

	<b>AIR QUALITY DIVISION POLICY AND PROCEDURE</b>		DEPARTMENT OF ENVIRONMENTAL QUALITY
Original Effective Date: <b>DRAFT – February 20, 2013</b>	Subject: Dispersion Modeling Guidance for Criteria Pollutants		Category:
Revised Date: NA	Program Name: Air Permits to Install		<input type="checkbox"/> Internal/Administrative <input checked="" type="checkbox"/> External/Non-Interpretive
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*A Department of Environmental Quality (DEQ) Policy and Procedure cannot establish regulatory requirements for parties outside of the DEQ. This document provides direction to DEQ staff regarding the implementation of rules and laws administered by the DEQ. It is merely explanatory; does not affect the rights of, or procedures and practices available to, the public; and does not have the force and effect of law.*

**INTRODUCTION:**

This policy and procedure discusses the federal and state statutory and regulation-based requirements to assure compliance with the National Ambient Air Quality Standards (NAAQS) and the Prevention of Significant Deterioration (PSD) increments in all instances when evaluating New Source Review (NSR) applications. It is the experience of the Air Quality Division (AQD) that there are situations when it is not necessary to perform dispersion modeling to conclude that these requirements are met. Those situations are also delineated in this policy.

In order for a permit application to be approved, compliance with the NAAQS and the full PSD increment must be demonstrated to the satisfaction of the AQD for each new or modified source of emissions. Based on AQD experience, dispersion modeling for regulatory purposes may not be necessary for cases where the allowable emissions are a) between 100% and 50% of the significant emissions threshold and the associated stacks are discharging unobstructed vertically, at a minimum height of 60 feet and 1.5 times the building height, or b) less than 50% of the significant emissions threshold and the associated stacks are discharging unobstructed vertically, at a minimum height of 40 feet and 1.5 times the building height.

This guidance applies to the evaluation of criteria pollutants only and all previous guidance regarding the need to perform dispersion modeling of criteria pollutants as part of a permit to install evaluation, as well as the 80% increment consumption demonstration, is hereby rescinded.

**AUTHORITY:**

The requirement to demonstrate compliance with the NAAQS and the full PSD Increment are found in the Clean Air Act, federal rules, and state rules. The following discussion outlines this regulatory basis. For clarity, the pertinent part of the regulatory language is shown in italics.

Clean Air Act, Title I – Air Pollution Prevention and Control.

Subpart 1.

*Sec. 110. Implementation plans*

*(a)(1) Each State shall, after reasonable notice and public hearings, adopt and submit to the Administrator, within 3 years (or such shorter period as the Administrator may prescribe) after the promulgation of a national primary ambient air quality standard (or any revision thereof) under section 109 of this title for any air pollutant, a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State. ...*

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*(2) Each implementation plan submitted by a State under this Act shall be adopted by the State after reasonable notice and public hearing. Each such plan shall—*

*(A) .....*

*(C) include ... regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D;*

*(D) contain adequate provisions—*

*(i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will—*

*(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or*

*(II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility,*

*(ii) insuring compliance with the applicable requirements of sections 126 and 115 (relating to interstate and international pollution abatement); ...*

*(K) provide for—*

*(i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and*

*(ii) the submission, upon request, of data related to such air quality modeling to the Administrator; ...*

*Part C – Prevention of Significant Deterioration of Air Quality*

*Sec. 160. Purposes*

*The purposes of this part are as follows:*

*(1) to protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipated to occur from air pollution or from exposures to pollutants in other media, which pollutants originate as emissions to the ambient air, notwithstanding attainment and maintenance of all national ambient air quality standards; ...*

*Sec. 161. Plan Requirements*

*In accordance with the policy of section 101(b)(1), each applicable implementation plan shall contain emission limitations and such other measures as may be necessary, as determined under regulations promulgated under this part, to prevent significant deterioration of air quality in each region (or portion thereof) designated pursuant to section 107 as attainment or unclassifiable.*

To this end, states develop implementation plans to prevent significant deterioration of air quality. The requirements for preparation, adoption, and submittal of these implementation plans are in the Code of Federal Regulations, Title 40 – Protection of Environment, Part 51, Section 51.160 (40 CFR 51.160) and Section 51.166 (40 CFR 51.166).

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*51.160 Legally enforceable procedures.*

*(a) Each plan must set forth legally enforceable procedures that enable the State or local agency to determine whether the construction or modification of a facility, building, structure or installation, or combination of these will result in-- ...*

*(2) Interference with attainment or maintenance of a national standard in the State in which the proposed source (or modification) is located or in a neighboring State.*

*(b) Such procedures must include means by which the State or local agency responsible for final decisionmaking on an application for approval to construct or modify will prevent such construction or modification if-- ...*

*(2) It will interfere with the attainment or maintenance of a national standard.*

Similarly, Section 51.166 requires State plans to prevent exceedance of air increments and the national standards. The requirements of 40 CFR 51.166 are now part of Michigan Air Pollution Control Rules - Part 18. Prevention of Significant Deterioration.

The Michigan Air Pollution Control Rules contain the following requirements to protect the air quality standards.

*R 336.1207 Denial of Permits to Install.*

*Rule 207. (1) The department shall deny an application for a permit to install if, in the judgment of the department, any of the following conditions exist:*

*(a) The equipment for which the permit is sought will not operate in compliance with the rules of the department or state law.*

*(b) Operation of the equipment for which the permit is sought will interfere with the attainment or maintenance of the air quality standard for any air contaminant*

*(c) The equipment for which the permit is sought will violate the applicable requirements of the clean air act, as amended, 42 U.S.C. §7401 et seq., ...*

*R 336.2811 Source impact analysis.*

*Rule 1811. The owner or operator of the proposed major source or major modification shall demonstrate that allowable emission increases from the proposed major source or major modification, in conjunction with all other applicable emissions increases or reduction, including secondary emissions, shall not cause or contribute to air pollution in violation of either of the following:*

*(a) Any national ambient air quality standard in any air quality control region.*

*(b) Any applicable maximum allowable increase over the baseline concentration in any area.*

**DISCUSSION**

Air Permits to Install are issued by the AQD for major and minor sources. All sources, whether major or minor, cannot interfere with the attainment or maintenance of the air quality standard for any air contaminant as part of Michigan's attainment program. All new major or minor increases in emissions cannot cause or contribute to a violation of the air increments. This means that the state has the responsibility and obligation to prevent significant deterioration of air quality in all areas of the state designated as either attainment or unclassifiable, regardless of whether the source is major or minor. This

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is accomplished in the review of permit applications for all sources, major and minor, through dispersion modeling to determine ambient air impacts from the proposed facilities.

All emission increases and decreases in an area after the minor source baseline date affect the available increment. Although increment is a PSD requirement and PSD is commonly connected only with major sources and major modifications, all emission increases, including those from new minor sources, the increases in actual emissions from existing sources, and even secondary emissions, consume increment.

The significant emission thresholds for air contaminants which are subject to a NAAQS are defined in the federal and state PSD regulations. The purpose of these thresholds is to determine when a proposed modification at a source is subject to the major source PSD requirements.

**POLICY:**

All sources in Michigan, major or minor, for which an Air Permit to Install is sought for the installation and operation of an emission unit or units (the project) cannot interfere with the attainment or maintenance of an air quality standard or air increments for any air contaminant.

Permit applications for projects with either new emission units or the modification of existing emission units that are subject to Part 18 (R 336.1801 et. seq.) must include a demonstration through dispersion modeling that the air quality standards (the NAAQS and 100% of the PSD increment) are protected.

Permit applications for minor sources also must demonstrate that the air quality standards and air increments are protected. There are numerous reasons why modeling would be needed for the review of a project that is not a major source or a major modification, and with allowable emissions increases that are not greater than significant thresholds. Examples of situations where dispersion modeling may be needed include:

- Poor dispersion characteristics due to building or stack design or area topography. (e.g., non-vertical discharges, obstructions such as raincaps, stack heights less than 1.5 times the building height, changes in stack parameters that degrade dispersion characteristics.)
- Close proximity of sensitive populations such as hospitals and schools.
- Knowledge of an existing or potential NAAQS or PSD increment problem in the area.
- High background concentration where a minor impact could trigger a NAAQS violation.
- High short-term (hourly) emission rates in relation to the annual emissions.
- Short averaging times for a NAAQS.
- Modeling results for other similar sources.

However, based on the AQD experience, dispersion modeling for regulatory purposes may not be required if the emissions are small and there is sufficient stack height to minimize downwash on nearby buildings. Dispersion modeling may not be necessary in the following situations:

- Cases where the allowable emissions are between 100% and 50% of the significant emissions threshold and the associated stacks are discharging unobstructed vertically, at both a minimum height of 60 feet and 1.5 times the building height;
- Cases where the allowable emissions are less than 50% of the significant emissions threshold and the associated stacks discharging unobstructed vertically, at both a minimum height of 40 feet and 1.5 times the building height; and

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- For an existing source that is not triggering a major modification and is not increasing its allowable emission limits, a qualitative analysis as opposed to a modeling analysis may also be used. An example of this would be a source that is replacing a particulate control device with an equivalent or better control device where the impact on air quality is improved.

**PROCEDURES:**

As part of the normal permit application submittal process an application for permit is received by the AQD. Prior to submittal, an applicant is encouraged to participate in a pre-application meeting where, among other things, modeling requirements are discussed. If the application is for a project that is subject to major source review (i.e. PSD), the applicant is required to submit modeling with the initial application for those criteria pollutants that trigger major source requirements. Following is the procedure for all criteria pollutants not subject to major source requirements.

<u>Responsibility</u>	<u>Action</u>
Permit Engineer	<ol style="list-style-type: none"><li>1. As part of the technical completeness review, determine if:<ol style="list-style-type: none"><li>a. The emissions are greater than the significant thresholds.</li><li>b. There are specific dispersion concerns at the site.</li><li>c. The stack height and emission rates meet the criteria of this procedure and allow a streamlined review.</li></ol></li><li>2. If the project does not meet any of the criteria in Item 1, inform applicant that a qualitative analysis or dispersion modeling is required.</li></ol>
Applicant	<ol style="list-style-type: none"><li>1. Submit qualitative analysis, or submit dispersion modeling.</li></ol>

If questions arise on whether dispersion modeling should be performed, the permit reviewer should discuss this with their unit supervisor or peer reviewer. The results of which should be conveyed to the applicant during the additional information request step of the Permit Review Process.

**REFERENCES:**

Alabama Power Co. v. Costle 636 F. 2d 323, 362 (DC Cir 1979)

PERMIT SECTION SUPERVISOR APPROVAL:

\_\_\_\_\_  
Mary Ann Dolehanty, Permit Section Supervisor

\_\_\_\_\_  
Date