



Phyllis Fox <phyllisfox@gmail.com>

TCEQ SOCM I VOC Emission factors???

8 messages

Phyllis Fox <phyllisfox@gmail.com>

Fri, Dec 9, 2011 at 12:55 PM

To: Randy Hamilton <rhamilto@tceq.state.tx.us>

Do you have any documentation or know the originate of the SOCM I with/without eltylene VOC emission factors published in TCEQ permitting and other guidance? Anyone you can point me to who might know?

Emissions Factors for Equipment Leak Fugitive Components, January 2008. Available at: http://www.tceq.texas.gov/assets/public/implementation/air/ie/pseiforms/ef_elfc.pdf

Randy Hamilton <Randy.Hamilton@tceq.texas.gov>

Fri, Dec 9, 2011 at 1:44 PM

To: "<Ilan Levin" <ilevin@environmentalintegrity.org>, "<Phyllis Fox" <phyllisfox@gmail.com>

Phyllis,

Dana further reminds me: The bagging studies showed ethylene components had higher leak rates than the non-ethylene service components. The thinking was that ethylene is a smaller molecule and therefore more likely to create a bigger leak emission rate for the same size hole. The bagging study data didn't show more leaks for ethylene vs non-ethylene. The line was drawn at streams with >80% ethylene had to use the "with ethylene" factors and those with <11% volume could use the "without ethylene."

So in 1986, we developed these numbers from the same data set as the EPA used for the combined factors, the same statistics were applied, we just distinguished ethylene from non-ethylene components. Update in 1995...a bit of new data was added and we updated the split factors based on the new data (Dana V.)

Best,
Randy Hamilton
(512) 239-1512

>>> Dana Poppa-Vermillion 12/9/2011 3:29 PM >>>

The TCEQ SOCM I with/without ethylene factors were derived by APD Chemical Section staff using the same data sets used by EPA to develop the SOCM I Average factors. The factors have been in use since 1986 when the agency began including piping fugitive emissions in permits. The factors were revised in 1995 when EPA revised the SOCM I average factors.

The SOCM I with ethylene factors are based on the data originally collected at ethylene facilities. The SOCM I without ethylene factors were derived based on the data excluding the ethylene facilities. The Texas Air Control Board staff felt the inclusion of the ethylene facilities skewed the emission factors high since the ethylene facilities had higher emissions than the chemical facilities which did not handle ethylene.

Let me know if you have any additional questions.

Dana

>>> Randy Hamilton 12/9/2011 3:16 PM >>>
Dana - any handy documentation?
Randy

>>> Phyllis Fox <phyllisfox@gmail.com> 12/9/2011 2:55 PM >>>
Do you have any documentation or know the originate of the SOCMI with/without eltylene VOC emission factors published in TCEQ permitting and other guidance? Anyone you can point me to who might know?

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Phyllis Fox <phyllisfox@gmail.com>
To: Randy Hamilton <Randy.Hamilton@tceq.texas.gov>

Fri, Dec 9, 2011 at 2:32 PM

Thanks.

Is there anything that documents these calculations? A report or memo perhaps?

I'm running into cases where the without ethylene factors are being broadly applied to IGCC plants where this kinds of parsing of the data doesnt make any sense as the process streams contain much smaller molecules than ethylene and thus should leak more.


[Quoted text hidden]

Randy Hamilton <Randy.Hamilton@tceq.texas.gov>
To: Phyllis Fox <phyllisfox@gmail.com>
Cc: Dana Poppa-Vermillion <Dana.Poppa-Vermillion@tceq.texas.gov>

Fri, Dec 9, 2011 at 3:54 PM

See the presentation material from the 1994 Air Permits Workshop, attached. There's probably a guidance memo with perhaps the same or more detail, but let me know if this works.

>>> Phyllis Fox <phyllisfox@gmail.com> 12/9/2011 4:32 PM >>>
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 Air Permit Seminar 1994 Fugitives Dana V.pdf
521K

Phyllis Fox <phyllisfox@gmail.com>
To: Randy Hamilton <Randy.Hamilton@tceq.texas.gov>
Cc: Dana Poppa-Vermillion <Dana.Poppa-Vermillion@tceq.texas.gov>

Mon, Dec 12, 2011 at 12:05 PM

Thanks. This is very helpful re the ethylene factors.

I have one further question. The application I'm reviewing (not in Texas!) multiplies these ethylene factors by a control efficiency for an LDAR program, taken from a draft TCEQ document, Air Permit Technical Guidance for Chemical Sources: Equipment Fugitive Leaks, p. 52.

Was the draft ever finalized? Are these control efficiencies still used? What is their basis?

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Dana Poppa-Vermillion <Dana.Poppa-Vermillion@tceq.texas.gov>

Mon, Dec 12, 2011 at 12:56 PM

To: Phyllis Fox <phyllisfox@gmail.com>, Randy Hamilton <Randy.Hamilton@tceq.texas.gov>

The technical information contained in the guidance document has not changed and is still used even though the document remains in draft form. The control efficiencies were based on information regarding the effectiveness of an LDAR program contained in the original EPA document regarding SOCM I equipment leak fugitives from the 1980's. The control factors have been in use since 1986. Newer LDAR programs have control efficiencies based on the credits previously given for leak definitions of 500 and 10,000 ppmv. Let me know if you have any additional questions or need clarification.

Dana Poppa Vermillion
(512) 239-1280

>>> Phyllis Fox <phyllisfox@gmail.com> 12/12/2011 2:05 PM >>>

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Phyllis Fox <phyllisfox@gmail.com>

Tue, Dec 13, 2011 at 11:43 AM

To: Dana Poppa-Vermillion <Dana.Poppa-Vermillion@tceq.texas.gov>

Cc: Randy Hamilton <Randy.Hamilton@tceq.texas.gov>

Thanks, Dana.

If the TCEQ control efficiencies were based on the original EPA document (which reports control efficiencies on p. 5-10, Table 5-3), why are they so much higher than reported by EPA based on the same data? Isn't there any backup support in a guidance memo or appendix which identifies the specific study and the methods used to calculate the TCEQ control efficiencies?

And what do you mean by "newer LDAR programs have control efficiencies based on the credits previously given for leave definitions..."? Do you mean the control efficiency is calculated relative to the uncontrolled emissions or the formerly controlled emissions, under the old leak rates?

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Dana Poppa-Vermillion <Dana.Poppa-Vermillion@tceq.texas.gov>

Tue, Dec 13, 2011 at 12:43 PM

To: Phyllis Fox <phyllisfox@gmail.com>

Cc: Randy Hamilton <Randy.Hamilton@tceq.texas.gov>

The 75% control efficiency for an LDAR program with a leak definition of 10,000 ppmv is based on the percent difference between the SOCM I average factor for light liquid valves and the Non-leaker factor for light liquid valves. The Non-leaker factor was based upon components in the 1000 - 10,000 leak range. The Texas Air Control Board 28 MID LDAR program with a 500 ppmv leak definition originally used the EPA Stratified (0 - 1000) factors to calculate emissions. When the factors were updated and new LDAR programs were developed in the early 1990s, the use of the stratified factors was discontinued. The control efficiencies used with the 500 ppmv leak definition are based on the percent difference between the SOCM I average factors and the Stratified factors. The original work was done in the mid-80's and there is no formal documentation of the basis in guidance documents. There is an interoffice memo dated April 13, 1995 which documents the basis for the 75% reduction credit given for annual flange monitoring at 500 ppmv. Let me know if you have any additional questions.

>>> Phyllis Fox <phyllisfox@gmail.com> 12/13/2011 1:43 PM >>>

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