

**DRAFT** (November 2, 2015)

## **Air Permitting Guidelines**

### **New and Modified PSD Sources**

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## Chapter 1. INTRODUCTION

New major Prevention of Significant Deterioration (PSD) sources and major modifications to existing PSD sources are required to undergo major new source review and obtain a permit before commencing construction. The purpose of this manual is to assist air permitting staff in performing the major new source review in accordance with 9 VAC 5 Chapter 80, Part II, Article 8.

**Disclaimer: This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method nor does it prohibit any alternative method. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations. It should be noted that this manual is not intended to supersede rules, regulations, and policies of the Air Pollution Control Board.**

The basic goals of the PSD regulations are the following:

- To ensure that economic growth will occur in harmony with the preservation of existing clean air resources.
- To protect the public health and welfare from any adverse effect which might occur even at air pollution levels better than the national ambient air quality standards (NAAQS).
- To preserve, protect, and enhance the air quality in areas of special natural recreational, scenic, or historic value, such as national parks and wilderness areas.

The primary provisions of the PSD regulations require that new major sources and major modifications be carefully reviewed prior to construction to ensure compliance with the NAAQS, the applicable PSD air quality increments, and the requirements to apply BACT to minimize the project's emissions of air pollutants. No source or modification subject to PSD review may be constructed without a permit.

The PSD requirements are pollutant specific and apply in attainment and unclassifiable areas. A source may emit many air pollutants, but only one or few air pollutants may be subject to the PSD requirements depending on the magnitude of the emissions of each pollutant. Also, a source may be subject to PSD and major nonattainment permit requirements if it is in an area designated nonattainment for one or more pollutants. Other regulatory and permitting requirements may also apply on a case-by-case basis.

There are following two major differences between the old PSD regulation and the new PSD regulation.

- Major modification applicability: The old PSD regulation required the *actual-to-potential* emissions test to determine the emissions increases from a project. The

new PSD regulation allows sources to use the *actual-to-projected actual emissions* test. The new PSD regulation also provides an option to sources to continue using the *actual-to-potential* emissions test. Additional information on this and the major modification applicability is provided in chapter 3 of this manual.

- Plantwide applicability limit: The old PSD regulation did not allow a plantwide applicability limit (PAL). The new PSD regulation allows a PAL. A PAL establishes a new facility-wide, annual emission limit for a single pollutant. So long as emissions remain within the PAL limit, an affected source can make changes without being subject to review as a major modification. Additional information on PAL permitting is provided in chapter 5 of this manual.

The information on air quality modeling is available at the following link:  
<http://www.deq.virginia.gov/Programs/Air/AirQualityAssessments/DispersionModeling.aspx>

Most of the information in this manual is based on the following documents.

9 VAC 5, Chapter 80, Article 8.

“PSD Workbook” of Michigan Department of Environmental Quality, dated October 2003.

Draft “New Source Review Workshop Manual” of EPA’s Office of Air Quality Planning and Standards, dated October 1990.

“Prevention of Significant Deterioration and Nonattainment New Source Review” Proposed Rule, July 23, 1996, FR Volume 61, Number 142.

““Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR)” Final Rule and Proposed Rule, December 31, 2002, FR Volume 67, Number 251.

“Technical Support Document for the Prevention of Significant Deterioration and Nonattainment New Source Review Regulations”, EPA OAQPS, November 2002

“Prevention of Significant Deterioration (PSD) and Non-Attainment New Source Review (NSR): Reconsideration”, November 7, 2003, FR Volume 68, Number 216.

June 24, 2005 Decision of DC Circuit Court of Appeals in State of New York, et al. vs. USEPA.

## Chapter 2. PSD APPLICABILITY - NEW SOURCES

The term “major” means “PSD major” and the term “minor” means “PSD minor” in this manual. The following are three basic criteria in determining PSD applicability for a *new source*.

1. The first criterion is whether a proposed project is sufficiently large enough (in terms of its emissions) to be a major stationary source. Briefly, a “major stationary source” is any source type belonging to a list of 28 source categories (listed in “major stationary source” definition in the Regulation) which emits or has the potential to emit (PTE) 100 tons per year (tpy) or more of any NSR pollutant or any other source type which emits or has PTE of such pollutants in amounts equal to or greater than 250 tpy. The fugitive emissions are included in the applicability determination for only the listed 28 source categories.

A physical change or change in the method of operation at a minor source must be considered a “major stationary source” if the change would constitute a major stationary source by itself. The definition of “major stationary source” is based on PTE of the source and, therefore, when a minor source that makes a change with a PTE greater than the respective major source threshold, the project is subject to PSD review (p. A-23 and A-24 of EPA’s draft NSR Workshop of 1990). Since PTE is the defining test, no netting is allowed i.e. only PTE is considered (p. A-35 of EPA’s draft NSR Workshop of 1990). If a source makes a PTE reduction during the project, it can not be considered during the applicability.

**Question:** At an existing minor source (that is not one of the 28 specified 100 tpy source categories), does the replacement of a 240 tpy PTE process with a 260 tpy PTE process (a) does the project trigger PSD permitting, or (b) does it net out of PSD? **Answer to (a):** Yes, it triggers PSD permitting because the PTE of the installed process is greater than 250 TPY. **Answer to (b):** No, it does not net out of PSD because a minor source that becomes PSD cannot net emissions at the time it triggers PSD.

2. The second criterion for PSD applicability is that the source is, or will be, located in a PSD area (attainment or unclassifiable area). The designated PSD areas in Virginia are specified in 9 VAC 5-20-205. Note that a source may be subject to PSD and major nonattainment permit requirements if it is in an area designated nonattainment for one or more pollutants.
3. The third criterion for PSD applicability is that only the NSR pollutants emitted in, or increased by, *significant* amounts are subject to PSD. The PTE for each pollutant increased by the project is compared to the *significant* amount located in the definition of “*significant*” at 9 VAC 5-80-1615. Also, note that the *significant* threshold is “any emissions rate” for any regulated NSR pollutant without a listed *significant* amount. In such situations, please consult the central office as in some

cases (e.g. for certain CFC emissions) EPA may be developing a different threshold.

The following are six basic steps that can be followed to determine PSD applicability to new sources.

### Step 1 – Define the Source

Before applicability can be determined, the stationary source must be defined. A stationary source generally includes all pollutant emitting activities which belong to the same industrial grouping, are located on contiguous or adjacent properties, and are under common control. In order to be considered a single stationary source, all three criteria must be met.

Pollutant-emitting activities are part of the same industrial group if they have the same first 2-digit Standard Industrial Classification (SIC) code. Some industrial complexes involve more than one stationary source.

**Example:** Consider a facility that includes an electric generating station, a steel mill, plus a variety of automotive manufacturing and assembly operations. Based on the SIC code, this facility consists of three stationary sources. The electric generating station is under major classification 49, the steel mill is under major classification 33, and the automobile manufacturing and assembly operations are under major classification 37. Even though these three operations are located at the same site and are operated under common control, they do not belong to the same industrial classification and, therefore, constitute separate stationary sources.

Support facilities convey, store, or otherwise assist in the production of the principle product. When an operation is a support facility for another operation, both are considered one stationary source. In this example, if the electric generating station provides more than 50 percent of its output to the steel mill and automotive operations, then it is a support facility and cannot be separated from the steel and automotive operations. A support facility either provides more than 50% of its output to the other operations, or receives more than 50% of its raw materials from the other operations.

### Step 2 – Define Applicability Threshold for the Source

The applicability threshold for a major source is 100 tpy for the 28 source categories listed in the regulation at paragraph “a.” of the definition of “major stationary source”. It is 250 tpy for all other sources.

### Step 3 – Calculate Project Emissions (PTE)

For each pollutant, calculate PTE for each emissions unit. Remember that fugitive emissions are included in the applicability determination for only the listed 27 source categories listed in the regulation at paragraph “c.” of the definition of “major stationary

source” (Note that this is different from the 100 TPY threshold list). The emissions are then summed over all the emissions units to determine the stationary source’s PTE for that pollutant.

PTE for is defined as 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 processed is treated as a part of its design if the limitation or the effect it would have on emissions is federally and state enforceable.

In determining an emission unit’s PTE, the following two parameters must be calculated, measured or estimated:

- The worst case uncontrolled emissions rate, which is based on the dirtiest fuels, and/or the highest emitting materials and operating conditions that the source will be permitted to use under any state and federally enforceable requirements.
- The efficiency of the air pollution control system, if any, in use or contemplated for the worst case conditions, where the use of such equipment is state and federally enforceable.

For the purpose of applicability determination under PSD, PTE is measured in tpy. It is important to note that the permit limitations restricting the type or amount of materials combusted, stored, or processed must be federally and state enforceable. Similarly, the production limitations and control requirements also must be federally and state enforceable.

Applicant may elect to seek a limit on PTE for a regulated pollutant to avoid PSD for that pollutant. A minor source permit may be issued to limit the PTE. The minor source permit should be issued prior to issuing the PSD permit, if the source is still subject to PSD for any other regulated pollutant(s).

Sources of information for the worst case uncontrolled emissions and applicable control system efficiencies could be any of the following:

- Emissions data from compliance tests or other source tests.
- Equipment vendor emissions data and guarantees.
- Emission limits and test data from various EPA documents.
- AP-42 emission factors.
- Emission factors from technical literature

- Emissions data from comparable sources.

#### Step 4 – Assess local area attainment status

The area where the new major source would locate must be a PSD area (attainment or unclassifiable area) for at least one criteria pollutant in order for PSD requirements to apply. The designated PSD areas in Virginia are specified in 9 VAC 5-20-205. Note that a source may be subject to PSD and major nonattainment permit requirements if it the area is PSD for some pollutants and nonattainment for others.

#### Step 5 – Determine if Source is Major by Comparing its PTE to Appropriate Major Source Threshold

The source is major if it's PTE (Step 3) for any NSR regulated pollutant equals or exceeds the applicability threshold for that major source category (Step 2).

#### Step 6 – Determine Pollutants subject to PSD Review

Once the new source is determined to be a major source, each NSR pollutant emitted by the source in *significant* quantities is subject to a PSD review (see definition of "*significant*" at 9 VAC 5-80-1615 C). Also, any emissions or emissions increase from a major source that result in an increase of 1 microgram/m<sup>3</sup> (24 hour average) or more in a Class I area is subject to a PSD review, if the major source is located or constructed within 10 kilometers of the Class I area.

**Example:** An example of PSD applicability for a new source is presented in Appendix A. The Draft "New Source Review Workshop Manual" of EPA's Office of Air Quality Planning and Standards, dated October 1990 contains many other examples in the "New Source PSD Applicability Determination" part of that document.



### Chapter 3. PSD APPLICABILITY - MAJOR MODIFICATION

A *major modification* is defined as a physical change in or a change in the method of operation of a *major stationary source* that would result in a *significant* emissions increase of a *regulated NSR pollutant*, and a *significant net emissions increase* of that pollutant from the major stationary source. There are ten (10) exceptions specified in this definition for certain physical changes or changes in the method of operation. Also, the definition provides an exception when a major stationary source is complying with requirements under a PAL.

The *significant* threshold limits for various pollutants are listed in the definition of “*significant*” in the regulation (9VAC 5-80-1615 C). Please note that the *significant* threshold for any regulated NSR pollutant not listed in the regulation is “any emissions rate” (i.e. greater than zero rates). In such situations, please consult the central office as in some cases (e.g. for certain CFC emissions) EPA may be developing a different threshold.

A project is a major modification for a regulated NSR pollutant only if it satisfies all of the following:

1. The project occurs at an existing major source, and
2. The project causes a *significant* emissions increase, and
3. The project causes a *significant net emissions increase*.

If the project does not occur at an existing major stationary source, refer to Chapter 2 for guidance on determining PSD applicability.

If a project itself does not result in a *significant* emissions increase, then the project is not a major modification and it is not necessary to determine the *net emissions increase*.

NOTE: When there is a “reasonable possibility” that a project that is not a part of the major modification that may result in a significant emissions increase, the recordkeeping, emissions monitoring, and reporting requirements of 9 VAC 5-80-1785 are triggered. A “reasonable possibility” under 9 VAC 5-80-1785 B occurs when the project results in projected actual emissions increases (determined by comparing baseline actual emissions to projected actual emissions) of at least 50 percent of the significant level for that regulated NSR pollutant.

If the project itself does result in a *significant* emissions increase, then the project will be subject to a PSD review only if the net emission increase for the entire facility is also *significant*. The *net emissions increase* is determined by combining other increases and decreases made at the facility *contemporaneously* with the specific project. If the net result is greater than the *significant* amount, the specific project is determined to result in a *significant net emissions increase*, and the project is subject to PSD. The concept of netting is discussed later in this chapter.

**Question:** At an existing major source for SO<sub>2</sub>, does a physical change of an emissions unit trigger PSD permitting? Its *baseline actual emissions* are 240 tpy SO<sub>2</sub> and its *projected actual emissions* are 255 tpy SO<sub>2</sub>. **Answer:** No, because the source is an existing major and the increase in emissions from the project results in a 15 tpy increase which is less than the 40 tpy PSD significance threshold for SO<sub>2</sub>.

### **A. Calculation of Emissions Increase from Project**

The procedure for determining whether a *significant* emissions increase occurs depends on whether the project involves changes to existing emission units, addition of new units, or a combination of both. These calculations involve the concepts of *baseline actual emissions*, PTE, and *projected actual emissions*. Each of these concepts will be discussed later in the context of PSD applicability.

Project involves construction of only new emission units: The emissions increases from the construction of new emission units are calculated using the *actual-to-potential emissions test*. This test is described later in this chapter.

Note that the evaluation of emissions increases from construction of new units must take into consideration any potential that such construction will debottleneck existing units. Debottlenecking is not considered a modification to the debottlenecked unit itself. However, in circumstances where construction of new units does debottleneck existing units, emissions increases from the debottlenecked units are to be included in the applicability determination. The debottlenecked units are considered existing units and, therefore, the emissions increases from the debottlenecked units are calculated using the *actual-to-projected actual emissions test*. However, the source has an option of electing to use the *actual-to-potential emissions test* instead of the *actual-to-projected actual emissions test* to determine emissions increase from the debottlenecked units. The *actual-to-projected actual emissions test* is described later in this chapter.

The emissions increase from the project is the sum of emissions increases from the new units and the emissions increases from any debottlenecked units. The emissions increase from the project is *significant* if it is greater than the significance level for any NSR pollutant. A netting analysis is then necessary to determine PSD applicability. PSD applicability is determined on a pollutant by pollutant basis; therefore a source may trigger PSD permitting for one or more pollutants, but may not trigger PSD for other pollutants.

If the emissions increase from the project is determined to be not *significant* for an NSR pollutant, the project is not subject to PSD for that pollutant. The pollutant may still need to be evaluated for minor NSR applicability (Article 6). The project can still be subject to PSD for other NSR pollutants depending on the results of the applicability analysis for those pollutants.

Project involves only existing emission units: The emissions increases from the modification of existing emission units are calculated using the *actual-to-projected actual emissions test*. This applicability test involves comparing the post-change *projected actual emissions* (PAE) of the modified emission units to the *baseline actual emissions* (BAE) of these units. The source has an option of electing to use the *actual-to-potential emissions test* instead of *actual-to-projected actual emissions test*. (NOTE: Replacement of an existing emissions unit should be considered a modification of an existing emissions unit for major NSR applicability.)

Similar to the previous discussion on the debottlenecked units, the emissions increases from any debottlenecked units are to be calculated and included in the applicability determination. The emissions increase from the project is the sum of emissions increase from the modification of existing units and the emissions increase from any debottlenecked units. The emissions increase from the project is *significant* if it is greater than the significance level for any NSR pollutant. A netting analysis is then necessary to determine the PSD applicability.

If the emissions increase from the project is determined not to be *significant* for an NSR pollutant, the project is not subject to PSD for that pollutant. The pollutant may still need to be evaluated for minor NSR applicability (Article 6). The project can still be subject to PSD for other NSR pollutants depending on the results of the applicability analysis for those pollutants.

Project involves both existing emission unit(s) and new emission unit(s): Use the appropriate calculation as described above for each emissions unit and then add together the emissions increases from all the affected units to determine the emissions increase from the project. This includes the emissions increases from the debottlenecked units.

The emissions increase from the project is *significant* if it is greater than the significance level for any NSR pollutant. A netting analysis is then necessary to determine the PSD applicability.

If the emissions increase from the project is determined to be not *significant* for an NSR pollutant, the project is not subject to PSD for that pollutant. The pollutant may still need to be evaluated for minor NSR applicability (Article 6). The project can still be subject to PSD for other NSR pollutants depending on the results of the applicability analysis for those pollutants.

### **Baseline Actual Emissions**

*Baseline actual emissions* (BAE) are calculated for three specific purposes:

- BAE is used to establish a modified emission unit's pre-change actual emissions to determine the PSD applicability.

- BAE is used in a netting analysis to establish the non-project related pre-change emissions of an emissions unit that underwent a *contemporaneous* increase or decrease.
- BAE is used in establishing plant-wide applicability limits (PAL).

Before we get in to the methodology for calculating BAE, it is important to note a difference between a *new emissions unit* and an *existing emissions unit*. A *new emissions unit* is defined as a unit that is newly constructed and has existed for less than two years from the date it first operated. An *existing emissions unit* is defined as a unit that is not a *new emissions unit*.

The method of calculating BAE varies for electric utility steam generating units (EUSGU) and for all other types of emissions units (non-EUSGU).

BAE for an existing EUSGU: BAE for an existing EUSGU is defined as the average actual emissions (in tpy) calculated over a consecutive 24-month period of actual operation, within the 5-year period immediately preceding when the owner *begins actual construction* on the project. A 24-month period outside of the aforementioned 5-year period may be used upon a determination by the Regional Office that it is more representative of normal source operation. The source must provide appropriate documentation to support such claim and the regional determination can be made on a case-by-case bases using information provided by the source. The selection of the date of “*begin actual construction*” during the applicability determination should be done carefully, as this is an estimated date that if delayed could require a new applicability determination.

The criteria for determining BAE for an existing EUSGU, is as follows:

- Include all fugitive emissions to the extent quantifiable and all emissions associated with start-up, shutdown and malfunction.
- Adjust the calculated average emission rate to account for non-compliant emissions. Adjust it downward for periods during the 24-months when actual emissions exceeded an emission limitation that applied during the 24-month period. The actual emissions used in the calculation may not exceed enforceable emission limits.

When a project involves multiple emissions units, only one consecutive 24-month period should be used for all affected units (including debottlenecked units) in determining BAE for a regulated NSR pollutant. A different consecutive 24-month period may be used for each different regulated NSR pollutant.

- BAE may not be established using any consecutive 24-month period for which there is inadequate information to determine actual annual emissions in tpy and for adjusting this amount. If documentation is missing or incomplete for any part

of the selected 24-month period, a different consecutive 24-month period must be selected.

BAE for an existing non-EUSGU: BAE for an existing non-EUSGU is defined as the average actual emissions (in tpy) calculated over a consecutive 24-month period of actual operation, within the 10-year period immediately preceding either the date the owner *begins actual construction* on the project or the date a complete application for the proposed project is received, whichever is earlier. The application date will typically be earlier. Note that the regulation also precludes the use of any baseline period prior to November 15, 1990.

The criteria for determining BAE for an existing non-EUSGU, is as follows:

- Include all fugitive emissions to the extent quantifiable and all emissions associated with start-up, shutdown and malfunction.
- Adjust the calculated average emission rate to account for non-compliant emissions. Adjust it downward for periods during the 24-months when actual emissions exceeded an emission limitation that applied during the 24-month period. The actual emissions used in the calculation may not exceed enforceable emission limits.
- Adjust the calculated average emission rate downward to exclude emissions that would have exceeded an emission limitation with which the facility must currently comply. Thus, even if a limitation did not exist during the selected 24-month period, but has been promulgated since then, BAE must be adjusted as if the limit existed during the selected 24-month period. Emission limitations from final regulations with future compliance dates must also be considered. Final regulations are applicable requirements for a source even if the compliance date has not yet passed. However, if the emission limitation is part of a maximum achievable control technology standard, the BAE need only be adjusted if DEQ has taken credit for such emission reductions in an attainment demonstration or maintenance plan.
- When a project involves multiple emissions units, only one consecutive 24-month period should be used for all affected units (including debottlenecked units) in determining BAE for a regulated NSR pollutant. A different consecutive 24-month period may be used for each different regulated NSR pollutant.
- BAE may not be established using any consecutive 24-month period for which there is inadequate information to determine actual annual emissions in tpy and for adjusting this amount. If documentation is missing or incomplete for any part of the selected 24-month period, a different consecutive 24-month period must be selected.

BAE for a new emissions unit: The definition of “*baseline actual emissions*” states “the *baseline actual emissions* for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall be the units PTE.” The December 31, 2002 federal register provided further clarification. It states that “for new units (a unit that has existed for less than 2 years) that will be changed by a project, the *baseline actual emissions* rate is zero if you have not yet begun operation of that unit, and is equal to the unit’s PTE once it has begun to operate”.

Example: Feagins Corp applies and receives a permit (October 1, 2006) for a new widget maker with a PTE of 50 tons/yr of a regulated NSR pollutant. Construction of the unit commenced on February 1, 2007. The unit began normal operations on April 1, 2007 and emits 40 tons/yr of actual emissions for its first 5 years of operation.

What was the BAE of this unit prior to April 1, 2007?

Answer: Zero.

What would the BAE of this unit be after April 1, 2007 but before April 1, 2009?

Answer: PTE, which is 50 tons/yr.

What would the BAE of this unit be after April 1, 2009?

Answer: calculate as an existing non-EUSGU, which is 40 tons/year.

### **Projected Actual Emissions**

The use of *projected actual emissions* (PAE) in determining PSD applicability is a concept new to major new source review. Simply, PAE means a prediction of actual annual emissions, in tpy, of an existing emission unit(s). It is determined for any one of the five years (12-month period) following *resumption of regular operations* after the project is complete or in any one of the 10 years (12-month period) following that date if the project involves increasing the emission unit’s design capacity or PTE and full utilization of the unit would result in a *significant* emission increase and *significant* net emission increase. This approach essentially requires the source to evaluate future business activity and relate future emissions to that level of activity.

The following are key points in determining PAE:

- “Resumption of regular operation” means that construction of the modified unit has been completed and the unit is being operated in a manner consistent with its intended function. The five years (or ten years, as applicable) projection period starts from this date. Because a source using PAE – BAE to determine PSD applicability must predict emissions after resumption of regular operation, the criteria used to establish this milestone will be one of the underlying assumptions of the PAE.

- Source must consider all relevant information including historical operating data, documented company representations (e.g. annual shareholder reports), projections of nominal and maximum expected business activity, company filings to state and federal regulatory authorities, compliance plans under approved implementation plans, and any other documented projections of business activity.
- Include fugitive emissions to the extent quantifiable and emissions associated with start-up, shutdown, and malfunction.
- See Step 4 below (Excluded emissions). Exclude any emission increases that are unrelated to project, if the existing emission unit could have emitted such emissions during the consecutive 24-month period used to establish the *baseline actual emissions*. However emission increases that are caused by, resulted from, or are related to the proposed project can not to be excluded from determination of PAE. For example, when a proposed project is necessary in order to handle a projected increase in business demand, then the emissions associated with that increased capacity utilization are related to the project. Generally, emissions increases from increased capacity utilization due to product demand growth unrelated to the project can be excluded, if there is no debottlenecking of the affected emission unit and the increase in emissions does not violate any permit or regulatory restrictions on its operation.
- Adequate documentation must be provided in all cases.
- Source may elect to use PTE in lieu of PAE.

The following steps can be followed to determine PAE.

#### Step 1 – Determine the projection period

The projection period begins on the date the affected emissions unit resumes regular operation after completion of the proposed project. Typically, the projection period is the first five years after resuming regular operation. However, the projection period is the first ten years after resuming regular operation, if the project involves increasing the emission unit's design capacity or PTE and full utilization of the unit would result in a *significant* emission increase and *significant* net emission increase.

NOTE: The *projected actual emissions* are to be developed for each year (12-month period; not necessarily a calendar year) during the project period. This is done by following Steps 2 to 5 for each year.

#### Step 2 – Develop an initial projection of emissions

In this step, the actual annual emissions associated with the projected level of business activity in each year (12-month period) of the projection period are determined. The source must consider all relevant information as described above to support the

projection. Once the business projection is established, the actual annual emissions that correspond to that level of business activity are calculated. The source must be able to provide adequate documentation to justify the projected level of business activity.

### Step 3 – Adjustments to the initial projection of emissions

Any fugitive emissions that can be quantified must be included in the *projected actual emissions*. Also, emissions associated with start-up, shutdown, and malfunction must be included in the *projected actual emissions*.

### Step 4 – Excluded emissions

Emissions increases that are not related to the proposed project may be excluded from the *projected actual emissions*. These emissions can be identified as those that:

1. could have been emitted during the selected 24-month baseline period by the pre-modified emission units, and
2. are not caused by, resulted from, or are related to the proposed project.

Emissions that could have been emitted are not the baseline period allowable emissions for the affected emissions units. They are the level of emissions from the pre-modified emission units operating at the projected level of business activity (unless the projected level is due to the proposed change). Any permit or regulatory restrictions must be considered when determining excludable emissions. A source can not take exclusion for emissions that are not allowed to be emitted due to any permit conditions or regulatory restrictions.

Determining whether certain emissions increases are caused by, resulted from, or are related to the proposed project is a case-by-case determination. If certain emissions would have occurred even in the absence of the proposed project, then they may not be caused by, resulted from, or are related to the proposed project.

**Examples:** Examples of excluded emissions due to demand growth are presented in Appendix B.

### Step 5 – Determine projected actual emissions

The *projected actual emissions* for an affected emissions unit = initial projection of emissions + quantifiable fugitive emissions + start-up, shutdown, and malfunction emissions – excluded emissions.

In this equation, the emissions are in tpy.

### Step 6 – Select the highest projected actual emissions



In this step, compare the *projected actual emissions* for each year in the project period and select the highest *projected actual emissions* for use in determining PSD applicability.

### **Potential to Emit (PTE)**

PTE is used in PSD applicability determinations primarily when new emission units are involved. PTE is defined as 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 processed is treated as a part of its design if the limitation or the effect it would have on emissions is federally and state enforceable. (For the purposes of actuals PALs “state enforceable” is replaced by “enforceable as a practical matter by state.”)

For the purpose of applicability determination under PSD, PTE is measured in tpy. Generally, an emission unit’s allowable emissions represent its PTE. It is important to note that the permit limitations restricting the type or amount of materials combusted, stored, or processed must be federally and state enforceable. Similarly, the production limitations and control requirements must be federally and state enforceable.

### **Actual-to-potential Emissions Test**

The *actual-to-potential* emissions test can be used for projects involving new or existing emissions units. For new emission units, it is mandated as the only method for determining PSD applicability. For existing emission units, it is an optional method for sources (in lieu of *actual-to-projected actual* emissions test) for determining PSD applicability.

This applicability test involves comparing the post-change potential emissions of the emissions unit(s) to the *baseline actual emissions* of these units. An emissions increase from an emission unit is calculated by using the following equation.

$$\text{Emissions increase} = \text{PTE} - \text{baseline actual emissions}$$

In this equation, the emissions are in tpy.

### **Actual-to-projected actual Emissions Test**

The *actual-to-projected actual emissions* test can be used for only existing emissions units (including replacement units). However, sources have an option to use the *actual-*

*to-potential* emissions test in lieu of the *actual-to-projected actual emissions* test for determining PSD applicability.

This applicability test compares the *projected actual emissions* of the emissions unit(s) to the *baseline actual emissions* of these units. An emissions increase from an emission unit is calculated by using the following equation.

Emissions increase = *projected actual emissions* - *baseline actual emissions*

In this equation, the emissions are in tpy.

## **B. Net Emissions Increase**

Once the project has been determined to result in a *significant* emissions increase of an NSR pollutant(s), the source may conduct a netting analysis (commonly referred to as “netting”). Netting is pollutant specific and it evaluates all non-project related emission increases and decreases that have or will occur at the entire facility *contemporaneously* with the proposed project. If there are no such increases or decreases, then no netting is necessary and the project is subject to PSD. However, if increases or decreases occurred, and the *net emissions increase* is determined to be less than the *significant* level for a regulated NSR pollutant, the project is not a major modification for that pollutant. This is called “netting out” of PSD permitting. Therefore, it may be advantageous for the source to conduct the netting analysis. The project is considered a major modification for a regulated NSR pollutant and subject to PSD if the post-netting emissions remain greater than the *significant* level for that regulated NSR pollutant. A source can “net out” for individual pollutants, yet still may be subject to PSD review for other pollutants.

As with many parts of the modified source applicability determination, there are a series of steps in conducting a netting analysis, special terms that need to be defined, hidden complexities that a simple manual can overlook, and sets of examples that would be useful. Again, refer to EPA’s Draft October 1990 New Source Review Workshop Manual for more information than will be provided in this manual.

Steps involved in conducting a netting analysis are as follows:

- Identify the *contemporaneous* period.
- List each physical change or change in the method of operation that occurred (or will occur) during the *contemporaneous* period that results in an emissions increase or decrease in actual emissions, and include the date of each change.
- Evaluate each change to identify the *credible* changes.
- List each remaining *creditable contemporaneous* change.

- Calculate BAE for each *creditable contemporaneous* change. It is important to note that when calculating BAE for *creditable contemporaneous* increases and decreases, the source may select different 24-month periods for each emission unit. The BAE is the *old level of actual emissions*.

NOTE: The use of BAE is allowed per subsection a.(2) in the definition of “net emissions increase”. This means that the *old level of actual emissions* can be calculated by using BAE.

- Identify the post-change *new level of actual emissions* for each emission unit affected by each *creditable contemporaneous* change. The post-change *new level of actual emissions* would be the allowable emissions limit set by the minor source permit that approved that credible change. In the absence of any such allowable limits, use PTE.

NOTE: The subsection h. in the definition of “*net emissions increase*” prohibits the use of subsection a. in the definition of “actual emissions”. This means that we can only use subsection b. and c. in the definition of “actual emissions” for calculation of *new level of actual emissions* for netting. This further means that we can only use allowable emissions (per subsection b. in the definition of “actual emissions”) for emission units that have begun normal operation or PTE for emission units that have not begun normal operation (per subsection c. in the definition of “actual emissions”). In the absence of any allowable limits, PTE becomes the default allowable for emission units that have begun normal operation.

- Calculate the emissions increase or decrease for each emissions unit as post-change *new level of actual emissions* minus BAE.
- Sum all increases and decreases across the *contemporaneous* period with the *significant* emissions increase from the proposed project and compare to *significant* level for each NSR pollutant.

Contemporaneous Period: The Regulations define *contemporaneous* change as an increase or decrease in actual emissions that occur between the date five years before construction on the particular change commences and the date the emissions increase from the particular change occurs. This means to be considered in a netting analysis, a change must have occurred within five years before the beginning of construction on the proposed project or after the beginning of construction on the proposed project and before the initial operation of the proposed project. Thus, a *contemporaneous* period can be a total of more than 5 years. According to the subpart g in the definition of “*net emissions increase*”, the emission increase from a physical change occurs when the emission unit on which the construction occurs becomes operational and begins to emit; any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

Creditable Increases or Decreases: To be creditable, *contemporaneous* emissions decreases must be state and federally enforceable on and after the date that construction begins on the proposed project. The emission decrease must take place prior to the emissions increase from the project with which it is being netted. (Reminder: A shakedown period of up to 180 days is allowed for replacement units and therefore the “increase” from such units do not occur until after this period has expired. This provision is only available to replacement units and is only available to the extent that a shakedown period is deemed “needed”.) Any emissions decrease must be permanent. An emission reduction can not occur and can not be credited from an emission unit that never constructed or operated (even if it was permitted). If an emissions increase or decrease has previously been relied upon in the issuance of a PSD permit, then it is not creditable. Increases are creditable only to the extent that the new level of actual emissions exceeds the old level. Decreases are creditable only to the extent that the old level of actual emissions or the old level of allowable emission, whichever is lower, exceeds the new level of actual emissions.

In order to be complete, the netting analysis must account for all emission changes from each and every creditable, *contemporaneous* change, in addition to the increase associated with the proposed project. If the *net emissions increase* is less than the *significant* amount for any regulated NSR pollutant, then the proposed project will not be subject to PSD for that pollutant. If the *net emissions increase* is equal to or more than the *significant* amount for any regulated NSR pollutant, the proposed project will be subject to PSD for that pollutant.

#### Modeling:

It is important to note that the applicant is required to conduct a complete netting analysis to support the air quality modeling demonstration. This is due to the fact that the PSD preliminary modeling requires the applicant to determine whether the impact from the *net emissions increase* is significant. Netting is pollutant specific and evaluates all non-project related emission increases and decreases that have or will occur at the entire facility contemporaneously with the proposed project. A multi-source PSD air quality analysis is not required if the modeled impact is determined to be insignificant.

Additional information on PSD modeling is available at the following link:

<http://www.deq.virginia.gov/Programs/Air/AirQualityAssessments/DispersionModeling.aspx>

## Chapter 4. BEST AVAILABLE CONTROL TECHNOLOGY

Applicability: BACT applicability is pollutant specific and applies to only PSD pollutants. For a new PSD source, BACT applies to each pollutant for which the PTE for the entire source is *significant*. Each emission unit emitting that pollutant is subject to BACT for that pollutant regardless of its PTE (e.g. even for 1 TPY emissions, BACT would apply.)

For a PSD major modification, BACT applies to each pollutant for which the *net emissions increase* from the entire project is *significant*. Each emission unit at which a *net emissions increase* of that pollutant (say even 1 TPY) occurs as a result of a physical change or change in the method of operation in the unit is subject to BACT for that pollutant.

Note:

- Debottlenecking is not a physical or operational change at the emissions unit and therefore BACT does not apply to debottlenecked emission units.
- Previous (but *contemporaneous* and creditable) emission increases are included in netting calculations, but the emission units involved in these prior changes are not subject to BACT.
- For phased construction projects, the determination of BACT must be re-reviewed and modified as appropriate, at the latest reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project.

BACT Determination: BACT determination is a case-by-case determination that results in a maximum degree of emission reductions achieved considering energy, environmental, and economic impacts. BACT must be at least as stringent as any applicable NSPS or NESHAP and in no instance can result in an exceedance of the NAAQS or PSD increments, or result in noncompliance with any applicable regulation. EPA's draft New Source Review Workshop Manual (October 1990) provides detail information on performing the BACT analysis.

The BACT determination process is the same for both new and existing units. A top-down BACT approach is used to determine BACT. It contains the following five steps.

Step 1 - Identify Available Control Options: The first step in a BACT analysis is to identify all available control options including LAER. The available control options can be inherently lower-emitting processes/practices, add-on controls, or a combination of both. EPA has not considered the BACT requirement as a means of redefining the source.

Information on available control options can be found through the RACT/BACT/LAER Clearinghouse, Clean Air Technology Center, BACT guideline of South Coast Air Quality Management District, control technology vendors, air permits, environmental consultants, technical journals, EPA bulletin board, etc.

In order for a control device to be considered BACT, an applicant should be able to purchase or construct a process/control device already demonstrated in practice. Therefore, technologies not yet applied in full scale operations are not considered available. Technologies applied outside of US can be considered if they are successfully demonstrated in full scale operation. Innovative control technologies should be included in the list of available control options.

Step 2 – Eliminate Technically Infeasible Options: The control options identified in the previous step are evaluated in this step for technical feasibility and technically infeasible options are eliminated from further consideration. Each option that has been demonstrated (installed and successfully operated) at an identical or similar source is considered to be technically feasible. An undemonstrated technology is feasible if it is “available” and “applicable.”

A technology is considered “available” if it can be obtained by the applicant through commercial channels and has reached the licensing and commercial stage of development. A commercially available control option is presumed to be “applicable” if it has been or is soon to be deployed (e.g. is specified in a permit) on the same or a similar source type. Also, use of control technology on an existing source (may not be a similar source) with similar gas stream characteristics is generally sufficient as a basis for concluding technical feasibility, barring a demonstration to the contrary.

The applicant can claim that the control technology is not technically feasible by demonstrating that either it is not commercially available or the technology would not work successfully based on physical, chemical, or engineering data. If modifications are needed to make the control technology compatible with the emission unit, it does not mean that it is technically infeasible. However, additional costs for such modification may be considered in the economic analysis portion in the Step 4 below.

Step 3 – Rank Remaining Control Options by Control Effectiveness: In this step, the remaining control options are ranked from the most effective to the least effective in terms of emission reduction potential. The performance levels of control options should be based on reduction using the same units (e.g. percent reduction, lb/MMBtu, ppmv, or dscf). Some control technologies have wide ranges of performance levels and they may need to be evaluated at more than one level of emission reduction. For example, wet limestone scrubber may not be cost effective at very high efficiency, but may be cost effective at a lower efficiency. After listing all the control options from most effective to least effective, the expected emission reductions in tpy are calculated for each option on the list.

Step 4 – Evaluate Economic, Environmental, and Energy Impacts: This step involves an analysis of economic, environmental, and economic impacts associated with the list of technically feasible control options. Both beneficial and adverse impacts should be discussed and quantified. The concept of top-down BACT analysis is that the most stringent control option is selected unless the use of that option results in a significant adverse impact. Therefore, first evaluate the top control option for economic, environmental, and economic impacts. If all impacts are acceptable, the top option is selected as BACT and the analysis ends. If the top control option is not selected as BACT, evaluate the next most effective control option. The process continues until a control option can no longer be eliminated.

Energy Impacts: Only direct energy impacts are considered in the energy analysis. Direct impacts are those that are completely associated with the addition of controls, such as energy (fuel and electricity) consumption to operate the control. All penalties and benefits should be quantified. This is usually done in terms of cost. Any extra costs associated with energy penalties may be included in the economic impact analysis. If the energy costs are included in the economic impacts, generally do not consider them twice (i.e. leave out of the energy impacts). Indirect energy impacts such as energy to produce raw materials for construction of control equipment should not be considered.

An energy impact analysis is generally focused on significant or unusual energy penalties or benefits of controls. Most control technologies have inherent energy penalties. Any energy penalties within the normal range of a control technology should usually not be considered adequate justification to eliminate the control option from the BACT consideration. The applicant may raise a concern over using a locally scarce fuel to operate the control. Locally scarce fuels are the fuels currently in short supply or may reasonably be shown to be in short supply in the near future. A case-by-case decision can be made if the applicant raises the issue of a locally scarce fuel.

Environmental Impacts: The environmental impact analysis concentrates on impacts other than the air quality impact analysis. The impacts considered in the analysis are solid or hazardous waste generation, discharge of polluted water from a control device, visibility impacts, odor impacts, emissions of toxics and HAPs, and trade-off between emissions of various pollutants (e.g. a premium can be placed on NO<sub>x</sub> reductions in an ozone nonattainment area). All these impacts must be identified and, where possible, quantified. The review of environmental impacts must be performed even if the most stringent option is selected as BACT.

Environmental impact analysis is generally focused on significant or unusual environmental impacts of controls. The creation of waste by-product does not necessarily warrant elimination of the control from consideration as BACT. In order to eliminate a control, the applicant may show that there are unreasonable site-specific characteristics that create significant or unusual problems at the site under review than at other sites where the control is used. The applicant should also consider if a control option may result in irreversible environmental damages (e.g. use of scarce water resources) that could warrant the elimination of control from the BACT consideration.

Economic Impacts: If the cost of control is in the range of BACT costs being born by other similar sources, the control is economically feasible. If a control technology has been successfully applied at similar sources, the applicant must show a significant cost increase at the facility under review before the control option may be considered economically infeasible and eliminated. This will also ensure that no source gets preferential treatment or a competitive advantage by avoiding air pollution controls.

The costs of control are integral to the costs of doing business. Therefore it does not involve evaluating a source's ability to absorb such costs. The source's economic situation is not a valid reason to forgo installing controls. For existing emission units, retrofit costs are allowed which may increase the costs of control.

There are two measures of cost effectiveness; average cost effectiveness and incremental cost effectiveness. The average cost effectiveness (dollars per ton of pollutant removed) is the annualized cost for the control technology divided by the annual emissions reduced by the control technology, as shown in the following equation:

$$\text{Average cost effectiveness} = \frac{\text{Control option annualized cost}}{(\text{Baseline emission rate} - \text{Controlled emission rate})}$$

Note: The Baseline emission rate in the above calculation is not the same as the *Baseline actual emissions* discussed earlier. As stated in EPA's 1990 Draft NSR manual, the baseline emissions are generally uncontrolled emissions, calculated using realistic upper boundary operating assumptions. The baseline emission rate is determined the same for both new and existing unit.

Annualized costs are calculated in dollars per year and emission rates are calculated in tpy.

In addition to the average cost effectiveness of a control option, incremental cost effectiveness between dominant control options can also be considered. The incremental cost effectiveness calculation compares the costs and emissions performance level of a control option to those of the next most stringent control option, as shown in the following equation:

$$\text{Incremental cost effectiveness} = \frac{(\text{Annualized cost of stringent control} - \text{Annualized cost of next stringent control})}{(\text{Emissions reduced by stringent control} - \text{Emissions reduced by next stringent control})}$$

The incremental cost effectiveness should be examined in combination with the average cost effectiveness in order to justify elimination of a control option. A technology should not be eliminated based on incremental cost alone. In order to eliminate a control option on the basis of economic feasibility, the applicant must demonstrate that the control technology is significantly more costly than the costs being born by other similar sources.

Cost data should be accurate by +/- 30 percent and the most accurate site-specific data should be used. OAQPS Control Cost Manual (EPA 453/B-96-001) provides a



methodology to estimate costs within this acceptable accuracy range. Any deviations from the methodology in the cost manual should be clearly documented and justified. Normally, the submittal of detailed cost data from the applicant is not necessary. However, detailed information may be required if the cost estimates appear excessive or unreasonable. An applicant proposing to use the top control alternative (e.g. LAER) need not provide cost data.

Step 5 – Select BACT: BACT will be the most effective control technology not eliminated during Steps 1 through 4.

## Chapter 5. PLANTWIDE APPLICABILITY LIMITS

Article 8 (9 VAC 5-80-1865) contains provisions for the establishment of actuals Plantwide Applicability Limits (PALs). The PAL option is a voluntary alternative to major NSR applicability. The purpose of the PAL is to provide major NSR stationary sources with the ability to manage source-wide emissions without triggering major NSR applicability for each change at a facility.

PALs may be established for any regulated NSR pollutant with the exception that no PAL may be issued for VOC or NO<sub>x</sub> for any source located in an extreme ozone nonattainment area. Many major stationary sources may find that this approach provides greater flexibility to make changes to existing emissions units and to add new emissions units without triggering major NSR applicability. Sources that need to make rapid process changes to respond to market conditions or to optimize performance may wish to consider this voluntary option.

*You must be a major stationary source subject to the major NSR rules in order to establish an actuals PAL. PALs cannot be established for synthetic minor or true minor sources. There are also currently no PAL provisions in the minor NSR regulation. **Emissions increases at sources operating under PALs are still subject to minor NSR permitting.***

### What is an Actuals PAL?

Actuals PALs are rolling twelve month annual emissions limitations (tpy) calculated on a pollutant specific basis. The PAL level is calculated for the pollutant by summing all of the *baseline actual emissions* for each emissions unit and then adding an amount equal to the applicable “*significant*” level for the PAL pollutant as defined by 9 VAC 5-80-1615.

PALs may be established for more than one pollutant through a federally enforceable permit program at existing major stationary sources. In addition to an annual emissions limitation, the PAL permit must also contain monitoring, recordkeeping, reporting and testing (MRRT) requirements to make the emissions limitation practically enforceable.

Major NSR applicability provisions continue to apply to other air pollutants at the facility not subject to a PAL. For example a major stationary source with a PAL for SO<sub>2</sub> would still be subject to major NSR review for process changes which result in *significant* increases of NO<sub>2</sub> and VOC.

### What permit program will be used to issue the PAL?

According to the regulations, the PAL permit may be either a major NSR permit (Article 8 or 9), as applicable, a minor NSR permit (Article 6), a state operating permit (Article 5) or a federal operating permit (Article 1). However, after considering the complexity of the PAL implementation, it is recommended that only the state operating permit program

should be used to issue all PAL permits. Each PAL can regulate emissions of only one PAL pollutant. If more than one PAL is developed (for different PAL pollutants) for one facility, they can be implemented through one state operating permit (SOP) or separate SOPs as deemed appropriate by the Regional Office.

A PAL Supplemental Form, included as Appendix C, may be used to gather the information required to establish the PAL emission level and develop enforceable MRRT permit conditions. Note that the current plan is to include the PAL Supplemental Form with the Form 7. At a minimum, the application submittal should include the core information required by the first three pages of the Form 7 along with the information contained in the PAL supplemental form. Permit staff should also note the above discussion concerning air quality modeling. Applicants will need to fill out separate PAL supplemental forms for each pollutant for which they are requesting a PAL. As we gain experience with the processing of PAL permits, we may examine a need to develop/modify Form 7.

In receiving applications for PALs, staff must follow the other application requirements of the SOP permit program (which is used to permit a PAL). These additional requirements may include air quality modeling to demonstrate that the increase in actual emissions would not cause or contribute to a violation of an ambient air quality standard. Under current modeling guidance, stationary sources with *significant* increases in actual emissions (with the exception of increases in VOC emissions) should undergo a NAAQS demonstration prior to permit issuance.

NOTE: Issuance of a PAL permit is not considered a *significant* increase in emissions and it does not constitute a major modification. As specified earlier in Chapter 1 (Introduction), ODA will provide a separate guidance on air quality analysis, which will address the PAL situation.

#### Are PAL permits subject to public participation?

According to 9 VAC 5-80-1865 D, the public participation procedures prescribed in the PAL permit programs under Article 8 and SOP program (Article 5) should be followed for establishing, renewing or increasing the PAL. However, all PAL permits are subject to a minimum 30 day public comment period.

#### How is the PAL Level Determined?

The PAL level is calculated by summing the *baseline actual emissions* of the PAL pollutant for each emissions unit at the major stationary source, and then adding an amount equal to the applicable *significant* level for the PAL pollutant as defined by 9 VAC 5-80-1615. For example, a source with BAE of VOC of 315 tpy would add the VOC *significant* level of 40 tpy to arrive at the PAL level of 355 tpy. For calculation of BAE, please refer to Chapter 3 (PSD Applicability – Major modifications).

*Example 1:*

*A major stationary source is requesting a PAL for NOx and has selected the 24 month consecutive period of January, 2003 through December of 2004 as the baseline period with average actual annual emissions as follows: Kiln 1 = 60.1 tpy, Kiln 2 = 25.3 tpy, Boiler 1 = 55.2 tpy, Boiler 2 = 49.3 tpy. In July of 2006, Boiler 1 was shutdown and a new boiler, Boiler 3 was installed. Boiler 3 has a NOx PTE of 25 tpy. Calculate the PAL level based on the above information.*

*Answer:*

- |   |                   |
|---|-------------------|
| <i>1. Determine the baseline actual emissions total ( 60.1+25.3+55.2+49.3):</i>         | <i>189.9 tpy</i>  |
| <i>2. Subtract the actual emissions of units shutdown since the baseline period:</i>    | <i>- 55.2 tpy</i> |
| <i>3. Add the PTE of units constructed since the baseline period:</i>                   | <i>+ 25.0 tpy</i> |
| <i>4. Subtract any emissions adjustment for current/future enforceable requirements</i> | <i>- 0.0 tpy</i>  |
| <i>5. Add the major source significant level for NOx:</i>                               | <i>+40.0 tpy</i>  |
| <i>6. Sum 1-5 to get the PAL level:</i>   | <i>199.7 tpy</i>  |

What information is needed to establish a PAL?

The permit application regulatory requirements to establish the PAL are contained in 9 VAC 5-80-1865.B. This information is reflected in the PAL supplemental form included with the Form 7. In general the regulations require sources to submit the following information for each PAL pollutant:

- List of all emissions units designated as “small”, “significant” or “major” based on their PTE. This listing should also include any state or federal applicable requirements such as emissions limitations or work practices which may apply to each emissions unit.
- Calculations of BAE (and supporting documentation) which account for emissions during operation including periods of startup, shutdown and malfunction.
- Proposed calculation procedure(s) to convert the monitoring data to a monthly and 12-month rolling total.

In general the above information is necessary to establish the PAL emission limit and to develop the MRRT requirements to be contained in the permit. The form asks that the source differentiate between emissions units as follows:

- Small emission unit: An emission unit with PTE of the PAL pollutant less than significance levels;

- Significant emission unit: An emission unit with PTE of the PAL pollutant equal to, or greater than its *significant* level but less than the amount that would qualify it as a major emissions unit by itself; or
- Major emission unit: An emissions unit with PTE of the PAL pollutant 100 tpy or more in an attainment area, or for nonattainment areas, at an amount greater than the major source thresholds for the PAL pollutant in subdivision (1) of the definition of major stationary source in 9 VAC 5-80-2010 C.

Since the PAL is a facility-wide emissions limitation, the source must list all units emitting the PAL pollutant, including Title V insignificant units and previously exempted minor NSR units. The PTE information is needed in order to determine which units may be designated “small”, “significant” or “major”. The unit designation in turn is used to determine which major or significant emissions units may require direct emissions testing to validate the actual emissions rate of the PAL pollutant.

*The unit designation will depend on the PAL pollutant. Sources requesting PALs for more than one pollutant will need to submit separate forms and emissions calculations for each pollutant.*

Please note that the actual emissions reported for each emissions unit need to have the same baseline period. The source should also list the basis of the actual emissions estimate for each emissions unit along with the state and/or federal applicable requirements that apply to each emissions unit. Applicable requirements may include permit conditions from previously issued minor or major NSR permits or other state or federal requirements such as New Source Performance Standards (NSPS). In determining the *baseline actual emissions* level to establish the PAL, the actual emissions reported from each emission unit cannot exceed any allowable permit limit or emission limitation allowed by state or federal rules. This means that some baseline emissions may need an adjustment downward to reflect current or future applicable requirements which the source may become subject to doing the 10-year PAL effective period.

One final note - the regulations do allow sources to select another 24-month period for a different PAL pollutant, but only if the source can successfully demonstrate that a different period is more appropriate due to “extenuating circumstances”. The term “extenuating circumstances” is not defined (such language is not in the federal rule). These cases will need to be evaluated on a case-by-case basis. This will provide flexibility in dealing with each case on its own merits. OAPP can assist permit staff in evaluating such requests.

#### Is emissions testing required to establish the PAL?

Currently, the PAL section of the regulation is silent as to the need for stack testing prior to establishing the PAL. However, as part of the permit application process, the EPA background documentation for the PAL regulation suggests that sources should use “current emissions or other direct measurement data” in order to demonstrate that the

monitoring systems accurately determine emissions from each emissions unit subject to the PAL. The background document also suggests that sources without data, or sources for which changes have been made to the emissions unit since the collection of the data should conduct additional testing prior to the submission of the permit application.

Since many of the existing major stationary sources requesting PALs may already be operating under Title V permits, it is anticipated that most of the major and significant emissions units may have had their emissions recently quantified to satisfy Compliance Assurance Monitoring or Periodic Monitoring requirements of the permit. This data may be used to apply for the PAL, provided the source provides a methodology to convert the emissions data to a monthly and annual emissions rate expressed as mass per unit time. Sources should be encouraged to submit as current and accurate data as possible in establishing the PAL level and implementing monitoring to demonstrate compliance with the PAL. Permit staff should consider that any major or significant emissions unit never tested undergo stack testing using approved methods prior to issuing the permit.

Once the PAL permit is issued, 9 VAC 5-80-1865 M. 9 is clear that revalidation of monitoring and correlation data is necessary once every five years through performance testing or “other scientifically valid means”. Additionally (according to 9 VAC 5-80-1865 M. 6. c.), if technically practicable, sources using emissions factors are required to conduct testing of all significant (and major) emissions unit within the first 6-months after permit issuance are to develop site-specific emission factors.

#### What requirements are included in the PAL permit?

The permit content regulatory requirements are found in 9 VAC 5-80-1865 F. The main feature of the permit is the source-wide annual emissions limitation for the PAL pollutant to be expressed in tpy. In addition to the annual emissions limitation, the majority of the remaining permit requirements are the MRRT conditions to make the permit enforceable as a practical matter.

NOTE: According to 9 VAC 5-80-1865 A. 1, the source should maintain its total sourcewide emissions “below” the PAL level. Therefore, a PAL is not a “shall not exceed” limit, but is a “shall not equal or exceed” limit. Compliance with the PAL limit is demonstrated by showing that the emissions are lower than the PAL. (If any boilerplate states “shall not exceed”, please correct it to “shall not equal or exceed”.)

According to 9 VAC 5-80-1635 F, each PAL permit shall contain the following:

1. The PAL pollutant source-wide annual emissions limitation.
2. Permit effective and expiration date.
3. Requirement for permit renewal.

4. Requirement that emissions calculations for compliance purposes include emissions from startups, shutdowns and malfunctions.
5. Provisions to address permit expiration.
6. Calculation procedure to convert monitoring data to monthly and annual emissions.
7. Monitoring requirements for all emissions units emitting the PAL pollutant regardless of size.
8. Records retention requirements.
9. Report submittal requirements.
10. Any other requirements necessary so that DEQ can enforce the permit.

What boilerplate can be used to write the PAL permit?

Two boilerplates are included as appendices to this manual. Appendix D is the PAL permit skeleton which includes the permit cover page, introduction and general permit conditions which include a suggested format and language for the permit effective/expiration date, renewal requirements and expiration provisions.

Appendix E is the boilerplate for individual process block which can be used to establish the specific PAL pollutant limitation and MRRT requirements which essentially covers the remaining permit content items listed above. This boilerplate includes suggested language which can be used to establish the PAL limit, emissions calculations, and specific MRRT requirements for the individual PAL pollutant.

The boilerplates were developed under the assumption that the PAL permits would be issued using the SOP program for major stationary sources subject to 9 VAC 5 Chapter 80, Article 8 (PSD regulation). If different permit programs are used, both boilerplates will need to be revised as a minimum to correct regulatory citations. Permit staff may also import other permit requirements from other agency boilerplates as necessary in developing enforceable permit conditions.

The regulations are structured around the establishment of PALs on a per pollutant basis. It can be anticipated, however, that some sources may want to establish PALs for more than one pollutant in the same permit action. While this is feasible, the permit document will need to be organized to differentiate between the major, significant and small emissions units, PAL levels and MRRT requirements on a per pollutant basis. One way to organize the permit to avoid confusion may be to use the Appendix E boilerplate as a separate permit section for each pollutant. (Could separate permit "sections" on a per pollutant basis since that is how the program is implemented. The equipment list would

be the first part of the new section.) Separate SOPs for each PAL pollutant can always be issued, if it helps clarify permit terms and conditions.

In addition to the permit document, staff should also prepare a supporting document which explains the rationale for the proposed PAL level prior to beginning the public comment period for the draft permit.

What MRRT requirements shall be included in the permit to practicably enforce the PAL?

All units operating under the PAL must have sufficient monitoring to accurately determine actual plantwide emissions on a mass per unit time basis for a rolling 12-month total. As a result, the monitoring requirements for PAL compliance may be more stringent than the monitoring requirements for those emissions units not operating under the PAL. Under current NSR permitting requirements, emissions units may only be required to have MRRT suitable for initial performance demonstration or a spot check on pollutant concentration. Such emissions monitoring may not be suitable for emissions quantification each month. Even emissions units subject to Compliance Assurance Monitoring (CAM) plans required by the Title V permit may need to be upgraded to count actual emissions against a cap. Applicants for PAL permits should outline monitoring plans for each emissions unit in their PAL permit application.

The PAL monitoring requirements are contained in 9 VAC 5-80-1865 M. The regulations identify four general approaches: 1) Mass balance for emissions sources using coatings and solvents; 2) Continuous Emissions Monitoring Systems (CEMS); 3) Continuous Parameter Monitoring System (CPMS) or Predictive Emissions Monitoring Systems (PEMS) with Continuous Emissions Rate Monitoring Systems (CERMS); or 4) emissions factors. The regulations also provide for use of alternative monitoring systems if established in advance. Such alternative monitoring plans should be approved based on a case-by-case review and made enforceable through permit conditions contained in the PAL permit.

Mass Balance Approach: According to the regulations and EPA background documents, the mass balance approach should be limited to emissions sources which use solvents or coatings. If the mass balance approach is selected, it should be assumed that 100% of the PAL pollutant contained in the material is emitted if the pollutant retained can not be accounted for in the process. EPA has specified in the December 31, 2002 preamble (page 80212) that the source's emissions should include any pollutant retained in product or waste stream even though some of the pollutant may not ultimately be emitted. Additionally where vendor data such as Material Safety Data Sheets or Certified Product Data Sheets are used to establish the pollutant content and such information is reported as a range, the highest value of the range should be used to calculate emissions. Sources may also elect to conduct material testing using approved methods to demonstrate the pollutant content of the raw materials used in their processes.



*Mass Balance Example: The source has selected mass balance for monitoring VOC from a spray coating system. The system uses a single coating with a VOC content range of 15-25%. The throughput for the month is reported as 70,000 lbs of coating. The monthly actual emissions for VOC are calculated as follows:*

$$70,000 \text{ lbs} \times 1 \text{ ton} / 2000 \text{ lbs} \times 0.25 = 8.75 \text{ tons}$$

CEMS: CEMS systems which may need to be coupled with CERMS, to measure and verify pollutant concentration, gas flow volume and PAL pollutant mass emissions rate may be used to monitor emissions for SO<sub>2</sub>, NO<sub>x</sub>, Carbon Monoxide, Particulate Matter, TRS or H<sub>2</sub>S. Sources utilizing CEMS must meet the applicable Performance Specification in 40 CFR 60, Appendix B and be capable of data sampling every 15 minutes. Note that CEMS must be able to convert the emissions data to a mass emissions rate in order for it to be used for PAL compliance purposes.

CPMS or PEMS: CPMS or PEMS rely on parameter monitoring to show a correlation between predicted and actual emissions across the operating range of the emissions unit. This approach may require extensive upfront testing to establish acceptable accuracy to demonstrate continuous compliance with the PAL. Sources unable to provide correlation across the entire range of emissions unit operation, may need to have a default value(s) established in the permit which are based on the highest PTE during the operating period when no data correlation is available. According to the regulation, DEQ may also conclude that operations of an emissions unit without parametric data correlation is in violation of the PAL.

*CPMS Example: A source has selected CPMS as the monitoring approach for monitoring VOC from a coating system controlled by a thermal oxidizer. Emissions are to be calculated by multiplying the amount of VOC contained in the coating before control by a control efficiency previously determined by stack testing. The source proposes to continuously monitor combustion chamber temperature for which a range was established during performance testing and VOC content of the coating using Method 311 as part of the monitoring approach. The stack testing will be revalidated every five years to correlate the combustion chamber temperature to removal efficiency. The source has also proposed to assume emissions are based on the VOC contained in the coating (without benefit of controls) for operating periods when the thermal oxidizer is not operational or when the combustion chamber temperature is below the range established during stack testing.*

Emission Factors: Emission Factors may also be used for demonstrating compliance with PALS, provided the factors are adjusted for the degree of uncertainty or limitations in the factors' development. It is appropriate to consider the size of the emissions unit and the margin of compliance in relationship to the PAL level in deciding whether to approve an emissions monitoring approach for a specific emissions unit. In approving emissions factor monitoring approaches, staff should also verify that the emissions unit is operated within the conditions/operational parameters under which the emissions factors were developed.

According to 9 VAC 5-80-1865 M. 6. c, the permit should also include a requirement for validation testing for each major and significant emissions unit relying upon the emissions factor approach to be conducted within the first 6-months of permit issuance in order to develop a site-specific emissions factor. The regulation allows DEQ discretion to determine that testing is not required on a case-by-case basis subject to further guidance.

What are the PAL reporting requirements?

The PAL regulations require sources to provide semi-annual monitoring and prompt deviation reports. These reports are used to determine compliance with the conditions of the PAL including the PAL emissions level. The terms and conditions of the PAL permit including reporting requirements will eventually become applicable requirements of the Title V operating permit program. Therefore, these reports may be combined with the reports required by the Title V permit provided they include the minimum information required by the PAL regulation. If the Title V permit has not yet been issued to the source, both the semi-annual monitoring report and prompt deviation reports are also to be submitted in accordance with the timeframes contained in the Title V permit regulation, 9 VAC 5-80-110. F. 2.

What is the PAL effective period?

Under Virginia’s NSR regulations, PAL permits have an effective period of 10 years. Stationary sources with PAL permits must submit renewal applications at least six months prior to, but not earlier than 18 months from, the expiration date of the PAL. Sources meeting the application renewal deadline will have the existing PAL extended as an enforceable requirement until the PAL permit is renewed.

*PAL permits will have effective and expiration dates on the cover page similar to how Title V permits are dated. The following example shows how a permit signed on August 30, 2015 with an effective date of September 1, 2015 would be dated.*

\_\_\_\_\_  
September 1, 2015  
Effective Date

\_\_\_\_\_  
August 31, 2025  
Expiration Date

\_\_\_\_\_  
Director, Department of Environmental Quality

\_\_\_\_\_  
*August 30, 2015*  
Signature Date

When is it appropriate to reopen the PAL during the permit effective period?

The regulations contain provisions for permit reopening as follows:

- Correction of a typographical error or calculation errors made in setting the PAL
- PAL reduction if the owner creates emissions reductions to be used as emissions offsets
- PAL revision to reflect the approval of a PAL increase
- PAL reduction to reflect newly applicable federal requirements with compliance dates after the PAL effective date
- PAL reduction to reflect any other requirement that may be imposed on the source.

With the exception of typographical errors or calculation errors which do not result in an increase in the PAL level, all PAL reopening are subject to a minimum 30 day public comment period processed in accordance with the applicable permit program used to make the permit changes.

#### How PAL permits are incorporated into Title V operating permits?

As discussed previously, this guidance is being written under the assumption that most PAL permits will be initially issued using the State Operating Permit program, and its requirements will be subsequently incorporated in the Title V operating permit. The process for incorporating the conditions of the PAL into the Title V permit will depend on whether the source is currently operating under the Title V permit. If the Title V permit has not yet been initially issued, the PAL provisions could be incorporated as applicable requirements at the time of issuance. If the Title V permit has already been issued, the PAL provisions could be incorporated through either the Title V significant modification, or permit renewal process.

*Even though PALs exempt some future changes at the stationary source from major NSR review, such changes are still subject to the permit modification provisions of the Title V permit program and minor NSR program as applicable.*

#### Can a PAL eliminate the need for existing emissions limitations contained in NSR permits?

According to 9 VAC 5-80-1865. A.1. c, stationary sources that obtain PALs may request removal/revocation of previously issued permit limits taken to avoid the applicability of major NSR to new or modified emissions units without having such removal trigger major NSR. This relaxation clause strictly applies to major NSR. The minor NSR permit program has no such provision and permit staff need to be aware that removal of PSD-avoidance limits could require minor NSR permitting if removal of the limit substantially

changes the prior BACT determination. Permit staff are encouraged to contact OAPP before removing or revoking any permit condition taken to avoid new source review.

*The PAL does not substitute for compliance with any other state or federal applicable requirements contained in the SIP, such as existing source rules, RACT, state BACT, NSPS or NESHAPS standards, or any other condition of previous permit approval for the source including short-term emissions limitations which may be necessary to ensure compliance with the NAAQS.*

What is the process for modifying or adding new emissions units to sources subject to a PAL?

The main benefit of the PAL is that sources can construct emissions units and modify emissions units without obtaining a major NSR determination as long as plantwide actual emissions remain below the PAL level. These types of changes, however, are still subject to review under the minor NSR permitting program and therefore could be subject to air quality demonstration and state BACT requirements. Activities subject to minor NSR permitting will have applicable requirements established in accordance with that program irrespective of the PAL permit.

How is a PAL renewed?

As previously discussed, all PALs are issued for an effective period of 10 years. In order for sources to continue to operate under the PAL, renewal applications must be filed no earlier than 18-months but no later than 6-months prior to the expiration date of the permit. Similar to the Title V permit program, timely renewal of the application is important to assure that the provisions of the PAL continue to extend to the source if for some reason the PAL permit cannot be renewed prior to the expiration date.

The renewal application should include all of the information required for initial issuance of the PAL along with: 1) the suggested PAL level; 2) the sum of the PTE of all units under the PAL and 3) other information that the owner wishes DEQ to consider in determining the PAL.

PAL renewal applications are subject to public review. According to 9 VAC 5-80-1865 D, the public participation procedures prescribed in the PAL permit programs under Article 8 and SOP program (Article 5) should be followed for establishing, renewing or increasing the PAL. However, all PAL permits are subject to a minimum 30 day public comment period.

Under what circumstances is it appropriate to adjust the PAL upon renewal?

Follow 9 VAC 5-80-1865. K.

How do you increase a PAL during the permit effective period?

Follow 9 VAC 5-80-1865. L. An increase in PAL is subject to public review. According to 9 VAC 5-80-1865 D, the public participation procedures prescribed in the PAL permit programs under Article 8 and SOP program (Article 5) should be followed for establishing, renewing or increasing the PAL. However, all PAL permits are subject to a minimum 30 day public comment period.

How do you terminate a PAL?

Follow 9 VAC 5-80-1865. I.

## **Chapter 6. PROCESSING OF PSD PERMITS**

This chapter describes processing of PSD permits and post-permitting activities. No source or modification subject to PSD review can be constructed without a permit. The core requirements of the PSD program are the following:

- The applicant must apply the best available control technology (BACT) to the new and modified emission units.
- The applicant must conduct an ambient air quality analysis and demonstrate that either the applicable NAAQS or the applicable PSD increment will not be violated.
- The applicant must analyze impacts to soils, vegetation, and visibility to determine whether its proposed emissions increases would impair visibility, or adversely affect soils or vegetation. Not only must the applicant look at the direct effect of source emissions on these resources, but it also must consider the indirect impacts from general commercial, residential, industrial, and other growth associated with the proposed source or modification. A separate guidance on air quality modeling from ODA will include the analysis of impacts on soils, vegetation, and visibility (“additional impacts analysis”).
- The applicant must demonstrate that the proposed project will not adversely impact on a Class I area. When a PSD application is received for a source that could have an impact on a Class I area, the Regional Office must notify the Federal Land Manager (FLM) and the federal official charged with direct responsibility for managing these lands and involve them in the application review process.
- The proposed project must undergo adequate public participation.

### **PSD and Minor NSR interactions**

The minor and/or state operating permit NSR requirements may be included in the PSD permits to facilitate permit streamlining. Make sure that appropriate regulatory citation(s) are used for each permit condition and follow 9VAC5-80-1915.

### **Processing of PSD Permit Application**

Any term and condition that is not federally enforceable must be marked in the PSD permit as “state-only enforceable” (e.g. odor and state toxics requirements). Split such PSD permits into two (PSD and state only) sections. Appendix F contains an application checklist for new PSD sources. Appendix G contains an application checklist for modified PSD sources. Appendix H contains the PSD permit processing timeline.

Appendix I contains a PSD permit tracking sheet. Appendix J contains a PSD flowchart. The following is a general outline of the steps to be followed in reviewing PSD permit applications.

- Preliminary Meeting (Pre-application Meeting) – This is a meeting held between DEQ, the source, and their representatives. Identify information necessary to determine PSD applicability. Describe requirements of PSD permitting (i.e. BACT, air quality analysis, additional impacts analysis, Class I impacts analysis, notifications to Federal Land Managers (FLMs), the public, and the possibility of Board hearing). Notify applicant of FLM willingness to meet for a pre-application meeting upon request. Consult ODA for meteorological data collection/modeling protocol requirements. Give applicant a copy of the air quality analysis guidance document.
- Preliminary FLM Notification - Notify FLMs by letter of meeting or application within 30 days.
- Source Submits Form 7 Application - Send a copy of the permit application to the FLMs and EPA as soon as possible.
- Regulatory Review - Review to determine whether the proposed project is also subject to NSPS, NESHAP, MACT, and non-attainment regulations.
- Preliminary Emissions Calculations and Application review - Review BACT evaluation if included in the permit application, verify emissions estimates to the extent possible, and also verify which pollutants are subject to PSD. The application must include an approval from the local governing body.
- PSD Initial Letter of Determination – A PSD Initial Letter of Determination (ILOD) must be sent within 30 days of application receipt. The ILOD should be issued from the region. The ILOD to the source should be sent with a return receipt request. Send a copy of the ILOD to FLMs. Also, notify the Chief Executive of the Local Government, adjacent Chief Executives of the Local Governments, Chief Executive of the Planning District Commission (if applicable), and persons on the PSD mailing list by a letter. Additional information request to the applicant or receipt of information from the applicant must be documented by a letter.
- Preliminary Public Notice of Applicant Informational Briefing - Within 30 days of receipt of the ILOD, the applicant must notify the public of the proposal (application) by publishing a notice in at least one newspaper of general circulation within the air quality control region.
- Preliminary Modeling – Follow the air quality analysis guidance document.
- Monitoring Determination - Follow the air quality analysis guidance document.

- Monitoring Site and Protocol Approval - If monitoring is required, the site and protocol must be approved by the monitoring division with input from the staff meteorologist and regional personnel. The FLMs should be notified of the monitoring requirement site visit so that they may accompany staff if they desire.
- Refined Modeling – Refined modeling is almost always required (please consult ODA) to determine compliance with the NAAQS and allowable increments. FLMs should be notified of the proposed site and site visit (if required).
- Data Submission - Monitoring/met data must be quality assured and submitted monthly on CDs or DVDs in a form acceptable to OAD.
- BACT Analysis - The applicant is required to submit a formal BACT analysis. This analysis should be reviewed to determine the accuracy of the control cost estimates, verify that any technologies ruled out are either technically or economically infeasible, and checked for omissions of control alternatives. This manual includes a chapter on BACT analysis.
- Final Modeling - Once the BACT analysis has been tentatively approved and emissions limits for the draft permit are established, the final modeling to demonstrate compliance with the NAAQS and increments must be conducted (if required). The modeling must be done according to a protocol approved by OAPP with input from the regional office.
- Additional Impacts Analysis - The applicant is also required to submit an "additional impacts analysis". Follow the air quality analysis guidance document to review the additional impact analysis.
- Engineering Evaluation – The permit writer should prepare an engineering analysis. All pertinent calculations and assumptions should be documented along with a summary of the BACT analysis, air quality impacts analysis, and any responses to adverse impact determinations.
- Draft Permit – A Permit should be drafted using current DEQ boilerplates as a guide, including conditions necessary to enforce BACT, NSPS, and NESHAP requirements. Make sure that the appropriate provisions of the regulations are cited in the permit conditions.

**NOTE:** *All permit terms and conditions that are to be designated as state-only enforceable (e.g. odor and state toxics conditions), should be clearly marked in the permit as state-only enforceable.*

- Draft Permit Routing - Permit should be routed through the regional office for approval/comments according to the regional policy.



- Comments from Applicant - Send a copy of the draft permit to the applicant for comments.
- Permit Package - Include the draft permit, engineering analysis (includes a summary of the BACT analysis, air quality analysis, and additional impact analysis), summary of the documents for public hearing, public hearing notice, opening statement, and permit application and supporting documentation. The dates in the advertisement for public hearing are left blank.

Send a copy of the draft permit and engineering analysis (along with any supporting documentation, if any, which has not yet been sent) to the FLMs for review 60 days prior to the end of the public comment period. It is the responsibility of the FLMs to determine if an adverse impact on the Class I area will result from the proposed source.

- Notice of Public Briefing by the Department - The region will prepare a Public Briefing to be given just prior to the beginning of the public comment period. The notice for the public briefing must be published at least 30 days prior to the briefing. Prior to the public briefing, a copy of the permit package should be sent to the EPA regional office and be on file in at least one place of public access (such as a public library or a government center) near the proposed location.
- Adverse Impact Determinations - If the FLM determines that the project may result in an adverse impact on visibility and notifies the agency to that effect within 30 days of receiving the draft permit, the DEQ is required to consider the claim and determine if it concurs.
- Public Notice of Public Hearing - The region submits the advertisement for public hearing. A public hearing must be held at the end of the public comment period. This results in a time delay of at least 60 days between the initial advertisement and the public hearing. At least 30 days prior to the public hearing, a copy of the revised permit package must arrive at EPA regional office and also be on file in at least one place of public access (for example, a public library) near the proposed location.

Copies of the notice for public comment should be submitted to city or county officials (Chief Executive of Local Government, Adjacent Chief Executives of Local Government, Chief Executive of the Planning District), PSD mailing list (individuals), EPA, federal land managers, and any state and Indian governing body whose lands may be affected by the emissions.

- Public Briefing - The public briefing should be conducted by the regional office staff (with assistance from OAPP as needed) in a location near the proposed site. The briefing should include a discussion of the proposed project, the expected emissions, proposed controls, other applicable permit conditions, and an opportunity for questions.

- Public Hearing – Conduct the public hearing and accept the public comment for at least 15 days after the hearing (unless the Board votes to shorten the period). The public hearing should be conducted in a location near the proposed site.
- Response to Public Comment - The applicant may submit a written respond to any public comments within 10 days of the close of the public comment period.
- Agency Response to Public Comment - A summary of the comments received is prepared, along with an explanation of changes that were made to the draft permit or reasons that comments were not incorporated into the draft permit. The required notifications for PSD permits are provided in Table 6-1. Note that the letters should be sent to ensure receipt (approximately five days) prior to the commencement of the thirty day period before the permit becomes effective (DEQ requirement).
- Final Permit Decision - The final permit package should be submitted to the Regional Director for signature. The Regional Director may determine that a final decision on the permit should be made by the State Air Pollution Control Board.

Note: Copies of the final permit are to be sent to the FLMs and EPA. If a permit is appealed to EPA, the permit does not become effective until EPA makes a final decision on the appeal.

### **Public Participation**

Public participation refers to direct public interactions to engage the public in the permitting decisions to be made by DEQ. The public participation requirements for PSD permits are detailed in 9 VAC 5-80-1775. These requirements are self explanatory and should be followed. In addition to the public participation requirements in 9 VAC 5-80-1775, we need to start engaging FLMs and EPA early in the process as specified above in the processing steps.

Note: There is a DEQ guidance document APG-102 (memo no. 99-1004) concerning *localities particularly affected* that should also be followed.

DEQ-approved PSD public notice forms are found in this subdirectory:  
[http://deqnet/documents/index.asp?path=/docs/policy/public\\_notice\\_templates/air](http://deqnet/documents/index.asp?path=/docs/policy/public_notice_templates/air)

The forms include the following:

- Major Source Public Application Notice Form
- PSD Briefing Form

- PSD DEQ Briefing Form
- PSD Hearing Form

Table 6-1. Required Notifications for PSD Permits

Party Notified	ILOD	info. briefing	public briefing	public hearing
Public (newspaper)		1,3	1,3	1,2
Applicant	1			1
EPA Administrator	1		3	1,3
Local APC agencies				1
Chief elected official (locality of facility)				1
Chief elected official (localities affected)				1
Chief admin. officer (locality of facility)	2,3			1,3
Chief admin. officer (localities affected)	2 <sup>**</sup> ,3			1,3
Planning District	2,3			1
Planning Districts w/ reps from adjacent localities	2			
FLMs (for lands affected)	1,2,3,4			1,3
States (affected)				1,3
Indian governing bodies (affected)				1,3
PSD mailing list	2,3			3
General Assembly members representing proposed and adjacent localities				2,3

\*"Locality particularly affected" means any locality which bears any identified disproportionate material air quality impact which would not be experienced by other localities.

\*\* AQP specifies chief executive of adjacent localities

1 = Regulation; 2 = AQP 11; 3 = Permitting Manual (8/11/95 Draft); 4 = MOU

## **Post-Permitting Activities**

Upon issuance of a major NSR permit, there are still several activities that must be completed to close out the permitting process.

CEDS: The CEDS Permit Screen should be filled out to the fullest extent possible including BACT information and event dates for the steps of the permit process. Since major NSR permits tend to be for the largest and most complex sources and generally have the greatest potential for public controversy, it is important that DEQ document the permit process for interested parties, both present and future.

The CEDS allowable emissions screens should be completed to reflect the new or revised emission standards of each major NSR permit. As previously mentioned, this information could be potentially useful to DEQ staff as well as other interested parties. Also, such information (in conjunction with the emission inventory information referenced below) should aid in the smooth creation of future modeling inventories.

The CEDS emission inventory screens should also be updated to reflect the new and modified emission units of the stationary source. In particular, information on the stack parameters and the control equipment should be fully completed to aid in the permitting process of future major NSR permits. CEDS is very important to the mission of DEQ.

RACT/BACT/LAER Clearinghouse: An RBLC Data Entry Form should be completed for the major NSR permit. The form and information regarding EPA's RACT/BACT/LAER Clearinghouse (RBLC) can be found on DEQNet at: <http://deqnet/programs/airpermitting/RACTBACTLAERClearinghouse.asp> The completed form should be emailed to the Central Office who is responsible for entering the data into the RBLC. This will aid in the nationwide application of the major NSR program.

Files: Upon permit issuance, the permit engineer should coordinate with regional administrative staff to develop a complete hardcopy record of the permitting documents for each major NSR permit. The permit, engineering analysis, permit application, air quality analysis, BACT/LAER determination, public participation documents, and any supporting information should all be clearly and separately stored in the regional filing system. Since major NSR permits have greater potential to influence future permit determinations for the NSR program as a whole, it is important to maintain the permit record in such a manner as to facilitate future access by any interest party.

**File Information:** *Information that should be maintained in the regional office files include:*

- Local government certification (if greenfield source);
- Form 7, with supplementary documents (process description, flow diagram, etc.);

- Signed Document Certification Form;
- Copy of the signed permit;
- Letter notifying the applicant of permit status (a.k.a. 30-day letter or ILOD);
- Letter notifying the applicant of any deficiency;
- Engineering analysis;
- Emission calculations;
- Notification to FLMs;
- Response from the FLMs if the FLMs made comments, and DEQ response to comments, if any;
- Copy of comments from EPA and public, and agency responses to comments;
- Screening model run for affected pollutants:
- Final findings/recommendation on modeling by OAPP, if performed;
- Proof of public notice and briefing by applicant;
- Copy of stack test summary, if required and already completed; and
- Copy of public comment and hearing package, including comments and agency responses to comments.

## **Chapter 7. CHANGES TO PSD PERMITS**

This chapter describes the process to make changes to PSD permits and extension of PSD permits. The provisions for changes to PSD permits are specified at 9 VAC 5-80-1925 through 9 VAC 5-80-1955 of Article 8. The regulations provide for three types of permit changes: administrative permit amendments (9 VAC 5-80-1935), minor permit amendments (9 VAC 5-80-1945) and significant permit amendments (9 VAC 5-80-1955). 9 VAC 5-80-1925 specifies the general requirements for making changes to PSD permits.

### **Initiating PSD Permit Changes**

PSD permit changes can be initiated by either a permittee or DEQ.

Changes initiated by permittee: The permittee can initiate a change to a permit by submitting a written request to DEQ for an administrative permit amendment, a minor permit amendment or a significant permit amendment. The written request should include a statement of the reason for the proposed change.

Changes initiated by DEQ: DEQ can initiate a change to a permit through the use of permit reopening as specified in 9 VAC 5-80-1965.

#### **A. Administrative Permit Amendments**

An administrative permit amendment is a post-issuance permit action that is limited to the following:

- Correction of typographical error or any other error, defect or irregularity which does not substantially affect the permit;
- Change in name, address, phone number of person identified in the permit, or a similar minor administrative change at the source;
- Change in ownership or operational control of a source where DEQ determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to DEQ and the requirements of 9 VAC 5-80-1975 have been fulfilled.

#### Processing of Administrative Permit Amendments:

Procedural steps for administrative permit amendments are relatively simple.

- The source makes a written request to DEQ, describing the administrative changes sought. Applicable pages of *Form 7* should be used in cases of name/ownership changes for a facility.
- Public participation requirements do not apply to administrative permit amendments.
- The “normal” timeframe for the Regional Office to process the request for an administrative amendment is 60 days from receipt of the request. A “thirty day letter” may be sent to the source after initial review, which informs the source of the anticipated permit action. This “30 day letter” step is optional if the administrative amendment is issued directly.
- The Regional Office should identify the change as an administrative amendment made pursuant to 9 VAC 5-80-1935 and communicate to the source that this has been done (usually by a letter) and provides a copy of the revised permit to the source. The permit is revised without providing a notice to the public.

Requirements for implementing changes:

The source may implement the change immediately after submitting the request.

**Minor Permit Amendments**

Defining Terms:

Minor permit amendments are defined in the Regulations mainly on terms of what they are not. The list of exclusions can be found in 9 VAC 5-80-1945 A. Additionally, minor permit amendment procedures can be used for permit amendments that meet any of the following criteria:

- Involve the use of economic incentives, emissions trading, or similar approaches, to the extent that such minor permit amendment procedures are explicitly provided for in our regulations or a federally-approved program;
- Require more frequent monitoring or reporting by the permittee;
- Designate any term or permit condition that meets the criteria in 9 VAC 5-80-1625 G 1 as state-only enforceable as provided in 9 VAC 5-80-1625 G 2;
- Involve the rescission of a provision of a permit if DEQ and the owner make a mutual determination that the provision is rescinded because all of the underlying statutory or regulatory requirements (i) upon which the provision is based or (ii) that necessitated inclusion of the provision are no longer applicable. Note that in order for the underlying statutory or regulatory requirements to be considered no



longer applicable, the provision of the permit that is being rescinded must not cover a regulated NSR pollutant.

#### Processing of Minor Permit Amendments:

- The source makes a written request to DEQ, describing the changes sought, emissions resulting from the change, and any new regulatory requirements that would apply if the change occurs. The request should also specify that minor amendment procedures be used by DEQ. Although not specifically required, *Form 7* can be used to apply for a minor permit amendment. The source may use the “Other” category on the *Form 7* for “Reason for Submission”. In most cases, a *Form 7* submission helps facilitate the permit process.
- Public participation requirements do not apply to minor permit amendments.
- The “*normal*” timeframe for the Regional Office to process a request for a minor permit amendment is 90 days from the receipt of a complete request. A “thirty-day letter” may be sent to the source after an initial review by the permit writer which informs the source of the anticipated permit action. Once the request is evaluated, the Regional Office will do one of the following:
  - a. Issue the minor permit amendment as proposed and identify the change made as a minor permit amendment made pursuant to 9 VAC 5-80-1945. The Regional Office communicates to the source that this has been done, usually by letter, and provides to the source a copy of the revised permit, which incorporates the amendment to the source. The permit is revised without providing a notice to the public.
  - b. Deny the minor permit amendment request and identify the reasons for denying the request. The Regional Office communicates this to the source by a letter.
  - c. Determine that the requested amendment does not meet the minor permit amendment criteria and should be reviewed under the significant or administrative amendment procedures. The Regional Office identifies the reasons that the proposed amendment should be reviewed and processed as a significant amendment rather than a minor amendment, and communicates this to the source, both verbally and by letter.

*Note: The permit writer may be able to make the initial determination as to which category an amendment will apply; minor or significant. The most crucial difference between the two is the source’s ability to implement proposed changes upon submission of the minor permit amendment request vs. waiting for issuance of the significant permit amendment (See Section on Significant Permit Amendments).*

#### Requirements for implementing changes:

As with administrative amendments, the source may make the proposed change immediately after filing the request. However, during the time that DEQ is processing the request, the following applies in such a case:

- The source must comply with both the regulatory requirements applicable to the change and the proposed permit terms and conditions.
- The source need not comply with existing permit terms that the source seeks to modify.
- If the source fails to follow the proposed permit terms after filing the request for a minor permit amendment, then existing permit terms may be enforced against it.

### **Significant Permit Amendments**

Significant permit amendments are the permit amendments that do not qualify as administrative or minor amendments and they meet any of the following criteria:

- Permit amendments that involve “significant” changes to existing monitoring, reporting, or record keeping requirements (9 VAC 5-80-1955 A.2.a.). The term “significant” means, in this case, making the requirements of the permit less stringent such as a change to the method of monitoring or compliance demonstration, or a relaxation of recordkeeping or reporting requirements. *Exception:* Removing an obsolete condition, however, does not make the permit less stringent.
- Permit amendments which require or change a case-by-case determination of an emission limitation or other standard.
- Permit amendments that seek to establish or change a permit term or condition which meets both of the following:
  - a. there is no underlying applicable regulatory requirement to establish or change a permit term or conditions, and
  - b. the source has assumed such a permit term or condition in order to avoid an applicable regulatory requirement to which it would otherwise be subject.

Such terms and conditions include, but are not limited to an emissions cap assumed to avoid classification as a modification under the new source review program.

### Interpretation of Definitions:

For significant permit amendments, the following terms appear to benefit from further interpretation or clarification:

“Significant” changes to existing requirements: As indicated above, “significant” here means making requirements less stringent.

#### Processing of Significant Amendments:

Procedures for significant permit amendments differ from those for minor permit amendments or administrative permit amendments in at least two ways. First, the significant amendment requests are subject to public participation in accordance with 9 VAC 5-80-1775. Second, the contemplated changes can not be implemented by the source prior to the DEQ approval of the significant amendment. Procedural steps follow:

- The source requests the significant permit amendment by submitting the following items:
  - a. A description of the proposed change;
  - b. Emissions resulting from the proposed change;
  - c. Any new applicable regulatory requirements that will apply if the change occurs.
  - d. In addition, a suggested draft permit amendment *may* be submitted at the applicant’s discretion, but is not required.
- All the requests for significant permit amendments are subject to the public participation process as specified in 9 VAC 5-80-1775.
- According to 9 VAC 5-80-1955 D, DEQ should normally make a decision within 90 days after receipt of a complete request for significant permit amendment. However, 9 VAC 5-80-1955 D also states that when a public comment period is required (which is almost always), DEQ should normally take final action on significant permit amendments within 180 days after receipt of a complete request. DEQ may extend this time period if additional information is required or if a public hearing is conducted under 9 VAC 5-80-1775.

#### Requirements for implementing changes:

The source can not make the change applied for in the significant amendment request until the amendment is approved by DEQ.

#### **Permit Extensions**

Pursuant to 9 VAC 5-80-1985, a PSD permit is normally deemed invalid if any of the following occurs:

- construction or modification is not commenced within 18 months from the date the permit is granted; or
- construction or modification is discontinued for a period of 18 months or more; or
- construction or modification is not completed within a reasonable time.

DEQ can extend the periods described above upon satisfactory demonstration by the source that an extension is justified. Such extensions can be granted if there is no substantive change to the application information, the review and analysis, and the decision of the DEQ. The BACT is a moving target and can change with time. So while reviewing the request, it is very important to reevaluate the BACT analysis to determine if the BACT requirements need be changed to bring them to the current level. The source may be asked to provide an updated BACT analysis. Since the BACT is a case-by-case determination and that determination is not complete until the public gets a chance to make comments, all permit extension requests need to go through the public participation.

Normally, the Regional Office should verify the following.

- Area attainment status for the PSD pollutant(s) has not changed to a nonattainment status.
- BACT determination is still current.
- Emission factors and/or allowable emissions have not changed.
- Air Quality Analysis is still current (i.e. no significant changes in background concentrations, modeling inventories or modeling techniques).

## Appendix A - New Source Applicability Example

In this example the proposed project is a new coal-fired electric plant. The plant will have two 600-MW lignite-fired boilers. The proposed location is near a separately-owned surface lignite mine, which will supply the fuel requirements of the power plant, and therefore, will increase its mining capacity with new equipment. The lignite coal will be mined and then transported to the power plant to be crushed, screened, stored, pulverized and fed to the boilers. The power plant has informed the lignite coal mine that the coal will not have to be cleaned, so the mine will not expand its coal cleaning capacity. The power plant will have on-site coal and limestone storage and handling facilities. In addition, a comparatively small auxiliary boiler will be installed to provide steam for the facility when the main boilers are inoperable. The area is designated attainment for all criteria pollutants.

The applicant proposes pollution control devices for the two 600-MW boilers which include:

- an electrostatic precipitator (ESP) for PM/PM-10 emissions control;
- a limestone scrubber flue gas desulfurization (FGD) system for SO<sub>2</sub> emissions control;
- low-nitrogen oxide (NO<sub>x</sub>) burners and low-excess-air firing for NO<sub>x</sub> emissions control; and
- controlled combustion for CO emissions control.

The first step is to determine what constitutes the source (or sources). A source is defined as all pollutant-emitting activities associated with the same industrial grouping, located on contiguous or adjacent sites, and under common control or ownership. Industrial groupings are generally defined by the first two digits of a source's SIC code (SIC major group). The power plant is classified as SIC major group 49; the nearby mine is SIC major group 12. They are neither under the same SIC major group number nor have the same owners, so they constitute separate sources. (There is no support/dependency relationship between the two sources that can establish a common control. The mine is an existing source that already has been surviving off of other customers and the power plant can always buy coal from other sources when necessary.)

The second step is to establish which major source thresholds are applicable in this case. The proposed power plant is a fossil fuel-fired steam electric plant with more than 250 million Btu/hr of heat input, making it a source included in one of the 28 PSD-listed categories. It is therefore subject to both the 100 ton per year criterion for any regulated pollutant used to determine whether a source is major and the requirement that quantifiable fugitive emissions be included in determining PTE. The emissions units at the mine are neither classified within one of the 28 PSD source categories nor regulated under Sections 111 or 112 of the Act. Therefore, the mine is compared against the 250

tpy major source threshold and fugitive emissions from the mining operations are exempt from consideration in determining whether the mine is a major stationary source.

The third step is to define the project emissions. To arrive at PTE of the proposed power plant, the applicant must consider all quantifiable stack and fugitive emissions of each regulated pollutant. Therefore, fugitive PM/PM 10/PM 2.5 emissions from haul roads, disturbed areas, coal piles, and other sources must be included in calculating the power plant's PTE.

All stack and fugitive emissions estimates have been obtained through detailed engineering analysis of each emissions unit using the best available data or estimating technique. Fugitive emissions are added to the emissions from the two main boilers and the auxiliary boiler in order to arrive at the total PTE of each regulated pollutant. The auxiliary boiler in this case is restricted by enforceable limits on operating hours proposed to be included in the source's PSD permit. If the auxiliary boiler were not limited in hours of operation, its contribution would be based on full, continuous operation, and the resulting potential emissions estimates would be higher.

PTE of SO<sub>2</sub>, NO<sub>x</sub>, PM, CO, and sulfuric acid mist each exceed 100 tpy. From data collected at other lignite fired power plants, it is known that emissions of lead, beryllium, mercury, fluorides, sulfuric acid mist and arsenic should also be quantified. It is known that fluoride compounds are contained in the coal in significant quantities; however, engineering analyses show fluoride removal in the proposed limestone scrubber will result in insignificant stack emissions. Similarly, liquid absorption, absorption of fly ash removed in the ESP, and removal of bottom ash have been shown to maintain emissions of lead and the other regulated noncriteria pollutants below significance levels.

The only emissions at the existing mine, and consequently the only emissions increase that will occur from the expansion to serve the power plant, are fugitive PM/PM 10/PM 2.5 emissions from mining operations. The mine's PTE, for PSD applicability purposes, is zero and the mine is not subject to a PSD review. The increase in fugitive emissions from the mine, however, will be classified as secondary emissions (see definition in the regulation) with respect to the power plant and, therefore, must be considered in the air quality analysis and additional impacts analysis for the proposed power plant if the power plant is subject to PSD review.

The next step is to compare the potential emissions of the power plant to the 100 ton per year major source threshold. If PTE of any regulated pollutant is 100 tpy or more, the power plant is classified as a major stationary source for PSD purposes. In this case, the plant is classified as a major source because SO<sub>2</sub>, NO<sub>x</sub>, PM, CO, and sulfuric acid mist emissions each exceed 100 tpy. (Note that emissions of any one of these pollutants classify the source as major.)

Once it has been determined that the proposed source is major, any regulated pollutant (for which the location of the source is not classified as nonattainment) with *significant* emissions is subject to a PSD review. The applicant quantified, through coal and

captured fly ash analyses and through performance test results from existing sources burning equivalent coals, emissions of fluorides, beryllium, lead, mercury, and the other regulated noncriteria pollutants to determine if their emissions exceed the significance levels. (Note that according to the definition of “*significant*”, any emission rate is considered *significant* for a regulated NSR pollutant that is not assigned a specific *significant* emissions rate.) Pollutants with less than *significant* emissions are not subject to PSD review requirements.

Note that, because the proposed construction site is not within 10 kilometers of a Class I area, the source's emissions are not subject to the Class I area significance criteria.

## Appendix B – Example of Demand Growth

### Example No.1

Key Point 1: For existing units, the emissions increase due to the project is the difference between *baseline actual emissions* and projected future actual emissions. However, post-modification increases in the utilization of the unit that could occur even in the absence of the modification and are unrelated to the modification project need not be considered. The source has to project a utilization level when calculating its *projected actual emissions*. If any portion of that utilization projection could have been accommodated during the baseline period and is unrelated to the modification project, the emissions associated with that portion of the utilization projection are subtracted from the projected future actual emissions calculated for the project. Example: A production unit at a company made an average of 750 widgets per year during the baseline period. If the weather had been hotter during that time, demand would have been greater and they could have produced 1000 widgets. In 2005 they proposed to modify the production unit without increasing PTE or the design capacity. The company projects that the maximum widget production over the next five years after the modification will be 1050 widgets per year. The emission increase would only be calculated based on the difference between 1000 widgets (since they could have produced that much during the baseline period and are unrelated) and 1050 widgets (the new level that they intend to produce after the modification). Figure 1 illustrates this.

Key Point 2: If they could not have accommodated an increase in utilization given the design of the unit during the baseline period, then they must take into account any increase in utilization (and resultant increases in actual emissions) as a result of the project. Example: A company has been operating an old widget production line at 50% capacity to fulfill a long-standing contractual obligation for widgets. Once the contract expires, the company will either have to shut down the unit or improve its efficiency in order to produce widgets at a cost that is competitive in today's market for widgets. The company decides to make the efficiency improvements and expand the line so that it will be able to make 150% more widgets than it had been making for the past ten years. (There is no change in design capacity as it will operate at 75% of capacity rather than 50% of capacity). In this instance, the production line could not have accommodated any increase in utilization during the baseline period and therefore, the emission increase associated with the project will be the difference between *baseline actual emissions* and projected future actual emissions based on a five year projection of future widget demand. Figure 2 illustrates this.

Key Point 3: The definition of *projected actual emissions* gives a source the option to use PTE instead of a level of *projected actual emissions* that relies on a prediction of future utilization. In this case, the increase associated with the project is the difference between *baseline actual emissions* and the PTE of the unit after the change - the *actual-to-potential* test. Example: The company in the above case expects the market for widgets to be unpredictable, i.e. it could go through the roof or it could bottom out. In order to have the flexibility to respond to market demand, the company makes an NSR



applicability determination based on the difference between *baseline actual emissions* and the full PTE of the production unit. Figure 3 illustrates this.

Figure 1: Demand Growth Illustration

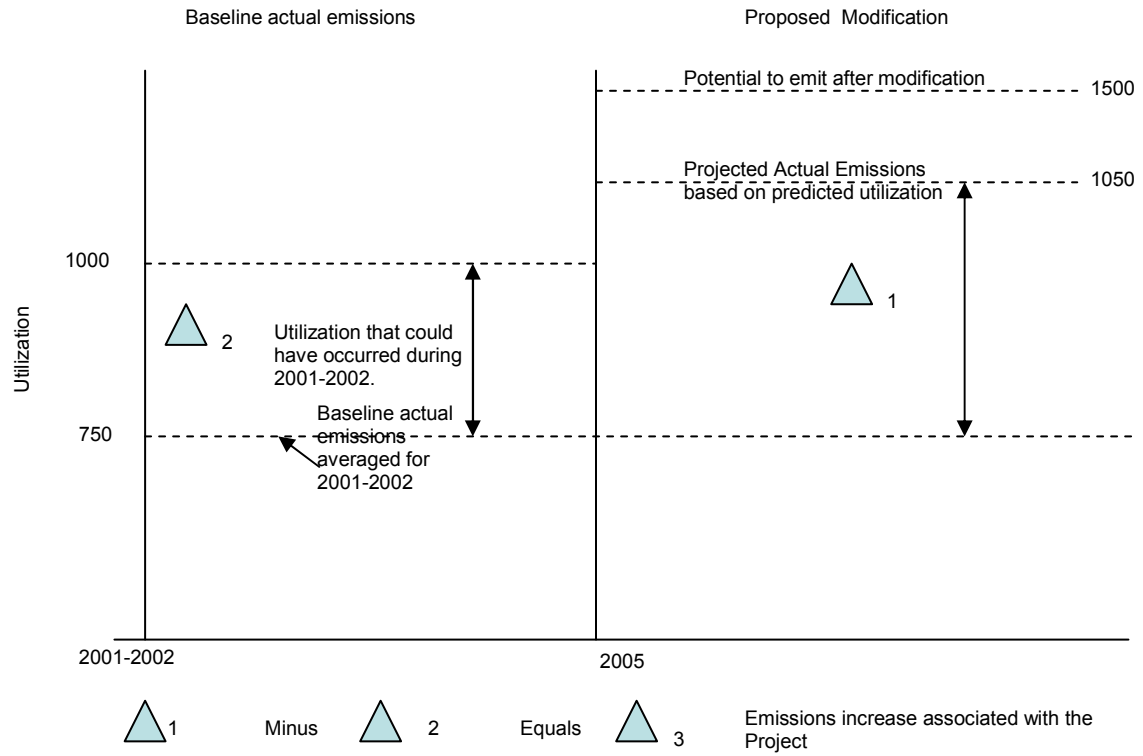


Figure 2: Projected Actual Emissions with No Demand Growth

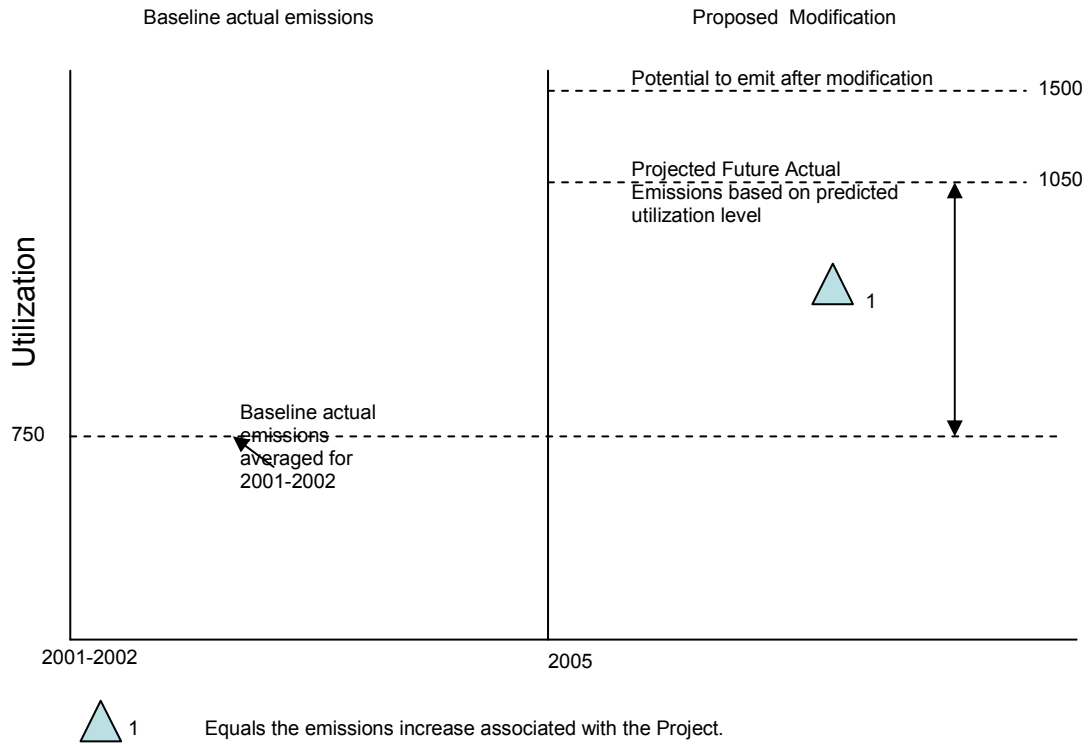
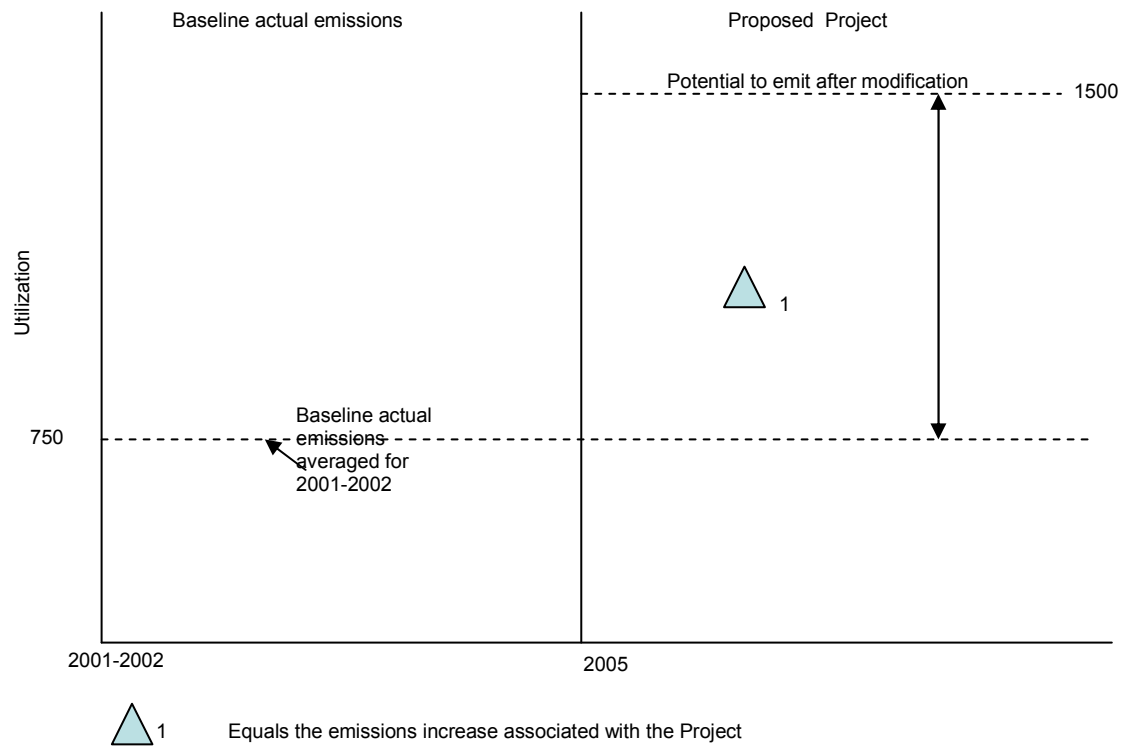


Figure 3: Projected Actual Emissions Equals PTE



Example No. 2

A Portland cement company plans to optimize its limited space by modernizing its existing facilities. The company's ability to produce clinker has been plagued by limited raw mill storage capacity and throughput and, therefore, the facility has never been able to produce more than 130 tons of clinker per hour (1138800 tpy). The facility plans to expand the raw mill, construct a riser duct on the Kiln 3 preheater to increase clinker production by 3% and replace the indirect firing system (a true, like-kind replacement). Projected clinker production over the next ten years is anticipated to reach 1.2 M tons clinker per year.

Note: Because of the increase in the design capacity, the ten year projection period is required in this case.

Table 1 calculates the NOx and SO2 emissions from Kiln 3 prior to considering demand growth. Table 2 illustrates how to calculate demand growth.

**Table 1 - NOx and SO2 emissions from Kiln 3**

Kiln 3								
	Baseline Actual Emissions (BAE)				Projected Actual Emissions (PAE)			Increase (tpy)
	Base Period	Avg. Annual Clinker Production	Emission Factor (lb/ t Clinker)	BAE (tpy)	Proj. Ann. Clinker Prod.	Emission Factor (lbs/t Clinker)	PAE (tpy)	
NOx	2003-2004	1079988	2.4	1296	1200000	2.4	1440	144
SO2	2003-2004	1079988	3.4	1836	1200000	3.4	2040	204

NOTE: The 24-month period selected in Table 1 for two different pollutants must be the same.

**Table 2 - Calculation of Demand Growth**

	Projected Future Actual Emissions			Demand Growth				Projected Increase minus Demand Growth Increase
	Baseline Actual Emissions	Projected Future Actual Emissions	Projected Increase	Baseline Period Clinker Prod. Capacity (tpy)	Emission Factor (lb/t Clinker)	Demand Growth Projection (tpy)	Demand Growth Increase	
NOx	1296	1440	144	1138800	2.4	1366	70	74
SO2	1836	2040	204	1138800	3.4	1936	100	104

NOTE: The demand growth is allowed only up to the baseline capacity.

Appendix C – PAL Supplemental Application Form

COMMONWEALTH OF VIRGINIA



DEPARTMENT OF ENVIRONMENTAL QUALITY

*ACTUALS PLANTWIDE APPLICABILITY LIMIT (PAL) SUPPLEMENTAL FORM COVER PAGE:*

COMPANY NAME	DATE	REGISTRATION NO.

**PAL ACTION REQUESTED:** (check appropriate box)

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> INITIAL PERMIT (PAL Supplemental Form 1)
<input type="checkbox"/> RENEWAL OF PERMIT (PAL Supplemental Form 2)  (current permit expiration date: _____)
<input type="checkbox"/> <input type="checkbox"/> PAL INCREASE (PAL Supplemental Form 3)
<input type="checkbox"/> <input type="checkbox"/> PAL EXPIRATION ALLOCATION (PAL Supplemental Form 4)

**COMMONWEALTH OF VIRGINIA, DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**ACTUALS PLANTWIDE APPLICABILITY LIMIT (PAL) SUPPLEMENTAL FORM 1: ESTABLISH PAL**

**In order to complete your PAL request, please do the following:**

- § Attach this form to your completed application Form 7 (first three pages).
- § Attach supplemental information as required.
- § Complete separate forms for each PAL pollutant.

This information will be made available to the public unless submitted with a confidentiality showing and approved by DEQ. The application must be submitted with the confidentiality showing at the time of submission following the requirements of 9 VAC 5-170-60 C.

<b>Part A: Define the PAL</b>	
Identify the PAL pollutant for which you are applying. Calculate the baseline emissions and attach the calculations to this form. Identify the proposed monitoring system and include calculation procedures to convert the monitoring system data using the space provided or an attachment to this form if necessary.	
<b>1. Pollutant (check one):</b>	<input type="checkbox"/> CO <input type="checkbox"/> NOx <input type="checkbox"/> PM <input type="checkbox"/> PM-10 <input type="checkbox"/> PM-2.5 <input type="checkbox"/> SO <sub>2</sub> <input type="checkbox"/> VOC <input type="checkbox"/> TRS <input type="checkbox"/> H <sub>2</sub> S <input type="checkbox"/> Pb <input type="checkbox"/> Other Section 111 or 112 pollutant
<b>2. Baseline Actual Emissions (specify units):</b>	<input type="checkbox"/> Calculations attached
<b>3. Time Period Used for determining baseline:</b>	<input type="checkbox"/> Justification attached (if requesting longer than a 5-year look-back)
<b>4. PAL Monitoring System: Check all that apply. Attach supplemental information as needed.</b>	
<input type="checkbox"/> Mass Balance Calculations	<input type="checkbox"/> Information attached
<input type="checkbox"/> Continuous Emissions Monitoring System (CEMS)	<input type="checkbox"/> Information attached
<input type="checkbox"/> Continuous Parametric Monitoring System (CPMS)	<input type="checkbox"/> Information attached
<input type="checkbox"/> Predictive Emissions Monitoring System (PEMS)	<input type="checkbox"/> Information attached
<input type="checkbox"/> Emissions Factors (provide source information)	<input type="checkbox"/> Information attached
<input type="checkbox"/> Other (specify)	<input type="checkbox"/> Information attached
<b>5. Proposed Calculation Procedures to convert monitoring system data:</b>	
Select one:	
<input type="checkbox"/> Procedures attached.	
<input type="checkbox"/> Procedures are as follows:	





Appendix D – PAL Permit Skeleton Boilerplate

**STATIONARY SOURCE PERMIT TO OPERATE**

**[This permit includes an actuals Plantwide Applicability Limit (PAL) for <<pollutant(s)>>.]**

**[This permit includes designated equipment subject to  
New Source Performance Standards (NSPS).]**

**[This permit includes designated equipment subject to  
National Emission Standards for Hazardous Air Pollutants [for Source Categories].]**

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia  
Regulations for the Control and Abatement of Air Pollution,

«Company»  
«StreetName»  
«City», «State» «Zip»  
Registration No.: «RegNo»

is authorized to operate

«FacilityType»

located at

«Location»

in accordance with the Conditions of this permit.

\_\_\_\_\_  
Effective Date

\_\_\_\_\_  
Expiration Date

\_\_\_\_\_  
Regional Director, Department of Environmental Quality

\_\_\_\_\_  
Signature Date

Permit consists of ■ pages.

Permit Conditions 1 to ■.

[Table 1: PAL Monitoring and Recordkeeping Requirements]

## INTRODUCTION

This permit approval is based on the permit application dated «ApplDate» [, including amendment information dated \_\_\_\_\_] [and supplemental information dated {insert date here}]. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-10 [and] [9 VAC 5 -80-1615] [and 9 VAC 5- 80-2010] of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

[As provided by 9 VAC 5-80-1865 M.8] [and] [9 VAC 5-80-2144 M.8], DEQ or the Board may determine that the operation of an emissions unit during operating periods when there is no correlation between monitored parameters and the PAL pollutant emissions is a violation of the PAL permit.]

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

## PROCESS REQUIREMENTS

### *COPY PROCESS BLOCK(S) HERE!!*

1. **[O]Emission Testing** - The «FacilityType» shall be [constructed/modified/installed] so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. [This includes constructing the facility/equipment such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing a stack or duct that is free from cyclonic flow.] Sampling ports shall be provided when requested [at the  or at the appropriate locations] and safe sampling platforms and access shall be provided. (9 VAC 5-80-880 and 9 VAC 5-80-850)

## GENERAL CONDITIONS

2. **PAL Renewal** – The permittee shall submit a timely application to the board to request renewal of a PAL. A timely application is one that is submitted at least 6-months but no earlier than 18-

months prior to the date of permit expiration. This deadline for application submittal is to ensure that the permit will not expire before the permit is renewed. If the permittee submits a complete application to renew the PAL within this time period, then the PAL will continue in effect until the revised permit with the renewed PAL is issued, or until the board determines that the revised permit with the renewed PAL will not be issued.

(9 VAC 5-80-850, 9 VAC 5-80-1865 F.3 and 9 VAC 5-80-1865 J.2)

3. **PAL Expiration** – If the permittee does not renew the PAL in accordance with 9 VAC 5-80-1865 J or does not comply with Condition 2, the PAL shall be revoked at the end of the permit effective date and the requirements of 9 VAC 5-80-1865 I shall apply.  
(9 VAC 5-80-850, 9 VAC 5-80-1865 F.5 and 9 VAC 5-80-1865 I)

4. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

(9 VAC 5-170-130 and 9 VAC 5-80-850)

5. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the «Region» of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone, or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the «Region» in writing.  
(9 VAC 5-20-180 C and 9 VAC 5-80-850)

6. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9 VAC 5-20-180 I and 9 VAC 5-80-850)

7. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown[, soot blowing], and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

[The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to {list specific emission unit(s) and/or control equipment} **OR** [air pollution control equipment] [ and] [process equipment which affect such emissions]:

- a. [Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.]
- b. [Maintain an inventory of spare parts.]
- c. [Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.]
- d. [Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.]

[Records of [maintenance] [and] [training] shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.]]  
(9 VAC 5-50-20 E and 9 VAC 5-80-850)

8. **Permit Suspension/Revocation** - This permit may be revoked if the permittee:
- a. Knowingly makes material misstatements in the permit application or any amendments to it;
  - b. Fails to comply with the terms or conditions of this permit;
  - c. Fails to comply with any emission standards applicable to a permitted emissions unit;
  - d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
  - e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time that an application for this permit is submitted;
  - f. Fails to comply with the applicable provisions of Articles 6, 8 and 9 of 9 VAC 5 Chapter 80.  
(9 VAC 5-80-1010)
9. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the «Region» of the change of ownership within 30 days of the transfer.  
(9 VAC 5-80-940)

10. **Permit Copy** - The owner shall keep a copy of this permit on the premises of the facility to which it applies.  
(9 VAC 5-80-860 D)

## [O]SOURCE TESTING REPORT FORMAT

### Report Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test Dates.
4. Tester; name, address and report date

### Certification

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. \*Signed by reviewer

### Copy of approved test protocol

### Summary

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. \*For each emission unit, a table showing:
  - a. Operating rate
  - b. Test Methods
  - c. Pollutants tested
  - d. Test results for each run and the run average
  - e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

### Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

### Test Results

1. Detailed test results for each run
2. \*Sample calculations
3. \*Description of collected samples, to include audits when applicable

### Appendix

1. \*Raw production data
2. \*Raw field data
3. \*Laboratory reports
4. \*Chain of custody records for lab samples
5. \*Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

\* Not applicable to visible emission evaluations

## Appendix E – PAL Permit Boilerplate for Individual Process Block

### PROCESS REQUIREMENTS

6. **Equipment List** - Equipment to be operated subject to the << pollutant(s)>> Plantwide Applicability Limit of this permit consists of the following:

Major Emissions Units				
[Reference No.]	Equipment Description	Rated Capacity	Federal Requirements	

Significant Emissions Units				
[Reference No.]	Equipment Description	Rated Capacity	Federal Requirements	

Small Emissions Units [or Group]				
[Reference No.]	Equipment Description	Rated Capacity	Federal Requirements	

[O] Fugitive Emissions Sources				
[Reference No.]	Description			

[O] (Blank table for development as needed by permit writer)				

[Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.]  
(9 VAC 5-80-850 and ( VAC 5-80-1865)

### EMISSION LIMITS

7. **Plantwide Applicability Limit:** <<pollutant>> - Total emissions of <<pollutant>> from the stationary source, including emissions from start-up, shutdown and malfunction, shall be less than <<emission limit>> tons per year. For each month during the first 12-months from the PAL effective date (the effective date of this permit), compliance with the annual emissions limit shall be calculated monthly and summed for the period. Following the first 12-months of



operation from the PAL effective date, compliance with the annual emissions limit shall be calculated monthly as the sum of each consecutive 12-month period (12 month rolling total) by adding the total for most recently completed calendar month to the individual monthly total for the preceding 11 months.

(9 VAC 5-80-850 and 9 VAC 5-80-1865 A.2)

8. **Fugitive Emissions** – To the extent quantifiable, fugitive emissions from all emissions units that emit or have the potential to emit the PAL pollutant[s] shall be included in the calculations demonstrating compliance with the PAL limitation[s] in Condition[s] \_\_\_\_\_.

(9 VAC 5-80-850 and 9 VAC 5-80-1865 C.1)

## MONITORING

9. **[O] PAL SOURCE-WIDE MONITORING** - The permittee shall comply with the monitoring and recordkeeping requirements for each emissions unit subject to the << pollutant >> PAL as specified in the attached table.

(9 VAC 5-80-890 and 9 VAC 5-80-1865 M)

10. **[O] MASS BALANCE CALCULATIONS** - Mass balance calculations used to monitor PAL pollutant emissions shall be limited to monitoring emissions from the use of coatings and/or solvents and shall meet the following requirements:

- a. Provide a demonstrated means of validating the published content of the PAL pollutant that is contained in or created by all coatings or solvents used in or at the emissions unit;
- b. Assume that the emissions unit emits all of the PAL pollutant that is contained in or created by any coating or solvent used in or at the emissions unit, if it cannot be otherwise accounted for in the process; and
- c. If the vendor of the coating or solvent used in or at an emissions unit publishes the PAL pollutant content as a range, the permittee shall use the highest value of the range to calculate the PAL pollutant unless DEQ determines there is site-specific data or additional monitoring to support another content within the range.

(9 VAC 5-80-890 and 9 VAC 5-80-1865 M)

11. **[O] CEMS** – Each CEMS used to monitor PAL pollutant emissions shall meet the following requirements:

- a. Comply with the applicable Performance Specification found in 40 CFR 60, Appendix B; and
- b. Sample, analyze and record data at least every 15 minutes while the emissions unit is operating.

(9 VAC 5-80-890 and 9 VAC 5-80-1865 M)

12. **[O] CPMS AND PEMS** - Each CPMS and PEMS used to monitor PAL pollutant emissions shall meet the following requirements:
- a. Each CPMS or PEMS shall be based on current site specific data demonstrating a correlation between the monitored parameters and the PAL pollutant emissions across the range of operation of the emissions unit; and
  - b. Sample, analyze and record data at least every 15 minutes, or a less frequent interval, if approved by DEQ, while the emissions unit is operating.
- (9 VAC 5-80-890 and 9 VAC 5-80-1865 M)

13. **[O]EMISSIONS FACTORS** – Emissions factors used to monitor the PAL pollutant emissions shall meet the following requirements:
- a. All emissions factors shall be adjusted to account for the degree of uncertainty in the emissions factors' development;
  - b. All emissions units using emissions factors for pollutant monitoring shall be operated within the designated range of use; and
  - c. If technically practicable, the emissions factors for each major and significant emissions unit relying on emissions factors to calculate PAL pollutant emissions shall conduct validation testing to determine site specific emissions factors.
- (9 VAC 5-80-890 and 9 VAC 5-80-1865 M)

14. **LOSS OF MONITORING/NO MONITORING DATA** – The permittee shall record and report maximum potential emissions without considering enforceable emissions limitation or operational restrictions for each emissions unit during any period of time that there is no monitoring data, unless another method for determining emissions during such periods is specified in this permit.
- (9 VAC 5-80-890 and 9 VAC 5-80-1865 M)

## RECORDS

15. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the «Region». These records shall include, but are not limited to:
- a. Source-wide monthly and annual actual emissions, in tons per year, of <<pollutant>> to demonstrate compliance with the PAL in Condition \_\_\_\_\_. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

- b. Total monthly and annual actual emissions, in tons per year, of <<pollutant>> for each emissions unit subject to the PAL. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- c. **[O]** Total monthly and annual actual emissions, in tons per year, of <<pollutant>> for each fugitive emissions source subject to the PAL. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- d. A list of all new emissions units added since the PAL effective date. The list shall include the date of operation, whether the new unit is major, significant or small, the allowable emissions, in tons per year, and the monitoring approach to be used for each new emissions unit.
- e. A list of all emissions units modified since the PAL effective date. The list shall include the date of modification, whether the unit after modification is major, significant or small, the new allowable emissions, in tons per year, and monitoring approach to be used for each modified emissions unit.
- f. A list of all emissions units shutdown since the PAL effective date. The list shall include the date of shutdown for each emissions unit, and whether the unit prior to shutdown was major, significant or small.
- g. The results of all testing and monitoring data that support any compliance demonstration, compliance certification or report. Each testing or monitoring demonstration shall include the following information:
  - i. Date, place and time the testing occurred;
  - ii. Date sampling analyses occurred;
  - iii. Person or company performing the tests;
  - iv. Analytical methods used;
  - v. Analyses results; and
  - vi. Operating conditions during the tests.
- h. Records of deviations or monitoring malfunctions. The records should include the date, duration and cause of each deviation and whether the deviation occurred during startup shutdown or malfunction.
- i. All other data and supporting information relied upon in calculating the monthly and annual actual <<pollutant>> emissions. Such data and information shall include but not be limited to the following:

- i. **[O]** Calibration and maintenance records and original strip chart recordings, if applicable, of each CEMS, PEMS, and CPMS.
- ii. **[O]** Material Safety Data Sheets (MSDS), Certified Product Data Sheets (CPDS), **or** other documentation {as approved by DEQ} showing {VOC content, water content, and solids content} for each {coating, adhesive, ink, thinner, fountain solution, cleaning solution, **or** other) used.
- iii. **[O]** A list of each emissions factor and respective emissions units used in demonstrating compliance with the PAL using emissions factors. The list shall include whether the emissions factor is site-specific, or indicate the publication (such as AP-42) from which the emissions factor(s) was derived.
- iv. **[O]** The results of all performance testing used to establish correlations between site specific ranges for operating parameters and emission rate.
- j. **[O]** Annual hours of operation of {process}, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- k. **[O]** Annual production of {product **or** other}, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- l. **[O]** Annual consumption of {fuel, raw material, **or** other}, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- m. **[O]** Annual throughput of {fuel, material, **or** other}, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- n. **[O]** Control efficiency of the {control device} using a calculation method approved by the «Region».
- o. **[O]** All fuel supplier certifications.
- p. **[O]** Monthly and annual throughput {in gallons **or** pounds} of each {coating, adhesive, ink, thinner, fountain solution, cleaning solution, **or** other} used in {process}. Annual throughputs shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

q. [O] Scheduled and unscheduled maintenance, and operator training.

r. Copies of all required reports.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years. [Instead of paper files, you may retain records in electronic format provided it does not conflict with other recordkeeping requirements and the electronic format allows for expeditious inspection and review by DEQ.]

(9 VAC 5-80-1865 F, 9 VAC 5-80-1865 N and 9 VAC 5-80-900)

16. **Records Retention** - The owner shall retain a copy of the following records for the duration of the PAL effective period plus five years:

- a. A copy of the PAL permit application and any applications for revisions to the PAL, and;
- b. Each annual certification of compliance pursuant to the federal operating permit and the data relied on in certifying the compliance.

(9 VAC 5-80-1865 F.8, 9 VAC 5-80-1865 N.2 and 9 VAC 5-80-850)

## REPORTS

17. **Semi-Annual Reports** - The owner shall submit semi-annual monitoring reports and prompt deviation reports to the «Region» in accordance with 9 VAC 5-80-110 F. The reports shall meet the following requirements:

- a. The identification of the owner and operator and the permit number.
- b. Total annual emissions (in tons per year) based on the 12-month rolling total for each month in the reporting period recorded pursuant to Condition \_\_\_\_\_,
- c. All data relied upon, including but not limited to, any quality assurance or quality control data, in calculating the monthly and annual PAL pollutant emissions.
- d. A list of any emissions units modified or added to the major stationary source during the preceding six-month period.
- e. The number and duration and cause of any deviations or monitoring malfunctions (other than the time associated with zero and span calibration checks), and any corrective action taken.
- f. A notification of a shutdown of any monitoring system, whether the shutdown was permanent or temporary, the reason for the shutdown, the anticipated date that the monitoring system will be fully operational or replaced with another monitoring system, and whether the emissions unit monitored by the monitoring system continued to operate, and the calculation of the emissions of the pollutant or the number determined by method included in the permit, as provided by Condition(s) \_\_\_\_\_.

- g. A signed statement by the responsible official (as required by 9 VAC 5-80-80 G) certifying the truth, accuracy and completeness of the information provided in the report.

(9 VAC 5-80-1865 F.9, 9 VAC 5-80-1865 O.1, 9 VAC 5-80-80 G and 9 VAC 5-80-900)

18. **Deviation Reporting** – The permittee shall promptly submit reports of any deviations or exceedance of the PAL requirements, including periods where no monitoring is available. A report submitted pursuant to 9 VAC 5-80-110 F.2.B shall satisfy this reporting requirement. The deviation reports shall be submitted to the «Region» within the time limits prescribed by 9 VAC 5-80-110 F.2.B. The reports shall contain the following information:

- a. The identification of owner and operator and the permit number;
- b. The PAL requirement that experienced the deviation or the exceedance;
- c. Emissions resulting from the deviation or exceedance; and
- d. A signed statement by the responsible official (as defined by the applicable federal operating permit program) certifying the truth, accuracy, and completeness of the information provided in the report.

(9 VAC 5-80-1865 F.9, 9 VAC 5-80-1865 O.2 and 9 VAC 5-80-900)

## TESTING

19. **[O] Performance Testing** - Performance tests shall be conducted for each [major and] significant emissions units relying on emissions factors to calculate PAL pollutant emissions in accordance with Condition \_\_\_\_\_. The tests shall be performed within 180 days of the PAL effective date. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the «Region». The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the «Region», within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-80-1865 M.6, 9 VAC 5-50-30 and 9 VAC 5-80-880)

20. **[O] Revalidation Test Reporting** – The permittee shall conduct performance testing, or other scientifically valid procedures, to revalidate all data used to establish the <<pollutant>> PAL. The tests shall be performed within five years of the effective date of the PAL. The details of the tests are to be arranged with the «Region». The permittee shall submit test protocols at least 30 days prior to testing. One copy of the test results shall be submitted to the «Region» within three months after completion of such test or method. [In no event shall any test result be submitted later than 6-months prior to the expiration date of the PAL permit.] [ The permittee may substitute the results of any testing conducted as required by Condition \_\_\_\_\_, as applicable, in meeting the requirements of this provision.]

(9 VAC 5-80-1865 F.9, 9 VAC 5-80-1865 M.9, 9 VAC 5-80-1865 O.3 and 9 VAC 5-80-880)



## APPENDIX F - PSD New Source Application Checklist

(Submit with each PSD application)

### Pre-Application Activities

- Initial contact made to DEQ to schedule Pre-Application Meeting and discuss application requirements**
- Determine whether the proposed source is of interest of Federal Land Managers**
- Dispersion modeling**
  - Protocol submitted to the Department or,
  - Justification submitted to the Department showing that no modeling is required.
  - Protocol/justification accepted by Department
- Pre-construction monitoring was submitted to the Department**
  - Pre-construction monitoring accepted by Department
  - Request made to waive pre-construction monitoring, if applicable
- Determined if any support facilities and/or facilities under common control are associated with the facility where project is proposed**
  - Documentation to support decision was submitted to the Department
- Determine if any application information to be submitted will be claimed confidential.**
  - No claim of confidentiality or documentation to support claim provided
- PSD Pre-Application Meeting with Department Representatives**

### Required Application Information and Forms

- A description of the nature, location, design capacity, and typical operating schedule of the proposed source, including specifications and drawings showing the design and plant layout**
- A detailed schedule for construction of the source**
- New Source Review Permit Application Form (form 7) completed as directed by the form instructions. Ensure that the completed forms include the following:**
  - Local Governing Body Certification Form (form 7, page xiii)**
  - Document Certification/Application Signature Page (form 7, page 1) signed by responsible official**
  - Type of permit(s) requested (form 7, page 2)**
  - Facility Information (form 7, pages 2 -3)**
  - Emission Unit Information (form 7, pages 4 through 10 as appropriate for emissions units to be installed) - Include all emission units. Remember to include ancillary units, such as emergency generators and fire pumps, blackstart engines, cooling towers, painting and solvent cleaning, VOC storage containers, storage piles, material handling, haul roads, etc.**
  - Control Equipment Information (form 7, pages 12 and 13)**
  - Stack/Vent/Fuel Information (form 7, page 11)**
  - Emissions Information (form 7, pages 14, 16 and 17)**
  - Operating Schedule Information (form 7, pages 18)**



- Applicable Requirements** - a list of each applicable emission limitation under the SAPCB Regulations and each applicable emission limitation or standard of performance under 40 CFR 60, 61, 63 along with confirmation that the proposed source will meet each stated standard or limit. Include details as needed to identify the means used to meet the standard.
- Emission Calculations showing the derivation of PTE for each PSD regulated pollutant at each emissions unit and the total PTE for each PSD regulated pollutant for the proposed stationary source.**
- Identification of each emissions unit subject to the provisions of PSD.** Include a table or list of units, cross referenced to the complete list of emissions units in form 7, identifying each emissions unit that emits a pollutant for which the proposed stationary source is significant (see below). For each emissions unit listed, include the pollutants which caused it to be listed.

**Pollutant “Significant” Net Emission Increase**

- Particulate matter (PM) > 24.4 tpy
- PM<sub>10</sub> > 14.4 tpy
- PM<sub>2.5</sub> > 9.4 tpy
- Sulfur dioxide (SO<sub>2</sub>) > 39.4 tpy
- Nitrogen oxides (NO<sub>x</sub>) > 39.4 tpy
- Ozone (Volatile organic compounds (VOC)) > 39.4 tpy
- Carbon Monoxide (CO) > 99.4 tpy
- Lead (elemental) > 0.54 tpy
- Fluorides > 2.4 tpy
- Sulfuric acid mist > 6.4 tpy
- Total reduced sulfur compounds (including H<sub>2</sub>S) > 9.4 tpy
- CFC’s 11, 12, 113, 114, 115 > 0 tpy
- Halons 1211, 1301, 2402 > 0 tpy
- Municipal Waste Combustor (MWC) acid gases > 39.4 tpy
- MWC metals > 14.4 tpy
- MWC Organics > 3.44 x 10<sup>-6</sup> tpy
- Municipal solid waste landfills emissions > 49.4 tpy
- Other pollutants regulated under the CAA (§52.21(b)(23)(ii)) > 0 tpy

- Dispersion Modeling Analysis**
  - Modeling protocol or reference to a specific monitoring protocol that was previously submitted to the DEQ**
  - Modeling Information Plot Plan**
  - Modeling Information Emission Point Characteristics (include all emissions from fugitive sources, exempt units, indoor venting units and new and modified emissions units)**
  - Determined if modeled concentrations of any PSD pollutant were above the applicable modeling significance level (MSL).** If yes, full impact analyses were conducted to evaluate compliance with the NAAQS and PSD Increment values. Documentation for the source inventories used for NAAQS and PSD increment in the full impact analyses was provided.
  - Electronic files associated with all applicable modeling analyses (including modeling significance levels and full impact analyses) on appropriate media (i.e. floppy, CD or diskette)**
- BACT analysis** - a detailed description as to what system of continuous emission reduction is planned for the source including information necessary to determine that best available control technology would be applied. BACT for greenfield source applies to each PSD regulated pollutant that is emitted in *significant* amounts – for each unit that emits a pollutant for which the source is significant (there is no *de minimis* level for emissions units). Identify the proposed BACT limitation and the method proposed to used for the initial compliance

determination (or present argument for a waiver of performance testing) for each proposed BACT limit. In addition, identify the method that will be used to ensure continuous compliance with each proposed BACT limitation.

- Ambient air quality analysis** – either provide results of analysis per 9 VAC 5-80-1735 (preconstruction ambient air monitoring) or demonstrate that project or source is exempt from 9 VAC 5-80-1735 as provided in 9 VAC 5-80-1695 E. For a new (greenfield) source, the analysis is required for each pollutant that would be permitted in *significant* amounts. For major modifications the analysis is required for each pollutant where the modification results in a *significant net emissions increase*. This analysis shall contain ambient air data sufficient to determine if the increase proposed by the applicant will cause or contribute to an exceedance of the NAAQS or any increment. If the applicant satisfies all conditions on §IV of Appendix S to 40 CFR 51, post construction monitoring for ozone may be provided in lieu of preconstruction monitoring. Data gathering is typically for a period of at least one year and includes the year immediately preceding submittal of the application. The Board may determine on a case-by-case basis that a shorter period (no less than 4 months) can provide a valid assessment and if so data gathered for this period may substitute for the longer monitoring period 9 VAC 5-80-1735 A.4.). If the source or modification will emit regulated NSR pollutant for which there is no NAAQS, the details of the analysis are to be determined by the board on a case-by-case basis (9 VAC 5-80-1735 A.2.).

- Additional Impacts Analysis**

- A Class I visibility impacts analysis was completed.**
- Potential impacts on endangered or sensitive species located in Class I areas that may be affected by the proposed project were evaluated if applicable, and all necessary documentation is included with the application.**
- A Class II visibility impacts analysis was completed.**
- A hard copy of the VISCREEN output is included with the application. VISCREEN input and output files are provided on appropriate media (i.e. CD or diskette).
- Impacts on soils and vegetation were considered, including impacts of NO<sub>x</sub> over short-term periods and the combined impact of NO<sub>x</sub> in conjunction with SO<sub>2</sub>.**
- An air quality analysis for associated growth from the proposed project was conducted, if applicable, and all necessary documentation is included with the application**

- Fees Paid**

## APPENDIX G - PSD Modification Application Checklist

(Submit with each PSD application)

### Pre-Application Activities

- Initial contact made to DEQ to schedule Pre-Application Meeting and discuss application requirements**
- Determine whether the proposed source is of interest of Federal Land Managers**
- Dispersion modeling**
  - Protocol submitted to the Department or,
  - Justification submitted to the Department showing that no modeling is required.
  - Protocol/justification accepted by Department
- Pre-construction monitoring was submitted to the Department**
  - Pre-construction monitoring accepted by Department
  - Request made to waive pre-construction monitoring, if applicable
- Determined if any support facilities and/or facilities under common control are associated with the facility where project is proposed**
  - Documentation to support decision was submitted to the Department
- Determine if any application information to be submitted will be claimed confidential.**
  - No claim of confidentiality or documentation to support claim provided
- PSD Pre-Application Meeting with Department Representatives**

### Required Application Information and Forms

- A description of the nature, location, design capacity, and typical operating schedule of the source and a description of the proposed modification , including specifications and drawings showing the design and plant layout**
- A detailed schedule for construction or implementation of the modification**
- New Source Review Permit Application Form (form 7) completed as directed by the form instructions. Ensure that the completed forms include the following:**
  - Local Governing Body Certification Form (form7, page xiii)**
  - Document Certification/Application Signature Page (form 7, page 1) signed by responsible official**
  - Type of permit(s) requested (form 7, page 2)**
  - Facility Information (form 7, pages 2 -3)**
  - Emission Unit Information (form 7, pages 4 through 10) – Use pages as appropriate to cover all new, modified or debottlenecked emission units.**
  - Control Equipment Information (form 7, pages 12 and 13) - Include information for the new, modified or debottlenecked emission units.**
  - Stack/Vent/Fuel Information (form 7, page 11) - Include information for the new, modified or debottlenecked emission units.**
  - Emissions Information (form 7, pages 15, 16 and 17) - Include information for the new, modified or debottlenecked emission units.**
  - Operating Schedule Information (form 7, page 18) - Include information for the new, modified or debottlenecked emission units.**
- Emission Increases for the Project**

- Include all associated emission increases in the calculated *net emissions increases* for each pollutant including emission increases due to debottlenecked emission units, increased utilization of emission units, and fugitive emissions.
- Include all emission increases at any support facilities and/or facilities under common control in the project's *net emissions increase*.
- Include documentation supporting emission calculations (e.g. engineering estimates, stack test results, etc.) with the application.
- Applicable Requirements** – For each emissions unit affected by the modification, list each applicable emission limitation under the SAPCB Regulations and each applicable emission limitation or standard of performance under 40 CFR 60, 61, 63 along with confirmation that the proposed source will meet each stated standard or limit. Include details as needed to identify the means used to meet the standard.
- Facility Emission Unit Inventory** – Include information on emissions units at the facility as it exist prior to the proposed modification. Use Form- 7, pages 4 through 13, 15 and 16 and mark these with the designation “Emissions Inventory.”
- Identify the pollutants that have a “significant” net emission increase, for this project.** Include a table or list of units, cross referenced to the emissions units in form 7, identifying each emissions unit that emits a pollutant for which the proposed modification is significant (see below). For each emissions unit listed, include the pollutants which caused it to be listed.

**Pollutant “Significant” Net Emission Increase**

Particulate matter (PM) > 24.4 tpy  
 PM<sub>10</sub> > 14.4 tpy  
 PM<sub>2.5</sub> > 9.4 tpy  
 Sulfur dioxide (SO<sub>2</sub>) > 39.4 tpy  
 Nitrogen oxides (NO<sub>x</sub>) > 39.4 tpy  
 Ozone (Volatile organic compounds (VOC)) > 39.4 tpy  
 Carbon Monoxide (CO) > 99.4 tpy  
 Lead (elemental) > 0.54 tpy  
 Fluorides > 2.4 tpy  
 Sulfuric acid mist > 6.4 tpy  
 Total reduced sulfur compounds (including H<sub>2</sub>S) > 9.4 tpy  
 CFC's 11, 12, 113, 114, 115 > 0 tpy  
 Halons 1211, 1301, 2402 > 0 tpy  
 Municipal Waste Combustor (MWC) acid gases > 39.4 tpy  
 MWC metals > 14.4 tpy  
 MWC Organics > 3.44 x 10<sup>-6</sup> tpy  
 Municipal solid waste landfills emissions > 49.4 tpy  
 Other pollutants regulated under the CAA (§52.21(b)(23)(ii)) > 0 tpy

- Dispersion Modeling Analysis**
  - Modeling protocol or reference to a specific monitoring protocol that was previously submitted to the DEQ**
  - Modeling Information Plot Plan**
  - Modeling Information Emission Point Characteristics (include all emissions from fugitive sources, exempt units, indoor venting units and new and modified emissions units)**
  - Determined if modeled concentrations of any PSD pollutant were above the applicable modeling significance level (MSL).** If yes, full impact analyses were conducted to evaluate compliance with the NAAQS and PSD Increment values. Documentation for the source inventories used for NAAQS and PSD increment in the full impact analyses was provided.

- Electronic files associated with all applicable modeling analyses (including modeling significance levels and full impact analyses) on appropriate media (i.e. floppy, CD or diskette)**
- BACT analysis** - a detailed description as to what system of continuous emission reduction is planned for the modification including information necessary to determine that best available control technology will be applied. BACT for a modification applies to each PSD regulated pollutant for which the modifications results in a *significant net emissions increase* – for each new or modified unit that emits a pollutant for which the modification resulted in a *significant net emissions increase* (there is no *de minimis* level for emissions units). Identify the proposed BACT limitation and the method proposed to used for the initial compliance determination (or present argument for a waiver of performance testing) for each proposed BACT limit. In addition, identify the method that will be used to ensure continuous compliance with each proposed BACT limitation.
- Ambient air quality analysis** – either provide results of analysis per 9 VAC 5-80-1735 (preconstruction ambient air monitoring) or demonstrate that project or source is exempt from 9 VAC 5-80-1735 as provided in 9 VAC 5-80-1695 E. For a new (greenfield) source, the analysis is required for each pollutant that would be permitted in *significant* amounts. For major modifications the analysis is required for each pollutant where the modification results in a *significant net emissions increase*. This analysis shall contain ambient air data sufficient to determine if the increase proposed by the applicant will cause or contribute to an exceedance of the NAAQS or any increment. If the applicant satisfies all conditions on §IV of Appendix S to 40 CFR 51, post construction monitoring for ozone may be provided in lieu of preconstruction monitoring. Data gathering is typically for a period of at least one year and includes the year immediately preceding submittal of the application. The Board may determine on a case-by-case basis that a shorter period (no less than 4 months) can provide a valid assessment and if so data gathered for this period may substitute for the longer monitoring period 9 VAC 5-80-1735 A.4.). If the source or modification will emit regulated NSR pollutant for which there is no NAAQS, the details of the analysis are to be determined by the board on a case-by-case basis (9 VAC 5-80-1735 A.2.).
- Additional Impacts Analysis**
  - A Class I visibility impacts analysis was completed.
  - Potential impacts on endangered or sensitive species located in Class I areas that may be affected by the proposed project were evaluated if applicable, and all necessary documentation is included with the application.
  - A Class II visibility impacts analysis was completed.
  - A hard copy of the VISCREEN output is included with the application. VISCREEN input and output files are provided on appropriate media (i.e. CD or diskette).
  - Impacts on soils and vegetation were considered, including impacts of NOx over short-term periods and the combined impact of NOx in conjunction with SO2.
  - An air quality analysis for associated growth from the proposed project was conducted, if applicable, and all necessary documentation is included with the application
- Fees Paid**

## Appendix H - PSD Permit Processing Timeline

Activity	#Days	Months from Start Date												Comments	
		1	2	3	4	5	6	7	8	9	10	11	12		
Pre-application Meeting		◆													
Prepare Initial Application															
Complete Application Submittal: BACT, Modeling, All Final & w/o Deficiencies															
DEQ Initial Review	30														
DEQ Issue Initial Letter of Determination (ILOD) (see distribution list)						◆									
Applicant Notice - Informational Briefing (DEQ must pre-approve ad)							◆								Within 30 days of receipt of ILOD
Public Informational Briefing (Applicant Holds)								◆							30-60 days after notice
Draft Permit															
Draft Permit to Source									◆						
Negotiate Permit Terms															
Public Participation															
Draft Permit to FLM										◆					
FLM Adverse Impact Determination (Y/N)	30										◆				Determination on Adverse Impact within first 30 days of FLM review.
FLM Review	60														
DEQ Public										◆					If adverse impact



## Appendix I - PSD Permit Tracking Sheet

Source/Facility Name: \_\_\_\_\_ Registration No: \_\_\_\_\_

County/Plant I.D.: \_\_\_\_\_

		<u>Date</u>	<u>Initial</u>	
1.	Pre-application Meeting (recommended – notify and provide opportunity for FLM to attend if held)			
2.	Application Received			
3.	Local Government Official Form Received			
4.	Distance to Class I Area	JRF _____ km	SNP _____	
5.	Application Review Letter Prepared (within 30 days)			
6.	PSD Initial Letter of Determination (within 30 days)			
7.	Preliminary Public Notice of Applicant Informational Briefing (applicant must complete within 30 days of ILOD)			
8.	Provide copies of ILOD and application to Federal Land Managers			
9.	Provide copies of ILOD and application to EPA Region III			
10.	Notify (by copy of the ILOD) the following: a. Persons on the PSD mailing list, b. Chief Executives of the locality in which the source will be located and adjacent localities, and c. Chief Executives for each Planning District Commission for localities notified in b.			
11.	Notice of Public Briefing by Applicant: newspaper and DEQ website			
12.	Applicant Briefing Held			
13.	Additional Information Requested (dates)			
14.	Additional Information Received (dates)			
15.	Application Technically Complete			
16.	Application Administratively Complete			
17.	Regulatory Review Conducted (NSPS, NESHAPS, MACT)			
18.	Preliminary Emissions Calculations and Application Review Completed			
19.	Monitoring Determination			
20.	Monitoring Site and Protocol Approval (if required)			
21.	Preliminary Modeling Received			
22.	Refined Modeling Received (if applicable)			
23.	BACT Analysis Review Completed			
24.	Final Modeling Received (if applicable)			



		<u>Date</u>	<u>Initial</u>	
25.	Additional Impacts Analysis Received			
26.	Modeling Memo Received from Central Office (K. McBee)			
27.	Engineering Memo Prepared			
28.	Draft Permit Prepared			
29.	a. Permitting Peer Review: Draft Permit, Engineering Memo with Calculations, Modeling Memo, and Application			
	b. Compliance: Compliance Signature Memo, Copy of Draft Permit, Engineering Memo with Calculations and Modeling Memo			
30.	Peer Review Completed			
31.	Compliance Comments Received			
32.	Draft Permit sent to Source			
33.	Comments received from Source (allow 5 working days)			
34.	Draft Permit, Engineering Memo with Calculations and Modeling Memo sent to FLM (60 days prior to public hearing)			
35.	Draft Permit, Engineering Memo with Calculations and Modeling Memo sent to EPA (30 days prior to public hearing)			
36.	Notice of Public Briefing by DEQ (30 days prior to public briefing): newspaper and DEQ website			
37.	FLM Comment rec'd (including Adverse Impact Determination if applicable) (30 days prior to hearing)			
38.	Public Notice of Public Hearing (30 days prior to hearing): newspaper and DEQ website (Include any adverse determination from FLM)			
39.	Notify the following entities of the public hearing by providing copy of the public hearing notice: a. the applicant, b. EPA Region III, c. FLMs, d. Persons on the PSD mailing list, e. Chief Executives of the locality in which the source will be located and adjacent localities, f. Chief Executives for each Planning District Commission for localities notified in e. and f. members of the general assembly representing localities identified in e.			
40.	Public Briefing Held			
41.	Public Hearing Held			
42.	Response to Public Comment - applicant (within 10 days of close of public comment period)			
43.	Public Comment Period Closes (15 days after Public Hearing)			
44.	Agency Response to Public Comment			
45.	Provide Revised Permit to Source for Comments (if applicable)			
46.	Comments Received from Source (allow 5 working days)			

		<u>Date</u>	<u>Initial</u>	
47.	Final Package Routed to RD through APM. Include in folder: Permit, Engineering Memo with Calculations, Modeling Memo, SAR, and Permit Application <u>Attach this tracking sheet to front of folder.</u>			
48.	Final Package Processing/Distribution			
49.	Transmittal letter			
	To Owner (certified) - original letter, permit and permit attachment(s)			
	To EPA - copy letter, permit and permit attachment(s)			
	To Regional Air Compliance Manager - copy letter and permit			
	To File - copy letter, permit, engineering memo with calculations, modeling memo, SAR, and permit application			
	Return File to Permit Writer			
	Electronic Copy dated with signature date			
	To OAPP - E-Mail copy of letter, permit and SAR			
	To Managers, Air Data Analysis - E Mail copy of letter and permit			
	To I:\hrsbg\common\air\permit - copy letter, permit, engineering memo and SAR			
50.	Permit File Scanned into Keyfile			

APPENDIX J – PSD FLOWCHART

