



Ohio Environmental Protection Agency
Division of Air Pollution Control

INTER-OFFICE COMMUNICATION

TO: Permit Writers and Permit Reviewers

FROM: Mike Hopkins, Assistant Chief, Permitting, DAPC, [through Bob Hodanbosi, Chief, DAPC](#)

DATE: ~~December 10, 2009~~ [August 30, 2013](#)

RE: [BAT Requirements for Permits Issued On or After October 1, 2013](#)

[This guidance memo supersedes the *BAT Requirements for Permit Applications Filed on or After August 3, 2009* memo dated December 10, 2009. It contains changes associated with the comments received from interested parties and associated with additional decisions that have been made concerning the applicability of BAT and Senate Bill \(S.B.\) 265 from 2006. In response to those comments, and in keeping with the definition of BAT in section 3704.01\(F\) of the Revised Code and Ohio Administrative Code \(OAC\) Rule 3745-31-01\(T\), we are revising this guidance in order to clarify how case-by-case BAT determinations should be made. This approach is consistent with the intent of the amendments to section 3704.03\(T\) of the Revised Code in S.B. 265.](#)

~~As you are aware, Senate Bill (S.B.) 265 made changes to the methods we use to develop and implement our Best Available Technology (BAT) program.~~

~~On such change is the change associated with applications filed on or after August 3, 2009. Under S.B. 265, the director is expected to develop rules that define BAT consistent with S.B. 265 for non-exempt sources (i.e., new or modified emissions units with criteria pollutant or criteria pollutant precursor emission limitations greater than 10 tons per year). Once effective, the director is to use the rules to determine BAT for these sources.~~

~~Ohio is currently working to develop a short-term and long-term set of rules that would implement S.B. 265. A short-term rule would define BAT on a case-by-case basis consistent with S.B. 265 provisions. Long-term rules would attempt to define BAT by category when possible. However, neither short-term nor long-term rules have been developed.~~

~~U.S. EPA has told Ohio EPA that issuing permits on or after August 3, 2009 without BAT would be considered by U.S. EPA as "backsliding" under the statutory provisions of the Clean Air Act and would not be acceptable.~~

~~Because neither short- nor long-term rules have been adopted, Ohio has decided to develop this policy that implements S.B. 265 requirements through case-by-base BAT procedures to avoid "backsliding" claims. This policy has been developed so all permit-writing staff knows how to establish BAT though the permits they write and so any interested party knows what to expect. This memo describes and implements that policy."~~

On August 3, 2009, DAPC issued guidance concerning the implementation of the BAT portion of S.B. 265. The intent of the guidance was to provide permit writers with information they needed to determine BAT for new and modified sources until rules were developed and implemented as required by S.B. 265.

After the August 3, 2009 guidance was issued, DAPC received comments concerning how best to implement the S.B. 265 BAT standards. This document revises the August 3, 2009 guidance to incorporate changes that meet the requirements of S.B. 265.

This guidance applies to BAT determinations made for new or modified sources for which the permit was issued on or after October 1, 2013. See the response to Question 12 found later in this guidance for more information on the applicable dates.

The following procedure shall be used to develop and determine BAT for non-exempt sources⁺; exempt sources². A quick glance of this procedure can be found at the end of this guidance memo in the form of a flow chart.

1. Applicability of Post August 3, 2009 BAT

Determine the date the installation or modification permit application was *filed* (not the completeness determination date). In this case, “modification” means a modification as defined in Chapter 31, not an administrative modification. Determine the date that construction or installation of the air contaminant source was started. If the application was filed prior to August 3, 2009, or the air contaminant source was constructed or modified (for this permit action) prior to August 3, 2009, then BAT for the new or modified air contaminant sources covered under the application shall be determined on a case-by-case basis using past practices (prior to August 3, 2009) for determining BAT. This includes utilizing the March 2008 Q & A guidance (<http://www.epa.ohio.gov/dapc/S.B.265.aspx>) that describes how S.B. 265 should be implemented. In that case, do not follow the below

⁺ Exempt sources include those that are exempt under OAC rule 3745-31-03 and those that are exempt from BAT under the <10 ton/yr exemption. This policy would not apply to de minimis sources because de minimis sources are not required to obtain installation permits.

² Exempt sources include those that are exempt under OAC rule 3745-31-03 and those that are exempt from BAT under the <10 ton/yr exemption. This guidance would not apply to de minimis sources because de minimis sources are not required to obtain installation permits.

procedure. If the application was filed and the source was to be installed or modified on or after August 3, 2009, then proceed to the next step.

2. MACT, GACT, BACT, LAER Applicability

Review each air contaminant source, each criteria pollutant (or precursor)³ and each pollutant operating scenario⁴ to determine if the air contaminant source/pollutant combination is subject to Section 112 (Maximum Achievable Control Technology, (MACT)), or Generally Available Control Technology⁵ (GACT), Part C of Title I (Prevention of Significant Deterioration, PSD), (Best Available Control Technology (BACT)), and Part D of Title I (Non-attainment Nonattainment NSR) (Lowest Achievable Emission Rate (LAER)) of the federal Clean Air Act⁶. If, for the applicable criteria pollutant, (or precursor), one or more of the above rules applies, then BAT is equivalent to the most stringent of the above applicable standards. (Note, this requirement of S.B. 265 applies to any permit *issued* on or after August 3, 2009. Also note that this approach follows long standing DAPC policy guidance.)

~~Note that~~ The format of the MACT/GACT/BACT/LAER based BAT limit established needs to follow the standard format for each of the above requirements. For instance, for BACT and LAER limits, U.S. EPA requires typically often requires one or more short term limits (, such as an emission rate limit (like lb/hr) and a technology based limit (like (ppm, % control, etc.)), and an annual limit. For MACT or GACT based BAT limits, the format should be in the same format as found in the applicable MACT or GACT standard. Since most MACT's and GACT's do not have annual limits, no annual limit would be established. ~~For any MACT, BACT, LAER for~~ BAT based limit, you do not use the table found in Step 4 below.

Do the above analysis for each criteria pollutant or criteria pollutant precursor separately. Also, if the permittee is asking for multiple operating scenarios, then do the analysis for each operating scenario.

If you determine a limit BAT based on this step, then use ORC 3704.03(T) and OAC 3745-31-05(A)(3) for the applicable rule citation for the BAT limit and the typical MACT, GACT, BACT and LAER citation for their equivalent limits. You can use the typical "the

3 NOx and SOx for PM10 or PM2.5, and NOx and VOC for Ozone.

4 For example, the use of different fuels, different raw materials, etc.

5 Note that for most cases, Ohio EPA does not accept delegation for applicable GACT standards and we would not list the GACT as an applicable requirement. However, if a GACT exists for a particular source and pollutant, then establish BAT as equivalent to the GACT.

6 Note that under this step, New Source Performance Standards (NSPS) are not included but they can be evaluated as a possible BAT under step 4.

requirements of this rule are equivalent to MACT/GACT/BACT/LAER requirements” language.

If, for the particular pollutant, one or more of the above standards apply, then BAT is the MACT/GACT/BACT/LAER limit. Do not establish another BAT ~~limit~~requirement for that pollutant. in this case unless the permittee is asking for multiple operating scenarios. BAT has been determined and you do not need to do the rest of the ~~below~~ procedures below.

If, for the particular pollutant and operating scenario, none of the above standards apply, then proceed to step three.

3. Reasonably Available Control Technology (RACT) Minimum

Limits **BAT Requirements**

Review each air contaminant source to determine if the controlled potential to emit of volatile organic compounds⁷ (VOC) ~~or nitrogen oxides (NO_x)~~ is greater than or equal to 10 tons per year (controlled is used in this case because the <10 ton/yr exemption is based on controlled emissions⁸). For those air contaminant sources where the controlled potential to emit of VOC is greater than or equal to 10 tons per year, review the rules of OAC Chapter 21 (Carbon Monoxide, Photochemically Reactive Materials, Hydrocarbons, and related Materials Standards) Reasonably Available Control Technology (RACT) that were effective on January 1, 2006. These rules include the following:

The January 1, 2006 version(s) of paragraphs (C) to (J), (K) with the exception of (K)(4), (L) to (N), (O) with the exception of (O)(2)(e), (P) to (R), (U) with the exception of (U)(2)(k) and (U)(2)(l), (V) to (X), (Y) with the exception of (Y)(2)(d) and (Y)(3), (Z) to (EE), and (DDD) of rule 3745-21-09 of the Administrative Code; and

The January 1, 2006 version(s) of rules 3745-21-11 to 3745-21-16 of the Administrative Code.

Determine if any VOC rule for any location in the State applies to the same size and type of source you are considering. If a January 1, 2006 effective VOC rule applies anywhere in the State for your type of source, then BAT is determined to be, at a minimum, equivalent to the

7 Note that the SB 265 language also lists NO_x. However, there was no NO_x RACT rule in existence on January 1st, 2006 so NO_x is not evaluated.

8 Also note that this 10 ton/yr threshold is not the same as the 10 ton/yr threshold for the BAT exemption. This 10 ton/yr threshold is a threshold that is used to determine if the RACT limit should be used or not.

most stringent VOC rule no matter where in the State that rule applies. Note that this sets the minimum BAT for VOC but you still have to determine if a more stringent case-by-case BAT is appropriate under step 4 below.

~~For those air contaminant sources where the controlled potential to emit of NO_x is greater than or equal to 10 tons per year, review the rules of OAC Chapter 110 (Nitrogen Oxides-Reasonably Available Control Technology) that exist today. Determine if any VOC rule for any location in the State applies to the same size and type of source you are considering. If the NO_x RACT rule applies anywhere in the State for your type of source, then BAT is determined to be, at a minimum, equivalent to the most stringent NO_x RACT rule no matter where in the State that rule applies.~~

Do the above analysis for each operating scenario if there are different operating scenarios.

The format for ~~the limit~~BAT established in this step should be identical to the format of the RACT rule you are using to establish BAT. You would not add any additional ~~limits~~BAT requirements (like a ton/year limit) ~~and you would not use the table described in Step 4 below.~~

~~Note you do not necessarily need to~~ Use the RACT monitoring, ~~recordkeeping~~record keeping, reporting and testing requirements. ~~These can be developed independently of to support the RACT rule requirements.~~BAT requirement.

If you determine ~~a limit~~BAT based on this step and you decide that a more stringent case-by-case BAT requirement is not appropriate under step 4 below, then use ORC 3704.03(T) and OAC Rule 3745-31-05(A)(3) for the applicable rule citation. You should not use the RACT rule citation in this case.

If a RACT limit ~~should be~~is established under this step for VOC, then that VOC RACT limit is BAT for that pollutant unless you decide that a more stringent requirement is needed under step 4 below. BAT has been established for the pollutant and you do not move on to step four. However, if BAT cannot be established, then use that limit as BAT for VOC. Then, move one to Step four for any remaining pollutants. If there is not RACT VOC limit applicable based on RACT, then move on to step four.

4. Case-by-Case BAT ~~Limits~~Determination

~~This step involves two sub-steps.~~ If the procedures described in step one through step three above do not result in a determination of BAT for the pollutant and/or operating scenario, then a case-by-case determination must be made. In addition, if you determined the

minimum BAT for VOC based on the RACT requirement as described in step three above, then use this step to determine if a more stringent requirement than RACT is appropriate for BAT.

In order to determine BAT under the revised SB 265 language, permit writers need to take two steps. First, they will need to follow the historic approach to evaluating various alternatives to BAT, and then, second, they will need to determine the appropriate SB 265 method that should be used to express BAT.

a. Initial Evaluation of BAT

First, the permit writer should review each air contaminant source to ~~determine BAT using all past procedures for a case by case determination.~~ understand the type of process used, the equipment used, the materials used etc. in order to fully understand the air pollution source. This review is designed to understand the type and size of the air pollution source so it can be compared to similar type and size sources.

Once the size and type of source is understood, then permit writers should review other similar sources in Ohio and in other states with similar air quality (excluding states, for example, that have severe air quality) to determine what level of control has been demonstrated to work for these sources. For many common sources, this analysis will involve simply reviewing other permits for similar sources. For other more significant sources, this may involve a more detailed cost-effectiveness analysis. Remember, you will need to do this analysis for each pollutant and for each operating scenario. In any case, this analysis will follow our traditional analysis to evaluate BAT options.

When you do your analysis for BAT, you are typically going to be reviewing short-term emission rates like lb/hr or lb/ton of product or control efficiencies and comparing them to various options for BAT. For larger sources, you may also need to evaluate the cost effectiveness for potential control options. ~~This step needs to be done for each criteria pollutant.~~ will follow our traditional analysis for BAT.

Second

In some cases, for instance for fugitive type sources, the conclusion will not result in a numerical value but, instead, will result in a description of a work practice. That work practice will then, typically, be used as a descriptor for BAT.

Once this analysis is complete, the next step is to determine the method that should be used to express BAT.

b. Determining the Appropriate Method to Express BAT

Next, the permit writer should determine the *format for the BAT limit. Under this procedure, and as required under appropriate method to express the BAT requirement. S.B. 265, only one limit is allowed for BAT. S.B. 265 says, in part: directs BAT to be expressed as follows:*

...
Best available technology requirements established in rules adopted under this division shall be expressed only in one of the following ways that is most appropriate for the applicable source or source categories:

- 1) *Work practices;*
- 2) *Source design characteristics or design efficiency of applicable air contaminant control devices;*
- 3) *Raw material specifications or throughput limitations averaged over a twelve-month rolling period;*
- 4) *Monthly allowable emissions averaged over a twelve-month rolling period.*⁹

Each of these options is described in more detail below. In order to improve the readability of the below discussion, the below table describes the shortened term I will use for each acceptable BAT expression.

<u>Original Language</u>	<u>Shortened Language</u>
<u>Work practices</u>	<u>Work Practice</u>
<u>Source design characteristics</u>	<u>Source Design Characteristic</u>
<u>Design efficiency of applicable air contaminant control devices</u>	<u>Design Efficiency</u>
<u>Raw material specifications or throughput limitations averaged over a twelve-month rolling period</u>	<u>Raw Material/Throughput</u>
<u>Monthly allowable emissions averaged over a twelve-month rolling period</u>	<u>Monthly Allowable</u>

c. Work Practices

⁹ ~~BAPC believes these limits (item 4) should be~~ See the response to question 11 later in the ~~format: this document for a discussion concerning the difference between “monthly allowable emissions averaged over a twelve-month rolling period” and the more traditional, “tons of emission per rolling 12-month period.”~~

Work Practice BAT will typically describe how an owner or operator will operate a source in order to cost-effectively minimize emissions. This approach should be used when the primary method of control consists of work practices, not things like control equipment, material used, etc. There are a number of different ways to do this depending upon the type of source. An example is given below:

Unpaved Roadway Example

Under the revised BAT approach, there are two main options available for unpaved roadway fugitive sources. The first, and primary approach, is to describe a certain frequency of the use of dust suppressants on the roadway to minimize or eliminate dust emissions. Under this approach, no opacity limit is needed and no ton/yr limit is needed. However, this approach will need to describe the control method used (watering by truck, etc.), the frequency of watering (once per hour, etc.), the area covered (Haul road #6B), the records that need to be kept, the reports that need to be submitted and other key information needed for the work practice.

The above described *Work Practice* approach will work fine when the frequency of watering is well known ahead of time. However, in some cases, the watering needs might vary. In that case, the below described second option *Work Practice* can be used if the permittee would prefer.

The second option is designed for cases where a rigid frequency does not make sense. In those cases, it may be better to set BAT as an opacity limit and allow the company to set the dust control application rate as needed to comply with the opacity limit. This is the same approach we have used for years where we set an opacity limit (no visible PE except for 3 minutes during any 60-minute period), described a preferred control approach (watering), describe an inspection frequency and describe the supporting reporting requirements for the source. As such, we are allowing an opacity-based work practice limit if the company prefers. Note that the opacity approach should only be used if the company prefers this approach.

That being the case, permit writers should discuss the options with the company to decide which approach should be used. If the company wants the work practice frequency approach, then use it. If the company would prefer the opacity approach, then use it.

Neither of these approaches will include an annual emission limit.

The *Work Practice* BAT will have ongoing compliance obligations that typically include record keeping and reporting.

d. Source Design Characteristics or Design Efficiency of Applicable Air Contaminant Control Devices

Source Design Characteristics

For some sources not utilizing controls, BAT may be a *Source Design Characteristic*. When we say *source design characteristic*, we are really talking about a design characteristic as it relates to emissions. For instance, if a gas-fired boiler has a burner that is designed to achieve 0.1 lbs of NO_x/mmBtu emission rate, then the *Source Design Characteristic* will be the 0.1 lbs NO_x/mmBtu rate. Another example of a design characteristic is a 0.1 lb PM/100 lbs charged emission rate for an incinerator. If the incinerator was designed to meet this emission rate, then it would be appropriate to use that design emission rate to express BAT.

Note that under the Source Design Characteristics or Design Efficiency approach, **no ongoing emission rate limit will be established for BAT**¹⁰. Instead, the owner/operator will be required to *design* the source to meet the described BAT. This is an important difference from the current approach of setting a short-term (lb/hr, ppm, etc.) limit that must be met at all times. Below are a couple of examples of how BAT should be expressed in this case:

- Install a FGD or equivalent SO₂ control technology that shall have at least a 95% design removal efficiency for SO₂ at maximum rated capacity
- Install a baghouse that is designed to meet 0.03 gr PM/dscf
- Install an incinerator that is designed to meet 0.1 lb PM/100 lbs charged
- Install a burner that is designed to meet 0.1 lb NO_x/mmBtu heat input

When trying to decide if a *Source Design Characteristic* exists for a source without controls, permit writers should ask the permittee to provide the design specification sheet (as related to emissions) from the manufacturer of the equipment. If the design specification sheet contains design specifications for NO_x, PM, but not SO₂, CO or VOC, then *Source Design Characteristic* BAT can be set for NO_x and PM, but not for SO₂, CO or VOC.

10 Although no ongoing emission rate limit will be established, owners/operators will be required to maintain the equipment following manufacturer's recommendation in order to ensure the equipment continues to operate as designed. Also note that although there will not be a short-term limit for BAT, short-term limits will typically be included in the permit because they are required by existing OAC rules.

For those pollutants where there is no design characteristic, BAT will most likely be set based on either the *Raw Material/Throughput* type limit or the *Monthly Allowable* type limit.

Note Ohio EPA expects *Source Design Characteristics* to be requirements for the front-end design of the source, not an emission limit.

For some source types, a numerical *Source Design Characteristic* may not be appropriate the BAT expression. Instead, the *Source Design Characteristics* may also be things like a description of the equipment installed that has the impact of reducing emissions. An example of that approach is for degreasers or cold cleaners where the BAT expression would simply be described as the use of cooling coils and lids. Another example would be for the use of a complete enclosure on a material conveyor.

Design Efficiency

When a source utilizes a control device, BAT will be either a *Source Design Characteristic* (as described above) or a *Design Efficiency* of the control device. If a *Design Efficiency* method is chosen, then the BAT determination would be in the form of a designed percent control efficiency. A couple of examples of how this BAT should be described are:

- Install an electrostatic precipitator with a design control efficiency of at least 98.7% control of PM
- Install an incinerator on the paint line oven with a design control efficiency of at least 95% control of VOC

If the source has not been designed to meet a certain emission level, or the control device has not been designed to meet a specific control level or have other emissions control design characteristics, then the *Source Design Characteristics* or *Design Efficiency* BAT approach is probably not the appropriate approach to use and another approach should be chosen.

When a BAT limit is based on the *Source Design Characteristic* or *Design Efficiency*, ongoing compliance is not expected. Instead, this type of BAT is simply a design standard that needs to be met initially. No ongoing BAT compliance obligations exist. No monitoring, record keeping, reporting or testing requirements should normally be included. When BAT is expressed as a *Source Design Characteristic* or *Design Efficiency*, a one time performance test may be required to confirm proper design, depending on the nature of the controls or process design, the pollutant, and the size and

location of the air contaminant source, but periodic stack testing or other ongoing monitoring is not required or appropriate.

Owners/operators will, however, be required to maintain the equipment following manufacturer's recommendations in order to ensure the source continues to operate as designed. The owner/operator should be required to keep a record of the maintenance on the unit along with manufacturer's recommendations.

If a BAT limit is established for the *Source Design Characteristics* or *Control Efficiency* then no ton/yr or other limit should be included for BAT. Also, remember, that if there are different operating scenarios, BAT limits may need to be established for each scenario.

e. Raw Material Specifications or Throughput Limitations Averaged Over a Twelve-month Rolling Period

This particular type of BAT is essentially the same as we have used for years to support synthetic minor type limits. An example of this kind of BAT for a rotary grain dryer at a brewery could be "5000 tons of wet grain processed per rolling 12-month period". Another example could be "45.6 tons of steel produced/Rolling 12-month period".

This type of BAT will have an ongoing compliance obligation that includes monitoring, record keeping, and reporting to verify ongoing compliance with BAT.

Note that under this BAT, no "short term" BAT limit will be listed. For instance, there will not be a ton of wet grain per hr, per day, or per month type limit.

Note also that if the source is a synthetic minor source, the above type limit will be needed for the synthetic minor and, in that case, short term limits may be needed in order to meet U.S. EPA's requirements for synthetic minors. In that case, the permit writer has the option of using the synthetic minor *Raw Material/Throughput* limitation approach as BAT (i.e., have it function as both the synthetic minor limit and the BAT limit) or, instead, establish a separate BAT as a *Source Design Characteristic, Design Efficiency, or Monthly Allowable* limit.

f. Monthly Allowable Emissions Averaged Over a Twelve-month Rolling Period

This is another type of BAT that is essentially the same as we have used to support synthetic minor type limits. It is similar to the above material/throughput BAT except that emissions are restricted instead of the amount of material processed or product

throughput. An example of this would be, “3.21 tons VOC per month averaged over a twelve-month rolling period¹¹”.

This type of BAT will have an ongoing compliance obligation that includes monitoring, record keeping, and reporting to verify ongoing compliance with BAT.

Under ---

~~In order to help determine what BAT limit format is “most appropriate”, DAPC has developed what it believes is “most appropriate” for many common source categories. These “most appropriate” decisions are detailed in the attached table called *Best Available Technology Emission Limit Format Table*.~~

~~Permit writers should review the *Best Available Technology Emission Limit Format Table* to find the closest match to the source type under review. Once the source type is determined, review the table to find the BAT limit format that DAPC has determined is appropriate for the BAT limit. Then, take the case-by-case BAT determination and convert it to the BAT emission limit format found in the table. The result is the BAT limit for the permit.~~

~~For example, if the type of source you are considering is a combustion turbine (either combined cycle or single cycle), then review the *Best Available Technology Limit Format Table* under the EU Description column until you find the emissions unit description for Combustion Turbine. For PM, there are two items listed, one for cases where controls are required and one for when controls are not required. If controls are required, then review the BAT Limit Format column to determine the format for the BAT limit. In this case, the format is “X percent control”. This means that the BAT is going to be in the format of a percent control. If, on the other hand, controls are not required, then the BAT Limit Format column says the limit shall be in the format of X.X pounds/mmBtu heat input.~~

this BAT, no “short term” BAT limit will be listed¹². For instance, there will not be a pound of VOC per hr or per daytype limit.

g. Deciding Which Option Is Most Appropriate

¹¹ See the response to Question 11 later in this memo.

¹² Note that a short-term limit will often be needed either because of existing OAC rules or to support a synthetic minor restriction in order to follow U.S. EPA requirements.

Since there are four optional ways BAT can be expressed under the S.B. 265 language, it can sometimes be difficult to decide which option is most appropriate for the source or source category. **You should consider the recommendation from the owner/operator of the source as to which option fits their facility best as part of this decision.** In order to help determine which BAT format is most appropriate, DAPC is recommending the following approach in the following order:

- i. If the source is a traditional fugitive type source (roadways, parking areas, etc.) or a source that Ohio EPA has not typically established a short-term type BAT limit (degreaser), then it is recommended you use the *Work Practices* type expression for BAT. You do, however, have the option of using one of the other BAT expressions.
- ii. If the source has a control device for the particular pollutant, then use either the *Source Design Characteristic* or *Design Efficiency* approach where you determine the basis of the control equipment designed to control the pollutant. This is typically a ppm, gr/dscf, etc., or control efficiency type expression for BAT.
- iii. If there is no control device, review the manufacturer's specifications for the source to determine if the source was designed to meet a certain emission rate (the *Source Design Characteristic* approach). If the source was designed to meet a certain emission rate, then use that expression type for BAT.
- iv. If none of the above applies, then you will typically be using the *Monthly Allowable* expression approach where you establish a ton of emission per rolling 12-month period BAT type limit.
- v. As an option, the *Raw Material/Throughput* approach can be used. However, it is recommended that the permit writer use the *Monthly Allowable* in most cases, instead.

Note, that under S.B. 265, Ohio EPA cannot include more than one BAT ~~emission-limit~~~~requirement~~ per pollutant ~~per operating scenario~~. So, only use the one ~~limit you have selected from the table~~. The exception to this is described in the response to ~~Question 5 below~~. ~~expression of BAT~~. However, you are free to use another format as long as it fits within one of the four categories listed in S.B. 265 and is considered most appropriate for the applicable source or source category.

Note that it is important to consider the owner/operator's preference as to which option works best for their operation. So, permits writers should review and understand the

owner/operator's recommendation before deciding the most appropriate method to describe BAT.

Remember, BAT is only one of the applicable requirements that apply to a source and the source owner is obligated to meet all other emissions standards, including short-term limits, that apply to the source.

Also remember that if the source has multiple operating scenarios, then you should determine BAT for each operating scenario using the above procedures.

If you determine a limitBAT based on this step a case-by-case approach, then use ORC 3704.03(T) and OAC 3745-31-05(A)(3) as the applicable rule citation associated with the BAT limit.

Once you have completed this step, move on to Step 5.

Develop any monitoring, record keeping, reporting and the testing requirements needed to support the limitBAT selected following our normal procedures. In many cases, this will simply be detailing the method used to calculate emissions. However, for larger sources where initial compliance testing is needed, it will be detailing the calculation method and describing the initial emissions testing that will be needed to determine compliance.

i.vi. Next, it is recommended you provide the permittee with a copy of the terms of the permit and discuss with them the decisions you made to determine BAT. Let them know of the current issues associated with S.B. 265 and advise them of their options associated with BAT. ~~(See the answer to question 2 below.)~~

ii.vii. Your decision concerning the establishment of BAT under this policy guidance should be documented in the Permit Strategy Write-up document in STARS2. This serves two purposes. First, the potential to emit level and ~~the~~ basis are documented outside of the terms and conditions and this can be relied on in the future to determine whether the emissions unit air contaminant source has undergone a Chapter 31 modification. Second, in the event that a company has decided that they will not accept a BAT limit requirement in accordance with this memo, this document can be shared with U.S. EPA who has requested to be notified in these instances.

iii.viii. Process the permit per our normal procedures from this point.

5. Common Questions and Answers

Question 1: If a company indicates they do not want Ohio EPA to establish a BAT ~~limit~~requirement because a BAT rule has not been developed, what should the permit writers do?

Bring the issue up with your Central Office DAPC permit contact for further guidance. We will discuss options with the company ~~their options~~. ~~There options include including:~~ (1) agree to establish a BAT ~~limit~~requirement following this ~~policy~~guidance, (2) ask us to process the permit without a BAT ~~limit~~requirement, or (3) ask us to process the permit with a voluntary ~~limit~~restriction on allowable emissions that is equivalent to BAT; (see OAC Rule 3745-31-05(F)). If they choose option (2) or (3) we will inform them that U.S. EPA would likely not approve the permit and that U.S. EPA may take some sort of action against either the company or Ohio EPA ~~because they don't approve of the approach~~. We will also inform them that we are obligated to provide U.S. EPA with a copy of any issued permit that does not contain BAT.

Question 2: What happens if I ~~cannot locate my source type on the Best Available Technology Emission Limit Format Table~~am still not sure which type of BAT expression I should use?

~~Determine which other source category is most like the source type you have. Use that source category's BAT Limit Format. If you cannot find a similar source type, Contact your Central Office DAPC permit contact for further guidance.~~

Question 3: Ohio EPA has used the BAT rule to establish used oil specification limits in the past. These limits have been established to ensure hazardous waste was not burned and to ensure air emissions would not cause health or welfare effects. Can we continue to use the BAT rule to do this?

~~Since the BAT rule only allows us to establish one limit per pollutant, and we normally already have established a limit for a combustion device, we do not feel we can use BAT to establish used oil specification limits. However, because used oil can contain unacceptable amounts of various pollutants that could cause health and welfare effects, DAPC believes it is appropriate to continue to limit the use oil specifications in permits. However, instead of using BAT as the applicable rule, DAPC believes we should use the nuisance rule instead. Therefore, please cite OAC rule 3745-15-07 as the applicable rule for the used oil specification requirements in permit from this date forward.~~

Yes. BAT can be expressed as a "source design characteristic" under S.B. 265, and fuel specifications can be included as a "source design specification" or "work practice". You can continue to use our standard terms that restrict used oil contaminants to make sure the oil is not classified as a hazardous waste.

Question 4: DAPC's interpretation of S.B. 265 is that only one BAT ~~limit~~ requirement can be established. What happens when an emission unit has more than one stack? For instance, ~~an asphalt plant typically consider a painting line often that~~ has an emission point from the baghouse, but then also has fugitive emissions from the asphalt loading operations. ~~uncontrolled base-coat spray booth and then another emission point from an incinerator-controlled prime-coat spray booth.~~ Can permit writers still establish a BAT ~~limit~~ requirement for each stack?

No, a BAT requirement should not be established

~~Yes and no. If the BAT control approach is different for each stack, then you can establish a limit for each stack. For instance in the example of the asphalt plant above, the baghouse stack is limited by the gr/dscf limit established for the baghouse. This limit has nothing to do with the emissions associated with the asphalt loading operation. As such, you can establish a BAT limit for the asphalt loading operation separately. However, take the example of a printing line with an incinerator for control. For this example, we will assume 95% capture and 95% destruction. In this example the printing line would have emissions coming out of the incinerator stack and fugitive emissions from the line that don't get captured. The BAT emission limit you establish is 90.25% overall control. Since the BAT limit established covers all emissions associated with the emissions unit, you do not need to establish a separate BAT limit for the fugitive emissions.~~

Question 5: In the past DAPC has considered control technology to be federally enforceable such that for new source review (NSR) applicability purposes, the **controlled** potential to emit (PTE) could be used rather than the **uncontrolled** PTE to determine if a source tripped major NSR. We have used this approach for two reasons: (1) because we were issuing an installation permit under a federally approved (and federally enforceable) NSR program, and (2) because our BAT requirements were approved as part of the federally approved (and federally enforceable) SIP. This approach resulted in more permits being able to be issued direct final because they were not considered to be synthetic minor permits avoiding major NSR.

Currently, state law under S.B. 265 does not allow us to establish BAT (because we have not developed rules that define BAT for the sources), the federally enforceable SIP continues to require us to impose BAT (because it currently has our historical rules), and this policy currently instructs permit writers to continue to establish BAT, although on a limited bases

~~compared to the historical practice. The question is... Can we continue to determine PTE after controls for major NSR applicability purposes?~~

~~No, because for each stack. Instead, you should decide which of the appropriate BAT approaches should be used to cover the entire air contaminant source and use it.~~

Question 5: Can we continue to determine PTE after controls for major NSR applicability purposes?

~~Yes and no. the state law does not currently allow us to establish BAT, we do not feel it is appropriate to determine major NSR applicability based on emissions after controls. From this day forward, all major NSR applicability determinations should be made based on emissions prior to controls. Note, this is now consistent with our historical approach for Title V applicability.~~

~~Yes, in the case where we are establishing federally enforceable or legally and practicably enforceable by the state type limits. No, in the case where we are not establishing these types of limits. This answer will depend upon which BAT option is selected, and whether or not additional voluntary terms have been added to make sure the restriction meets the federal enforceable requirements and/or the practical enforceable requirements by the state. A discussion of each of the BAT options is provided below:~~

~~Work Practice – Work Practice BAT will no longer have an emission limit associated with it. Instead, the PTE will be based on a calculation of the maximum emissions expected unless some voluntary restrictions are put in place.~~

~~Source Design Characteristic or Design Efficiency BAT – Since BAT under this approach is an initial design efficiency analysis, and no ongoing compliance obligation exists, this BAT cannot be used to limit PTE. Therefore, PTE will need to be based on any other applicable enforceable rule restriction unless the permittee volunteers to add restrictions for the purpose of establishing federally enforceable or state practically enforceable limitations.~~

~~Raw Material/Throughput BAT – This type of BAT can be used to restrict PTE although you will need more restrictions to meet U.S. EPA requirements for synthetic minors including the need to establish a rolling emission limitation and possibly to include a short-term limit. You will need to follow U.S. EPA's Limiting Potential to Emit guidance which will require a limitation on emissions and will require the permit to be issued draft, then final.~~

~~Monthly Allowable – This type of BAT can be used to restrict PTE because it is practically enforceable by the State. However, if you are establishing a synthetic minor permit, you will need to follow U.S. EPA's Limiting Potential to Emit guidance which will require a limitation on a process variable and will require the permit to be issued draft, then final.~~

The federally approved definition of “potential to emit” in OAC rule 3745-31-01 provides that “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 if the limitation on the effect it would have on emissions is ... federally enforceable or legally and practicably enforceable by the state”.

Question 6: If a MACT applies and the MACT does not include an annual limit, can we establish an annual limit as part of BAT?

No, if the MACT applies, then only list the limits/control requirements/operational restrictions as BAT. Do not add any other limits.

Question 7: What happens if both a MACT applies to a source and a RACT rule applies to the source? Which is BAT? What happens if there is a similar source RACT rule that is more stringent than the MACT?

If MACT applies to the source and a RACT rule applies to the source (actually applies, not because it is a similar source under step 3 above), then MACT would represent BAT.

If MACT applies to the source and a “similar source” RACT rule could apply under step 3 above, the MACT is BAT, not the “similar source” RACT.

Question 8: DAPC’s interpretation of S.B. 265 is that only one BAT requirement can be established. What happens when an emission unit has more than one operating scenario? For instance, an asphalt plant typically operates using natural gas some days, #2 fuel oil on other days, or may use different raw materials (say, slag) on different days. The emission rate for SO₂ in this case is significantly different for each fuel/material. What should we do for BAT?

If the Source Design Characteristic approach is used, then a different BAT requirement for each pollutant should be established for each operating scenario where there is a difference in emissions. However, if the emission rate is the same for the various operating scenarios, then it is acceptable to establish one BAT requirement that covers all operating scenarios.

On the other hand, if a Rolling 12-month approach is used, then, even if different operating scenarios are used, only establish one BAT requirement that covers both operating scenarios.

Question 9: ~~**Question 8:**~~ I have a situation where the permittee does not want their limit to follow the limit format in the table under Step 4. What can I do?

According to the above guidance, no short-term BAT limits will be established when using the Source Design Characteristics and Design Efficiency BAT options and there will be no on-going short-term compliance obligations. Does this mean that sources can operate their equipment at higher emission rates than the Source Design Characteristics or Design Efficiency BAT determinations?

If the facility is operating the equipment at an emission rate that is higher than the design standard, then it is likely that the equipment has not been maintained. To address this issue, facilities will be required to follow maintenance procedures developed by the manufacturer. This will ensure that the equipment is operating as designed.

Question 10: We normally model the short term emission rates if the annual emissions are over our modeling thresholds. Since there will be no short-term emission rates, what do we do?

If the annual emissions are over the modeling thresholds, then modeling should be completed. In the case where we are setting BAT based on a Source Design Characteristic or Design Efficiency, modeling should be based on the short-term BAT Source Design Characteristic or Design Efficiency selected. In the case where we are setting BAT using the Work Practice, Raw Material Throughput or Monthly Allowable approach, modeling should be based on the short-term potential to emit. If the source cannot pass modeling based on these short-term design values/PTEs, then tighter short-term limits will need to be established. These tighter limits will not be BAT limits, but will, instead, be voluntary limits in order to pass modeling.

Question 11: I have noticed that S.B. 265 uses the term “Monthly allowable emissions average over a twelve-month rolling period”. Historically, we have used the “tons of emission per rolling 12-month period” type limit. What is the difference?

From a compliance perspective, there is no difference between these two descriptors. They both result in the same restriction. The only real difference is that the limit is listed as a monthly limit or a 12-month limit. Since the monthly limit is based on a 12-month average, the limits end up being the same. To explain, here is an example:

Company name: Hubcap Painting, Inc.

Source: Hubcap painting booth

VOC content: 3.5 lbs VOC/gallon of coating

Maximum coatings that can be used in a year (potential): 20,000 gallons/year

How do you calculate the “monthly allowable emissions averaged over a twelve-month rolling period”?

$$\frac{20,000 \text{ gallons of coating}}{\text{Year}} \times \frac{3.5 \text{ lbs VOC}}{\text{Gallon}} \times \frac{\text{Ton}}{2000 \text{ lbs}} \times \frac{1 \text{ year}}{12 \text{ months}} = 2.92 \frac{\text{Tons VOC}}{\text{Month}}$$

This is equivalent to 2.92 tons VOC/month on a 12-month average

Compliance would be determined by calculating the actual emissions from the past 12 months, dividing it by 12 to get the monthly average and comparing it to the 2.92 tons VOC/month on a 12-month average.

How do you calculate the “tons of emission per rolling 12-month period”?

$$\frac{20,000 \text{ gallons of coating}}{\text{Year}} \times \frac{3.5 \text{ lbs VOC}}{\text{Gallon}} \times \frac{\text{Ton}}{2000 \text{ lbs}} = 35 \frac{\text{Tons}}{\text{Year}}$$

This is equivalent to 35 tons VOC/12-month period.

Compliance would be determined by adding up the actual emissions for the past 12 months and comparing it to the 35 tons VOC/12-month period limit.

These limits end up the same. The only difference is that one is divided by 12 to get a monthly average.

Although there is no difference, Ohio EPA is asking permit writers to use the “monthly allowable emissions averaged over a twelve-month rolling period” language when describing BAT because that reflects the language in the law.

Question 12: When should we start using this guidance?

This guidance applies when BAT must be determined for any new or modified¹³ source and the permit will be issued on or after October 1, 2013. This guidance does not apply to sources installed or modified before October 1, 2013 nor does it apply when BAT terms and conditions are being administratively modified.

13 Modified in this case means that the source has tripped the modify definition in OAC Rule 3745-31-01.

Question 13: How do the changes to the case-by-case BAT approach affect potential to emit calculations?

The work practice approach either requires a prescriptive work practice described in the permit or an opacity limit described in the permit. When either approach is used, PTE should be based on the maximum emissions expected taking into account the control measures. Typically, the control measures will equate to a certain control efficiency. That control efficiency will be used to calculate the potential emissions (typically in tons/year) based on the maximum process weight rate or usage rate for the source. Note that this does not mean you will put the ton/yr in the permit; it is just describing the appropriate method to calculate the PTE.

For the source design characteristic or design efficiency approach, the PTE will no longer be based on the BAT limit because the BAT limit is an initial design standard, not an ongoing limit based compliance obligation. As such, BAT cannot be used as the basis for PTE. Instead, PTE will be based on any applicable underlying rule limitations. As an example, a baghouse for an asphalt plant would have a 0.03 gr/dscf design standard BAT. Since the 0.03 is not a limit or an ongoing compliance obligation, it cannot be used as part of PTE calculations. Instead, the underlying rule limit would apply: OAC rule 3745-17-11(B)(1). In many cases, this will result in a much higher PTE. Under this scenario, companies are more likely to request synthetic minor restrictions in order to avoid various rules.

For the raw material/throughput approach, PTE will be based on the emissions calculation taking into account the raw material/throughput restrictions. This is no different than what we do today except that there will be no annual limit listed in the permit.

For the monthly allowable approach, PTE will be based on the emissions calculations taking into account the restriction on the allowed emissions.

Note that for all of these cases, if the source is trying to restrict emissions to avoid something like PSD, you will need to follow U.S. EPA's guidance on proper restrictions for synthetic minors. This means you will typically need to restrict a process variable, include a rolling type limit (365 day rolling, 12-month rolling, etc.), and/or include a short-term type limit. In those cases, the BAT limit alone will not be sufficient.

Also note that you will not be able to tell from looking at the permit what the PTE is. Instead, you will need to review the underlying calculation of emissions to make this determination.

Post-BAT Requirements for Permits Issued On or After October 1, 2013

August 3, 2009 BAT Determinations 30, 2013

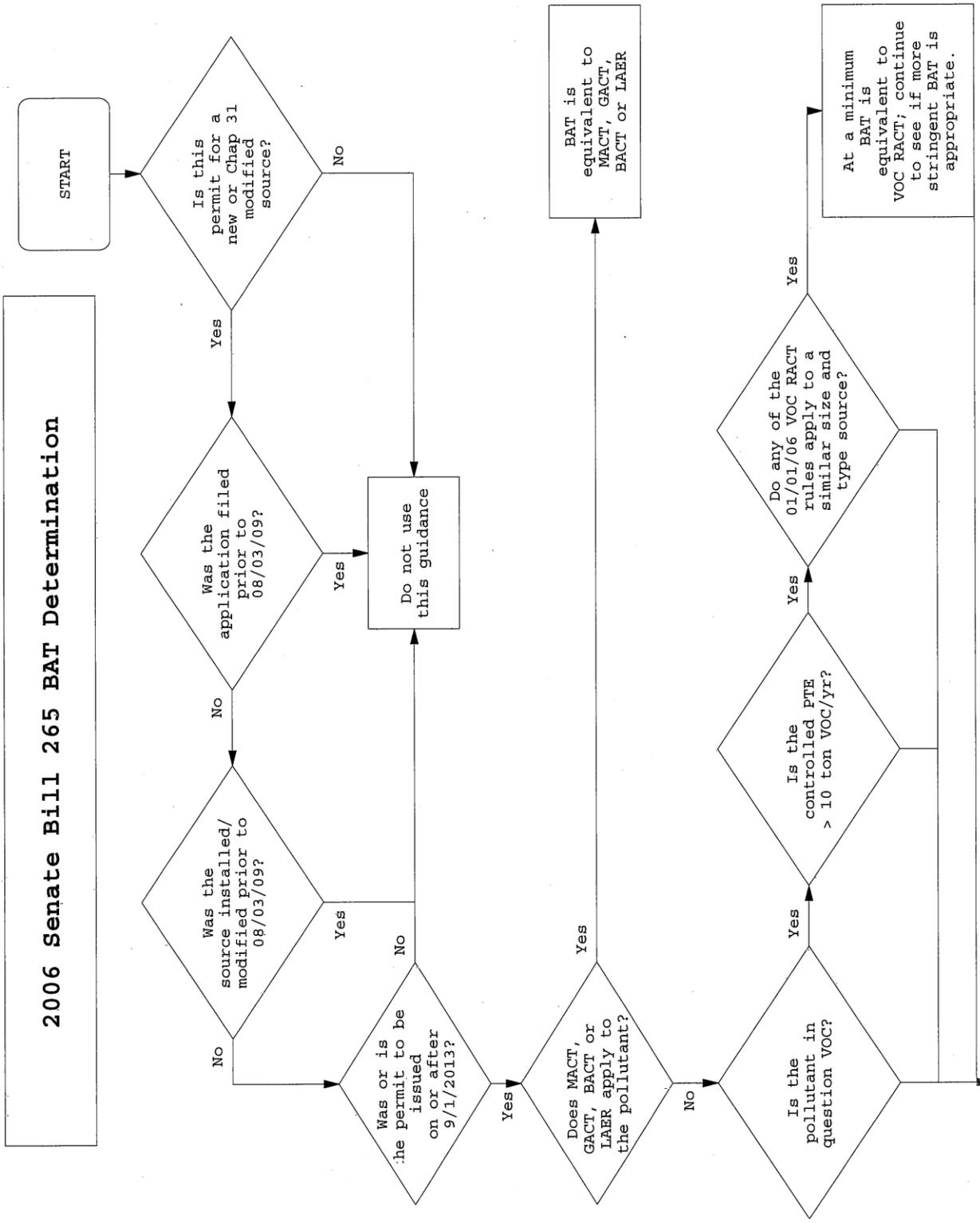
December 10, 2009

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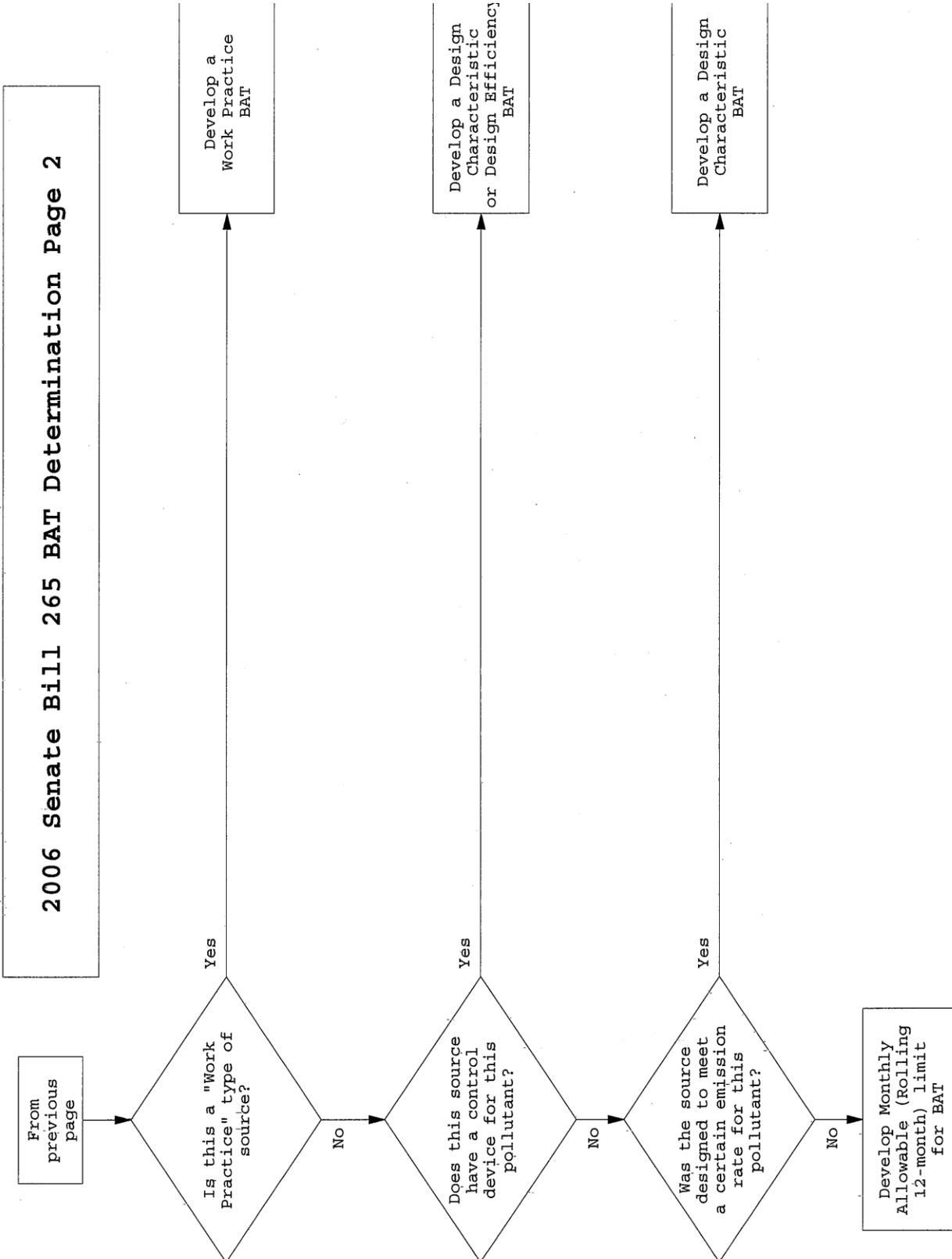
Question 14: Do permit writers need to use the “dual language” approach like we currently do for the less than 10 ton sources?

No. This guidance change does not change the underlying rule that is in the SIP. No SIP change is anticipated due to this guidance change. Permit writers will not need to develop BAT using the old guidance and the new guidance. Instead, just use the new guidance.

6. Post September 1, 2013 BAT Determination Decision Flowchart



2006 Senate Bill 265 BAT Determination



~~Under Step 4 above, the limit must be in the format described in the table. There are two alternatives if they don't like the format required in the table. First, they can decide they don't want a BAT limit, and, instead, want a voluntary limit that is similar to BAT. In that case, we can be more flexible concerning the BAT limit format. Second, they could decide they don't want a BAT limit at all. If that is the case, you need to inform them that U.S. EPA will be given a copy of the permit and that U.S. EPA is may to take some action because they feel BAT is needed.~~

~~**Question 9:** I would like to establish a different format for the BAT limit instead of the limit established in Step 4 above. For instance, I would like to establish a work practice limit instead of an emission rate limit. Can I do this?~~

~~No, except for the options described in the response to Question 9 above, you must follow the BAT format described in the Step 4 table.~~

If you have any questions or concerns about establishing BAT for particular source, please contact your Central Office permit contact to discuss.

MH/mh

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