San Joaquin Valley APCD

District Rule 2410
General Modeling Requirements

Version 1.0
Date: January 2014

Prepared by

Permit Services Department
Technical Services

Acknowledgment

The District would like to thank and express its sincere gratitude to those individuals and agencies that have contributed to the development of this document.

[List Individuals]
Eric Walther – Sierra Research

Table of Contents

List of Figures

List of Tables

1 Introduction

This document shall act as a general guidance used by the District to fulfill the modeling requirements of District Rule 2410 “Prevention of Significant Deterioration” (PSD). Sections 1 through 4 of this guidance document are not intended to provide a detailed explanation of each step in the process, but a general overview of the step(s)/procedure(s) that will be addressed as part of District Rule 2410 implementation. Detailed procedural and/or policy documents will be developed as the District moves forward in its implementation of the PSD program. Section 6 provides a detailed walk-through of the PSD modeling triggers and the elements that may be required to comply with District Rule 2410.

2 Background

Section 109 of the Federal Clean Air Act, “the Act”, requires EPA to promulgate primary National Ambient Air Quality Standards (NAAQS) to protect public health and secondary NAAQS to protect public welfare. Part C of Title I of the Act contains the requirements for a component of the major New Source Review (NSR) program known as the PSD program. This program sets forth procedures for the pre-construction review and permitting of new and/or modified major stationary sources of air pollution locating in areas meeting the NAAQS (‘‘attainment’’ areas) and areas for which there is insufficient information to classify an area as either attainment or nonattainment (‘‘unclassifiable’’ areas).

3 Definitions

3.1 Class I Areas

Those areas designated as pristine or wilderness areas and require more rigorous safeguards to prevent deterioration of the natural pristine air quality. A list of Class I areas located within 100 Km of the District’s boundary can be found in Appendix B.

3.2 Class II Areas

Class II areas are all other areas of the District wherein the NAAQS have been attained that are not designated Class I or Class III. All areas were initially designated either Class I or Class II by EPA.

3.3 Class III

Class III areas are areas set aside for industrial growth. As such, increments are higher in Class III areas. All areas were initially designated either Class I or Class II by EPA. A jurisdiction must request and receive EPA approval for Class III areas. There are currently no Class III areas within the District.

3.4 PSD Baseline Area

The baseline area is defined as all portions of the planning area in which the new major source or major modification is located, **AND** all portions of any neighboring planning area in which the new or modified major source results in a significant impact.

3.5 PSD Increment

Title 40 CFR Part 52.21(c) defines the “Ambient Air Increments” as the “increases in pollutant concentration over the baseline concentration ...”. These increases are limited to specific values depending on the pollutant’s averaging period and the class designation of the area. PSD increments have been established for PM2.5, PM10, Sulfur Dioxide, and Nitrogen Dioxide.

NOTE!!
No increments have been established for the 1-hour Sulfur Dioxide and Nitrogen Dioxide standards promulgated on June 22, 2010 and February 9, 2010, respectively.

3.6 Regulated Pollutants

EPA interprets the definition of "regulated NSR pollutant" found in 40 CFR. § 52.21(b)(50) to exclude pollutants for which EPA regulations only require monitoring or reporting but to include each pollutant subject to either a provision in the Clean Air Act or regulation promulgated by EPA under the Clean Air Act that requires actual control of emissions of that pollutant. “EPA memorandum from Administrator Stephen L. Johnson dated December 18, 2008”[1]. Therefore, for the purposes of this guidance a regulated pollutant refers to only those pollutants found in Table 6-3 below.

NOTE!!
On February 17, 2009, EPA issued a memorandum that the Agency will reconsider former Administrator Johnson's 12/18/08 memo on the scope of the Prevention of Significant Deterioration permitting program.[2] The Agency will issue a notice requesting public comment on the issues raised in the memo as well as the issues raised in the Environmental Appeals Board opinion regarding the Deseret Power permit. In light of this memorandum the definition above may change in the future. Additionally, as stated in EPA’s memorandum, the December 18, 2008 has not stayed the effectiveness of that memorandum.

4 General Requirements

The applicability of District Rule 2410 to a major stationary source must be determined in advance of construction and is a pollutant-specific determination. Once a major source is determined to be subject to District Rule 2410 (PSD source), among other requirements, it must demonstrate that it will use the best available control technology (BACT), and will not cause or contribute to a violation of any NAAQS or PSD increment. District Rule 2410 generally requires sources to submit for review and approval a modeling protocol. Once the protocol has been approved it is used to guide the required air quality analysis. For convenience, a list of the PSD thresholds is contained in Appendix A

4.1 General Modeling Requirements

The impact analysis is primarily a modeling analysis designed to show that the new or allowable emissions increase from the proposed project, in conjunction with other emissions increases from existing sources, will not result in a violation of either the NAAQS or PSD increments. In cases where the source’s emissions

[1] http://epa.gov/nsr/documents/psd_interpretive_memo_12.18.08.pdf
[2] http://epa.gov/nsr/documents/20090217LPJlettertosierraclub.pdf

may adversely affect an area classified as a Class I area, additional review is conducted to protect the increments and special attributes of such an area defined as ‘‘air quality related values’’ (AQRVs).

The air quality analysis must assess the ambient air quality in the area that the proposed project would affect. For this analysis, the owner or operator of the proposed project must submit, as part of a complete permit application:

- Air quality monitoring data that represents the air quality in the area affected by the proposed source for the 5-year period, or 1-year period for onsite data, preceding receipt of the application by the District.
    - Where data may already exist to represent the existing air quality, it may be used by the applicant;
    - Otherwise, the source owner or operator is responsible for the installation and operation of monitors to collect the necessary data.

The District may exempt the applicant from pre-construction monitoring if the predicted impact or the existing ambient pollutant concentrations are less than the prescribed Significant Monitoring Concentration (SMC).

In addition to the air quality modeling analyses discussed above, all PSD permit applications must contain an additional impact analysis for each regulated pollutant subject to the regulation under District Rule 2410. The analysis assesses the impacts of air, ground, and water pollution on soils, vegetation, and visibility caused by any new or increases in emissions of any regulated pollutant from the source or modification under review and from associated growth.

4.1.1 Increment

PSD increment is the amount of pollutant concentration an area is allowed to increase. PSD increments prevent the air quality in clean areas from deteriorating to the level set by the NAAQS. The NAAQS is a maximum allowable concentration or "ceiling". A PSD increment, on the other hand, is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a given pollutant.

Increment standards exist for four pollutants: PM_{10} (24-hour and annual averages), $PM_{2.5}$ (24-hour and annual averages), NO_2 (annual average only), and SO_2 (3-hour, 24-hour and annual averages). One of the most critical elements of an increment consumption analysis is the establishment of the baseline concentration for an affected pollutant. The baseline concentration is simply the ambient concentration that existed in the area before a PSD source submits the first PSD application in the area. The increment consumed, then, is simply the amount of additional air quality impact above the baseline concentration that has occurred as a result of increased emissions from new major and minor sources.

4.1.1.1 How is an Increment Triggered?

The requirement to evaluate increment consumption begins when the Baseline Date is triggered. There are two types of baseline dates:

- The major source baseline date; and
- The minor source baseline date.

4.1.1.1.1 Major Source Baseline Date

The major source baseline date is automatically set by the federal PSD rule and reflects the date that the permitting authority is responsible for tracking increment consumption due to changes at major sources only. The minor source baseline date; however, is arguably the date that carries the greatest impact on industrial growth in an area.

4.1.1.1.2 Minor Source Baseline Date

The minor source baseline date is triggered when a PSD application (either for a completely new major source or for a major modification at an existing source) is submitted and determined to be complete. When the first PSD application is determined to be complete, the baseline date is set for all pollutants that are being reviewed under the PSD regulations and for which there is an increment standard established. Once the minor source baseline date is triggered, increment consumption must be evaluated for changes that occur at all sources (including minor, area and mobile sources) after that date. Increment is consumed (or possibly expanded) throughout the entire baseline area.

4.2 Screening Tools

Historically, EPA has allowed the use of several types of screening tools to facilitate implementation of the pre-construction review process to reduce the permit applicant's burden and streamline the permitting process for de minimis circumstances. These tools include a significant emissions rate (SER), significant impact level (SIL), and a significant monitoring concentration (SMC). Appendix A contains a table of these values for reference.

4.2.1 Significant Emissions Rate (SER)

The SER, defined in tons per year (tpy) for each regulated pollutant, is used to determine whether the emissions increase from the proposed source or modification can be excluded from review on the grounds that the increase for that specific pollutant is de minimis. An emission increase for a particular pollutant that is greater than the SER defined in the NSR regulations for that pollutant is considered to be a significant increase.

4.2.2 Significant Impact Level (SIL)

The SIL, expressed as an ambient pollutant concentration (micrograms per cubic meter [$\mu g/m^3$]), is used to determine whether the ambient impact of a particular pollutant (once it is determined to be emitted in significant amounts) is significant enough to warrant a complete source impact analysis involving modeling the collective impacts of the proposed project and emissions from other existing nearby sources.

4.2.3 Significant Monitoring Concentration (SMC)

The PSD regulations generally require each PSD applicant to collect 1 year of continuous air quality monitoring data for any pollutant determined to be subject to a pre-construction review as part of a complete PSD permit application. Using the SMC as a screening tool, expressed as an ambient pollutant concentration ($\mu g/m^3$), sources may be able to demonstrate that the modeled air quality impact of emissions from the new source or modification or the existing air quality level in the area where the source would construct is less than the SMC, i.e., de minimis, and may be allowed to forego the pre-construction monitoring requirement for a particular pollutant at the discretion of the reviewing authority. See 40 CFR 51.166(i)(5) and 52.21(i)(5).

4.3 Public Participation

When the reviewing authority reaches a preliminary decision to authorize construction of a proposed major new source or major modification, it must provide notice of the preliminary decision and an opportunity for comment by the general public, industry, and other persons that may be affected by the emissions of the proposed major source or major modification. After considering these comments, the reviewing authority may issue a final determination on the construction permit in accordance with the PSD regulations.

5 General Procedures

As noted above, an applicant for a PSD permit is required to conduct an air quality analysis to determine the impacts associated with the construction and operation of a proposed new source or modification. The purpose of the air quality analysis is to demonstrate that new emissions emitted from a proposed major stationary source or major modification, in conjunction with other applicable emissions from existing nearby sources (including secondary emissions from growth associated with the new project), will not cause or contribute to a violation of:

- The applicable NAAQS,
- The applicable PSD increments,
- The applicable Soil & Vegetation concentration; and
- The impairment of visibility in a Class I & II areas

The guidelines presented in this document may change at any time as new guidance or new air quality modeling techniques become available. The user is directed to the District's website for the latest changes located at http://www.valleyair.org/busind/pto/Tox_Resources/air_quality_modeling.htm.

5.1 Preliminary Analysis

If a preliminary analysis shows that the ambient concentration impact of the project by itself is greater than the Significant Impact Level (SIL), then a full or cumulative impact analysis is required for that pollutant. If a preliminary analysis shows that the ambient concentration impact of the project by itself is less than the Significant Impact Level (SIL), then further analysis is generally not required.

5.2 Cumulative Impact Analysis

A cumulative impact analysis can include nearby pollution sources in the modeling, along with the project's source(s), and adds a monitored background concentration to account for sources not explicitly included in the model. The cumulative impact analysis must demonstrate that the project will not cause or contribute to a NAAQS or PSD increment violation.

5.3 Modeling Requirements (Preliminary & Cumulative)

Required model inputs should characterize the various emitting units, meteorology, and land surface, and define a set of receptors (spatial locations at which to estimate concentrations, typically out to 50 km from the facility). Modeling should be performed in accordance with District guidance and the EPA's Guideline on Air Quality Modeling (Appendix W to 40 CFR Part 51[3]). AERMOD, with its regulator default settings, is the preferred model of choice with CALPUFF available for complex wind situations, with justification and approval of the reviewing agency.

5.3.1 Additional Modeling Requirements

The following are additional general modeling requirements that should be considered as per District Rule 2410 compliance.

- Include a Good Engineering Practice (GEP) stack height analysis to ensure that
  a) Downwash is properly considered in the modeling, and
  b) Stack heights used as inputs to the modeling are no greater than GEP height, so as to disallow artificial dispersion from the use of overly tall stacks.
- Include initial "load screening," in which a variety of source operating loads and ambient temperatures are modeled, to determine the worst-case scenario for use in the rest of the modeling.
- Include an analysis of the impact on nearby Class I & II areas, generally those within 100 km, though the relevant Federal Land Manager (FLM) may specify additional or fewer areas. Appendix A lists those Class I areas located within 100 km of the San Joaquin Valley APCD boundaries. This analysis includes the:
  - NAAQS
  - PSD increments, and
  - Air Quality Related Values (AQRVs)
    - The FLMs have developed a screening procedure that utilizes a Q/d of 10 to determine if further analysis is required. Where: Q = Sum of emissions in tons per year (SO2 + PM10 + NOx + Sulfuric Mist) and d is the distance to the nearest Class I or II area in kilometers.
    - AQRVs are defined by the FLM, and typically limit visibility degradation and the deposition of sulfur and nitrogen.

[3] http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf

Generally, CALPUFF is the standard model choice for Class I &II analyses, since it can handle visibility chemistry as well as the typically large distances (over 50 km) to Class I areas.

- Include an impact analysis, showing the Project's effect on visibility, soils, vegetation, and growth.
    - The visibility analysis is independent of the Class I & II visibility AQRV analysis.

5.3.2 Good Engineering Practice (GEP) Analysis

Good Engineering Practice (GEP) stack height analysis is done to ensure that a) downwash is properly considered in the modeling, and b) stack heights used as inputs to the modeling are no greater than GEP height, so as to disallow artificial dispersion from the use of overly tall stacks. As is typical, the GEP analysis is performed with EPA's BPIP (Building Profile Input Program) software, which uses building dimensions and stack heights as inputs. Based on the analysis, the GEP stack height for a project's sources is determined. All emitting units, based on the GEP analysis, should use the actual or GEP stack heights for inputs in AERMOD modeling, and include wind direction-specific Equivalent Building Dimensions to properly account for downwash.

5.3.3 Land Characteristics

Land characteristics are used in the AERMOD modeling system in three ways: 1) via elevation within AERMOD to assess plume interaction with the ground; 2) via a choice of rural versus urban algorithm within AERMOD; and 3) via specific values of AERMET parameters that affect turbulence and dispersion, namely surface roughness length, Bowen ratio, and albedo. The surface roughness length is related to the height of obstacles to the wind flow and is an important factor in determining the magnitude of mechanical turbulence. The Bowen ratio is an indicator of surface moisture. The albedo is the fraction of total incident solar radiation reflected by the surface back to space without absorption.

Terrain elevations from the United States Geological Survey (USGS) at a horizontal resolution of 30 meters should be used for receptor heights in AERMOD, which uses them to assess plume distance from the ground for each receptor. All coordinates referenced should be in UTM North American Datum (NAD) 1983 or as approved by the District. The AERMOD receptor elevations are interpolated among the Digital Elevation Model (DEM) nodes according to standard AERMAP procedure. For determining concentrations in elevated terrain, the AERMAP terrain preprocessor receptor-output (ROU) file option is chosen.

Surface roughness values in the AERMET modeling inputs are developed by SJVAPCD. The District followed EPA's "AERMOD Implementation Guide" (2009 version) and the District's Guidance entitled "Procedure for Downloading & Processing NCDC Meteorological Data" when using EPA's AERSURFACE processor with the National Land Cover Data 1992 archive to determine surface characteristics for AERMET. The surface roughness characteristics are

representative of the area surrounding the site where the meteorological data is collected or generated. The criterion described in Section 3 (Representativeness) from EPA's Meteorological Monitoring Guidance for Regulatory Modeling Applications (2000) was also considered. AERSURFACE uses a Land Use data base from 1992 and does not take buildings into account.

5.3.4 Meteorological Data

For determining the appropriate meteorological station to be used for modeling, a qualitative comparison of the following factors, from the Meteorological Monitoring Guidance (p.3-3), should be used:

- Proximity (to project site)
- Height of measurement
- Boundary layer profile considerations
- Surface characteristics adequately represent the "area of interest" and a project site under consideration.

5.3.5 Background Ambient Air Quality

District regulations require the air quality analysis to contain air quality monitoring data as needed to assess ambient air quality in the area for regulated pollutants for which there are NAAQS that may be affected by the source. In addition, for demonstrating compliance with the NAAQS, a background concentration is added to represent those sources not explicitly included in the modeling, as determined by the District, so that the total concentration accounts for all contributions to current air quality.

Appendix A describes the regulated pollutants for which there are NAAQS that may be affected by a Project's emissions and the corresponding standards.

5.4 Receptors Grid

Receptors in the model are geographic locations at which the model estimates concentrations. Receptors are placed such that they have good area coverage and are spaced close enough so that the maximum model concentrations can be found. At larger distances, spacing between receptors may be greater than it is close to the source, since concentrations vary less with increasing distance. The spatial extent of the receptors is limited by the applicable range of the model (roughly 50 km for AERMOD) and possibly by knowledge of the distance at which impacts fall to negligible levels. Receptors need be placed only in ambient air, that is, locations to which the public has access, and that are not inside the project boundary.

5.5 Load Screening and Stack Parameter

The initial "load screening" modeling is done for various source operating loads and ambient temperatures to determine the "worst case" stack parameter scenario for use in the rest of the modeling whenever normal operations are considered. At a minimum two loads should be considered: a minimum load of 50% and a maximum load of 100%. The choice of "worst case" is different for each pollutant

and averaging time, because different pollutants' emissions respond differently to temperature and flow rate.

5.6 Increment Analysis

Under section 165(a)(3) of the Act, a PSD permit applicant must demonstrate that emissions from the proposed construction and operation of a facility "will not cause, or contribute to, air pollution in excess of any maximum allowable increase or maximum allowable concentration for any pollutant …." The "maximum allowable increase" of an air pollutant that is allowed to occur above the applicable baseline concentration for that pollutant is known as the PSD increment.

For demonstrating compliance with the PSD increment, only increment-consuming sources need to be included because the increment concerns only changes occurring since the applicable baseline date.

Table 5-1 PSD Increment Baseline Dates

Pollutant	Major Source Baseline Dates	**Trigger Date**
PM_{10}	January 6, 1975	August 7, 1977
$PM_{2.5}$	October 14, 2010	October 20,2011
SO_2	January 6, 1975	August 7, 1977
NO_2	February 8, 1988	February 8, 1988

Table 5-2 PSD Minor Source Trigger Dates

County	PM10		SO2		NO2	
	Date	Facility	Date	Facility	Date	Facility
Fresno	SJAB		10/30/1978	Guardian Industries	9/5/2006	SJV Energy Center
Kern (SJVAB)			6/17/1985	Rio Bravo	3/9/1990	Mobil Oil
Kings			Not Received		3/19/2008	Avenal Energy Project
Madera			Not Received		Not Received	
Merced			Not Received		Not Received	
San Joaquin			10/22/1985	Stockton Cogen	Not Received	
Stanislaus			5/29/1986	Covanta Stanislaus	Not Received	
Tulare			Not Received		Not Received	

6 Detail Modeling Requirements

The following section will provide a walk-through of the modeling requirements as per District Rule 2410. Figure 6-1 displays the three primary triggers for which further evaluation is required, the four major elements of PSD modeling, and the sub assessments that may be required.

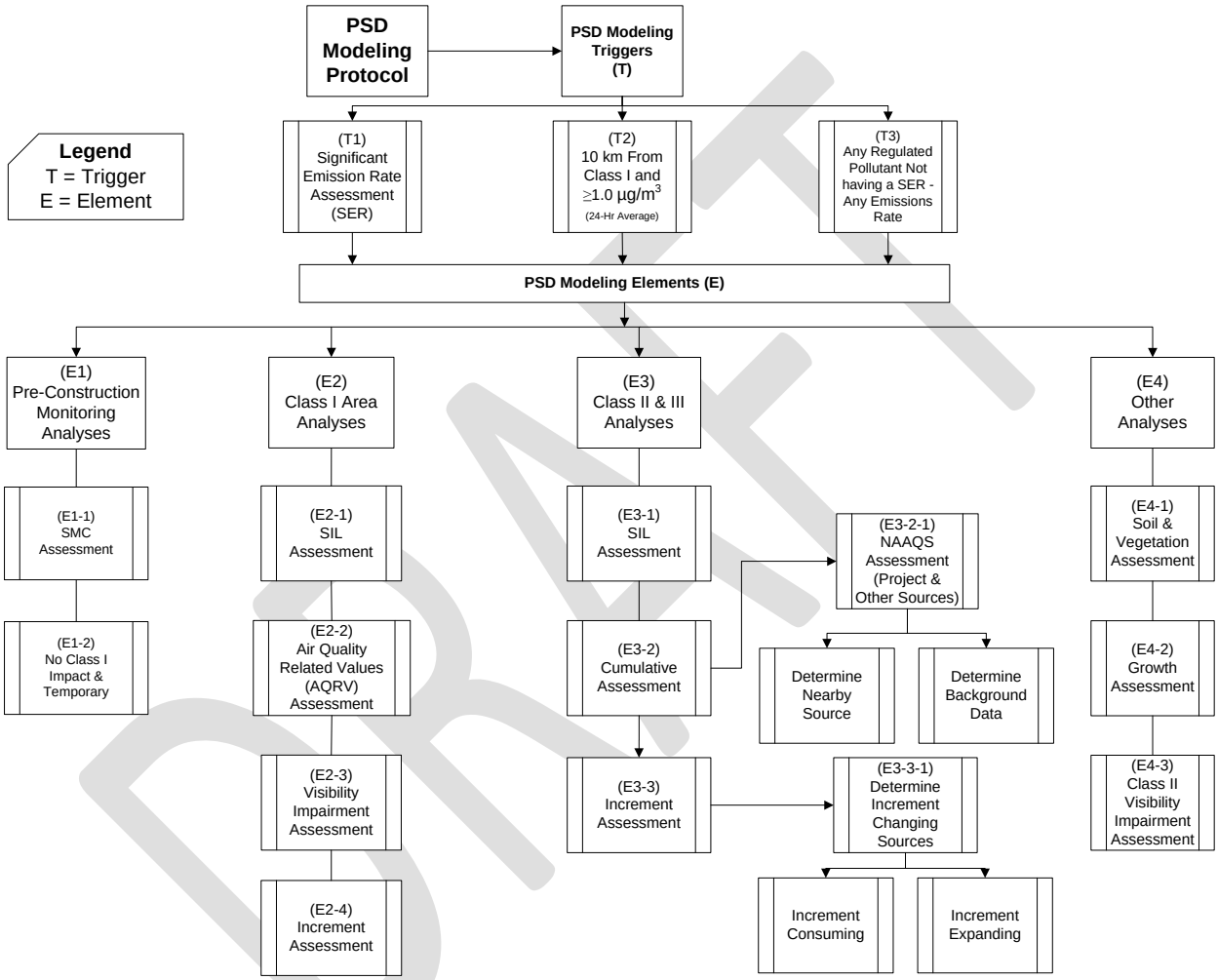


Figure 6-1 PSD Modeling Triggers & Elements

6.1 PSD Modeling Protocol

The PSD modeling protocol is one of the most important components in showing compliance with District Rule 2410, as it sets the stage for all the analyses and assessments to be conducted and describes the procedures that will be used in each of the analyses and assessments.

Before submission of a PSD modeling protocol, it is highly recommended that the applicant and/or their representative schedule a meeting with the District to discuss the proposed project and to clarify any assumption to be described in the

modeling protocol. This allows for a streamlined review process once the protocol has been submitted.

The protocol should discuss each of the three PSD Modeling Triggers (T1, T2 & T3), each of the four elements (E1 through E4), and the procedures used to conduct the proposed assessments. The sections below will discuss each of the three triggers and each of the four elements in more detail.

6.2 PSD Modeling Triggers – T [§52.21 (b)(23)]

As noted in Figure 6-1 there are three potential ways that a pollutant would trigger PSD modeling:

1) Exceedance of a SER (Significant Emission Rate) Threshold,
2) Project is located within 10 km of a Class I area, and
3) Any emissions increase for a regulated pollutant not having a SER. The following subsections will discuss each of these triggers in more detail.

NOTE!!
The PSD Modeling Triggers (T1, T2, & T3) are used to determine which pollutants need to be reviewed further. Therefore, each trigger should be evaluated to ensure that all required pollutants are identified/ included when evaluating each of the four elements discussed in section 6.3 below.

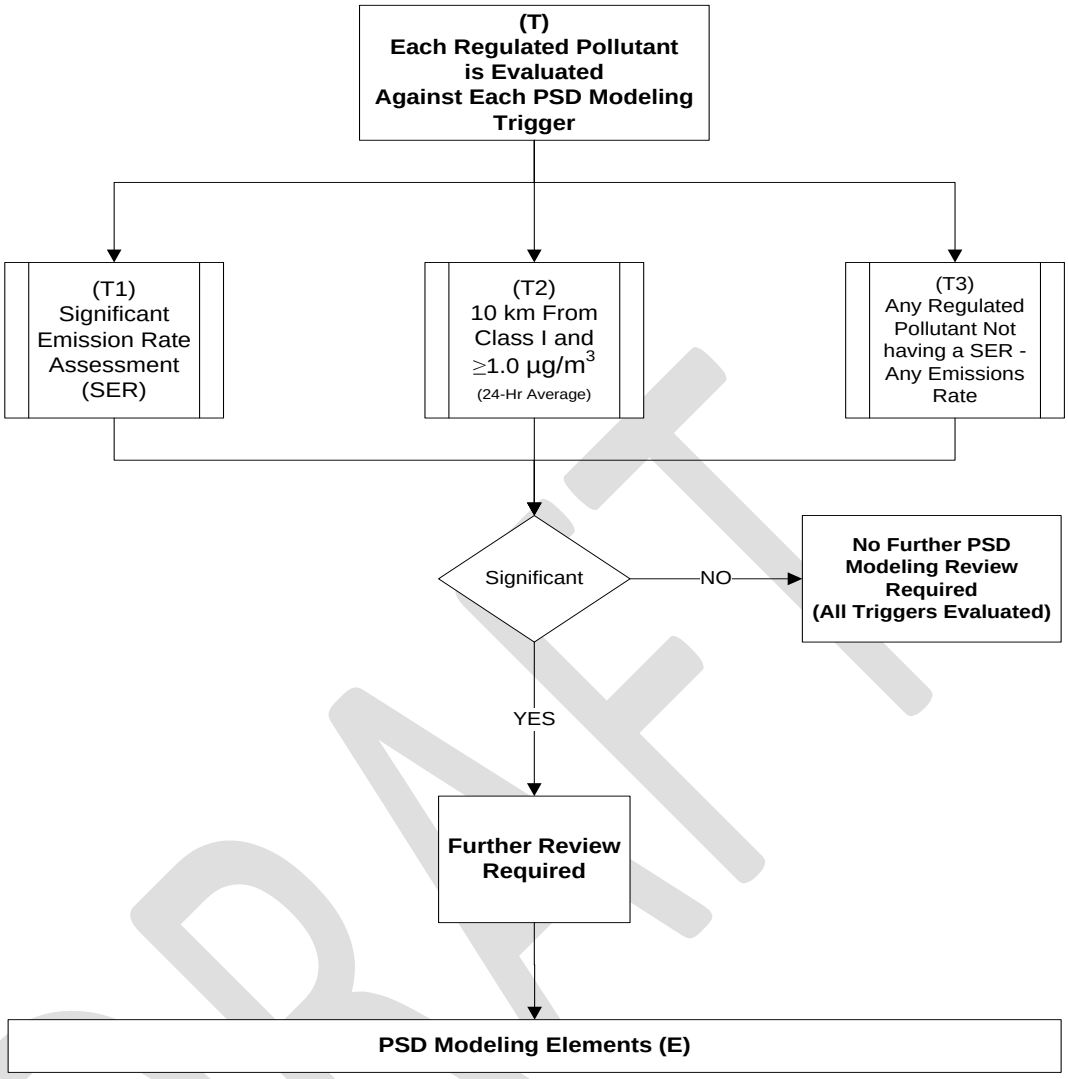


Figure 6-2 PSD Modeling Triggers

As noted in Figure 6-2, each regulated pollutant must be evaluated against each of the three triggers in order to determine if it must be evaluated further. Once a regulated pollutant is considered significant, no additional trigger evaluation is required for that pollutant. If a regulated pollutant is evaluated against each of the three PSD Modeling Triggers and is not considered significant for any of the triggers then no further evaluation is required for that regulated pollutant.

CAUTION!!

It is also important to understand that PSD only applies to those regulated pollutants for which the District is in attainment or unclassifiable for and **not** for all regulated pollutants, see Table 6-1. Additionally, certain regulated pollutants do not have a NAAQS, but have a SER (significant emissions rate) and in those cases a comparison of the project's emissions verses the SER threshold would be conducted.

Table 6-1 NAAQS Attainment Status

Pollutant		Federal Attainment Status	Applicable District Rule
Lead (Pb)		No Designation (Classification)	2201 / 2410
Nitrogen Dioxide (NO2)		Attainment (Unclassified)	2201 / 2410
Sulfur Dioxide (SO2)		Attainment (Unclassified)	2201 / 2410
Carbon Monoxide (CO)		Attainment (Unclassified)	2201 / 2410
Sulfuric Acid Mist (H2SO4)		N/A	2201
Particulate Matter (PM)		N/A	2201
Particulate Matter under 2.5 micrometers diameter (PM2.5)		Nonattainment	2201
Particulate matter under 10 micrometers diameter (PM10)		Attainment	2201 / 2410
Ozone	1-hour	N/A	2201
	3-Hour	Nonattainment (Extreme)	2201

To ensure that all regulated pollutants have been evaluated Table 6-2 can be used to summarize the results from each of the three PSD Modeling Triggers and the determination of which regulated pollutants will require further review.

Table 6-2 Trigger (T1, T2, & T3)Summary Checklist

Pollutant	Project Regulated Pollutant (Yes/No)	(T1) SER (Significant) (Yes/No)	(T2) Class I (Significant) (Yes/No)	(T3) NO SER (Significant) (Yes/No)	Further Review Required (Yes/No)
PM10					
CO					
NO2					
SO2					
Ozone					
Lead					
Asbestos					
Fluorides					
Sulfuric Acid Mist					
Hydrogen sulfide (H2S)					
Total & Reduced Sulfur Compounds (including H2S)					
Municipal Waste Combustor					
Organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)					
Metals (measured as particulate matter)					
Acid Gases (measured as sulfur dioxide and hydrogen chloride)					

Table 6-2 Trigger (T1, T2, & T3)Summary Checklist

Pollutant	Project Regulated Pollutant (Yes/No)	(T1) SER (Significant) (Yes/No)	(T2) Class I (Significant) (Yes/No)	(T3) NO SER (Significant) (Yes/No)	Further Review Required (Yes/No)
Municipal Solid Waste **Landfills Emissions** (measured as nonmethane organic compounds)					

6.2.1 Significant Emission Rate (SER) – T1 [§52.21 (b)(23)(i)]

The SER thresholds are used to determine if a regulated pollutant's net emissions increase or the potential of a source to emit is considered significant. Therefore, any regulated pollutant which an area is in attainment for or for which a NAAQS does not exist, with emissions equal to or exceeding any of the SERs found in Table 6-3 will require further evaluation.

NOTE!!
Table 6-3 can be used as a checklist to determine which pollutant(s) exceed a SER threshold requiring the project to be evaluated further.

Table 6-3 SER Checklist (T1)

Pollutant	SER (Tons/Yr)	In Attainment (Yes/No)	Project Emissions (Tons/Yr)	Further Review Required (Yes/No)
PM10	15	Yes		
CO	100	Yes		
NO2	40	Yes		
SO2	40	Yes		
Ozone	40	No	---	---
Lead	0.6	NA[1]		
Asbestos	0.007			
Fluorides	3			
Sulfuric Acid Mist	7			
Hydrogen sulfide (H2S)	10			
Total & Reduced Sulfur Compounds (including H2S)	10			
Municipal Waste Combustor				
Organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)	3.5×10^{-6}			
Metals (measured as particulate matter)	15			
Acid Gases (measured as sulfur dioxide and hydrogen	40			

Table 6-3 SER Checklist (T1)

Pollutant	SER (Tons/Yr)	In Attainment (Yes/No)	Project Emissions (Tons/Yr)	Further Review Required (Yes/No)
chloride)				
Municipal Solid Waste **Landfills Emissions** (measured as nonmethane organic compounds)	50			

1 – Pollutants for which no NAAQS exist, but are regulated pollutants and emissions from the project must be compared to the SER.

6.2.2 Project Located Within 10 km of a Class I Area – T2 [§52.21 (b)(23)(iii)]

If a regulated pollutant's net emissions increase or the potential of a source to emit; associated with a major stationary source or major modification being constructed within 10 km of a Class I area has an impact on such area equal to or greater than 1 µg/m^3, on a 24-hour average, the project is considered significant and must be evaluated further. Since the threshold is in the form of concentration, modeling is required in order to make this determination.

Table 6-4 Class I Concentration Checklist (T2)

Pollutant	Project Regulated Pollutant (Yes/No)	Regulated Pollutant Concentration	Further Review Required (Yes/No)
PM10			
CO			
NO2			
SO2			
Ozone			
Lead			
Asbestos			
Fluorides			
Sulfuric Acid Mist			
Hydrogen sulfide (H2S)			
Total & Reduced Sulfur Compounds (including H2S)			
Municipal Waste Combustor			
Organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)			
Metals (measured as particulate matter)			
Acid Gases (measured as sulfur dioxide and hydrogen chloride)			
Municipal Solid Waste			

Table 6-4 Class I Concentration Checklist (T2)

Pollutant	Project Regulated Pollutant (Yes/No)	Regulated Pollutant Concentration	Further Review Required (Yes/No)
Landfills Emissions (measured as nonmethane organic compounds)			

CAUTION!!
The concentration threshold value of 1 µg/m^3 applies to **all** regulated pollutants and not just to those that have a 24-Hour average NAAQS.

6.2.3 Any Regulated Pollutant Not Having a SER – T3 [§52.21 (b)(23)(ii)]

Any regulated pollutant not having a SER, see Table 6-3, and having any emissions increase is considered significant and must be evaluated further. In some cases EPA has determined that a regulated pollutant would not require PSD modeling because of such facts as not having a NAAQS or PSD increment. In the case where a regulated pollutant is not listed in Table 6-5, it is recommended that the project applicant contact the reviewing agency to discuss PSD requirements in further details. Any pollutant listed in Table 6-5 is considered not to require PSD modeling irrelevant of the emissions increase.

Table 6-5 Regulated Pollutants Not Triggering PSD Modeling

Regulated Pollutant	Reference
Greenhouse Gas (GHG)	"Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule" Date June 3, 2010 (pg. 31520) under section "2. General Requirements for PSD" http://www.gpo.gov/fdsys/pkg/FR-2010-06-03/pdf/2010-11974.pdf#page=1

6.3 PSD Modeling Elements – E

Once a pollutant has been determined to require further review, the pollutant must address each of the four primary PSD Elements:

1) Pre-Construction Monitoring,
2) Class I Analyses,
3) Class II Analyses, and
4) Other Analyses, in order to show compliance with District Rule 2410, see Figure 6-3.

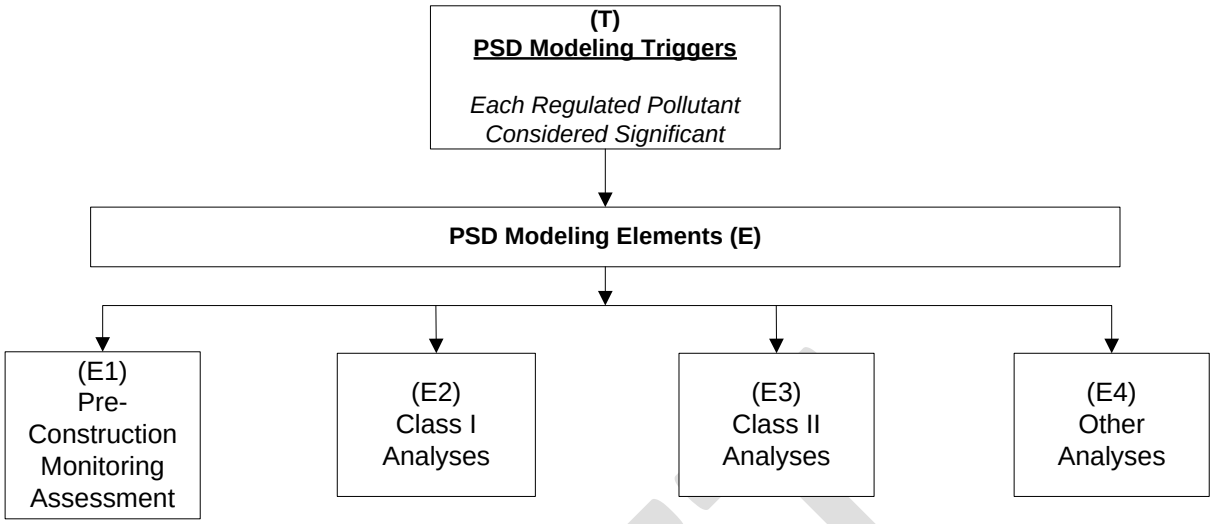


Figure 6-3 PSD Modeling Elements

NOTE!!
Just because a pollutant has been identified as requiring further review does not mean that a pollutant must complete each of the sub assessments in order to show compliance with District Rule 2410 as noted in Figure 6-1.

6.3.1 Pre-Construction Monitoring Analyses – E1 [§52.21(m)(1)]

When determining if a project requires pre-construction monitoring, it is generally acceptable to perform a Significant Monitoring Concentration (SMC) Assessment for each regulated pollutant. Based on the results of the SMC assessment, a determination can be made to require or not to require pre-construction monitoring.

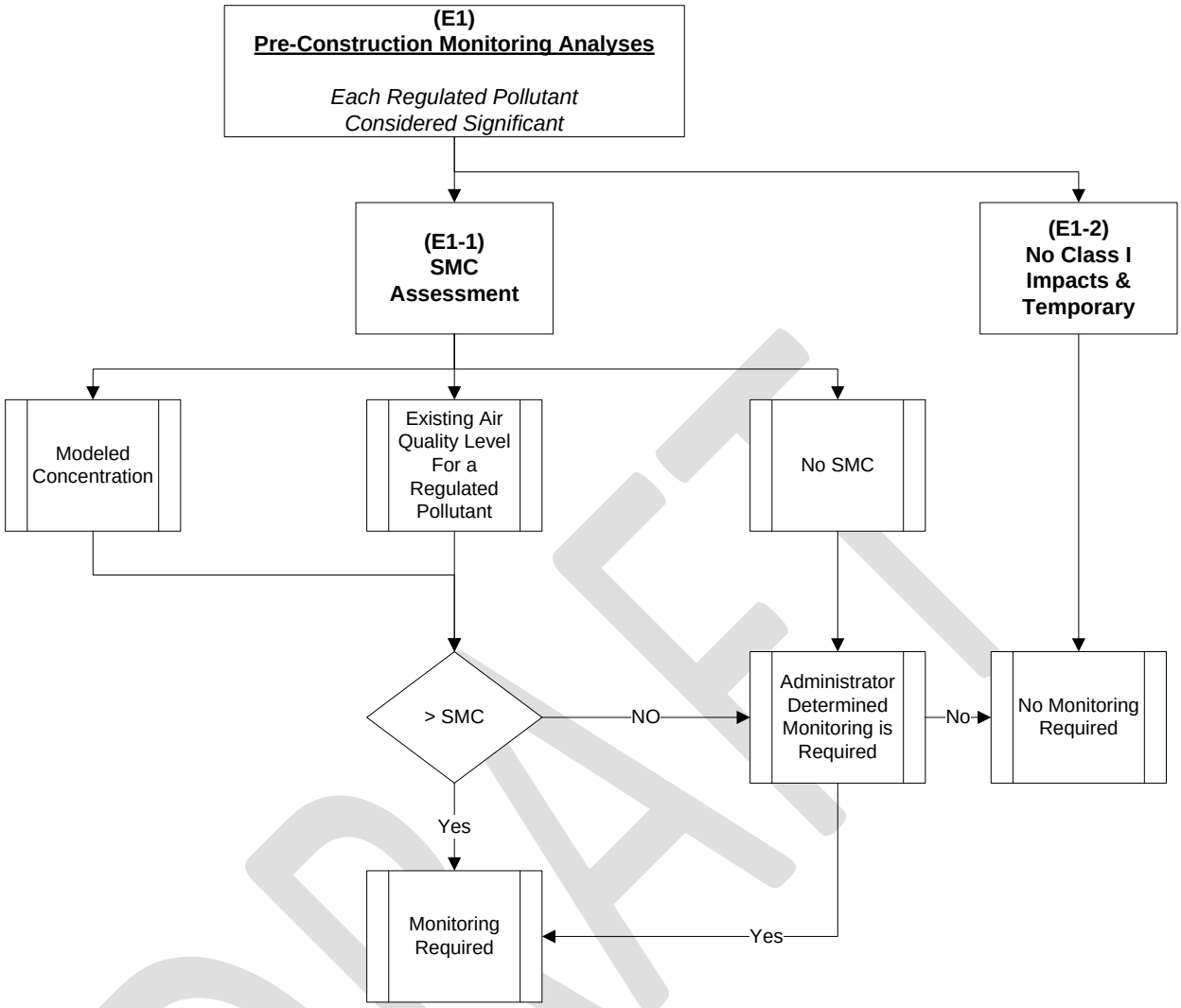


Figure 6-4 Pre-Construction Monitoring Analyses

6.3.1.1 *Significant Monitoring Concentration Assessment (SMC) – E1-1 [§52.21(i)(5)]*

There are three sub assessments that can be used to evaluate requiring pre-construction monitoring for a pollutant:

1) Modeled Concentration,
2) Existing Air Quality Levels, and
3) Regulated Pollutant without a SMC.

As noted in Figure 6-4 under E1-1, sub assessments 1 & 2, Modeled Concentration Assessment and Current Ambient Background, are each compared to an SMC, see Table 6-6. If a regulated pollutant does not have an SMC, sub assessment 3 under E1-1, then generally no pre-construction monitoring is required.

CAUTION!!
The SMC assessment is conducted using only the sources and emissions from the proposed project.

6.3.1.1.1 Modeled Concentration Assessment [§52.21(i)(5)(i)]

A Significant Monitoring Concentration (SMC) is expressed as an ambient pollutant concentration (µg/m^3) that may be used to demonstrate that the modeled air quality impact of a regulated pollutant from the new source or modification to a major source is less than a regulated pollutant's SMC and; therefore, forego the pre-construction monitoring requirement at the discretion of the reviewing authority.

Table 6-6 Significant Monitoring Concentrations (SMC)

Regulated Pollutant	Project Regulated Pollutant (Yes/No)	Threshold (µg/m^3)	Averaging Period	Modeled Concentration (µg/m^3)	Monitoring Required (Yes/No)
Carbon monoxide		575	8-hour		
Nitrogen dioxide		14	annual		
PM_{10}		10	24-hour		
Sulfur dioxide		13	24-hour		
Ozone; (*g*) Lead		0.1	3-month		
Fluorides		0.25	24-hour		
Total reduced sulfur		10	1-hour		
Hydrogen sulfide		0.2	1-hour		
Reduced sulfur compounds		10	1-hour		

6.3.1.1.2 Current Ambient Background [§52.21(i)(5)(ii)]

A SMC is expressed as an ambient pollutant concentration (µg/m^3) that may be used to demonstrate that the existing air quality levels in the area where the source would be constructed is less than a regulated pollutant's SMC and; therefore, forego the pre-construction monitoring requirement at the discretion of the reviewing authority.

Table 6-7 Significant Monitoring Concentrations (SMC) vs. Ambient Levels

Regulated Pollutant	Project Regulated Pollutant (Yes/No)	Threshold (µg/m^3)	Averaging Period	Ambient Levels[1] (µg/m^3)	Monitoring Required (Yes/No)
Carbon monoxide		575	8-hour		
Nitrogen dioxide		14	annual		
PM_{10}		10	24-hour		
Sulfur dioxide		13	24-hour		
Ozone; (*g*) Lead		0.1	3-month		
Fluorides		0.25	24-hour		
Total reduced sulfur		10	1-hour		
Hydrogen sulfide		0.2	1-hour		
Reduced sulfur compounds		10	1-hour		

1 – Should represent the maximum value within the last 5 years

6.3.1.1.3 No SMC for a Regulated Pollutant [§52.21(i)(5)(iii)]

If a regulated pollutant is considered significant but does not have an SMC value then generally it would forego the pre-construction monitoring requirement at the discretion of the reviewing authority.

6.3.1.2 No Impact on Class I or Increment Violating Areas & Temporary – E1-2 [§52.21(i)(3)]

If the allowable emissions of a regulated pollutant from a source or the net emissions increase of that pollutant from the modification does not impact a Class I area, does not impact an area where an applicable increment is known to be violated, and is temporary, the source would not require pre-construction monitoring.

6.3.2 Class I Area Analyses – E2 [§52.21(k) & (p)]

The Class I Analyses focus on determining if any Class I Areas within 100 km of the proposed project (generally speaking) are adversely impacted by a proposed new source or modification of an existing source. In order to make this determination four assessments are generally conducted: 1) SIL Assessment, 2) AQRV Assessment, 3) Visibility Assessment, and 4) Increment Assessment. Each of these assessments is discussed below.

If there are no Class I Areas within 100 km of the proposed project or no Class I Area has been identified and requested to be evaluated by the reviewing agencies (Reviewing Agency or FLM) then no Class I Area Analyses are required.

NOTE!!
If a PSD major source proposing to locate at a distance greater than 100 km and is of such size that the reviewing agency or FLM is concerned about potential emission impacts on a Class I area, the reviewing agency can ask the applicant to perform an analysis of the source's potential emissions impacts on the Class I area.

Figure 6-5 below provides a flow chart that describes the process for determining if a Class I Analysis is required. Additionally, if a Class I analysis is required Table 6-8 can be used as a checklist to summarize the results of each Class I assessment performed.

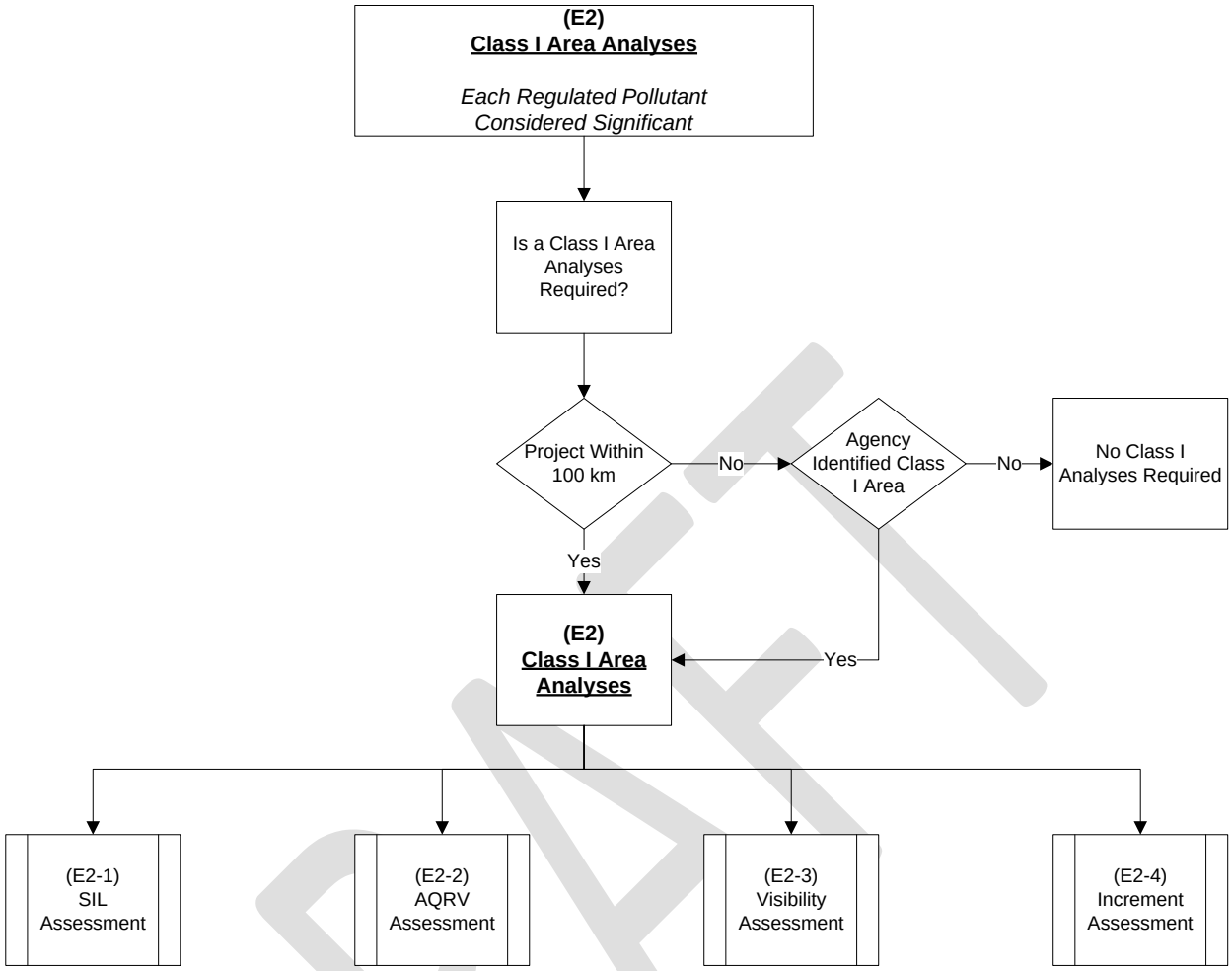


Figure 6-5 Class I Area Analyses Determination

Table 6-8 Class I Analyses Checklist

			Determined to be Significant			
Regulated Pollutant	**Project Regulated Pollutant (Yes/No)**	**Averaging Period**	**SIL Assessment (Yes/No)**	**AQRV Assessment (Yes/No)**	**Visibility Assessment (Yes/No)**	**Increment Assessment (Yes/No)**
Carbon monoxide[1]		---	NO			
Nitrogen dioxide		1-hour[2]				
		annual				
PM_{10}		24-hour				
		annual				
Sulfur dioxide		1-hour[2]				
		3-hour				
		24-hour				
		Annual				

1 -No Class I SIL
2 – Interim SIL

6.3.2.1 Class I SIL Assessment – E2-1 [§52.21(k)(1)(i)]

Any regulated pollutant determined to be significant and near a Class I Area or a Class I Area requested by the reviewing agencies to be evaluated, must

determine if it would cause or contribute to a violation of a NAAQS. A SIL assessment is only required for those pollutants that have a NAAQS.

6.3.2.1.1 Basic Process

The SIL Assessment is a comparison of the modeled concentration, on a pollutant by pollutant basis, to the allowed Class I significant impact level (SIL). If a pollutant is determined to have a modeled concentration less than the Class I SIL, no further NAAQS assessment is required. On the other hand, if the modeled ambient concentration is greater than the Class I SIL, further review will be required in the form of a cumulative impact assessment.

Table 6-9 can be used to summarize the results of the modeling and to make the determination if a Class I cumulative impact assessment must be performed. Figure 6-6 provides a flow chart that describes the process for determining compliance with the SIL assessment and when a cumulative impact assessment is required.

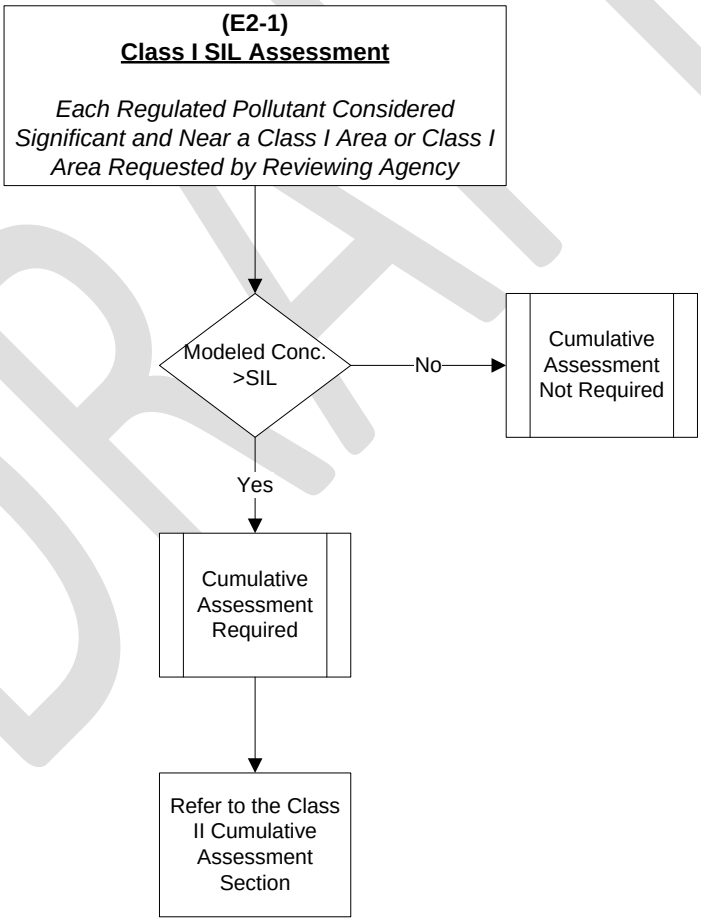


Figure 6-6 Class I SIL Assessment

Table 6-9 Class I SIL Assessment

Regulated Pollutant	Project Regulated Pollutant (Yes/No)	Averaging Period	SIL ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Cumulative Assessment Required (Yes/No)
Carbon monoxide[1]		---	---	---	---
Nitrogen dioxide		1-hour[2]	7.5		
		annual	0.1		
PM_{10}		24-hour	0.2		
		annual	0.32		
Sulfur dioxide		1-hour[2]	7.8		
		3-hour	1		
		24-hour	0.2		
		annual	0.08		

1 -No Class I SIL
2 – Interim SIL

6.3.2.1.2 Class I Cumulative Impact Assessment

When a Class I Cumulative Impact Assessment is triggered, the assessment follows the same process as that of the Class II & III Cumulative Assessment (E3-2) except that the evaluation is limited to the Class I Area. Therefore, the applicant is referred to the Class II & III Cumulative Assessment (E3-2) section of this document for detailed information on performing a Class I Cumulative Assessment.

6.3.2.2 Air Quality Related Values (AQRV)– E2-2 [§52.21(p)(2)]

The AQRV's are those attributes of a Class I area that deterioration of air quality may adversely affect (Flora and Fauna, Water, Visibility, Cultural-Archeological and Paleontological, and Odor). The federal land managers (FLM's) have established criteria for determining what constitutes an "adverse impact" as any impact that: (1) diminishes the area's national significance; (2) impairs the structure or functioning of ecosystems; or (3) impairs the quality of the visitor experience. Figure 6-7 provides a flow chart that describes the process for determining compliance with the AQRV assessment and when a refined assessment is required.

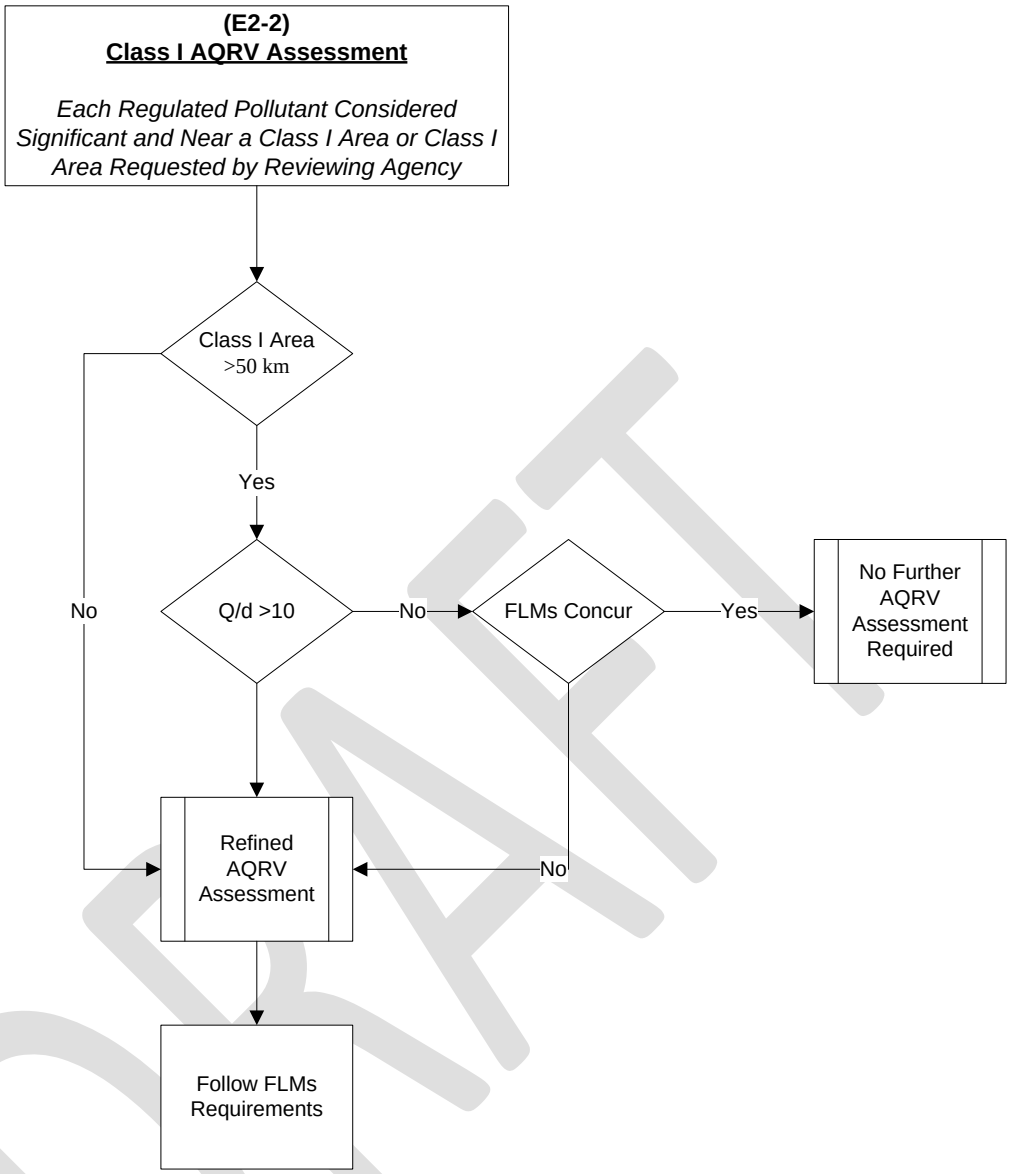


Figure 6-7 Class I AQRV Assessment

6.3.2.2.1 FLMs AQRV Screening Approach

Based on the most recent Federal Land Managers' Air Quality Related Values (AQRV) Work Group (FLAG) published guidance, the following screening approach can be used to determine whether a more refined Class I AQRV assessment is required. This approach, which only applies to projects located more than 50 km from a Class I Area, requires adding all of the visibility-related emissions (SO2, NOx, PM10 and sulfuric acid mist) from a project (based on 24-hour maximum allowable emissions expressed in units of tons per year, see Eq.1), and dividing the sum by the distance between the project and the Class I Area. If the result of this calculation is less than 10, the project is presumed to have negligible impact to Class I AQRVs and no further analysis is required for this AQRV analysis.

Eq. 1

Tons per Year = $\sum_k E_{Max} * 365\ Days/Year$

Where

K = Each Visibility-Related Pollutant

E_{Max} = Maximum Permitted 24-hour emissions

CAUTION!!

The applicant must submit the screening assessment to the FLMs for review and concurrence. The District will require that the screening AQRV assessment be included in the PSD application if approved by the FLMs.

NOTE!!

For a project where the operation will not be permitted to operate continuously (24 hours, 7 days/week, 52 weeks/year) using the maximum 24-hour allowable emissions may not be appropriate, i.e. overestimates the potential impacts of the proposed project. Two alternatives can be considered, if the source is limited by permit condition: 1) the allowable annual emissions based on permitted limitation may be acceptable or 2) Estimating the annual emission as noted in Eq.1 and multiplying the result by a factor derived by taking the Actual Hours of operation /Yr. and dividing by 8760 Hours/Yr. Before using these alternative methods, it is recommended that the reviewing agency be consulted.

The District requires that the screening assessment be included in the PSD application if approved by the FLMs. Table 6-10 provides a template of the basic information that is required in the PSD application.

Table 6-10 Class I AQRV Screening Assessment

Pollutant	**Annual Emission** *(lbs)*	**Annual Emission** *(Tons)*
SO2		
PM10		
NOx		
Sulfuric Acid Mist		
Total Tons per Year		
Class I Areas		
[Class I Area Name]	Distance (km) From Project	
	Q/d	
	Refined Class I Assessment Required	Yes/NO

If the FLM does not concur with the findings of the AQRV screening method or does not agree that the screening method is appropriate for the proposed project the applicant would, generally, be required to perform a refined AQRV assessment.

6.3.2.2.2 Refined AQRV Assessment

The District defers to the FLMs for guidance on addressing a refined AQRV assessment. The applicant should ensure that the District is included in all correspondence To and From the FLMs.

6.3.2.3 Class I Visibility Impairment Assessment – E2-3 [§52.21(p)(3)]

A Class I Visibility Impairment Assessment is intended to determine if a new major source or major modification has the potential to adversely impair visibility in any Federal Class I Area. An adverse impact on visibility means a visibility impairment which interferes with the management, protection, preservation or enjoyment of the visitor's visual experience of the Federal Class I Area.

This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency and time of visibility impairment, and how these factors correlate with (1) the time periods a visitor use of the Federal Class I area, and (2) the frequency and timing of natural conditions that reduce visibility.

CAUTION!!
The applicant must submit the visibility assessment to the FLMs for review and concurrence. The District will require that the screening visibility assessment be included in the PSD application.

The FLM FLAG report recommends two methods for determining if visibility impairment would occur at a Class I Area based on; 1) Near Field and 2) Distant/Multi-Source. These methods are discussed below.

6.3.2.3.1 Near Field Visibility Impairment Assessment

For sources within 50 km of a Class I Area, the FLMs recommend the use of VISCREEN (EPA 1992a) to evaluate the change in the color difference index (ΔE) and contrast between the plume and the viewing background. Information on running the VISCREEN model can be found in the manual "Workbook for Plume Visual Impact Screening and Analysis," EPA-450/R-92-023 (92) http://tinyurl.com/EPA1992plume.

Figure 6-8 provides a flow chart that describes the basic process for determining if the near field visibility impairment assessment is considered significant or not. The determination of significance should be based on color difference index (ΔE) and contrast values provided in the FLAG report or those recommended by the FLMs.

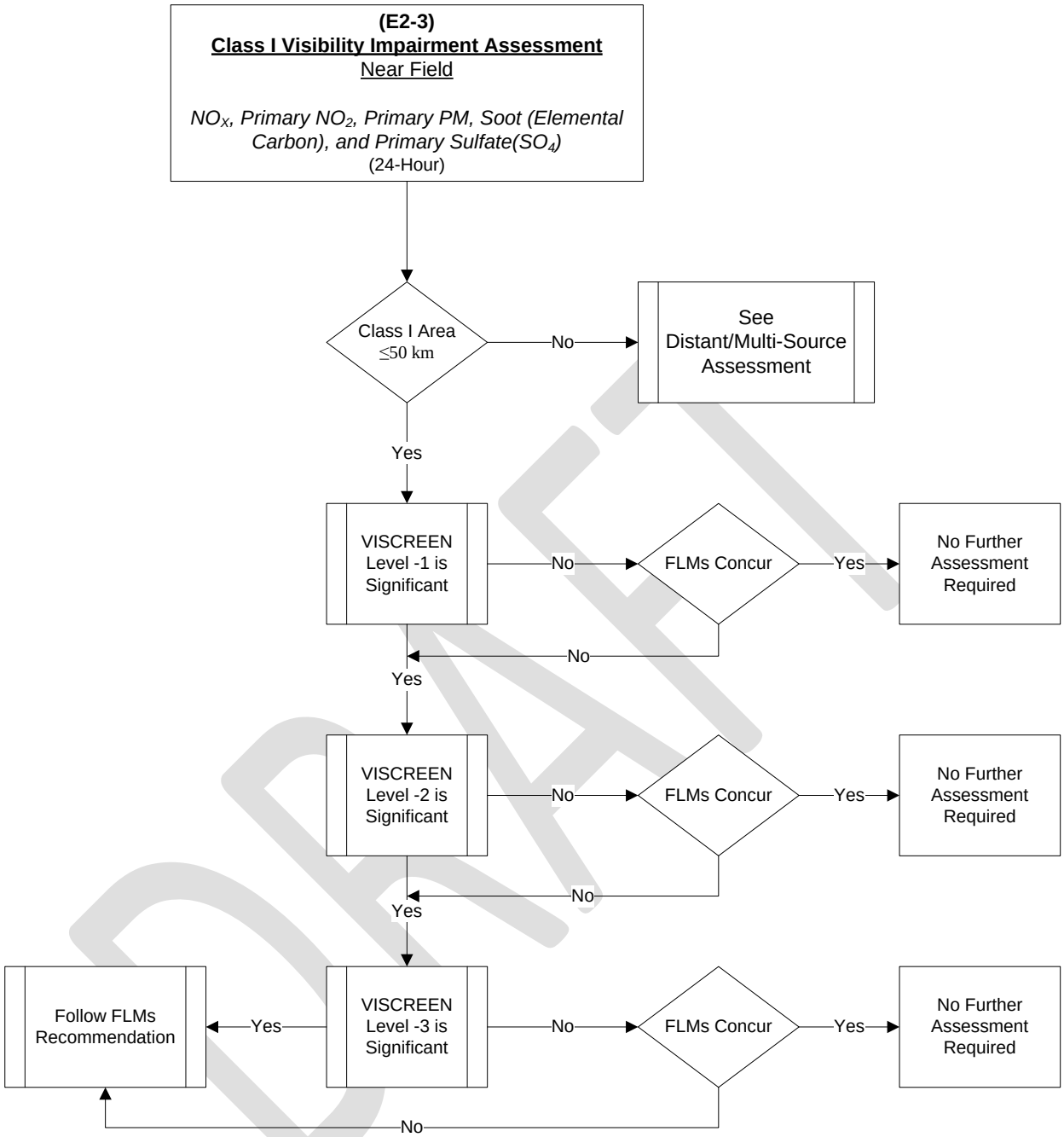


Figure 6-8 Visibility Impairment - Near Field

6.3.2.3.2 Distant/Multi-Source Visibility Impairment Assessment

For sources greater than 50 km from a Class I Area, the FLMs recommend applying the Q/D test, found in Section 6.3.2.2.1 above, to determine whether or not any further visibility assessment is necessary. If further review is required, then the FLMs recommend the use of the CALPUFF model to determine the impact on visibility. If CALPUFF is required, the recommendation from the FLMs should be followed.

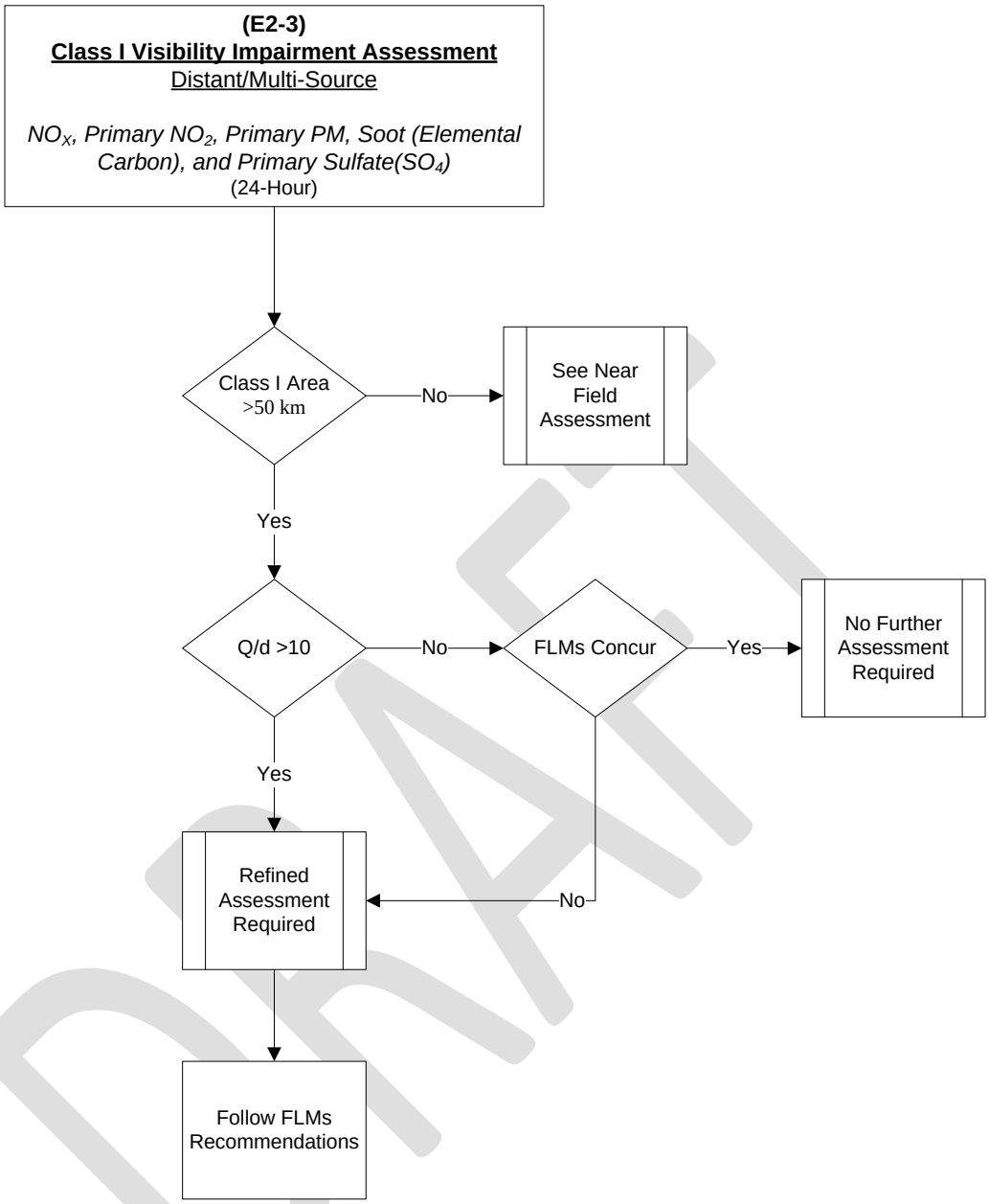


Figure 6-9 Visibility Impairment - Distant/Multi-Source

6.3.2.4 Class I Increment Assessment – E2-4 [§52.21(k)(1)(ii)]

Similar to a SIL Assessment, any regulated pollutant determined to be significant and near a Class I Area or a Class I Area requested by the reviewing agencies to be evaluated, must be evaluated to determine if it would cause or contribute to a violation of a Class I Increment.

6.3.2.4.1 Basic Process

A Class I Increment assessment is only required for those regulated pollutants for which an increment has been established. Increment values have been established for PM2.5, PM10, NO2, and SO2 only. Table 6-11 provides a complete list of those regulated pollutants and averaging periods for which an

increment has been established and their values. Additionally, this table can be used to summarize the results of the Increment Assessment.

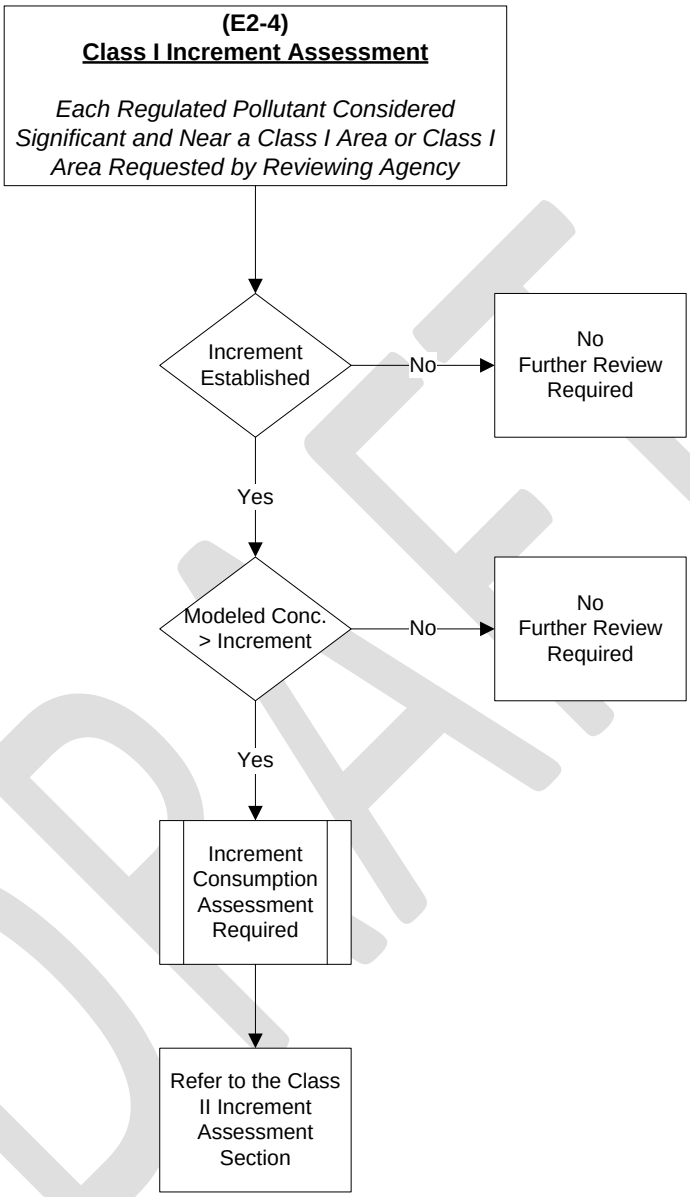


Figure 6-10 Class I Increment Assessment

Table 6-11 Class I Increment Assessment

Regulated Pollutant	Project Regulated Pollutant (Yes/No)	Averaging Period	Increment ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Consumption Assessment Required (Yes/No)
Carbon monoxide[1]		---	---	---	---
Nitrogen dioxide		1-hour[1]	---		
		annual	2.5		
PM_{10}		24-hour	8		
		annual	4		

Table 6-11 Class I Increment Assessment

Regulated Pollutant	Project Regulated Pollutant (Yes/No)	Averaging Period	Increment ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Consumption Assessment Required (Yes/No)
Sulfur dioxide		1-hour[1]	---		
		3-hour	25		
		24-hour	5		
		annual	2		

1- No Increment established

6.3.2.4.2 Class I Increment Consumption

When a Class I Increment Assessment is triggered, the assessment follows the same process as that of the Class II Increment Assessment (E3-3) except that the evaluation is limited to the Class I Area. Therefore, the applicant is referred to the Class II increment Assessment (E3-3) section of this document for detailed information on performing a Class I Increment Assessment.

6.3.3 Class II Analyses E3

The Class II Analyses focus on determining if a Class II Area is adversely impacted by a proposed new source or modification of an existing source. In order to make this determination three assessments are generally conducted: 1) SIL Assessment, 2) Cumulative Impact Assessment, and 3) Increment Assessment, see Figure 6-11 below. Each of these assessments is discussed below.

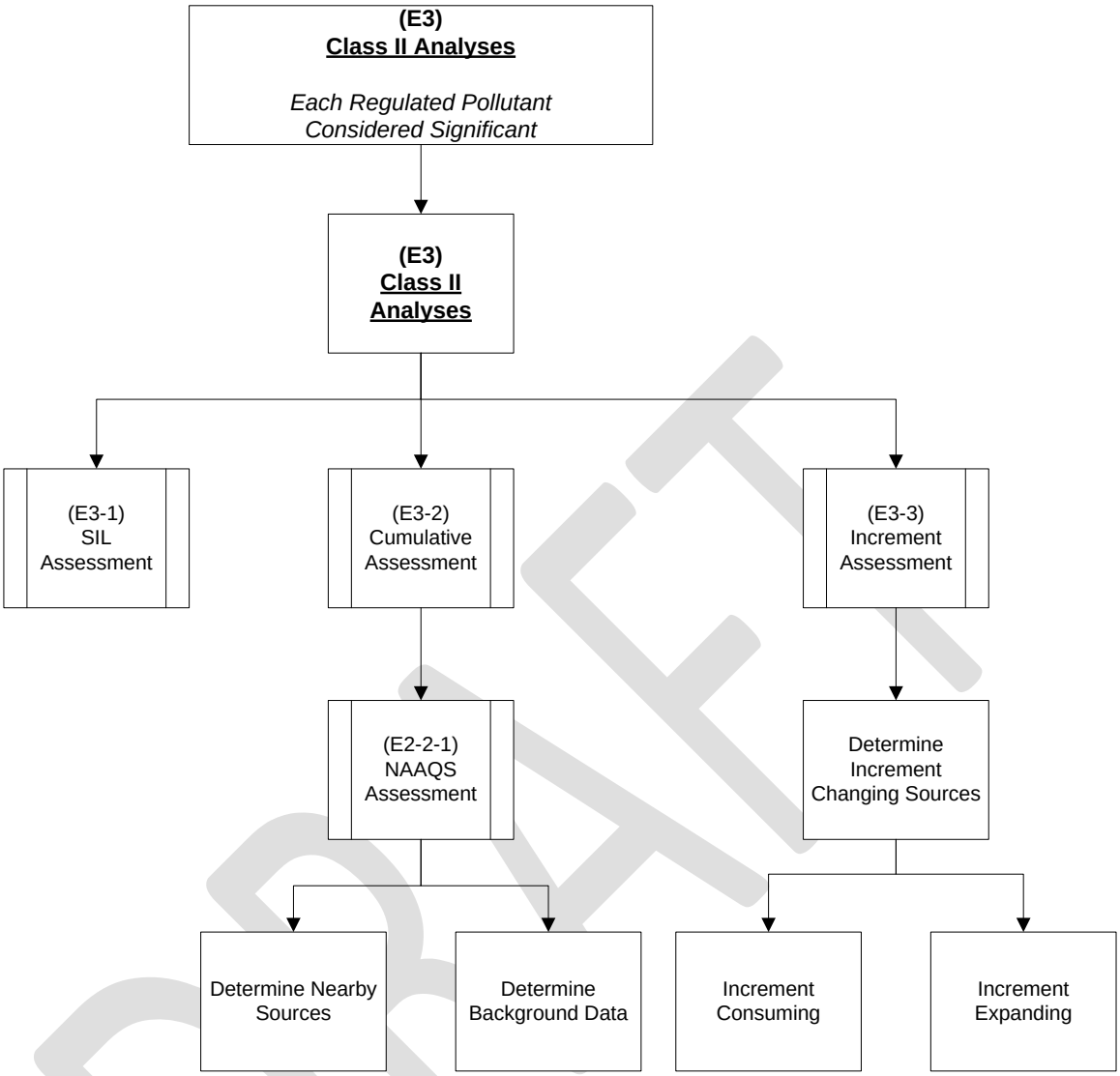


Figure 6-11 Class II Analyses

6.3.3.1 SIL Assessment E3-1

Any regulated pollutant determined to be significant must be evaluated to determine if it would cause or contribute to a violation of a NAAQS. A SIL assessment, also known as a preliminary analysis, is only required for those pollutants that have a NAAQS.

6.3.3.1.1 Basic Process

The SIL Assessment is a comparison of the project's modeled concentration, on a pollutant by pollutant and averaging period basis, to the allowed Class II significant impact level (SIL). If a pollutant is determined to have a modeled concentration less than the Class II SIL no further assessments are required. If no SIL exists for a specific pollutant and averaging period then a SIL assessment is not required. On the other hand, if the modeled ambient concentration is greater than the Class II SIL further review will be required in the form of a cumulative impact and increment assessments.

Table 6-12 can be used to summarize the results of the modeling runs and to make the determination if a Class II Cumulative Impact and Increment Assessments must be performed. Figure 6-12 provides a flow chart that describes the process for determining compliance with the SIL assessment and when a cumulative impact and increment assessments are required.

CAUTION!!
When determining if a pollutant's concentration is greater than an applicable SIL the highest 1st high modeling concentration should be used for a given averaging period.

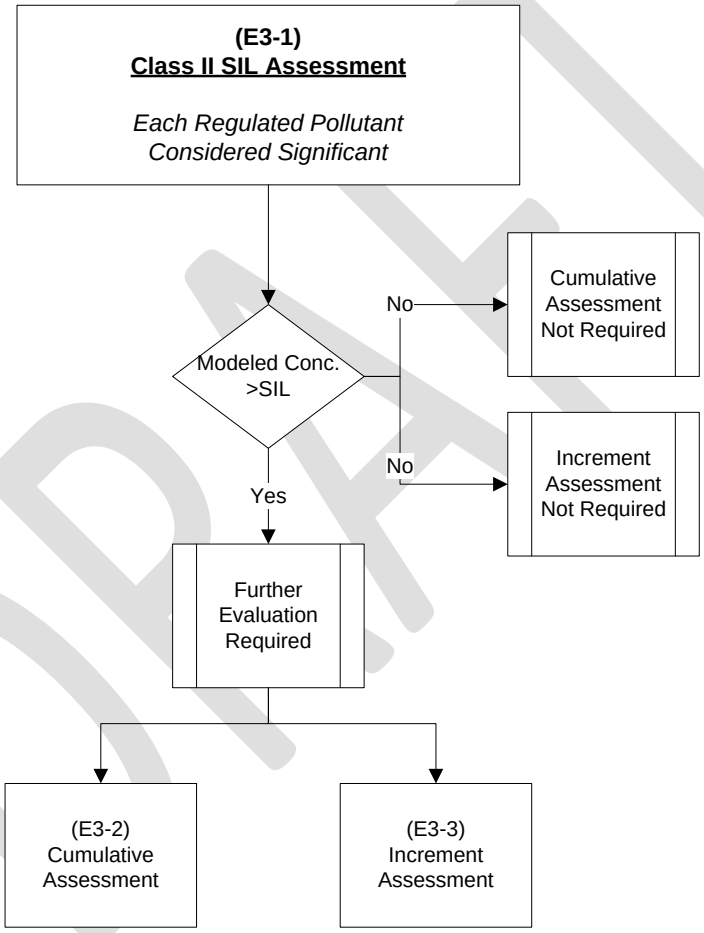


Figure 6-12 Class II SIL Assessment

Table 6-12 Class II SIL Assessment - Cumulative

Regulated Pollutant	Averaging Period	SIL Class II ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Cumulative / Increment Assessment Required (Yes/No)
Carbon Monoxide	1-hour	500		
	8-hour	2000		
Nitrogen dioxide	1-hour[1]	7.5		
	Annual	1.0		
PM_{10}	24-hour	5		
	Annual	1		
Sulfur dioxide	1-hour[1]	7.8		
	3-hour	25		
	24-hour	5		
	Annual	1		

1 = Interim SIL value

6.3.3.1.2 SIL Assessment Modeling Domain

Section 8.2.2, entitled "Critical Receptor Sites", of 40 CFR Part 51, Appendix W states "…where violations of the NAAQS or PSD increment are likely, 360 receptors for a polar coordinate grid system and 400 receptors for a rectangular grid system, where the distance from the source to the farthest receptor is 10 km, are usually adequate to identify areas of high concentration.".[4]

As stated above, a project's SIL Assessment modeling domain should, at a minimum, extend out to 10 km, see Figure 6-13. If the maximum impacted receptor is found on the edge of the 10 km grid then the grid must be extended to ensure that the maximum impact is identified. This process should be repeated until the maximum impact is identified within the modeling domain.

NOTE!!
To provide more clarification, the District has developed additional guidance that provides additional details/requirements for constructing a proper modeling domain. The guidance is entitled "Policy for PSD Modeling Guidance for Determining Modeling Domain" and can be found on the District's website.

6.3.3.1.3 Receptor Spacing

As noted above, a receptor grid out to 10 km must be constructed, at a minimum, in order to appropriately identify the significant impact area (SIA). A telescoping grid system may be used to identify the SIA. If the SIA is identified within a grid spacing of greater than 100 meters it is recommended that a refined 100 meter grid system be constructed such that the SIA falls within this

[4] This section is an excerpt of the 7–1–03 version of the CFR which was removed in error in the latest version (http://www.epa.gov/scram001/guidance/guide/appw_03.pdf or http://www.gpo.gov/fdsys/pkg/CFR-2005-title40-vol2/pdf/CFR-2005-title40-vol2-part51-appW.pdf). EPA is working on updating the CFR to reincorporate this section.

refined grid. It is recommended that before starting any modeling runs that the reviewing agency be consulted.

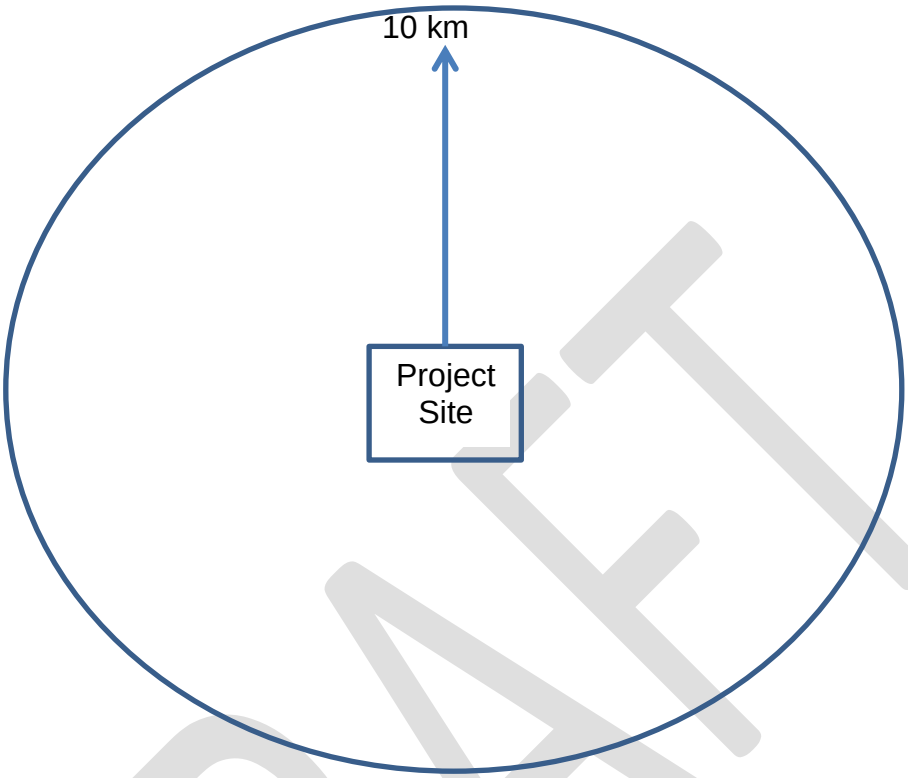


Figure 6-13 SIL Modeling Domain

6.3.3.1.4 $PM_{2.5}$ SIL Assessment

Currently the District is Non-Attainment for $PM_{2.5}$ and; therefore, $PM_{2.5}$ is not a regulated pollutant that is evaluated under District Rule 2410 PSD at this time. The following is provided as informational only. The flow chart was developed using the draft PM2.5 guidance released by EPA on March 4, 2013.

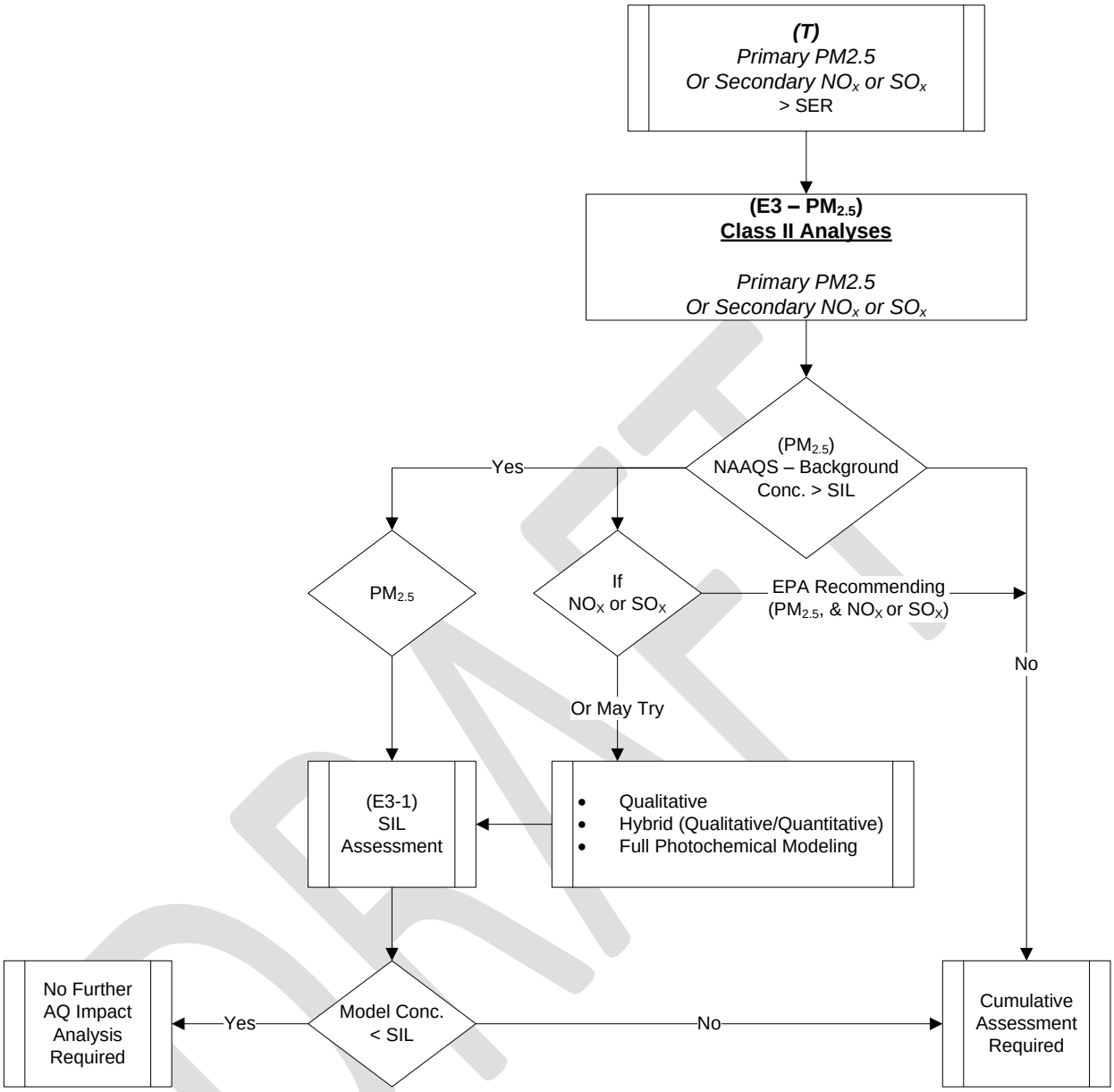


Figure 6-14 Class II $PM_{2.5}$ SIL Assessment

6.3.3.2 Cumulative Impact Assessment E3-2

Any regulated pollutant determined to have a modeled concentration greater than its significant impact level (SIL) is required to perform a cumulative impact assessment, also known as a full impact analysis.

6.3.3.2.1 Basic Process

The Cumulative Impact Assessment is a comparison of the modeled concentration, on a pollutant by pollutant and averaging period basis, to the allowed National Ambient Air Quality Standard (NAAQS). Unlike the modeled concentration SIL assessment, the modeled concentration for the cumulative impact assessment is comprised of four components; 1) modeled concentration from the proposed project, 2) modeled concentration from

secondary emission sources, 3) the modeled concentration from nearby sources, and 4) the representative monitor concentration if no onsite data is available. The sum of these four components is compared to the pollutant's NAAQS. Table 6-13 can be used to summarize the results of the modeled concentrations and to determine if further review is required. Figure 6-15 provides a flow chart that describes the process for determining compliance with the Cumulative Impact assessment.

CAUTION!!
As per §52.21(b)(18), "Secondary emissions do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel."

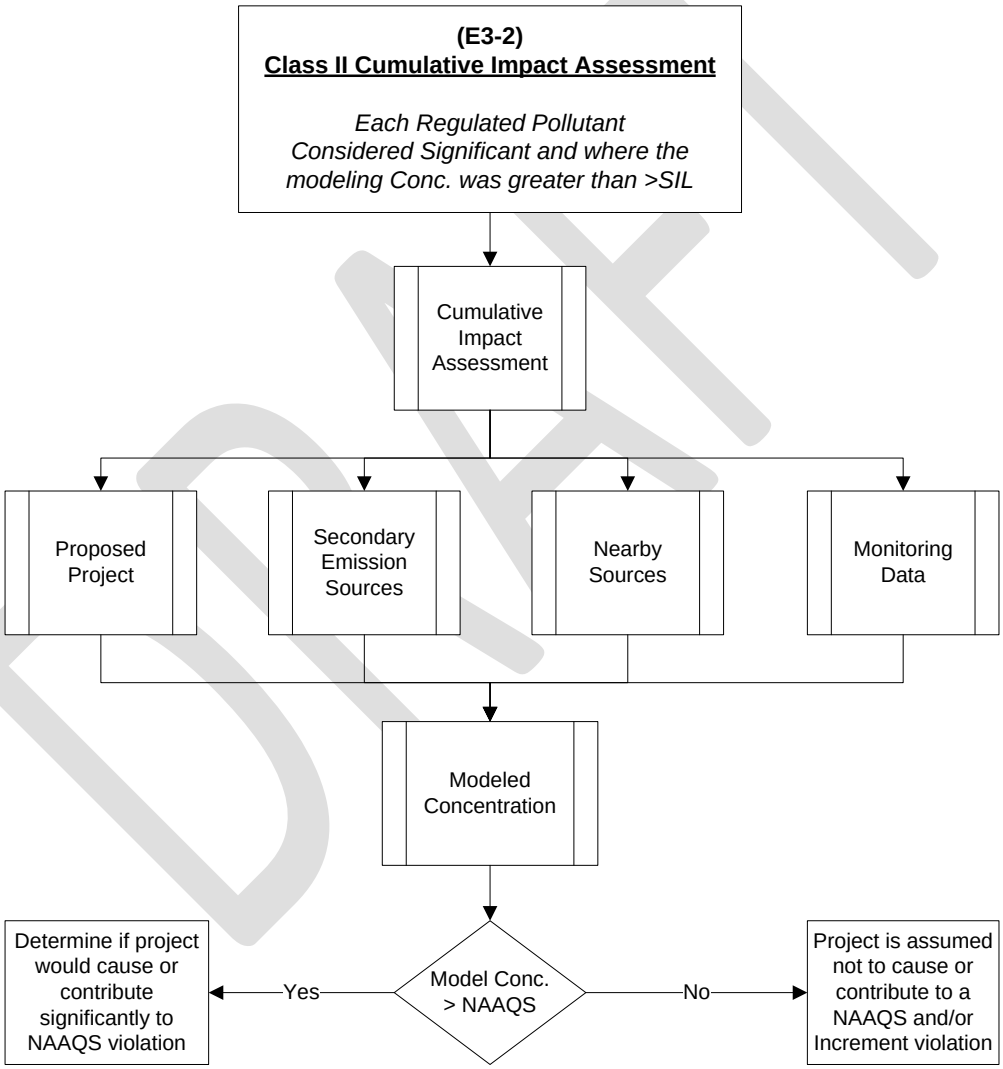


Figure 6-15 Cumulative Impact Assessment

Table 6-13 Class II Cumulative Impact Assessment - NAAQS

Regulated Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Significance Determination Required (Yes/No)
Carbon Monoxide	1-hour	40,000		
	8-hour	10,000		
Nitrogen dioxide	1-hour	188		
	Annual	100		
PM_{10}	24-hour	---	---	---
	Annual	150		
Sulfur dioxide	1-hour	196		
	3-hour	1300		
	24-hour	365		
	Annual	80		

6.3.3.2.2 Significant Impact Area

The significant impact area (SIA) is defined as the area, more specifically the receptors, where the SIL assessment showed that the modeled concentration was greater than the SIL for a given pollutant and averaging period. For the cumulative impact assessment, only those receptors defined as being in the SIA are required to be evaluated.

6.3.3.2.3 Receptor Spacing

If the SIA is found to be located in the coarse grid, (> than 100 meter spacing), of the modeling domain, it is recommended that the grid be refined such that the grid space within the SIA is no greater than 100 meters.

Additionally, to simplify the process, the applicant can generate a new polar receptor grid that is centered on the maximum impacted receptor identified in the SIL assessment extending out to the farthest edge of the SIA with a grid spacing no greater than 100 meters. If multiple averaging periods are being evaluated for a given pollutant the new receptor grid can be extend so that the new receptor grid encompasses the farthest edge of all the SIAs for that pollutant.

NOTE!!
Further guidance is provided in the document entitled “Policy for PSD Modeling Guidance for Determining Modeling Domain” found on the District’s website.

6.3.3.2.4 Nearby Sources

As noted in Section 6.3.3.1, a receptor grid extending out to 10 km is usually sufficient to identify the area(s) with the highest concentration. Therefore, sources that are within 10 km of the maximum impacted receptor(s) should be evaluated for inclusion in a cumulative impact assessment see Figure 6-17. If more than one impact area is identified, each area must be evaluated and sources within 10 km of each of those areas must be reviewed for inclusion.

Additionally, any sources within 15 km of the maximum impacted receptor that have a pollutant emissions rate greater than or equal to a SER threshold should also be evaluated for inclusion in the cumulative impact assessment. A source(s) that is/are considered to impact a nearby monitor, within 10 km of the maximum impacted receptor, and is/are assumed to be included in the monitor's reported concentration can be excluded from the cumulative impact assessment with concurrence of the reviewing agency. This is done to ensure that the pollutant concentration is not double counted in the cumulative impact assessment. Other sources that can be justified as being represented in the monitor's reported concentration can also be excluded from the cumulative impact assessment with approval from the reviewing agency. All sources should be reported in the PSD Modeling section/report including those sources excluded from modeling.

NOTE!!
Further guidance is provided in the document entitled "Policy for PSD Modeling Identification of Sources for inclusion in a Cumulative Impact Assessment" and "Policy for PSD Modeling Monitor Selection" found on the District's website.

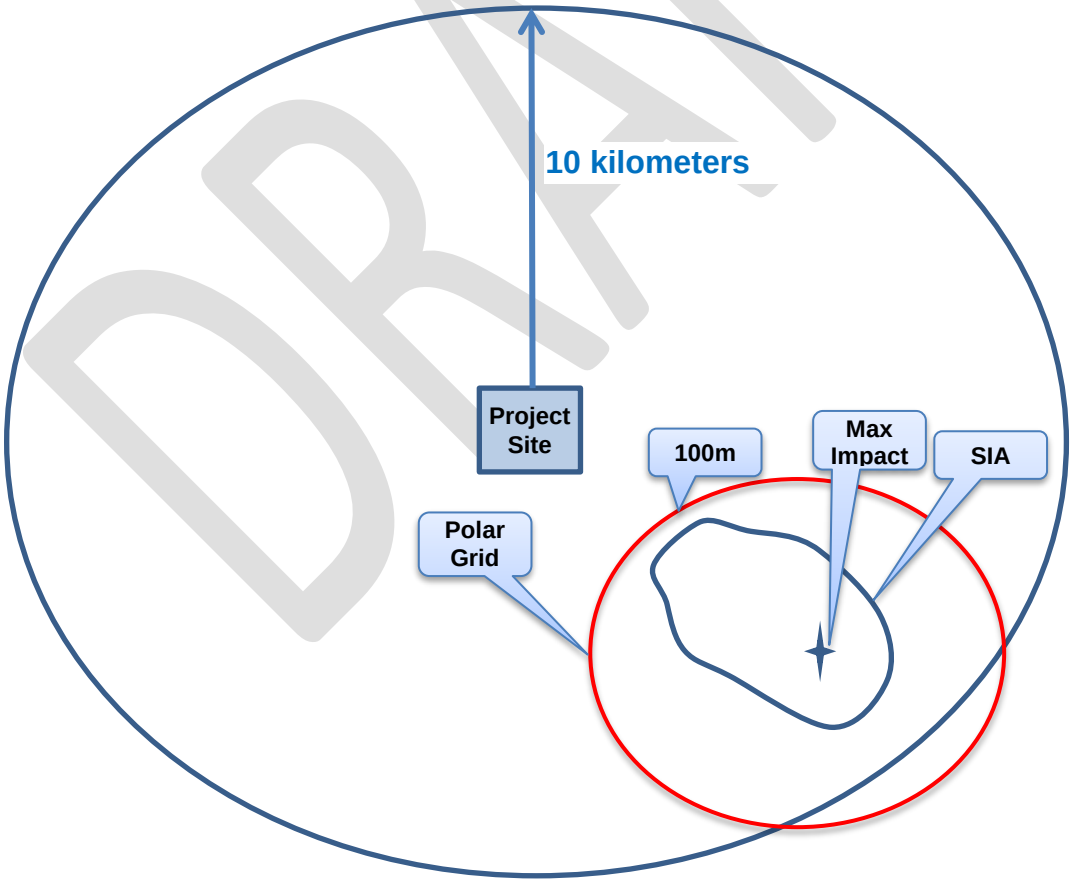


Figure 6-16 Significant Impact Area (SIA)

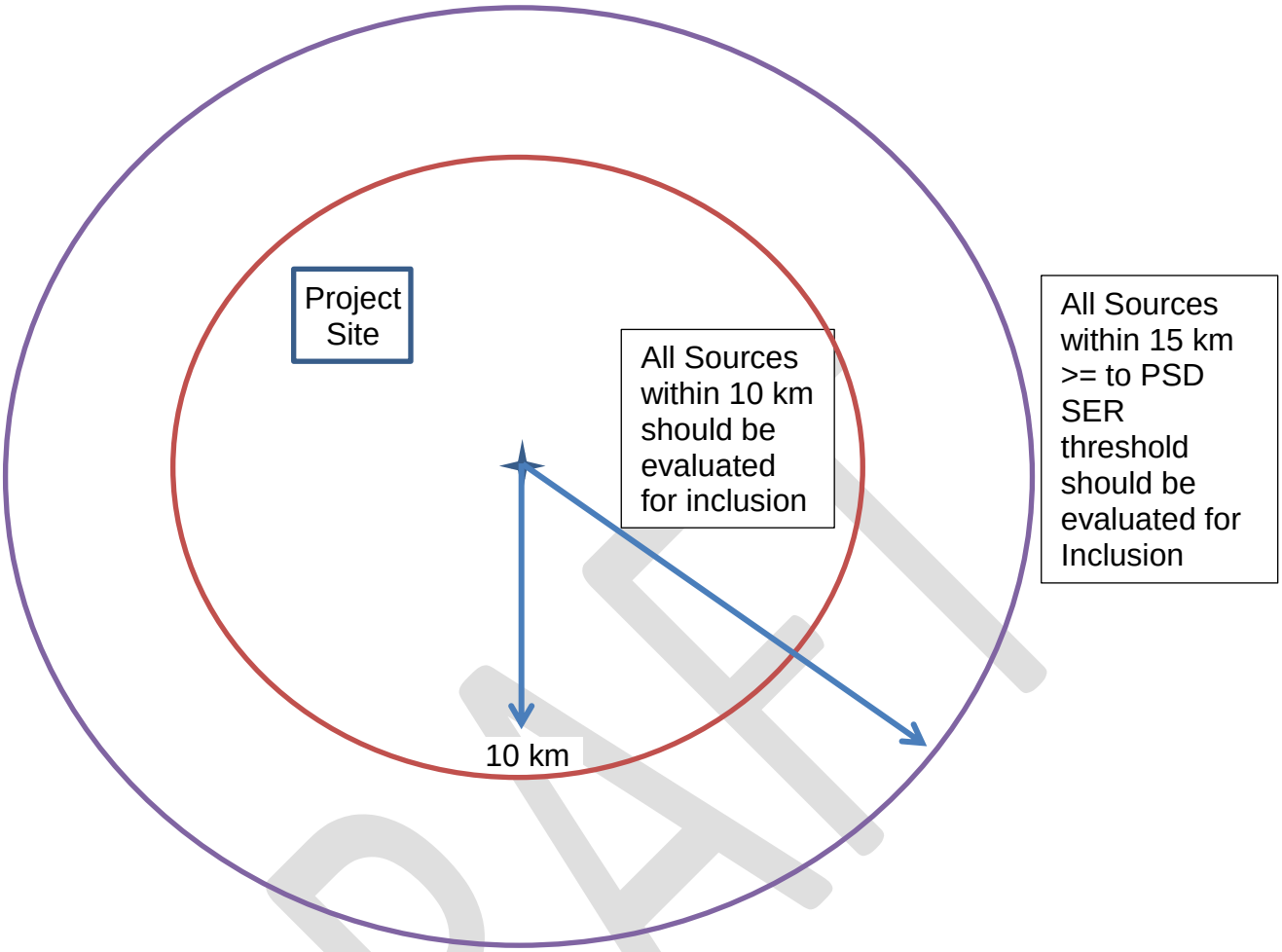


Figure 6-17 Cumulative Impact Assessment - Nearby Sources

6.3.3.2.5 NAAQS Significance Determination

If a pollutant's cumulative modeled concentration is greater than its NAAQS, an assessment must be made to determine if the proposed project would cause or contribute significantly to an ambient air quality violation.

6.3.3.2.5.1 Basic Process

For each pollutant and averaging time that has a cumulative impact greater than the NAAQS, a determination of the project's contribution to the modeled exceedance must be made. If the contribution from the project is less than the SIL, at all receptors over the NAAQS, the project is assumed not to contribute significantly to an exceedance of the NAAQS. If the contribution from the project is greater than the SIL, at any receptor over the NAAQS, the project is assumed to contribute to an exceedance of the NAAQS. All projects considered not to be contributing or to be contributing significantly to a violation of a NAAQS requires mitigation. Mitigation in this circumstance is required because there has been a modeling exceedance of a NAAQS. (Any modeled NAAQS violation must be mitigated.)

There are three paths that a project can take at this point; 1) Provide mitigation, once included in the model, that shows no violation of a NAAQS at any receptor, 2) The reviewing agency proceeds with a SIP revision to account for the violation and show how it will be mitigated, or 3) The project is not allow as proposed. Figure 6-18 provides a flow chart that describes the Significance Determination process.

NOTE!!
The reviewing agency should be consulted if a project must go through a significance determination to ensure that all requirements have been met and any issues have been addressed.

Table 6-14 can be used to summarize the results of the significance determination and if emission reductions are required.

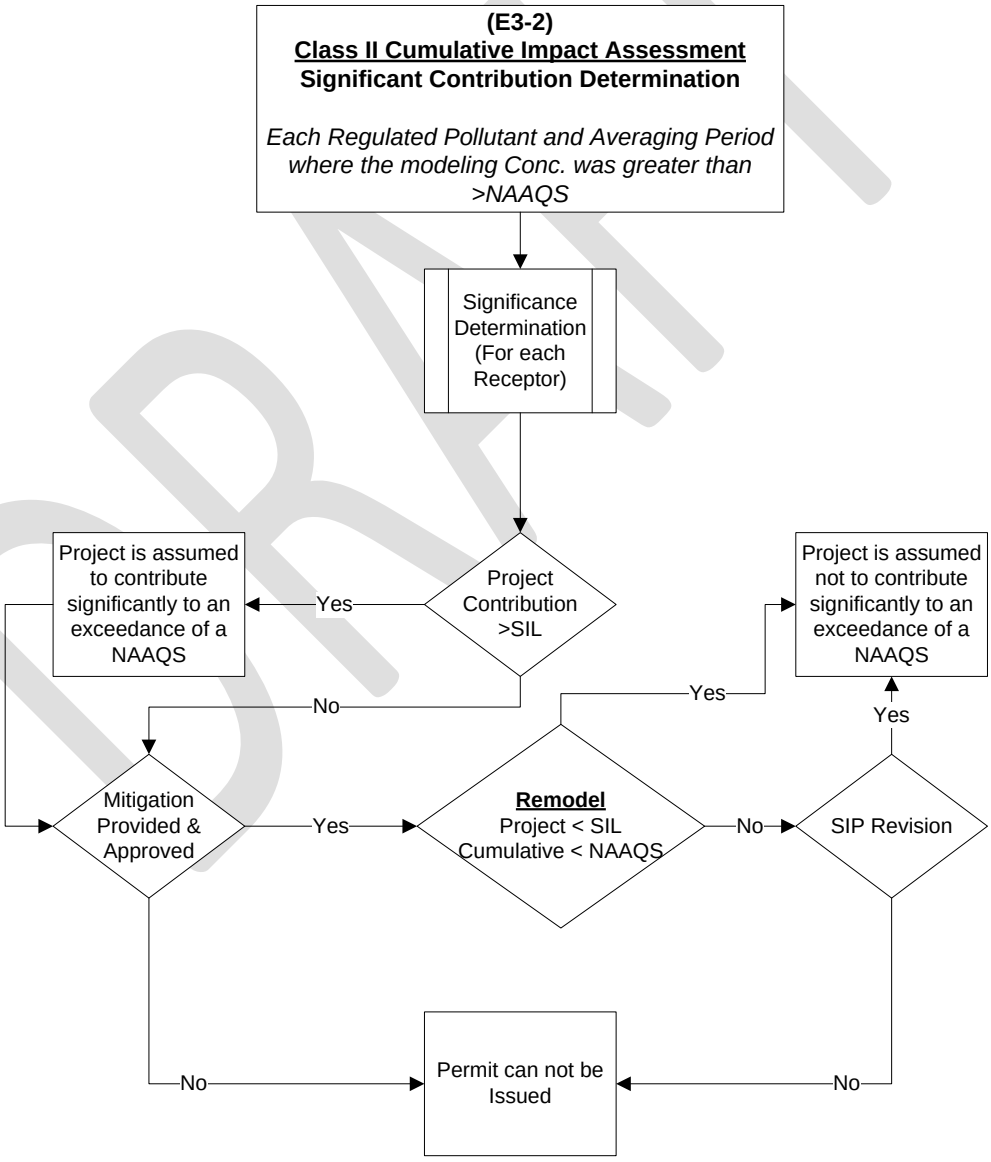


Figure 6-18 Significance Determination

Table 6-14 Class II SIL – Significance Determination

Regulated Pollutant	Averaging Period	SIL Class II ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Significant (Yes/No)	Significance Determination (Yes/No)
Carbon Monoxide	1-hour	500			
	8-hour	2000			
Nitrogen dioxide	1-hour	7.5			
	Annual	1.0			
PM_{10}	24-hour	5			
	Annual	1			
Sulfur dioxide	1-hour	7.8			
	3-hour	25			
	24-hour	5			
	Annual	1			

6.3.3.3 Increment Assessment E3-3

Any regulated pollutant determined to have a modeled concentration greater than its significant impact level (SIL) is required to perform an Increment Assessment. An increment assessment is required only for those pollutants and averaging periods for which EPA has established a Class II increment value.

6.3.3.3.1 Basic Process

For each pollutant and averaging time that has an impact greater than its SIL and has a Class II increment value an Increment Assessment must be conducted. An Increment Assessment must determine if the project's impact along with existing unit(s) at the facility and other permitted sources (Major or Minor), Area sources, and Mobile sources constructed after the minor source baseline date cumulatively have an impact greater than the Class II Increment. If the cumulatively modeled concentration is less than the Class II Increment no further evaluation is required. If the cumulatively modeled concentration is greater than the Class II increment then a determination of significance must be made. The significance determination evaluates the contribution the proposed project has on the increment violation for each receptor during the specific time period that was identified as violating the increment. If the proposed project's modeled concentration is below the SIL, it is determined not to contribute to a violation of the Class II increment and no further evaluation is needed. If the proposed project's modeled concentration is above the SIL, it is determined to contribute to a violation of the Class II increment and a PSD permit cannot be issued.

NOTE!!

1. The determination if the cumulative concentration is greater than or less than the increment threshold must consider both increment consuming and increment expanding activities.
2. The assessment described in this section is only for those receptors within the SIA (significant impact area). Therefore, receptors modeled in the SIL Assessment that are below a pollutant's SIL are excluded from this assessment.

3. Once an Increment Assessment has been conducted, the increment consumption/expansion for those receptors identified should be collected and archived for future increment assessments that may affect the identified receptors.

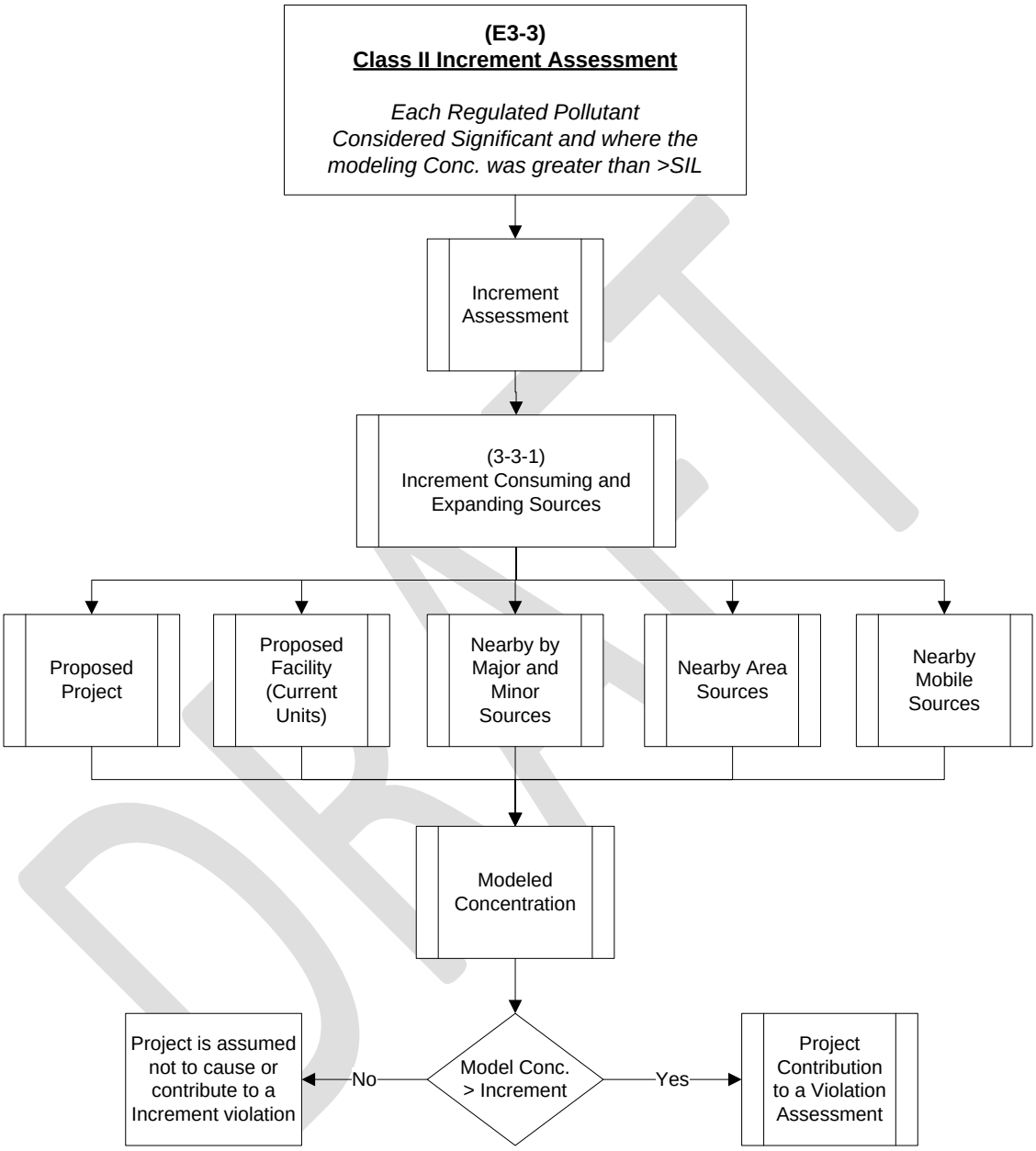


Figure 6-19 Class II Increment Assessment

Table 6-15 can be used to summarize the results of the Increment determination and if mitigation is required. Figure 6-21 provides a flow chart that describes the Significance Determination process.

CAUTION!!
When making an increment determination on property owned by a facility that also has units included in the increment assessment; the contribution from those units must be subtracted from the total concentration before determining if a modeled violation will occur.

Table 6-15 Class II Increment Assessment

Regulated Pollutant	Averaging Period	Class II Increment ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Significant (Yes/No)	Significance Determination Required (Yes/No)
Carbon Monoxide	1-hour	---	---		---
	8-hour	---	---		---
Nitrogen dioxide	1-hour[2]	---	---		---
	Annual[1]	25			
PM_{10}	24-hour	30			
	annual	17			
Sulfur dioxide	1-hour[2]	---	---		---
	3-hour	512			
	24-hour	91			
	annual	20			

6.3.3.3.2 Significant Impact Area

The significant impact area (SIA) for the purposes of conducting a Class II increment assessment is the same area defined in the SIL assessment which is the area, more specifically the receptors, where the SIL assessment showed that the modeled concentration was greater than the SIL for a given pollutant and averaging period. For the increment assessment, only those receptors defined as being in the SIA are required to be evaluated.

6.3.3.3.3 Receptor Spacing

If the SIA is found to be located in the coarse grid, (> than 100 meter spacing), of the modeling domain, it is recommended that the grid be refined such that the grid space within the SIA is no greater than 100 meters.

Additionally, to simplify the process, the applicant can generate a new polar receptor grid that is centered on the maximum impacted receptor identified in the SIL assessment extending out to the farthest edge of the SIA with a grid spacing no greater than 100 meters. If multiple averaging periods are being evaluated for a given pollutant, the new receptor grid can be extended so that the new receptor grid encompasses the farthest edge of all the SIAs for that pollutant.

NOTE!!
Further guidance is provided in the document entitled “Policy for PSD Modeling Guidance for Determining Modeling Domain” found on the District’s website.

6.3.3.3.4 Nearby Sources

As noted in Section 6.3.3.1, a receptor grid extending out to 10 km is usually sufficient to identify the area(s) with the highest concentration. Therefore, sources that are within 10 km of the maximum impacted receptor(s) should be evaluated for inclusion in an increment assessment see Figure 6-17. If more than one impact area is identified, each area must be evaluated and sources within 10 km of each of those areas must be reviewed for inclusion.

Additionally, any sources within 15 km of the maximum impacted receptor that have a pollutant emissions rate greater than or equal to a SER (significant emissions rate) threshold should also be evaluated for inclusion in the increment assessment. All sources should be reported in the PSD Modeling section/report including those sources excluded from modeling.

Further guidance is provided in the document entitled "Policy for PSD Modeling Guidance for Identifying Sources to be Evaluated for Inclusion in an Increment Assessment" found on the District's website.

6.3.3.3.5 Increment Significance Determination

If after the initial increment assessment a receptor(s)'s concentration(s) is/are greater than the pollutant specific increment threshold, a determination must be made to determine if the proposed project would cause or contribute significantly to an increment violation.

6.3.3.3.6 Emissions Estimation (Consumption or Expansion)

Once an emission unit has been identified, it needs to be categorized as an increment consuming or increment expanding source. This process can be broken down into two subcategories as 1) Sources operating before the minor source baseline date and 2) Sources that started operation after the minor source baseline date. Figure 6-20 provides a flow chart that describes the emissions estimation process.

6.3.3.3.6.1 Source Operating Before the Minor Source Baseline Date

For the purpose of an increment assessment, a source that is in operation before the baseline date does not need to be included in the increment assessment unless the source has been modified (permitted sources) or has had increases (area / mobile sources) since the baseline date. In this case the source must be evaluated to determine if it is an increment expanding or consuming source. This is done by using the current/proposed permitted emissions limit and subtracting the pre-baseline emissions. For details on how to estimate a unit's pre-baseline emissions it is recommended that the reviewing agency be consulted.

NOTE!!
Further guidance is provided in the document entitled "Policy for PSD Modeling Guidance for Identifying Sources to be Evaluated for Inclusion in an Increment Assessment" found on the District's website.

6.3.3.3.6.2 Source that Started Operation After Minor Source Baseline Date

For the purpose of an increment assessment, a source that starts operation after the baseline date needs to be included in the increment assessment. This would include permitted sources, area / mobile sources with increases and new area / mobile sources since the baseline date. In this case the source must be evaluated to determine if it is an increment expanding or consuming source. This is done by using the current/proposed permitted emissions limit and subtracting modification(s) that reduce emissions and adding modification(s) that increase emissions. When dealing with area / mobile sources, the emission reductions and emissions increases are based on rules or regulations included in the state implementation plan (SIP).

NOTE!!

If the computation in 6.3.3.3.6.1 or 6.3.3.3.6.2 is positive the source is said to consume increment. If the computation in 6.3.3.3.6.1 or 6.3.3.3.6.2 is negative the source is said to expand the increment.

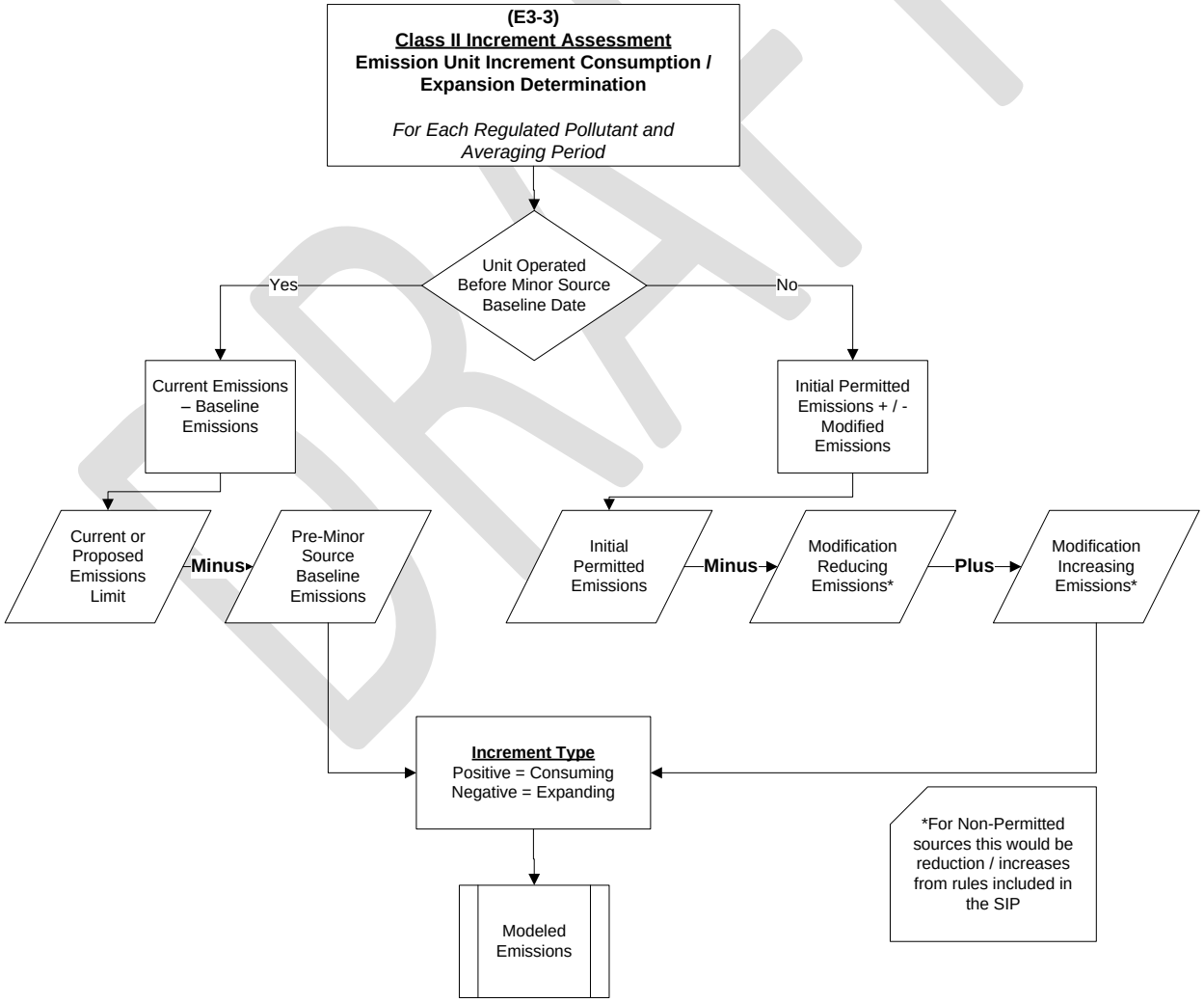


Figure 6-20 - Increment Emissions determination

6.3.3.3.7 Increment Significance Determination

A significance determination is made for each pollutant and averaging time that has a modeled concentration greater than the Class II Increment threshold. A determination of the project's contribution to the modeled violation must be made.

6.3.3.3.7.1 Basic Process

If the contribution from the project is less than the SIL, at all receptors that are over the increment threshold, the project is assumed not to contribute significantly to a violation of the Class II increment. If the contribution from the project is greater than the SIL, at any receptor over the Class II Increment threshold, the project is assumed to contribute to a violation of the Class II Increment. All projects considered not to be contributing or to be contributing significantly to a violation of an increment requires mitigation. Mitigation in this circumstance is required because there has been a modeling exceedance of an increment threshold. (Any modeled NAAQS violation must be mitigated.)

There are three paths that a project can take at this point; 1) Provide mitigation, once included in the model, that shows no violation of an increment value at any receptor, 2) The reviewing agency proceeds with a SIP revision to account for the violation and shows how it will be mitigated, or 3) The project is not allowed as proposed. Figure 6-21 provides a flow chart that describes the Significance Determination process.

NOTE!!
The reviewing agency should be consulted if a project must go through a significance determination to ensure that all requirements have been met and any issues have been addressed.

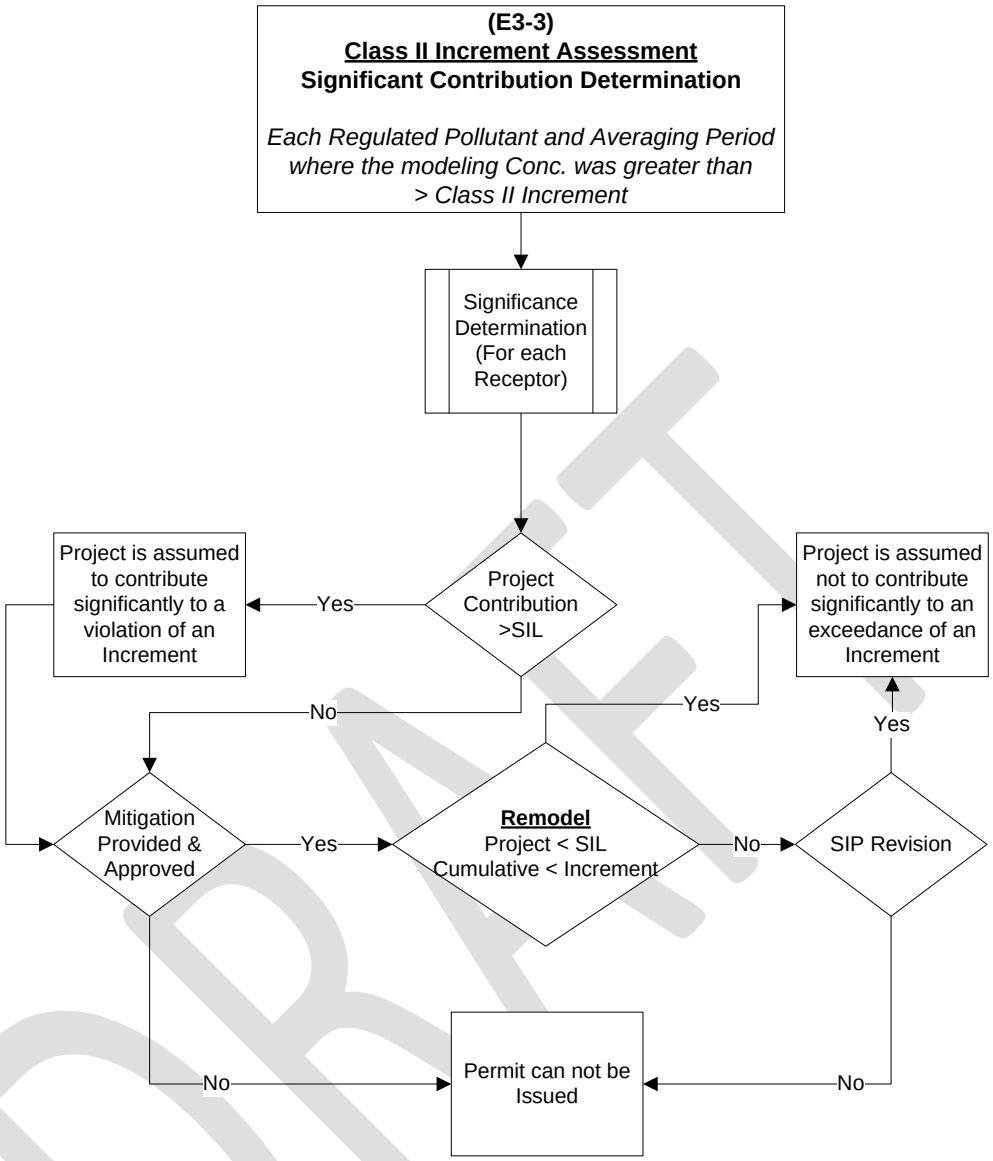


Figure 6-21 Class II Increment - Significance Determination

6.3.4 Other Analyses E4 [§52.21(O)]

The assessments found in this section should be included in any PSD modeling demonstration. These assessments are intended as informational only and should not be used as the sole basis for denying the issuance of a PSD permit. Therefore, these assessments are considered qualitative assessments used to inform the public and the lead agency of potential impacts as there may not be primary standard or significance thresholds that have been promulgated.

NOTE!!
It is the discretion of the lead agency to determine to what extent an assessment must be performed. This does not mean that the lead agency cannot or should not require a refined evaluation as it deems necessary to ensure that the impacts have been fully evaluated.

There are three assessments that should be performed as part of the Other Analyses 1) Soil & Vegetation, 2) Growth, and 3) Class II Visibility Impairment. Each assessment will be discussed further in subsequent sections.

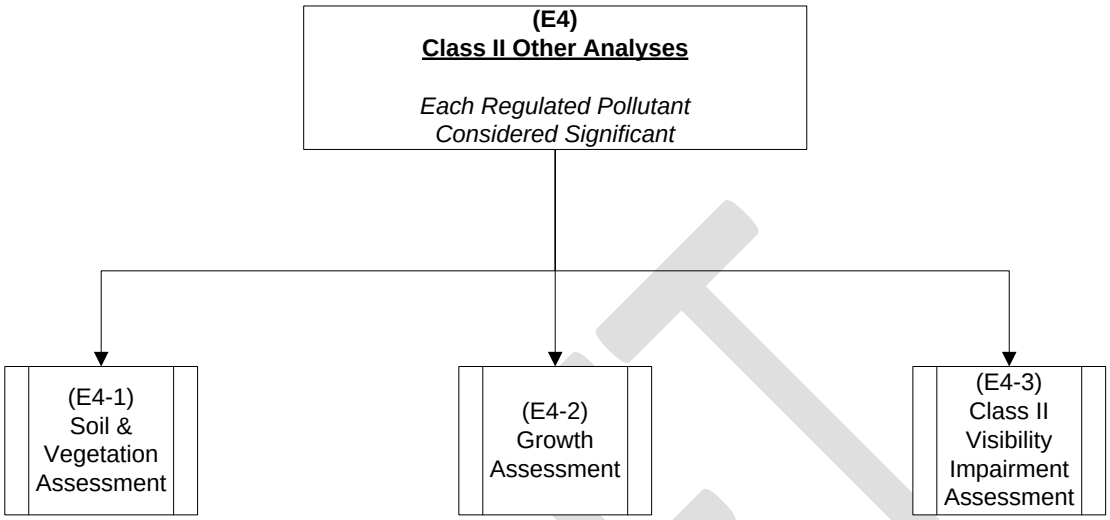


Figure 6-22 - Other Analyses

6.3.4.1 Soil & Vegetation Assessment E4-1

The soil and vegetation assessment should consider the potential impact that a project's emissions would have on the area surrounding the proposed project.

This would generally include:

- A survey of the area surrounding the project site to determine the soil and/or vegetation type and/or species that might be impacted by a project's emissions;
- A literature search of the pollutants being emitted by the project that have the potential to impact the soil and/or vegetation in the area surrounding the project;
- A screening assessment to determine the maximum ground-level concentration of each regulated pollutant that may have an impact on the soil and/or vegetation; and
- Identify any area that might be sensitive to emissions emitted by the proposed project.

The PSD report should include:

- A discussion of the soil and/or vegetation that may be effected by the proposed project's emissions and how those emissions may adversely impact the soil and/or vegetation identified;
- A discussion of the soil and/or vegetation that may be effected by the proposed project's emissions and how those emissions may adversely impact the soil and/or vegetation identified in sensitive area(s);

- A comparison of the project's impact compared to any threshold found during the literature search.

NOTE!!
A vegetation assessment is not required for any area that has no significant commercial or recreational value, as per §52.21(o). If the decision is made to exclude a vegetation species, the reviewing agency should be consulted. This is especially important if the species is located in a sensitive area such as a nature preserve or reserve.

6.3.4.1.1 Basic Process

To conduct a soil and/or vegetation assessment, an inventory that includes all the soil and/or vegetation types and/or species surrounding the proposed project should be developed. This would also include areas that have been identified as sensitive.

NOTE!!
Sensitive Areas or land use types are areas such as parks, State or Federal Preserves / Reserves and recreation areas and any other sensitive areas identified by the reviewing agency.

Once an inventory of the soil and vegetation has been completed, a literature search is conducted. The literature search is performed to ensure that the latest soil and/or vegetation sensitivity data is used for each applicable regulated pollutant emitted from the proposed project.

NOTE!!
Depending on the information found during the literature search for a particular soil and/or vegetation type and/or species, deposition modeling may be required. In addition, a project's toxic pollutants may also be required to be included in the deposition analysis.

This information should be compared to the predicted modeled concentration to determine if the proposed project has the potential to adversely impact any soil and/or vegetation surrounding the proposed project.

Caution!!
When conducting a soil & vegetation assessment the NAAQS secondary standards should not be used as the sole determining factor for assessing a project's potential impact. Potentially sensitive vegetation species may require a more careful examination. Some species may be harmed by long-term exposure to low pollutant concentrations. The analysis should evaluate predicted concentrations for the averaging periods associated with the averaging periods addressed in the applicable vegetation impact studies found in the literature search. Since multiple pollutants may impact soils and vegetation synergistically, the combined impacts may also need to be evaluated.

Web Links

1. The relative sensitivities of plants to NO2 can be found in Table 9-6 of EPA's "Air Quality Criteria for Oxides of Nitrogen, Summary of Vegetation Impacts" Volume II, August 1993 (EPA 600/8-91/049bF)
   Vegetation (Chapter 9) and Soil (Chapter 10)
   http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=300056QV.txt.

   Animal Chapter (13)
   http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=30001NI2.txt

2. Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties.
   http://websoilsurvey.nrcs.usda.gov/app/

3. U.S. EPA (U.S. Environmental Protection Agency), 1980. "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals. Final Report" EPA-450/2-81-078. December.
   http://tinyurl.com/EPA1980Soils

4. The National Park Service (NPS) and the U.S. Fish and Wildlife Service (FWS) have developed criteria for evaluating the contribution of additional nitrogen (N) or sulfur (S) to deposition within Class I areas.
   http://www.nature.nps.gov/air/Pubs/pdf/flag/nsDATGuidance.pdf - Summary
   http://www.nature.nps.gov/air/permits/flag/docs/DAT_CL_Guidance_2011.pdf
   DAT values for both N and S in eastern and western FLM areas are 0.010 and 0.005 respectively. Western mean west of the Mississippi.

5. Deposition data gathered by EPA
   http://www.epa.gov/ttn/scram/7thconf/aermod/driscdep.zip

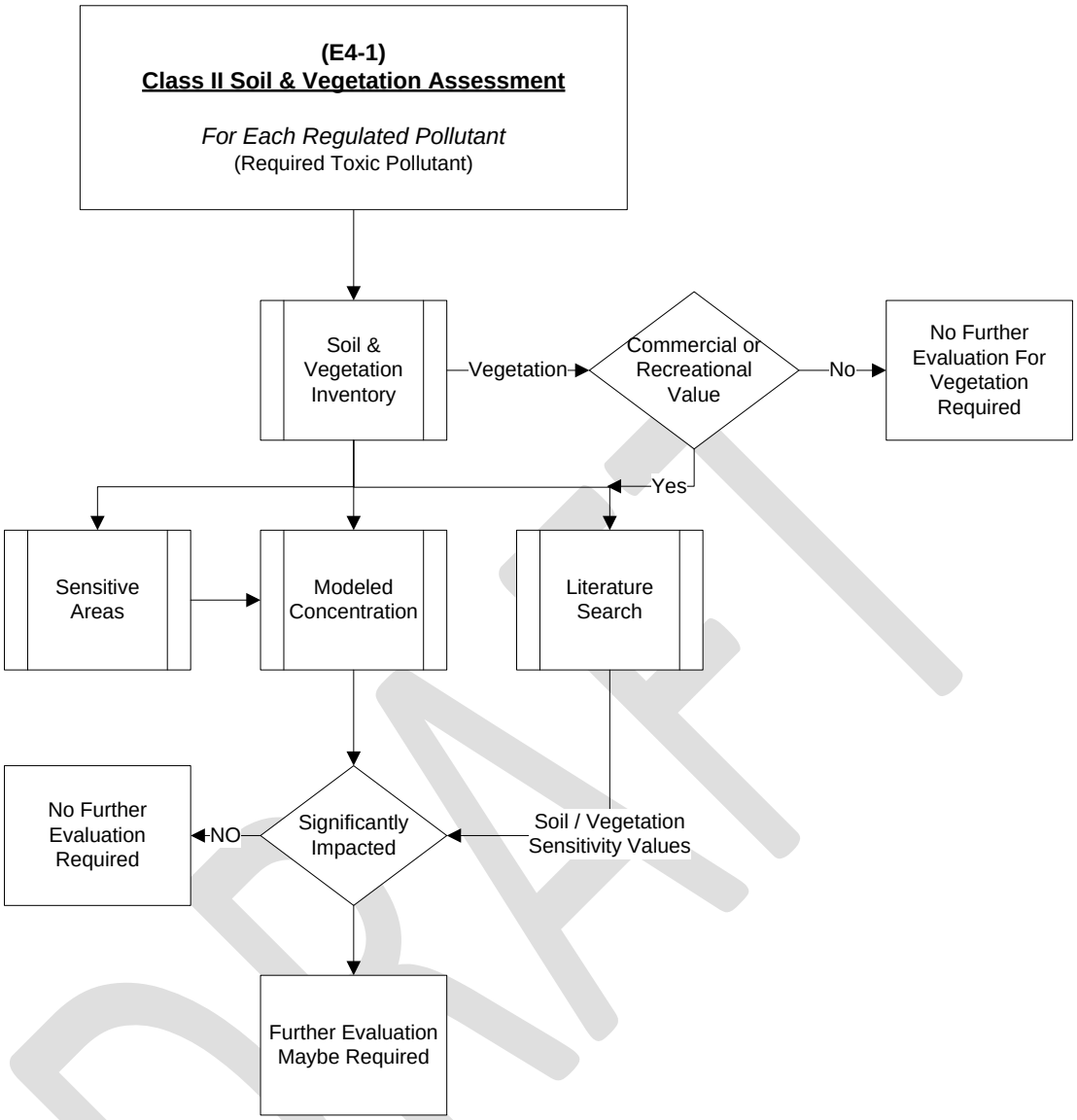


Figure 6-23 Soil & Vegetation Assessment

6.3.4.2 Growth Assessment E4-2

This analysis is an estimate of the projected residential, commercial, and industrial growth that will occur as a result of the proposed PSD project and an estimate of the air emissions associated with this growth. Air emissions associated with any new growth predicted to result from the proposed project and the air emissions from the proposed PSD project are modeled together. The applicable background values are added to the resulting modeled concentrations and the results compared with the applicable NAAQS and PSD increments.

Often the new residential, commercial, and industrial growth estimated to occur as a result of the proposed PSD project is negligible. In this case, further modeling analyses for growth is not necessary. On the other hand, the reviewing agency may determine that the growth associated with the proposed

project would be significant and modeling would be required. Therefore, the reviewing agency should be consulted to determine if a qualitative assessment is sufficient or if modeling will be required to fully evaluate the impacts from the proposed project and the potential growth due to the project is required.

6.3.4.2.1 Basic Process

When conducting a Growth Assessment, one must first determine the location of the projected residential, commercial, and industrial activities associated with the proposed project in order to determine if a qualitative or cumulative modeling assessment must be performed. If the projected residential, commercial, and industrial growth due to the proposed project is greater than 10 kilometers from the SIA (significant impact area) then a qualitative assessment is generally required. If the projected residential, commercial, and industrial activities associated with the proposed project are within 10 kilometers, a cumulative assessment is performed to determine if the proposed project and growth induced emissions would contribute to a NAAQS or Class II Increment exceedance.

NOTE!!
Even if the projected residential, commercial, and industrial activities associated with the proposed project are within 10 kilometers of the SIA; the reviewing agency may determine that the emissions associated with the projected residential, commercial, and industrial activities are negligible and not require a cumulative assessment. If this determination is made a Qualitative Assessment must still be performed.

6.3.4.2.1.1 Qualitative Assessment

A Qualitative Assessment does not require any additional modeling; however, it requires that any growth inducing activities be described. The following should be the minimum information described/provided in the Qualitative Assessment:

- # of employees being employed
- # of employees being employed from inside the county
- # of employees being employed from outside the county
- Commuting information (distance travel, from where, etc.)
- Percent increase in County/City population
- List of commercial and industrial activities that may increase due to the proposed project. This would include any secondary emissions sources and how their increased activities will induce growth or not.

NOTE!!
The list provided herein is not an all-encompassing list and should be considered as the minimum required for a qualitative assessment.

6.3.4.2.1.2 Cumulative Assessment (NAAQS / Class II Increment)

A Cumulative Assessment consist of two separate determinations 1) a NAAQS Assessment and 2) a Class II Increment Assessment. These

assessments are similar to other Class II NAAQS / Increment assessment except they only consider the proposed project and the growth inducing projected residential, commercial, and industrial sources. The emissions from these sources are modeled to determine if the modeled concentrations are greater than any NAAQS or Class II increment value.

If the model concentration is over any NAAQS or increment there are three paths that a project can take; 1) Provide mitigation, once included in the model, that shows no violation of NAAQS or increment value at any receptor, 2) The reviewing agency proceeds with a SIP revision to account for the violation and shows how it will be mitigated, or 3) The project is not allowed as proposed. Figure 6-24 provides a flow chart that describes the Growth Assessment process.

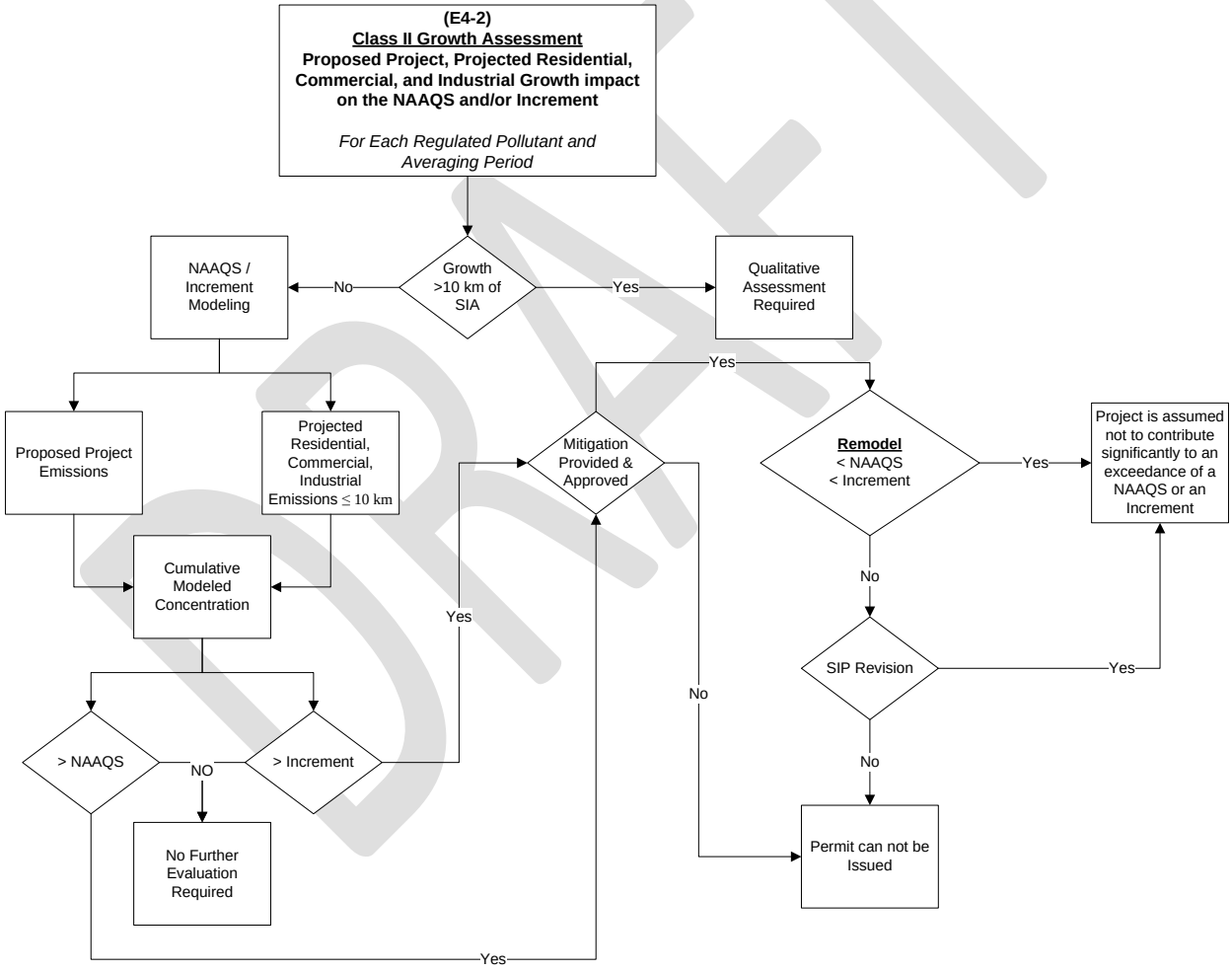


Figure 6-24 Growth Assessment

6.3.4.3 *Class II Visibility Impairment Assessment E4-3*

A Class II Visibility Impairment Assessment is independent of the Class I visibility impairment assessment that is compared to the Air Quality Related

Values (AQRV). A Class II Visibility Impairment Assessment requires that any Class II federal and state areas (e.g., potentially sensitive parks, forests, monuments, and recreational areas) within 50 km of the project site be identified. If there are no a specifically designated Class II area(s), within 50 km of the project site the applicant should consider a location(s) where there may be some potential for visibility impairment. For example, if there is an area where there are terrain features that provide a contrast that makes changes in visibility perceptible.

NOTE!!
If no Class II areas are within 50 km of the proposed project site an alternative site should selected, if available, with approval by the reviewing agency before any modeling is conducted.

6.3.4.3.1 Basic Process

The Class II Visibility Impairment Assessment follows the same basic process as that of a Class I Visibility Impairment Assessment except as follows:

- All Class II areas within 50 km of the project site must be identified
- The review and approval is done by the reviewing agency (not FLM)

Therefore, the procedures found in Section 6.3.2.3 should be followed except as noted above. Figure 6-25 and Figure 6-26 below provided the basic Class II Visibility Impairment Assessment process.

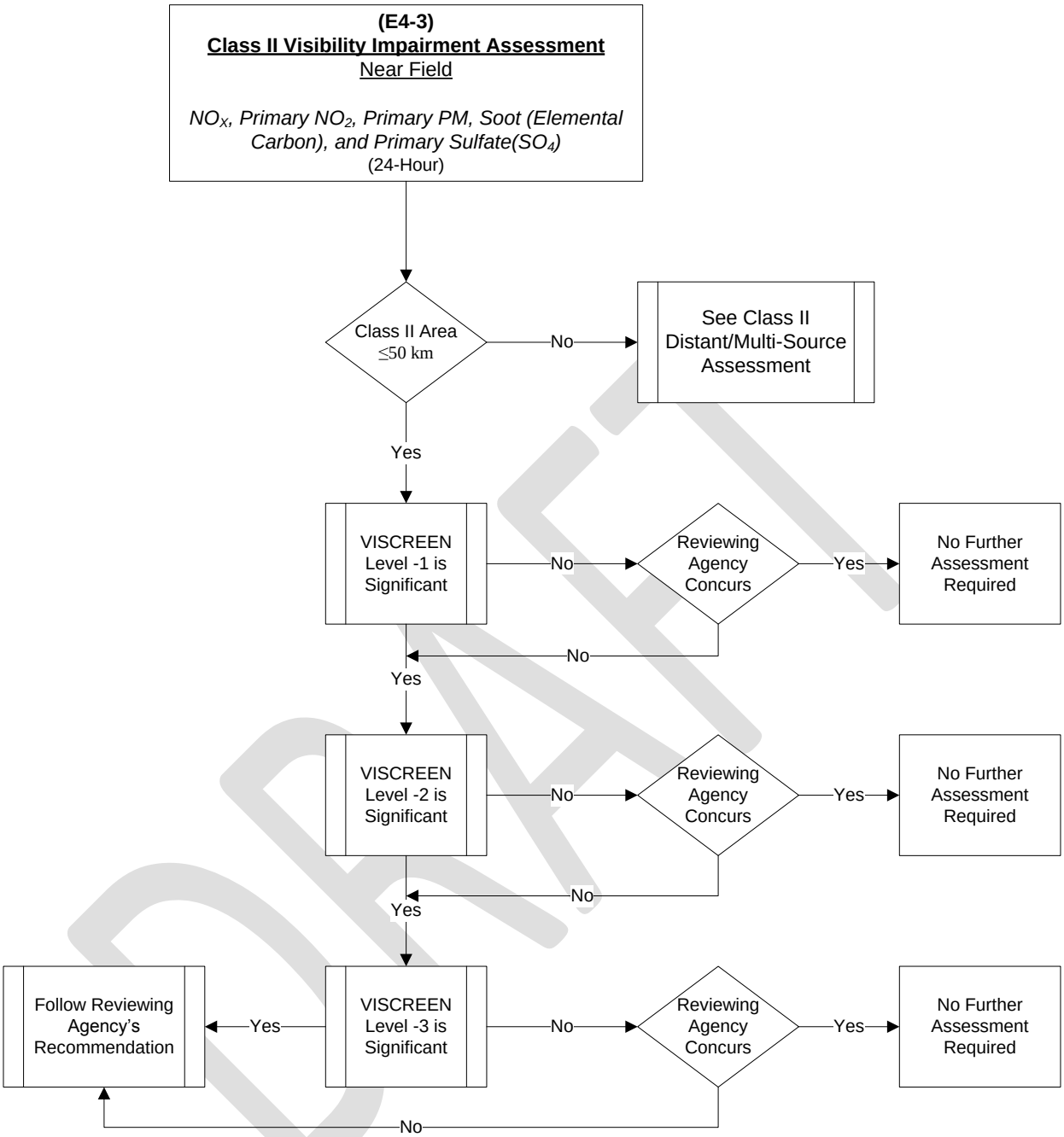


Figure 6-25 (E4-3) Class II Visibility Impairment - Near Field Assessment

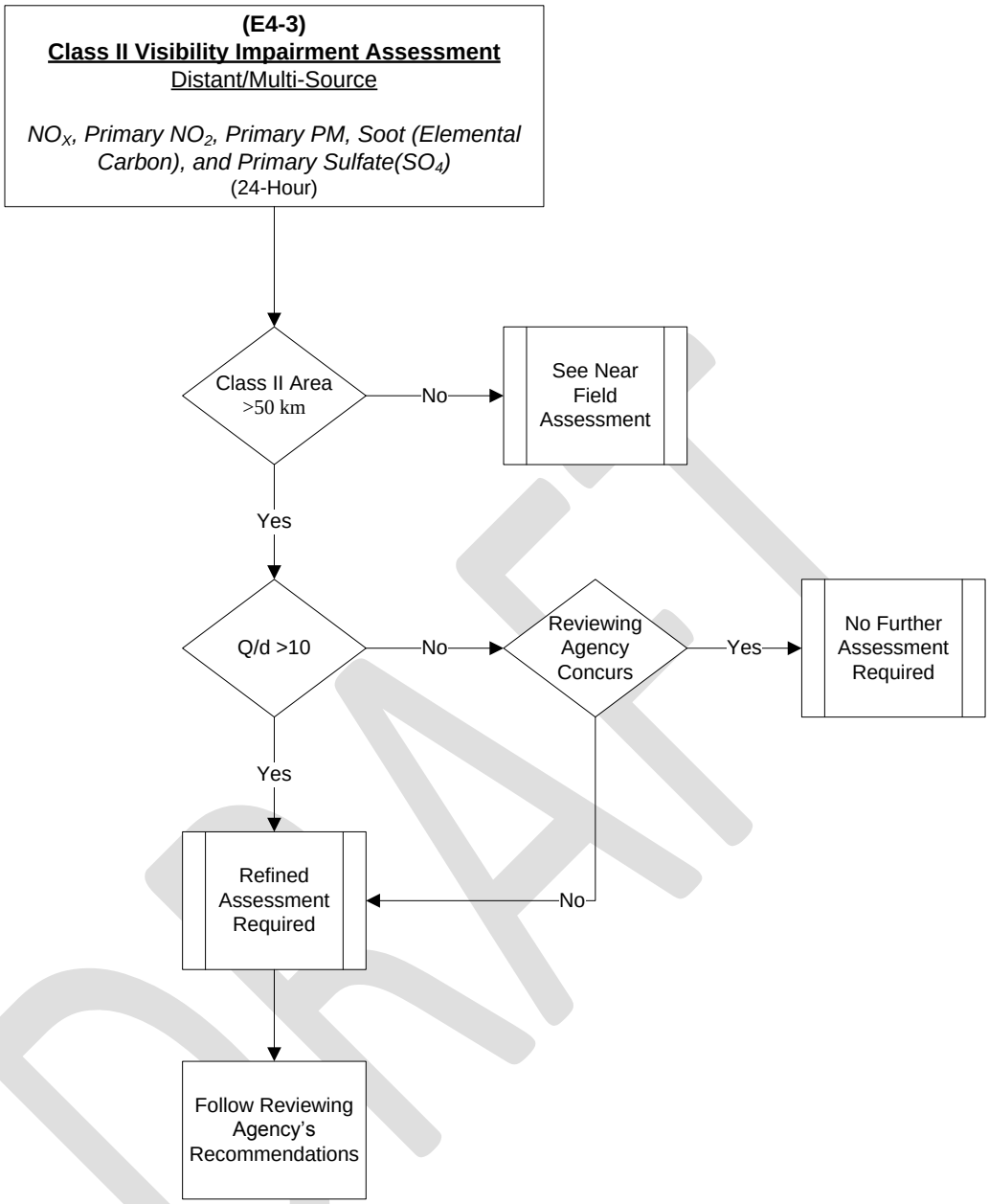


Figure 6-26 (E4-3) Class II Visibility Impairment - Distance Assessment

Appendix A – PSD Thresholds

PSD Thresholds											
Pollutant	**Averaging Period**	**NAAQS (ug/m^3)**	**Comment**	**SMC (ug/m3)**	**SER[a] (Tons/Yr)**	**SILs (ug/m3)**			**Increments (ug/m^3)**		
						Class I	**Class II**	**Class III**	**Class I**	**Class II**	**Class III**
PM2.5	Annual	12[d5]	annual mean, averaged over 3 years		10	0.06	0.3[e]	0.3	1	4	8
	24-Hour	35[d1]	98th percentile, averaged over 3 years	4		0.07	1.2[e]	1.2	2	9	18
PM10	Annual	150[d4]			15	0.32	1[e]		4	17[d1]	34
	24-Hour	--	Not to be exceeded more than once per year on average over 3 years	10		0.2	5[e]		8	30[d2]	60
Carbon Monoxide (CO)	8-Hour	10,000[d2]	Not to be exceeded more than once per year	575	100		500				
	1-Hour	40,000[d2]					2000				
Nitrogen Oxide (NO2)	1-Hour	188[d1]	98th percentile, averaged over 3 years		40	7.5[e]	7.5[e]				
	Annual	100[d5]	Annual Mean	14		0.1	1		2.5	25[d1]	50
Sulfur Dioxide (SO2)	Annual	80[d1]			40	0.08	1		2	20[d1]	40
	24-Hour	365[d2]		13		0.2	5		5	91[d2]	182
	3-Hour	1300[d2]	Not to be exceeded more than once per year			1	25		25	512[d2]	700
	1-Hour	196[d3]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years			7.8[f]	7.8[e]				
Ozone (VOC)[b]			Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years		40 (VOCs)		[b]				
Lead	Rolling 3-month average Quarterly		Not to be exceeded	0.1	0.6						
Asbestos					0.007						
Fluorides	24-Hour			0.25	3						

Sulfuric Acid Mist					7						
Total Reduced Sulfur Compounds (including H2S)	1-Hour			10	10						
Hydrogen Sulfide	1-Hour			0.2	10						

a) Significant means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 µg/m3, (24-hour average).

b) a net emissions increase of 100 tons or more per year of VOC is subject to PSD; however, ozone is currently evaluated at a regional level within DAQ and is not further evaluated within the confines of PSD.

c) No Class I SIL available

d) 1= H1H, 2=H2H, 3=H4H, 4=H6H, 5=H8H

e) Interim SIL

f) Proposed not yet final

Appendix B – Class I Areas
Within 100 km of the District Boundaries

Class I Areas
Within 100 Km of the
San Joaquin Valley APCD boundaries

National Wilderness Area

San Gabriel
San Rafael
Domeland
John Muir
Ansel Adams
Kaiser
Hoover
Emigrant
Mokelumne
Desolation
Phillip Burton
Pinnacles
Ventana

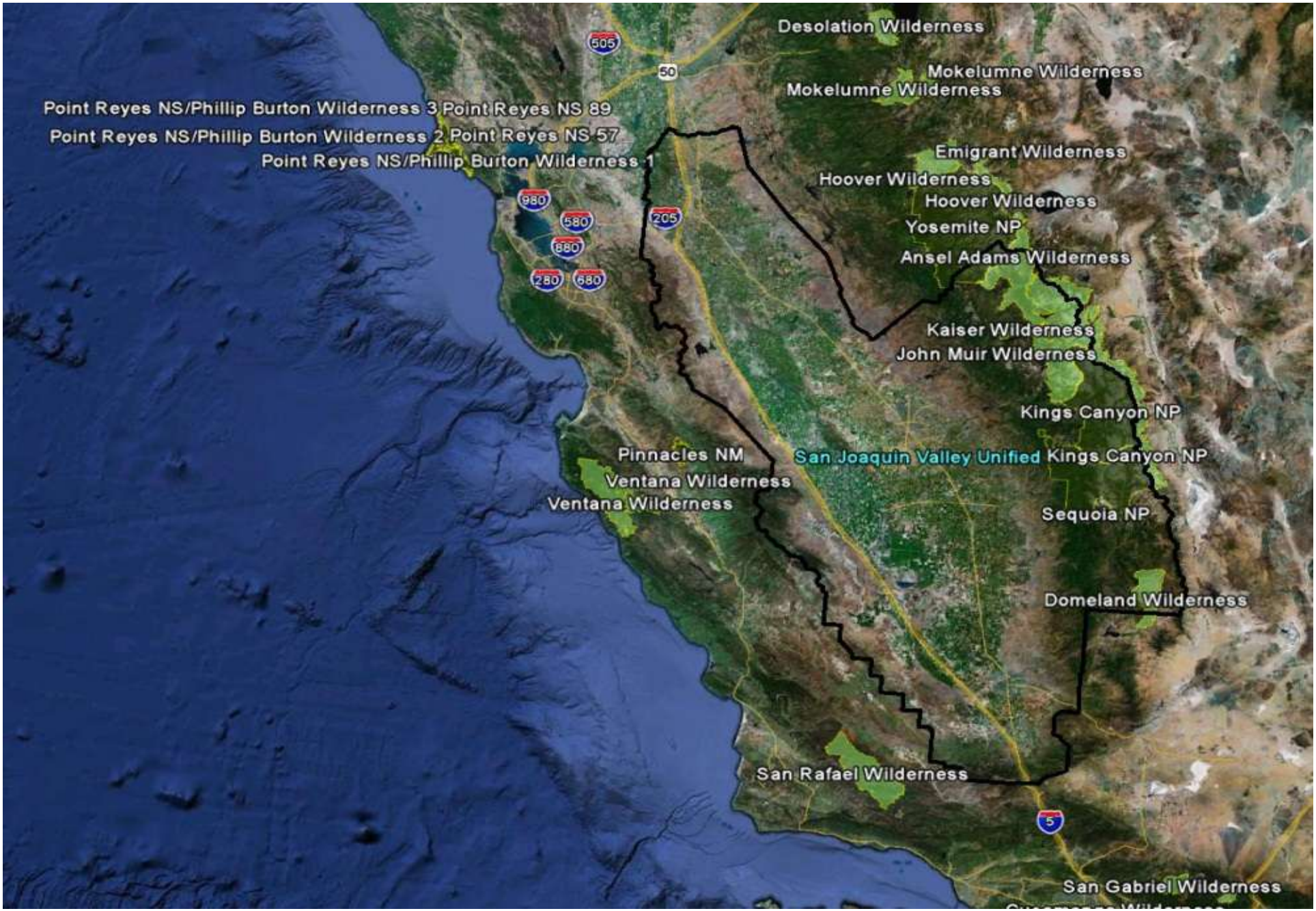
National Parks

Sequoia
Kings Canyon
Yosemite
Pinnacles

National Seashore

Point Reyes

National Monument


Desolation Wilderness
Mokelumne Wilderness
Mokelumne Wilderness
Point Reyes NS/Phillip Burton Wilderness 3 Point Reyes NS 89
Point Reyes NS/Phillip Burton Wilderness 2 Point Reyes NS 57
Point Reyes NS/Phillip Burton Wilderness 1
Emigrant Wilderness
Hoover Wilderness
Hoover Wilderness
Yosemite NP
Ansel Adams Wilderness
Kaiser Wilderness
John Muir Wilderness
Kings Canyon NP
Pinnacles NM
San Joaquin Valley Unified
Kings Canyon NP
Ventana Wilderness
Ventana Wilderness
Sequoia NP
Domeland Wilderness
San Rafael Wilderness
San Gabriel Wilderness
505
50
980
580
880
280
680
205
5