AQS Data Access Training

Chris Chapman, US EPA

The rain is falling. . .

. . .what do I use to catch it?

- AQS Data Mart
- AQS - Reports
- Discoverer
- Air Data

Session times

- 1:30 – 1:50 Introduction & AQS Data Mart
- 1:50 – 2:10 Break/Try Data Mart
- 2:10 – 2:40 AQS – Reports
- 2:40 – 3:00 Break/Try Reports
- 3:00 – 3:20 Discoverer
- 3:20 – 3:40 Try Discoverer
- 3:40 – 4:00 Air Data
- 4:00 – 4:10 Q&A
- 4:10 – 5:00 Try Discoverer/DM/AQS Reports/Air Data

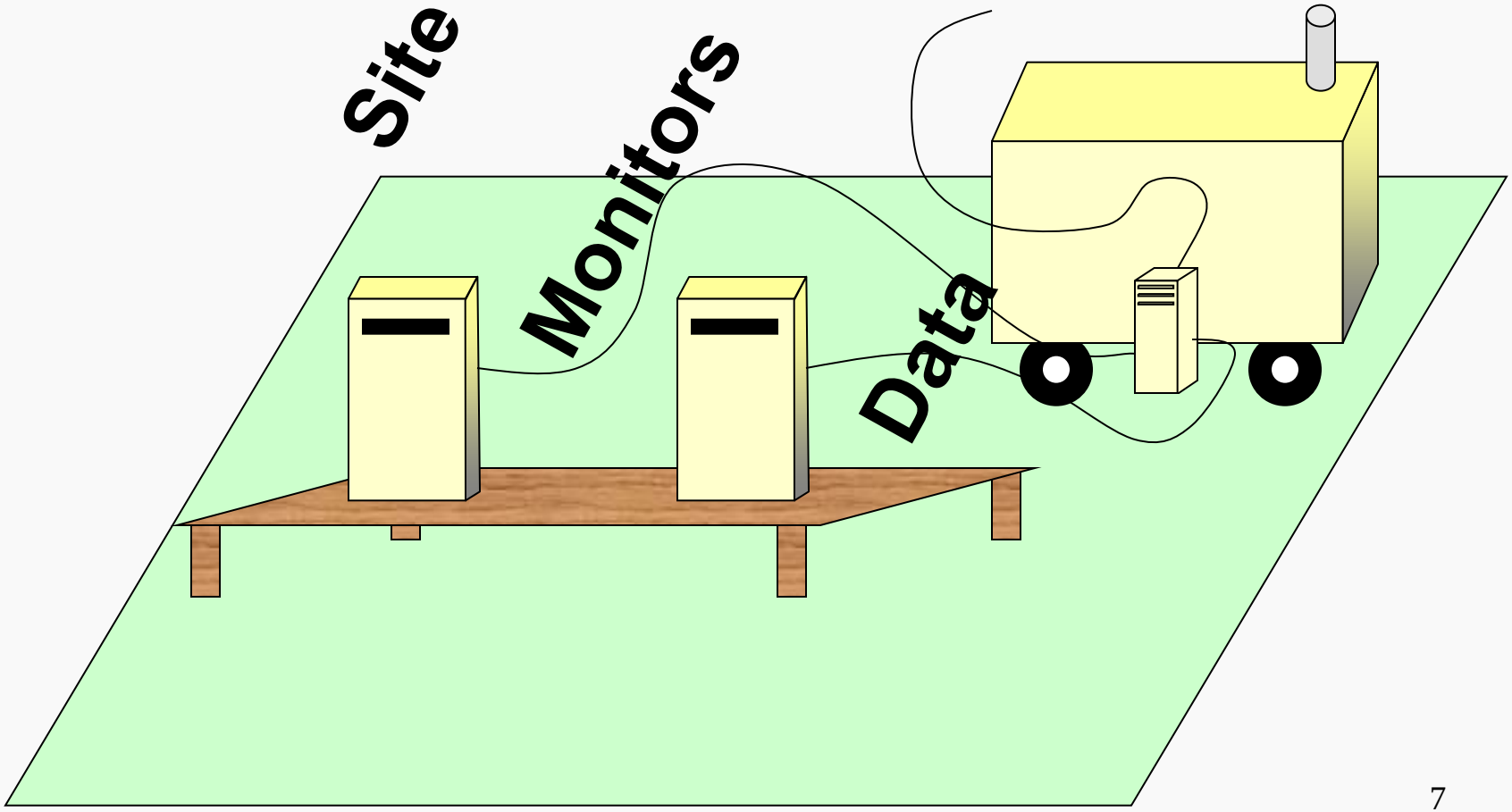
Goals – to know when to use the cup or the bucket

- AQS Data Mart
- AQS
- Discoverer
- Air Data
- For each of the above:
  - Background
  - Areas of use/intended audience
  - Registration information
  - Examples of output
  - Where to get help

What is AQS?

- A ***system*** composed of a database, a computer application, regulations, policies, other rules/procedures, required uses, schedules, etc.
- Lives at the National Computer Center; accessed via the Internet
- Stores ambient air quality data, both current and historical (1960's to present)
- Centralizes the location of data
- AQS must maintain constant readiness to accept data, and thus is limited in the number and size of queries that can run
- Intended users:
  - those who provide data from their federal, state, local, or tribal agency to the EPA to fulfill regulatory and voluntary obligations
  - those using the data to perform tracking, analysis or QA

Types of “Core” Data in AQS



What is the AQS Data Mart?

- A database containing all of the data from the AQS system since 1980
- Allows users to make queries of large quantities of data
- Any “application” can connect to it (within tech/security limits)
  - Direct Interface”, AirExplorer, AirCompare, KML files, etc.
- AQS Data Mart also includes data for AQS monitors that are reported to AirNow
- Intended users:
  - air quality data analysts in the regulatory, academic, and health research communities
  - those who need to download large volumes of detailed technical data
  - people who need the AQS data for the application they are building

What is Discoverer?

- An Oracle tool – an application that can only connect to the AQS database
- Uses an end-user-layer (EUL) to bridge the gap between database and user
- Allows AQS users to create custom queries
- Intended users:
  - AQS Users who need more flexible access to data
  - air quality data analysts who are knowledgeable about the AQS database structure

What is Air Data?

- Publicly available tool…no registration required
- Revamp of existing public web site relaunched in late 2011
- Good for monitor network information, AQI (Air Quality Information) information and monitor level summary information
- Also includes visualizations
- Access at http://www.epa.gov/airdata/
- Soon will be able to download raw data via web service to Data Mart

Intended audience

AQS Data Mart	AQS	Discoverer	Air Data
• air quality data analysts in the regulatory, academic, and health research communities • an AQS account is not needed	• those who provide data from their federal, state, local, or tribal agency to the EPA • standard reports are available for QA	• those providing data to AQS who want to create ad-hoc reports for QA or analysis • those familiar with the AQS database structure	• Designed for public access (no registration required) •Also useful for researchers and analysts who can download raw data

Update frequency

AQS Data Mart	AQS	Discoverer	Air Data
•5 Nights / Week •Mon - Friday •Updated by Automated Processes @ 2 am	• Continuously Updated by State / Local / Tribal Organizations •Summaries Re-Computed when Posted	• Works Against Same Database as AQS…	•Works against AQS Data Mart so same update schedule

Registration (where is Air Data?*)

AQS Data Mart	AQS	Discoverer
• Need an Exchange Network Node account (for Direct Interface application) • Registration info: www.epa.gov/ttn/airs/aqsdatamart/access.htm • Anyone can register	• Registration form at TTN AQS site: www.epa.gov/ttn/airs/aqsaqs • Must go through S/L/T/Regional approval process • Must be Fed or State/Local/Tribal employee or designated contractor	• Included with AQS Registration • Your AQS account is your Discoverer account • Setup of Discoverer software is also necessary

* Air Data does not require registration

Examples of output

AQS Data Mart	AQS	Discoverer	Air Data
• XML • export to Excel or IE using a provided stylesheet	• Acrobat (pdf) • Document (txt)	•Excel (xls) • document (txt) • Acrobat (pdf) • web (htm) • comma-separated (csv)	• On screen • Downloadable as csv • Visualizations (plot, tile)

AQS Data Mart

http://www.epa.gov/ttn/airs/aqsdatamart/access.htm

AQS Data Mart – steps

- **Registration**
- **Authenticate** before each session
- **Choose** the type of query you want to run
- **Build** your query by entering selection criteria
- **Submit** the query for execution
- **Download** the results

AQS Data Mart – requirements

Software

- System requirements:

Browser with Java Runtime Environment (JRE) version 1.5 or later

Registration

- Need CDX Node account
- To obtain, send an email with subject “Node account to access the AQS Data Mart”

to the EPA Node Helpdesk at epacdx@epa.gov

- Include the following information:

  Your name
  Email

- User ID and password information will be sent to your email address

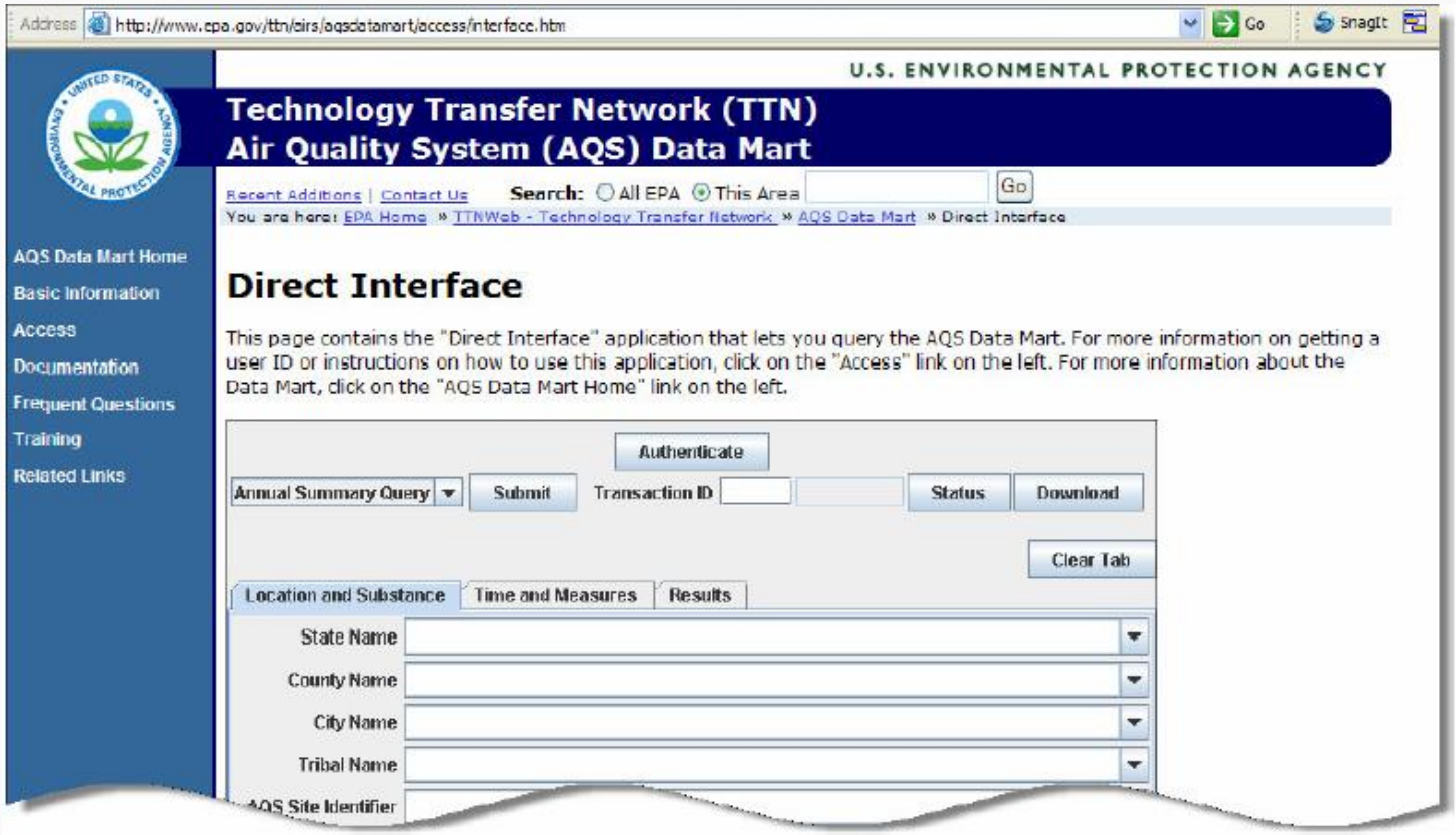
AQS Data Mart

- When you access the Data Mart, you will probably get this security message:

- You may safely click “Run” to allow the application to open. If you want to avoid getting this message each time you open the application, check the “Always…” box before clicking “Run”.

AQS Data Mart

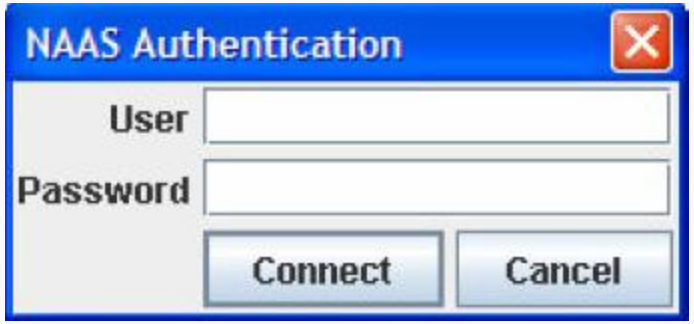
- Your browser window when you have successfully accessed the application:



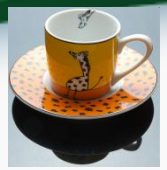
AQS Data Mart

- to “Authenticate”

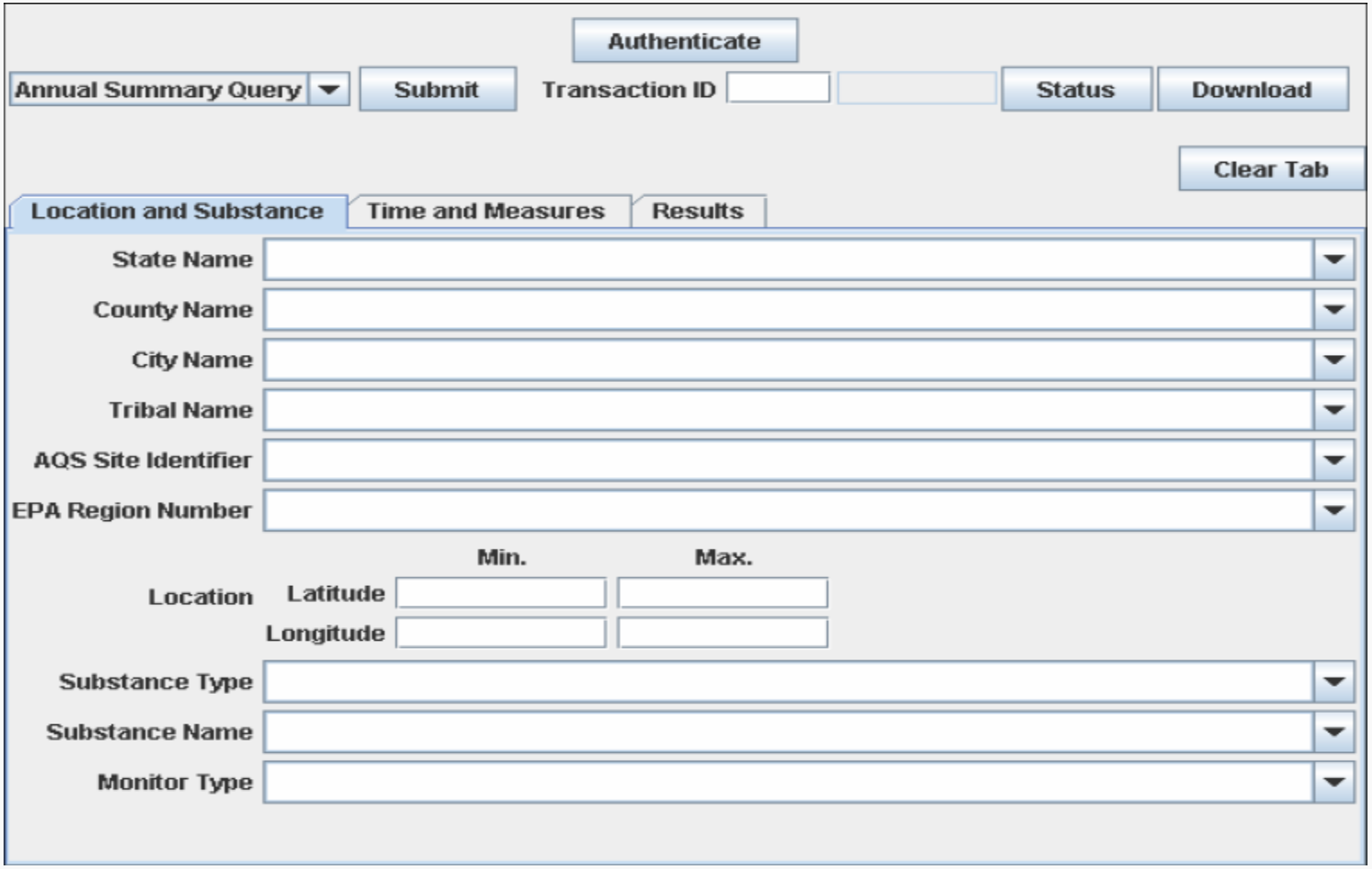
Authentication window will pop up:



- Enter your User ID and Password and click “Connect”.
- If you get an error message during the authentication step, either your account is invalid or you mistyped your User ID or Password.
- Your login is valid for 30 minutes, so if you get a “token error” you must authenticate again.

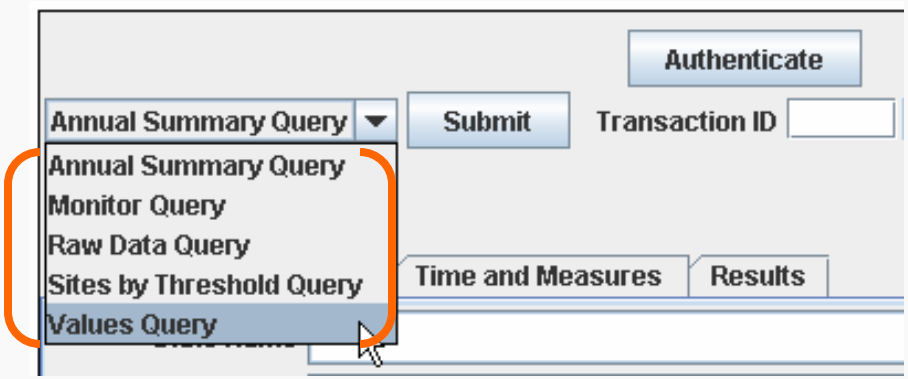


AQS Data Mart



AQS Data Mart

- **Choose** the type of query you want to run
  - At the top left of the screen is a pull down menu that lists the 5 types of queries available.
  - Each query type differs in the data that is returned and the format it is in. (Appendix A of the Data Mart User's Guide has descriptions.)



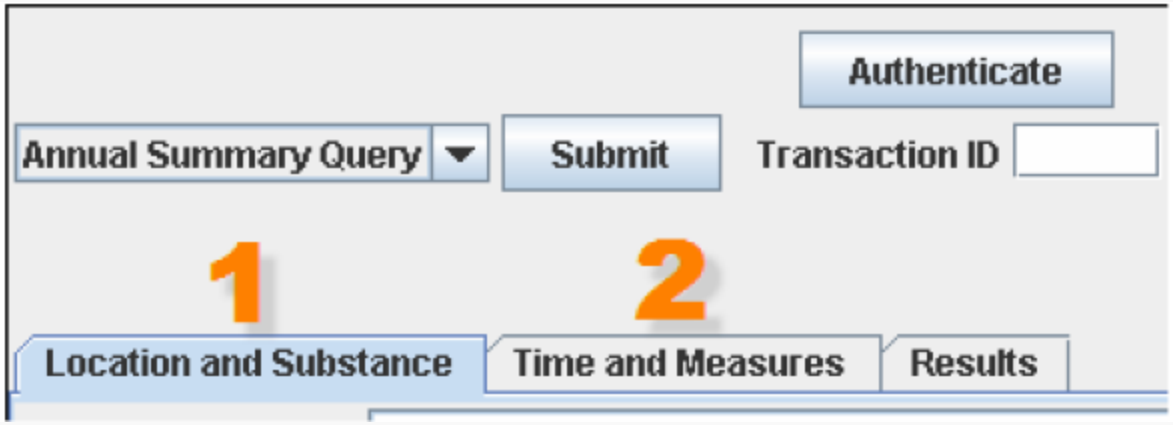
  - **You will almost always want to run the Values Query**. It allows you to select any of the measured data available in the Data Mart and returns it in the most easy to read format.

AQS Data Mart

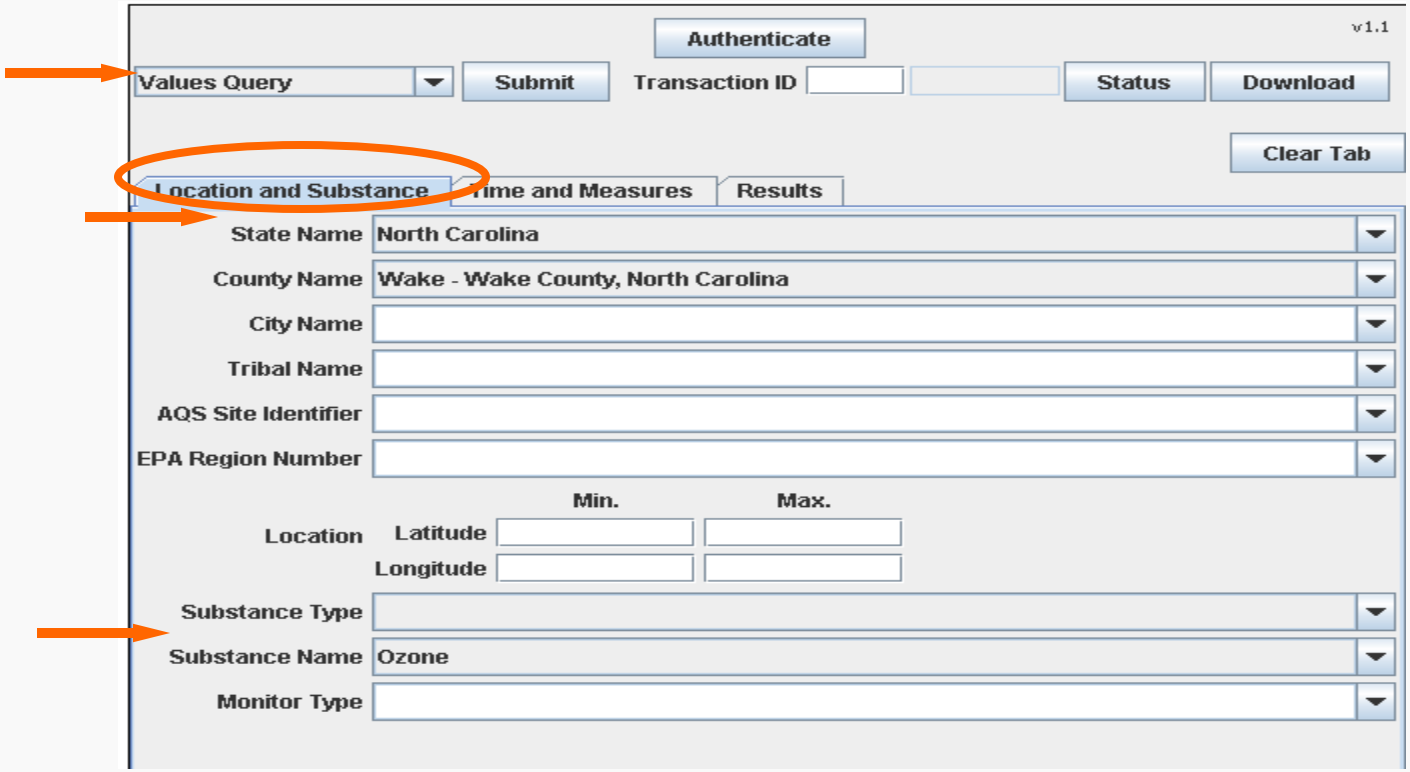
- **Build** your query by entering selection criteria
- There are 4 facets to air quality data query construction:
  - Geography
  - Substance / parameter
    - Individual or a class (e.g., criteria, toxic)
  - Time
  - Other AQS metadata
- Be judicious – there's a lot of data in the Data Mart

AQS Data Mart

- **Build** your query by entering selection criteria
  - There are two tabs for entering your selection criteria: “Location and Substance” and “Time and Measures”. The screen defaults to the first.



AQS Data Mart



NOTE – every time you request a pull down menu, there may be a delay as the database is actually being queried

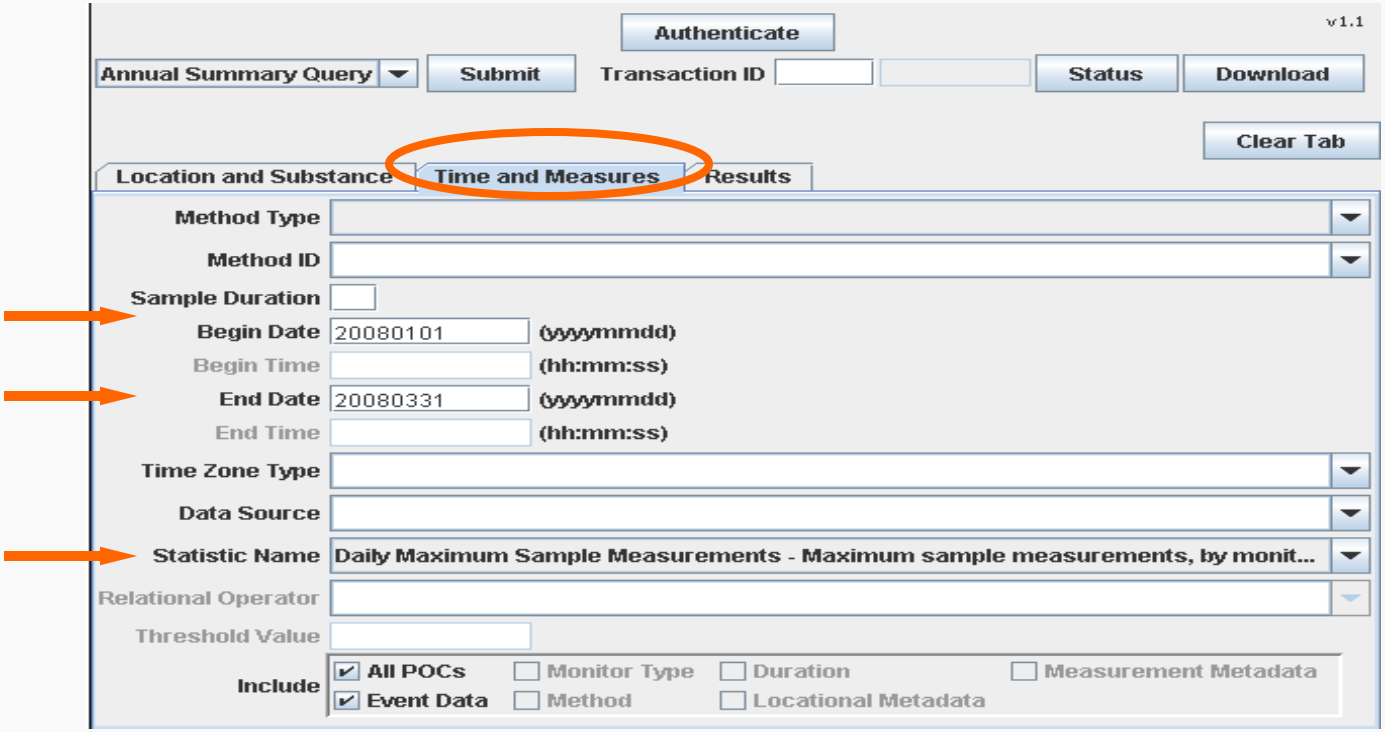
1 – Select the query you want to run: **Values Query**

2 – You must select at least one Location selection and at least one Substance selection.

For our example, we selected:

North Carolina
Wake County
Ozone

AQS Data Mart



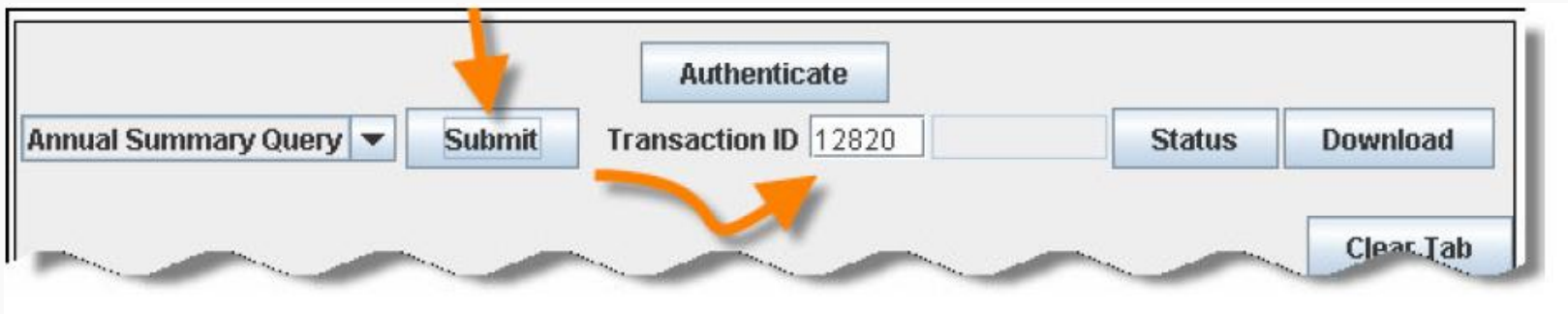
1 – You must select Dates and Statistic Name. For our example we selected:

20080101
20080331
Daily Maximum Sample Measurement

2 - Method Type, Method ID, Sample Duration, and Times are optional. Will default to “All” if not selected.

AQS Data Mart

- **Submit** your query



- Submit the query to be processed.
- You will receive a Transaction ID.

AQS Data Mart

- **Download** your query results
  - Easier way is to wait for an email from “aqsdatamart@EPA” with the subject “AQS Data Mart report AQDM_RR_XXXXX.xml is ready” and click on the link in the email
  - Other way is to use the interface to request the status of the query from the database, and when the status is “Processed”, click “Download”. Save the file with an .xml extension.

Files over 50Mb cannot be downloaded via the Interface and must be downloaded via the email.

AQS Data Mart Direct Interface - output

- Data output is in XML format

Means that each value is surrounded by tags that indicate what the value represents.
Good for machine-reading, but poor for human reading.

- XML can be easily reformatted into human readable format using a “stylesheet”

(a stylesheet is provided and a link is in the XML file or you can build your own stylesheet)

- XML files can be opened in spreadsheet programs (eg, Microsoft Excel)

When opening XML file, Excel will prompt “Open with the following stylesheet applied”

- All codes converted human-readable text.

AQS Data Mart Direct Interface - output

- Data output rendered in a browser:

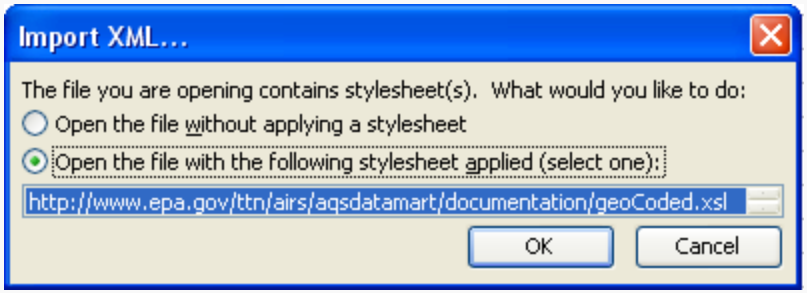
GeoCoded Report

Latitude Measure	Longitude Measure	Parameter	Data Source Reference ID	Date	Time	Time Zone	Year	Day In Year	Statistic Name	Measure Value	Measure Unit Name	Measurement Uncertainty	Duration Description	Observation Count	Method Description	Monitor Type
35.856111	-78.574167	Ozone	371830014442011	2008-01-01	00:00	EASTERN			Daily Maximum Sample Measurements	.041	Parts per million			23		
35.856111	-78.574167	Ozone	371830014442011	2008-01-02	00:00	EASTERN			Daily Maximum Sample Measurements	.032	Parts per million			23		
35.856111	-78.574167	Ozone	371830014442011	2008-01-03	00:00	EASTERN			Daily Maximum Sample Measurements	.031	Parts per million			23		
35.856111	-78.574167	Ozone	371830014442011	2008-01-04	00:00	EASTERN			Daily Maximum Sample Measurements	.027	Parts per million			23		
35.856111	-78.574167	Ozone	371830014442011	2008-01-05	00:00	EASTERN			Daily Maximum Sample Measurements	.032	Parts per million			23		
35.856111	-78.574167	Ozone	371830014442011	2008-01-06	00:00	EASTERN			Daily Maximum Sample Measurements	.025	Parts per million			10		
35.856111	-78.574167	Ozone	371830014442011	2008-01-07	00:00	EASTERN			Daily Maximum Sample Measurements	.037	Parts per million			15		
35.856111	-78.574167	Ozone	371830014442011	2008-01-08	00:00	EASTERN			Daily Maximum Sample	.032	Parts per million			23		

AQS Data Mart Direct Interface - output

- To view the file in MS Excel:

1. Open Microsoft Excel
2. Open the .xml file
3. Choose the option that says “Open the file with the following stylesheet applied:”



AQS Data Mart - help

Need help accessing or using the AQS Data Mart Direct interface or interpreting the data you've received?

The following are available:

- Access Help: EPA Help Desk at 1-866-411-4372
Tell them you need help with the AQS Data Mart.
Or via email (epacallcenter@epa.gov)

- Data Interpretation / System Use: Data Mart system managers via email (aqsdatamart@epa.gov)

- User documents:
AQS Data Mart Direct Interface User Instructions at
http://www.epa.gov/ttn/airs/aqsdatamart/access.htm

AQS

AQS Information: http://www.epa.gov/ttn/airs/airsaqs/

AQS Access: https://aqs.epa.gov/aqs/

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 ("Monitor" is not an instrument but a record of a parameter at a site)
- Detail Data: Measurements, Summaries, and QA information
- Reference Data: Information about real-world entities (e.g. States, Pollutants (parameters), etc.)

Summary Data

- There are nearly 2.2 Billion data points in AQS
- To Facilitate the Retrieval of Data, Data is Summarized at Many Different Levels for Each Monitor:
  - NAAQS Averages (8-Hour Running Averages, 24-Hour Block Averages, 3-Hour Block Averages)
  - Daily
  - Site Daily
  - Quarterly
  - Annual
  - Design values

Summary Data

the fly in the ointment for summary data is . . .

Exceptional Events

Exceptional Events

The Federal Regulations (40 CFR Part 50.14) allow Ambient Air Quality Measurements that are Exceedances or Violations of the National Ambient Air Quality Standards (NAAQS) that are **caused** by an "Exceptional Event" to be excluded from Attainment demonstrations.

(Exceptional Event Rule = EER)

EER - AQS Process

- Reporting Agency “flags” data with exceptional Event Flag, and submits justification to EPA
- Regional office either concurs with exclusion or “non-concurs”
- AQS computes summaries (daily, quarterly, and annual) that either include or exclude the flagged data, with a unique “Exceptional Data type” and “Pollutant Standard”

Exceptional Data Types

0 – No data has been flagged

1 – The summary excludes all flagged data

2 – The summary does not exclude any data

5 – The summary excludes regionally concurred flagged data

- AQS (and Data Mart and Discoverer) will have one of these two combinations of EDT for every summary record:
  - 0 Only
  - 1, 2, and 5
    - So if a monitor has values flagged, there will be **<u>three</u>** summary records for it for the year! (and the day)
- Each of these Combinations will be Applied Against All Available Pollutant Standards for the Compound

AQS Reports

- There are 30 Standard Reports in four categories
  - Metadata – site and monitor descriptions
  - Raw data – listing of measured values as well as System-Calculated NAAQS Averages
  - Summary –daily, quarterly, annual summaries (and 3-year site-level design values)
  - QA – Data Quality Indicator Report

Metadata Reports

- Site Description (AMP380)
- Monitor Description (AMP390)

Site Description example

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
SITE DESCRIPTION REPORT

Oct. 22, 2009

Site ID: 37-183-0014
Site Name: E Millbrook Middle School
Local ID:
Street Address: 3801 SPRING FOREST RD.
City: Raleigh
State: North Carolina
Zip Code: 27616
County: Wake
Location Description: Monitoring Point
Location Setting: Suburban
Coll. Method: GPS Carrier Phase Static Relative Position
Land Use: Residential
Date Established: 19890417
Date Terminated:
Last Updated: 20080611
Regional Eval. Date:
HQ Eval. Date:
AQCR : Eastern Piedmont
CBSA: Raleigh-Cary, NC
CSA: Raleigh-Durham-Cary, NC
Direct Met Site:
Met. Site ID:
Type Met Site: On-Site Met Equip
Dist to Met. Site(m):
Local Region:
Urban Area: Raleigh, NC
EPA Region: Atlanta
City Population: 276093
Dir. to CBD: NE
Dist. to City(km): 13
Census Block: 1033
Block Group: 1
Census Tract: 05400
Congressional District: 13
Class 1 Area:
Site Latitude: +35.856111
Site Longitude: - 78.574167
Time Zone: Eastern
UTM Zone:
UTM Northing:
UTM Easting:
Accuracy: 3.04
Datum: WGS84
Scale: 24000
Point/Line/Area: Point
Vertical Measure(m): 100.0
Vert Accuracy: 0
Vert Datum Unknown
Vert Method: Unknown

SITE COMMENTS

CAROLINA POWER ELECTRIC METER NO. ACDB68089G35

ACTIVE MONITOR TYPES

Monitor Type	# of Monitors
SLAMS	25
NON-REGULATORY	108
SUPLMNTL SPECIATI	68
UNOFFICIAL PAMS	59
OTHER	26
SPECIAL PURPOSE	9
PROPOSED NCORE	25
QA COLLOCATED	1

AGENCY ROLES

Role	Agency Desc	Begin Date	End Date
SUPPORTING	North Carolina Dept Of Environment And Natural Resources	19980916	

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Site Information

- Tells You
  - Where You Are
  - How Your Site Is Set Up
    - Geography: nearby Streets, land use, etc.
    - Open Path Set Up
    - Which $PM_{2.5}$ Monitor is the Primary Monitor
- Identified by
  - State Code - County Code - Site Number OR
  - Tribal Code - Site Number

Monitor Description example

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MONITOR DESCRIPTION REPORT

Oct. 22, 2009

North Carolina

Monitor ID: 37-183-0014-88101-1
Parameter Measured: 88101
Date of Latest Collection: 20090630
Last Updated: 20090814
Owner: North Carolina PM25
City: Raleigh
Street Address: 3801 SPRING FOREST RD.
Site Name: E Millbrook Middle School
CBSA: Raleigh-Cary, NC
County: Wake
UAR: Raleigh, NC
Project Type: POPULATION-ORIENTED SURVEILLANCE
Dominant Source: AREA
Meas. Scale: NEIGHBORHOOD
Location Setting: Suburban
Probe Location: GROUND LEVEL SUPPORT
Horizontal Distance (m):
Probe Height (m): 2.4
Surrogate?:
Vertical Distance (m):
Sample Residence Time:
Unrestricted Air FLow?: Y

MONITOR COMMENT

ID2=509
MEAS. CORRECTED 2007-06-05 (WLC, ET, JG)

DATES OF OPERATION

Begin Date	End Date
19990101	20050616
20050826	20060610
20060802	20060802
20060906	

AGENCY ROLES

Agency Role	Agency Name	Begin Date	End Date
ANALYZING	North Carolina Dept Of Environment And Natural Resources	19990101	
COLLECTING	North Carolina Dept Of Environment And Natural Resources	19990101	
REPORTING	North Carolina Dept Of Environment And Natural Resources	19990101	
PQAO	North Carolina Dept Of Environment And Natural Resources	20070101	

MONITOR TYPE INFORMATION

Monitor Type	Begin Date	End Date	Action Type	Action Reason
SLAMS	19990101			

REGULATION INFORMATION

Regulation	Met?	Date Met
Quality Assurance Criteria Met	Y	19990101
Reference Method Used	Y	19990101
Siting Criteria Met	Y	19990101

TANGENT ROAD INFORMATION

Street Name	Type Road	Traff Count	Traff Yr	Dist. to Road (m
SPRING FOREST ROAD	MAJ ST OR HY	25000	2003	47

COLLOCATION INFORMATION

Begin Date	End Date	Dist. (m)	Primary?
19990101			Y

MONITORING OBJECTIVES

Monitor Objective Type	UAR Name	CBSA Name	CSA Name
POPULATION EXPOSURE	RALEIGH, NC		

Monitor Information

- Tells You:
  - How a Given Parameter is Measured
    - When Sampling Began and Ended
    - The Network(s) to Which the Monitor Belongs
    - What Agencies Run the Monitor & What They Do
    - What Are the Monitoring Objectives
    - What Obstructions are Nearby
    - What Nearby Roads May Affect the Monitor
    - If the Monitor is Collocated, Was it 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 as a Sequence Number)

Raw Data Reports

- Raw Data Listing (AMP350)

Raw Data Report – daily values

RAW DATA REPORT

Oct. 22, 2009

(88101) PM2.5 - Local Conditions

SITE ID: 37-183-0014 POC: 1
COUNTY: (183) Wake
CITY: (55000) Raleigh
SITE ADDRESS: 3801 SPRING FOREST RD.
SITE COMMENTS: CAROLINA POWER ELECTRIC METER NO. ACDB68089G35
MONITOR COMMENTS: ID2-509

STATE: (37) North Carolina
AQCR: (166) EASTERN PIEDMONT
URBANIZED AREA: (6639) RALEIGH, NC
LAND USE: RESIDENTIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER:
LATITUDE: 35.856111
LONGITUDE: -78.574167
UTM ZONE:
UTM NORTHING:
UTM EASTING:
ELEVATION-MSL: 100
PROBE HEIGHT: 2.4

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: 2007

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

Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	2.7 V	AN	14.5	12.6	16.3	BA	13.7	24.4	21.1	5.5	7.0	9.1
2	AN	AN	5.1	12.7	20.0	3.3 X	15.0	19.5	AN	5.0	4.0	7.8
3	9.9	8.5	4.0 V	15.3	AV	5.8 X	15.2	14.3	AN	4.8	6.0	BA
4	AG	7.3	7.1	11.7	7.5	7.8	16.9	25.5	AN	6.1	8.8	5.2
5	7.7	4.9 V	4.9	8.1	9.9	13.8	9.7	P 37.1 RT	24.4	4.3	4.1	9.4
6	6.1	9.0 V	6.0	9.8	AN	12.2	14.8	P 35.4 RT	18.7	5.7	6.8	7.0
7	9.8	10.1	10.6	6.5	AN	21.0	18.6	34.5	14.0	6.2	5.9	15.3
8	3.7 V	6.2	11.6	7.4	AN	14.9 X	26.7	34.2	AV	18.4	9.8	23.8
9	4.3	10.3	10.9	11.4	AN	15.7 X	17.6	30.2	6.0	19.0	12.1	31.7
10	5.7 V	13.5	10.4	15.5	AN	19.6 X	15.1	22.8	23.5	14.7	17.3	18.3
11	10.9	7.2	9.7	15.1	AN	13.7 X	10.6	17.0	17.0	7.8	22.5	24.2
12	14.0	22.2	13.3	6.4	15.8	20.5 X	13.7	10.7	17.2	6.4	24.8	13.0
13	AM	18.5	19.6	13.4	14.5	BA	17.0	21.3	19.2	10.9	23.3	11.7
14	14.7	5.3	33.2	13.8	9.6	AN	19.3	19.0	8.7	14.0	21.9	9.0
15	5.5	3.3 V	26.0	4.6	10.4	7.7	26.8	29.9	10.9	16.4	AN	11.1
16	5.0 V	10.0	3.9 V	6.1	18.6	19.0	18.3	25.3	6.3	21.0	AN	3.6 V
17	3.7 V	18.0	5.7	5.0	14.2	23.3 V	21.9	25.0	6.9	17.7	AN	AN
18	4.4 V	8.8	7.7	9.6	10.6 X	32.6 e	14.8	17.7	AV	8.3	AN	AN
19	8.0	10.4	10.1	6.9	AN	P 43.2 RM	16.8	26.0	AV	5.2 V	AN	AN
20	6.8	10.4	13.8	9.8	AN	16.8	13.4	17.8	AV	7.3	29.1	AN
21	7.0	AG	8.0	9.6	AN	18.7	12.2	15.5	5.0	8.5	20.8	AN
22	7.9	5.9	11.6	15.0	14.2 X	20.3	11.3	16.7	7.7	10.3	6.9	8.7
23	11.5	5.7	16.3	10.8	6.7	14.7	9.7	21.2	18.4	9.3	2.4 V	5.5
24	14.5	5.0	19.5	14.4	8.3	20.3	18.8	19.7	20.4	3.5 V	8.0	8.8
25	7.8	9.9	16.0	17.5	10.6	19.7	15.8	17.2	14.8	3.4 V	10.5	10.5
26	8.5	11.2	10.6	18.5	14.6	23.1	13.2	11.5	12.5	1.7 V	10.7	9.7
27	9.6	10.5	27.3	11.5	9.2	19.4	14.1	18.0	10.7	7.5	7.6	11.7
28	6.7	10.9	23.9	8.4	10.5	15.5	17.5	18.6	10.0	7.8	8.0	AN
29	AN		6.1	9.6	24.0 X	14.3	18.5	17.2	6.0	6.8	14.4	AN
30	AN		9.2	9.4	21.8 X	16.6	12.2	18.5	5.5	8.9	2.8 V	AN
31	AN		18.4		14.5 X		19.3	24.8		8.0		AN
NO.:	25	25	31	30	21	27	31	31	23	31	25	21
MAX:	14.7	22.2	33.2	18.5	24.0	43.2	26.8	37.1	24.4	21.0	29.1	31.7
MEAN:	7.86	9.72	12.74	10.88	13.42	17.54	16.08	22.15	13.26	9.05	11.82	12.15

ANNUAL OBSERVATIONS: 321 ANNUAL MEAN: 13.20 ANNUAL MAX: 43.2

3 Values marked with 'P' exceed the PRIMARY STANDARD of: 35.4

3 Values marked with 'S' exceed the SECONDARY STANDARD of: 35.4

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 Report – hourly values

RAW DATA REPORT

Oct. 29, 2009

(44201) Ozone

SITE ID: 37-183-0014 POC: 1
COUNTY: (183) Wake
CITY: (55000) Raleigh
SITE ADDRESS: 3801 SPRING FOREST RD.
SITE COMMENTS: CAROLINA POWER ELECTRIC 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: Multiple Monitor Types
COLLECTION AND ANALYSIS METHOD: (047) INSTRUMENTAL ULTRA VIOLET
PQAO ORG: (0776) North Carolina Dept Of Environment And Natural Resources

REPORT FOR: MARCH 2008

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	.040	.040	.039	BD	.040	.038	.034	.032	.036	.039	.042	.045	.047	.048	.049	.049	.048	.046	.041	.037	.034	.035	.037	.037	23	.049
2	.035	.035	.032	BD	.024	.030	.029	.029	.031	.033	.034	.038	.042	.043	.045	.047	.046	.043	.030	.027	.020	.020	.030	.033	23	.047
3	.027	.027	.021	BD	.015	.005	.009	.012	.021	BF	BF	BF	BF	.047	.048	.047	.046	.042	.041	.040	.040	.042	.042	.042	19	.048
4	.043	.043	.042	BD	.039	.037	.033	.031	.031	.034	.038	.038	.039	.038	.034	.031	.031	.030	.030	.028	.029	.030	.030	.044	23	.044
5	.049	.044	.035	BD	.033	.029	.019	.014	.025	.029	.031	.033	.035	.036	.039	.039	.040	.038	.028	.023	.020	.017	.025	.023	23	.049
6	.023	.020	.021	BD	.017	.014	.008	.009	.019	.024	.026	.029	.036	.046	.048	.052	.053	.049	.036	.022	.022	.033	.035	.032	23	.053
7	.032	.033	.032	BD	.026	.028	.028	.024	.021	.020	.020	.021	.018	.016	.016	.016	.018	.008	.006	.011	.007	.005	.002	.006	23	.033
8	.002	.020	.025	BD	.028	.027	.027	.026	.025	.027	.035	.043	.041	.041	.040	.032	.029	.027	.026	.034	.037	.036	.036	.034	23	.043
9	.036	.038	.039	BD	.035	.033	.034	.034	.037	.039	.041	.043	.044	.046	.047	.047	.047	.045	.040	.007	.002	.002	.002	.002	23	.047
10	.002	.002	.002	BD	.002	.002	.002	.006	.019	.030	.035	.042	.044	.053	.052	.053	.053	.049	.044	.038	.040	.035	.042	.045	23	.053
11	.044	.041	.038	BD	.021	.007	.002	.011	.025	.038	.045	.047	.049	.051	.052	.053	.052	.049	.049	.045	.043	.044	.043	.043	23	.053
12	.045	.045	.044	BD	.031	.028	.029	.030	.036	.041	.045	.048	.049	.051	.055	.057	.056	.054	.031	.002	.002	.002	.002	.002	23	.057
13	.002	.002	.002	BD	.019	.013	.011	.010	.027	.032	BF	BF	.050	.061	.064	.065	.063	.064	.061	.054	.054	.058	.060	.060	21	.065
14	.058	.057	.055	BD	.050	.037	.025	.023	.029	.033	.042	.050	.059	.062	.064	.063	.060	.055	.051	.046	.050	.049	.049	.049	23	.064
15	.048	.044	.041	BD	.036	.032	.022	.018	.038	.044	.046	.049	.047	.047	.053	.052	.048	.039	.045	.047	.047	.043	.044	.041	23	.053
16	.038	.035	.036	BD	.038	.042	.043	.043	.043	.044	.044	.044	.046	.050	.050	.050	.050	.048	.042	.040	.039	.043	.042	.041	23	.050
17	.037	.034	.031	BD	.027	.018	.012	.021	.031	.033	.037	.040	.044	.046	.047	.048	.047	.045	.035	.025	.012	.015	.009	.019	23	.048
18	.019	.026	.027	BD	.023	.014	.010	.009	.021	.028	.032	.032	.035	.034	.033	.033	.034	.028	.018	.031	.036	.037	.037	.037	23	.037
19	.036	.037	.037	BD	.033	.028	.020	.024	.031	.034	.042	.042	.042	.041	.043	.041	.039	.041	.040	.031	.033	.035	.039	.039	23	.043
20	.039	.039	.037	BD	.018	.026	.034	.035	.037	.039	.040	.042	.044	.045	.047	.048	.049	.048	.044	.040	.037	.037	.039	.040	23	.049
21	.037	.032	.027	BD	.016	.002	.002	.017	.031	.038	.041	.043	.045	.044	.044	.047	.048	.047	.037	.038	.040	.040	.042	.044	23	.048
22	.046	.045	.044	BD	.045	.042	.040	.039	.043	.044	.046	.054	.059	.061	.061	.061	.061	.061	.051	.042	.051	.044	.041	.038	23	.061
23	.036	.035	.033	BD	.033	.033	.033	.037	.041	.042	.042	.044	.046	.049	.050	.051	.052	.051	.039	.030	.029	.024	.019	.033	23	.052
24	.036	.038	.038	BD	.040	.037	.034	.032	.033	.035	.038	.042	.045	.047	.046	.046	.044	.044	.044	.040	.040	.041	.042	.041	23	.047
25	.039	.039	.035	BD	.030	.022	.017	.024	.032	.041	.043	.045	.047	.046	.046	.045	.046	.048	.043	.043	.042	.043	.044	.044	23	.048
26	.042	.044	.045	BD	.040	.033	.026	.029	BF	BF	.046	.051	.057	.061	.060	.062	.062	.058	.052	.045	.048	.050	.052	.052	21	.062
27	.051	.051	.045	BD	.035	.023	.012	.023	.038	.044	.055	.061	.062	.062	.063	.065	.064	.064	.057	.057	.055	.054	.052	.050	23	.065
28	.051	.048	.043	BD	.038	.031	.022	.026	.034	.041	.044	.046	.048	.049	.049	.051	.051	.052	.043	.033	.037	.009	.007	.008	23	.052
29	.022	.027	.026	BD	.030	.034	.038	.037	.035	.032	.030	.031	.033	.033	.034	.033	.033	.033	.032	.030	.029	.032	.032	.030	23	.038
30	.038	.038	.037	BD	.035	.034	.034	.038	.037	.037	.035	.034	.033	.034	.035	.034	.033	.032	.033	.033	.033	.035	.035	.034	23	.038
31	.034	.033	.032	BD	.029	.028	.025	.021	.019	.019	.015	.018	.017	.008	.007	.009	.012	.011	.008	.002	.002	.002	.002	.019	23	.034
NO.:	31	31	31		31	31	31	31	30	29	29	29	30	31	31	31	31	31	31	31	31	31	31	31		
MAX:	.058	.057	.055		.050	.042	.043	.043	.043	.044	.055	.061	.062	.062	.064	.065	.064	.064	.061	.057	.055	.058	.060	.060		
AVG:	.0351	.0352	.0336		.0299	.0260	.0230	.0246	.0309	.0350	.0383	.0412	.0434	.0450	.0458	.0460	.0456	.0435	.0380	.0329	.0326	.0320	.0327	.0343		

MONTHLY OBSERVATIONS: 705 MONTHLY MEAN: .0358 MONTHLY MAX: .065

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

- Tells You
  - 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)
- 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 Reports

- Site Daily Summary (AMP355)
- Daily Summary (AMP435)
- Quick Look (AMP450)

Site Daily Summary (AMP355) Example

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Oct. 30, 2009

(88101) PM2.5 - Local Conditions

CAS NUMBER:
LATITUDE: 35.856111
LONGITUDE: -78.574167

SITE ID: 37-183-0014
COUNTY: (183) Wake
CITY: (55000) Raleigh
SITE ADDRESS: 3801 SPRING FOREST RD.
SITE COMMENTS: CAROLINA POWER ELECTRIC METER NO. ACDB68089G35

STATE: (37) North Carolina
AQCR: (166) EASTERN PIEDMONT
URBANIZED AREA: (6639) RALEIGH, NC
LAND USE: RESIDENTIAL
LOCATION SETTING: SUBURBAN

SUPPORT AGENCY: (0776) North Carolina Dept Of Environment And Natural Resources
MONITOR TYPE: SLAMS
PQAO: (0776) North Carolina Dept Of Environment And Natural Resources

REPORT FOR: 2008

UNITS: 105

Day	MONTH JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	7*	6	8	8	15	18	8	15	12	9	14	7
2		9	7	9	12	10	13	18	15	7	18	11
3	10	10	9	6	11	15	16	13	19	12	15	15
4	21	16	7	8	10	21	14	20	17	17	5	13
5	21	18	5	6	17	20	13	21	9	21	7	8
6	12*	7	9	6	19	19	14	19	6	21	6	12
7		5	8	3	22	16	9	15	17	14	11	18
8	10*	8	5	8	12	22	12	11	15	9	12	6
9		13	7	7	10	24	11	14	12	8	10	5
10	8	3	10	6	8	27	13		8	11	10	6
11	3	6	11	6	5	22	14	9	8	9	12	3
12	9	22	12	6	3	99	26	12	7	6	12	2
13	13	15	14	5	4		24	15	8	5	8	9
14	9	13	24	6	14	18	14	10	8	8	7	11
15	7	14	12	5	16	14	18	16	7	12	5	7
16	8	15	8	7	9	18	25	22	8	16*	3	4
17	7	8	7	13	9	13	20*	31	10	10	6	9
18	17	4	6	21	9	12	14	22	12	6	4	8
19	17	5	7	16	8	14	7	18	9	5	5	8
20	5	6	4	8	15	19	13	20	5	7	11	8
21	7	9	6	6	12	15	22	11	9	12	4	5
22	9	13	13	5	10	17	20	4	13	6	6	6
23	11	19	7	8	11	12	15	4	12	6	17	7
24	10	18	9	9	11	12	10	4	5	4	14	7
25	10	13	12	12	13	20	12	8	4	3	9	4
26	19	15	19	14	14	21	19	8	2	9	9	7
27	12	5	27	11	14	22	25	5	7	7	16	12
28	14	7	20	8	8	15	21	11	10	3	15	5
29	12	10	13	9	6	11	19	15	9	5	11	4
30	7		6	14	12	10	20	17	14	6	5	4
31	6		4		21		13	16		11		4
NO.:	28	29	31	30	31	29	31	30	30	31	30	31
MAX:	21	22	27	21	22	99	26	31	19	21	18	18
MEAN:	10.8	10.8	10.2	8.5	11.6	19.9	15.9	14.1	9.9	9.9	9.6	7.6

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "*".

Note: The quarterly and annual statistics displayed in the footer represent actual statistics for those periods, irrespective of the date range specified in the report request. However, daily, monthly, and quarterly statistics displayed in the matrix are solely derived from the values on the report.

	NO	MAX	MEAN	CRED DAYS	% OBS
QTR 1:	88	27	10.6	88	97
QTR 2:	90	99	13.2	90	99
QTR 3:	91	31	13.4	91	99
QTR 4:	92	21	8.8	92	100

ANNUAL CREDIT DAYS: 361
ANNUAL % OBS:
ANNUAL WEIGHTED MEAN: 11.4
ANNUAL 98%: 24

Daily Summary (AMP435) example

AIR QUALITY SYSTEM

DAILY SUMMARY REPORT

Oct. 22, 2009

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
37-183-0014-42401-1	20071217	1 HOUR	0	.0031	20	83.0	19	.006	105
37-183-0014-42401-1	20071218	1 HOUR	0	.0023	23	96.0	8	.003	220
37-183-0014-42401-1	20071219	1 HOUR	0	.0035	23	96.0	12	.008	59
37-183-0014-42401-1	20071220	1 HOUR	0	.0029	21	88.0	8	.005	135
37-183-0014-42401-1	20071221	1 HOUR	0	.0030	23	96.0	8	.005	136
37-183-0014-42401-1	20071222	1 HOUR	0	.0016	23	96.0	3	.004	176
37-183-0014-42401-1	20071223	1 HOUR	0	.0010	23	96.0	0	.001	364
37-183-0014-42401-1	20071224	1 HOUR	0	.0019	23	96.0	15	.005	137
37-183-0014-42401-1	20071225	1 HOUR	0	.0025	23	96.0	19	.004	177
37-183-0014-42401-1	20071226	1 HOUR	0	.0021	23	96.0	3	.004	178
37-183-0014-42401-1	20071227	1 HOUR	0	.0019	23	96.0	9	.003	221
37-183-0014-42401-1	20071228	1 HOUR	0	.0025	23	96.0	15	.008	60
37-183-0014-42401-1	20071229	1 HOUR	0	.0011	23	96.0	20	.002	278
37-183-0014-42401-1	20071230	1 HOUR	0	.0010	23	96.0	0	.001	365
37-183-0014-42401-1	20071231	1 HOUR	0	.0015	23	96.0	9	.002	279
37-183-0014-42401-1	20070101	24-HR BLK AVG	0	.0010	1	100.0	23	.001	152
37-183-0014-42401-1	20070102	24-HR BLK AVG	0	.0010	1	100.0	23	.001	153
37-183-0014-42401-1	20070103	24-HR BLK AVG	0	.0020	1	100.0	23	.002	58
37-183-0014-42401-1	20070104	24-HR BLK AVG	0	.0010	1	100.0	23	.001	154
37-183-0014-42401-1	20070105	24-HR BLK AVG	0	.0010	1	100.0	23	.001	155
37-183-0014-42401-1	20070106	24-HR BLK AVG	0	.0010	1	100.0	23	.001	156
37-183-0014-42401-1	20070107	24-HR BLK AVG	0	.0010	1	100.0	23	.001	157
37-183-0014-42401-1	20070108	24-HR BLK AVG	0	.0010	1	100.0	23	.001	158
37-183-0014-42401-1	20070109	24-HR BLK AVG	0	.0010	1	100.0	23	.001	159
37-183-0014-42401-1	20070110	24-HR BLK AVG	0	.0010	1	100.0	23	.001	160
37-183-0014-42401-1	20070111	24-HR BLK AVG	0	.0020	1	100.0	23	.002	59
37-183-0014-42401-1	20070112	24-HR BLK AVG	0	.0020	1	100.0	23	.002	60
37-183-0014-42401-1	20070113	24-HR BLK AVG	0	.0020	1	100.0	23	.002	61
37-183-0014-42401-1	20070114	24-HR BLK AVG	0	.0010	1	100.0	23	.001	161
37-183-0014-42401-1	20070115	24-HR BLK AVG	0	.0010	1	100.0	23	.001	162

Quick Look (AMP450) example

Carbon monoxide (42101) — North Carolina — Parts per million (007)

SITE ID	POC	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	# OBS	1ST MAX 1-HR	2ND MAX 1-HR	OBS >35	1ST MAX 8-HR	2ND MAX 8-HR	OBS >9	CERT	EDT
37-183-0014	1	0776	Raleigh	Wake	3801 SPRING FOREST RD.	2007	054	8208	2.0	2.0	0	1.9	1.8	0	Y	0
37-183-0018	1	0776	Raleigh	Wake	US HIGHWAY 70 WEST AND NC HIGHWAY 50 NORTH	2007	054	4147	3.2	2.8	0	2.2	2.1	0	N	0

Ozone (44201) — North Carolina — Parts per million (007)

8-HOUR

SITE ID	POC	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	%OBS	VALID DAYS MEAS	NUM DAYS REQ	1ST MAX 8-HR	2ND MAX 8-HR	3RD MAX 8-HR	4TH MAX 8-HR	DAY MAX > 0.075	CERT	EDT
37-183-0014	1	0776	Raleigh	Wake	3801 SPRING FOREST RD.	2007	047	95	204	214	.092	.092	.084	.084	17	Y	0
37-183-0016	1	0776	Fuquay-Varina	Wake	201 NORTH BROAD STREET	2007	047	100	214	214	.084	.082	.082	.080	8	Y	0

Ozone (44201) — North Carolina — Parts per million (007)

1-HOUR

SITE ID	POC	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	VALID DAYS MEAS	NUM DAYS REQ	1ST MAX 1-HR	2ND MAX 1-HR	3RD MAX 1-HR	4TH MAX 1-HR	DAY MAX>/= 0.125	EST DAYS>/= .125	MISS DAYS< 0.125	CERT	EDT
37-183-0014	1	0776	Raleigh	Wake	3801 SPRING FOREST RD.	2007	047	211	214	.103	.102	.098	.094	0	0.0	2	Y	0
37-183-0016	1	0776	Fuquay-Varina	Wake	201 NORTH BROAD STREET	2007	047	214	214	.094	.093	.090	.088	0	0.0	0	Y	0

Summary Data

- Tells You
  - AQS Computes:
    - Multi-hour Averages (e.g. 8-hour running average)
    - Daily Summaries
    - Site Summaries ($PM_{2.5}$ and Lead Only)
    - Quarterly Summaries
    - Annual Summaries
    - Site Annual Summaries ($PM_{2.5}$ and Lead Only)
- Identified by
  - Summary Data
    - Monitor ID + Time Period Summarized + Sample Duration + Exceptional Data Type + Pollutant Standard

QA Reports

- Data Quality Indicator Report (AMP255)

QA (AMP255) example

Quality Control (AMP255)

1-Point Quality Control

Pollutant: O3 **PQAO:** 0776 (North Carolina Dept Of Environment And Natural Resources) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	# Req	# Obs	% Complete	CV	Bias
2007	04	NC	37-183-0014	1	S-PN	01-APR-07	31-OCT-07	15	18	100	1.85	+/- 1.57
2007	04	NC	37-183-0016	1	O	01-APR-07	31-OCT-07	15	17	100	1.01	+ 1.40
2007	04	NC	**SUMMARY**					30	35	100	1.64	+/- 1.39
SUMMARY	04	NC						30	35	100	1.64	+/- 1.39

Annual PE (AMP255)

Annual Performance Evaluations

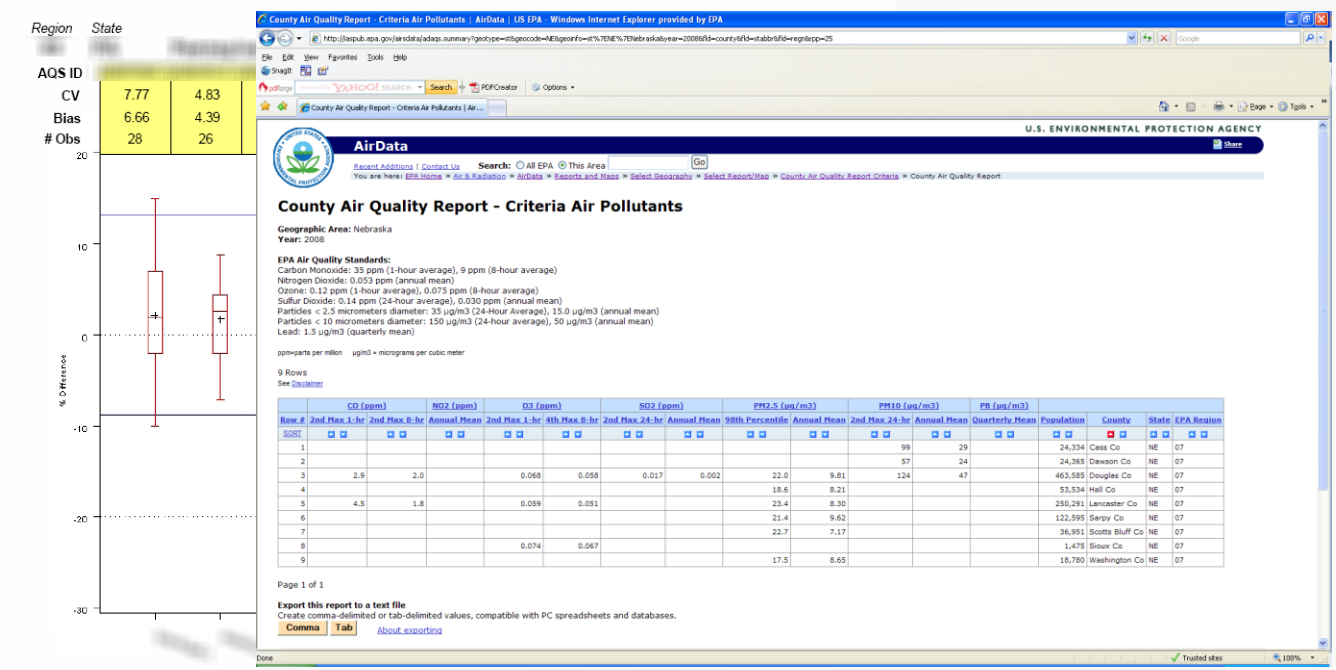
Pollutant: O3 **PQAO:** 0776 (North Carolina Dept Of Environment And Natural Resources) **App A?:** Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level L1	L2	L3	L4	L5	Obs / Q Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits Lower	Upper	% Btwn Conf.
2007	04	NC	37-183-0014	1	S-PN	01-APR-07	31-OCT-07	-4.00	-2.22	-0.63	0.00		0	4	0	0	Y			
2007	04	NC	37-183-0016	1	O	01-APR-07	31-OCT-07	0.00	-1.11	-1.25	-0.89		0	0	4	0	Y			
2007	04	NC	**SUMMARY**					-2.00	-1.67	-0.94	-0.45		0	4	4	0	100	-2.42	2.98	88
SUMMARY	04	NC						-2.00	-1.67	-0.94	-0.45		0	4	4	0	100	-2.42	2.98	88

More on the AMP255 in Wednesday's QA session

AQS Workfiles

- Text output listings of the data that are used in the Reports
- Convenient to use in Third-Party Applications (SAS, Excel, Access, etc)



AQS Workfiles

- Text output listings of the data that are used in the Reports
- Convenient to use in Third-Party Applications (SAS, Excel, Access, etc)

```
# State Code or Tribal Indicator (TI),County Code or Tribal Code,Site_ID Number,Parameter Code,POC,Design Value Year,Exceptional Data Type,Pollutant Standar
#  Warning: Computed design values represent snapshot of data at time report was run and this may be incomplete data.
#  Report Date:  2012-04-27
20,173,0001,44201,1,2010,5,Ozone 8-Hour 2008,Annual 4th Maximum,.075,007,Parts per million,"CO.FIRE STATION#2 ,200 EAST 53RD ST.NORT",37.781389,-97.337222,2
20,173,0010,44201,1,2010,5,Ozone 8-Hour 2008,Annual 4th Maximum,.075,007,Parts per million,"HEALTH DEPT., 1900 EAST 9TH ST.",37.701111,-97.313889,214,0,214,
20,173,0018,44201,1,2010,0,Ozone 8-Hour 2008,Annual 4th Maximum,.075,007,Parts per million,"12831 W. 117N",37.8975300009148,-97.4921,208,0,214,97,.072,,192,
# 3 records written.
```

Design Value Reports

- Design Value Reports (AMP480)
  - Exist for all criteria pollutants
  - On line calculation of design values for purposes of comparing a monitor to the standard
  - Quicklook has 1 year NAAQS values, Design Values have 3 year NAAQS values

Design Value output

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Click on Sign to add text and place signature on a PDF File.

User ID: CIX

DESIGN VALUE REPORT

Report Request ID: 986723 Report Code: AMP480 Apr. 27, 2012

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region	Method	Duration	Begin Date	End Date
	20	173													

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
DESIGN VALUE	44201		

SELECTED OPTIONS

Option Type	Option Value
USER SITE METADATA	STREET ADDRESS
MERGE PDF FILES	YES
QUARTERLY DATA IN WORKFILE	NO
WORKFILE DELIMITER	,
SINGLE EVENT PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS

GLOBAL DATES

Start Date	End Date
2010	2010

APPLICABLE STANDARDS

Standard Description
Ozone 8-Hour 2008

Discoverer

http://iasint.rtpnc.epa.gov/discoverer/plus

Discoverer - output

- Discover provides customizable reports when an AQS report doesn't give you exactly what you want
- Layout data by sorting, filtering, graphing, crosstabs
- Exportable as
  - Excel (.xls)
  - csv
  - Txt
  - PDF
  - html

Discoverer – requirements

Software

- System requirements:
- Browser with Java Runtime Environment (JRE) version 1.5 or later

Discoverer:

http://oasext.epa.gov/discoverer/plus or
visit AQS website at http://www.epa.gov/ttn/airs/airsaqs/aqsdiscover/

Registration

- Need AQS account (user ID and password assigned)

Discoverer - help

Need help accessing or using Discoverer?

The following are available:

- EPA Help Desk at 1-866-411-4372

Tell them you need help with AQS/Discoverer

- EPA Help Desk via email (epacallcenter@epa.gov)

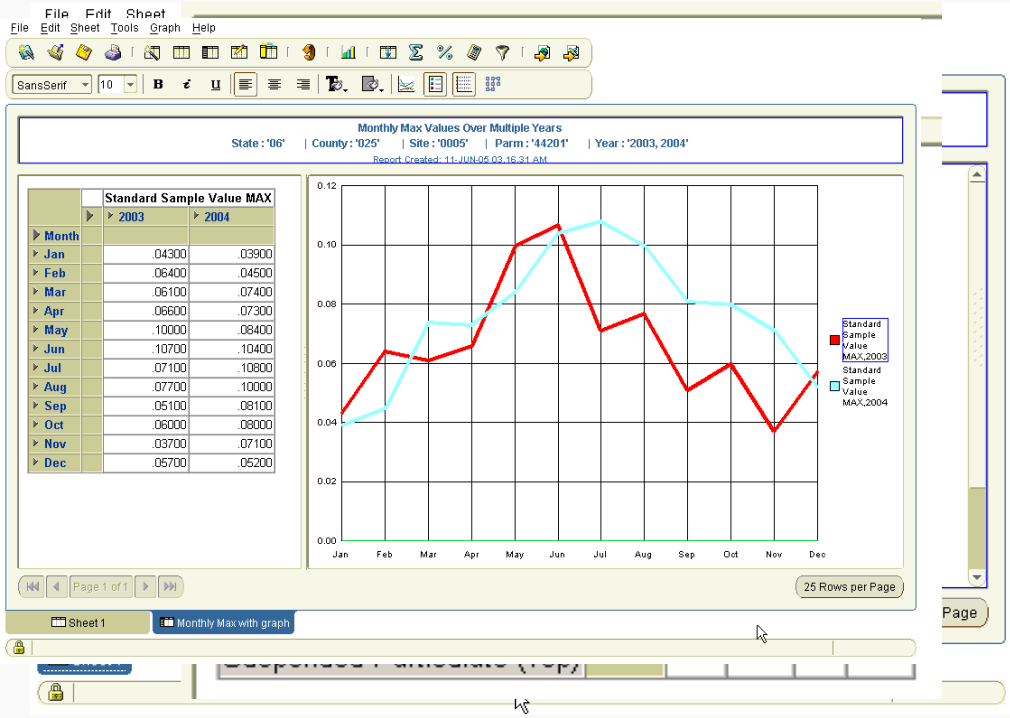
- Online training via web conferencing – notices sent to registered AQS users

- User documents:

AQS Discoverer User Guide at http://www.epa.gov/ttn/airs/airsaqs/manuals/

What Can Discoverer Produce?

- Data Listing Reports
- Cross-Tabulation Reports (Pivot Tables)
- Graphs & Charts
- Data extractions (Excel, HTML, and CSV)



Key Terminology

Interface to database = End User Layer
Grouping of Tables = Business Area
Group of worksheets = Workbook

Tables	➡	**Folders**
Columns	➡	**Items**
Rows	➡	**Records**
Queries	➡	**Worksheets**

What you need

- **AQS userid and password**
- **Java-enabled Web browser**
- **url: https://oasext.epa.gov/discoverer/plus**

How To Build a Query in Discoverer

- Create a Connection
- Choose a Layout
- Select Items
  - To Display
  - To Filter By
- Specify Sorting (Optional)
- Specify Totals (Optional)
- Specify Run-Time Parameters (Optional)
- Run Report

The REAL Way to Build a Query…

- FORM A GOOD QUESTION!!
- Understand the Data You Need to Answer the Question

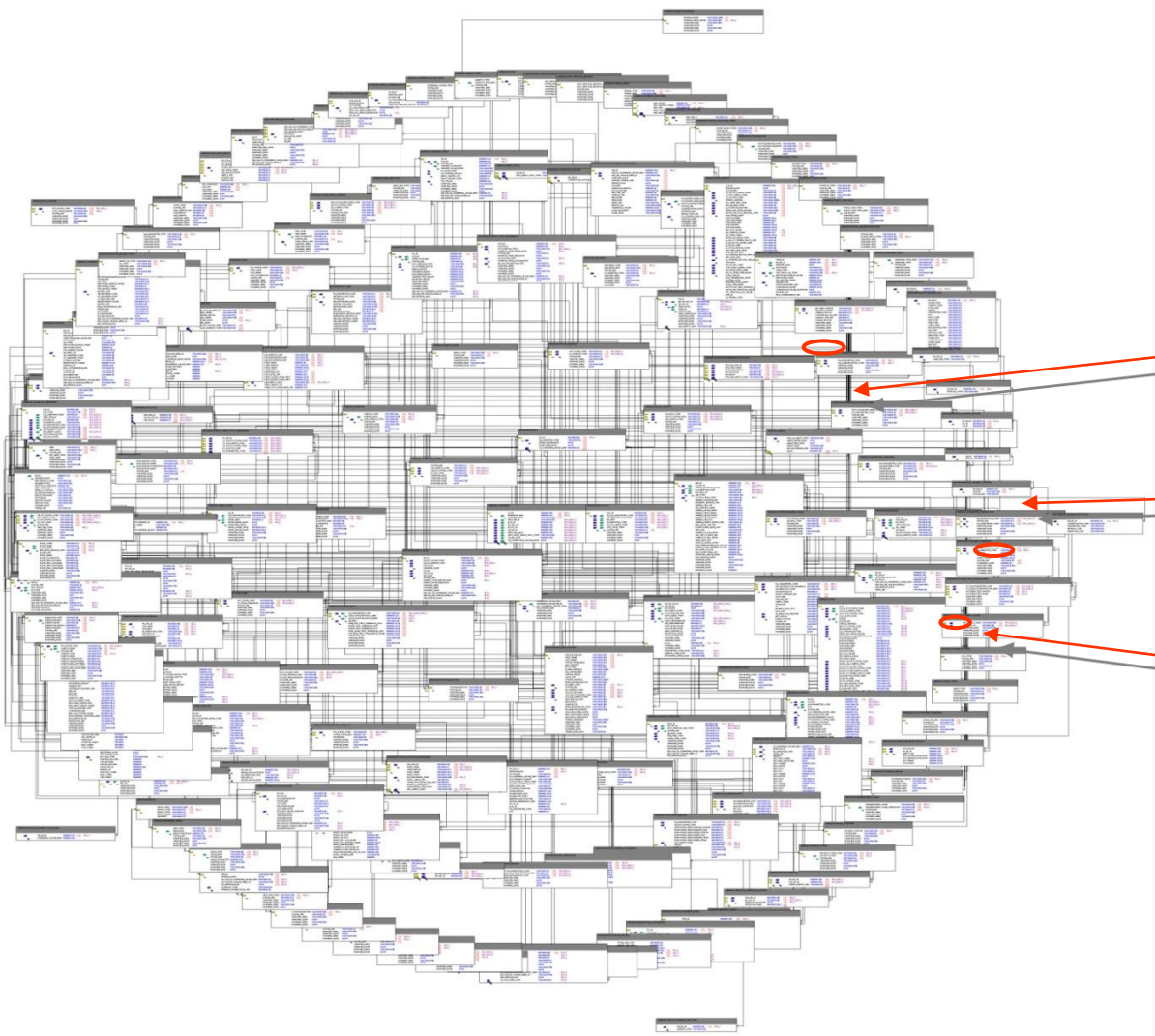
Your Business Areas

AQS basic

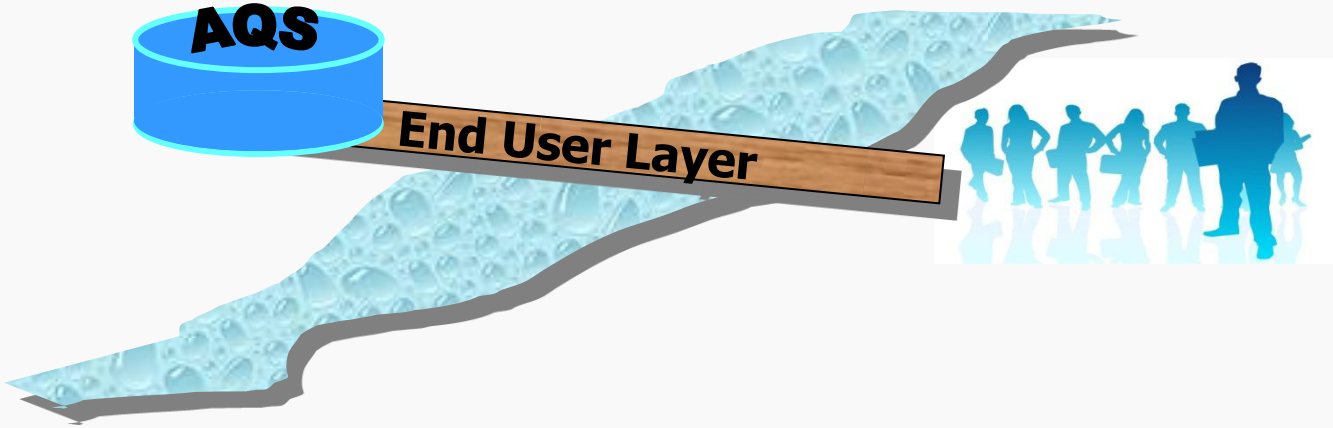
AQSprod

- Folders are composed primarily of views (i.e., combinations of tables) in the aqsprod database as described in the AQS Data Dictionary
- Reference tables (e.g., States, Parameters, Units)
- Raw data and other additional folders in AQSprod

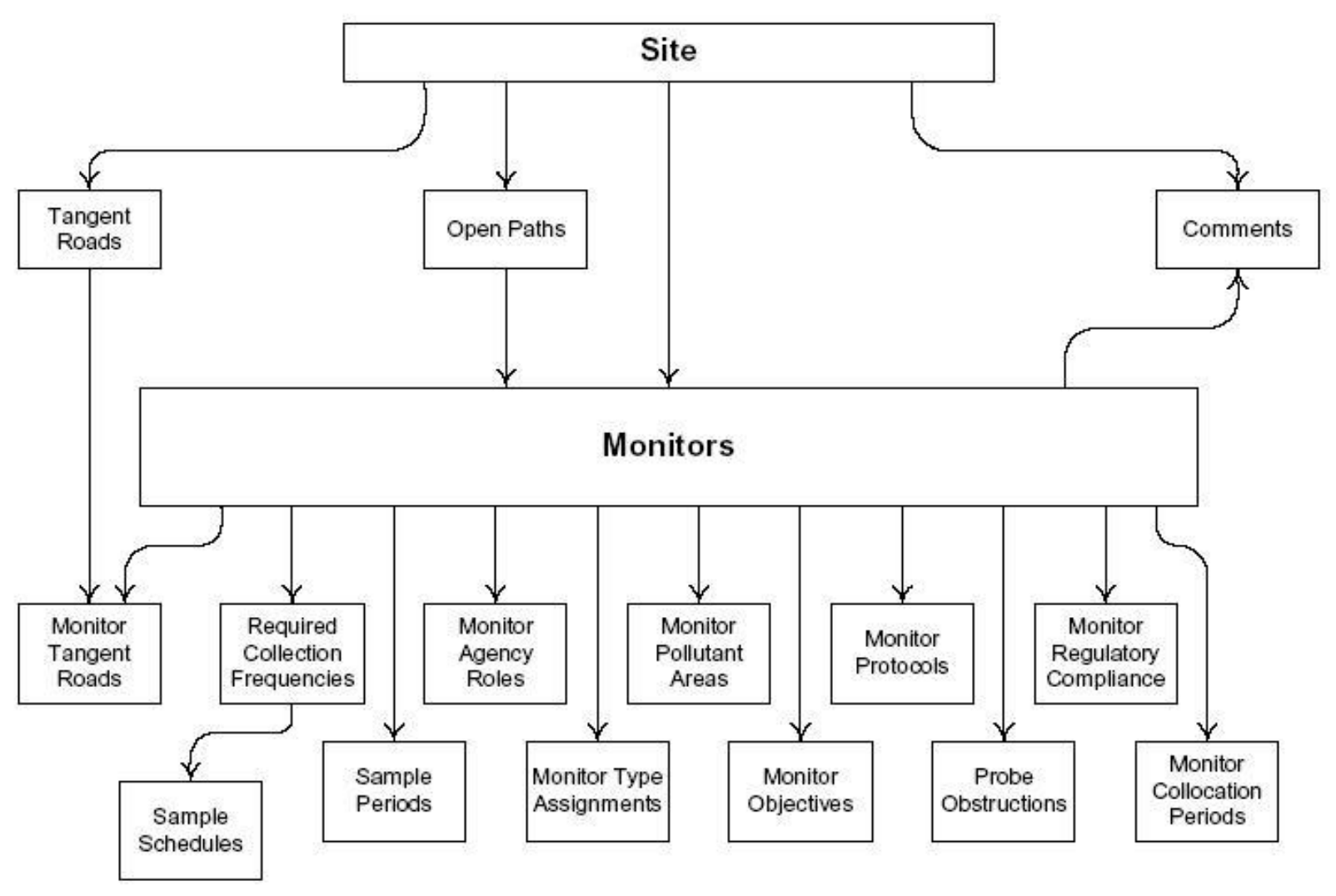
Why is the EUL Necessary?



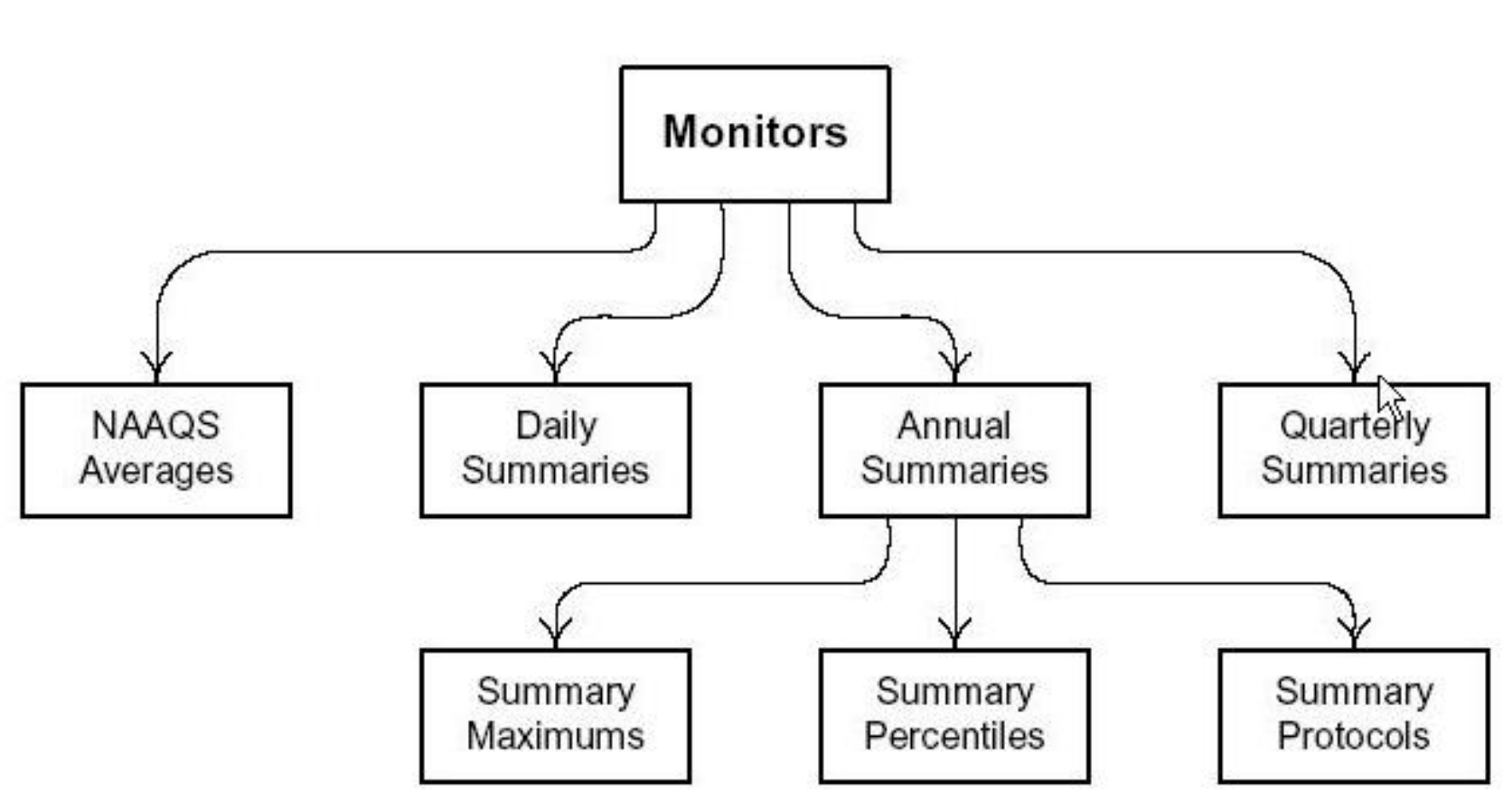
Why is the EUL Necessary?



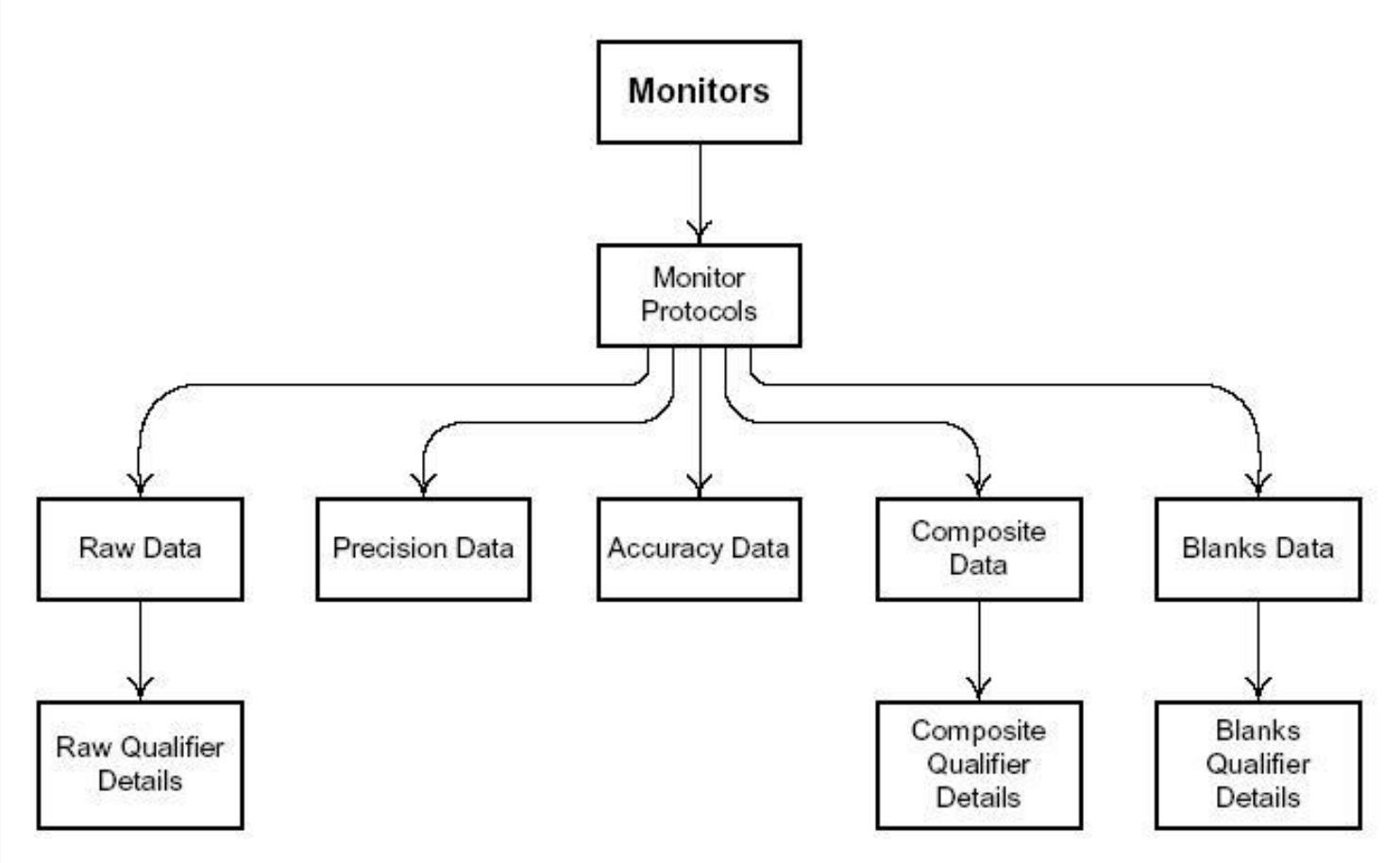
Data Model for AQS



Data Model for AQS, cont'd

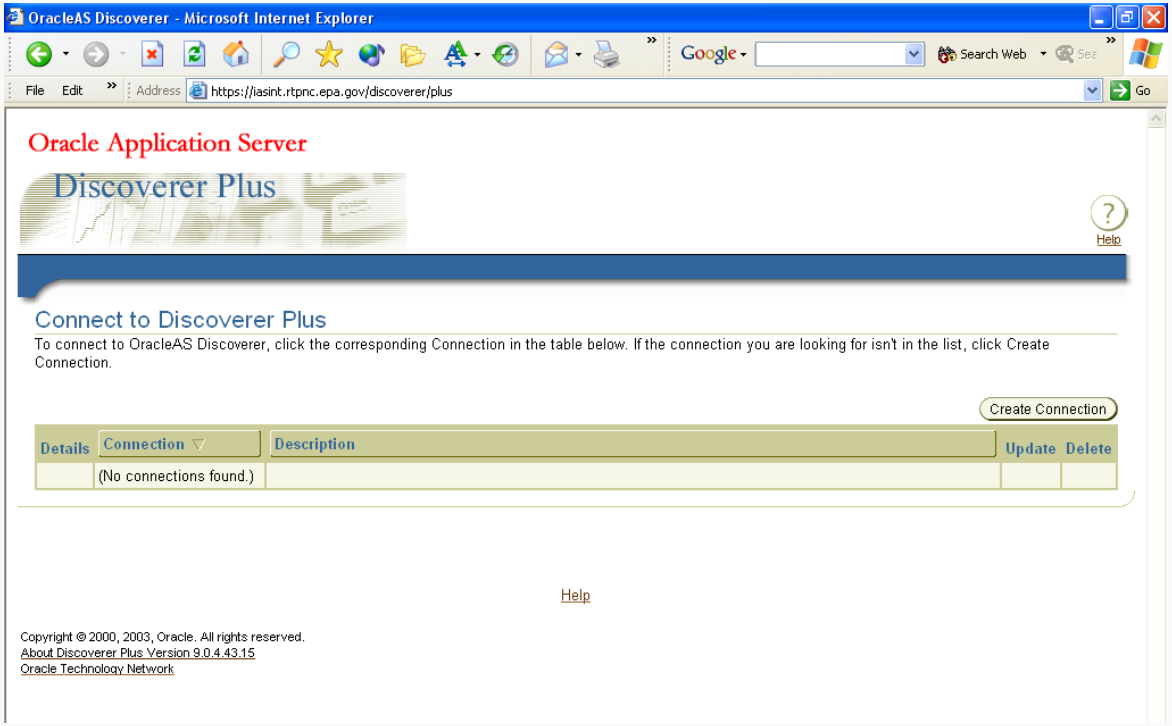


Data Model for AQS, cont'd



Starting Discoverer Plus

https://oasext.epa.gov/discoverer/plus



Create a Connection

OracleAS Discoverer - Microsoft Internet Explorer

File Edit Address https://iasint.rtpnc.epa.gov/discoverer/plus?&_plus=true&_rvp=add_con

Oracle Application Server

Discoverer Plus

Help

Create Connection: Connection Details

Enter a connection name that is easy to remember. Add a description for this connection, followed by the database account details.

Cancel Apply

Connection Name and Description

Connection Name

Connection Description

Locale Locale set in user's browser

Database Account Details

User Name

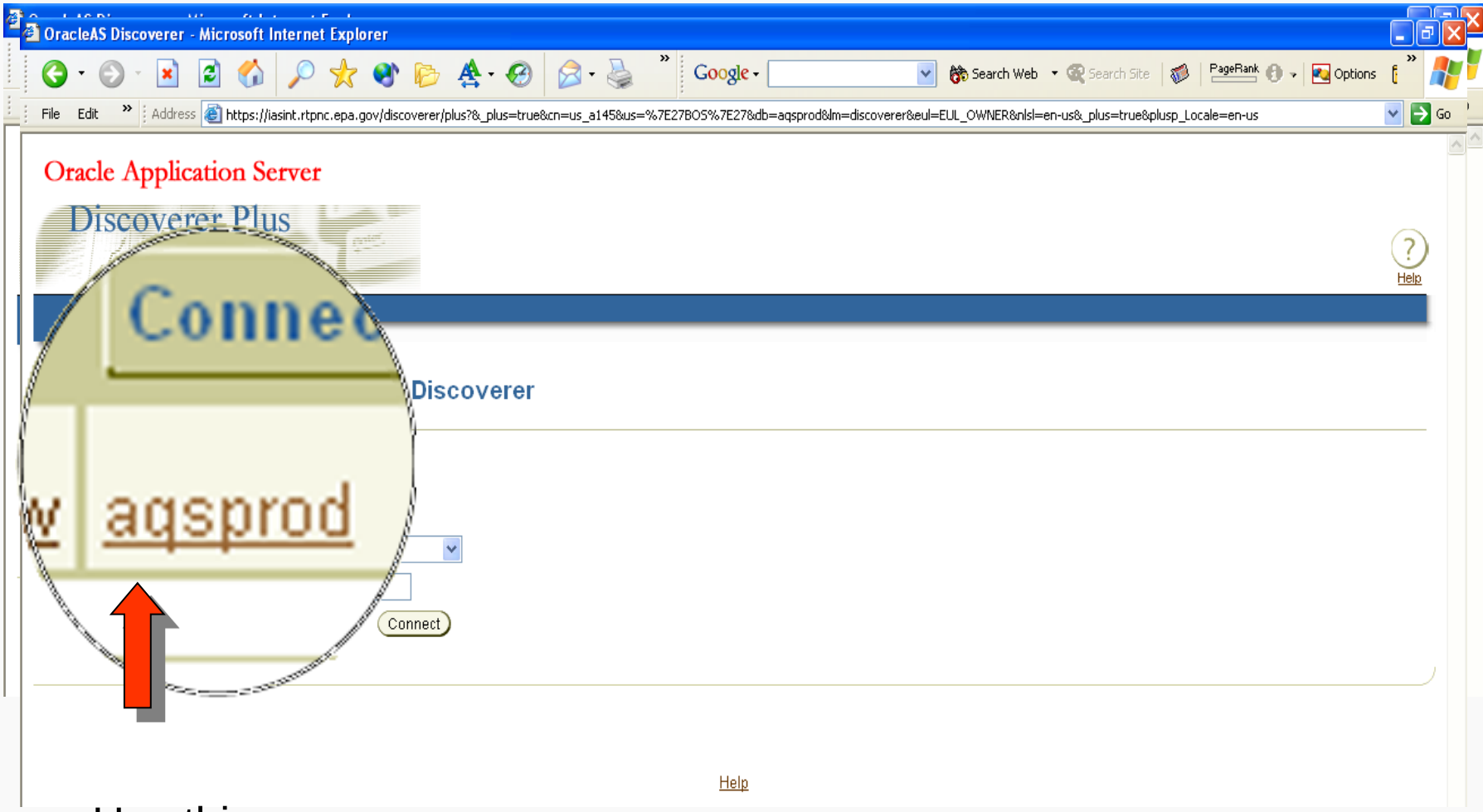
Password

Database

Cancel Apply

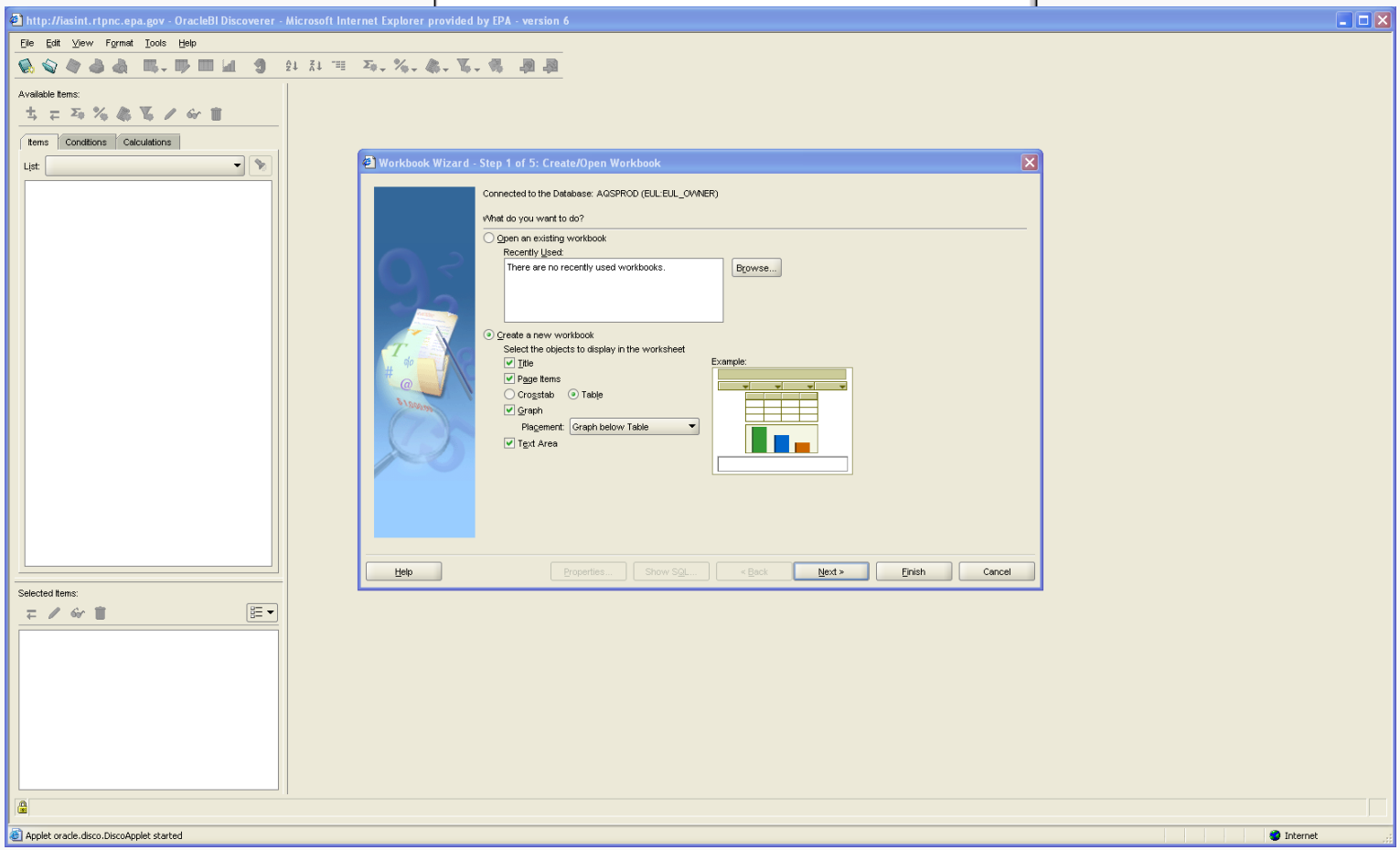
Help

Connection created



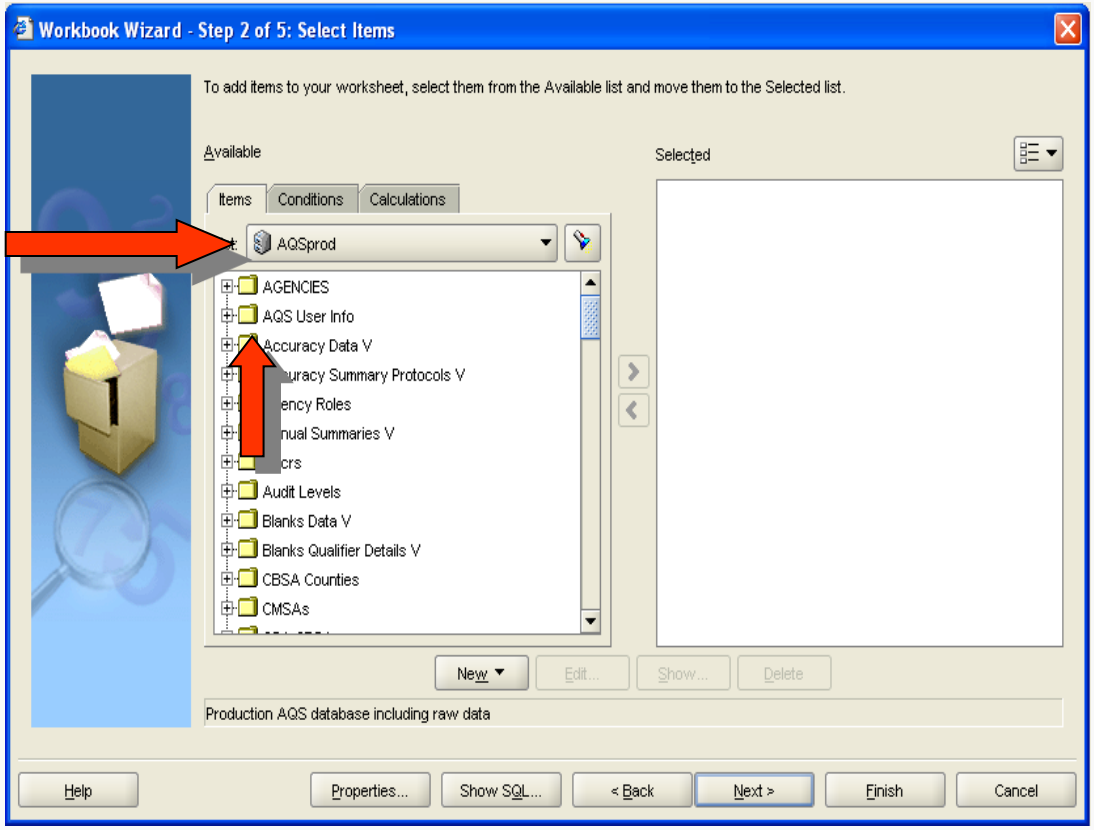
Use this connection

Successful connection

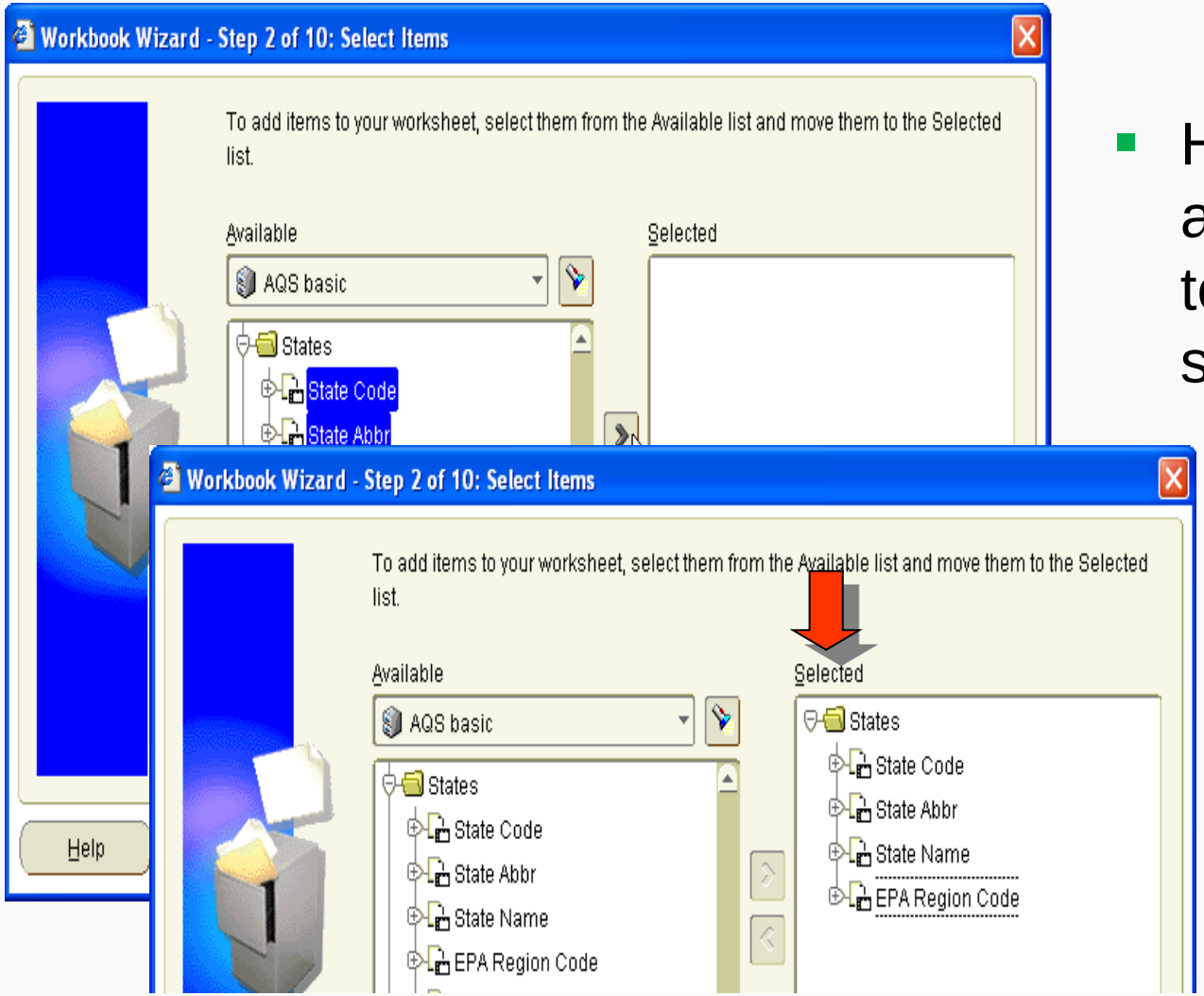


Selecting Items

- AQS basic is the simplest Business Area
- Scroll through list of folders
- Expand a folder to see its items

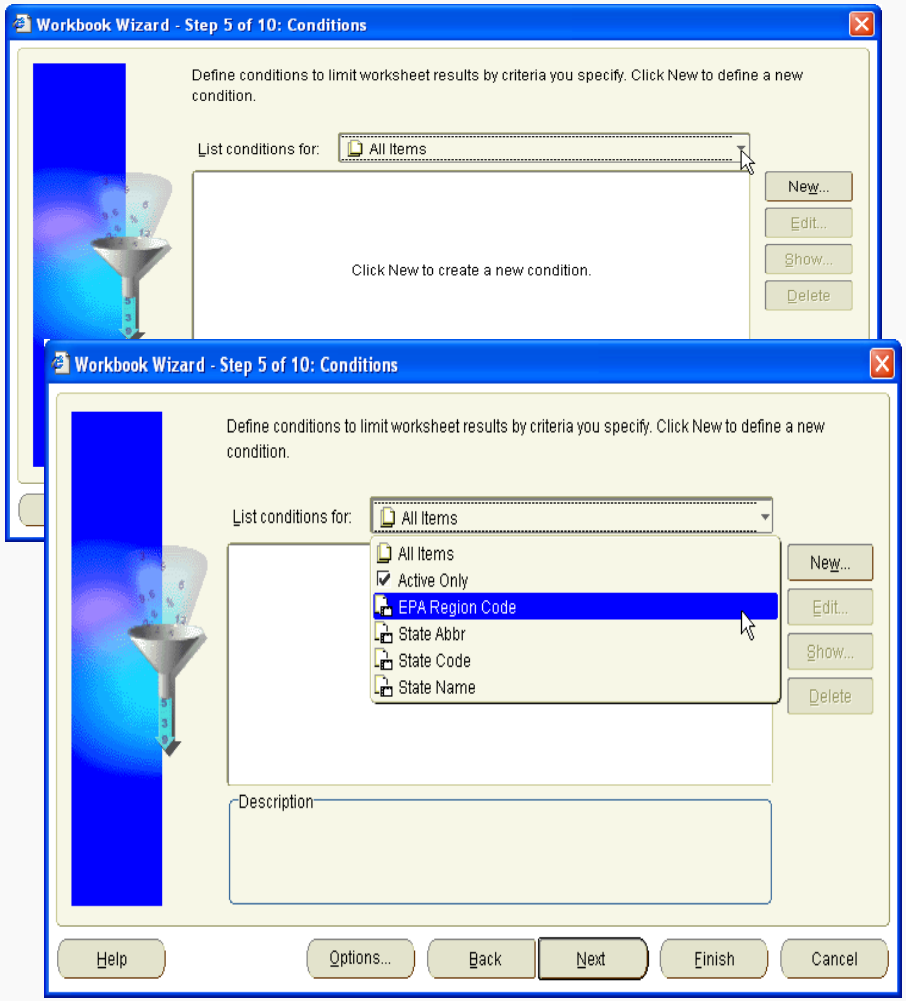


Selecting Items, cont'd



- Highlight items and **move** them to the **Selected** side

Conditions


Workbook Wizard - Step 5 of 10: Conditions
Define conditions to limit worksheet results by criteria you specify. Click New to define a new condition.
List conditions for:
All Items
New...
Edit...
Show...
Delete
Click New to create a new condition.
Workbook Wizard - Step 5 of 10: Conditions
Define conditions to limit worksheet results by criteria you specify. Click New to define a new condition.
List conditions for:
All Items
All Items
Active Only
EPA Region Code
State Abbr
State Code
State Name
New...
Edit...
Show...
Delete
Description
Help
Options...
Back
Next
Finish
Cancel

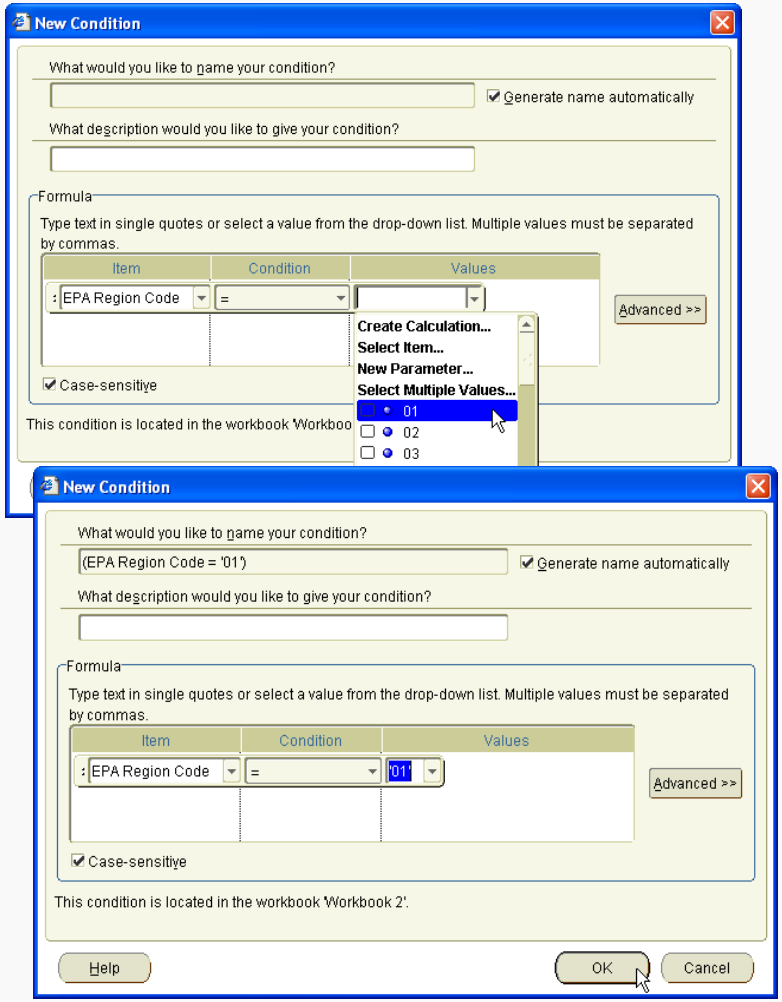
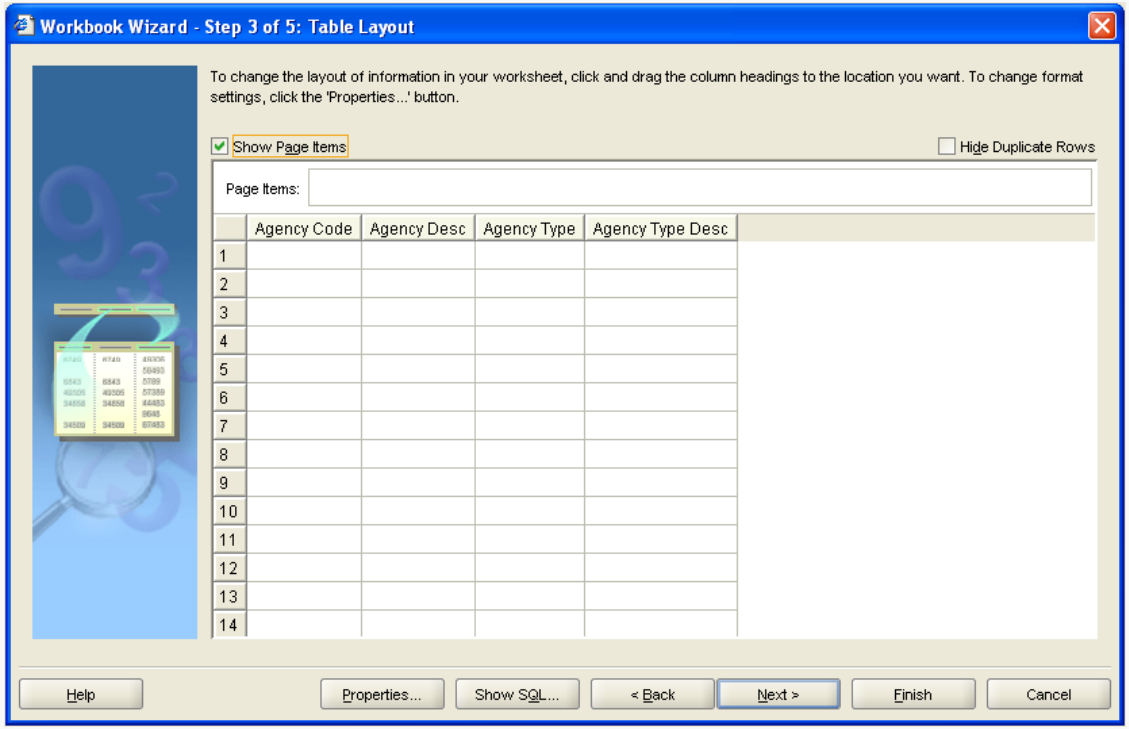
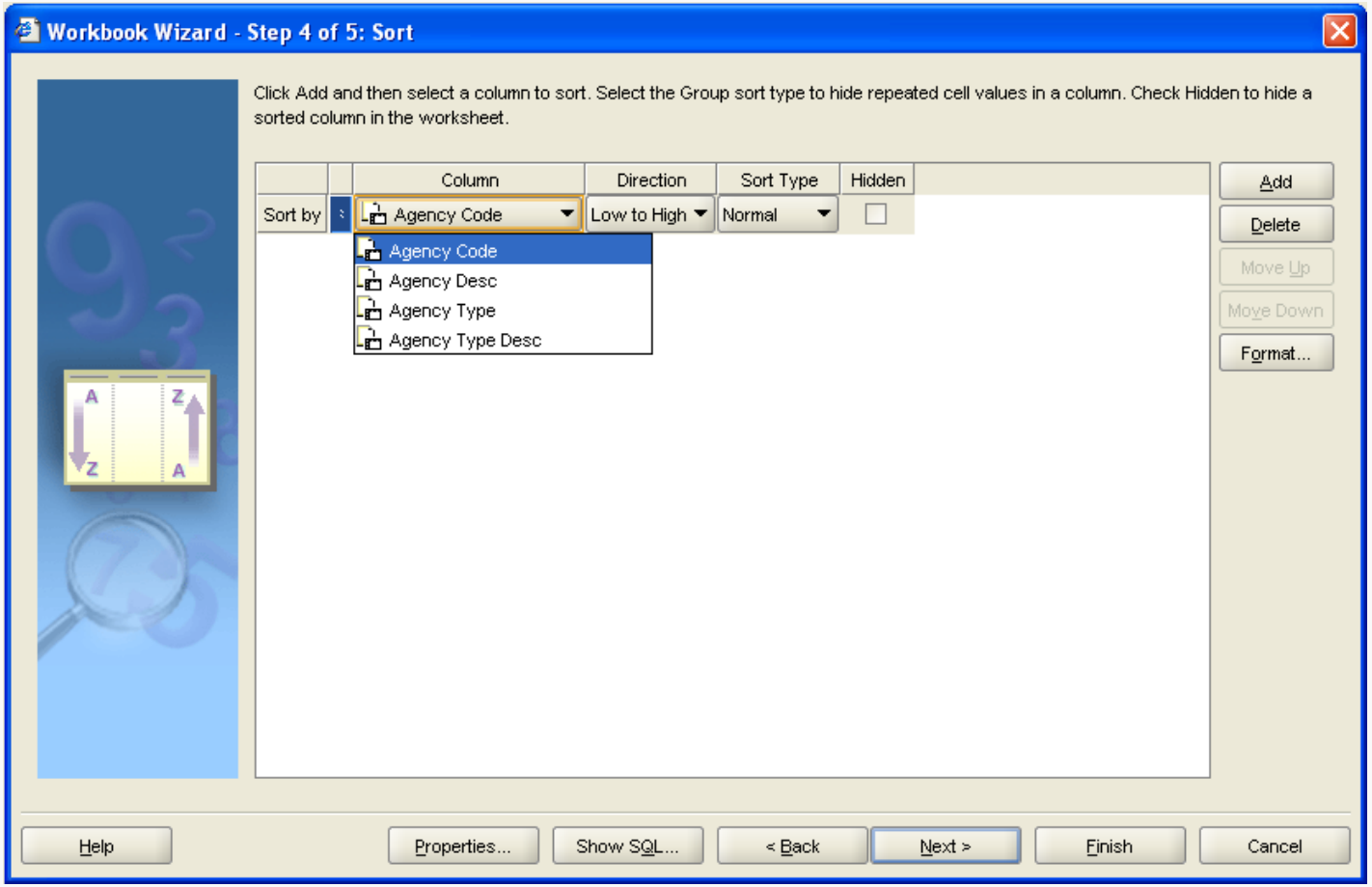

New Condition
What would you like to name your condition?
Generate name automatically
What description would you like to give your condition?
Formula
Type text in single quotes or select a value from the drop-down list. Multiple values must be separated by commas.
Item
Condition
Values
EPA Region Code
=
Advanced >>
Create Calculation...
Select Item...
New Parameter...
Select Multiple Values...
01
02
03
Case-sensitive
This condition is located in the workbook 'Workboo
New Condition
What would you like to name your condition?
(EPA Region Code = '01')
Generate name automatically
What description would you like to give your condition?
Formula
Type text in single quotes or select a value from the drop-down list. Multiple values must be separated by commas.
Item
Condition
Values
EPA Region Code
=
'01'
Advanced >>
Case-sensitive
This condition is located in the workbook 'Workbook 2'.
Help
OK
Cancel

Table Layout

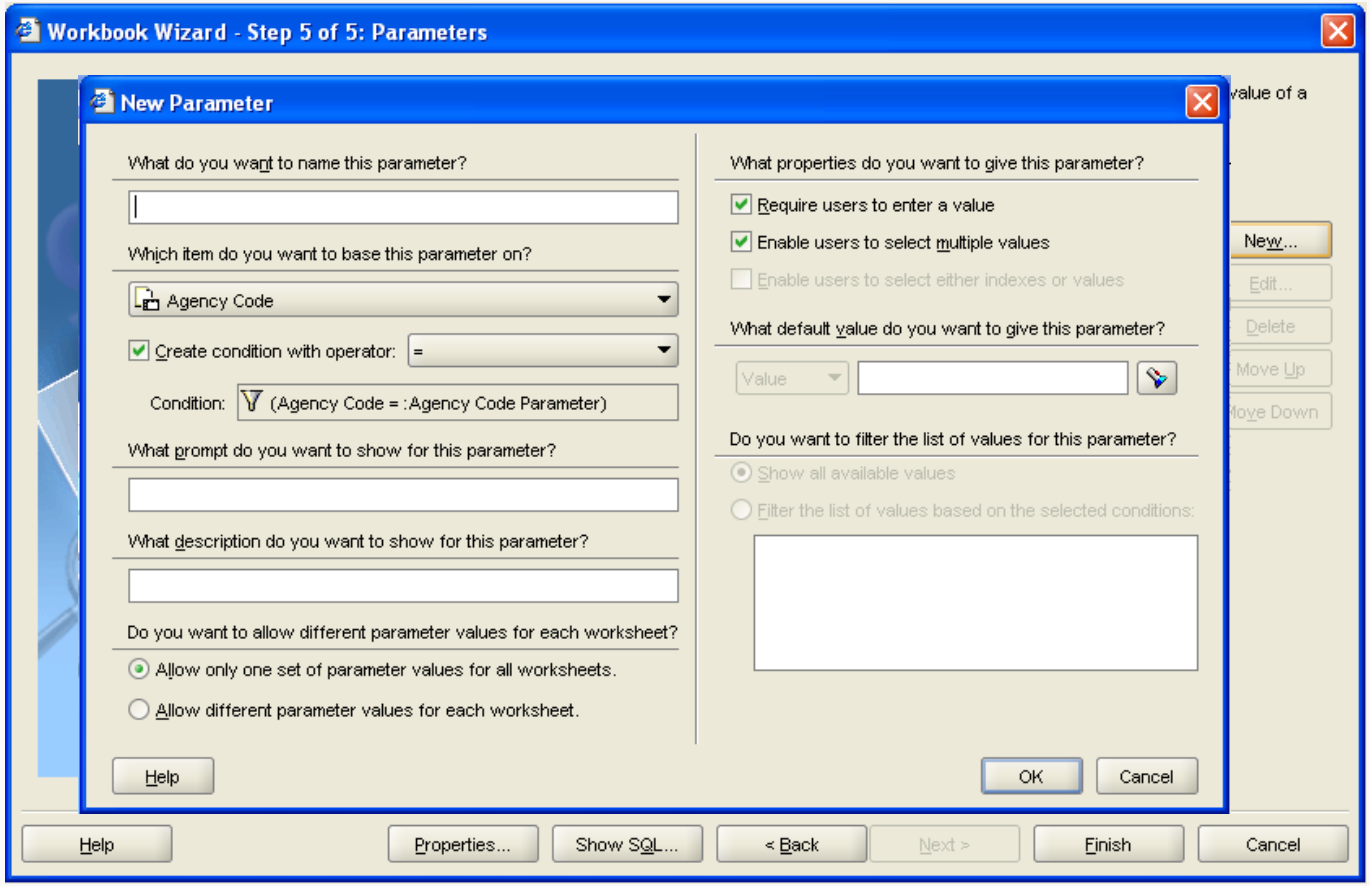
Click and drag headings to desired order



Sort Orders


Workbook Wizard - Step 4 of 5: Sort
Click Add and then select a column to sort. Select the Group sort type to hide repeated cell values in a column. Check Hidden to hide a sorted column in the worksheet.
Column
Direction
Sort Type
Hidden
Sort by
Agency Code
Low to High
Normal
Agency Code
Agency Desc
Agency Type
Agency Type Desc
Add
Delete
Move Up
Move Down
Format...
Help
Properties...
Show SQL...
< Back
Next >
Finish
Cancel

Selecting Parameters



Results

http://iasint.rtpnc.epa.gov - Workbook 1 - OracleBI Discoverer - Microsoft Internet Explorer provided by EPA - version 6

File Edit View Format Tools Help

Available Items:

Items | Conditions | Calculations

List: AQSprod

- AGENCIES
  - Agency Code
  - Agency Desc
  - Agency Type
  - Agency Type Desc
  - Status Ind
- AQS User Info
- Accuracy Data V
- Accuracy Summary Protocols V
- Agency Roles
- Annual Summaries V
- Aqcrs
- Audit Levels
- Blanks Data V
- Blanks Qualifier Details V
- CBSA Counties
- CMSAs
- CSA CBSAs
- Cities
- Collection Frequencies
- Combined Statistical Areas
- Comments V
- Composite Data V
- Composite Qualifier Details V

Selected Items:

- Agency Code
- Agency Desc
- Agency Type
- Agency Type Desc

Page Items:

Agen		cy Type	Agency Type Desc
0001			PRIVATE
0002			PRIVATE
0003			PRIVATE
0004			COUNTY AGENCY
0005			PRIVATE
0006			PRIVATE
0007			STATE AGENCY
0008			PRIVATE
0009			PRIVATE
001			TRIBAL
0010			PRIVATE
0011			CITY AGENCY
0012			CITY AGENCY
0013			STATE AGENCY
0014			COUNTY AGENCY
0015			STATE AGENCY
0016			INSTITUTION
0017			CITY AGENCY
0018			CITY AGENCY
0019			PRIVATE
0020	Allegany County H	G	COUNTY AGENCY
0021	Allegheny County,	G	COUNTY AGENCY
0022	Allied Corporation-	J	PRIVATE
0023	Altoona Departmer	H	CITY AGENCY
0024	Aluminum Compan	J	PRIVATE
0025	Amador County Ar	I	DISTRICT AGENCY
0026	Amarillo Bi-City-Co	G	COUNTY AGENCY
0027	Amax Coal Compa	J	PRIVATE
0028	Amerada Hess	J	PRIVATE

Copy
Remove from Worksheet
Move To
Format Data...
Format Heading...
Edit Heading...
Format Table...
Conditional Formats...
Column Width...
✔ Column Auto Size
Group Sort
✔ Sort Low To High
Sort High To Low
Drill...
Manage Links...

A graph cannot be plotted because this worksheet does not contain any datapoints.

Double-click here to edit the text area

Sheet 1

Applet oracle.disco.DiscoApplet started

Internet

Format Data

Format | Text | Breaks

Font: Dialog Size: 11

Style: B I U S

Color

Text:

Background:

Alignment

Wrap words in cell

Example:

AaBbCcYyZz

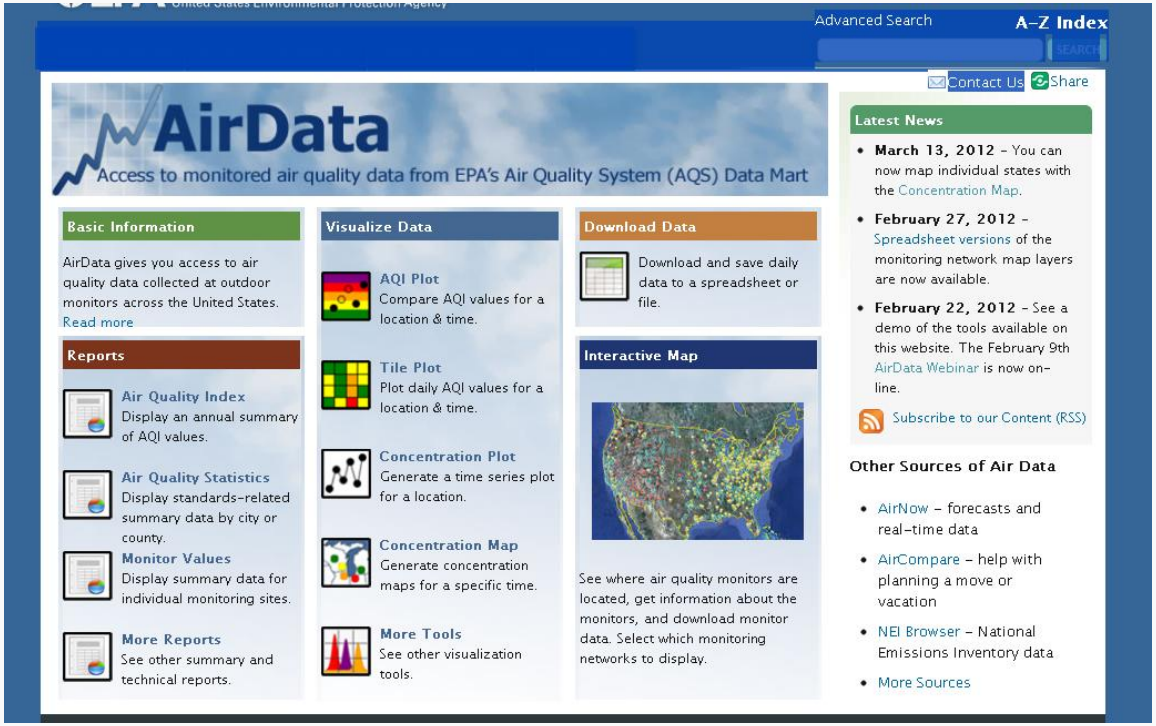
Show Actual font size

Help | OK | Cancel

Air Data

http://www.epa.gov/airdata/

Air Data main page
http://www.epa.gov/airdata



Air Data AQI Report Selection screen

Air Quality Index Report

This report provides Air Quality Index annual summary information, including ma

Note: All PM2.5 AQI values and summaries provided by AirData are based on the current Air Qu
micrograms per cubic meter which is the level of the 24-hour PM2.5 standard.

1. Year

2011

2. Geographic Area

Alabama

-- or --

Select a City (defined as CBSA) ...

-- or --

Select a County ...

3. Group Results by

- (•) City (defined as CBSA)
- ( ) County

Air Data AQI Report Results

Geographic Area: Alabama
Summary: by CBSA
Year: 2011
About this report

The following data links are active for the next 10 minutes, after which you must resubmit your query.
Download PDF (printable page)
Download CSV (spreadsheet)

To sort a column in the table below, click on the column heading.

CBSA	# Days with AQI	# Days Good	# Days Moderate	# Days USG	# Days Unhealthy	# Days Very Unhealthy	AQI Max	AQI 90th %ile	AQI Median	# Days CO	# Days NO2	# Days O3	# Days SO2	# Days PM2.5	# Days PM10
Birmingham-Hoover, AL	365	184	160	20	1	.	156	90	50	2	.	136	3	186	38
Columbus, GA-AL	365	256	107	2	.	.	106	67	42	.	.	119	.	246	.
Daphne-Fairhope-Foley, AL	282	234	46	2	.	.	106	59	37	.	.	220	.	62	.
Decatur, AL	282	234	48	.	.	.	100	58	38	.	.	210	.	72	.
Dothan, AL	283	248	35	.	.	.	84	51	39	.	.	217	.	66	.
Florence-Muscle Shoals, AL	282	252	30	.	.	.	87	51	37	.	.	207	.	75	.
Fort Payne, AL	345	308	37	.	.	.	87	51	36	.	.	292	.	53	.
Gadsden, AL	277	247	30	.	.	.	89	52	37	.	.	198	.	79	.
Huntsville, AL	332	268	62	2	.	.	106	64	38	.	.	207	.	72	53
Mobile, AL	304	251	51	2	.	.	104	66	37	.	.	214	.	64	26
Montgomery, AL	283	230	53	.	.	.	93	61	41	.	.	209	.	74	.
Talladega-Sylacauga, AL	110	83	27	.	.	.	84	59	36	.	.	.	.	110	.
Tuscaloosa, AL	281	264	17	.	.	.	92	47	32	.	.	190	.	91	.

Air Data Plot Select

You are here: EPA Home » AirData » Visualize Data » AQI Plot

AQI Plot

Compare AQI values for multiple pollutants for a specific location and time period. AQI values – two pollutants at a time – and is useful for seeing how the number of the year for each pollutant.

Note: All PM2.5 AQI values and summaries provided by AirData are based on the current Air Qual equivalent to 40 micrograms per cubic meter. Summaries from other sources may use 35 micro the 24-hour PM2.5 standard.

1. First Pollutant

Ozone

2. Second Pollutant

PM10

3. Year

2011

4. Geographic Area

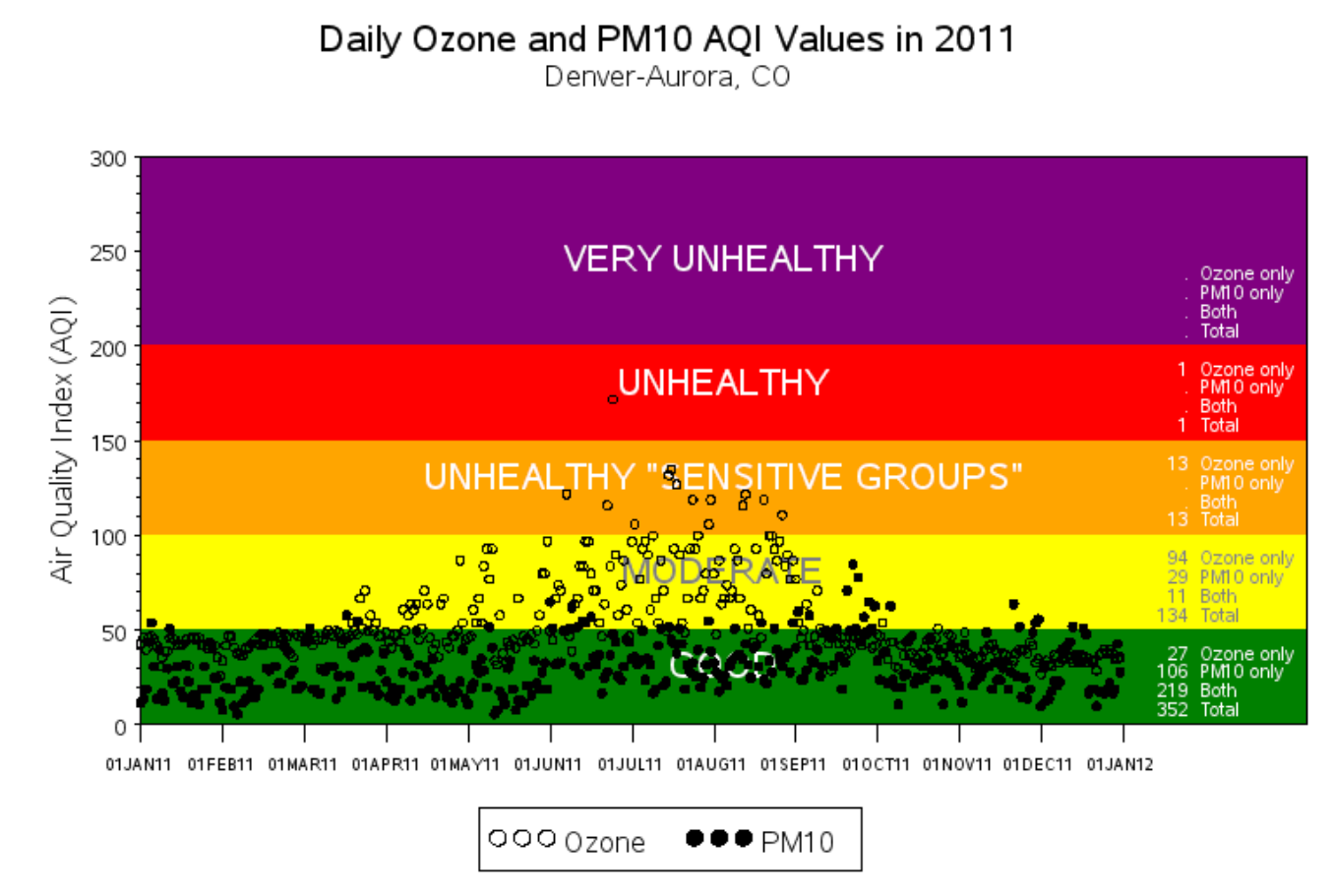
Denver–Aurora, CO

-- or --

Select a County ...

Plot Data

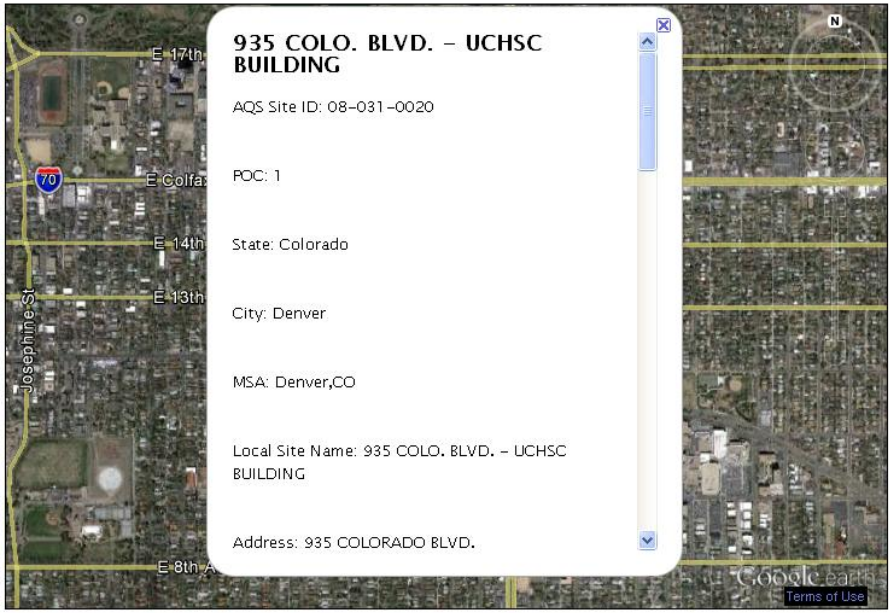
Air Data Plot Result



Air Data Monitor Network Example

Interactive Map

Select which layers to display on the map, zoom in, find monitor locations, and download data from popup balloons. The monitoring site information is also available in spreadsheet format. Fo more information regarding the map layers, read the complete documentation (PDF, 163 KB). In 2009, lead began being measured and reported in TSP (Total Suspended Particulates) and PM10 in " Conditions" (LC). Layers for those parameters are provided on this page. For more information regarding lead, see this technical note on lead data reporting.



Denver, CO Go

Zoom to a city, county, address, zip code, or lat/lon

Monitoring Networks

Click a check box to display a network on the map.

Click the network name to save or open the kmz file.

Note: These layers display all monitors (active or inactive) with data since 1990.

- ☑ CO
- ☑ Lead
- ☑ Lead-TSP(LC)
- ☑ Lead-PM10(LC)
- ☑ NO2
- ☑ Ozone
- ☑ PM10
- ☑ PM2.5
- ☑ SO2
- ☑ PM2.5 Chemical Speciation Network
- ☑ IMPROVE (Interagency Monitoring of Protected Visual Environments)
- ☑ NATTS (National Air Toxics Trends Stations)
- ☑ NCORE Multipollutant Monitoring Network

Where to Get More Information

- General Air Pollution Data Sources
  - http://www.epa.gov/air/airpolldata.html
- AQS Data Mart
  - http://www.epa.gov/ttn/airs/aqsdatamart/access.htm
- AQS & Discoverer
  - **Information:** http://www.epa.gov/ttn/airs/airsaqs
  - **AQS Access:** https://aqs.epa.gov/aqs/
  - **Discoverer Access:** http://iasint.rtpnc.epa.gov/discoverer/plus
- AQS Air Data
  - http://www.epa.gov/airquality/airdata/ad_basic.html