

# Instructions for Attachment I PREVENTION OF SIGNIFICANT DETERIORATION (PSD) OF AIR QUALITY PROGRAM FORM

(Instructions for completing DEEP-NSR-APP-216)

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All applications for a permit to construct and operate a stationary source shall include the information listed in Regulations of Connecticut State Agencies (RCSA) Section 22a-174-3a(c). This attachment form shall be completed to fulfill the requirements of the PSD Program.

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Complete each form as appropriate. If a particular item does not apply enter "N/A" (not applicable). If additional space is needed to answer a question in the application, attach separate sheet(s) as necessary, clearly identifying the applicant name, form name and Part number.

Questions? Visit the [Air Permitting](#) web page or contact the Air Permitting Engineer of the Day at 860-424-4152 (between 8:30 AM and 4:30 PM, Monday through Friday).

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## Background

The Prevention of Significant Deterioration (PSD) of Air Quality Program applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the National Ambient Air Quality Standards (NAAQS). Under PSD, if a source is classified as a major source for any one pollutant then any pollutant (even the one that the source is not major for) with an actual emissions significant increase and a significant net emissions increase triggers PSD review.

A PSD review requires the following:

1. Installation of the Best Available Control Technology (BACT);
2. An air quality analysis;
3. An additional impact analysis; and
4. Public participation.

**Instructions for Completing Attachment I - Prevention of Significant Deterioration (PSD) of Air Quality Program Form (DEEP-NSR-APP-216)**

**Note:** This form is not required if Current Premises Potential Emissions and Proposed Allowable Emissions (from Part VII.B of *Attachment F: Premises Information Form - DEEP-NSR-APP-217*) from this project are each less than major source thresholds for each pollutant. (i.e. an existing minor premises adds a minor source which results in the premises becoming a new major source.)

*Applicant Name* – Provide the applicant name as previously indicated on the *Permit Application for Stationary Sources of Air Pollution* form (DEEP-NSR-APP-200).

## Part I: Applicability

### A. Project with Proposed Allowable Emissions Greater than Major Stationary Source Thresholds Located at an Existing Minor Stationary Source (Premises)

Indicate the pollutants for which the project will be classified as a major stationary source as indicated in Part VII.B of Attachment F. Check all that apply.

The project is subject to PSD review for each pollutant that was checked. Complete Part II of this form for all other pollutants.

**B. Any Project Located at an Existing Major Stationary Source (Premises)**

If the project is located at an existing major stationary source (prior to the subject equipment being permitted), complete *Attachment H: Major Modification Determination Form* (DEEP-NSR-APP-213) before completing this form.

Indicate the pollutants for which the project will be considered a major modification as indicated in Part V of Attachment H. Check all that apply.

The project is subject to PSD review for each pollutant that was checked. Complete Part II of this form for all other pollutants.

**Part II: Additional Pollutant PSD Applicability**

In addition to the pollutants indicated in Part I of this form, PSD review must be completed for every other pollutant that has total project emissions increase and a net emissions increase greater than the significant emission rate thresholds in [Table 3a\(k\)-1](#) of RCOSA section 22a-174-3a(k) even if the premises is not major for that pollutant.

**A. Total Project Emissions Increase**

*Project Emits Pollutant?* - Check the box if the project emits the pollutant listed.

*Total Project Proposed Potential Emissions* – Provide the proposed emission limit of the pollutant being evaluated in tons per year for the project being proposed. This value can be obtained from *Attachment E: Unit Emissions Form* (DEEP-NSR-APP-212).

*Total Project 2-yr Actual Emissions, if modification* – Provide the average of the actual emissions of the pollutant being evaluated, in tons per year, for the two year period immediately preceding the proposed

modification. For the purpose of this table, 2-yr actual emissions for a new unit are zero. If the most recent two year period was not selected as the representative two year period for actual emissions above, submit written justification for using a period other than the most recent two years of actual emissions as Attachment 216-A.

*Total Project Emissions Increase* - Provide the difference between the *Total Project Proposed Potential Emissions* and the *Total Project 2-yr Actual Emissions* for the project, in tons per year. For new sources this value will be the same as the *Total Project Proposed Potential Emissions*.

*Is Total Project Emissions Increase greater than the significant emission rate threshold?* – Indicate if the total project emissions increase for each pollutant reviewed is greater than the significant emission rate threshold for such pollutant.

If “No”, this pollutant *is not* subject to PSD Review and the PSD Review determination is complete for that pollutant.

If “Yes”, and the project is located at an existing minor stationary source, this pollutant *is* subject to PSD Review. Continue to Part III of the form for the subject pollutant.

If “Yes”, and the project is located at an existing major stationary source, continue to Parts II.B and C of the form for the subject pollutant.

*Attachment 216-A- The Total Project 2-yr Actual Emissions* must be based on actual emissions for the two years immediately preceding the proposed modification. New units would enter a “0” since they did not previously exist. If the most recent two year period was not selected as the representative two year period for actual emissions above, submit written justification for using a period other than the most recent two years of actual emissions as Attachment 216-A.

## B. Contemporaneous Creditable Emissions Increases and Decreases

**NOTE:** Emissions increases and decreases must be *creditable* and *enforceable* and are subject to review and approval by the DEEP.

To determine which emission changes are creditable, the following basic rules apply:

- An increase or decrease is creditable only if the relevant reviewing authority has not relied upon it in previously issuing a PSD permit and the permit is in effect when the increase from the proposed modification occurs. A reviewing authority "relies" on an increase or decrease when, after taking the increase or decrease into account, it concludes in issuing a PSD permit that a project would not cause or contribute to a violation of a PSD increment or ambient standard.
- For pollutants with PSD increments (i.e., SO<sub>2</sub>, particulate matter and NO<sub>x</sub>), an increase or decrease in actual emissions which occurs before the baseline date in an area is creditable only if it would be considered in calculating how much of an increment remains available for the pollutant in question. An example of this situation is a 39 tpy NO<sub>x</sub> emissions increase resulting from a new heater at a major source in 1987, prior to the NO<sub>x</sub> increment baseline date. Because these emissions do not affect the allowable PSD increment, they need not be considered in 1990 when the source proposes another unrelated project. The new emissions level for the heater (up to 39 tpy) would be adjusted downward to the old level (zero) in the accounting exercise. Likewise, decreases which occurred before the baseline date was triggered cannot be credited after the baseline date. Such reductions are included in the baseline concentration and

are not considered in calculating PSD increment consumption.

- A decrease is creditable only to the extent that it is "federally-enforceable" from the moment that the actual construction begins on the proposed modification to the source. The decrease must occur before the proposed emissions increase occurs. An increase occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period not to exceed 180 days.
- A decrease is creditable only to the extent that it has the same health and welfare significance as the proposed increase from the source.
- A source cannot take credit for a decrease that it has had to make, or will have to make, in order to bring an emissions unit into compliance.
- A source cannot take credit for an emissions reduction from potential emissions from an emissions unit which was permitted but never built or operated.

Provide the following information for *all* contemporaneous creditable emissions increases and decreases for each pollutant during the 5-year contemporaneous period as determined in Part II.

*Change Type* – Enter the type of change that caused or will cause an increase or decrease during the 5-year contemporaneous period. The change types are explained below:

NEW	New unit added. Includes new units that obtained an individual permit, new units that were added and are operating under a permit
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by rule regulation in RCSA §§22a-174-3b, -3c, or -3d or a new unit that was added that did not meet permit applicability under RCSA 22a-174-3a.

- MOD Modification of an existing unit. This includes any unit which triggered a modification.
- REM Removal of a Unit. This includes any unit that was removed from the premises and where the removal will be federally enforceable on and after the date that construction begins on the proposed project. The actual reduction must take place before the date that the emissions increase from any of the new or modified emissions units occurs. (i.e. license revocation)
- PBR Permit by Rule Conversion. This includes any unit which was previously covered by an individual permit or registration and such license was revoked to allow the source to operate under a permit by rule in RCSA §§22a-174-3b, -3c, or -3d.
- DB De-Bottlenecked Units. This includes any existing unit which, as a result of the installation of the proposed project will increase its actual emissions.

*Equipment Description* - Provide the description for each unit that has been added or modified at the premises during the 5-year contemporaneous period determined in Part II of *Attachment H: Major Modification Determination Form* and resulted in an emissions increase or decrease of the pollutant being evaluated. Do not include the proposed project for which this permit application is being submitted. List the equipment description from the permit. For other

equipment, include the unit type, manufacturer and model number.

*License or Regulation No.* - If the unit holds, or once held a license (permit or registration) indicate the license number here. If the unit is permitted, indicate “P” and provide the permit number. If the unit is a registered source, indicate “R” and provide the registration number. If the unit is operating under a regulation, list the regulation. If the unit does not meet applicability under RCSA §22a-174-3a, then indicate “N/A”. Examples: P 100-0043; RCSA §22a-174-3b(e).

*Date of Change* - Provide the date of the specified change during the 5-year contemporaneous period as follows:

- NEW Date license issued or date unit began operation for unpermitted sources.
- MOD Date of modification to an existing unit.
- REM Date license was revoked.
- PBR Date license was revoked in order for the source to operate under a permit by rule.
- DB Date de-bottlenecked units will increase actual emissions due to operation of proposed project.

*Pollutant* - Enter the pollutants that were answered “yes” in Part II.A of this form.

*New Actual Emissions (New ACT)* - Provide the new actual emissions immediately after the *Date of Change* for each change during the 5-year contemporaneous period as follows:

- NEW New ACT emissions immediately after the *Date of Change* are the unit's potential to emit or allowable emissions, if operating under a permit or regulation.
- MOD, PBR New ACT emissions immediately after the *Date of Change* are the unit's new potential to emit or allowable emissions, if operating under a permit or regulation, due to the change.
- REM New ACT emissions immediately after the *Date of Change* are "0" since the unit's license was revoked.
- DB New ACT emissions immediately after the *Date of Change* are the unit's expected actual emissions due to the installation of the proposed project.

*2-yr Actual Emissions (2-yr ACT)* - Provide the baseline 2-year actual average emissions prior to the *Date of Change* for each change during the 5-year contemporaneous period as follows:

- NEW 2-yr ACT emissions prior to the *Date of Change* are "0" since the unit did not exist prior to the date of change.
- MOD, REM, PBR, DB 2-yr ACT emissions prior to the *Date of Change* are the average emissions for the specified pollutant over the most recent 24 month period. If the unit being changed is a new unit with less than 24 months of actual emissions, the 2-yr ACT emissions shall be the unit's potential emissions or permit allowable, if permitted.

Note: For a unit which was added and then removed within the same contemporaneous period, the 2-yr ACT emissions prior to the date of removal shall be the unit's potential to emit or permit allowable, if permitted. This results in a net increase of "0" for the unit being added then removed during the same contemporaneous period.

*Totals* – Total both the New ACT and 2-yr ACT columns for each pollutant.

*Total Contemporaneous Increases/Decreases* - Provide the difference between the New ACT and 2-yr ACT emissions in tons per year (tpy) for each pollutant.

*Attachment 216-B* - The 2-yr ACT emissions for each unit listed in Part II.B must be based on the average actual emissions for the two years immediately preceding the change. New units would enter a "0" since they did not previously exist. If the most recent two year period was not selected as the representative two year period for actual emissions for any changed unit, check here and submit written justification for using a period other than two years of actual emissions immediately preceding the date of change as Attachment 213-B.

### C. Emissions Summation

*Pollutant* - Enter the pollutants that were answered "yes" in Part II.A of this form.

*Total Project Emissions Increase* – Provide the total project emissions increase from Part II.A of this form.

*Total Contemporaneous Increases/Decreases* – Provide the total contemporaneous increases/decreases from Part II.B of this form.

*Net Emissions Increase* – Calculate the net emissions increase by adding the Total Project Emission Increase value to the Total Contemporaneous Increases/Decreases value.

*Significant Emissions Rate Threshold* – Provide the significant emissions rate threshold from Part II.A of this form.

*Is Net Emissions Increase equal to or greater than Significant Emission Rate Threshold?* – Indicate if the net emissions increase value is equal to or greater than the significant emission rate threshold for the pollutant.

If “No”, this pollutant *is not* subject to PSD review and the PSD review determination is complete for this pollutant.

If “Yes”, This pollutant is subject to PSD review. Continue to Part III.

### **Part III: Attachments**

All listed Attachments are **REQUIRED** for each pollutant subject to PSD review as indicated in Parts I and II of this form.

**Attachment 216-C: Best Available Control Technology (BACT) Determination**  
[RCSA sections 22a-174-3a(k)(4); -3a(k)(8)(A)(v)]

Submit a BACT analysis. The owner or operator of any source subject to PSD shall install BACT as approved by the commissioner. Please complete *Attachment G: BACT Determination Form* (DEEP-NSR-APP-214) and attach it as Attachment 216-B.

Include a detailed description as to what system of continuous emission reduction is planned for the subject source or modification, emission estimates, or any other information necessary to demonstrate that BACT will be applied.

### **Attachments 216-D - F: Air Quality Analysis**

The main purpose of the air quality analysis is to demonstrate that new emissions emitted from a new major stationary source or major modification, in conjunction with other applicable emissions increases and decreases from existing sources, will not cause or

contribute to the violation of any applicable NAAQS or PSD increment. Ambient impacts of non-criteria pollutants must also be evaluated.

Generally, the analysis will involve the following:

- an assessment of existing air quality, which may include ambient monitoring data and air quality dispersion modeling results, and
- predictions, using dispersion modeling, of ambient concentrations that will result from the applicant’s proposed project and future growth associated with the project.

Dispersion models are the primary tools used in the air quality analysis. These models estimate the ambient concentrations that will result from the PSD applicant’s proposed emissions in combination with emission from existing sources. The estimated total concentrations are used to demonstrate compliance with any applicable NAAQS or PSD increment.

**Attachment 216-D: Ambient Monitoring Analysis**  
[RCSA section 22a-174-3a(k)(5)]

Submit an analysis of the effect on ambient air quality in the area of the subject source or modification for pollutants that have allowable emissions in excess of the amount listed in Table 3a(k)-1 of RCSA section 22a-174-3a(k)-1 *or* those listed in RCSA section 22a-174-24. The analysis shall meet the requirements of RCSA section 22a-174-3a(k)(5).

The PSD regulations contain provisions requiring an applicant to provide an ambient air quality analysis which may include pre-application monitoring data, and in some instances post-construction monitoring data, for any pollutant proposed to be emitted in significant amounts by the new source or modification.

In the absence of available monitoring data which is representative of the area of concern, this requirement could involve the operation of a site-specific air quality monitoring network by the applicant. Also, the need for meteorological data, for any dispersion modeling that must be performed, could entail the applicant's operation of a site specific meteorological network.

**Attachment 216-E: Source Impact Analysis**  
[RCSA section 22a-174-3a(k)(6)]

Submit a source impact analysis of the effects on ambient air quality in the area of the subject source or modification for pollutants that will have an impact on air quality equal or greater than any amount listed in Table 3a(i)-1 of RCSA section 22a-174-3a(i) or any applicable maximum allowable increase above baseline concentration established in Table 3a(k)-2 of RCSA section 22a-174-3a(k). The analysis shall meet the requirements of RCSA section 22a-174-3a(k)(6).

PSD increment is the amount of pollution an area is allowed to increase. The NAAQS is a maximum allowable concentration "ceiling." PSD increments prevent the air quality in clean areas from deteriorating to the level set by the NAAQS. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable PSD increment. It is important to note, however, that the air quality cannot deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed.

Include calculations of the increase, above the baseline concentration, in ambient concentrations of pollutants to be expected from the new major stationary source or major modification.

**Attachment 216-F: Ambient Air Quality Analysis**  
[RCSA section 22a-174-3a(k)(7)]

Submit an ambient air quality analysis using applicable air quality models, databases or other techniques approved by the commissioner. The ambient air quality analysis shall be performed for the pollutants listed in Table 3a(k)-1 of RCSA section 22a-174-3a(k).

**Attachments 216-G - J: Additional Source Information**

This analysis assesses the impact of air, ground and water pollution on soils, vegetation, and visibility caused by an increase in emissions of any regulated pollutant from the source or modification under review, and from associated growth. Associated growth is industrial, commercial, and residential growth that will occur in the area due to the source.

Although each applicant for a PSD permit must perform an additional impacts analysis, the depth of the analysis generally will depend on existing air quality, the quantity of emissions, and the sensitivity of local soils, vegetation, and visibility in the source's impact area. It is important that the analysis fully document all sources of information, underlying assumptions, and any agreements made as a part of the analysis.

**Attachment 216-G: Visibility, Soils, Vegetation and Growth Analysis**  
[RCSA section 22a-174-3a(k)(8)(A)(i)]

Submit an analysis of the impairment to visibility, soils, and vegetation that would result from construction and operation of the subject source or modification, and an analysis of the general commercial, residential, industrial and other associated growth.

*Visibility*

In the visibility analysis, the applicant is especially concerned with impacts that occur within the area affected by applicable emissions. Note that the visibility analysis required here is distinct from the Class I area visibility analysis requirement. The suggested components of a good visibility impairment analysis are:

- a determination of the visual quality of the area,
- an initial screening of emission sources to assess the possibility of visibility impairment, and
- if warranted, a more in-depth analysis involving computer models.

#### *Soils and Vegetation*

The analysis of soil and vegetation air pollution impacts should be based on an inventory of the soil and vegetation types found in the impact area. This inventory should include all vegetation with any commercial or recreational value, and may be available from conservation groups, State agencies, and universities.

For most types of soil and vegetation, ambient concentrations of criteria pollutants below the secondary national ambient air quality standards will not result in harmful effects. However, there are sensitive vegetation species which may be harmed by long term exposure to low ambient air concentrations of regulated pollutants for which there are no NAAQS.

The applicant does not need to provide an analysis of the impact on vegetation having no significant commercial or residential value.

#### *Growth*

The growth analysis needs to assess the availability of residential, commercial, and industrial services existing in the area. The applicant should predict how much new growth is likely to occur to support the

source or modification under review. The amount of residential growth will depend on the size of the available work force, the number of new employees, and the availability of housing in the area. Industrial growth is growth in those industries providing goods and services, maintenance facilities, and other large industries necessary for the operation of the source or modification under review. Excluded from consideration, as associated sources, are mobile sources and temporary sources.

#### **Attachment 216-H: Growth and Ambient Air Impact Analysis**

[RCSA section 22a-174-3a(k)(8)(A)(ii)]

Submit an analysis of the ambient air quality impact projected for the area as a result of the general commercial, residential, industrial, and other growth associated with the subject source or modification.

The applicant develops an estimate of the secondary air pollutant emissions which would likely result from the permanent residential, commercial and industrial growth analysis conducted above. The applicant should generate emissions estimates by consulting sources such as manufacturer's specifications and guidelines, AP-42, other PSD applications, and comparisons with existing sources.

The applicant next combines the secondary air pollutant emissions estimates for the associated growth with the estimates of emissions that are expected to be produced directly by the proposed source or modification. The combined estimate serves as the input to the air quality modeling analysis, and the result is a prediction of the ground-level concentration of pollutants generated by the source and any associated growth.

**Attachment 216-I: *Project Description and Operating Schedule***

[RCSA section 22a-174-3a(k)(8)(A)(iii)]

Submit a project description and operating schedule that includes a description of the nature, location, design capacity and typical operating schedule of the subject source or modification, including specifications and drawings showing its design and plant layout.

**Attachment 216-J: *Construction Schedule***

[RCSA section 22a-174-3a(k)(8)(A)(iv)]

Submit a detailed construction schedule for the subject source or modification.

**Additional Information**

[DEEP Air Permits Website](#)

[DEEP Air Permit Modeling Information](#)

[EPA NSR Workshop Manual](#)