AIR QUALITY DIVISION POLICY AND PROCEDURE

AQD-022: Dispersion Modeling Guidance for Federally Regulated Pollutants

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ISSUE

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 during the review and evaluation of Permit to Install (PTI) applications. As part of the PTI application approval process, a determination that the project will not interfere with the NAAQS and the PSD Increment must be made. This is true for both major sources and minor sources.

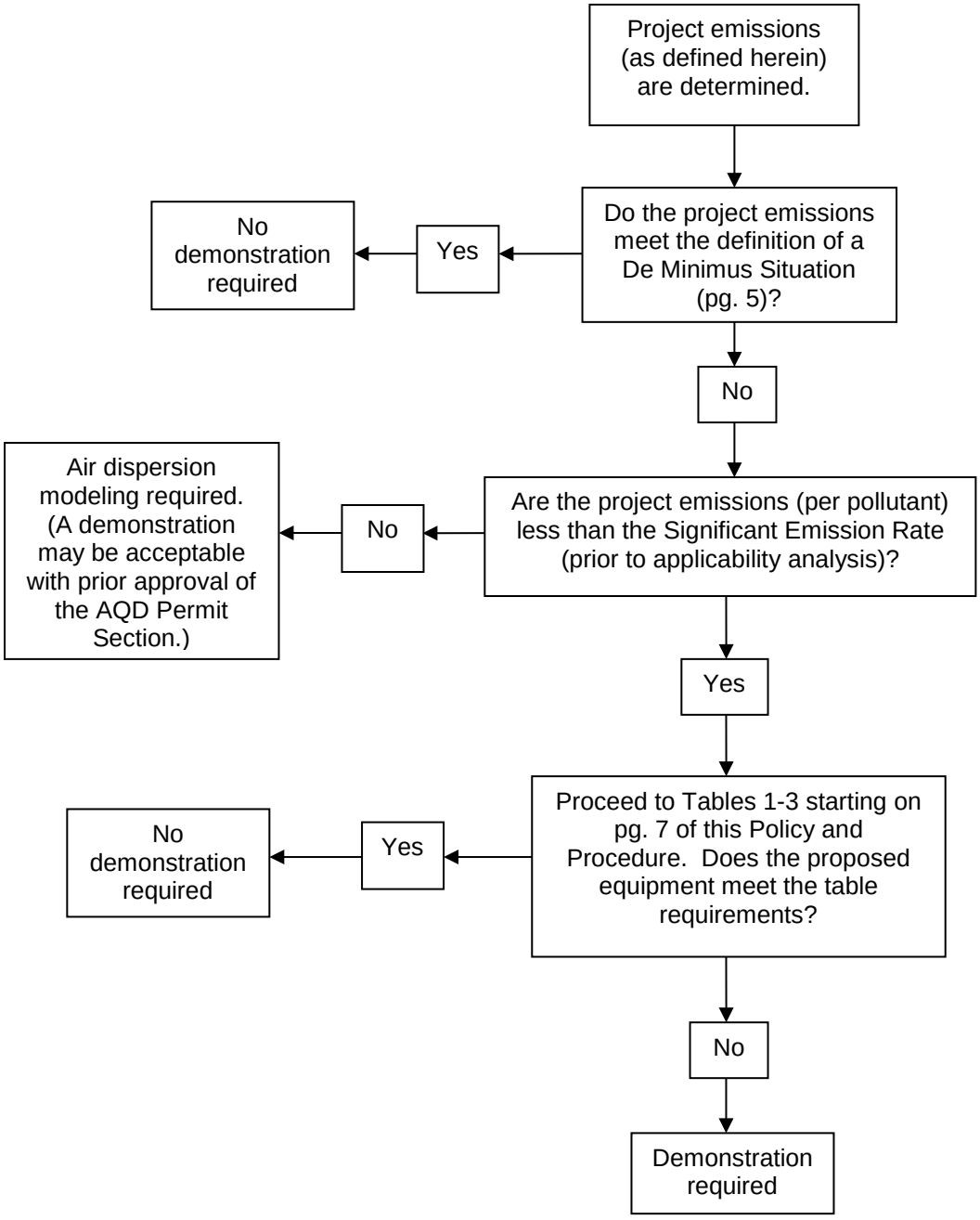
Major sources and major modifications at existing major sources in attainment areas are subject to PSD and are required to demonstrate that the project will not cause a violation of the NAAQS or PSD Increment for applicable pollutants. This demonstration is done through dispersion modeling.

New minor sources and minor modifications at existing sources, with post-project allowable emissions less than the significant emission rates (SER), would typically be assumed to not cause a violation of the NAAQS or an exceedance of PSD Increment. However, it is the experience of the Air Quality Division (AQD) staff that there are situations when it may be necessary to perform a demonstration to confirm these assumptions.

This guidance applies, on a pollutant by pollutant basis, to the evaluation of regulated new source review (NSR) pollutants only. All previous guidance regarding the need to perform dispersion modeling of regulated NSR pollutants, as part of a PTI evaluation, as well as the 80 percent increment consumption demonstration is hereby rescinded.

The requirement to demonstrate compliance with the NAAQS and the PSD Increment is found in the Clean Air Act (CAA) and federal and state rules. The AQD has an obligation to ensure the protection of the air quality standards as outlined in the Michigan Air Pollution Control Rules; specifically Rule 207 and Rule 1811. The discussion outlining this regulatory basis can be found in Appendix A. The pertinent part of the regulatory language is shown in italics.

Below you will find a decision tree to help work your way through this Policy and Procedure. Please keep in mind that this procedure should be used on a pollutant by pollutant basis unless otherwise defined for the De Minimus Situations.



DEFINITIONS

The following terms and definitions apply within this Policy and Procedure document.

Allowable Emissions

The emission rate calculated using the maximum rated capacity of the process or process equipment, unless there are legally enforceable limits that restrict the operating rate or the hours of operation, or both, and the most stringent of the following:

(i) Any applicable standards pursuant to the CAA.

(ii) Any applicable emission limit specified in the Michigan Air Pollution Control Rules, including a limit that has a future compliance date.

(iii) Any applicable emission rate specified as a legally enforceable permit condition or voluntary agreement, performance contract, stipulation, or order of the DEQ, including a rate that has a future compliance date or a rate proposed as an applicable emission limit in the permit application.

Demonstration

Air dispersion modeling or an acceptable qualitative assessment.

Fugitive Emissions

Those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

Major Source

Stationary sources that have the potential to emit 250 tons per year or more of a regulated NSR pollutant or, if they fall into one of the 26 source categories listed in R 336.2801(cc), have the potential to emit 100 tons per year or more of a regulated NSR pollutant.

Major Modification

A physical change in, or change in the method of, operation of an existing major stationary source that would result in both of the following:

(i) A significant emissions increase of a regulated NSR pollutant.

(ii) A significant net emissions increase of that pollutant from the major stationary source.

Minor Source

A stationary source that does not meet the definition of “major source.”

Minor Source Modification

A physical change in, or change in the method of, operation of an existing minor stationary source where the potential to emit, including the proposed project, remains below the applicable level (i.e., 100 or 250 tons per year) which would result in the stationary source being classified as a major source.

New Stationary Source

The siting and installation of a stationary source as defined in R 336.1119(r) where one did not previously exist. Also referred to as a greenfield site.

Non-major Pollutant

Any pollutant for which the potential to emit from a stationary source, including the proposed project, is below the applicable level (i.e., 100 or 250 tons per year) which would result in the stationary source being classified as a major source.

Project Emissions

The project emissions are associated with the installation and/or modification at the stationary source. Also, if a PSD applicability determination or PSD netting analysis is included in the application, the point at which you determine if a demonstration is required is the emissions increase prior to taking into account any decreases.

Significant Emission Rate (SER)

The significant emission rates are defined in R 336.2801(qq) and the more commonly modeled regulated NSR pollutants are summarized in the table below:

Regulated NSR Pollutant	Significant Emission Rate Tons per year (tpy)
Carbon Monoxide (CO)	100
Nitrogen Dioxide	40
Sulfur Dioxide (SO_2)	40
Particulate Matter ≤ 10 microns (PM10)	15
Particulate Matter ≤ 2.5 microns (PM2.5)	10
Lead*	0.6
*Lead will be evaluated on a case-by-case basis. If emissions are less than the SER, considerations would be made similar to those outlined in this guidance for other Regulated NSR Pollutants. If emissions are greater than SER or subject to PSD, the default will be to conduct air dispersion modeling. Communication with the AQD prior to submittal of a permit application is highly recommended.	

POLICY

The AQD evaluates and issues PTIs for both major and minor sources. All sources going through the PTI process, whether major or minor, shall not interfere with the attainment or maintenance of the air quality standard for any regulated NSR pollutant as part of Michigan's attainment program. Additionally, increases in emissions cannot cause or contribute to an exceedance of the PSD Increment. All changes in emissions occurring 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 consume increment. 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.

The SER for regulated NSR pollutants subject to a NAAQS are defined in the federal and state PSD regulations as identified in Michigan's Air Pollution Control Rules, Part 18, R 336.2801 (Rule 1801). The purpose of the SER is to determine when a proposed modification at a source is subject to the major source PSD requirements. A PTI application that is for a project (see definition of 'project' above) with either new emission units or the modification of existing emission units that are subject to Part 18 (Rule 1801 et. seq.) must include a demonstration, through dispersion modeling, that the air quality standards (the NAAQS and PSD Increment) are protected for those regulated NSR pollutant emissions increases that exceed their SER. For PTI applications involving proposed projects where the emissions are less than the SER, regardless of the source size, the AQD must also determine that the emissions will comply with the NAAQS and PSD Increment. How this determination is made is outlined in this guidance document.

The following is the AQD's policy regarding air dispersion modeling for federally regulated pollutants. This policy follows the questions in the flowchart located in the Introduction section of this document. Please note that this is not an all-inclusive list, and if you have questions regarding how this policy applies to your project, please contact the AQD Permit Section for further discussion.

De Minimus Situations:

Do the project emissions meet the definition of a De Minimus Situation?

An owner or operator in the following situations that is applying for a PTI will not typically be required to conduct a qualitative analysis or a dispersion modeling analysis to demonstrate compliance with the PSD Increment and NAAQS.

These source modifications do not typically interfere with the maintenance of the NAAQS or compliance with PSD Increment. However, there may be circumstances when additional qualitative analysis or dispersion modeling of an emissions change less than the SER is appropriate, as discussed elsewhere in this document.

The following definitions apply to this section:

> *Minor SER Greenfield* – A new greenfield stationary source with total facility-wide potential to emit less than the respective SER for all regulated NSR pollutants. A *Minor SER Greenfield* could also be an existing structure where no process or equipment is currently located. (See Example 4)

Minor SER Modification – A minor modification at an existing stationary source with regulated NSR pollutant emissions less than the respective SER, and the total facility-wide emissions for each regulated NSR pollutant remain less than the SER after the project. (See Example 5)

Minor SER Modification of Non-Major Pollutant (NMP) – A minor SER modification of an NMP at an existing major PSD source is one where the project emissions of the NMP are less than the SER, and the emissions of the NMP remain less than the SER facility-wide after the project. Communication with the AQD prior to the submission of a PTI application with this situation is highly recommended. (See Example 6)

Tables 1, 2 and 3:

Are the project emissions (per pollutant) less than the Significant Emission Rate (prior to applicability analysis)?

For the situations below, Tables 1, 2, and 3 identify, on a regulated NSR pollutant basis, when a demonstration for regulatory purposes may not be required. The criteria are based on the allowable emissions of the specific pollutant, and the stack parameters for the project.

The stack parameters in the tables refer to point sources only. If there are fugitive emissions from the project, refer to the fugitive emissions discussion below. The following definitions apply to this section:

Minor SER Modification at an Existing Minor PSD Source

- Project emissions are less than the applicable SER and:
  - The total facility emissions become greater than the SER but remain less than the applicable PSD threshold. (See Example 7)
  - The total facility emissions are already greater than the SER but remain less than applicable PSD thresholds. (See Example 8)
  - The total facility emissions become greater than applicable PSD thresholds after the project. (See Example 9)

Minor SER Modification at an Existing Major PSD Source

- Project emissions of the NMP are less than the applicable SER and the total facility-wide emissions of that NMP are greater than the SER before or after the project. (See Example 10)
- Project emissions of the major pollutant are less than the applicable SER. (See Example 11)

If the project emission increase is greater than the SER, air dispersion modeling will be required as part of the permit application unless the applicant has received prior approval from the AQD that a qualitative assessment is appropriate. Communication with the AQD prior to the submission of a PTI application is highly recommended. (See Example 9)

To use the tables:

Each table should be used on a pollutant by pollutant basis to determine if a demonstration is necessary. First, determine the allowable emissions for the unit or units and see where it falls on the table. If the table requirements can be met, then a demonstration will not be required. If not, a demonstration will be required which can be air dispersion modeling or a qualitative assessment. Please note, that all the footnotes should be reviewed to decide what exceptions the proposed project may meet for the tables.

Table 1

Nitrogen Oxides (NO_x), SO_2 and PM10 NAAQS and PSD Increment and PM2.5* NAAQS

Allowable Emissions	Stack Requirements[1]	Demonstration Required[2]
Greater than SER	As necessary to meet NAAQS and PSD Increment	Y[3]
50%-100% of SER	Minimum height: 60 feet and 1.5 times the building height Orientation: Vertically unobstructed	N
	Minimum height: 30 feet Orientation: Vertically unobstructed Building: No Downwash[4]	N
25%-50% of SER	Minimum height: 40 feet and 1.5 times the building height Orientation: Vertically unobstructed	N
	Minimum height: 20 feet Orientation: Vertically unobstructed Building: No Downwash[4]	N
Less than 25% of SER	None	N

1. The minimum requirements for stack height, stack/building relationship, and vertically-emitting do not apply to other emission units within the project that, in total, contribute less than 20% of the overall project emissions increase on a pollutant basis. This includes intermittent sources such as a fire pump or emergency generator whose combined emissions contribute to less than 20% of the overall project emissions.
2. Unless otherwise deemed necessary as an exception to this Policy and Procedure or unless the applicant decides to submit a demonstration.
3. If the project emission increase is greater than the SER, air dispersion modeling will be required unless the applicant has received prior approval from the AQD that a qualitative assessment is appropriate.
4. This applies to stack emissions not influenced by buildings or other structures.

*For PM2.5, Table 1 applies only when PM2.5 Increment does not apply. Table 3 supersedes Table 1 for PM2.5 whenever PM2.5 Increment must be considered.

Table 2

CO NAAQS

Allowable Emissions	Stack Requirements	Demonstration Required
Greater than SER	As necessary to meet NAAQS and PSD Increment	Y[1]
Less than 100% of SER	None	N

1. If the project emission increase is greater than the SER, air dispersion modeling will be required unless the applicant has received prior approval from the AQD that a qualitative assessment is appropriate.

Table 3

PM2.5 NAAQS and PSD Increment, When PM2.5 PSD Increment Applies
(Supersedes Table 1 if PM2.5 PSD Increment review applies)

Allowable Emissions	Stack Requirements[1]	Demonstration Required[2]
Greater than SER	As necessary to meet PSD Increment	Y[3]
50%-100% of SER	As necessary to meet PSD Increment	Y
25%-50% of SER	Minimum height: 60 feet and 1.5 times the building height Orientation: Vertically unobstructed	N
	Minimum height: 40 feet Orientation: Vertically unobstructed Building: No Downwash[4]	N
Less than 25% of SER	Minimum height: 40 feet and 1.5 times the building height Orientation: Vertically unobstructed	N
	Minimum height: 30 feet Orientation: Vertically unobstructed Building: No Downwash[4]	N

1. The minimum requirements for stack height, stack/building relationship, and vertically-emitting do not apply to other emission units that, in total, contribute less than 20% of the overall project emissions increase on a pollutant basis. This includes intermittent sources, such as a fire pump or emergency generator whose combined emissions contribute less than 20% of the overall project emissions.
2. Unless otherwise deemed necessary as an exception to this Policy and Procedure or unless the applicant decides to submit a demonstration.
3. If the project emission increase is greater than the SER, air dispersion modeling will be required unless the applicant has received prior approval from the AQD that a qualitative assessment is appropriate.
4. This applies to stack emissions not influenced by buildings or other structures.

If the criteria in the tables above are not met, the applicant will submit to the AQD one of the following demonstrations:

- Dispersion modeling demonstrating that the proposed modification will not interfere with maintenance of the NAAQS or cause or contribute to an exceedance of the PSD Increment.
- A qualitative assessment supporting the conclusion that the proposed modification will not interfere with maintenance of the NAAQS or cause or contribute to an exceedance of the PSD Increment.

Qualitative Assessment:

A qualitative assessment is an evaluation of the emissions from a potential project that does not include air dispersion modeling, but instead includes a demonstration that the proposed emissions will not interfere with the NAAQS and/or the PSD Increment. This type of assessment may be appropriate in certain situations; however, discussion with the AQD prior to the submittal of this type of demonstration is highly recommended. Some situations that *may be* appropriate for the submittal of a qualitative assessment include, but are not limited to:

- The proposed emissions from the project do not increase above the current allowable emission limits and recent dispersion modeling (within the last three years) has been conducted at the facility.
- There has been no newly promulgated, or revised, standard since the last air dispersion modeling analysis was conducted.
- The proposed emissions from the project are no worse than the existing emissions at the facility, which were previously evaluated through air dispersion modeling.
- The project requests switching to a cleaner burning fuel, and the emissions will be less than currently allowed by permit.
- The project proposes the installation of control equipment which will reduce the emissions from currently allowed limits, and the stack parameters associated with the control equipment are similar to current stack parameters at the facility.

For an existing source that is not triggering a major PSD modification and the emissions are not greater than the SER, a qualitative air quality assessment may be used. For emissions greater than SER, a qualitative assessment may be considered with prior approval from the AQD. See Appendix B for examples where a qualitative assessment would be appropriate.

Items to consider in the air quality assessment are a narrative description of the current air quality conditions and the expected impact the permitted source would have on that air quality. Other factors to consider in the qualitative discussion include previous modeling results if available, meteorology, terrain, distance to ambient air, expected emissions increases and decreases and associated release characteristics, quality of data, etc.

If the qualitative assessment cannot demonstrate that no adverse impacts to air quality would be expected, a screening analysis should be performed next. Sources that cannot demonstrate protection of air quality using a screening technique should continue to refined modeling.

If upon review of the qualitative assessment, it is the AQD's judgment that additional air quality impact analyses are necessary to demonstrate that the proposed modification will not interfere with maintenance of the NAAQS or cause or contribute to an exceedance of a PSD Increment, the applicant will be required to conduct a dispersion modeling analysis.

Fugitive Emissions:

If fugitive emissions (as regulated pollutants) exist as either part of an overall project or as the entire project, they should be included in the emission calculations when determining if a modeling demonstration is required. A project that involves fugitive emissions should identify the level of fugitive emissions, the location of the fugitive emissions associated with the project, and any control strategy that will be used for those fugitive emissions in the discussion. It is suggested that the permit applicant contact the AQD to discuss the proposed project, and associated fugitive emissions, to determine if a demonstration is appropriate. This may be done at a pre-application meeting or conference call prior to the submittal of a permit application.

Additionally, when fugitive emissions (as regulated pollutants) are part of an overall project at a facility, consideration should be made that if the project by itself meets the requirements of any of the previous tables, where a modeling demonstration would not be required, the fugitive emissions alone may not necessarily require a demonstration.

EXCEPTIONS TO THE POLICY:

As discussed above, a determination that a proposed project will not interfere with the NAAQS and the PSD Increment must be made. There are numerous reasons why dispersion 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 less than the SER. 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.) (See Example 1)
- Close proximity of sensitive populations such as hospitals and schools.
- Knowledge of an existing or potential NAAQS or PSD Increment problem in the area, based on existing monitoring data or past modeling demonstrations.
- High background concentration where a minor impact could trigger a NAAQS violation.
- High short-term (hourly) emission rates in relation to the annual emissions.

If in the judgment of the AQD, based on the above, the source has potential to interfere with the maintenance of the NAAQS or to cause or contribute to an exceedance of the PSD Increment; the applicant may be required to submit a demonstration that the source will not have an adverse air quality impact.

PROCEDURE

Prior to the submittal of a permit application, the 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 regulated NSR pollutants that trigger major source requirements. Following is the procedure for all regulated NSR pollutants <u>not</u> subject to major source requirements:

Step	Who	Does What
1	Permit Engineer	As part of the technical completeness review: • Determine the category of the proposed project. • Conduct an evaluation of the proposed project and facility to determine whether a demonstration is required or whether the applicant has otherwise met the criteria in this policy. • Communicate with the applicant regarding their submittal and whether further information is necessary.
2	Applicant	If applicable, ensure that the criteria in Tables 1-3 are met or a demonstration is included as part of the application or provided upon request of the AQD.

LINKS TO ADDITIONAL INFORMATION

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

APPROVING AUTHORITY

Annette Switzer, Manager
Air Quality Division, Permit Section

HISTORY

Policy No.	Action	Date	Title
AQD-022	Original	2/12/2015	Dispersion Modeling Guidance for Federally Regulated Pollutants
AQD-022	Revised	11/30/2018	Dispersion Modeling Guidance for Federally Regulated Pollutants

CONTACT/UPDATE RESPONSIBILITY

Any questions or concerns regarding this policy and procedure should be directed to Annette Switzer, 517-284-6803 or switzera2@michigan.gov.

APPENDICES

Appendix A
Authority—Dispersion Modeling

The requirement to demonstrate compliance with the NAAQS and the full PSD Increment are found in the CAA, and federal 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. …

(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:

(b) to protect public health and welfare from any actual or potential adverse effect which in the Administrator's judgment may reasonably be anticipate 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).

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 R 336.2803 (Rule 1803) and R 336.2804 (Rule 1804).

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.

Appendix B
Modeling Scenario Examples

The following examples provide different scenarios to demonstrate how the modeling guidance may apply to the situation described. Please note that not all scenarios can be covered within this guidance document, and that those that are presented represent scenarios that are likely to be seen by Permit Section staff in the review of a PTI application. This Policy and Procedure document is intended to be applied on a case-by-case basis, and the examples discussed below do not represent the policy itself, but instead are intended to provide common situations which may be encountered. The AQD has a responsibility to make a determination that the NAAQS and PSD Increment are protected based on the individual application under review. Please contact the AQD if you have questions regarding this guidance document.

The following examples represent scenarios where no demonstration (dispersion modeling or a qualitative assessment) would typically be required.

Example 1:
(Refer to footnote 1 in Tables 1 and 3)

Facility X is planning to install five pieces of equipment—four boilers and one space heater. The total NO_x emissions from all five pieces of equipment are 30 tpy. The four boilers contribute 25 tons of the total 30 tons of NO_x and meet the stack requirements identified in the tables. The space heater contributes five tons to the project emissions but does not meet the stack requirements identified in the tables. While the total project emissions are 30 tpy for the purposes of evaluating the need to model, the space heater alone generates less than 20% of the total project emissions. The facility should not be required to perform dispersion modeling because the only stack that does not meet the requirements in the table(s) contributes only 16% to the project's emissions.

Example 2:
(Refer to Minor SER Greenfield)

Applicant proposes to construct a new stationary source at a greenfield site. The potential regulated pollutant emissions associated with the new source are less than the applicable SERs. Therefore, the requirement to submit a demonstration would not typically apply to the project, and the criteria in Tables 1 through 3 would not apply.

Example 3:
(Refer to Minor SER Modification)

Facility X is currently classified as an existing minor source. The facility proposes to add a new fuel for an existing boiler at the facility. The facility-wide pre-project allowable emissions for all regulated pollutants are below the applicable SERs. The new fuel is lower emitting for all pollutants on a short term and annual basis, and the post-project facility-wide allowable regulated pollutant emissions remain below the applicable SERs. Therefore, the requirement to submit a demonstration would not typically apply to the project, and the criteria in Tables 1 through 3 would not apply.

Example 4:
(Refer to Minor SER Modification of Non-Major Pollutant)

Facility X is currently classified as an existing major source because allowable volatile organic compounds (VOC) emissions are above the major source threshold. Facility-wide pre-project allowable emissions of all other regulated pollutants are below the applicable SERs. The facility proposes to install a new coating line that includes a gas-fired drying oven. With the exception of VOCs, the post-project allowable emissions for all regulated pollutants from the facility remain below the applicable SERs. Under this scenario, the applicant is not required to meet either the applicable Tables 1 through 3 requirements or submit a demonstration for any of the regulated pollutants associated with the project, since VOC emissions are not typically subject to modeling requirements and the allowable emissions of all other regulated pollutants remain less than the SERs.

Example 5:
(Refer to footnote 1 in Tables 1 and 3)

Facility X is classified as an existing major source. Facility-wide pre-project allowable regulated pollutant emissions are all above the applicable SERs. The facility proposes to install five pieces of equipment – four boilers and one space heater. The potential NO_x emissions from all five pieces of equipment are 30 tpy. The four boilers contribute 25 tons of the total 30 tons and meet the stack requirements identified in the tables. The space heater contributes five tons to the project emissions but does not meet the stack requirements identified in the tables. However, because the space heater alone generates less than 20% of the total project emissions, the project is still deemed to meet the Table 1 and 3 requirements and the space heater does not have to meet the stack requirements in the tables.

Example 6:

Facility X, which is comprised of five natural gas-fired combustion turbines used to generate electricity, is classified as an existing major source with allowable CO and NO_x emissions above the major source threshold (250 tpy). EUTURBINE5 is currently used as a peaking unit limited to 500 hours of operation per year with a current PTE for CO of 50 lbs/hr (without a limit in the permit), and PTI limits for NO_x of 50 lbs/hr and 12.5 tpy. Facility X proposes to increase the allowable operating hours of EUTURBINE5 to 1,400 hours per year and increase the NO_x emission limit to 35 tpy which is less than the SER. The PTE for CO will also be 35 tpy which is less than the applicable SER. Because there is no increase in potential or allowable hourly emissions of the regulated NSR pollutant, and project emissions are less than the SER, the requirement to submit a demonstration would not typically apply to the project, and the criteria in Tables 1 through 3 would not apply.

Example 7:

Facility X operates a coal fired furnace. The facility is an existing major source for SO_2 and NO_x. The facility proposes to convert the same furnace from coal to natural gas, exclusively. Because this project is designed to replace the use of coal or high sulfur oil, the requirement to submit a demonstration would not typically apply to the project, and the criteria in Tables 1 through 3 would not apply.

Example 8:

Facility X is an existing foundry that is proposing to replace a wet collector on their sand system with a baghouse (the project). The baghouse has a higher control efficiency than the existing wet collector and will therefore reduce the particulate emissions from this process to less than the applicable SERs. Since the existing control device is being replaced with a new more efficient control device, and the project emissions are less than the applicable SERs, the requirement to submit a demonstration would not typically apply to the project, and the criteria in Tables 1 through 3 would not apply.

The following examples represent scenarios where a demonstration may be required.

Example 9:
(Refer to Minor SER Modification at an Existing Minor Source)

Facility X is currently classified as an existing minor source. The facility-wide pre-project allowable emissions of all regulated pollutants are below the applicable SERs. The facility proposes to install a new natural gas-fired boiler. The new boiler has a potential to emit regulated pollutants less than the applicable SERs. However, facility-wide post-project emissions of NO_x will now be above the SER (though less than the major source threshold). Under this scenario, the applicant must either meet the applicable Tables 1 through 3 requirements or submit a demonstration for NO_x. Modeling of those regulated pollutants whose facility-wide post-project emissions remain less than the SERs would not typically be required.

Example 10:
(Refer to Minor SER Modification at an Existing Minor Source)

Facility X is currently classified as an existing minor source with allowable NO_x emissions of 249 tpy. The facility proposes to install a new natural gas-fired boiler that will have a potential to emit for NO_x less than the SER (40 tpy). The resultant facility-wide potential to emit for NO_x is now above the major source threshold. Although the project is not subject to PSD review, the applicant must either meet the applicable Tables 1 through 3 requirements or submit a demonstration for NO_x and any other regulated pollutants for which the facility-wide post-project emissions are now greater than the SERs. Modeling of those regulated pollutants whose facility-wide post-project emissions remain less than the SERs would not typically be required.

Example 11:
(Refer to Minor SER Modification at an Existing Major Source)

Facility X is currently classified as an existing major source with allowable VOC emissions above the major source threshold (250 tpy) and allowable emissions of all other regulated pollutants below the applicable SERs. The facility proposes to install a new coating line that includes a gas-fired drying oven. With the exception of VOCs and NO_x, facility-wide post-project allowable emissions of all regulated pollutants remain below the SERs. Under this scenario, the applicant must either meet the applicable Tables 1 through 3 requirements or submit a demonstration for the NO_x emissions. Modeling of those regulated pollutants whose facility-wide post-project emissions remain less than the SERs would not typically be required.

Example 12:
(Refer to Minor SER Modification at an Existing Major Source)

Facility X, which is comprised of various pieces of process equipment including fuel oil-fired boilers, is classified as an existing major source with allowable SO_2 and NO_x emissions above the major source threshold (250 tpy). The facility proposes to install one new natural gas-fired boiler and retire all existing fuel oil-fired boilers as part of the project. Potential emissions of all regulated pollutants due to the project are less than the applicable SERs. Under this scenario, the applicant must either meet the applicable Tables 1 through 3 requirements or submit a demonstration for NO_x and SO_2 emissions.

Example 13:
(Refer to Tables 1 through 3)

Facility X is currently classified as an existing major source. Facility-wide pre-project allowable regulated pollutant emissions are all above the applicable SERs. The facility proposes to install emissions controls on three existing boilers, and the post-project allowable regulated pollutant emissions from the boilers will remain greater than the SERs. The project is not subject to PSD review because there is no net emissions increase for the project. While the emission controls will result in emission reductions, the controls are expected to lower flue gas temperatures and entail additional material handling operations at the facility. Under this scenario, a demonstration is required because the allowable emissions from the existing boilers and new material handling operations are greater than one or more of the SERs. Additionally, with the change in flue gas temperature, the air dispersion characteristics of the flue gas have changed potentially altering the maximum impact.

The following examples represent scenarios where dispersion modeling would be required unless the applicant receives prior approval from the AQD that a qualitative analysis is acceptable.

Example 14:
(Refer to Exceptions to the Policy)

Facility X is an existing minor source and submits a permit application to add a new fuel for an existing boiler at their facility. The new fuel is lower emitting for all pollutants on a short term and annual basis. The current configuration at the facility is two stacks; the new configuration is one *shorter* stack. No new standards have been promulgated. Although the emissions will have decreased after the project, since the dispersion characteristics have been altered, modeling would be required to demonstrate that the regulated pollutant emissions will meet the applicable NAAQS and PSD Increment for this scenario.

Example 15:
(Refer to Tables 1 through 3)

Facility X is an existing PSD source that has boilers, coating lines, and numerous other pieces of process equipment. Facility X has two buildings which make up the stationary source. One building is located across the street from the main building. Facility X wants to install two new boilers in the building that is located across the street. The new boilers will each have an exhaust stack, but the stacks will be shorter than the stacks for the existing boilers which are located in the main building. The new boilers will burn a cleaner fuel which will generate lower emissions than the existing boilers, both on a short-term and long-term basis. Overall, the emissions will decrease from the stationary source, but the project (installing two new boilers) has emissions greater than the applicable SER. No new standards have been promulgated. In this scenario, modeling would be required. Although the overall emissions are decreasing from the stationary source (through netting), the emissions from the project (installing two new boilers) are above the SER, the new boiler stacks are shorter than the existing boiler stacks, and the new boilers are located in a different building than the existing boilers even though it is within the same stationary source.

Example 16:
(Refer to Minor SER Modification at an Existing Minor Source)

Facility X, which is an engine test cell facility, is currently classified as an existing minor source. The facility proposes to install a new engine test cell that will have its own dedicated exhaust stack (the "project"). The facility-wide pre-project allowable emissions of all regulated pollutants that may be emitted from the existing engine test cells are above the applicable SERs. The emissions increase of one or more regulated pollutants associated with the project are greater than the applicable SERs. Since the project involves the installation of new equipment with emission increases greater than the applicable SERs for the regulated pollutants along with a new exhaust stack that has not been evaluated previously, the applicant must submit dispersion modeling for those regulated pollutants whose project emissions are greater than the SERs, unless the applicant has received prior approval from the AQD that a qualitative assessment is appropriate (refer to page 5). Modeling of those regulated pollutants whose facility-wide post-project emissions are less than the SERs would not typically be required.

Example 17:
(Refer to tables 1 through 3)

Facility X is currently classified as an existing major source. Facility-wide pre-project allowable regulated pollutant emissions are all above the applicable SERs. The facility proposes to add a new fuel to an existing boiler, and the allowable emissions for the boiler (which aren't increasing as part of the project) are greater than the SER for NO_x. The new fuel is lower emitting for all pollutants on a short-term and annual basis, with associated permit limitations. All of the stack parameters remain the same for the emission unit, and no new standards have been promulgated. Under this scenario, dispersion modeling for NO_x is required as the allowable NO_x emissions for the boiler are greater than the SER and subject to PSD.