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

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 DEEP.BAM.AirPermits@ct.gov or 860-424-4152 (between 8:30 AM and 4:30 PM, Monday through Friday).

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). Any source classified as a new major source with significant actual emissions of any pollutant emitted or a major modification with significant actual emissions and a significant net emissions increase of any pollutant emitted 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. Is this project a new major stationary source for any attainment pollutants?

If the project is for a new source with proposed emissions in excess of the major source thresholds for the area in which the source is to be located, select "yes" in response to this question. If proposed emissions are below major source thresholds, select "no".

B. Is this project a major modification to an existing major stationary source for any attainment pollutant?

Complete the *Major Modification Determination Form (DEEP-NSR-APP-213)* to determine if the proposed project is a major modification. Based on the outcome, select "yes" or "no" in response to this question.

C. **Indicate the pollutants for which project emissions exceed the significant emission rate thresholds. (Check all that apply.)**

Select any and all pollutants from the table that are emitted from the proposed project and indicate the proposed emissions for each selected pollutant.

For a new source, the proposed emission for each pollutant will be the same as was indicated in Part VII.B of the *Premises Information Form (DEEP-NSR-APP-217)*. For each pollutant where the proposed project emissions is greater than the associated significant emission rate threshold indicated in the table in Part I.B of the PSD form, select yes in column four of table for said pollutant. If not, select no.

D. Indicate the pollutants for which net emissions increase, as indicated by completing the Major Modification Determination Form (DEEP-NSR-APP-213), exceeds the significant emission rate thresholds. (Check all that apply.)

For any pollutant emitted from the proposed project indicate its net emissions increase for the premises. The net emissions increase for each pollutant can be obtained from Part III of the *Major Modification Determination Form (DEEP-NSR-APP-213)*.

For each pollutant where the net emissions increase is greater than the associated significant emission rate threshold indicated in the table in Part I.D of the PSD form, select yes in column four of the table for said pollutant. If not, select no.

CO_2e net emissions increase will need to be independently determined as it was not required or calculated on the *Major Modification Determination Form (DEEP-NSR-APP-213)*

For a new source, the project is subject to PSD review for each pollutant that was checked "yes" in column four of the table in Part I.C.

For a modification, the project is subject to PSD review for each pollutant that was checked "yes" in column four of the table in Part I.C and Part I.D.

For CO_2e, PSD review is only required if the project also emits one or more other pollutants listed in the table, in excess of the specified thresholds.

If no pollutants were checked "yes" in Part I.C or Part 1.D, then the proposed project is not subject to PSD review. If pollutants were checked yes, proceed to Part II of the form.

Part II: Attachments

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

Attachment 216-A: *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-A.

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-B - D: *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, 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-B: *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-C: *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 level of increase in pollution allowed for an area. 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-D: *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-E - H: *Additional Source Information*

These analyses 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-E: *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-F: *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-G: *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-H: *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