



## MEMORANDUM

**DATE:** June 15, 1999

**TO:** Engineering Services Division, Compliance Section, Modeling Section

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**SUBJECT:** Guidance document for Standard 4, Section VIII - PM Emission Limitations

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### Background

Section VIII - Other Manufacturing, in Standard 4, sets allowable PM emission limits for other types of manufacturing operations not specifically included in the standard. Allowable PM limits are set by determining the process weight rate (the total weight of all materials introduced into a source operation) and finding its correlating PM allowable emission rate using the appropriate equation in the standard (some process weight rates and their associated allowables are also listed in tabular form). Confusion exists as to what constitutes a source operation (or process) and whether the process weight rate should be applied to each process emission unit (each individual piece of equipment), or a group of process emission units, designated as a single process. The purpose of this document is to provide **guidance** on when grouping process emission units should be performed to designate a single process so that appropriate allowable PM emission limits can be established. A committee was established to address this issue.

### Intended use of Standard 4, Section VIII

Standard 4, Section VIII relates the allowable particulate emission rate of a source operation to the source's "process" weight. As such, the Department must establish guidelines for use in determining what constitutes a process. This may be achieved by using the definition of "process" in another applicable requirement which identifies an individual process emission unit or a group of process emission units as a single process [i.e. an NSPS, 112(g), or MACT affected source]. The basis should be documented in the Engineering Greensheet. Next, consider if the process emission unit or the group of process emission units should be further grouped using the information below, before a final designation of the process emission unit or the group of process emission units is made. If there is no process definition specified elsewhere, the guidelines presented in this document should be used to designate the process.

### **Grouping Process Units and/or Lines for Process Designation**

Guidelines have been established so that "grouping" determinations may be made more easily and consistently. Therefore, when grouping process emission units for designation as a single process to apply the process weight rate equation, consider the following:

A single process includes all the process emission units and/or group of process emission units used to make a "finished identifiable output." To be a finished identifiable output, it must be able to be used as a product (this product may also be sent to another on-site process as a raw material), thus creating a "break" between processes. The "break" must be a clear and distinguishable isolation before any further processing. The capability to isolate the finished identifiable output must exist. Also, any additional equipment that sends a raw material to a process must be considered part of that process. **(Note:** In-process storage vessels storing a finished identifiable output such as a surge control bin, a recycle bin, a day storage silo, a blending bin or tank, etc... should be given special attention when determining if their use is considered a "break." The permit writer should evaluate, but not be limited to, whether the in-process storage vessel is functioning as a flow-through process vessel. For purposes of this guidance document, a flow-through process vessel is a vessel that forms an integral part of a process or is between two or more processes through which there is a steady, variable, recurring or intermittent flow of materials through the vessel during the operation of one or more processes. Flow-through process vessels do not include vessels used for the storage of materials prior to their introduction into a process or for the storage of finished products or by-products from a process. However, an in-process vessel, between two processes, that stores a crude (unfinished) identifiable output from the upstream process and then directly feeds the downstream process, for purification of the crude (unfinished) identifiable output as a finished identifiable output, should be considered a flow-through process vessel and not be considered a "break," unless there exists the capability to further isolate the crude (unfinished) identifiable output from the two processes as a finished identifiable output. As implied earlier, the permit writer should evaluate other factors such as the dependency of the upstream and/or downstream processes on the operation of the in-process vessel when determining whether an in-process vessel should be considered a "break.")

#### Examples:

- 1) An example of a process with multiple steps is a powder coating operation. It may have a washer, dryer, powder coater, and drying oven. Nowhere in this operation is there a break where a "subproduct" can be sold or used elsewhere. All of the equipment associated would be considered part of that process.
- 2) An example of a clear break between two processes is a steel melting/billet casting operation and a billet rolling/steel shaping operation. While the second operation uses billets from the first, they may also be stored, or sold to others.

- 3) A group of equipment that "feeds" material to another process is not considered a separate process if there is no distinguishable product or if no clear break in processing where the material could be handled as a separate product exists. An example is equipment used to collect trimmed material from a sheeting operation where the collected material goes directly back into the production of the sheeting. If the material was collected and stored prior to reintroduction, it would be considered a separate process.
- 4) A further, less obvious differentiation of processes includes multiple units turning out similar products. For a room of sewing machines there are two scenarios to consider:
  - a) If the sewing machines are parallel operations, each sewing machine is considered a process and assigned its own PM limit;
  - b) If the sewing machines are a series operation (i.e. an assembly line) then each series (or line) is considered a process and is assigned a PM limit. However, two printing machines in one room would not be considered one process, even if they produced the same product, used the same raw materials, or vented to the same control device, provided that they are capable of independent, viable operation.

If there are no other definitions, process emission units and/or lines may be grouped if they have common stacks or ducting, or if they have common air pollution control equipment.

### **Demonstration of Compliance**

When source testing is required to demonstrate compliance with Standard 4, the most stringent limit/regulation shall apply. For example, where affected facility emissions cannot be distinguished from non-affected facility emissions because they are sent to a common control device, common stack, etc., then the combined effluent from the control device, common stack, etc. shall comply with the most stringent applicable standard(s) for all affected facilities. The provisions of 40 CFR 60.8(a) allows EPA to specify operating conditions for testing. Source evaluation testing shall be performed while the source is operating at or near full capacity in order to determine whether the source can achieve compliance under "worst case" conditions. EPA usually requires "worst case" conditions for testing. Another example, a process has been designated per the guidelines above. The process contains multiple stacks. The total rate of emissions from those stacks shall comply with the most stringent emission limitation. If performance testing is required, all the stacks included in the designated process shall be tested, and the total shall comply with the emission limitation.

Demonstration of compliance, in accordance with NSPS Regulations or MACT Regulations where allowable emission rates for different process sections are given, can be as follows:

"If emissions from two affected facilities subject to different emission standards are ducted to a common control device, the format of the emission standards for the individual facilities must be considered when determining the applicable standards that apply at the outlet of the control device. If the emission standards for the

individual facilities are expressed in terms of a concentration (i.e., parts per million or grains/dry standard feet) or a mass emission rate per unit of heat input (i.e., pounds per million British thermal units), compliance for control device outlet meets the more stringent of the two applicable standards.

In situations where two facilities are part of a continuous process and are subject to emission standards that are expressed as a mass emission rate of pollutant per unit of production (i.e. kg TOC/Mg product), the emission rate at the exit of a common control device for the individual facilities is the sum of the applicable emission standards for the individual facilities. When emission limits are expressed as mass of pollutant per mass of product, demonstrating that a control device can meet an emission standard equal to the sum of the limits for separate facilities in a continuous processing line provides adequate assurance that the control equipment is efficient enough to achieve compliance for any of the affected facilities on an individual basis” (letter from D. Neeley, EPA to Y. Taylor, BAQ, Dec. 30, 1998).

### **Exceptions to the Guidelines**

The process emission units or the group of process emission units listed below are felt to be processes in and of themselves. These processes are not considered operationally or physically united to other processes. Therefore, the total of inputs to these processes should be considered when setting allowable PM emission limits for each process. The exceptions are:

- Unloading operations
- Raw Material Bulk Storage operations (excluding day bins or in-process storage operations)
- Final Product Shipping/Storage operations

Although several processes are fed from a common raw material bulk system and/or feed a common storage/shipping & handling system may not mean the processes are operationally or physically united.

### **Other areas of concern:**

#### I. IC Engines and Gas Turbines

The definition of “Process Weight” specifically excludes liquids and gases as fuels from being considered as materials introduced into a source operation. Therefore, PM emission limitations do not apply to Internal Combustion Engines or Gas Turbines as set under Standard 4, Section VIII. However, other standards may apply, e.g. if a unit burns hazardous waste as fuel. Be sure to check all the other standards for applicability to these type units.

#### II. 112(g)

As mentioned above, the definition of an affected facility as defined by an applicable requirement should be used first to designate a process. Therefore, applying SC Regulation 61-62.63, Constructed or Reconstructed Major Sources, or 112(g), to a source or sources will define the process.

III. Title V

Pursuant to SC Regulation 61-62.70.2, "*Emissions unit*" means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act. This term is not meant to alter or affect the definition of the term "unit" for purposes of the Title IV acid rain requirements of the Act. "*Stationary source*" means any building, structure, facility, or installation that emits or may emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act. As such, the Bureau interprets the relationship of the two definitions to mean that any individual installation (or individual processing equipment) can be considered an emission unit, as well as a specific process (or group of processing equipment) can be considered an emission unit. **The Bureau believes this interpretation should not alter or affect the designation of a process (grouping of process emission units) for the purposes of complying with SC Regulation 61-62.5, Standard No. 4.**

If a company wishes to consider an individual process emission unit part of a process, as designated according to this guidance document, as an insignificant activity, then the entire designated process as the emission unit must be considered an insignificant activity. In other words, if the entire designated process as an emission unit cannot be classified as an insignificant activity, then the individual process emission unit part of the designated process cannot be classified as an insignificant activity.

To be an insignificant activity, the sum of the "potential to emit" of each pollutant emitted from all process emission units within the designated process must be less than the emission levels of 5 tons/year of any criteria pollutant or 1000 pounds/year of any compound listed in Regulation 61-62.5, Standard No. 8 as toxic air pollutants. Activities meeting this criteria should be listed in Section C and R and must be accompanied by emission calculations to verify that the potential to emit of these emission units meets the specified de minimis levels above. The potential to emit from these emission units must be calculated prior to controls. This approach is consistent with the approach used to determine whether a facility is major for the purpose of Title V. Furthermore, this approach is consistent with the approach that is used by EPA to determine whether a facility is required to submit a CAM plan for an emission unit with a control device. An exception to this approach is when a control device is an inherent part of the emission unit and is not treated as a "control device" but as a process control device. Thus, the Bureau should treat the emissions from the process control device as uncontrolled emissions.

A company can choose to divide a designated process into individual process emission units for incorporation into the Part 70 operating permit as individual process emission units. However, the individual process emission units must be grouped together as a designated process in order to determine and demonstrate compliance with the PM allowable emission rate. The incorporation of the PM allowable emission rate into the Part 70 operating permit would be as follows:

**D. EMISSION LIMITS AND STANDARDS**

Table 5.9 contains summaries of emission unit emission limits and standards.

**TABLE 5.9 EMISSION LIMITS AND STANDARDS**

<b>Unit ID</b>	<b>Pollutant/ Standard</b>	<b>Limit</b>	<b>Reference Method</b>	<b>Regulation</b>	<b>State Only</b>	<b>Condition Number</b>
01-12	PM	19.27 lbs/hr	N/A	SC Regulation 61-62.5, Standard 4, Section VIII	No	5.E.4.a

N/A = Not Applicable

For each process designated as an emission unit, the permit writer when completing Part 5(C) of the Part 70 operating permit should list all flow-through process tanks--which vent inside, outside to the ambient air, or to a control device or system--in the equipment description table, not as individual emission units. For the purposes of this section of the guidance, a flow-through process tank is a tank that forms an integral part of a production process through which there is a steady, variable, recurring or intermittent flow of materials through the tank during the operation of the process. Flow-through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process or for the storage of finished products or by-products from the production process.

<b>Record of Revisions</b>	
<b>DATE</b>	<b>Description of Change</b>
6/15/1999	Initial Document