

June 5, 2001

Mr. D. Edward Settle  
Manager, Air Quality  
ThermoRetec Corporation  
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Golden, CO 80401-3213

Dear Mr. Settle:

This is in response to your letter dated February 1, 2001, in which you requested clarification of our guidance for calculating actual or potential emissions of certain regulated pollutants from a new source or modification. Your specific issue was whether the emission rate, in tons per year, should be calculated to represent the "end of pipe" release or a theoretical release rate of a reference compound. You further indicated that the regulated pollutants that you were concerned about included total reduced sulfur compounds, fluorides, volatile organic compounds (VOC), sulfur dioxide, and nitrogen oxides. As further explained below, our general policy for calculating actual or potential emissions from new and modified stationary sources is to follow, to the extent possible, the Environmental Protection Agency (EPA) methods and procedures for developing emission factors/inventories and measuring source compliance.

In a letter dated March 1, 1996, from Robert Kellam, Acting Director, Information Transfer and Program Integration Division, to Donald Gabrielson, which you referenced in your letter, it was stated that "if actual emissions are used as the basis for determining the potential to emit for a source, then these emissions should be measured at the point where the emissions are released." This statement was intended to reflect our position (stated above) that emission calculations should normally be done in a manner compatible with procedures for developing emission factors/inventories and measuring source compliance. This helps to ensure that any emission limitation established for a source for New Source Review (NSR) and title V applicability will be compatible with the formats by which emissions are quantified for inventories and source compliance.

In the case of NO<sub>x</sub> emissions, for example, the EPA guidance for developing emission factors and for determining source compliance indicates that NO<sub>x</sub> emissions are to be calculated on the basis of the molecular weight of NO<sub>2</sub>. Such guidance is contained in the EPA's "Procedures for Preparing Emission Factor Documents," (EPA-454/R-95-015, November 1997) and is consistent with the reference test methods contained in 40 CFR part 60 Appendix A for the measurement of oxides of nitrogen. Each of the relevant test methods (with the exception of Method 7E) directs the user to

measure/calculate the in-stack emissions of  $\text{NO}_x$  as  $\text{NO}_2$ .<sup>1</sup>

For the other regulated pollutants that you listed, with the exception of VOC, calculation of the actual or potential emissions for purposes of NSR and title V applicability should follow the EPA principles for developing emission factors, inventories and test methods for the subject pollutant. For VOC emissions, however, it is recognized that the EPA's test methods do not measure the pollutant mass exactly or only measure a subset of the pollutant mass.<sup>2</sup> Nevertheless, for the purposes of both NSR and title V applicability, our policy has been that VOC emissions should be calculated as the total mass of VOCs. That is, a value for each volatile organic compound known to be emitted should be calculated separately and the sum of the individual values should be reported as total VOCs (e.g., 20 tpy of toluene and 26 tpy of methyl ethyl ketone should be calculated separately and then reported as 46 tpy of VOC). This follows our guidance in the document titled "Procedures for Preparing Emission Factor Documents," where we indicate that emission factors for VOCs should be reported "in terms of actual weight of the emitted substance." Those organic substances which are specifically excluded from EPA's definition of VOC at 40 CFR § 51.100(s), because they have "negligible photochemical reactivity," should not be included in the total VOC emission calculation for NSR and title V applicability. The document also provides an exception in the case of unknown species by stating that such emissions should be calculated using an "educated guess" or a molecular weight of 44 (for reporting as propane). Where necessary, this procedure should be used to calculate emissions of those volatile organic compounds that cannot otherwise be quantified.

It is the EPA's intent that a consistent approach be taken, wherever possible, to quantify and report pollutant emissions for its various air programs. Thus, the methods described above for quantifying pollutant emissions would also apply to our procedures for such things as NSR netting, emission trading and offsets, as well as for other SIP-related programs for criteria pollutants. In the case of air quality modeling to predict annual average estimates of ambient  $\text{NO}_2$  from point sources, the so-called Ozone Limiting Method does, as you point out, include procedures that can be used to show that not all of the  $\text{NO}_x$  emissions from a source are converted to  $\text{NO}_2$  in the ambient air. Nevertheless, even this method requires the initial assumption that all  $\text{NO}_x$  in the stack is emitted as  $\text{NO}_2$ . This in-

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<sup>1</sup>As you point out, the guidance contained in Chapter A of EPA's Draft NSR Workshop Manual (October 1990) provides that significant emissions of  $\text{NO}_x$  are "based on the sum of all oxides of nitrogen." (Footnote a, Table A-4, page A.20 of the Manual.) This highlights the fact that not just the  $\text{NO}_2$  component of a source's  $\text{NO}_x$  emissions is to be considered when quantifying total  $\text{NO}_x$  emissions. Further guidance contained in the EPA reference (in-stack) test methods and EPA guidance for developing emission factors and inventories indicates that the total mass is to be calculated on the basis of the molecular weight of  $\text{NO}_2$ .

<sup>2</sup>EPA Method 18 has the potential to come the closest to estimating actual mass of all of the organics that are in the gas stream; however, it is not often possible to identify all the species present and to calibrate for each one.

stack amount of NO<sub>2</sub> is the amount that should be reported as the NO<sub>x</sub> emissions for a source, regardless of the ultimate NO<sub>x</sub> conversion rate determined to be applicable in the area of concern.

With regard to your claim that you have received conflicting information about the appropriate way to calculate actual or potential emissions to determine NSR and title V applicability, we believe it is important that all State and local air agencies quantify and report pollutant emissions in the same way that we do. In previous situations where this issue has arisen, we have provided our position in writing to specific States as appropriate. Moreover, we intend to distribute this letter to all EPA Regional Offices so they can share it with their respective State and local air agencies. In addition, this letter will be posted on our NSR web site so that it will be available for public information.

I appreciate the opportunity to be of service and trust this information is helpful. If you have any questions, please contact Dan deRoeck at (919) 541-5593 or [deroeck.dan@epa.gov](mailto:deroeck.dan@epa.gov).

Sincerely,

/s/ signed by Henry Thomas for

John S. Seitz  
Director  
Office of Air Quality Planning  
and Standards