

AQS/Discoverer Training

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The rain is falling. . .



. . .what do I use to catch it?

- AQS Data Mart
- AQS - Reports
- Discoverer



Session times

- 8:00 – 8: 20 Introduction & AQS Data Mart
- 8:20 – 8: 40 Break/Try Data Mart
- 8:40 – 9: 10 AQS – Reports
- 9:10 – 9: 30 Break/Try Reports
- 9:30 – 9: 50 Discoverer
- 9:50 – 10:00 Q&A
- 10:00 – 12:00 Try Discoverer/DM/AQS Reports

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

- AQS Data Mart
- AQS - Reports
- Discoverer – the “build-your-own query” tool
- 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 (summaries: 1960's to present, raw data: 1993 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



What is the AQS Data Mart?

- A database containing all of the information from the AQS system since 1980
- Allows users to make queries of unlimited quantities of data
- Any “application” can connect to it (within tech/security limits)
 - Direct Interface”, AirExplorer, AirCompare, KML files, etc.
- AQS Data Mart will also include data for AQS monitors that is 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:
 - air quality data analysts who are knowledgeable about the AQS database structure

Intended audience

AQS Data Mart 	AQS 	Discoverer 
<ul style="list-style-type: none">• air quality data analysts in the regulatory, academic, and health research communities• an AQS account is not needed	<ul style="list-style-type: none">• those who provide data from their federal, state, local, or tribal agency to the EPA• standard reports are available for QA	<ul style="list-style-type: none">• those providing data to AQS who want to create ad-hoc reports for QA or analysis• those familiar with the AQS database structure

Update frequency

AQS Data Mart 	AQS 	Discoverer 
<ul style="list-style-type: none">• 5 Nights / Week• Mon - Friday• Updated by Automated Processes @ 3 am	<ul style="list-style-type: none">• Continuously Updated by State / Local / Tribal Organizations• Summaries Re-Computed when Posted	<ul style="list-style-type: none">• Works Against Same Database as AQS...

Registration

AQS Data Mart 	AQS 	Discoverer 
<ul style="list-style-type: none">• Need an Exchange Network Node account (for Direct Interface application)• Registration info: www.epa.gov/ttn/airs/aqsdatamart/access.htm	<ul style="list-style-type: none">• Registration form at TTN AQS site: www.epa.gov/ttn/airs/aqsqs• Must go through S/L/T/Regional approval process	

**2 FOR 1
SPECIAL!!!**

Examples of output

AQS Data Mart 	AQS 	Discoverer 
<ul style="list-style-type: none">• xml• export to Excel or IE using a provided stylesheet	<ul style="list-style-type: none">• Acrobat (pdf)• document (txt)• Excel (xls)	<ul style="list-style-type: none">• Excel (xls)• document (txt)• Acrobat (pdf)• web (htm)• comma-separated (csv)

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

Address (physical)

Email

Phone

Supervisor’s name

Supervisor’s email

Supervisor’s phone

- 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 (Hermes is the name of an EPA server). 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:

The screenshot shows a web browser window with the address <http://www.epa.gov/ttn/birs/aqsdatamart/access/interface.htm>. The page header includes the U.S. Environmental Protection Agency logo and the title "Technology Transfer Network (TTN) Air Quality System (AQS) Data Mart". A search bar is present with options for "All EPA" and "This Area". A breadcrumb trail indicates the current location: "EPA Home » TTNWeb - Technology Transfer Network » AQS Data Mart » Direct Interface".

The main content area is titled "Direct Interface" and contains the following text: "This page contains the 'Direct Interface' application that lets you query the AQS Data Mart. For more information on getting a user ID or instructions on how to use this application, click on the 'Access' link on the left. For more information about the Data Mart, click on the 'AQS Data Mart Home' link on the left."

The application interface includes an "Authenticate" button, a dropdown menu for "Annual Summary Query", a "Submit" button, a "Transaction ID" input field, "Status" and "Download" buttons, and a "Clear Tab" button. Below these are three tabs: "Location and Substance", "Time and Measures", and "Results". The "Location and Substance" tab is active and contains the following fields:

- State Name (dropdown menu)
- County Name (dropdown menu)
- City Name (dropdown menu)
- Tribal Name (dropdown menu)
- AQS Site Identifier (input field)



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



- to “Authenticate”

Authentication window will pop up:

A screenshot of a Windows-style dialog box titled "NAAS Authentication". The dialog has a blue title bar with a red close button (X) in the top right corner. Inside the dialog, there are two text input fields. The first is labeled "User" and the second is labeled "Password". Below the input fields are two buttons: "Connect" and "Cancel".

- 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 – 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



Authenticate

Annual Summary Query ▼ **Submit** Transaction ID **Status** **Download**

Clear Tab

Location and Substance | **Time and Measures** | **Results**

State Name ▼

County Name ▼

City Name ▼

Tribal Name ▼

AQS Site Identifier ▼

EPA Region Number ▼

	Min.	Max.
Location Latitude	<input type="text"/>	<input type="text"/>
Longitude	<input type="text"/>	<input type="text"/>

Substance Type ▼

Substance Name ▼

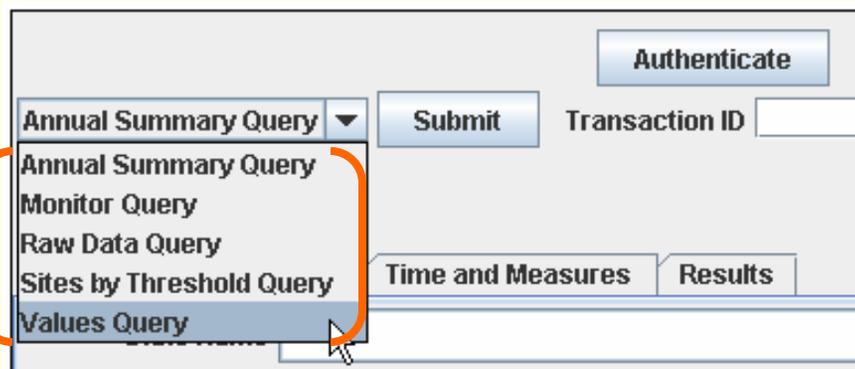
Monitor Type ▼

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.

A screenshot of the AQS Data Mart query builder interface. At the top right is an "Authenticate" button. Below it is a dropdown menu labeled "Annual Summary Query" with a downward arrow, followed by a "Submit" button and a "Transaction ID" input field. In the center, there are two large orange numbers, "1" and "2", positioned above the "Location and Substance" and "Time and Measures" tabs respectively. At the bottom, there are three tabs: "Location and Substance" (which is selected and highlighted in blue), "Time and Measures", and "Results".

Annual Summary Query ▼ Submit Transaction ID

1 2

Location and Substance Time and Measures Results

AQS Data Mart



Authenticate v1.1

Values Query Transaction ID

Location and Substance Time and Measures Results

State Name

County Name

City Name

Tribal Name

AQS Site Identifier

EPA Region Number

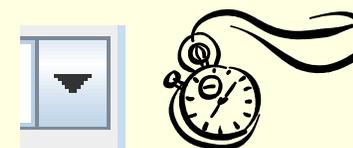
Location

	Min.	Max.
Latitude	<input type="text"/>	<input type="text"/>
Longitude	<input type="text"/>	<input type="text"/>

Substance Type

Substance Name

Monitor Type



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



Authenticate v1.1

Annual Summary Query Submit Transaction ID Status Download

Clear Tab

Location and Substance **Time and Measures** Results

Method Type

Method ID

Sample Duration

Begin Date 20080101 (yyymmdd)

Begin Time (hh:mm:ss)

End Date 20080331 (yyymmdd)

End Time (hh:mm:ss)

Time Zone Type

Data Source

Statistic Name Daily Maximum Sample Measurements - Maximum sample measurements, by monit...

Relational Operator

Threshold Value

Include All POCs Monitor Type Duration Measurement Metadata
 Event Data Method Locational Metadata

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

The screenshot shows a web interface for submitting a query. It features a dropdown menu labeled "Annual Summary Query" with a downward arrow. To its right is a "Submit" button. Further right is a "Transaction ID" field containing the number "12820". Above this field is an "Authenticate" button. To the right of the "Transaction ID" field are "Status" and "Download" buttons. At the bottom right of the interface is a "Clear Tab" button. Two orange arrows are overlaid on the image: one points to the "Submit" button, and another points to the "Transaction ID" field.

- 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 “aqsdamart@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:

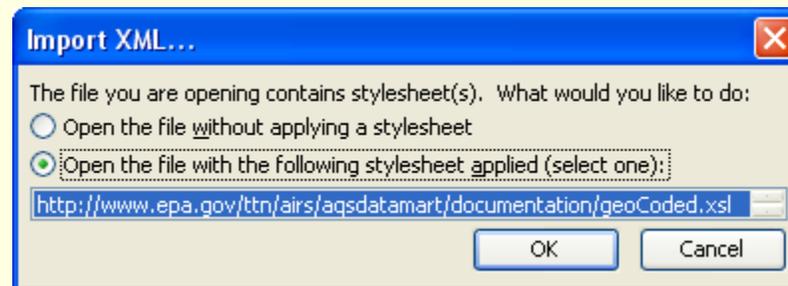
GeoCoded Report

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 Measurements	.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://oasext.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 (Currently only for $PM_{2.5}$... Soon for Lead)
 - Quarterly
 - Annual

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”
 - Soon, Regions will Have the Ability to Specify an Applicable Standard to which the Value should be Excluded
- 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 **three** summary records for it for the year! (and the day)
- Each of these Combinations will be Applied Against All Available Pollutant Standards for the Compound³⁹



AQS Reports

- There are 30 Standard Reports
 - Process about 100,000 Reports Requests / Year
- 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 soon)
- QA – Data Quality Indicator Report

Slide 40

c2

added DV text - may not be appropriate
added NAAQS text
ctsuser, 10/27/2009

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	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:
Type Met Site: On-Site Met Equip	Dist to Met. Site(m):	Met. Site ID:
Urban Area: Raleigh, NC		Local Region:
City Population: 276093	Dir. to CBD: NE	EPA Region: Atlanta
Census Block: 1033	Block Group: 1	Dist. to City(km): 13
Congressional District: 13		Census Tract: 05400
Site Latitude: +35.856111	Site Longitude: - 78.574167	Class 1 Area:
UTM Zone:	UTM Northing:	Time Zone: Eastern
Accuracy: 3.04	Datum: WGS84	UTM Easting:
Vertical Measure(m): 100.0		Scale: 24000
Vert Datum Unknown		Vert Accuracy: 0
		Point/Line/Area: Point
		Vert Method: Unknown

SITE COMMENTS

CAROLINA POWER ELECTRIC METER NO. ACDB68089G35

ACTIVE MONITOR TYPES		AGENCY ROLES			
Monitor Type	# of Monitors	Role	Agency Desc	Begin Date	End Date
SLAMS	25	SUPPORTING	North Carolina Dept Of Environment And Natural Resources	19980916	
NON-REGULATORY	108				
SUPLMNTL SPECIATI	68				
UNOFFICIAL PAMS	59				
OTHER	26				
SPECIAL PURPOSE	9				
PROPOSED NCORE	25				
QA COLLOCATED	1				



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

Slide 43

c3 changed first sub-bullet under 'how your site is set up'

Changed ID to number. It is my (and I think others) preferred terminology. A site id is traditionally XX-YYY-ZZZZ or state-county-site (see the report on previous page). calling both of these reference Site ID has caused confusion, so we've got to be better at using the 'site number' term.

ctsuser, 10/27/2009

Monitor Information



- Tells You:
 - How a Given Pollutant is Measured
 - When Sampling Began
 - What 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 DIXDMONT
 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
 DQAO: (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	AN
30	AN	9.2	9.4	21.8 X	16.6	12.2	18.5	5.5	8.9	2.8 V	AN	AN
31	AN	18.4	14.5 X	19.3	24.8	19.3	24.8	8.0	AN	AN	AN	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																				CAS NUMBER: 10028-15-6							
SITE ID: 37-183-0014 POC: 1										STATE: (37) North Carolina										LATITUDE: 35.856111							
COUNTY: (183) Wake										AQCR: (166) EASTERN PIEDMONT										LONGITUDE: -78.574167							
CITY: (55000) Raleigh										URBANIZED AREA: (6639) RALEIGH, NC										UTM ZONE:							
SITE ADDRESS: 3801 SPRING FOREST RD.										LAND USE: RESIDENTIAL										UTM NORTHING:							
SITE COMMENTS: CAROLINA POWER ELECTRIC METER NO. ACDB68089C35										LOCATION SETTING: SUBURBAN										UTM EASTING:							
MONITOR COMMENTS:																				ELEVATION-MSL: 100							
SUPPORT AGENCY: (0776) North Carolina Dept Of Environment And Natural Resources																				PROBE HEIGHT: 4							
MONITOR TYPE: Multiple Monitor Types										REPORT FOR: MARCH 2008										DURATION: 1 HOUR							
COLLECTION AND ANALYSIS METHOD: (047) INSTRUMENTAL ULTRA VIOLET																				UNITS: Parts per million							
PQAO ORG: (0776) North Carolina Dept Of Environment And Natural Resources																				MIN DETECTABLE: .005							
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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.035	.033	.034	.034	.037	.039	.041	.043	.044	.046	.047	.047	.045	.040	.007	.002	.002	.002	.002	.002	23	.047	
10	.002	.002	.002	HD	.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	HD	.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	HD	.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	HD	.019	.013	.011	.010	.027	.032	BF	BF	.050	.061	.064	.065	.063	.064	.061	.054	.054	.058	.060	.060	21	.067	
14	.058	.057	.055	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.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	HD	.040	.037	.034	.032	.033	.035	.038	.042	.045	.047	.046	.046	.044	.044	.044	.040	.040	.040	.041	.042	.041	23	.047
25	.039	.039	.035	HD	.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	HD	.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	HD	.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	HD	.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	HD	.030	.034	.038	.037	.035	.032	.030	.031	.033	.033	.034	.033	.033	.032	.032	.030	.029	.032	.032	.030	23	.038	
30	.038	.038	.037	HD	.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	HD	.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.																											

Detail 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)
 - 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
 - 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

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

(89101) PM2.5 - Local Conditions

SITE ID: 37-193-0014
COUNTY: (193) 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

CAS NUMBER:
LATITUDE: 35.856111
LONGITUDE: -78.574167

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*	9	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	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	ANNUAL CREDIT DAYS:	361
QTR 2:	90	99	13.2	90	99	ANNUAL % OBS:	
QTR 3:	91	31	13.4	91	99	ANNUAL WEIGHTED MEAN:	11.4
QTR 4:	92	21	8.8	92	100	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	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	# OBS	1ST	2ND	OBS >35	1ST	2ND	OBS >9	CERT	EDT
									MAX 1-HR	MAX 1-HR		MAX 8-HR	MAX 8-HR			
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	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	%OBS	VALID	NUM	1ST	2ND	3RD	4TH	DAY	CERT	EDT
									DAYS MEAS	DAYS REQ	MAX 8-HR	MAX 8-HR	MAX 8-HR	MAX 8-HR	MAX 0.075		
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	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	MEAS	VALID	NUM	1ST	2ND	3RD	4TH	DAY	EST	MISS	CERT	EDT
									DAYS REQ	DAYS REQ	MAX 1-HR	MAX 1-HR	MAX 1-HR	MAX 1-HR	MAX 0.125	MAX 0.125	MAX 0.125		
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	

QA Reports



- Data Quality Indicator Report (AMP255)



QA (AMP255) example

■ Quality Control (AMP255)

1-Point Quality Control

Pollutant: O3 PQA0: 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 PQA0: 0776 (North Carolina Dept Of Environment And Natural Resources) App A?: Yes

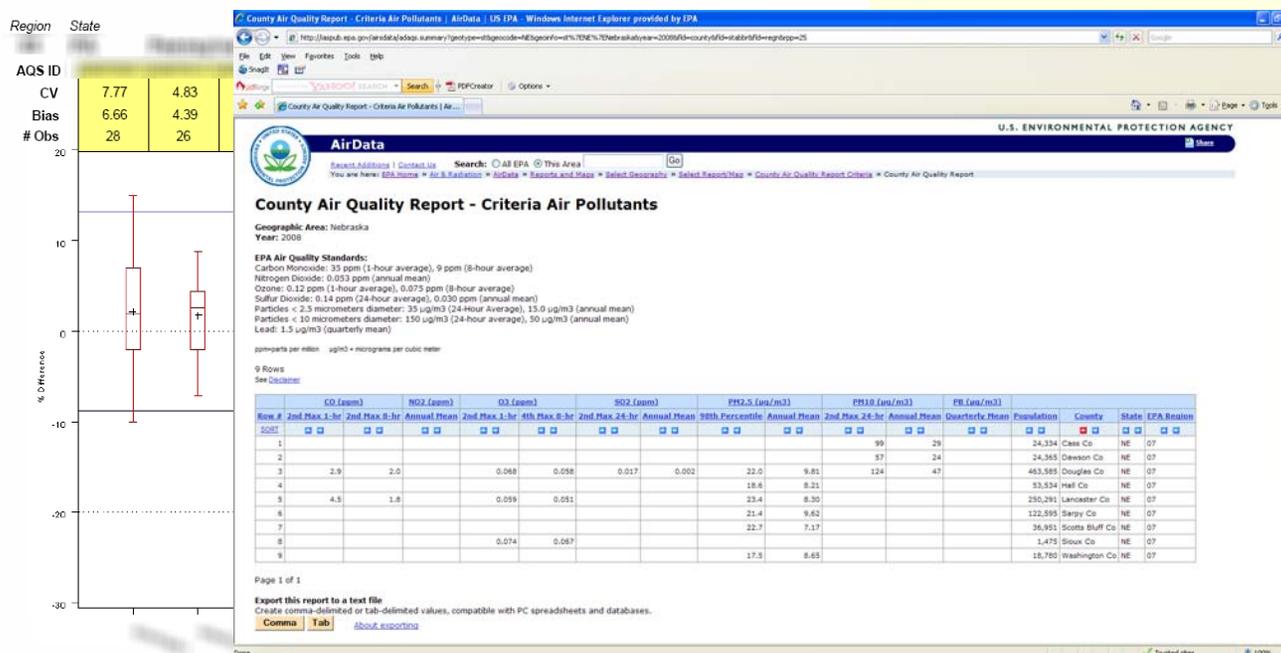
Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level					Obs / Q				Criteria Met?	1-Point Conf. Limits		% Btwn Conf.
								L1	L2	L3	L4	L5	Q1	Q2	Q3	Q4		Lower	Upper	
2007	04	NC	37-183-0014	1	S-PN	01-APR-07	31-OCT-07	-4.00	-2.22	-0.63	0.00		0	4	0	0	Y			
2007	04	NC	37-183-0016	1	O	01-APR-07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



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
- Analyze data by sorting, 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/>

Discoverer – how to build a query

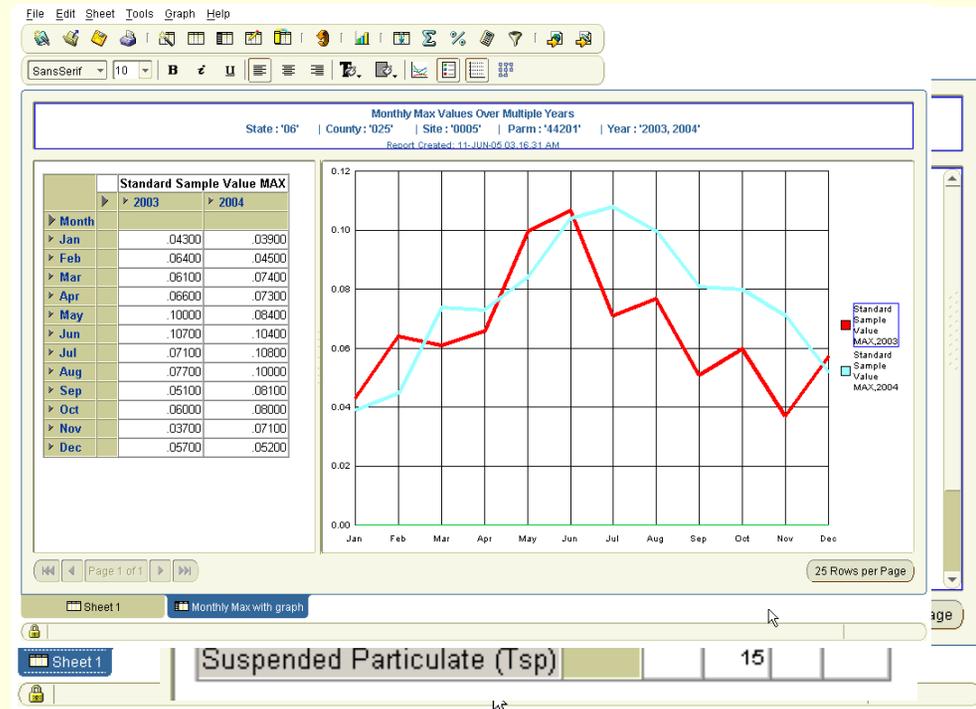


- Create a Connection
- Choose a Layout
- Select Items
 - To Display
 - To Filter By
- Specify Sorting (optional)
- Specify Totals (optional)
- Specify Run-Time Parameters (optional)
- Run Report

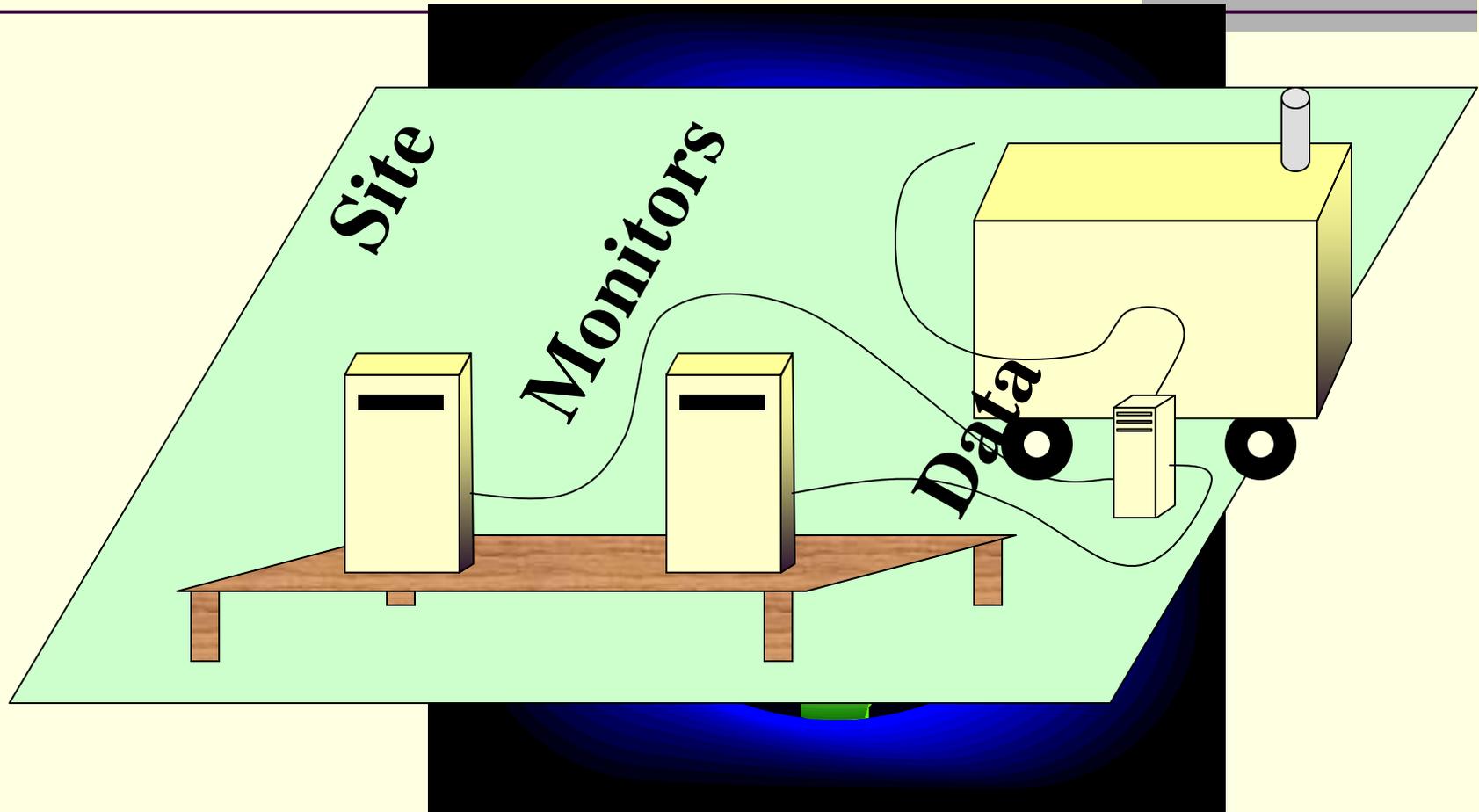
What Can Discoverer Produce?



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



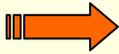
Types of “Core” Data in AQS



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

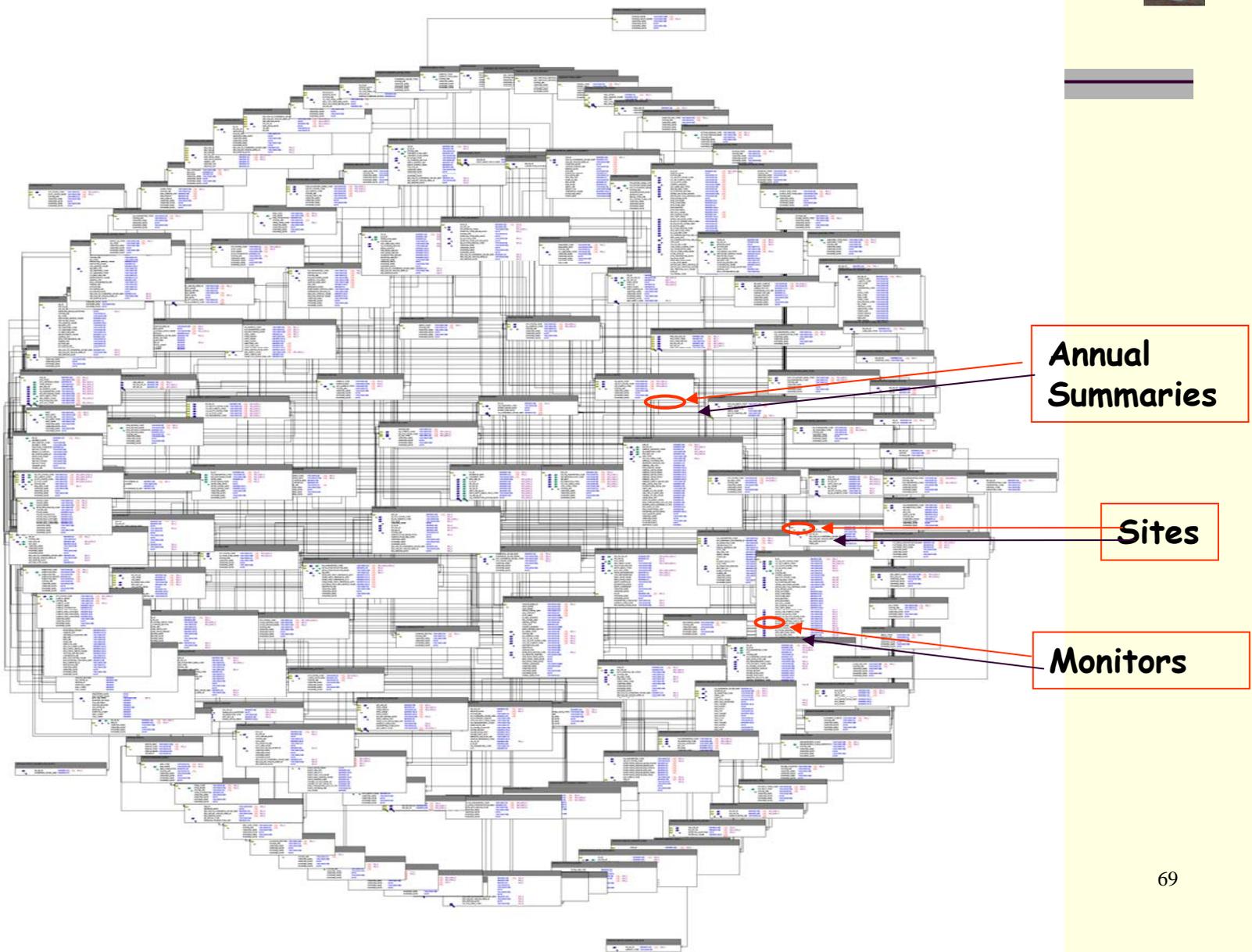


AQS basic

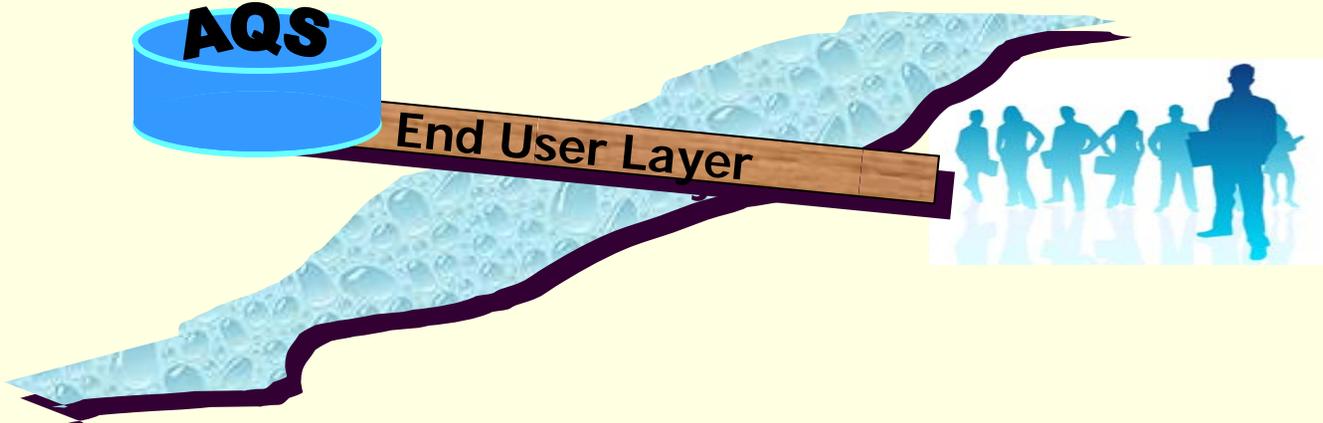
AQSProd

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

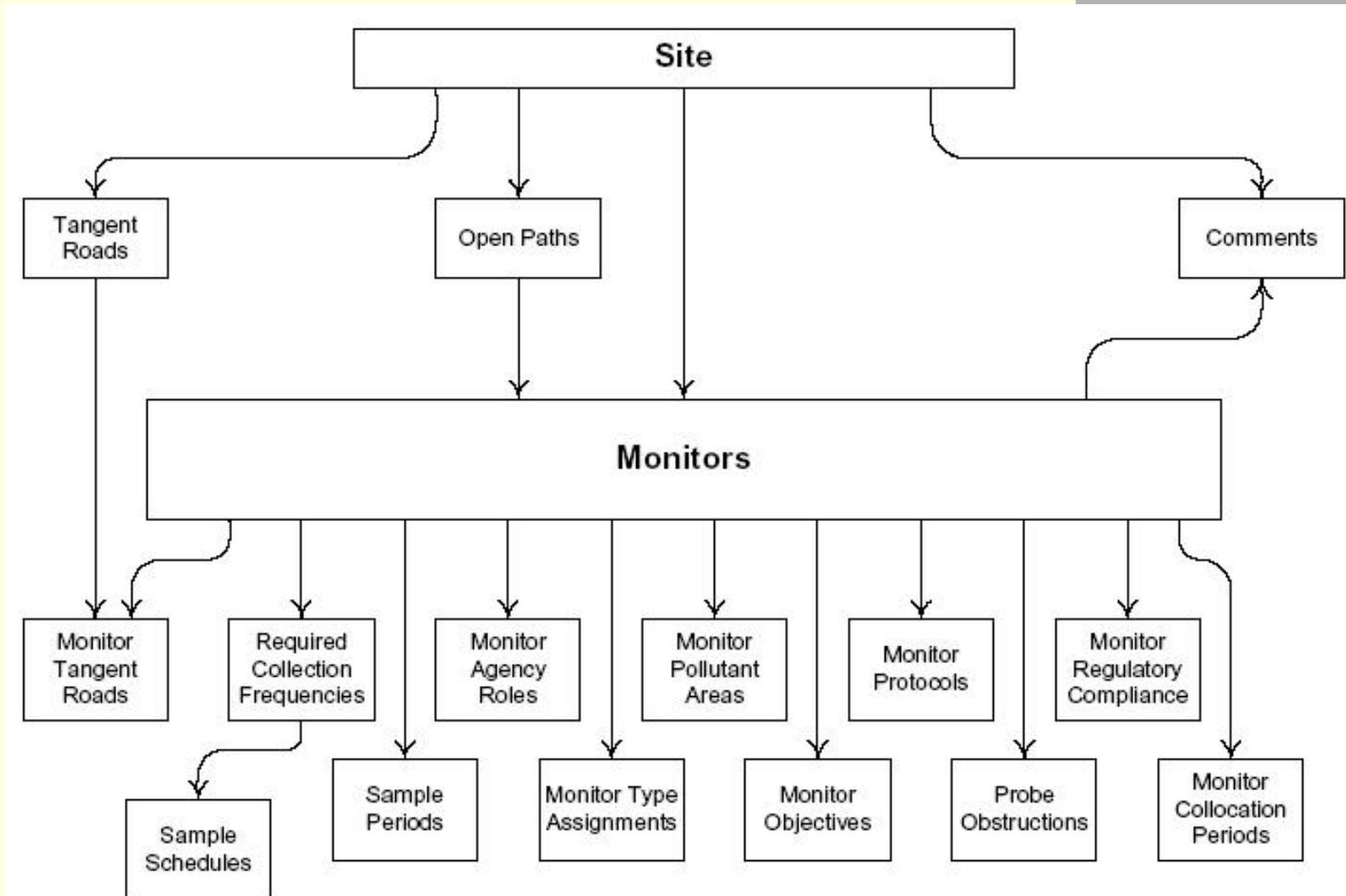
Why is the EUL Necessary?



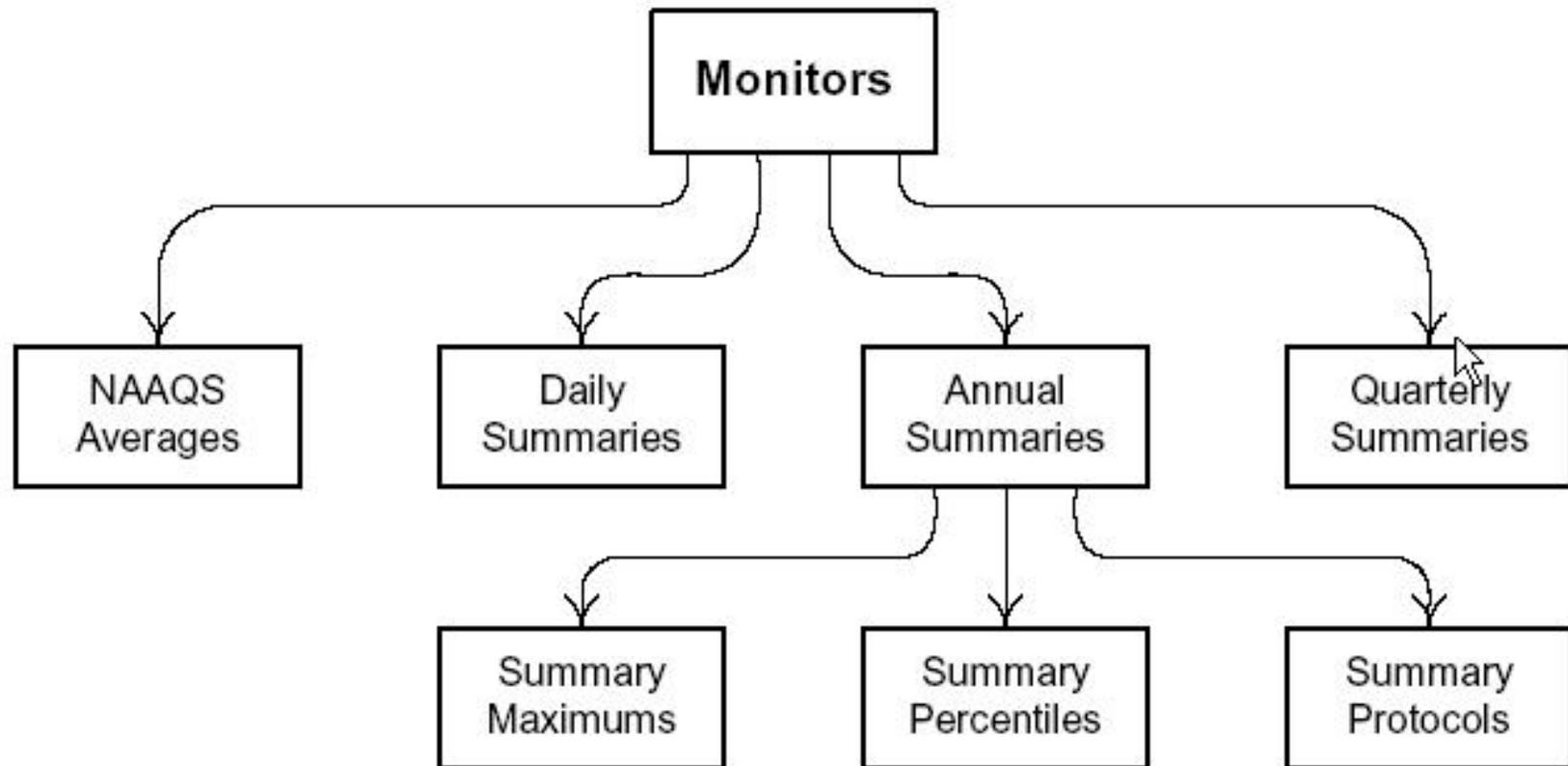
Why is the EUL Necessary?



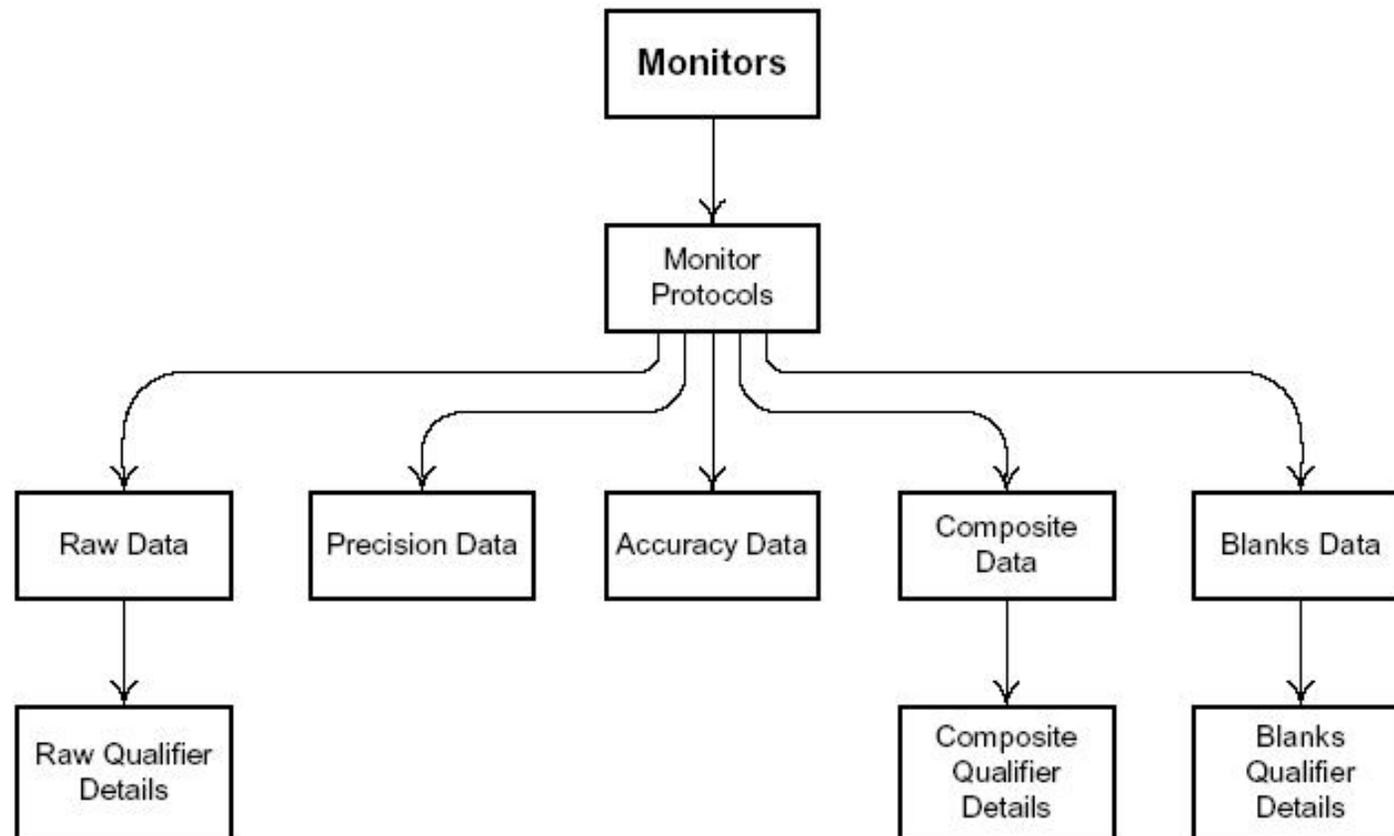
Data Model for AQS



Data Model for AQS, cont'd



Data Model for AQS, cont'd



Starting Discoverer Plus



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

A screenshot of a Microsoft Internet Explorer browser window displaying the OracleAS Discoverer Plus web interface. The browser title is "OracleAS Discoverer - Microsoft Internet Explorer". The address bar shows the URL "https://iasint.rtpnc.epa.gov/discoverer/plus". The page content includes the Oracle Application Server logo, the "Discoverer Plus" title, a "Help" icon, and a "Connect to Discoverer Plus" section. Below this section is a table with columns for "Details", "Connection", "Description", "Update", and "Delete". The table currently shows "(No connections found.)". A red arrow points to a "Create Connection" button located to the right of the table.

Oracle Application Server
Discoverer Plus

Help

Connect to Discoverer Plus

To connect to OracleAS Discoverer, click the corresponding Connection in the table below. If the connection you are looking for isn't in the list, click Create Connection.

Create Connection

Details	Connection	Description	Update	Delete
	(No connections found.)			

Help

Create a Connection



OracleAS Discoverer - Microsoft Internet Explorer

Address: https://iasint.rtpnc.epa.gov/discoverer/plus

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:

Database Account Details

User Name:

Password:

Database:

Cancel Apply

Help



Connection created



A screenshot of a Microsoft Internet Explorer browser window displaying the OracleAS Discoverer Plus connection interface. The browser title is "OracleAS Discoverer - Microsoft Internet Explorer". The address bar shows the URL: "https://iasint.rtpnc.epa.gov/discoverer/plus?&_plus=true&cn=us_a145&us=%7E27B05%7E27&db=aqsprod&lm=discoverer&eul=EUL_OWNER&nls=en-us&_plus=true&plusp_Locale=en-us". The page content includes the "Oracle Application Server Discoverer Plus" logo, a "Help" icon, and the text "You are connecting to OracleAS Discoverer". Below this, there is a form with the following fields: "Connection Name" (value: aqsprod), "Language" (value: English (United States)), and "Password" (value: masked with dots). A red arrow points to the "Password" field. A "Connect" button is located below the password field. A "Help" link is visible at the bottom of the page.

Use this
connection

Successful connection



The screenshot displays the OracleBI Discoverer interface within a Microsoft Internet Explorer browser window. The browser's address bar shows the URL: `http://iasint.rtpnc.epa.gov - OracleBI Discoverer - Microsoft Internet Explorer provided by EPA - version 6`. The interface includes a menu bar (File, Edit, View, Format, Tools, Help) and a toolbar with various icons. On the left side, there are panels for "Available Items" and "Selected Items", each with a list and a set of icons. The main content area is currently empty. A "Workbook Wizard - Step 1 of 5: Create/Open Workbook" dialog box is open in the foreground. The dialog box has a blue header and a white body. It contains the following text and options:

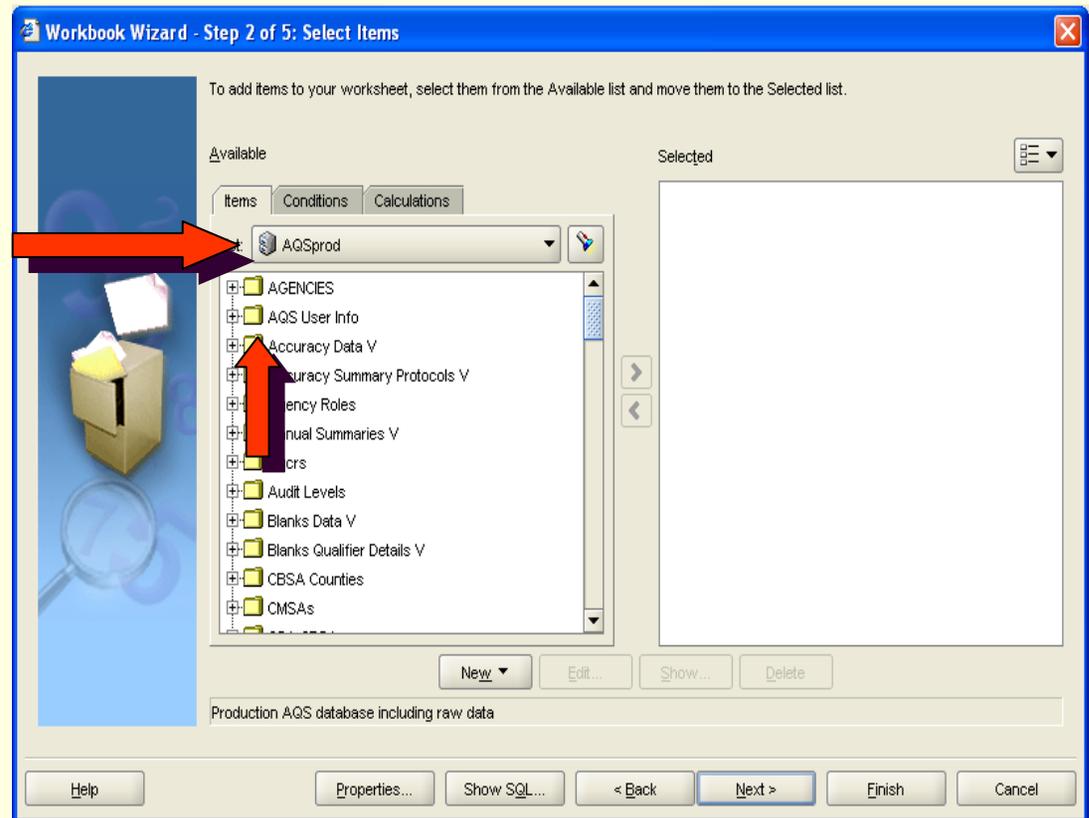
- Connected to the Database: AQSPROD (EULEUL_OWNER)
- What do you want to do?
 - Open an existing workbook
 - Recently Used:
 - There are no recently used workbooks.
 - Browse...
 - Create a new workbook
 - Select the objects to display in the worksheet:
 - Title
 - Page Items
 - Crosstab
 - Table
 - Graph
 - Placement: Graph below Table
 - Text Area
 - Example:
 - A small preview window showing a table with a bar chart below it.

At the bottom of the dialog box, there are buttons for "Help", "Properties", "Show SQL", "< Back", "Next >", "Finish", and "Cancel". The status bar at the bottom of the browser window shows "Applet oracle.disco.DiscoApplet started" and "Internet".

Selecting Items

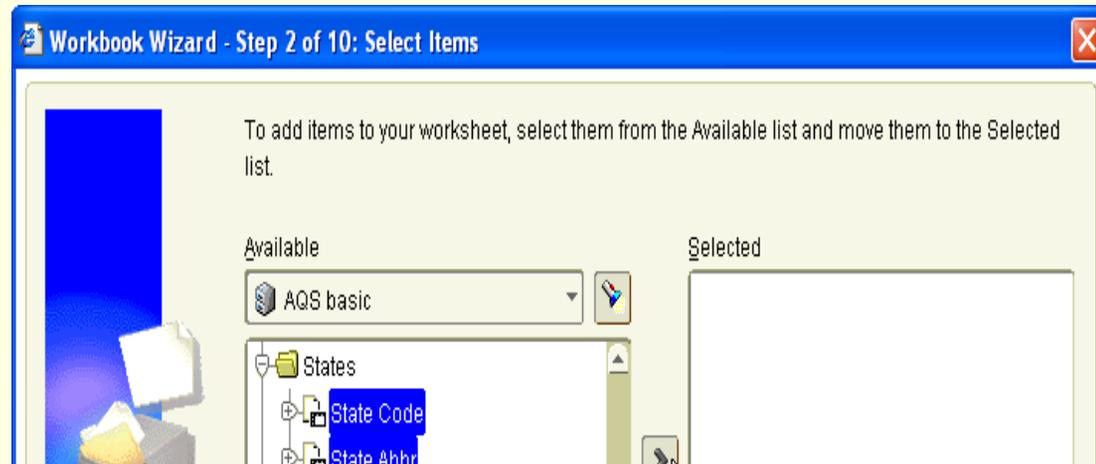


- AQS basic is the simplest Business Area
- Scroll through list of folders
- Expand a folder to see its items

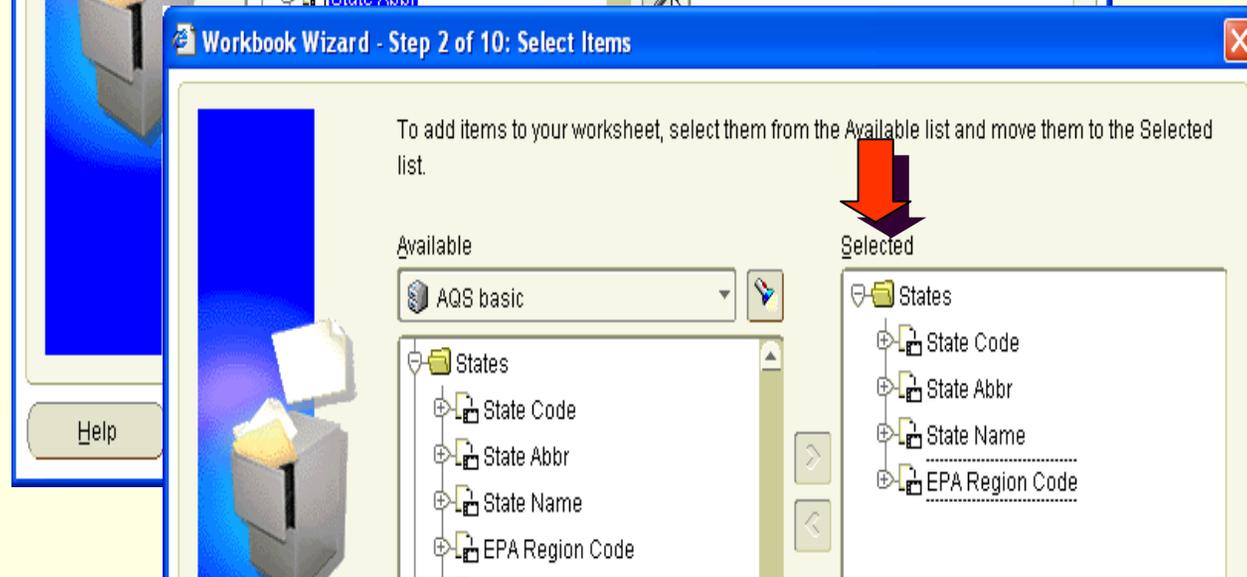




Selecting Items, cont'd



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



Conditions

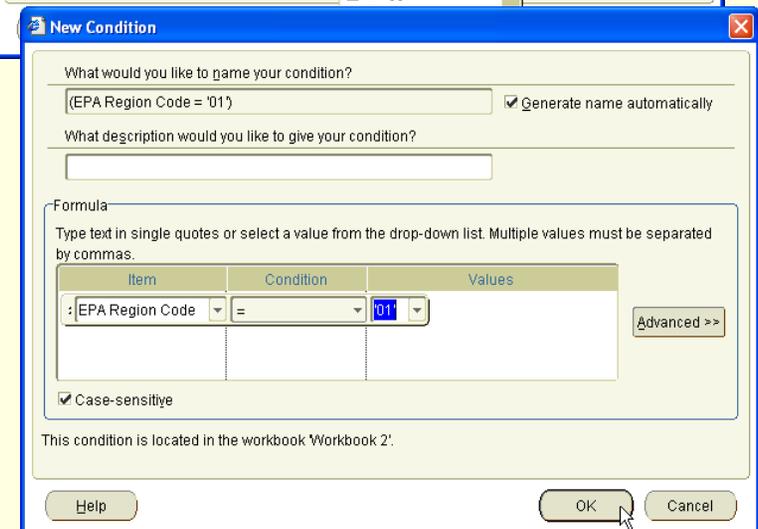
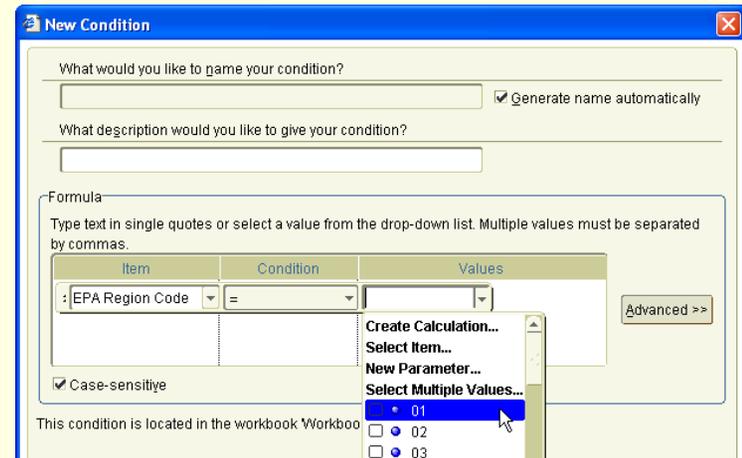
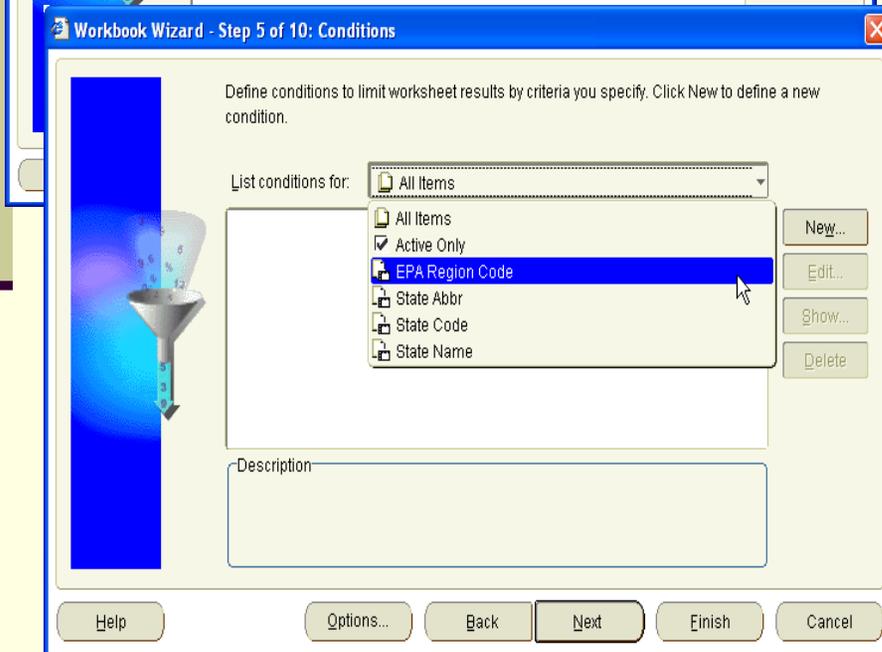
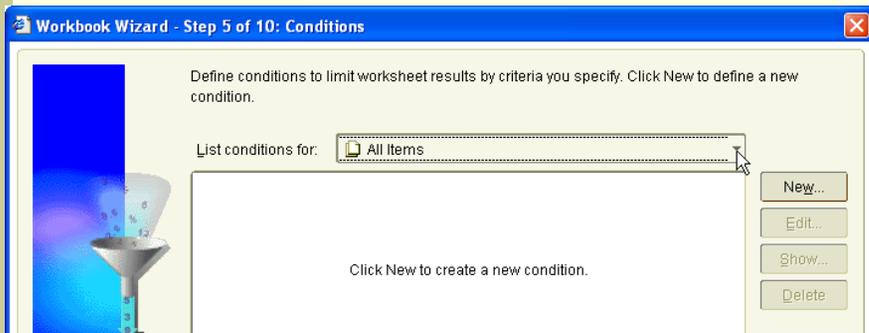
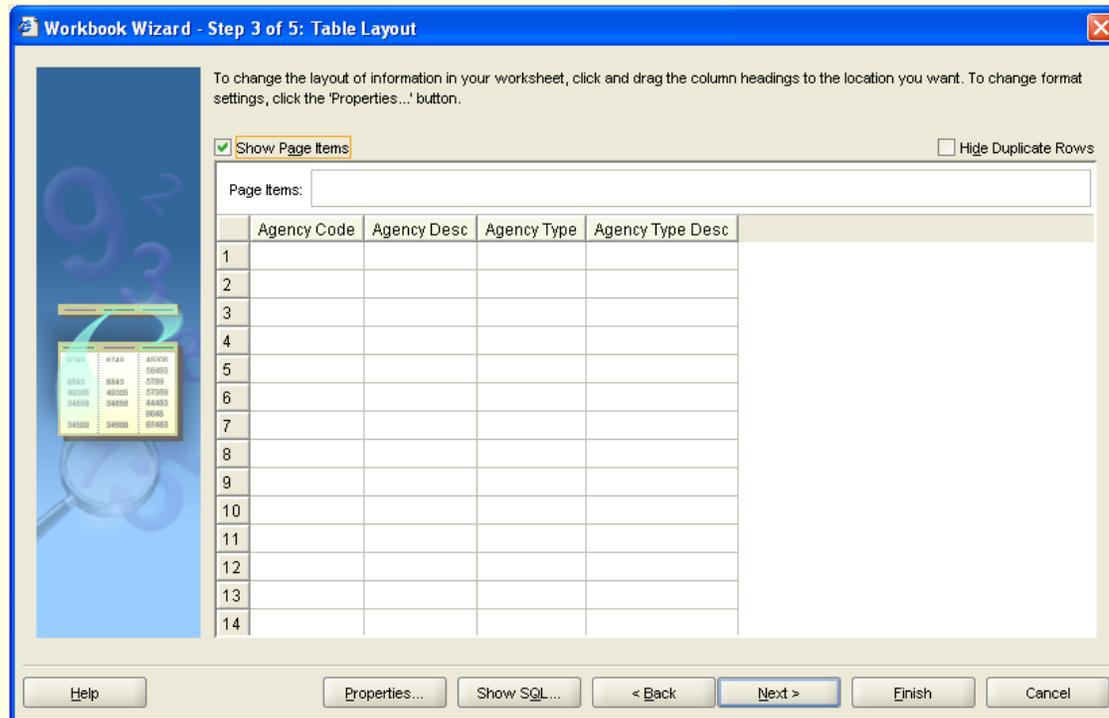




Table Layout

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	<input type="checkbox"/>

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

Buttons: Add, Delete, Move Up, Move Down, Format...

Buttons: Help, Properties..., Show SQL..., < Back, Next >, Finish, Cancel



Selecting Parameters

Workbook Wizard - Step 5 of 5: Parameters

New Parameter

What do you want to name this parameter?
[Empty text box]

Which item do you want to base this parameter on?
Agency Code

Create condition with operator: =
Condition: (Agency Code = :Agency Code Parameter)

What prompt do you want to show for this parameter?
[Empty text box]

What description do you want to show for this parameter?
[Empty text box]

Do you want to allow different parameter values for each worksheet?
 Allow only one set of parameter values for all worksheets.
 Allow different parameter values for each worksheet.

What properties do you want to give this parameter?
 Require users to enter a value
 Enable users to select multiple values
 Enable users to select either indexes or values

What default value do you want to give this parameter?
Value [Empty text box]

Do you want to filter the list of values for this parameter?
 Show all available values
 Filter the list of values based on the selected conditions:
[Empty list box]

Buttons: Help, Properties..., Show SQL..., < Back, Next >, Finish, Cancel

Results



The screenshot displays the OracleBI Discoverer interface. A 'Format Data' dialog box is open, showing options for font (Dialog, size 11), style (bold, italic, underline, strikethrough), color, text, background, and alignment. The 'Show Actual font size' checkbox is checked. The background shows a data table with columns for Agency Code, Agency Desc, Agency Type, and Agency Type Desc. A context menu is visible over the table, with 'Format Data...' selected. The status bar at the bottom indicates 'Appllet oracle.disco.DiscoApplet started' and 'Internet'.

Agency Code	Agency Desc	Agency Type	Agency Type Desc
0001		PRIVA	
0002		PRIVA	
0003		PRIVA	
0004		COUN	
0005		PRIVA	
0006		PRIVA	
0007		STATE	
0008		PRIVA	
0009		PRIVA	
001		TREAS	
0010		PRIVA	
0011		CITY A	
0012		CITY A	
0013		STATE	
0014		COUN	
0015		STATE	
0016		INSTIT	
0017		CITY A	
0018		CITY A	
0019		PRIVA	
0020	Allegheny County H	COUN	
0021	Allegheny County J	COUN	
0022	Allied Corporation J	PRIVA	
0023	Altoona Departmen	CITY A	
0024	Aluminum Compan	PRIVA	
0025	Amador County A	DISTR	
0026	Amarillo Bi-City-C	COUN	
0027	Amx Coal Comp	PRIVATE	
0028	Amerada Hess	PRIVATE	

Where to Get More Information

- 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://oasext.epa.gov/aqs>

Discoverer Access: <http://iasint.rtpnc.epa.gov/discoverer/plus>