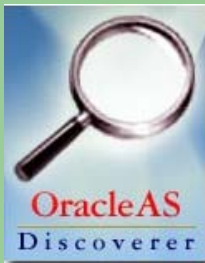


Discoverer with AQS for New Users



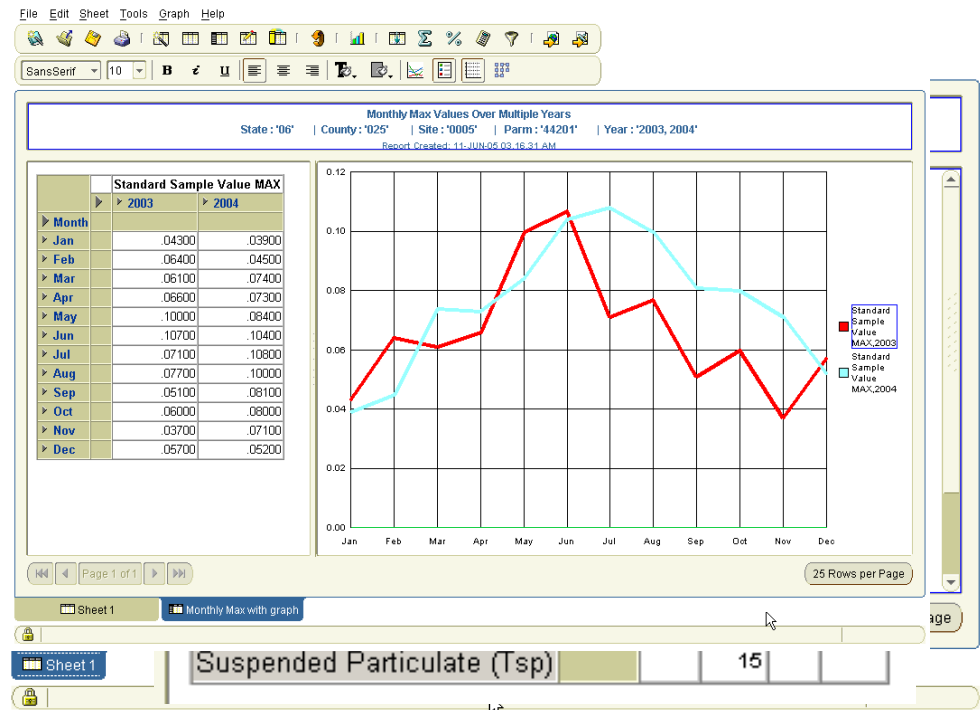
Nick Mangus

Goals for this class

- Become familiar with the mechanics of using Discoverer
- Practice using Discoverer
- Learn about the data in AQS
- Have Fun!

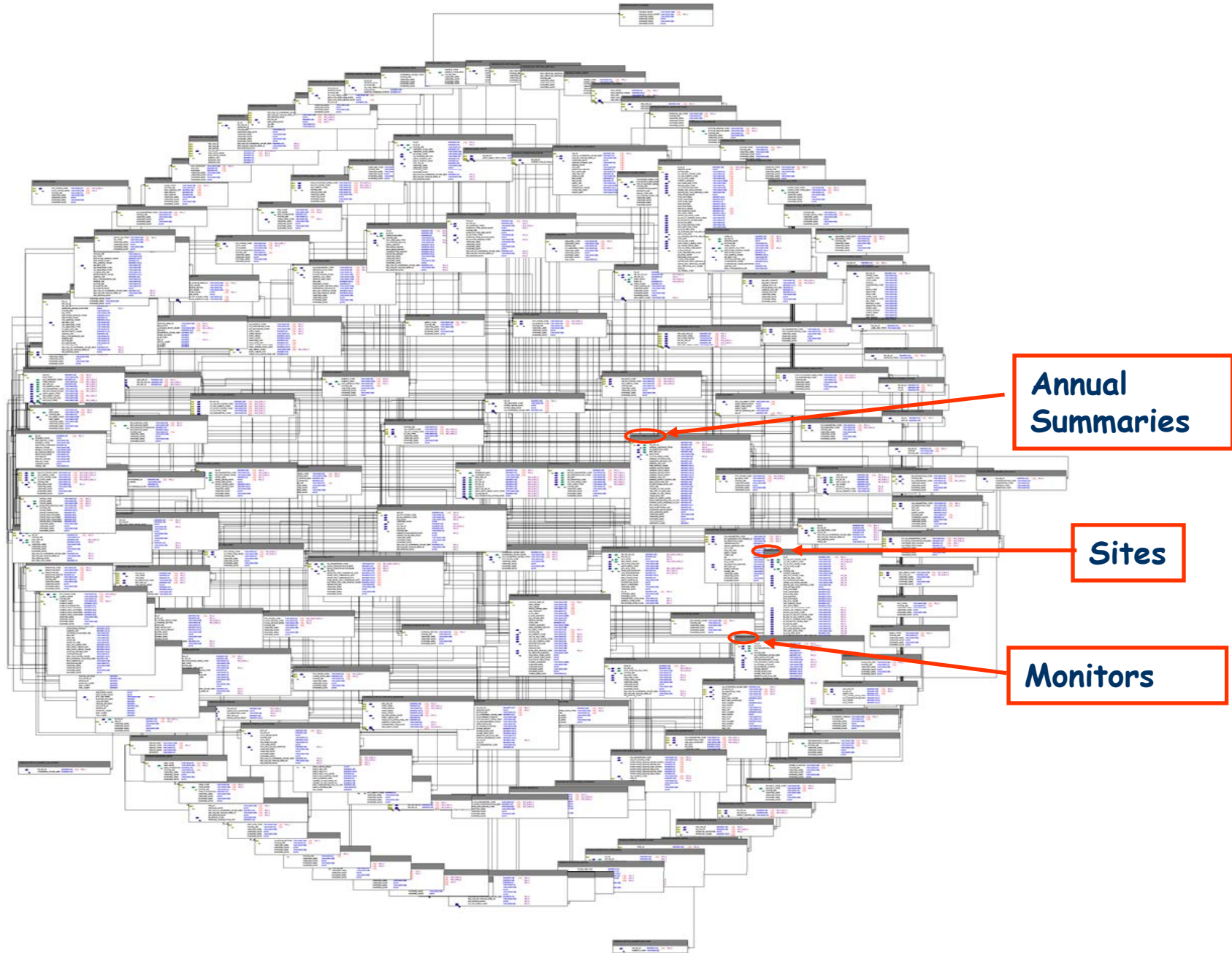
What Can Discoverer Produce?

- Data Listing Reports (Tables; Rows of Data)
- Cross-Tabulation Reports (Pivot Tables)
- Graphs & Charts



What is Discoverer?

- A business intelligence tool for customizable queries from Oracle Corporation (“OBI”)
- A retrieval only tool that works on a relational database
- Key terms
 - The End User Layer is a filter that makes the database more understandable
 - A Business Area is a grouping of similar data related to a common task
 - You should use only “AQS prod”

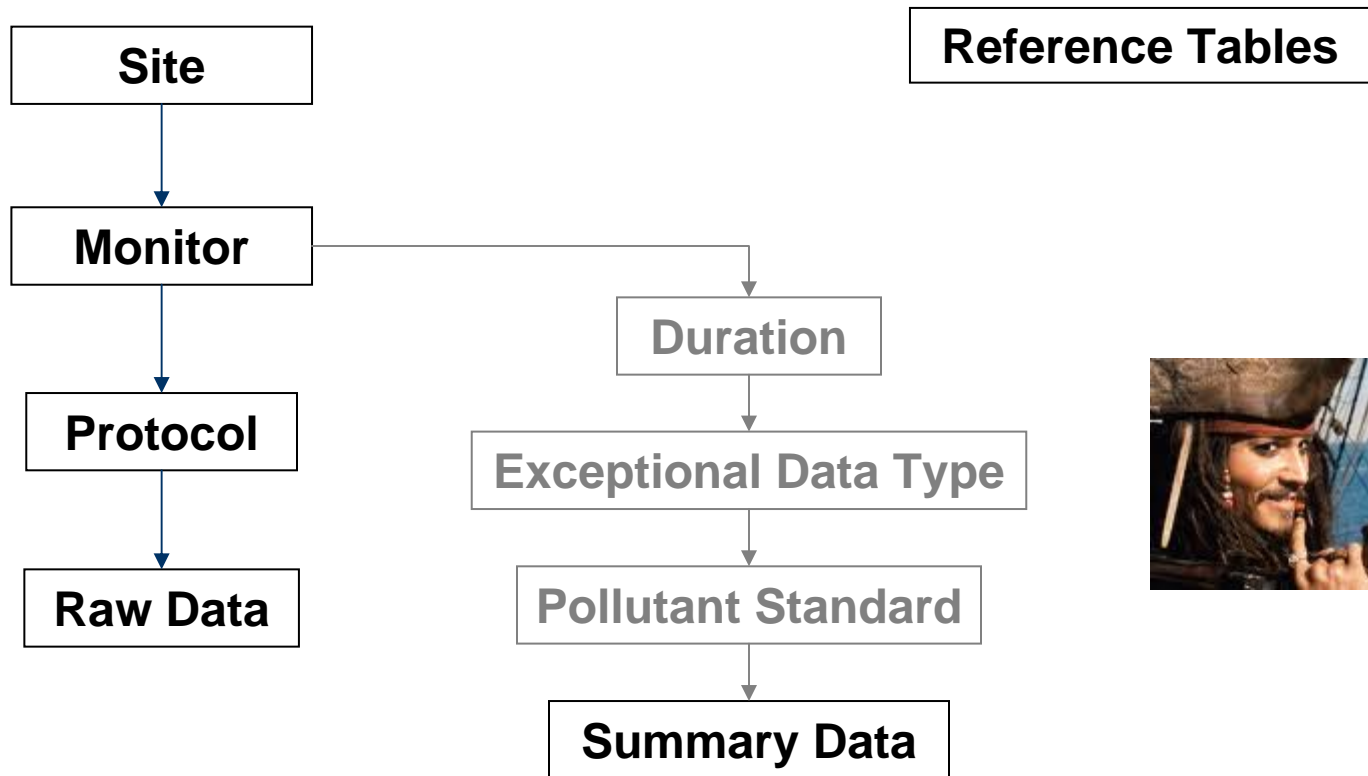


Annual Summaries

Sites

Monitors

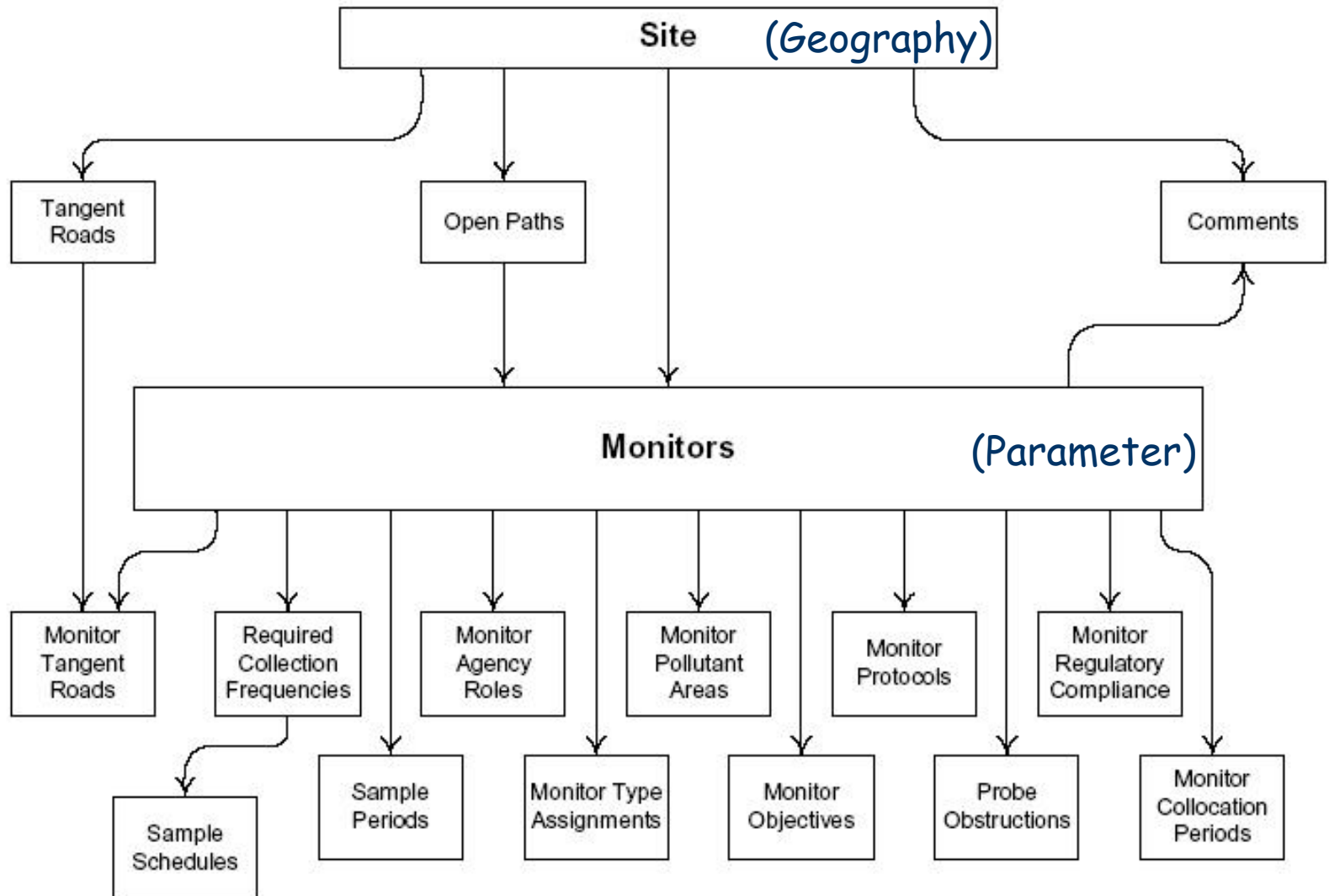
Data Model for AQS (Overview)



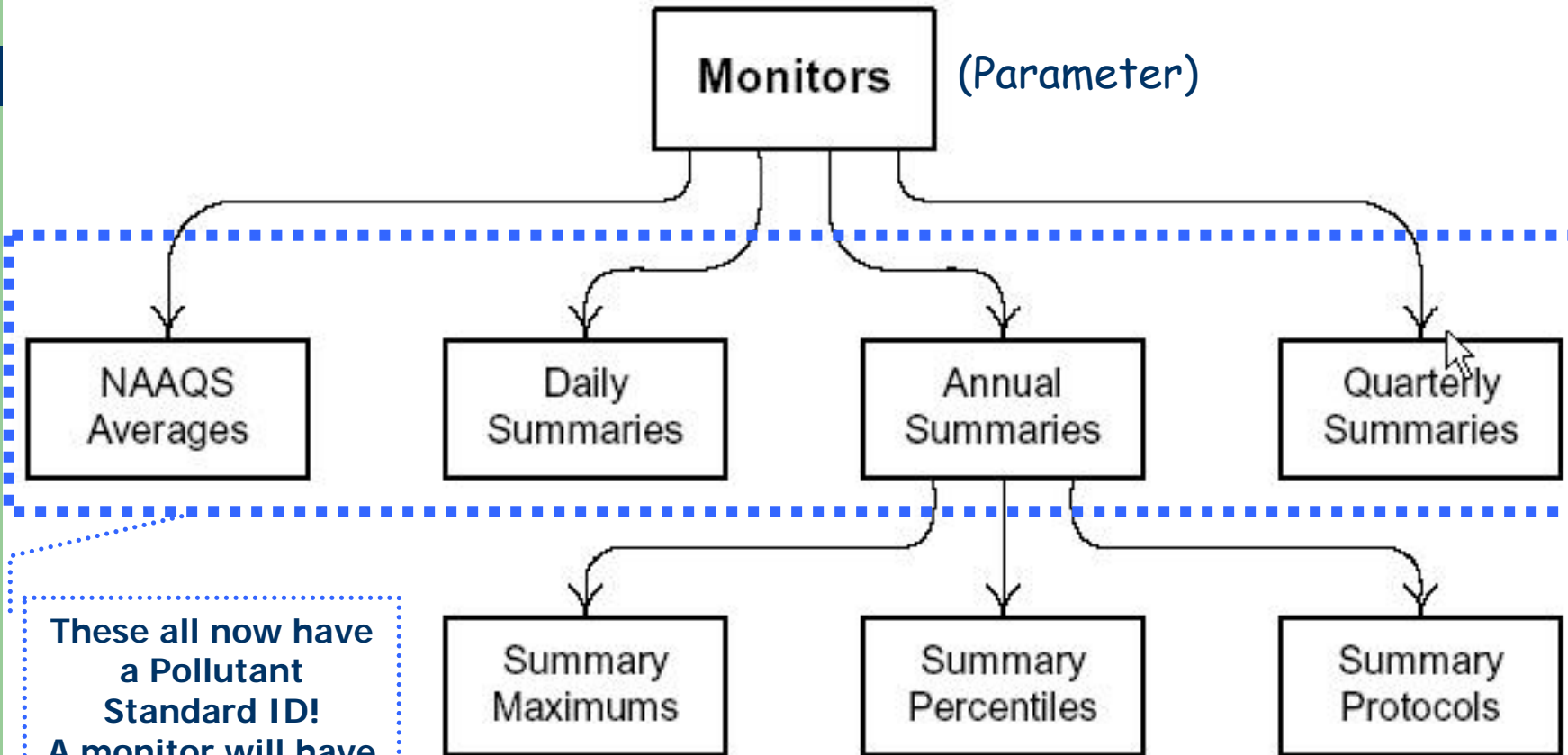
Pollutant Standard IDs

PS_ID	PARAM. CODE	PROMUL. DATE	PRIMARY STD LEVEL	SEC'RY STD LEVEL	ROUND TRUNC IND	SHORT_DESCRIPTION	DESCRIPTION
1	12128	05-Oct-1978	1.500	1.500	2	Lead Quarterly Historical	Original lead standard based on calendar quarterly average.
3	42101	13-Sep-1985	35	35	2	CO 1-hour 1971	Carbon Monoxide 1-hour standard from 1971.
4	42101	13-Sep-1985	9.000	9.000	2	CO 8-hour 1971	Carbon Monoxide 8-hour running average from 1971.
5	42401	22-May-1996		0.500	2	SO2 3-hour 1971	Sulfur Dioxide 3-hour Block Average from 1971.
6	42401	22-May-1996	0.140		2	SO2 24-hour 1971	Sulfur Dioxide 24-hour standard from 1971.
7	42401	22-May-1996	0.030		2	SO2 Annual 1971	Sulfur Dioxide Annual Mean Standard from 1971.
8	42602	19-Jun-1985	0.053	0.053	2	NO2 Annual 1971	Nitrogen Dioxide Annual Mean from 1971.
9	44201	18-Jul-1997	0.120	0.120	2	Ozone 1-hour Daily 2005	Ozone 1-hour Daily Max value based on data compl'tness from 9am to 9pm.
10	44201	18-Jul-1997	0.080	0.080	2	Ozone 8-Hour 1997	Ozone 8-hour running average stored in begin hour from 1997.
11	44201	27-Mar-2008	0.075	0.075	1	Ozone 8-hour 2008	Ozone 8-hour running average stored in begin hour from 2008.
12	81102	01-Jul-1987	150	150	2	PM10 24-hour 2006	PM10 24-hour standard. Violations include actual exceedences & expected excd's where
16	88101	17-Oct-2006	35	35	2	PM25 24-hour 2006	PM25 24-hour standard made more restrictive in 2006.
18	88101	17-Oct-2006	15	15	2	PM25 Annual 2006	PM25 annual wtd mean was reaffirmed in 2006 with same level as originally promulgated.

Data Model for AQS (Metadata)

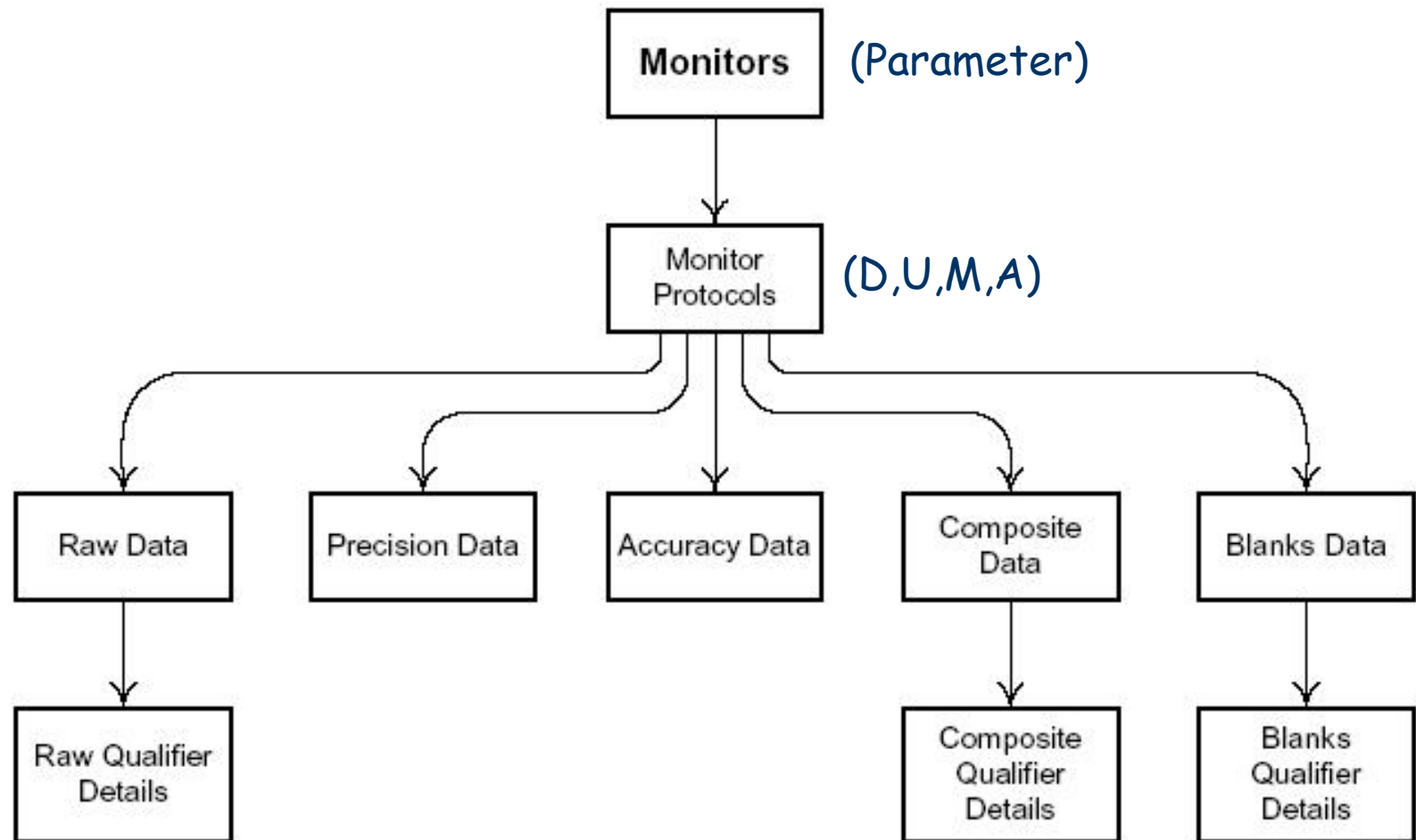


Data Model for AQS (Summary Data)



These all now have a Pollutant Standard ID!
A monitor will have more than one annual summary for the same duration + events!

Data Model for AQS (Measured Data)



How To Build a Query in Discoverer

- Connect to Discoverer (log on)
- Choose an Output Format
- Select Data
 - To Display
 - To Filter By (Conditions) – NOT Optional
- Specify Calculations and Totals (Optional)
- Adjust the Layout (Optional)
- Specify Sorting (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

What you need to Run Discoverer

- AQS user ID and password
- Web browser
- Java (Virtual Machine)
- URL: <http://www.epa.gov/ttn/airs/airsaqs/aqdiscover/>

Let's Light This Candle

The screenshot shows a web browser window displaying the EPA's Air Quality System (AQS) page. The address bar shows the URL <http://www.epa.gov/ttn/airs/airsaqs/>. The page title is "U.S. Environmental Protection Agency Technology Transfer Network (TTN) Air Quality System (AQS)". The main content area includes a search bar, a breadcrumb trail, and several sections of text and links. A red arrow points to the address bar, and a red circle highlights the "AQS Discoverer" link in the left sidebar.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Technology Transfer Network (TTN) Air Quality System (AQS)

[Recent Additions](#) | [Contact Us](#) Search: All EPA This Area

You are here: [EPA Home](#) » [TTNWeb - Technology Transfer Network](#) » [Air Quality System](#)

The Air Quality System (AQS) is EPA's repository of ambient air quality data. AQS stores data from over 10,000 monitors, 5000 of which are currently active. As discussed in more detail elsewhere, State, Local and Tribal agencies collect the data and submit it to AQS on a periodic basis.

This area is primarily intended for direct users of AQS, i.e., those in the state, local and tribal agencies and within EPA who load data into AQS database or use data from this database for analysis.

[Basic Information](#) - Brief description of the purpose of the Air Quality System. [Precision & Accuracy Data](#) - Brief description of the difference between P&A data and other AQS data, and spreadsheets to generate P&A data in data input transaction format.

[AQS Web Application](#) - Pathway to the AQS web application where registered users load and maintain AQS data, and retrieve reports. Release notes are also found here. [AQS Conferences](#) - Information about upcoming conferences and handouts from the previous conferences. These conferences are generally held once each year.

[AQS Discoverer](#) Pathway to the web version of the ad hoc query tool from Oracle Corporation. (For registered users only.) [Frequent Questions](#) - Questions and answers about AQS, sorted by topic.

[Manuals](#) - User Guides available for on-line browsing or downloading, including the AQS Coding manual. (Release notes are available for the AQS Coding manual.) [Memos](#) - Memos and E-mails generally related to AQS.

Quick Links

- [New User Registration](#)
- [AQS Codes](#)
- [Data Files](#)
- [Recent Additions](#)

[Training](#) - Schedule of upcoming training sessions and training materials available for downloading.

[Contacts](#) - Contact information for AQS and CDX help, EPA headquarters and regional staff as well as state/local/tribal representatives.

[Related Links](#) - Links to other sites that have information related to Air Quality.

Making a Connection



ORACLE Discoverer Plus
Business Intelligence

[Connect Directly](#)

Connect to OracleBI Discoverer

To connect to OracleBI Discoverer, click on a connection name or enter your connection details directly.

Choose Connection

Details	Connection	Description	
Show	AQSPROD		Update Delete
Show	EIMS_PUBLIC	EIMS Public Connection	Update Delete

[Create Connection](#)

Connect Directly

[Return to Top](#)

Enter your connection details below to connect directly to OracleBI Discoverer.

* Indicates required field.

Connect To

* User Name

* Password

* Database

End User Layer

Locale

Setup: Fill in the Blanks and Apply

Create Connection

Use this page to enter the details of the connection that you wish to create. Choose a name that is easy to remember, followed by an optional description and locale. Enter the account details for this connection before proceeding.

Connection Details

* Indicates required field.

Connect To

* Name

Name the connection (will use forever)

Description

Any description you want (optional)

Locale

Account Details

* User Name

Your AQS User ID

* Password

Your AQS Password

* Database

AQS database name (must be "aqsprod")

TIP You will be prompted to select an End User Layer and/or an Applications Responsibility if more than one exists.

Click, Type, and Go

The screenshot shows the Oracle Discoverer Plus Business Intelligence interface. The main window displays a table of connections. The connection 'aqspod' is circled in red. A red arrow points from this connection to a smaller inset window titled 'Enter Password'. The inset window shows the connection details and a password field.

ORACLE Discoverer Plus Business Intelligence

Connect Directly

Connect to OracleBI Discoverer

To connect to OracleBI Discoverer, click on a connection name or enter your connection details directly.

Choose Connection

Create Connection

Details	Description	Update	Delete
Show aqspod	The AQS Database		
Show EIMS_PUBLIC	EIMS Public Connection		

ORACLE Discoverer Plus Business Intelligence

Connect >

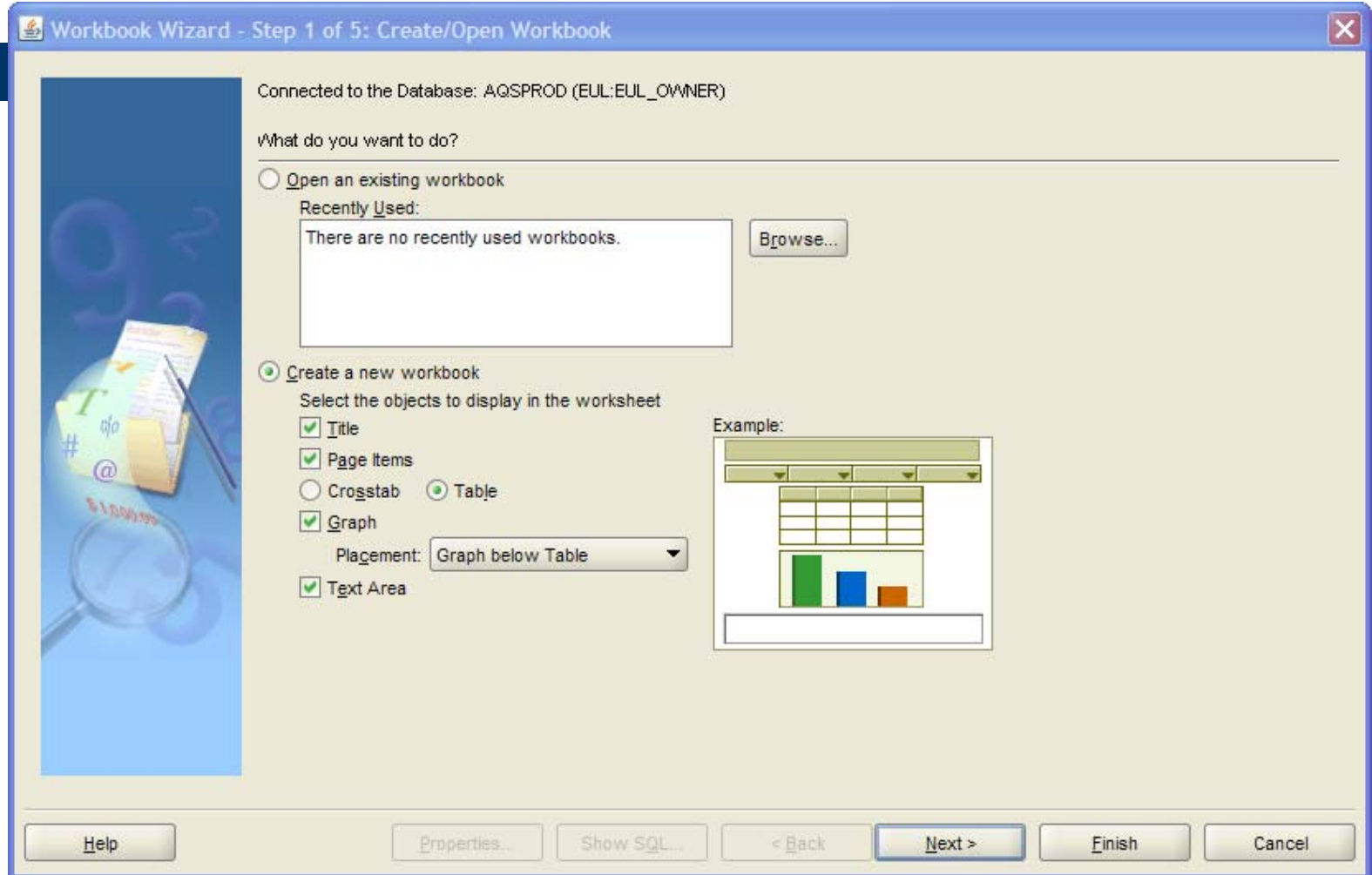
Enter Password

The item you are requesting requires you to enter a password. This could occur because this connection password was invalid. Please enter the correct password now to continue.

Connection Name: aqspod
Connection Description: The AQS Database
User Name: NJO
Database: aqspod
End User Layer: EUL_OWNER
Connect To: OracleBI Discoverer
Locale: Locale retrieved from browser
Password:

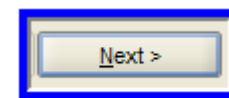
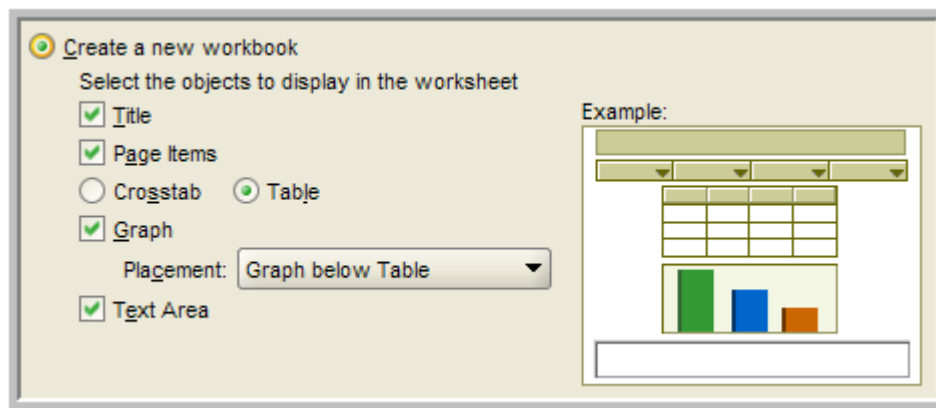
Go

Successful Connection / Create Workbook



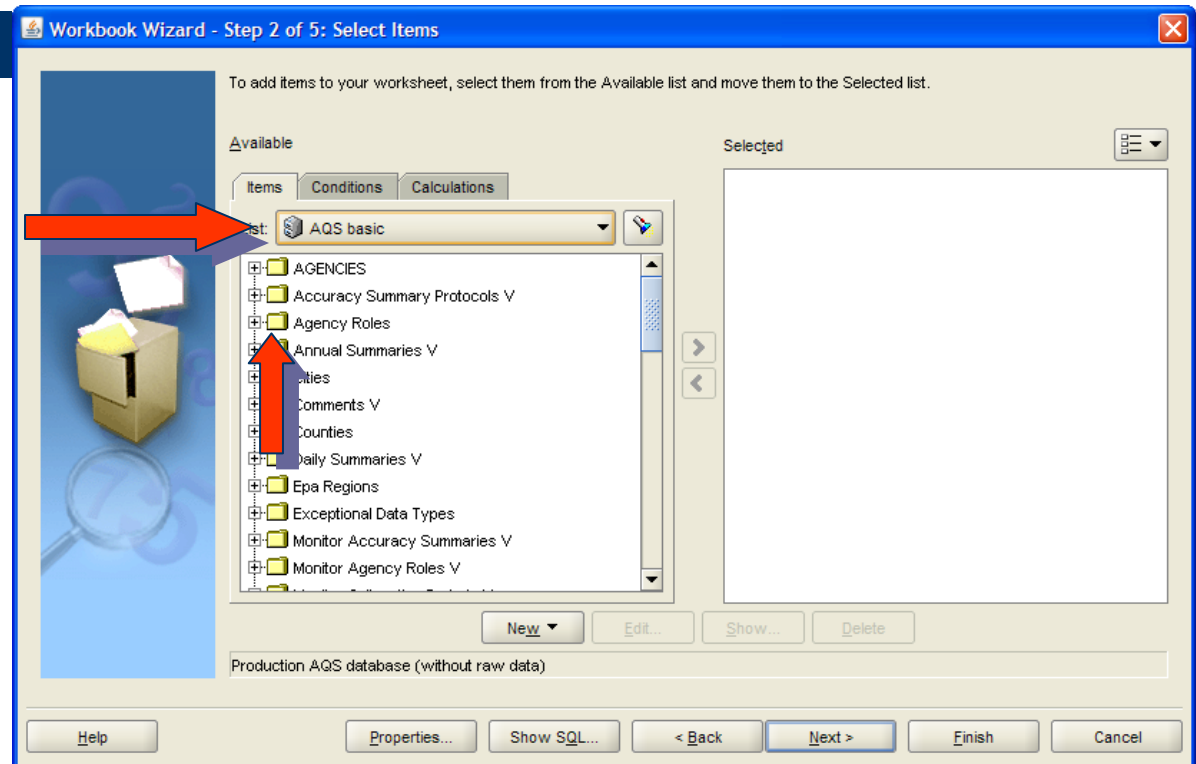
Creating a New Workbook

- Use the Workbook Wizard
- Start with a simple goal in mind – e.g., **Find the states in your region**



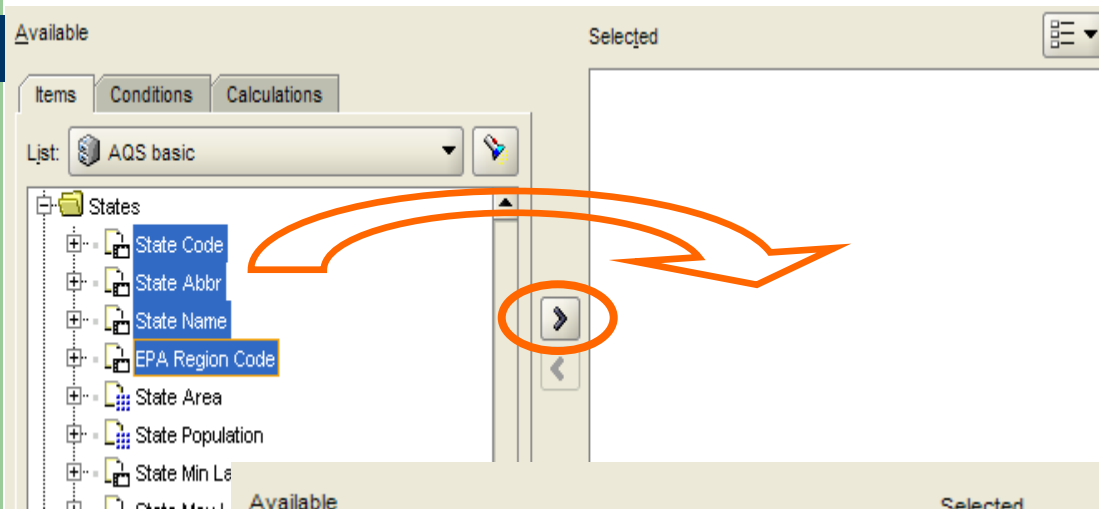
Selecting Items

- **AQS prod** is the only Business Area for you
- Scroll through list of folders
- Expand a folder to see its items

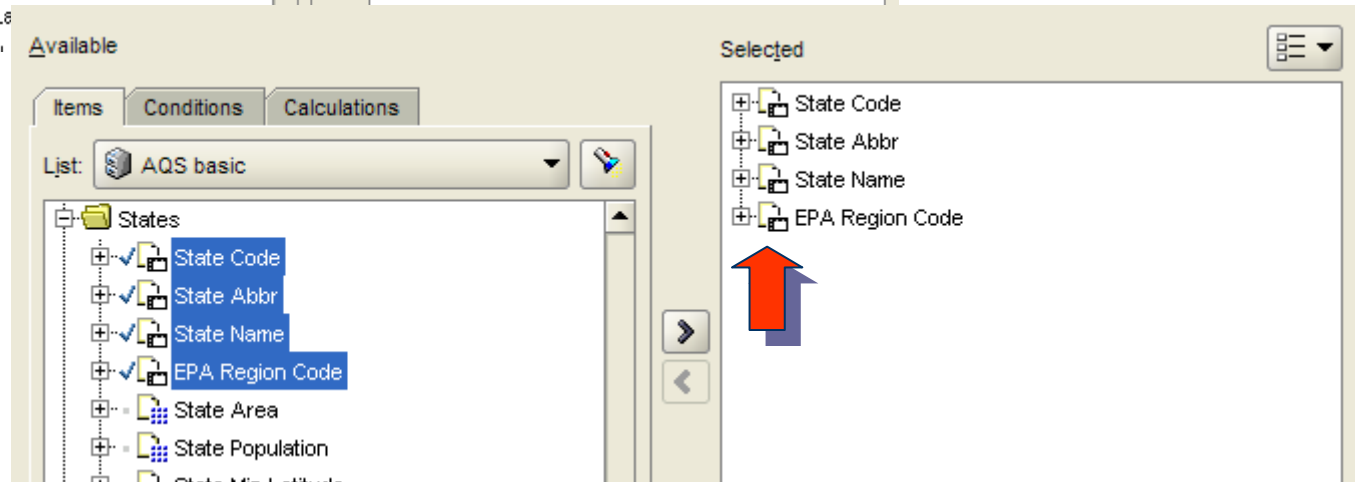


Terminology: ...V = view

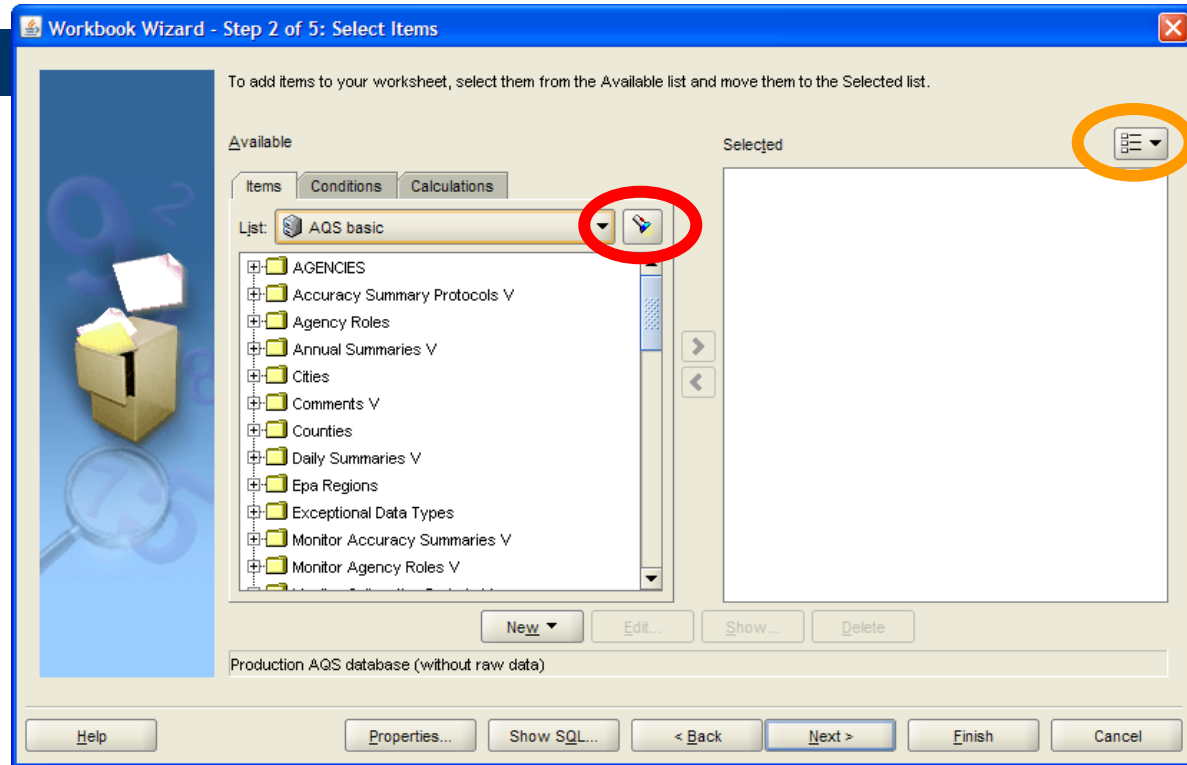
Selecting Items, cont'd



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

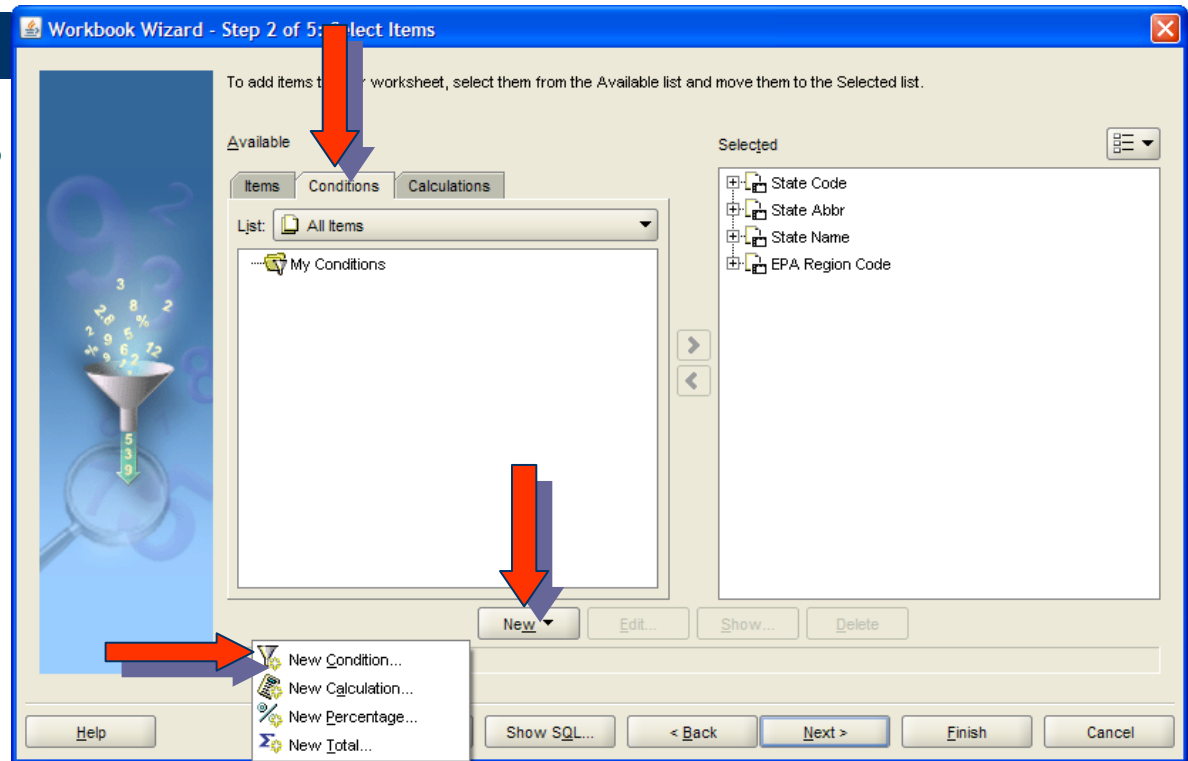


Searching for Items and Showing Pedigree



Selecting Conditions

- Go to **Conditions** tab
- Select New
- Select New Condition



Selecting Conditions, cont'd

- Enter formula (other things optional)
 - Item
 - Condition
 - Value
 - Type in or pull down

What would you like to name your condition?

What description would you like to give your condition?

Formula

Item	Condition	Values
:	=	

Advanced >>

Case-sensitive

This condition is located in the workbook 'Workbook 1'.

Help OK Cancel

: States.EPA Region Code = '04'

Tablename . Fieldname

Will autoformat value (w/hint)

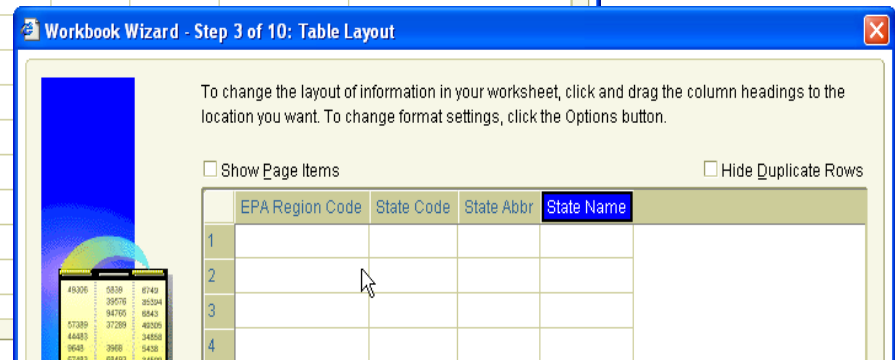
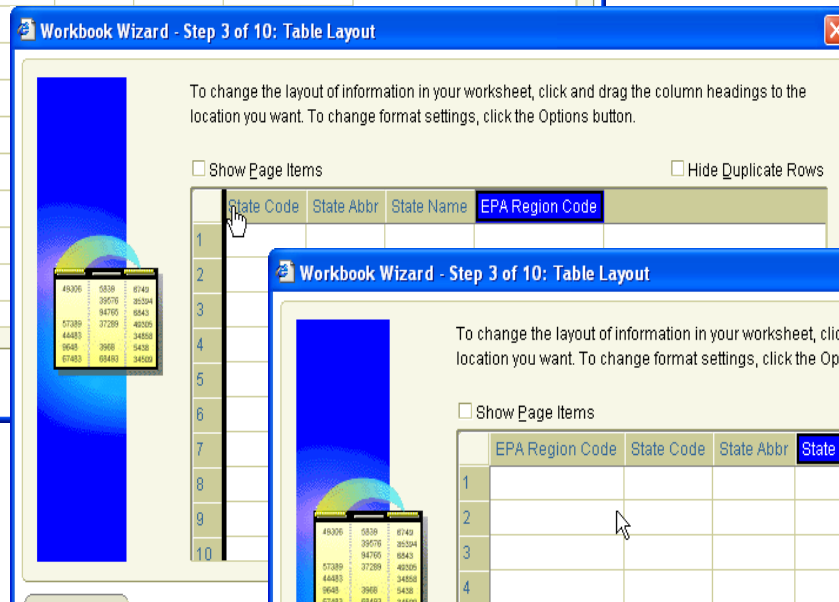
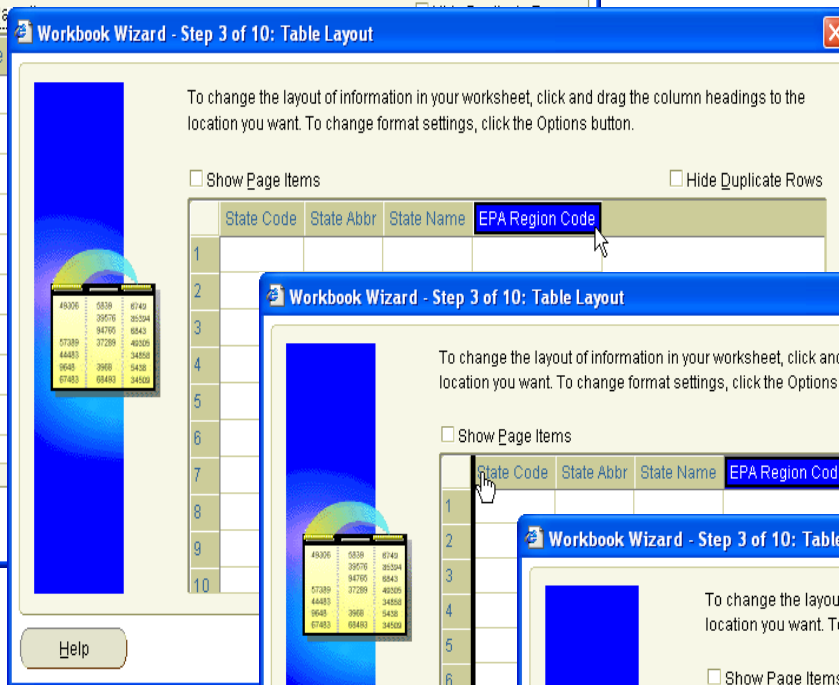
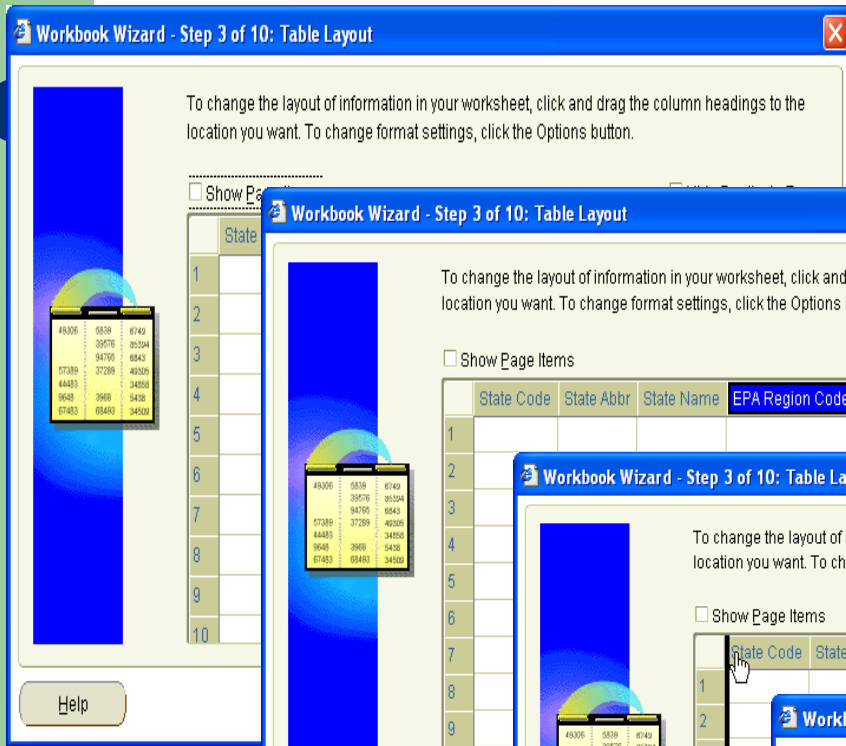
Possible Conditions

- We're spending a lot of time on conditions – they might be important!

- Possible Conditions

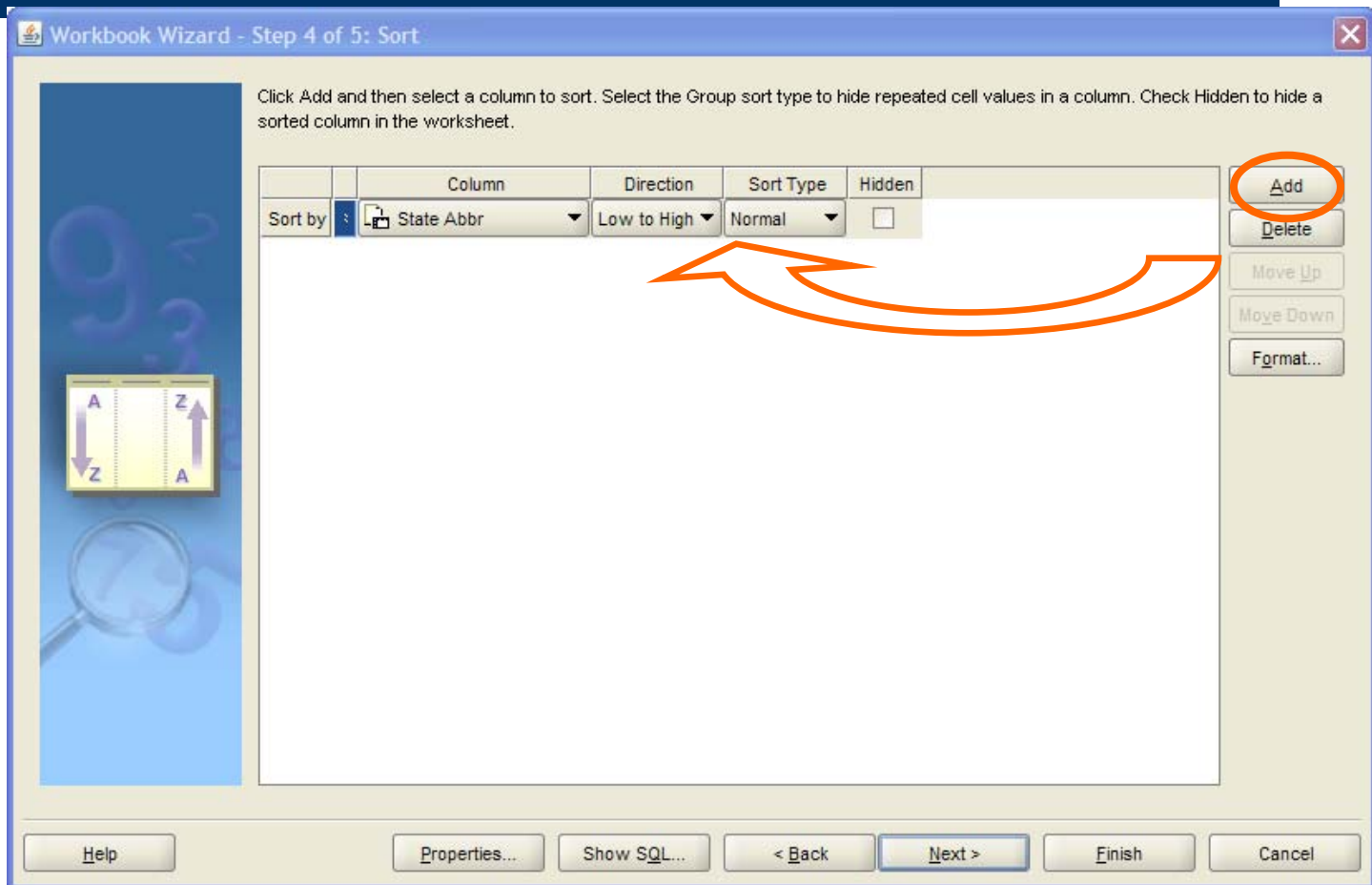
=	IS NULL
<> (not equal)	IS NOT NULL
>	NOT IN
<	BETWEEN
<=	NOT BETWEEN
>=	NOT LIKE
	!= (not equal)
LIKE	LIKE '%OLORAD%' (% = *, _ = 1 char, CaSe SensiTivE)
IN	IN ('88101', '88501', '88502')

Table Layout

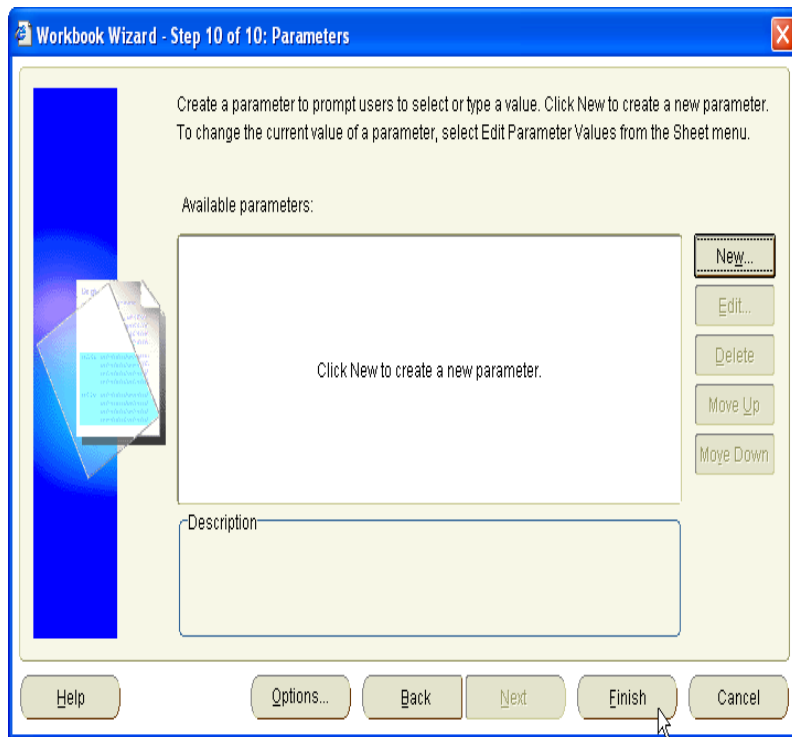


Click and drag
headings to
desired order

Sorts



Parameters and Results



▶ EPA Region Code	▶ State Name	▶ State Code	▶ State Abbr
04	Alabama	01	AL
04	Florida	12	FL
04	Georgia	13	GA
04	Kentucky	21	KY
04	Mississippi	28	MS
04	North Carolina	37	NC
04	South Carolina	45	SC
04	Tennessee	47	TN

Exercise 1 - Introduction

1. Launch a web browser and go to Discoverer (<http://www.epa.gov/ttn/airs/airsaqs>)
2. Create your connection and Connect to aqsprod
3. Create a new workbook using the AQS basic business area to show all states within your EPA region
4. Adjust the table layout so that EPA Region is in column 1, State Abbreviation in column 2, State Name in column 3, State Code in column 4
5. Sort by EPA Region, then State Name. Change to a group sort on EPA Region.
6. Add a title
7. Extra Credit – Create another query to list the Pollutant Standards

Exercise 1: Sample Results

The screenshot shows a software interface with a menu bar (File, Edit, View, Format, Tools, Help) and a toolbar. The main window is titled "States in Region 4". Below the title bar, there is a "Page Items:" section. The main content area contains a table with the following data:

EPA Region Code	State Name	State Code	State Abbr
04	Alabama	01	AL
	Florida	12	FL
	Georgia	13	GA
	Kentucky	21	KY
	Mississippi	28	MS
	North Carolina	37	NC
	South Carolina	45	SC
	Tennessee	47	TN

Below the table, there is a text area with the message: "A graph cannot be plotted because this worksheet does not contain any datapoints." Below that, there is a text area with the message: "Double-click here to edit the text area".

The interface also includes a sidebar with a tree view of available items. The "List:" dropdown is set to "AQSprd". The tree view shows the following items:

- AGENCIES
- 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

The "Selected Items:" section shows the following items:

- State Code
- State Abbr
- State Name
- EPA Region Code

The interface also includes a "Sheet 1" tab at the bottom.

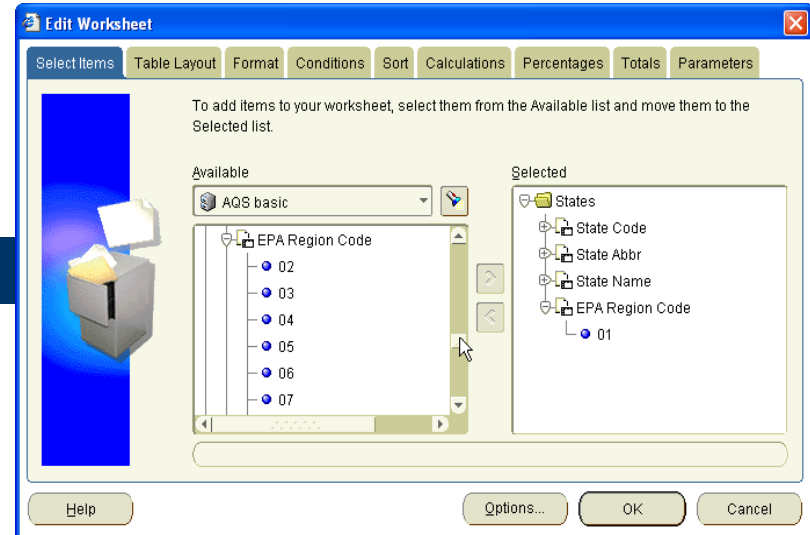
Important Screen Navigation Items

The screenshot shows a software interface with a menu bar (File, Edit, View, Format, Tools, Help) and a toolbar. A pink starburst highlights the 'File' menu. A red circle highlights the 'Available Items' toolbar, which includes icons for adding, deleting, and refreshing items. Another red circle highlights a context menu that appears after a right-click, listing various actions like '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...', and 'Manage Links...'. The main window displays a table titled 'States in Region 4' with the following data:

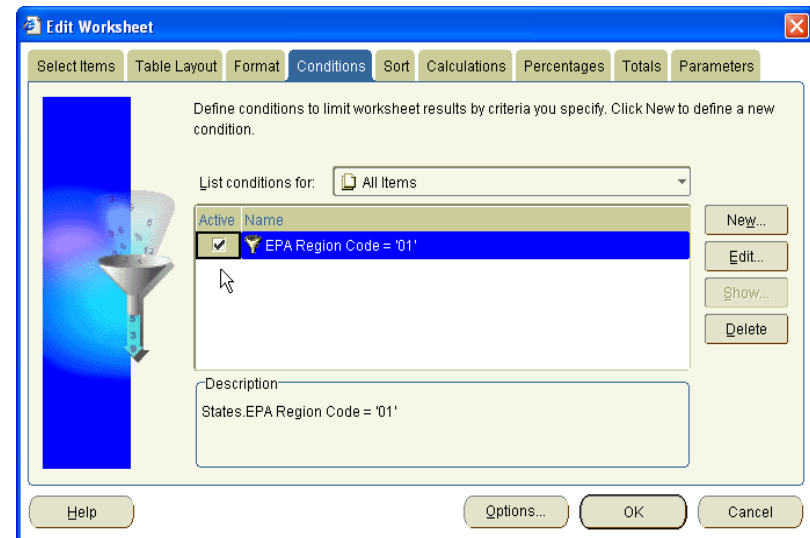
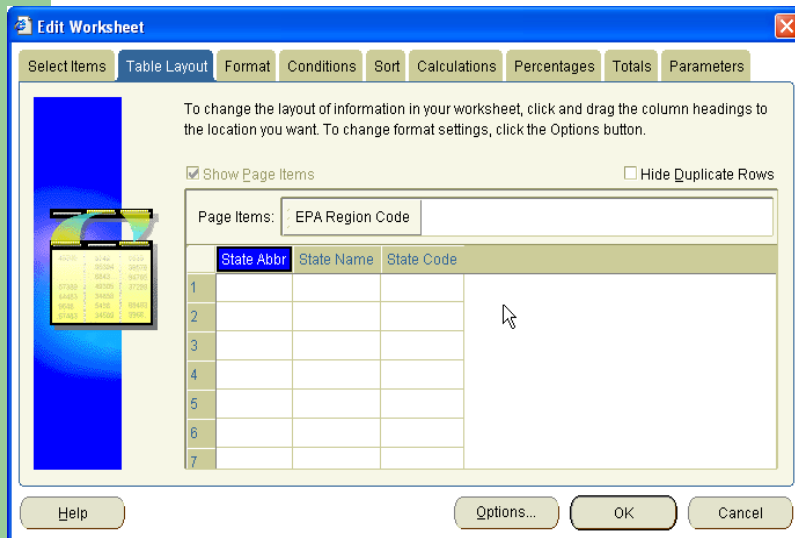
EPA Region Code	State Name	State Code	State Abbr
04	Alabama	01	AL
	Florida	12	FL
	Georgia	13	GA
	Kentucky	21	KY
	Mississippi	28	MS
	North Carolina	37	NC
	South Carolina	45	SC
	Tennessee	47	TN

Below the table, there is a text area with the message: 'A graph cannot be plotted because this worksheet does not contain any data.' At the bottom of the window, there is a 'Sheet 1' tab.

Did you notice?



Lists of Values (LOVs)



Conditions may be inactive

Changing Your Defaults

The screenshot shows a software interface with a 'Tools' menu open. The 'Options...' option is circled in red. A red arrow points from the 'Options...' option to the 'Options' dialog box. Another red arrow points from the top of the dialog box to the 'Show row numbers' checkbox, which is also circled in red.

The 'Options' dialog box has the following tabs: General, Query Governor, Sheet, Formats, Advanced, and EUL. The 'Sheet' tab is selected.

Table headers

- Show column headings
- Show row numbers

Column width: Use default width

Crosstab headers

- Show item labels
- Show heading gridlines

Crosstab style: Outline

- 3D heading gridlines

Table and crosstab data area

- Show vertical gridlines
- Show horizontal gridlines

Gridline color: [Color Picker]

Sheet content

- Show title
- Show text area

Show null values as: NULL

Example

Table

Table Title			
	Column1	Column2	Column3
1	51	32	10
2	50	65	19
3	44	73	25
4	81	62	18

Table Text Area

Crosstab

Crosstab Title		
	Column1	Column2
Row1	105	170
Row1.1	51	32
Row1.2	10	65
Row1.3	44	73

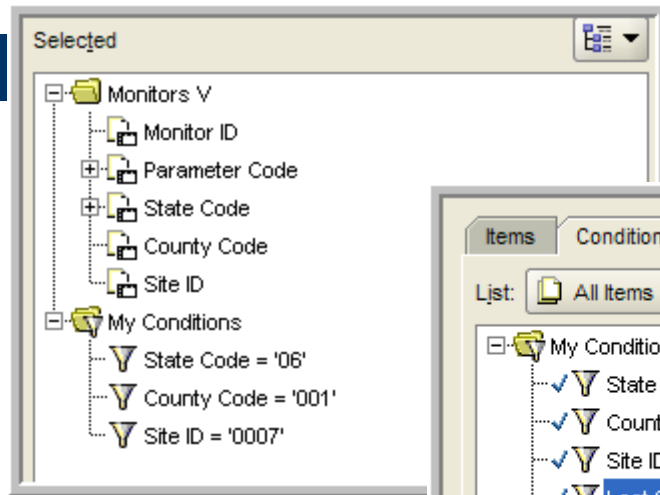
Crosstab Text Area

Buttons: Help, OK, Cancel

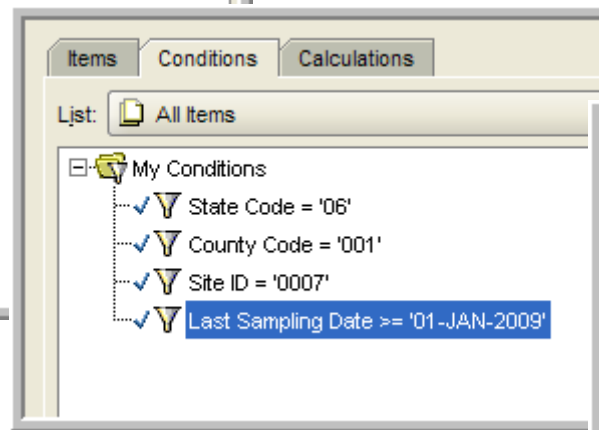
Exercise 2 – Edit Worksheet

1. Create a new worksheet that lists all the parameters (pollutants) measured at site 06-001-0007
2. Modify this sheet to include only parameters being sampled since 2009
3. Modify this sheet to show last sample date and close date (sampling end date)

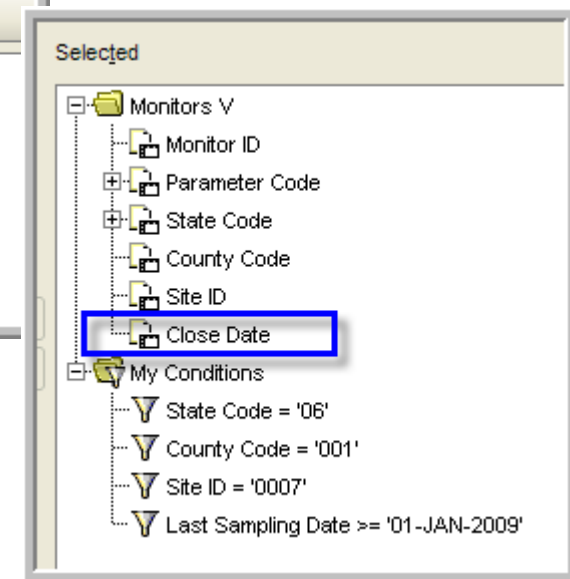
Exercise 2 – How To



1



2



3

Exercise 2 Results

All parameters at site (116)

	▶ State Code	▶ County Code	▶ Site ID	▶ Parameter Code
1	06	001	0007	42101
2	06	001	0007	42601
3	06	001	0007	42602
4	06	001	0007	42603
5	06	001	0007	43101
6	06	001	0007	43102
7	06	001	0007	43201
8	06	001	0007	43207
9	06	001	0007	43218
10	06	001	0007	43372
11	06	001	0007	43551
12	06	001	0007	43552
13	06	001	0007	43802
14	06	001	0007	43803
15	06	001	0007	43804
16	06	001	0007	43811
17	06	001	0007	43814
18	06	001	0007	43815
19	06	001	0007	43817
20	06	001	0007	43824
21	06	001	0007	43843

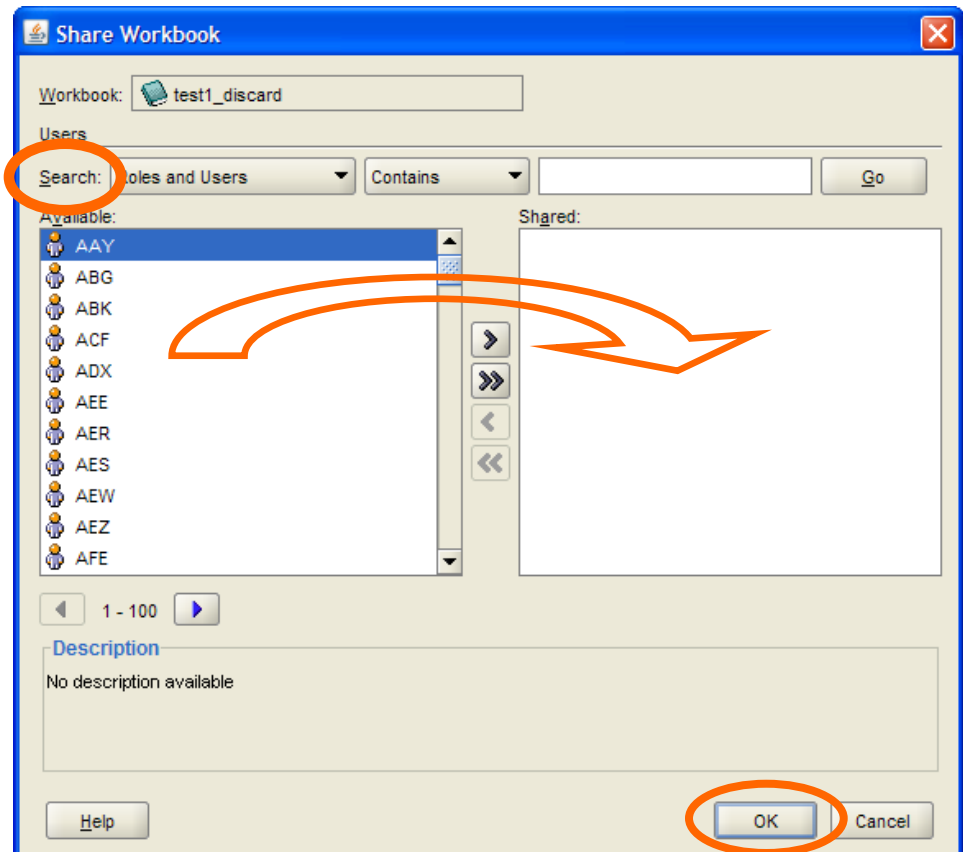
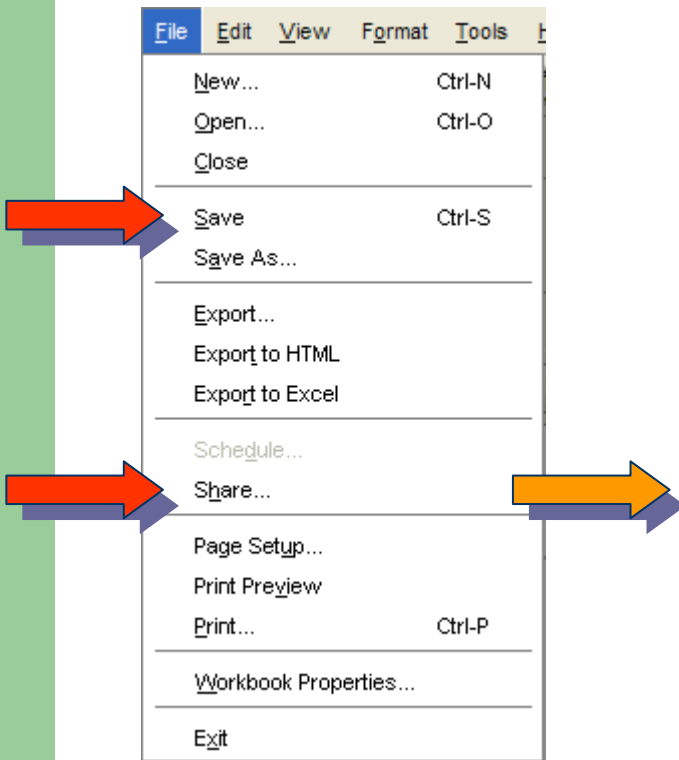
All parms since 2009 (37)

	▶ State Code	▶ County Code	▶ Site ID	▶ Parameter Code
1	06	001	0007	42101
2	06	001	0007	42601
3	06	001	0007	42602
4	06	001	0007	42603
5	06	001	0007	43101
6	06	001	0007	43102
7	06	001	0007	43201
8	06	001	0007	43207
9	06	001	0007	43218
10	06	001	0007	43372
11	06	001	0007	43551
12	06	001	0007	43552
13	06	001	0007	43802
14	06	001	0007	43803
15	06	001	0007	43804
16	06	001	0007	43811
17	06	001	0007	43814
18	06	001	0007	43815
19	06	001	0007	43817
20	06	001	0007	43824
21	06	001	0007	43843

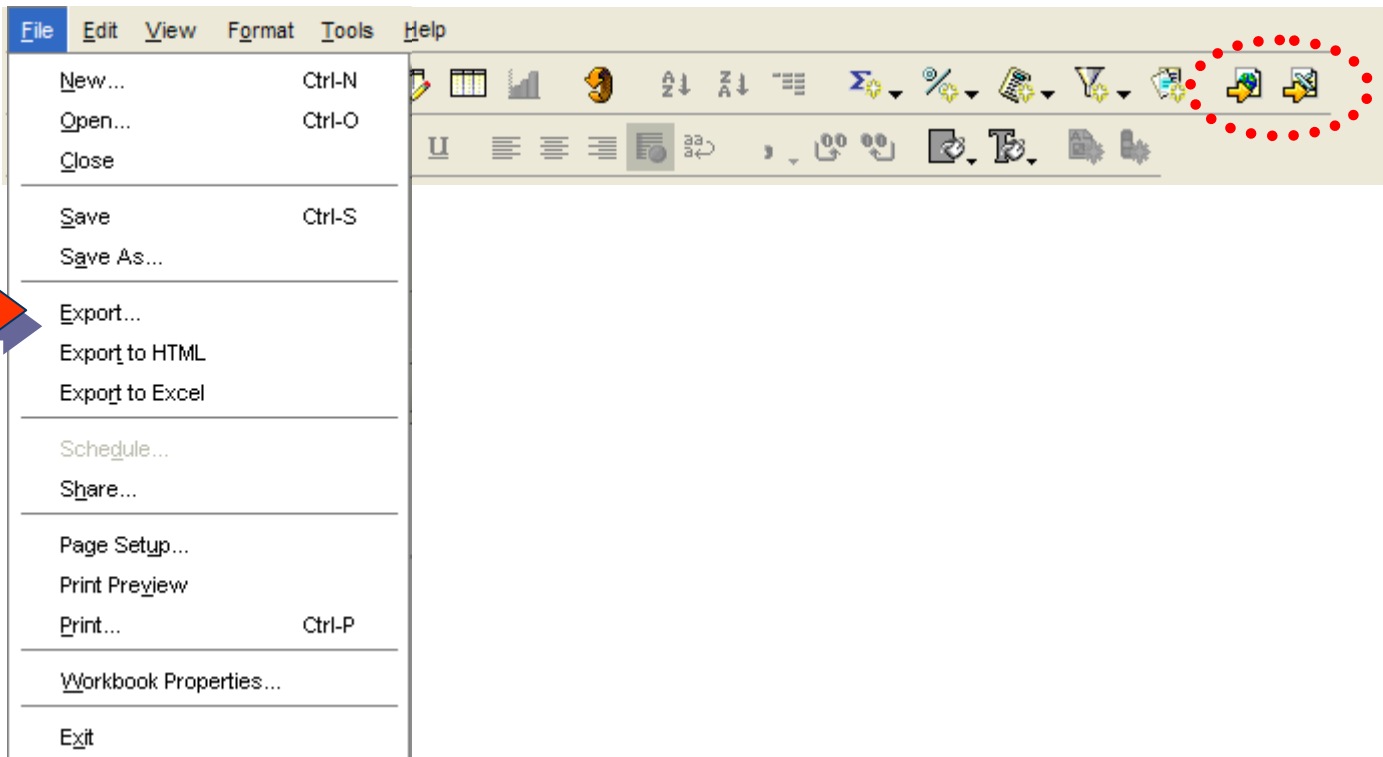
All parms w/end dates

	▶ State Code	▶ County Code	▶ Site ID	▶ Parameter Code	▶ Close Date	▶ Last Sampling Date
29	06	001	0007	68101	NULL	31-DEC-2009
30	06	001	0007	68102	NULL	31-DEC-2009
31	06	001	0007	68103	NULL	31-DEC-2009
32	06	001	0007	68104	NULL	31-DEC-2009
33	06	001	0007	68105	NULL	31-DEC-2009
34	06	001	0007	68106	NULL	31-DEC-2009
35	06	001	0007	68107	NULL	31-DEC-2009
36	06	001	0007	68108	NULL	31-DEC-2009
37	06	001	0007	68109	NULL	31-DEC-2009
38	06	001	0007	81102	31-MAY-2000	31-MAY-2000
39	06	001	0007	81102	28-JUL-2008	29-JUN-2008
40	06	001	0007	82203	28-JUL-2008	29-JUN-2008
41	06	001	0007	82301	28-JUL-2008	29-JUN-2008
42	06	001	0007	82306	28-JUL-2008	29-JUN-2008
43	06	001	0007	82403	28-JUL-2008	29-JUN-2008
44	06	001	0007	85101	28-JUL-2008	29-JUN-2008
45	06	001	0007	88101	NULL	31-DEC-2009
46	06	001	0007	88102	NULL	27-SEP-2008
47	06	001	0007	88103	NULL	27-SEP-2008
48	06	001	0007	88104	NULL	27-SEP-2008

Saving and Sharing



Exporting



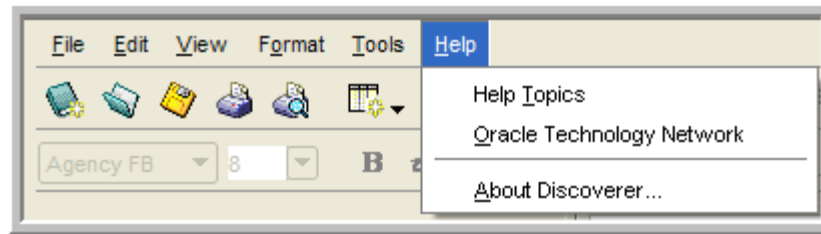
Getting Help

- On-line help

- Note: the OTN info is for v11, we're still at v10

- Call the EPA Help Desk

- 866-411-4372
- “AQS Discoverer”



Getting Data from Multiple Tables

- Once you select an item, folders that don't connect to it are grayed out (EUL in action!)
- You have to build a bridge to the items you need by selecting intermediate folders
- A “fan trap” error means you've connected items in an ambiguous way that Discoverer cannot interpret – use a different connection path

Annual Summary for 1 State, 1 Yr, 1 Parm

Selected

- Annual Summaries V
 - Monitor ID
 - Summary Year (Annual YYYY)
 - Pollutant Standard Id
 - Duration Code
 - Exceptional Data Type ID
 - Arithmetic Mean (Annual)
 - Count of Observations (Annual)
 - Summary Year (Annual)
- Monitors V
 - State Code
 - County Code
 - Site ID
 - Parameter Code
 - POC

	Column	Direction	Sort Type	Hidden
Sort by	County Code	Low to High	Normal	<input type="checkbox"/>
then by	POC	Low to High	Normal	<input type="checkbox"/>

Items Conditions Calculations

List: All Items

- My Conditions
 - State Code = '01'
 - County Code = '089'
 - Parameter Code = '44201'
 - "Summary Year (Annual YYYY)" = '2008'
 - "Summary Year (Annual)" = 2009
 - Duration Code = 'W'
 - Pollutant Standard Id = 11
 - Exceptional Data Type ID IN (0,2)

Notice what happens when an annual summary item is selected

Should Look Something Like This...

	▶ Monitor ID	▶ Summ	▶ State Code	▶ County Code	▶ Site ID	▶ Parameter Code	▶ POC	▶ Dur
1	01-003-0010-44201-1	2009	01	003	0010	44201	1	W
2	01-033-1002-44201-1	2009	01	033	1002	44201	1	W
3	01-051-0001-44201-1	2009	01	051	0001	44201	1	W
4	01-055-0011-44201-1	2009	01	055	0011	44201	1	W
5	01-069-0004-44201-1	2009	01	069	0004	44201	1	W
6	01-073-1010-44201-1	2009	01	073	1010	44201	1	W
7	01-073-2006-44201-1	2009	01	073	2006	44201	1	W
8	01-073-6002-44201-1	2009	01	073	6002	44201	1	W
9	01-073-1003-44201-1	2009	01	073	1003	44201	1	W
10	01-073-1005-44201-1	2009	01	073	1005	44201	1	W
11	01-073-1009-44201-1	2009	01	073	1009	44201	1	W
12	01-073-5002-44201-1	2009	01	073	5002	44201	1	W

Build a Bridge to Another Table

- Now, add the county population
 - Via states?
 - Monitor has state, states has counties...
 - Did it work?
 - Via ???
- Fan traps are caused by how the data tables (and EUL) are organized, not how physical reality is organized

Calculations and Totals

- Add some math
 - Observations per person
 - Mean of annual means
- Calculations operate on columns
 - Generally an operator: + - * / ||
 - Example: (0.5 * ALT_MDL) - SAMPLE_VALUE
 - PARAMETER_CODE || ' (' || PARAMETER_DESC || ')'
 - Adds a new column
- Totals operate on rows
 - Generally a function: min, max, sum, avg, stddev, count, etc.
 - Example: MIN(OBS_PERCENT)
 - Adds a new row
- Can also be done by exporting

Calculation and Total Example

▶ Arithmetic Mean (Annual)	▶ County Population	▶ Obs per capita
.03671	662047	0.01
.03895	662047	0.01
.03951	223510	0.03
.03921	49756	0.12
.03353	14798	0.39
.03706	88787	0.06
.04371	276700	0.03
.03952	399843	0.01
.03913	399843	0.01
.04102	111064	0.05
.03998	143293	0.04
.03219	164875	0.03
.03769	140415	0.04
Average: .03869		

Exercise 3 – Data from Multiple Tables

- Repeat the lecture example (except for county population items) selecting data from more than one table – explore the data related to the annual summary data
- Items
 - Monitors Table: state, county, site, parameter, POC
 - Annual Summary Table: monitor, year, PS, duration, EDT, mean, obs
- Conditions
 - State = 01
 - Parameter = 44201
 - Year = 2008
 - DEP = W, (0,2), 11
- Sort
 - County
 - POC



Extra Credit: Add some totals or calculations

Crosstabs (Pivot Tables)

- Normal tables have selected items across the top
- Crosstabs have items across the top and items down the side
 - Values are shown in the grid
 - Some kind of aggregate (sum, count, etc.) if necessary
- Page Items are also useful for filtering data

Crosstab Example

Page Items: Parameter Code: 88101 Duration Code: 7 Exceptional Data Type ID: 0 Pollutant Standard Id: 16

	Count of Observations (Annual)					
	2005	2006	2007	2008	2009	2010
▶ Alabama	4094	4024	436	4500	4110	604
▶ Alaska	369	407	559	578	365	NULL
▶ Arizona	1629	1740	1516	1405	1089	NULL
▶ Arkansas	2320	2418	1364	2532	2539	630
▶ California	11084	9434	6710	6883	9112	193
▶ Canada	99	51	NULL	NULL	NULL	NULL
▶ Colorado	2525	2577	2220	2347	546	712
▶ Connecticut	1867	1972	2520	2669	2670	NULL
▶ Delaware	1108	1055	1067	1033	1054	178
▶ District Of Columbia	863	529	846	875	888	218
▶ Florida	5114	4846	745	2142	6793	1340
▶ Georgia	3427	3823	675	4026	2474	311
▶ Hawaii	164	NULL	467	243	105	NULL
▶ Idaho	1385	958	955	1034	1114	30
▶ Illinois	3403	3471	3464	3462	4086	983
▶ Indiana	4848	5122	NULL	5831	5233	1357
▶ Iowa	2671	2542	3610	3768	4418	1081
▶ Kansas	1588	1436	1255	1259	927	NULL
▶ Kentucky	NULL	1597	16	3189	2985	412
▶ Louisiana	2950	2735	2523	2526	2322	653
▶ Maine	1056	976	919	1149	1129	109
▶ Maryland	2679	2381	2457	1886	2571	NULL

Building the Crosstab Workbook

Create a new workbook

Select the objects to display in the worksheet

- Title
- Page Items
- Crosstab Table
- Graph

Placement: Graph below Crosstab

Text Area

Selected

- Annual Summaries V
 - Summary Year (Annual)
 - Count of Observations (Annual)
- Duration Code
- Exceptional Data Type ID
- Pollutant Standard Id
- Monitors V
- Parameter Code
- States
 - State Name
- My Conditions
 - "Summary Year (Annual)" >= 2005
 - Parameter Code = '88101'

Crosstab Layout

Page Items: Parameter Code | Duration Code | Exceptional Data Type ID | Pollutant Standard Id

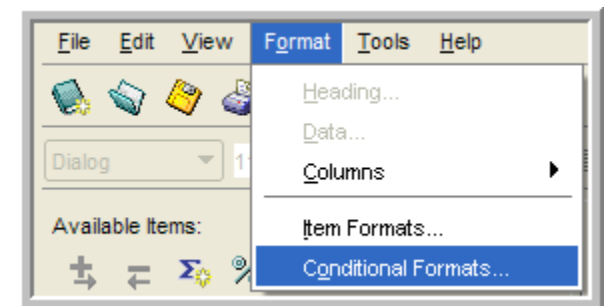
Data Point: Count of Observations (Annual)

Summary Year (Annual)

State Na... | Count of Observations (Annual)

Exercise 4 – Crosstab with Graph

- Open a new worksheet and select a crosstab query
- Query Raw Data - Current data for :
 - site 39-035-0060
 - Year = 2008
 - Parameters in 88101, 88502
- Move
 - Date to right side
 - Monitor ID to top
 - Standard Sample value into grid
 - All else into Page Items
- Finish
- From Page Items: All params and POCs
- Edit Graph format to line
- Optional: conditionally format all samples over 35 with red background



Exercise 4 – How To

Create a new workbook
 Select the objects to display in the worksheet
 Title
 Page Items
 Crosstab Tab
 Graph
 Placement: Graph

Selected

- Raw Data V -Current
 - Standard Sample Value
 - Sample Date/Time
 - Sample Date/Time: YYYY
 - Monitor ID
- Monitors V
 - Parameter Code
 - State Code
 - County Code
 - Site ID
 - POC
- My Conditions
 - State Code = '39'
 - County Code = '035'
 - Site ID = '0060'
 - "Sample Date/Time: YYYY" = '2008'
 - Parameter Code IN ('88101','88502')

Page Items: State Code County Code Site ID Parameter Code POC Sample Date/Time: YY

Data Point: Standard Sample Value

Monitor ID

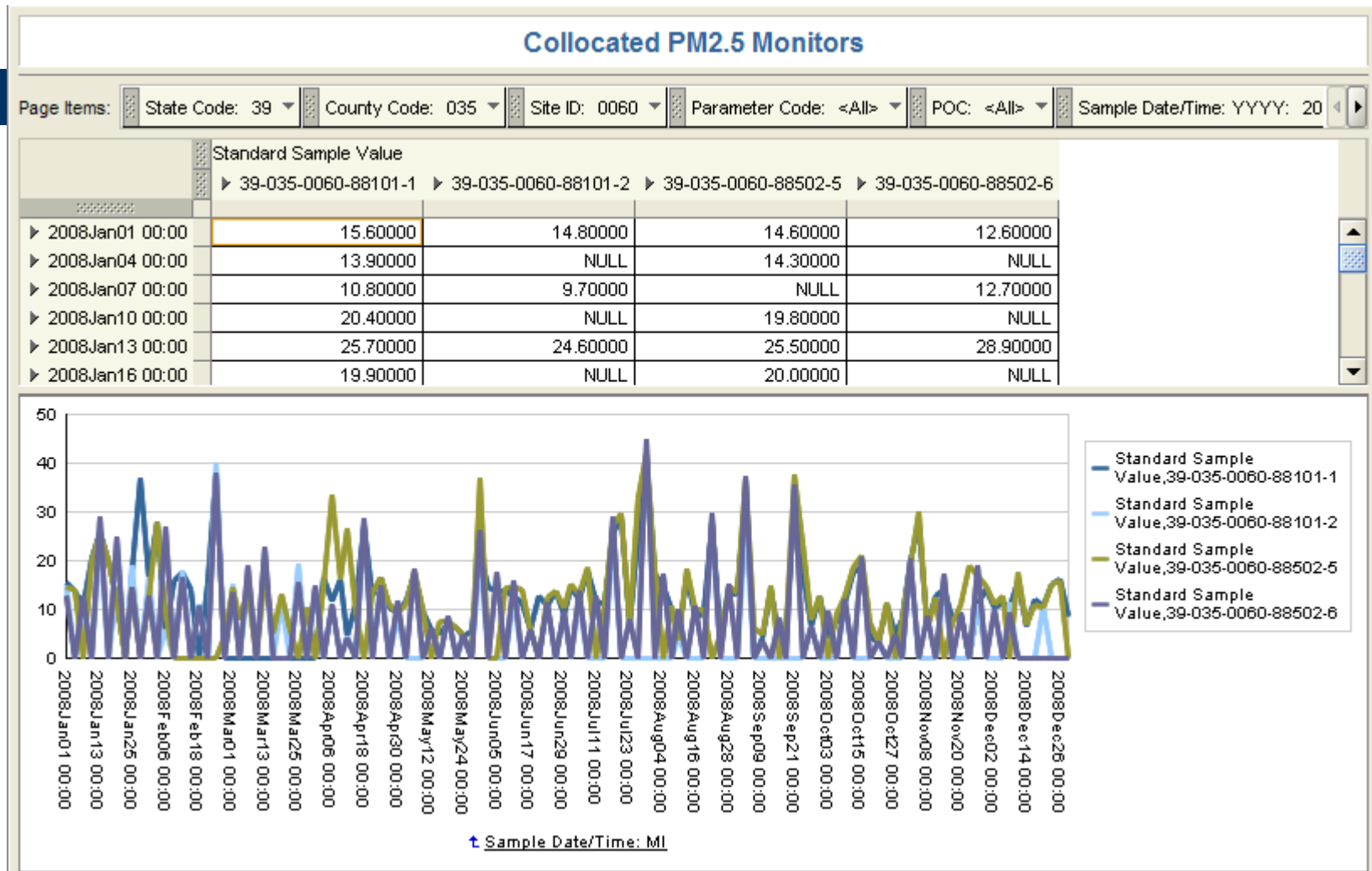
Sample Date/Ti... Standard Sample Value

Parameter Code: <All> POC: <All>

88101		
88502	-5	39-035-0060-88502-6
<All>	10	12.60000

Edit	View	Format	Tools	Help
Undo Page				Ctrl-Z
Copy				Ctrl-C
Delete				
Select All				Ctrl-A
Remove from Worksheet			Delete	
Worksheet...				
Worksheet Layout...				
Crosstab...				
Graph...				
Title...				

Exercise 4 – Crosstab with Graph



Hints, Tips and Other Good Stuff

- Discoverer is accessing the live database (same as the AQS application)
- Your Discoverer ID and password are the same as your AQS ID and password
- Only registered AQS users can access the AQS database via Discoverer
- If you delete your cookies, you'll have to recreate your connection
- Your Connection must be created on each different PC you use
- There is one EUL for AQS; and multiple Business Areas
- AQS basic has the most commonly used tables
- AQSprod includes all the tables in AQS basic plus “raw data – current” and a few other related tables
- Any workbook you share with others will have your userid appended to the beginning of the workbook name
- You can get to Discoverer from the AQS Web Application link on the EPA TTN AQS page - <http://www.epa.gov/ttn/airs/airsaqs/>
- Many of the reference tables are viewable from <http://www.epa.gov/ttn/airs/airsaqs/manuals/codedescs.htm>

More Hints, Tips, and Good Stuff

- Selection has search function (flashlight icon)
- Max time for Discoverer queries = 60 mins
- Max number of rows= 65,000
- Many of the date fields are defined as YYYYMonDD HH:MM – e.g., 2005Jun11 01:22. Many date fields are also defined for just the YYYY, or Q, Mon, or DD, or HH, or MM
- Filter builder has auto-format
- Online Help is pretty good
- If you can't get a total to work within Discoverer, you may want to export to a spreadsheet to create your totals (and other calculations)
- You can change the directory for exported worksheets:
 - File | Export... (use wizard instead of shortcut)
- Oracle Technology Network is a good source for information – free registration – look for Discoverer with Data Warehousing and Business Intelligence
(<http://www.oracle.com/technology/products/discoverer/index.html>)

There's lots to do!
Discover the data
with ***DISCOVERER!***



You are now a ***DISCOVERERER?***

Appendix: Syllabus for Class

- AQS Database basics
- Starting Discoverer
- Basic query
- Grouping data
- Queries with multiple tables
- Editing an existing query
- Calculations / Totals
- Saving queries
- Sharing queries
- Exporting data
- Getting Help
- Refreshing data
- Crosstab queries
- Graphs

Appendix: Key Terminology

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

Tables



Folders

Columns



Items

Rows



Records

Queries



Worksheets

Filters



Conditions, Criteria