

# APPENDIX C

## GUIDELINE DOCUMENTS

### **Guideline for Determining Air Emissions Fees for Criteria Pollutants**

Facility actual emissions for any pollutant will need to be rounded to the nearest ton and multiplied by \$53.00 per ton, to determine fees. If total facility actual emissions for any single pollutant are greater than 4,000 tons per year, then fees are assessed on only the first 4,000 tons of emissions for that single pollutant. If the calculated fee is less than \$1,000.00, the air emissions fee is \$1,000.00. If paper forms are submitted, an additional paper form fee will be required in the amount of a \$250 base fee plus \$10.00 per each single worksheet page submitted (excluding the cover sheet and emissions fee form).

Note that fees are applied on a pollutant by pollutant basis, not on the sum total of (PM<sub>10</sub>-FIL plus PM-CON), NO<sub>x</sub>, SO<sub>x</sub>, and VOC emissions.

### **Guideline for Determining Air Emissions Fees for Hazardous Air Pollutants**

Pollutants which have been listed under the 1990 Clean Air Act and *K.A.R. 28-19-201(a)* as Hazardous Air Pollutants (HAP) may also be subject to fees. Total HAP emissions will need to be rounded to the nearest ton and then multiplied by \$53.00 per ton to determine the fees.

Determine if these HAP emissions have already been assessed fees as a VOC or PM<sub>10</sub> emissions. This could occur if the facility emits VOC or PM<sub>10</sub> and the HAP emissions were included in the estimation of the total VOC or PM<sub>10</sub>. The portion of the HAP emissions that have been assessed a fee as PM<sub>10</sub> or VOC should be subtracted from the HAP emissions subject to fees. The HAP emissions should not be subtracted from VOC or PM<sub>10</sub> emissions prior to determining whether or not the facility is emitting VOC or PM<sub>10</sub>.

If there are any remaining HAP emissions still subject to fees after the above exclusions, then this total is entered on the fee summary form as HAP emissions subject to fees. The intended concept in this process is not to assess a fee for the same emission more than once.

## Guideline for Estimating Solvent Emissions Using Material Balance Procedures

For painting, printing, and solvents, the volatile organic compound (VOC) or hazardous air pollutant (HAP) emissions can be estimated using material balances. Total VOC or HAP emissions can be determined by summing the VOC or HAP contents of all compounds in the coatings and solvents used. This calculation is repeated for coatings or solvents returned to supplier for recycling. The VOC or HAP content of coatings and solvent reprocessed or disposed of are subtracted from the emissions if they are treated in a manner which prevents the release of the VOC or HAP into the atmosphere.

The total emissions of each HAP or total VOC shall be calculated by summing the results of the coating formulations as follows:

### Added:

$$Q_{added} = \sum_{i=1}^n (Q_i)(C_i)(D_i)$$

where:

$Q_{added}$  = Total quantity of regulated substance which enters the process or operation, lbs.

$Q_i$  = Total annual coating consumption for each type of coating used, gallons/yr.

$n$  = Number of different coatings used.

$D_i$  = Density of each coating used, lbs/gal.

$C_i$  = Measured average concentration (i.e., total VOC or HAP average concentration) in coating, percent by weight.

### Consumed:

$$Q_{consumed} = \sum_{i=1}^n (Q_i)(C_i)(D_i)$$

where:

$Q_{consumed}$  = Total quantity of regulated substance which becomes an integral part of the product, lbs.

$Q_i$  = Total annual coating consumption for each type of coating consumed, gallons/yr.

$n$  = Number of different coatings used.

$D_i$  = Density of each coating used, lbs/gal.

$C_i$  = Measured average concentration (i.e., total VOC or HAP average

concentration) percent by weight.

**Recovered:**

$$Q_{recovered} = \sum_{i=1}^n (Q_i)(C_i)(D_i)$$

where:

- $Q_{recovered}$  = Total quantity of the regulated substance recovered for reuse which is not accounted for by the emissions control device, lbs.
- $Q_i$  = Total annual coating consumption for each type of coating recovered, gallons/yr.
- $n$  = Number of different coatings used.
- $D_i$  = Density of each coating used, lbs/gal.
- $C_i$  = Measured average concentration (i.e., total VOC or HAP average concentration) percent by weight.

The net uncontrolled emissions are then calculated with the following equation:

$$Q_{uncontrolled} = Q_{added} - Q_{consumed} - Q_{recovered}$$

where:

- $Q_{uncontrolled}$  = Net uncontrolled emissions, lbs.
- $Q_{added}$  = Total quantity of regulated substance which enters the process or operation, lbs.
- $Q_{consumed}$  = Total quantity of regulated substance which becomes an integral part of the product, lbs.
- $Q_{recovered}$  = Total quantity of the regulated substance recovered for reuse which is not accounted for by the emissions control device, lbs.

To calculate the controlled emissions you will need the following:

Capture efficiency (CE) (in percent) for the collection system (hooding, ductwork, etc.) between the source of emissions and the emissions control device. For totally enclosed systems operating under negative pressure, the capture efficiency will be 100%.

Estimated control device efficiency (CDE) (in percent) for the device when controlling the pollutant.

The actual net controlled emissions would then be

$$Q_{\text{controlled}} = Q_{\text{uncontrolled}} * (1 - ((CE * CDE) / 10000))$$

where,

$Q_{\text{controlled}}$  = Net controlled emissions, lbs

$Q_{\text{uncontrolled}}$  = Net uncontrolled emissions, lbs.

CE = Capture efficiency, in percent, of the control device emissions collection system determined according to K.A.R. 28-19-210 (f)

CDE = Control device efficiency, in percent, determined according to 28-19-210 (f)

Worksheet 6 in the Emissions Inventory packet is used for calculation of overall control efficiency.