

Policy for Significant Impact Levels (SILs) Analysis for Air Quality Impact Assessment

Technical Services Branch – Bureau of Air Quality Planning (BAQP)

Purpose

The purpose of this memorandum is to provide guidance on the use of Significant Impact Level (SIL) values as a compliance demonstration tool, in particular for the determination of the air quality impact of new or modified sources in relation to the National and Nevada Air Quality Standards (NAAQS and NvAAQS) and/or Prevention of Significant Deterioration (PSD) increments. This memorandum is a synopsis of the SIL policy adopted by the Bureau of Air Pollution Control and Air Quality Planning (Air Program) of the Nevada Division of Environmental Protection. For a more complete analysis on the legal, regulatory and technical aspects of SIL values, please consult the several EPA's rules and guidance documents on the matter^{1,2,3,4}.

Application of SILs

Air dispersion modeling analyses are conducted to predict ground level ambient air concentrations of pollutants from facility emissions. Dispersion modeling is the primary tool used in air quality assessments to determine predicted attainment of the NAAQS and NvAAQS. Air dispersion modeling allows the impacts from a source to be determined before a source is constructed or modified.

Under the Nevada Division of Environmental Protection's regulations and policies, a proposed new source or modification at the existing facility must complete an air quality impact analysis to demonstrate compliance with applicable NAAQS and NvAAQS, or PSD increments. In general, this is obtained by running the AERMOD regulatory air pollution dispersion model with all the emission units in the facility (i.e., facility-wide model), regardless of the type of facility and total emissions, or revision in total emissions. The Air Program with the NDEP recognizes that SIL values can provide an opportunity to simplify the air quality impact analysis for revision of existing sources, because they can be used by applicants and permitting authorities to determine whether emissions from the proposed modification will increase ambient concentrations by more than the significant ambient impact levels. The SIL values are based on the form of the applicable NAAQS and NvAAQS and are listed in Table 1. Impacts from nearby and other background sources, including background concentrations, are not considered in the significant impact analysis (SIA). In most cases where the modification of emission sources is demonstrated to be below the

¹ Memorandum – Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program. EPA – April 17, 2018

² 40 CFR 51.165(b)

³ Memorandum – Guidance Concerning the Implementation of the 1-hour NO₂ NAAQS for the Prevention of Significant Deterioration Program. EPA – June 29, 2010

⁴ Memorandum – Guidance Concerning the Implementation of the 1-hour SO₂ NAAQS for the Prevention of Significant Deterioration Program. EPA – August 23, 2010

SIL, no further modeling will be required to demonstrate compliance with the NAAQS and NvAAQS and/or PSD increment.

The use of SIL values as an alternative approach to the facility-wide modeling will be approved by the Air Program on a case-by-case basis.

Factors that the Air Program will consider in allowing the use of SIL values include:

- Previous results from facility-wide air quality impact analyses. In particular, already established proximity to NAAQS and NvAAQS or PSD increment thresholds.
- SIL analyses from previous permit modifications. The **cumulative** impact of previous SIL analyses may be considered in determining the need for a facility-wide modeling, even if each previous SIL analysis resulted in below the SIL values.

Table 1. Ambient Air Quality Standards and Recommended Significant Impact Levels (SILs)

Pollutant	Averaging Period	Primary NAAQS/NvAAQS (ug/m ³)	SIL (ug/m ³)
CO	1-Hour	40,000	2,000 ^{a,d,e}
	8-hour	10,000	500 ^{a,d,e}
NO ₂	1-Hour	188	7.5 ^{b,d,e}
	Annual	100	1 ^{a,d,e}
SO ₂	1-Hour	196	7.8 ^{b,d,e}
	3-Hour	1,300	25 ^{a,d,e}
	24-Hour	365	5 ^{a,d,e}
	Annual	185	1 ^{a,d,e}
PM ₁₀	24-Hour	150	5 ^{a,d,e}
PM _{2.5}	24-Hour	35	1.2 ^{a,d,e}
	Annual	12	0.2 ^{d,c,e}

a – SIL values provided in 40 CFR 51.165(b)

b – Interim SIL values (<https://www.epa.gov/sites/production/files/2015-07/documents/appwno2.pdf> for 1 -hour NO₂ and <https://www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf> for 1-hour SO₂)

c – EPA issued final guidance on ‘Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program’ on April 17, 2018

d – Background concentrations are not considered in the SIL analysis

e – SIL values are based on the form of the applicable NvAAQS standard