



Obtaining AQS Data

Discoverer Replacement

Replacement Plans



- The Replacement plans for Discoverer are as follows:
 - The AQS Federal Team will construct a set of “views” that correspond to each type of data in AQS, i.e. Sites and monitors, raw data, summary data, and QA data.
 - Each view will contain **all** of the site and monitor metadata pertinent to the information provided by the view.
 - Each summary view will be targeted to a specific Pollutant Standard and Exceptional data type.
 - A web application will be developed (under AirData) to allow users to query data from these views; it will output CSV files.
 - Federal users (inside the EPA firewall) will be able to use off-the-shelf tools, such as TOAD or SAS, to directly access these views.
 - Third-party tools, such as SAS or Excel, will be used for analysis.
 - The views will be enhanced as needed in response to user requests.

Alternatives Considered



- Oracle Business Intelligence Tool: Cost Prohibitive (NCC chargeback ~\$160k/yr). Other commercial BI tools comparable in price.
- GUI Query Builder Tool (Like discoverer interface): All of the open-source tools that we found were client based (i.e. run directly on windows) and EPA security staff do not allow SQL-net through EPA firewall.

Rationale for Plan



- Generation of CSV Files: Most analysis tools can easily read CSV.
- Discoverer provides a subset of the graphics and analysis capabilities of current spreadsheet products (Excel or Open Office).
- More than 90% of user support for discoverer related to the following two issues:
 - Joining multiple tables together to generate the desired output.
 - Selecting too many records because of Exceptional Data Types and Pollutant Standards

Categories of Views



- Sites, Monitors, and Samplers
- Detailed Data (e.g. Raw Data, Blanks, & QA)
- Generic/Non-regulatory Summaries
- Regulatory Summaries
- Reference Data (AQS Codes)?
 - Are these necessary? The other views will include code descriptions wherever code values are used.

Site-Monitor Views



- Views will be created for Sites, Monitors, and Samplers.
- The Site view will have all of the site identifying information and metadata
- The Monitor view will have all of the site metadata and monitor metadata
- The Sampler view will have all of the site metadata and sampler metadata
- There are open issues as to handle date-range information. Initial plan is to include present state of site or monitor; i.e. the PQAO in the monitors view will be the current PQAO.
- The Web user interface will allow queries by Network.

Detailed Data Views



- These views will contain the un-summarized data submitted to AQS:
 - Raw Data
 - Blanks Data
 - QA Data
 - 1-Point_QC
 - Annual_PE
 - Flow Rate Verification
 - Semi-Annual Flow Rate Audits
 - And etc.

Generic Summaries



- These views will provide summaries of data, ignoring Exceptional Event Flagging; each will contain all site and monitor metadata.
- Multi-Hour Summaries
 - 8-Hour Ozone
 - 8-Hour CO
 - 3-Hour SO₂
- Daily summaries
 - Daily_Observed_Data (will contain all observed durations)
 - Daily_Ozone_8_hour
 - Daily_CO_8_hour
 - Daily_SO₂_3_hour
- Lead Monthly Summaries
- Lead 3-month rolling averages
- Quarterly Summaries (for all above durations)
- Annual Summaries (for all above durations)

Regulatory Summaries (1)



- These views will contain summaries used for regulatory purposes (i.e. NAAQS Determinations); i.e. they will be pollutant standard specific and exclude concurred EE flagged values.
 - Multi-Hour Summaries
 - Monitor Daily Summaries
 - Monitor Quarterly Summaries
 - Monitor Annual Summaries
 - Site Daily Summaries
 - Site Lead Monthly Summaries
 - Site Lead 3-Month Rolling Averages
 - Site Quarterly Summaries
 - Site Annual Summaries
 - Design Value Views

Multi-Hour Summaries



- The multi-hour summaries will contain the rolling or block averages specified by 40 CFR Part 50 for specific pollutants. These include:
 - Ozone 8-Hour 2006 Standard
 - Ozone 8-Hour 1997 Standard
 - CO 8-Hour 1971 Standard
 - 3-Hour SO₂ 1971 Standard
 - Note: 24-hour PM_{2.5} and SO₂ block averages not included since these exactly coincide with a day and are redundant.

Monitor Summaries

Daily, Quarterly, Annual



- Ozone_1_hr_1997
- Ozone_8_hr_1997
- Ozone_8_hr_2006
- Lead_2009
- CO_1_hr_1971
- CO_8_hr_1971
- SO2_1_hr_2010
- SO2_3_hr_1971
- SO2_3_hr_1971
- SO2_24_hr_1971
- SO2_Annual_1971
- NO2_1_hr_2010
- NO2_Annual_1971
- PM25_24_hr_2006
- PM25_Annual_2006
- PM25_24_hr_2013
- PM25_Annual_2013
- PM10_24_hr_2006

Site Combined Summaries



- Site Daily
- Site Lead Monthly
- Site Lead 3-Month Rolling
- Site Quarterly (excludes lead)
- Site Annual (excludes lead)
- Pollutants:
 - Lead_2009
 - NO2_1_HR_2010
 - PM25_24_hr_2006
 - PM25_Annual_2006
 - PM25_24_hr_2013
 - PM25_Annual_2013
 - Note: PM10 expected soon; may generalize to all criteria pollutants

Design Values



- Views for where 3-year design value specified by 40 CFR Part 50
 - Ozone_8-hour_2006
 - Ozone_8-hour_1997
 - PM25_2013
 - PM25_2006
 - SO2_2010
 - NO2_2010
 - Lead_2009
 - PM10_2006