

PM_{2.5} Implementation Guidance for Increments, SILs and SMC October 14, 2011

Background

In October 2010, the U.S. Environmental Protection Agency (EPA) promulgated Increments, Significant Impact Levels (SILs) and a Significant Monitoring Concentration (SMC) for Prevention of Significant Deterioration (PSD) review of Particulate Matter of 2.5 Micrometers (PM_{2.5}) or less (final rule).¹ In May 2011, the TCEQ updated 30 Texas Administrative Code (TAC) Chapter 101 to implement the PM_{2.5} national ambient air quality standards (NAAQS) and increments. Major source Prevention of Significant Deterioration (PSD) requirements are incorporated by reference in 30 TAC Chapter 116.160.

While the EPA rules are effective December 20, 2010 for the SILs and SMC, the earliest an increment demonstration will be required is October 21, 2011. Specific information on the SILs, SMC, and increment are discussed in the remainder of this document. *This guidance document supersedes the Interim PM_{2.5} Implementation Guidance for Increments, SILs and SMC dated December 1, 2010.*

Significant Impact Levels (SILs)

Applicants should use the SILs listed in 40 Code of Federal Regulations (CFR) 52.21(k) for both major and minor new source review (NSR) permitting. The following table lists the SILs in micrograms per cubic meter (µg/m³):

Averaging Period	Class I	Class II and III
Annual	0.06	0.3
24-hour	0.07	1.2

- When a proposed new major or minor source or modification of an existing source that emits PM_{2.5} predicts (via dispersion modeling) an impact less than the PM_{2.5} SIL, the proposed source or modification is not considered to have a significant air quality impact and would not need to complete a cumulative impact analysis involving an analysis of other sources in the area.

Procedures to Determine Significant Air Quality Impact

Applicants and staff should note that while the SILs for both NAAQS and increment are identical, the procedures to determine significance (that is, predicted concentrations to compare to the SIL) are different.

¹ 75 Federal Register 64864, Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers (PM_{2.5}) – Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC), October 20, 2010
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- Why the difference? The increments are exceedance based and the NAAQS are statistically based. Therefore, EPA has developed two different approaches to account for the different forms of the NAAQS and increments.
- In a March 23, 2010 EPA memorandum titled "Modeling Procedures for Demonstrating Compliance with PM_{2.5} NAAQS," EPA provided guidance for using the SILs in conjunction with the 24-hour and annual PM_{2.5} NAAQS, which takes into account the statistical form of the NAAQS. EPA has stated that this method is not appropriate for increment demonstrations.
- EPA stated in the final rule it intends to provide guidance for interpreting the SILs for their use with the 24-hour and annual PM_{2.5} increments as well. Until EPA provides additional guidance, applicants should use the procedure developed for PM₁₀ to determine receptors that exceed the PM_{2.5} SILs.
- The SILs can only be used to demonstrate compliance with the NAAQS and increment. The PM_{2.5} SILs are not intended to be used as the only part of the determination of adverse impacts on air quality related values (AQRVs) for PM_{2.5} in Class I areas.

Significant Monitoring Concentration (SMC)

40 CFR 52.21(i)(5)(i)(c) lists the SMC for PM_{2.5} as 4 µg/m³ (24-hour average). The SMC was effective December 20, 2010. The Air Permits Division (APD) will continue to use existing procedures to determine if a PSD applicant must conduct preconstruction monitoring for PSD applications.

- It remains the applicant's responsibility for PSD applications to determine whether the project exceeds the SMC and to propose a monitoring plan or provide representative (or conservative) air quality data to use in the source impact analysis.
- Although preconstruction monitoring is not required for minor NSR, it remains the applicant's responsibility for minor applications to provide representative (or conservative) air quality data to use in the NAAQS demonstration.

Increment

Applicants should use the ambient air increments in 40 CFR 52.21(c). The following table lists the increments in $\mu\text{g}/\text{m}^3$:

Averaging Period	Class I	Class II	Class III
Annual	1	4	8
24-hour	2	9	18

On or after October 21, 2011, all projects triggering major source NSR will be required to perform an increment analysis for $\text{PM}_{2.5}$. There are three dates related to the PSD baseline concept that determine when and how to calculate the amount of increment consumed — (1) trigger date; (2) major source baseline date; and (3) minor source baseline date.

- 40 CFR 52.21(b)(14)(ii)(c) establishes the trigger date for $\text{PM}_{2.5}$ as October 20, 2011. The trigger date is a fixed date that triggers the overall increment consumption process nationwide. In other words, the date when the $\text{PM}_{2.5}$ increments become effective under the federal PSD program.
- 40 CFR 52.21(b)(14)(i)(c) establishes the major source baseline date for $\text{PM}_{2.5}$ as October 20, 2010. The major source baseline date is the date after which actual emissions increases associated with construction at any major stationary source affect the PSD increment.
- There are no set minor source baseline dates. The minor source baseline date is the earliest date after the trigger date on which a source submits the first complete application for a PSD permit in a particular area. This application will determine the increment baseline area. 40 CFR 52.21(b)(15)(i) defines the baseline area as an area designated as attainment or unclassifiable under section 107(d)(1)(A)(ii) or (iii) of the federal Clean Air Act in which the major source or major modification establishing the minor source baseline date would construct or would have an air quality impact equal or greater than $0.3 \mu\text{g}/\text{m}_3$ (annual average) for $\text{PM}_{2.5}$.

Increment Analysis

On or after October 21, 2011, all projects triggering major source NSR will be required to perform an Increment analysis for $\text{PM}_{2.5}$. The increment analysis is an exercise that compares the change between existing (plus project's contribution) concentrations and baseline concentrations in a defined baseline area since a defined baseline date. Once the minor source baseline date is

established, the new emissions increase from a major source affect the increment in that area, as do any subsequent actual emissions increases that occur from any new or existing stationary source in the area.

- 40 CFR 52.21(b)(13)(i) defines baseline concentration as the ambient concentration level that exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each pollutant for which a minor source baseline date is established.
- In addition to defining baseline concentration, 40 CFR 52.21(b)(13)(ii) explains which emissions are not included in the baseline concentration.
 - Actual emissions from any major stationary source on which construction commenced after the major source baseline date.
 - Actual emissions increases and decreases at any stationary source occurring after the minor source baseline date.
- In general, the following sources affect the available increment and should be included in the increment evaluation.
 - After the major baseline date
 - Existing major stationary sources that have undergone a physical or operational change.
 - New major stationary sources.
 - After the minor baseline date
 - Any existing stationary sources that have undergone a physical or operational change
 - New stationary sources.
- The applicant should discuss the increment inventory in a PSD protocol submitted to the APD.