Software Release Notes for March 18, 2011 AQS Patch Deployment

<u>The following AQS problems were addressed</u>:

1. Problem: If the Alternate MDL supplied on a Raw Data (RD) transaction was an integer ("0", "1". .), this caused an override of the Summary Scale. When the reported sample value was converted to standard sample values, then standard sample values of < 1 were set to "0" and non-integer standard sample values >1 were stored as an integer. (*Summary Scale* = a number that determines to how many decimal places a value is stored, ie "1" means store to tenths place, "0" means store to ones place; *Alternate MDL or "Alt MDL"* = supersedes the Federal MDL; would be supplied by an agency on each RD transaction if the agency's MDL differs from the Federal MDL)

   Fix: A data conversion has been done to update any incorrect standard sample values. About 45,000 sample values were affected. Again, to be affected, the Alt MDL had to have been reported as an integer. The new process for computing the standard sample value from the reported value is to always use the greater of either the Sampling Methodology summary scale or the Alternate MDL summary scale.

2. Problem: AQS reports (and workfiles) can be generated as a zip file. The zip program used did not support files larger than 2Gb, and some report jobs were failing.
   Fix: An updated Zip program that can accommodate files larger than 2 GB has been deployed. Note: Older versions of WinZip (prior to version 14) may not support zip files larger than 2 GB. If this happens, upgrade to a newer version of WinZip or an alternate product.

3. Problem: AQS supports a monitor type of "non-regulatory." When a monitor with this monitor type was closed, erroneous errors were generated.
   Fixed.

4. Problem: In AQS on the Maintain Monitor form, a future Sample Period end date could not be added.
   Fixed.

5. Problem: The AQS AMP450 "Quick Look" Report contained pollutant-specific standards in the headers. Example for the 1-hour and 8-hour ozone headers:

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

1-HOUR

SITE ID	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	VALID DAYS MEAS	NUM DAYS REQ	1ST MAX 1-HR	2ND MAX 1-HR	3RD MAX 1-HR	4TH MAX 1-HR	DAY MAX>/- 0.125	EST DAYS>/- .125	MISS DAYS< 0.125	CERT	EDT

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

8-HOUR

SITE ID	P O C	PQAO	CITY	COUNTY	ADDRESS	YEAR	METH	%OBS	VALID DAYS MEAS	NUM DAYS REQ	1ST MAX 8-HR	2ND MAX 8-HR	3RD MAX 8-HR	4TH MAX 8-HR	DAY MAX > 0.075	CERT	EDT

   Fix: The header now just displays "> STD" for all the pollutants.

6. Problem: For the 2008 lead NAAQS, the counts of primary and secondary standard exceedances were not populated for lead (tsp) at LC FRM/FEM (14129) and lead PM_{10} LC FRM/FEM (85129).
   Fixed.

7. Problem: The AQS Maintain Raw Data form allowed the creation of **U**pdate or **D**elete transactions when there was no production record for that date and time. These records may or may not have failed during the POST process.
   Fixed: **U**pdate or **D**elete transactions can now only be created for a date/time in which there are records at Production status.

8. Problem: Primary and QA Collocated monitors existing at the same site, but belonging to different Screening Groups, could not be associated.
   Fixed: If an agency has two monitors, one being the "Primary" and the second being the "QA collocated," but these belong to different Screening Groups, it is now possible to designate the first as "Primary" via the Maintain Monitor "Collocation" tab. The collocation process will work normally.

Other issues:

When loading sample measurement data to AQS, users have reported an increased number of statistical test failures during the STAT/CR process.

Any sample measurement(s) flagged during the STAT/CR process are not necessarily "wrong" and are not prevented from being POSTED but the flag could mean that additional QA is necessary. The tests run during the STAT/CR process are documented in the ***AQS Data Coding Manual***. A brief description is included here:

STAT (Statistical tests):

- *Pattern tests* are performed on hourly data for pollutants 44201 ozone (O3), 42101 carbon monoxide (CO), 42401 sulfur dioxide (SO2), and 42602 nitrogen dioxide (NO2). Each test scans a month's values and compares them against empirically derived thresholds to determine if they are questionable. If so, the value is flagged as failing that particular test.
- *Gap test* is performed on hourly data for pollutants 44201 (O3), 42101 (CO), 42401 (SO2), and 42602 (NO2). The gap test looks for gaps in the Frequency Distribution Table for a month's values. For each pollutant, the largest reasonable gap is estimated. Then the largest actual gap in the data is determined and compared to the largest estimated gap to determine whether the month passes or fails the gap test.
- *Shewhart test* is performed on daily data (duration is 7, 24-hour) for pollutants 12128 (Pb), 42401 (SO2), 42602 (NO2), 88101 (PM-2.5), and 81102 (PM-10). The test is run on a month of daily data and the number of valid samples for the current month and each of the three previous months is counted. If there is insufficient data to perform the test, a warning message is issued. Given sufficient data for at least two of the three previous months, the program computes the mean and range for the current month. It then computes the historical mean and range, from the mean and range of the data for the three historical months. The mean and range for the current month are compared against the historical values to determine whether the current month passes or fails the Shewhart test.

CR (Critical Review) tests are done for criteria, non-criteria pollutants, and certified data.