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OFFICE OF AIR QUALITY PLANNING AND STANDARDS

AQS Technical Note – NAAQS Reporting Issues for NO_2 and SO_2
NCore Reporting Issues for NOy and trace-level gases
November 2, 2010

Background: Over the past year, EPA has finalized changes to the NAAQS for NO_2 (75 FR 6474, February 9, 2010) and SO_2 (75 FR 35520, June 22, 2010). Revisions have also been made to the associated ambient monitoring and data reporting requirements. This Technical Note provides additional details concerning the impact of these changes on AQS reporting procedures. Although many monitoring agencies have already successfully instituted these changes into reporting procedures, this note is being distributed to provide a more concise reference for certain questions that OAQPS continues to receive about these issues.

Additionally, EPA is working with agencies to implement the NCore multi-pollutant network by January 1, 2011. In this note, we are clarifying the reporting of parameters arising from the required NOy instrument. We are also reaffirming the importance of reporting required trace-level gas measurements utilizing the appropriate AQS method codes.

NO_2 Reporting Changes (Appendix S to Part 50 – Interpretation of the Primary NAAQS for Oxides of Nitrogen

Standard units of measurement have changed from parts per million to parts per billion. Note the language: *Hourly NO_2 measurements are to be reported to AQS in units of parts per billion (ppb), to at most one place after the decimal, with additional digits to the right being truncated with no further rounding*. We also reiterate that current reporting requirements in 40 CFR 58.16 require the reporting of NO, NO_2, and NOx channels from NO_2 instruments.

SO_2 Reporting Changes (Appendix T to Part 50 – Interpretation of the Primary NAAQS for Oxides of Sulfur

Standard units of measurement have changed from parts per million to parts per billion. Note the language: *Hourly SO_2 measurements are to be reported to AQS in units of parts per billion (ppb), to at most one place after the decimal, with additional digits to the right being truncated with no further rounding*.

We also note the new reporting requirement in 40 CFR 58.16 to report the maximum 5-minute SO_2 block average of the twelve 5-minute averages in each hour, in addition to the hourly SO_2 average. Summarized below are some frequently asked questions about the 5-minute reporting requirement.

1. **When does the SO_2 5-minute reporting requirement become effective?**
   This reporting requirement became effective when the revised SO_2 NAAQS became effective, 60 days after publication in the Federal Register. This date was **August 23, 2010**.

2. **What is the AQS reporting deadline for SO_2 5-minute average data?**
   Data must be reported to AQS by the deadline noted in 40 CFR 58.16(b). For example, for the data collected during the initial quarterly reporting period of August 23 – September 30, 2010, 5-minute concentrations must be reported to AQS no later than 90 days after the end of that quarterly reporting period.

3. **What procedure should be used to report the maximum 5-minute average from each hour?**
   The AQS parameter code 42406 with a duration code of "1" should be used to report the maximum 5-minute average from each hour. States have the option of reporting all of the twelve 5-minute averages from each hour using AQS parameter code 42401 with a duration code of "H". In this case, the maximum 5-minute average for each hour does not have to be identified and separately reported.

NCore Reporting Requirements for NOy measurements[1]

NCore sites must measure NOy (and report both NOy and NO concentrations) as part of the required suite of measurements listed in section 3 of Appendix D to Part 58.[2] NO measurements are reported using AQS parameter code 42601 and NOy measurements are reported using AQS parameter code 42600. Although NOy instruments may provide for the reporting of a difference channel (i.e., NOy minus NO [NOy-NO]), such a difference measurement is not considered to be an appropriate indicator of NO_2 and should not be reported using the NO_2 parameter code. OAQPS has worked with the AQS team to create a new parameter code, 42612, that is specific to the difference channel output from NOy instruments. States that optionally wish to report this difference measurement should use the new parameter code. Previous NOy – NO measurements that were erroneously reported as NO_2 (42602) should be moved to the appropriate parameter code to prevent confusion among data users.

NCore Reporting Requirements for trace-level gas measurements

The use of trace-level precursor gas measurements for CO, NO/NOy, and SO_2 is an essential part of the NCore monitoring framework. Trace-level instruments provide an improved sensitivity together with other performance advantages compared with "legacy" instruments that have been employed since the 1980's. Due to these performance advantages and the desire among data users to segregate the resulting ambient and quality assurance data from legacy instruments, a distinct set of trace-level method codes has been made available for use in reporting these data. These method codes are summarized in the table at the end of this document.

For additional information about this Technical Note, please contact Nealson Watkins at 919-541-5522 or watkins.nealson@epa.gov.

[1] Reporting requirements noted in the section are also applicable to PAMS stations where NOy measurements are taking place.
[2] Additional details on NOy measurements are available in section 4 of the Technical Assistance Document (TAD) for Precursor Gas Measurements in the NCore Multi-pollutant Monitoring Network, http://www.epa.gov/ttn/amtic/ncore/guidance/tadversion4.pdf

AQS Method Codes for Trace Level Gas Measurements

Parm Code	Parameter Desc	Meth Code	Unit	Unit Desc	Sample Analysis Desc	Fed MDL	Equivalent Method Desc	Reference Method Id
42101	Carbon Monoxide	055	008	Parts per billion	Gas Filter Correlation Thermo Electron 48C-TL	0.02		
42101	Carbon Monoxide	554	008	Parts per billion	Gas Filter Correlation Thermo Electron 48i-TLE	0.02	Thermo 48i TLE	RFCA-0981-054
42101	Carbon Monoxide	588	008	Parts per billion	Gas Filter Correlation Ecotech EC9830T	0.02	Ecotech EC9830T	RFCA-0992-088
42101	Carbon Monoxide	593	008	Parts per billion	Gas Filter Correlation Teledyne API 300 EU	0.02	API Model 300 EU	RFCA-1093-093
42401	Sulfur Dioxide	560	008	Parts per billion	Pulsed Fluorescent 43C-TLE/43i-TLE	0.0002	Thermo Electron 43c-TLE/43i-TLE	EQSA-0486-060
42401	Sulfur Dioxide	592	008	Parts per billion	Ultraviolet Fluorescence EC9850T	0.0002	Ecotech EC9850T	EQSA-0193-092
42401	Sulfur Dioxide	600	008	Parts per billion	Ultraviolet Fluorescence API 100 EU	0.0002	Teledyne API 100 EU	EQSA-0495-100
42600	Reactive Oxides Of Nitrogen	574	008	Parts per billion	Chemiluminescence Thermo Electron 42C-Y	0.00005		
42600	Reactive Oxides Of Nitrogen	590	008	Parts per billion	Chemiluminescence Ecotech EC9841T	0.00005		
42600	Reactive Oxides Of Nitrogen	591	008	Parts per billion	Chemiluminescence Ecotech EC9843	0.00005		
42600	Reactive Oxides Of Nitrogen	599	008	Parts per billion	Chemiluminescence Teledyne API 200 EU/501	0.00005		
42601	Nitric Oxide	574	008	Parts per billion	Chemiluminescence Thermo Electron 42C-Y	0.00005		
42601	Nitric Oxide	590	008	Parts per billion	Chemiluminescence Ecotech EC9841T	0.00005		
42601	Nitric Oxide	591	008	Parts per billion	Chemiluminescence Ecotech EC9843	0.00005		
42601	Nitric Oxide	599	008	Parts per billion	Chemiluminescence Teledyne API 200 EU/501	0.00005		
42612	NOy-NO	574	008	Parts per billion	Chemiluminescence Thermo Electron 42C-Y	0.00005		
42612	NOy-NO	590	008	Parts per billion	Chemiluminescence Ecotech EC9841T	0.00005		
42612	NOy-NO	591	008	Parts per billion	Chemiluminescence Ecotech EC9843	0.00005		
42612	NOy-NO	599	008	Parts per billion	Chemiluminescence Teledyne API 200 EU/501	0.00005		