

– available for PM10, PM2.5, SO2, NO2, ozone, lead

### PRELIMINARY DESIGN VALUE REPORT

**Pollutant:** Ozone(44201)

**Standard Units:** Parts per million(007)

**NAAQS Standard:** Ozone 8-Hour 2008

**Statistic:** Annual 4th Maximum **Level:** .075

**Design Value Year:** 2010

**REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.**

**State:** North Carolina

Site ID	Poc STREET ADDRESS	2010				Cert	2009				Cert	2008				Cert	3 - Year		
		Valid Days	Percent Complete	4th Max			Valid Days	Percent Complete	4th Max			Valid Days	Percent Complete	4th Max			Percent Complete	Design Value	D. V. Validity
37-183-0014 1	3801 SPRING FOREST RD.	212	99	.071			201	94	.068			211	99	.078	Y		97	.072	Y
37-183-0016 1	201 NORTH BROAD STREET	209	98	.073			201	94	.069			208	97	.078	Y		96	.073	Y

**Pollutant:** Ozone(44201)

**Standard Units:** Parts per million(007)

**NAAQS Standard:** Ozone 8-Hour 2008

**Statistic:** Annual 4th Maximum **Level:** .075

**Design Value Year:** 2009

**REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.**

**State:** North Carolina

Site ID	Poc STREET ADDRESS	2009				Cert	2008				Cert	2007				Cert	3 - Year		
		Valid Days	Percent Complete	4th Max			Valid Days	Percent Complete	4th Max			Valid Days	Percent Complete	4th Max			Percent Complete	Design Value	D. V. Validity
37-183-0014 1	3801 SPRING FOREST RD.	201	94	.068			211	99	.078	Y		204	95	.084	Y		96	.076	Y
37-183-0016 1	201 NORTH BROAD STREET	201	94	.069			208	97	.078	Y		214	100	.080	Y		97	.075	Y

Each design value is for a 3-year period.

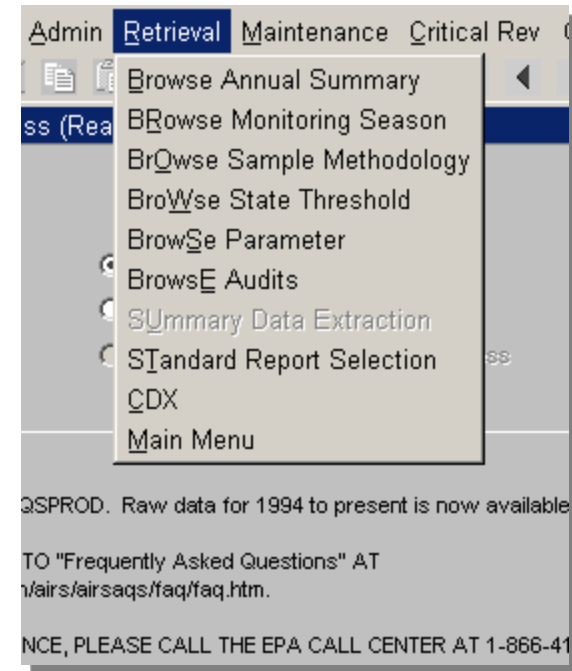
# Data Certification Reports

- **AMP450 - Quick Look Criteria**  
for CO, NO<sub>2</sub>, SO<sub>2</sub>, ozone, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead (12128)  
choose “Include Events”
- **AMP450NC - Quick Look All**  
for all other pollutants & lead (14129)
- **AMP255 - Data Quality Indicator**



# Standard Reports

- Retrieval
  - Standard report selection



# The Process of Creating a Report – Choosing the “Criteria Set”

1. Select report (Report Code field)
2. Specify Output type (Report, Workfile, XML)
3. Establish report-selection criteria
  1. Geography
  2. Pollutants
  3. Date
  4. Screening group
4. Modify report Sort Order criteria (where available)
5. Modify output Report Options (where available)
6. Generate Report
7. As you leave Reports form, prompted to save the Criteria Set.





# General Issues

- Do NOT run reports without specifying some limiting selection criteria
- Almost all reports require date-selection criteria
- Sort Order and Report Options available on reports where data structure allows
- Oracle provides output in several formats. PDF generally most reliable.
- Do not use the initial browser window (that started AQS) for any other purpose. If not blank gray, reports will not run properly.
- Batch vs online delivery
  - Online: Report delivered in a pop-up window in your web browser
  - Email/Batch: Report is delivered as a link in an email to you



# Standard Reports: Criteria Set

Standard Report Criteria Selection (T50) AMP410 Tribal Mode

Criteria Set | Monitor Selection | Area Selection | Sort Order | Report Options | Retrieve Reports

Criteria Set  Desc

Owner   Type

Report Code  Report Name

☐ Run Online  
☒ Send via Email  
☐ Send to CDX

**Report Outputs**  
☒ REPORT  
☐ WORKFILE  
☐ XML

Print Format   
File Name

**Report Selection Mode**  
☒ Monitor Selection(detail)  
☐ Area Selection

# Overview of “and/or” in selections

Standard Report Criteria Selection (T50) AMP350

Criteria Set | **Monitor Selection** | Area Selection | Sort Order | Report Options | Retrieve Reports

### Site-Monitor Criteria

State Code	County Code	Site Id	Parameter Code	POC	Method Code	Duration Code	Start Date YYYY	MM	DD	End Date YYYY	MM	DD

### Global Report Criteria

Pollutant Type	Parameter Code	Method Code	Duration Code

### Global Date Range

Start Date YYYY	MM	DD	End Date YYYY	MM	DD

Generate Report

- **AND within a row**
  - State and county AND site AND parameter AND method AND duration...
- **OR between rows in block**
  - State/County OR State/County or...
- **AND between blocks**
  - State AND Pollutant AND date...

# Example 1: and/or in Selections

Standard Report Criteria Selection (Read Only) AMP350

Criteria Set | Monitor Selection | Area Selection | Sort Order | Report Options | Retrieve Reports

### Geographical Criteria

State Code	County Code	Site Id	City Code	AQCR Code	UAR Code	CBSA Code	CSA Code	EPA Region Code
19								

Monitor Type


Land Use Type


PQAO

1080	University Hygienic Laboratory

### Protocol Criteria

Pollutant Type	Parameter Code	Method Code	Duration Code

### Date Criteria

Start Date	End Date
YYYY MM DD	YYYY MM DD
1998 01 01	1998 01 31

Generate

- All monitors in Iowa reported by University Hygienic Laboratory during January '98
- State 19 AND reporting agency 1080 AND all pollutants AND (>19980101 AND <19980131)

## Example 2: and/or in Selections (cont.)

Standard Report Criteria Selection (Read Only) AMP350

Criteria Set | Monitor Selection | Area Selection | Sort Order | Report Options | Retrieve Reports

### Geographical Criteria

State Code	County Code	Site Id	City Code	AQCR Code	UAR Code	CBSA Code	CSA Code	EPA Region Code
36								01

Monitor Type

Land Use Type

PQAO

### Protocol Criteria

Pollutant Type	Parameter Code	Method Code	Duration Code
CRITERIA			

### Date Criteria

Start Date	End Date
YYYY MM DD	YYYY MM DD
1998 01 01	1998 01 31

Generate

- All criteria monitors in New York or New England during January '98
- (State 36 OR region 01) AND (only criteria pollutants) AND (>19980101 AND <19980131)

# Example 3: and/or in Selections (cont.)

Standard Report Criteria Selection (Read Only) AMP350

Criteria Set | Monitor Selection | Area Selection | Sort Order | Report Options | Retrieve Reports

### Geographical Criteria

State Code	County Code	Site Id	City Code	AQCR Code	UAR Code	CBSA Code	CSA Code	EPA Region Code
36								01

Monitor Type


Land Use Type


PQAO


### Protocol Criteria

Pollutant Type	Parameter Code	Method Code	Duration Code
	44201		
	42401		

### Date Criteria

Start Date	End Date
YYYY MM DD	YYYY MM DD
1998 01 01	1998 01 31

Generate Report

- Ozone or sulfur dioxide monitors in New York and Region 1 during January '98
- (State 36 AND region 01) AND (44201 OR 42401) AND (>19980101 AND <19980131)
- This is a Null dataset, "No Data found"

# Standard Reports: Sort Order

Standard Report Criteria Selection (Lbauder) AMP350

Criteria Set | Monitor Selection | Area Selection | **Sort Order** | Report Options | Retrieve Reports

### Sort Order

Order	Column Name	Allowed Range	
		Lo	Hi
1	STATE_CODE	1	5
2	COUNTY_CODE	1	5
3	SITE_ID	1	5
4	PARAMETER_CODE	1	5
5	POC	1	5

▲ Move highlighted column up  
▼ Move highlighted column down

Generate Report | Restore Report Defaults

# Report options to consider

- Applicable standard
  - Depends on the pollutant(s) you choose
- Exceptional events – on summary reports, show summary data with EDT ID
  - 0
    - 0 – No data has been flagged
  - OR
  - 1, 2, and 5
    - 1 – The summary excludes all flagged data
    - 2 – The summary does not exclude any data
    - 5 – The summary excludes regionally concurred flagged data



# Standard Reports: Report Options

Standard Report Criteria Selection (Read Only) AMP435

Criteria Set | Monitor Selection | Area Selection | Sort Order | **Report Options** | Retrieve Reports

Option Values

Find %

Option\_Value

- INCLUDE EVENTS
- EXCLUDE EVENTS
- EXCLUDE REGIONALLY CONCURRED EVENTS
- REPORT ALL EVENT RECORDS

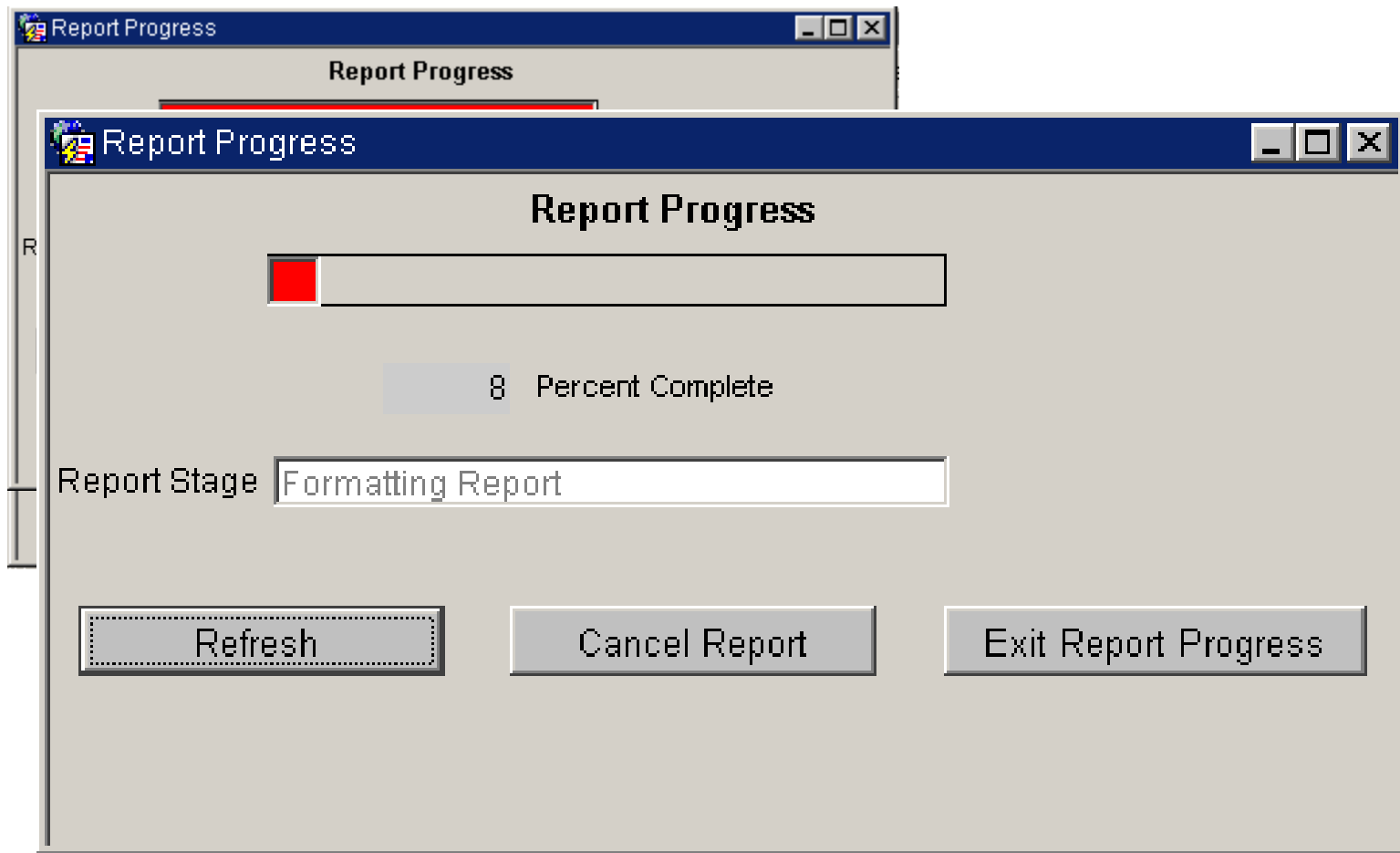
Applicable Standards Information

- NO2 Annual 1971
- Ozone 8-Hour 2008
- PM10 24-hour 2006
- Lead 3-Month PM10 Surrogate 2009
- PM25 Annual 2006
- SO2 1-hour 2010

Generate Report

Defaults are shown;  
Where applicable,  
the drop-down offers  
other standards

# Standard Reports: Progress Popup



# Standard Reports: Retrieve Reports

Standard Report Criteria Selection (Lbauder) AMP350

Criteria Set | Monitor Selection | Area Selection | Sort Order | Report Options | Retrieve Reports

User Id	Report Code	Request Type	Request Date	Report Stage	% Complete
BIB	AMP350	ONLINE	03/30/2004 08:25 PM	Cancelled	100
BIB	AMP501	ONLINE	03/30/2004 07:25 PM	Completed	100
BIB	AMP500	ONLINE	03/30/2004 07:19 PM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP440	BATCH	03/30/2004 11:17 AM	Completed	100
BIB	AMP260	BATCH	03/30/2004 11:16 AM	Completed	100
BIB	AMP260	BATCH	03/30/2004 11:16 AM	Completed	100
BIB	AMP260	BATCH	03/30/2004 11:16 AM	Completed	100
BIB	AMP260	BATCH	03/30/2004 11:16 AM	Completed	100

Retrieve Report Refresh Query Cancel Report Delete Report

# Saving a Criteria Set

- Saves the Query... Not the Results of the Query
- Go to the “Criteria Set” Tab

1) Enter a Name

2) Enter a Description

3) Mark as

- “Private” (Just for You)

- “Public” (For Anyone)

4) Save / Commit

Standard Report Criteria Selection (Read Only) AMP410 Tribal Mode

Criteria Set | Monitor Selection | Area Selection | Sort Order | Report Options | Retrieve Reports

Criteria Set: Training Test

Description: This is a Demonstration Test

Owner: JONATHAN MILLER

Type: PRIVATE

Report Code: AMP410

Report Name: AIR QUALITY INDEX REPORT

# Put it into practice - Exercise 1.4