Emission Monitoring & Quantification Protocol General Guidance & Instructions for "Application to use a new or alternate Quantification Protocol"

Quantification Protocol General Guidance

An integral concept of the Emission Trading Program is the "quantification protocol." The methodology used to quantify emissions and emissions rates for the purpose of determining the emission baseline, emission reduction credits (ERCs) to be generated, and ERCs to be used must meet certain criteria, including the use of the most representative, accurate, and reliable process and emission data available for the source, process, or process equipment. Where required by an applicable requirement, or where such measurement is practicable and reasonable, continuous emissions monitoring, or other direct measurement, parametric monitoring, or other surrogates for the measurement of emissions must be used.

All emission monitoring and quantification protocols used per 45CSR28 must have been federally approved for the purpose of ERC trading, where such a protocol exists for the source category. Currently, EPA has published no federally approved emission monitoring and quantification protocols for the purpose of ERC trading for any source category. Until these documents are available, DAQ is requiring the emission monitoring and quantification protocols submitted with each ERC Generation and ERC Use/Retirement form, to follow the procedures of 45CSR28.8.2.b. for new or alternate emission monitoring and quantification protocols, including the prior notice requirements to both DAQ and EPA.

All methods, procedures, and calculations used to quantify emissions and emissions reductions in the emission monitoring and quantification protocol must ensure that conservative results are obtained. DAQ understands that EPA's economic incentive programs (EIP) policy requires that if indirect means and/or methods with uncertainty are used, then the emissions estimates must be biased conservatively. For example, if an emission factor is used, then the emission factor should be *divided* by a factor of two when estimating the amount of ERCs generated for banking, but *multiplied* by a factor of two when estimating the amount of ERCs needed to purchase to cover a use.

If a source is already subject to monitoring requirements, the provisions of 45CSR28 cannot exempt the source from those requirements.

General Instructions for "Application to use a new or alternate Quantification Protocol":

Complete this form to provide notice to the Division of Air Quality (DAQ) and US EPA Region III regarding the emission monitoring and quantification protocol proposed to be used to quantify the baseline and emission reduction credit (ERC) generation methods or uses in a manner consistent with the provisions of 45CSR28.

A quantification protocol describes the proposed procedures of data collection/use and basis of acceptability including uncertainty, QA/QC, and bias towards conservative results as required by rule. A demonstration of meeting the requirements of Sections 6 and 8 of 45CSR28 must be made.

It is recommended that this form be reviewed in its entirety before attempting to complete the individual form entries. By their nature, open-market emission trading programs involve many eligibility criteria and data needs; your responses may indicate that the necessary data are not available, and therefore your source may not eligible to participate in the program.

According to 45CSR28-8.3, the owner or operator of a source seeking approval to use a new or alternate emission monitoring and quantification protocol shall submit a written request to the director **not less than thirty (30) days before the submittal of the notice of generation**. The written request shall include the information specified in subsections 8.7 and 8.8, as applicable.

Questions 1-17 – Self explanatory.

Question 18 – Please refer to 45CSR28-6 which states "The baseline shall be established for the 2-year period or two (2) ozone seasons before the date that an emission reduction occurs, unless it can be demonstrated to the director that a different time period is more representative of historical operations and is consistent with the state implementation plan."

Question 19 - Self explanatory.

Question 20 – 45CSR28-6.2.a states "When required to demonstrate compliance with an applicable requirement or where such measurement is practicable and reasonable, continuous emission monitoring or other direct measurement, parametric monitoring, or other surrogates for the measurement of emissions shall be used to determine the emission baseline."

45CSR28-6.2.b states "Where continuous emission monitoring or other direct measurement, parametric monitoring, or other surrogate measurement of emissions is not required by an applicable requirement or is not practical and reasonable, the emissions shall be calculated according to whichever of the following provisions is applicable:

6.2.b.1. For a stationary source, the emission baseline shall be established by using process and emission data for a source, process, or process equipment for the 2-year period or two (2) ozone seasons before the date that an emission reduction occurs, unless it can be demonstrated to the director that a different time period is more representative of historical operations and is consistent with the state implementation plan. The emission baseline from which emission reduction credits may be generated shall be measured using an emission monitoring and quantification protocol which satisfies the requirements of section 8. The emission baseline shall be determined by using actual emission data or operational parameters of process equipment, actual operating hours, production rates and quantities of materials processed, stored, or combusted, and the emission monitoring methods specified by an applicable requirement or approved by the director. The stationary source baseline shall be calculated by using the following equation: $BL = ER x CU x H$

Where: BL = Baseline, expressed in tons of pollutant per ozone season or year, whichever is applicable.

ER = The lower of the actual or allowable emission rate for the source, process, or process equipment, expressed as the quantity of emissions per unit of production, time, or other parameter consistent with the units of the capacity utilization factor and calculated pursuant to this subdivision and subsection 6.3.

CU = Capacity utilization factor, which is representative of the historical level of operation or production rate of the source, process, or process equipment based on average historical values calculated pursuant to this subdivision and subsection 6.3. The capacity utilization factor shall not exceed an emission standard or limitation specified by an applicable requirement.

H = Hours of operation of the source, process, or process equipment based on the average of actual operating hours representative of historical operations as determined pursuant to this subdivision.

45CSR28-6.5 state "Any baseline calculated pursuant to subsection 6.2 shall be adjusted by subtracting from the baseline any emission increases from another source, process, or process equipment in the same source category and under common ownership or control resulting from a shutdown or curtailment of the source, process, or process equipment making the emission reductions.

State Implementation Plan (SIP) Allowable Emissions Rate
Indicate the basis for the SIP allowable emission rate and include the source's maximum allowable emissions rate. If the source has a permit issued by DAQ, the information in the operating permit may be provided.
Provide the allowable emissions rate specified in reasonable available control technology (RACT) or maximum achievable control technology (MACT) plans if the source or facility is subject to these requirements.

Revised Allowable Emissions after Reduction
Enter the revised allowable emissions after the source has achieved the emissions reduction. If a source is completely shutdown, there are no actual emissions after the shutdown. You should also provide the emissions rate in lbs/day and tons/year after the reduction of each pollutant.

Example: A 250 million (mm)BTU/hr, coal fired boiler with a NOx emission rate of 0.8 lbs/mmBTU was shutdown in 1994. The boiler was operated in 1992 and 1993 at 5000 hours and 5200 hours, respectively. The RACT emission rate of NOx for the coal fired boiler is 0.45 lbs/mm BTU.

Emission Baseline Calculation:
1992: Actual NOx emissions (Pre RACT)
         = 250 mmBTU/hr x 0.8 lbs/mmBTU
         = 200 lbs/hr
         = 200 lbs /hr x 5000 hrs/yr x 1 ton/2000 lbs
         = 500 tons/yr
1993: Actual NOx emissions (Pre RACT)
         = 250 mmBTU/hr x 0.8 lbs/mmBTU
         = 200 lbs/hr
         = 200 lbs /hr x 5200 hrs/yr x 1 ton/2000 lbs
         = 520 tons/yr
If the boiler is operated with RACT control measures, the actual emissions will be:
         = 250 mmBTU/hr x 0.45 lbs/mmBTU
         = 112.5 lbs/hr
         = 112.5 lbs /hr x (5000 + 5200)/2 hrs/yr x 1 ton/2000 lbs
         = 286.88 tons/yr
Therefore, the available ERCs are 286.88 tons/yr.
The data entries in the Baseline Emission Rate calculation are shown below:

Baseline Emission Rate Summary
Baseline emission rate (expressed in lbs/hr or tons/yr) is based on the lower of actual or allowable emissions calculated over two (2) calendar years immediately preceding the reduction unless otherwise approved by DAQ.

Calendar Year	Hours of Operation	VOC		NOx		Other _____	
		Lbs/hr	TPY	Lbs/hr	TPY	Lbs/hr	TPY
1992	5000			200	500		
1993	5200			200	520		
Average:	5100				510		
Average Actual Emissions corrected with applicable SIP limitations * *RACT/MACT/LAER/BACT, etc.					286.88		
Revised Allowable Emissions after emission reductions:					0		
Available ERCs					286.88		
Emission rates after reduction: VOC: _____ Lbs/Hour _____ Tons/Year NOx: _____0_____ Lbs/Hour _____0_____ Tons/Year Other: _____ Lbs/Hour _____ Tons/Year							

Baseline Emission Estimates
Please note that 45CSR28-7.1 states: "For emission reductions to be eligible to generate emission reduction credits, all of the following conditions shall be met: 7.1.a. For all criteria pollutants, in addition to volatile organic

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compounds and oxides of nitrogen, the emissions shall be consistent with West Virginia's State Emission Inventory System."

Emission reduction credits cannot be generated for emissions in excess of actual emissions reported in emission statements submitted to West Virginia's State Emission Inventory System.

Question 21 – Self Explanatory

Questions 22 &23 – Please refer to 45CSR28-8. For calculating ERC (Emission Reduction Credit), site-specific data is nearly always a more reliable indicator or emissions than emission factors; sources should use site-specific information whenever available or feasible.

The following hierarchy for the various approaches to emission monitoring and quantification protocols is recommended:
• Continuous emissions monitoring, parametric monitoring, recent stack testing, sampling of fuels and materials, or other direct and indirect measurement methods;
• calculations using equations that are a function of process and control equipment design and operation;
• mass-balance calculations;
• emission factors (where allowed), emission calculation methods, or emission quantification protocols approved for use at the time of emission reduction generation by the Director and the Administrator of EPA.

Emission measurement protocols that cover nonattainment areas that are NALD (Needing and Lacking an approved attainment Demonstration) are prohibited from using emission factors. For a list of nonattainment areas in WV that are currently considered to be NALD, please contact the Air Monitoring Section of DAQ. If you use emission factors to quantify emissions use the following guidance:

EPA's AP-42 Emission Factor Rating	ERC Generation – Discount Emission Reductions by at Least
A	50%
B	60%
C	70%
D	80%
E	90%
U	95%

Applicable Requirements
A source must always demonstrate that baseline and emission monitoring protocols, as well as quantification protocols for determining ERC generation are in compliance with all underlying applicable requirements.