

**Implementation Guidance for Section 112(g) of the 1990 Clean Air Act  
Amendments  
(Case-by-Case MACT for New HAP Sources)**

**September 2000  
(amended January 2010)**

## **DISCLAIMER**

This document is to be used as guidance only. When making a case-by-case MACT determination and preparing a permit the permit writer should use Virginia Regulation 9 VAC 5-80-1400 Permits for New and Reconstructed Major Sources of Hazardous Air Pollutants.

## **Introduction**

On December 27, 1996, the Environmental Protection Agency (EPA) promulgated "Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources", 40 CFR Part 63 Subpart B. This rule implements §112(g) of the 1990 Clean Air Act Amendments (CAAA).

The purpose of §112(g) is to require a new major Hazardous Air Pollutant (HAP) source to utilize the Maximum Achievable Control Technology (MACT) that is currently in use by a similar source if a MACT standard has not been promulgated for that source category. In this situation, MACT is determined on a case-by-case basis. This program is a "gap filling" program in that it assures MACT will be implemented on new major HAP sources even if the MACT standard has not been promulgated. §112(g) applies only to major HAP sources that are being either constructed or reconstructed and ONLY if the process or production unit being constructed or reconstructed is major (pte 10/25 tpy) for HAPs. Facility wide HAP emissions are NOT taken into consideration when determining major source status. However, a source DOES NOT have to be on the source category list as established by §112(c) of the 1990 CAAA to be applicable to §112(g). ANY major constructed or reconstructed HAP source must meet the §112(g) requirements.

The Virginia regulation for implementing §112(g) is 9 VAC 5-80-1400, "Permits for New and Reconstructed Major Sources of Hazardous Air Pollutants." This rule was effective on February 1, 2000. Any major HAP source meeting the applicability requirements under §112(g) would be required to submit all the information specified in 9 VAC 5-80-1400. The appropriate conditions of a permit issued under this program would be incorporated into the source's Title V permit.

This guidance is provided to assist the permit writer in determining the applicability of §112(g), to assist in making an appropriate case-by-case MACT determination, and in determining how to meet the implementation requirements of §112(g) and 9 VAC 5-80-1400.

## **Determining 112(g) Applicability**

*How do you know if §112(g) applies?*

To determine if a source needs to make a §112(g) determination, the following questions should be asked:

- 1) Does the source meet the definition of construction or reconstruction?
- 2) Does the source meet the definition of a major HAP source when only considering the emissions of what is being constructed or reconstructed? (Potential to Emit of 10 tpy for a single HAP or 25 tpy for multiple HAPs including fugitive emissions.)
- 3) Does the source meet the definition of process or production unit?

In most cases, if the answers to these questions are yes, then §112(g) applies.

§112(g) does NOT apply to the following:

- 1) Electric Utility Steam Generating Units (unless they become a listed source category under §112). This does NOT include major stationary source combustion units that are part of a combined cycle system, such as waste heat recovery units that include duct burners that are part of a combined cycle system\*.
- 2) Research and Development Activities
- 3) Sources with a Promulgated MACT Standard
- 4) Sources in a Source Category that has been Delisted from the §112(c) Source Category List

The most difficult decision in this process is usually determining if the source meets the definition of process or production unit. In order to meet this definition, a source must produce or store an intermediate or final product. A facility may have more than one process or production unit. The next section contains examples, which were provided by EPA, of when §112(g) would or would not apply.

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\* EPA Interpretative Rule - May 25, 2000 Federal Register Notice

## **EPA Examples of §112(g) Applicability\***

### **Example 1**

At a plant which manufactures fiberglass reinforced plastic boats, the owners wish to add more spray guns to an existing fabrication line to supplement the existing spray guns in laminating a particular model of boat hulls. The new spray guns will have a PTE greater than 10 tpy of a HAP.

Does §112(g) apply?

No. The newly added spray guns in and of themselves do not produce the intermediate product (in this case, considered as the fiberglass boat hull) and therefore do not meet the requirements for §112(g) review.

### **Example 2**

Using Example 1, assume that the owner adds more spray guns to laminate a second model of boat hulls. The room is large enough to accommodate two lamination processes at the same time. The new spray guns have a PTE greater than 10 tpy.

Does §112(g) apply?

No. The collection of equipment needed to produce the boat hull includes the lamination process as well as the gel coat process. Since the addition of the second lamination process does not produce an intermediate product, if no additional laminating or other essential equipment were added, it would not meet the requirements for §112(g) review.

### **Example 3**

Using Example 2, a gel coat spray booth and supporting equipment needed to manufacture the boat hulls are added in addition to the spray guns.

Does §112(g) apply?

Yes. The process or production unit is the set of equipment that consists of the gel coat spray booths, the spray gun, and the supporting equipment. This new set of equipment can reasonably operate alone and produce an intermediate product. Therefore, all sources of HAP in this set of equipment, which includes the gel coat spray booth and the spray guns in the laminating room, are subject to review under §112(g).

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\* These examples can be found in the December 27, 1996 Federal Register notice

#### **Example 4\***

An aluminum reduction plant has several potlines which manufacture aluminum. Each potline consists of between 100 and 200 electrolytic reduction cells or "pots" that are connected together in series electrically to complete a circuit. Each pot produces molten aluminum. The company wishes to add more pots on each line. The additional pots will result in a major increase in emissions.

Does §112(g) apply?

No. Each separate pot is not a separate process or production unit. Pots within the potline are both functionally and physically interconnected and unable to function alone. Therefore, the individual pots would not be subject to review under §112(g).

#### **Example 5\***

Using Example 4, assume the aluminum production facility adds a new potline which is a major source of HAP.

Does §112(g) apply?

Yes. The entire potline is a collection of structures and equipment that produces an intermediate product (i.e., molten aluminum). The potline would be subject to §112(g) review.

#### **Example 6**

An automobile assembly paint shop, three coating steps, primer, surfacer, and top coat are used to paint the automobile body. Another parallel top coat step is added to the existing topcoat step. Both top coat steps then feed back into a bake oven. The new top coat step will be a major source of HAP.

Does §112(g) apply?

No. The intermediate product is the painted automobile body. The top coating step cannot take place without the preceding primer and surfacer steps and the supporting infrastructure. Also, the intermediate product cannot be completed without the bake oven step. The top coat by itself would not be discrete process unit and therefore would not be subject to §112(g) review.

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\* At the time Examples 4 & 5 were developed, the Secondary Aluminum Smelting MACT had not been promulgated. That MACT was promulgated on March 23, 2000 and therefore, technically, §112(g) would NOT apply.

These examples were presented by EPA but not everyone will have the same interpretation. Each situation encountered will have to be handled on a case-by-case basis.

## **Case-by-Case MACT Determination**

*Who makes the case-by-case MACT determination?*

It is the responsibility of the source to recommend to the DEQ an appropriate case-by-case MACT determination and it is the responsibility of the DEQ to accept or deny that recommendation. Virginia DEQ is the delegated authority for §112(g). The Virginia permit program to implement §112(g) is 9 VAC 5-80-1400: Permits for New and Reconstructed Major Sources of Hazardous Air Pollutants. The source must provide all the information as required by the regulation in their permit application. The conditions will be placed in a Virginia New Source Review Permit.

*How do you determine what the MACT should be?*

§112(g) defines MACT as "the emission limitation which is not less stringent than the emission limitation achieved in practice by the *best controlled similar source*, and which reflects the maximum degree of reduction in emissions that the Administrator (DEQ), taking into consideration the cost of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements, determines is achievable by the constructed or reconstructed major source."

Best controlled similar source is defined as "a stationary source that (i) has comparable emissions and is structurally similar in design and capacity to other stationary sources such that the stationary sources could be controlled using the same control technology, and (ii) uses a control technology that achieves the lowest emission rate among all other similar sources in the United States."

It is important to remember that a MACT standard could be an emission limitation, a work practice, or another type of control requirement. The key to making a case-by-case MACT determination is finding the "best controlled similar source". Sources of information that should be used in making the determination include the following:

- 1) Proposed MACT
- 2) Presumptive MACT
- 3) Background Information Documents Developed by EPA
- 4) Information Collected by EPA through §113 of the CAAA
- 5) Information Available through EPA's Database Systems
- 6) Information Available from other States
- 7) Information from Similar Sources

- 8) Any other additional information that can be practically obtained

When looking for the available information, the best places to start are the following web-sites:

- 1) <http://www.epa.gov/ttn/uatw>

This is the EPA Unified Air Toxics Web-site. The majority of information that is available on all aspects of Title III can be found here. Within this web-site, the following two sites should be the most helpful for gathering information on case-by-case MACT determinations:

- a) <http://www.epa.gov/ttn/atw/socatlst/socatpg.html>

This site is a table of all the MACTs yet to be proposed or promulgated. Any information EPA has developed for a specific MACT, such as a presumptive MACT or a Background Information Document, can be found here. Most importantly, the EPA contact for each MACT is listed.

- b) <http://www.epa.gov/ttn/uatw/112g/112gmact/112gmact.html>

This site has a listing of all the 112(g) determinations that have been made to date and that have been submitted to EPA. The applicable MACT and the State contact people are listed.

- 2) <http://cfpub.epa.gov/adi>

This is the Applicability Determination Index. Applicability determinations of MACTs and other CAA provisions made by EPA can be found on this site.

Even if EPA has developed a presumptive MACT, or possibly even a proposed MACT, this may not represent the "best controlled similar source." It is recommended that the EPA MACT developer be contacted to find out the history of the MACT determination. Also, the Office of Air Permit Programs in the Central Office should be contacted for assistance. Using all reasonably available resources, it should be possible to come up with a MACT determination.

*When can a source ask to be exempted from making a §112(g) determination?*

Under certain circumstances, a source may be able to forego making a §112(g) determination. This is the case under the following conditions:

- 1) When the HAPs emitted by the process or production unit will be controlled by existing control equipment;
- 2) When a Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) determination was made for the existing control equipment within the 5 years prior to the proposed construction or reconstruction;

- 3) When it is determined the control of HAP emissions from existing equipment is equivalent to the level of control provided by a current BACT or LAER determination; or
- 4) When the percent control efficiency for HAP emissions from all sources controlled by the existing control equipment is equivalent to the percent control efficiency before adding the new process or production unit.

The final decision to exempt a source is made by DEQ.

*What happens after a MACT determination has been made?*

After the MACT determination has been made, the standard procedure for issuing a major source NSR permit applies. In addition to the MACT determination, the permit should include the following:

- 1) All necessary applicable requirements from 40 CFR 63 Subpart A (General Provisions of Part 63)
- 2) All monitoring requirements
- 3) All reporting requirements
- 4) All recordkeeping requirements
- 5) All performance testing requirements
- 6) Any other condition necessary to fulfill the requirements of 9 VAC 5-80-1400

*What public participation is required?*

As with any major NSR permit, public participation is required. The public participation process is found in 9 VAC 5-80-1460. It's the responsibility of the source to notify the public, in a newspaper of general circulation, of the proposed source within 15 days of receiving the initial determination notification (the initial determination process is found in 9 VAC 5-80-1450). The source must hold the informational briefing at least 30 days, but no later than 60 days, after the newspaper announcement. A 30 day comment period should then be provided and a public hearing held within that time, if necessary. The case-by-case MACT determination is effective on the date of permit issuance.

*Who should be copied on the Final NSR permit?*

A copy of the final permit should be sent to EPA Region III and to all affected States (an affected state is any state located within 50 miles of the source). EPA is posting all §112(g) determinations on their web-site to be utilized by other states. Therefore, an electronic summary of the permit should be prepared and submitted to EPA Region III.

*What about the Title V permit?*

The conditions of the NSR permit should be incorporated into the source's Title V operating permit. If more than 3 years are remaining on the Title V permit, the permit should be opened and the conditions incorporated. If less than 3 years remain on the Title V permit, the conditions should be incorporated upon renewal. The NSR permit is federally enforceable.

*What happens after the MACT is promulgated by EPA?*

As stated earlier, the §112(g) program is a "gap filling" program. A MACT will eventually be promulgated either through §112(d) or §112 (h). The promulgated MACT should be incorporated into the source's Title V operating permit. If the promulgated MACT is more stringent than the case-by-case determination, then the source must meet the more stringent requirements and, at DEQ's discretion, the source can be granted up to 8 years to meet the more stringent MACT. If the promulgated MACT is less stringent than the case-by-case MACT determination, then it is DEQ's decision whether to keep the more stringent requirements or to allow the source to meet the less stringent requirements of the promulgated MACT.

## **Conclusion**

This document is provided as guidance only. The following should be used as the case-by-case MACT determination is being made:

- 1) 9 VAC 5-8-1400 - Permits for New and Reconstructed Major Sources of Hazardous Air Pollutants
- 2) 40 CFR Part 63 Subpart B - Requirements for Control Technology (§63.40 - 63.44)
- 3) 40 CFR Part 63 Subpart A - General Provisions (§63.1 - 63.15)

Questions may be directed to the Office of Air Permit Programs - Air Toxics.

## **Glossary**

**Affected Source** - the stationary source, the group of stationary sources, or the portion of a stationary source which is regulated by a MACT standard.

**Affected States** - all states:

1. Whose air quality may be affected and that are contiguous to the Commonwealth; or
2. Whose air quality may be affected and that are within 50 miles of the major source for which a case-by-case MACT determination is made.

**Best Controlled Similar Source** - a stationary source that (i) has comparable emissions and is structurally similar in design and capacity to other stationary sources such that the stationary sources could be controlled using the same control technology, and (ii) uses a control technology that achieves the lowest emission rate among all other similar sources in the United States.

**Case-by-case MACT Determination** - a determination by the board, pursuant to the requirements in 9 VAC 5-80-1400, which establishes a MACT emission limitation, MACT work practice, or other MACT requirements for a stationary source subject to 9 VAC 5-80-1400.

**Construct a Major Source** -

1. To fabricate, erect, or install a major source at any undeveloped site, or
2. To fabricate, erect, or install a major process or production unit at any site.

**Construction** -

1. The fabrication, erection, or installation of a major source at any undeveloped site, or
2. The fabrication, erection, or installation of a major process or production unit at any site.

**Control Technology** - measures, processes, methods, systems, or techniques to limit the emission of hazardous air pollutants including, but not limited to, measures that:

1. Reduce the quantity of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications;
2. Enclose systems or processes to eliminate emissions;
3. Collect, capture or treat such pollutant when released from a process, stack, storage, or fugitive emissions point;
4. Are design, equipment, work practice or operational standards (including requirements for operator training or certification); or

5. Are a combination of 1 through 4.

**Electric Utility Steam Generating Unit** - any fossil fuel fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A unit that co-generates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 megawatts electric output to any utility power distribution system for sale shall be considered an electric utility steam generating unit. In the May 25, 2000 Federal Register EPA issued an interpretative rule which states:

"EPA has determined that case-by-case MACT determinations under Subpart B (§112(g)) must be made for all new or reconstructed major source stationary combustion turbines, regardless of whether they are part of a combined cycle system. Waste heat recovery units, including duct burners, which are part of a combined cycle system are considered to be steam generating units."

(Waste heat recovery units that are electric utility steam generating units would not be subject to §112(g) review.)

**Emission Unit** - any part of a stationary source which emits or would have the potential to emit any hazardous air pollutant.

**Fixed Capital Cost** - means the capital needed to provide all the depreciable components of an existing source.

**Hazardous Air Pollutant** - any air pollutant listed in §112(b) of the federal Clean Air Act, as amended by 40 CFR 63.60.

**MACT Standard** - (i) an emission standard; (ii) an alternative emission standard; or (iii) an alternative emission limitation promulgated in 40 CFR 63 that applies to the stationary source, the group of stationary sources, or the portion of a stationary source regulated by such standard or limitation. A MACT standard may include or consist of a design, equipment, work practice, or operational requirement, or other measure, process, method, system, or technique (including prohibition of emissions) that the Administrator establishes for new or existing sources to which such standard or limitation applies. Every MACT standard established pursuant to §112 of the federal Clean Air Act includes Subpart A of 40 CFR Part 63 and all applicable appendices of 40 CFR Part 63 or of other parts of Title 40 of the Code of Federal Regulations that are referenced in that standard.

**Major Process or Production Unit** - any process or production unit which in and of itself emits or has the potential to emit 10 tons per year of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants.

**Major Source** - any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants,

unless the board establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

**Maximum Achievable Control Technology (MACT) Emission Limitation** - the emission limitation which is not less stringent than the emission limitation achieved in practice by the best controlled similar source, and which reflects the maximum degree of reduction in emissions that the board, taking into consideration the cost of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements, determines is achievable by the constructed or reconstructed major source.

**New Source Review Program** - a program for the preconstruction review and permitting of new stationary sources or expansions to existing ones in accordance with regulations promulgated to implement the requirements of §§110(a)(2)(C), 165 (relating to permits in prevention of significant deterioration areas) and 173 (relating to permits in nonattainment areas) and 112 (relating to permits for hazardous air pollutants) of the federal Clean Air Act.

**Potential to Emit** - the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment, and restrictions on hours of operation or on the type or amount of material combusted, stored, or process, shall be treated as part of its design only if the limitation or its effect on emissions is state and federally enforceable.

**Presumptive MACT** - a preliminary MACT determination made by EPA, in consultation with states and other stakeholders, after data on a source category's emissions and controls have been collected and analyzed, but before the MACT standard has been proposed or promulgated.

**Process or Production Unit** - any collection of structures or equipment or both, that processes, assembles, applies, or otherwise uses material inputs to produce or store an intermediate or final product. A single facility may contain more than one process or production unit.

**Reconstruct a Major Source** - to replace components at an existing major process or production unit whenever:

- 1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new process or production unit; and
- 2) It is technically and economically feasible for the reconstructed major source to meet the applicable standard for new sources established in a permit.

**Reconstruction** - the replacement of components at an existing major process or production unit whenever:

- 1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct comparable new process or production unit; and
- 2) It is technologically and economically feasible for the reconstructed process or production unit to meet the applicable standard for new sources established in a permit.

**Research and Development Activities** - activities conducted at a research or laboratory facility whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for sale or exchange for commercial profit, except in a de minimis manner.

**Similar Source** - a stationary source or process that has comparable emissions and is structurally similar in design and capacity to a constructed or reconstructed major source such that the source could be controlled using the same control technology.

**Source Category List** - the list and schedule issued pursuant to §112(c) and (e) for promulgating MACT standards issued pursuant to §112(d) of the federal Clean Air Act and published in the Federal Register at 63 FR 7155, February 12, 1998.

**Stationary Source** - any building, structure, facility or installation which emits or may emit any air pollutant.