COMPLEX PERMITTING HANDBOOK

FOR

BAAQMD NEW SOURCE REVIEW PERMITTING




SEPTEMBER 2016

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

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Acknowledgments

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Disclaimers

This Handbook provides guidance for Air District permitting staff, permit applicants, consultants, and other interested parties on the requirements of the Air District's New Source Review program as set forth in District Regulation 2, Rule 2, and related regulations. This Handbook is not a rule or regulation, and the guidance it contains may not apply to a particular situation based upon the individual facts and circumstances. Nothing in this Handbook changes or substitutes for any law, regulation, or any other legally binding requirement, and the Handbook is not legally enforceable. The use of non-mandatory language such as "guidance," "recommend," "may," "should," and "can" is intended to describe Air District policies and recommendations. Mandatory terminology such as "must" and "required" is intended to describe controlling requirements under the terms of Air District regulations and other sources of law, but this Handbook does not establish legally binding requirements in and of itself. This Handbook does not create or impose any rights or obligations enforceable by any party, and it does not create any binding or enforceable requirements for the Air District, for any permit applicant, or for any other person or entity.

In addition, this Handbook provides only general background information about how the Air District's Regulations work. It is not intended to provide legal advice or guidance on how laws or regulations apply in any specific situation, and it is not intended to provide legal advice or guidance on how any individual person or entity should or should not proceed in any specific situation. Readers are advised to review applicable legal authorities and to consult with their own attorneys for advice and guidance before relying on any information presented herein.

Readers should also note that laws and regulations constantly evolve. As such, there may be recent developments that have occurred since the publication of this Handbook that are not addressed in it, and which may have materially changed applicable regulatory requirements. Readers should always check for recent regulatory or policy developments before relying on any information presented herein.

Finally, although every effort has been made to ensure that the information presented in this Handbook is accurate, it is possible that erroneous information has been included. Readers who discover any incorrect information are encouraged to bring it to the Air District's attention so that it can be corrected in future editions.

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Foreword

The purpose of this *Complex Permitting Handbook for BAAQMD New Source Review Permitting* is to provide an introduction to the New Source Review (NSR) permitting program of the Bay Area Air Quality Management District (Air District or District). This permitting program, set forth in Air District Regulation 2, Rule 2, is one of the central elements of the Air District's strategy to achieve the San Francisco Bay Area's clean air goals, and it applies to thousands of stationary sources of air pollution throughout the region. As such, it is one of the Air District's most important and wide-ranging regulatory programs.

This *Handbook* is targeted in particular at how the Air District's NSR program applies to complex projects at major facilities such as petroleum refineries, power plants, factories, and other large industrial facilities. Such projects are subject to the full panoply of NSR requirements, many of which apply only to the largest of facilities and to projects involving significant emissions increases. Projects such as these will implicate the most complicated aspects of the NSR Program, and applying the Air District's regulations in such situations requires a detailed and nuanced understanding of exactly how the NSR program functions. This *Handbook* is intended to help users gain such an understanding. It summarizes how the Air District's NSR regulations apply in such situations, pointing the user not only to the District's regulatory provisions, but also to other relevant authorities such as federal regulations adopted by the U.S. Environmental Protection Agency (EPA), court cases, administrative decisions, and agency policies and guidance documents. The Air District is providing this information to give users a general overview of how the Air District's NSR program works, along with detailed citations to applicable legal authorities to help users ascertain exactly how the regulatory requirements apply in a given situation. (In this regard, please also note the important disclaimers at the beginning of this document.)

The impetus for developing this *Handbook* was a comprehensive set of revisions the Air District made to its NSR Program in Regulation 2, Rule 2 (and to other related rules in Regulation 2) in December of 2012. These revisions adopted the new "Federal Backstop" test for NSR applicability (addressed in Chapter 2); added new NSR requirements for $PM_{2.5}$ (addressed in various places herein); incorporated "Prevention of Significant Deterioration" requirements into the Air District's program (addressed in Chapter 5), which had previously been implemented under EPA's federal program; and adopted the new "NAAQS Protection Requirement" (addressed in Chapter 6), among other changes. Members of the regulated community and others asked for training and guidance on these new aspects of the NSR Program in order to understand in detail how they will apply. Air District staff have developed this Handbook in response to those requests. The *Handbook* outlines all of the substantive requirements of the District's NSR program, including these new requirements as well the requirements in existence before 2012 that were not changed. The District is publishing this Handbook in September, 2016, to coincide with the effective date of the 2012 amendments, which took effect on August 31, 2016, following final approval by EPA.

Air District staff expect to update this *Handbook* periodically in the future as the District's NSR regulations are further updated and revised. District staff also anticipate revising the *Handbook* in response to feedback from users of the *Handbook* about how it can be improved. Readers are invited to submit any corrections or suggestions for improvement to Alexander "Sandy" Crockett at **acrockett@baaqmd.gov.**

Chapter 1: Introduction and Overview

"New Source Review," or "NSR," is one of the primary elements of the Air District's regulatory program to attain and maintain the state and federal ambient air quality standards. It is a comprehensive permitting program that applies to facilities in the San Francisco Bay Area when they install new equipment, or make modifications to existing equipment, that will increase their air pollution emissions. When a facility wants to install a new source or modify an existing source that will increase emissions above the specified applicability thresholds, the facility is required to obtain a permit from the Air District and must implement the elements of the NSR program in order to do so. The regulations governing how that permitting process works—and what exactly a facility must do in order to obtain the NSR permit—are set forth in Air District Regulation 2, Rule 2 (commonly referred to as "Regulation 2-2").

The NSR permitting program for new and modified sources is intended to complement the Air District's efforts to reduce emissions from existing sources in order to achieve the Bay Area's clean air goals. The Air District has an extensive set of regulations that require facilities to retrofit their equipment, to add pollution control equipment, and to take other similar measures to address the region's existing air pollution problems. The District is also constantly working to identify additional opportunities where new approaches or innovative technologies can be applied to

reduce emissions from the existing universe of air pollution sources in the Bay Area. The NSR program is designed to ensure that emissions increases from new and modified sources do not undermine the important progress the Air District has made (and continues to make) in these areas to reduce emissions from existing sources. The NSR program's requirements for new and modified sources work hand in hand with the Air District's efforts to address existing emissions sources to ensure that the Bay Area continues to make progress towards attaining and maintaining compliance with the applicable clean air standards.

The NSR program aims to achieve this goal in two principal ways. First, NSR requires facilities to use the "Best Available Control Technology" (or "BACT") on new and modified sources to limit emissions to the greatest extent possible. Second, for any new emissions that will occur even after applying the Best Available Control Technology, NSR requires facilities to account for those emissions in order to ensure that they do not jeopardize the Air District's efforts to attain and maintain compliance with ambient air quality standards. This second step takes two different forms, depending primarily on whether the Bay Area is in attainment or not in attainment of the relevant standards for a particular pollutant. For pollutants for which the Bay Area is not in attainment, facilities are required to "offset" any new emissions increases to ensure that there is "no net increase" in emissions region-wide. Facilities are required to do so by providing "emission reduction credits" generated by shutting down or curtailing emissions at other sources, in an amount equal to or greater than the new emissions increase. This is important for pollutants for which the Bay Area is not in attainment of the applicable standards in order to ensure that the existing air quality problem does not get worse. For pollutants for which the Bay Area is in attainment, facilities are not required to offset their new emissions, as the region can accommodate a certain amount of new emissions growth without exceeding the applicable standards for those pollutants. But facilities are required to evaluate what the impacts of their new emissions will be, in order to ensure that the new emissions growth will not result in a violation of any applicable standards or a significant deterioration in existing air quality.

The Air District's regulatory provisions in District Regulation 2-2 are the most immediate source of the NSR requirements applicable to facilities in the San Francisco Bay Area. But the Air District's NSR regulations also draw on other sources of law in the federal Clean Air Act and California's air quality statutes. These laws require the Air District to have an NSR program, and they impose specific minimum requirements for how the program must regulate new and modified emissions sources. These additional legal authorities are directly relevant to how the Air District's regulations apply in the Bay Area. In some areas, these additional authorities inform how the Air District's regulatory provisions should be interpreted, as the District's NSR program must be implemented consistent with all state and federal requirements. In other areas, the Air District's regulations directly incorporate certain state and federal regulatory requirements by reference, making the state or federal regulation the applicable legal requirement that affected facilities must comply with under the District's program.

Given this situation, applying the Air District's NSR program requires a detailed knowledge of District Regulation 2-2, as well as a detailed knowledge of various other federal and California

laws, regulations and policies. This *Handbook* provides an overview of how all of these related provisions work in practice in implementing NSR at facilities in the Bay Area.

To do so, the *Handbook* walks through each of the substantive provisions of the Air District's NSR program in Regulation 2-2, describing how all of the various aspects of each provision apply to complex projects at major facilities, and also discussing any related federal or state regulations or policies that may be relevant to how the District's rules are implemented. These include EPA's requirements for how local NSR programs must be implemented as set forth in 40 C.F.R. Section 51.165 (for nonattainment pollutants) and 40 C.F.R. Section 51.166 (for attainment pollutants); and EPA's own "Prevention of Significant Deterioration" (PSD) regulations in 40 C.F.R. Section 52.21, which EPA uses when it issues its own PSD permits in areas where that aspect of the NSR program is implemented federally. These federal regulations are incorporated by reference into various aspects of the Air District's NSR regulations. The *Handbook* also discusses EPA's 1990 *NSR Workshop Manual,*[1] which is not a binding regulatory document, but which sets forth a number of important EPA policies that govern how EPA implements and interprets the federal NSR requirements, and which has been cited as very influential in determining how the federal program applies. Users of this *Handbook* are encouraged to obtain copies of all of these documents, as they are discussed at length herein and are fundamental to understanding how the Air District's NSR program works.

In addition, the *Handbook* also references various other authorities addressing issues relevant to how the Air District's NSR program is implemented, including Air District policies, EPA policies and guidance documents,[2] court cases, and decisions of EPA's Environmental Appeals Board,[3] which is EPA's independent internal administrative tribunal that adjudicates appeals involving EPA NSR permit decisions under the federal NSR program. Users of this *Handbook* are advised to consult these authorities where they are relevant to understanding how the Air District's NSR program works under Regulation 2-2, as discussed herein.

The remainder of this *Handbook* is organized as follows. After this introduction, Chapter 2 of the *Handbook* addresses the applicability of the NSR program, focusing on how to determine whether a project that a facility intends to undertake involves any "new" or "modified" sources (as those terms are defined in the regulations) that are subject to NSR. Chapter 3 outlines the first substantive element of NSR, the "Best Available Control Technology" (BACT) requirement. Chapter 4 covers what is required to "offset" emissions increases from new and modified sources for pollutants subject to offsets requirements. Chapter 5 addresses the requirements for pollutants for which the Bay Area is in attainment of the applicable ambient air quality standards, which are known as the "Prevention of Significant Deterioration" requirements (because the purpose is to prevent the region's air quality from deteriorating to the point where it falls out of attainment). Chapter 6 addresses the remaining miscellaneous substantive requirements of the Air District's NSR Program, including (i) special provisions designed to protect visibility and other air quality related values in "Class I Areas," which are national parks and other specially-protected areas; (ii) a new provision that took effect in 2016 requiring every project involving a significant emissions increase to demonstrate that it will not cause or contribute to any violations

of any applicable ambient air quality standards; and (iii) a requirement for owners and operators of major facilities to certify that all of their major facilities in California are in compliance with all applicable air quality requirements (or are on a schedule of compliance).

The discussion in these chapters also includes detailed citations to the specific legal authorities that govern each of these requirements, which are set forth in the endnotes at the end of each chapter. These are the authorities that create the legally binding rights and obligations applicable to the Air District and regulated entities, not any descriptions of the Air District's NSR program set forth in this *Handbook.* For this reason, it is crucial that users review the authorities cited in these endnotes (*e.g.,* specific Air District or EPA regulatory provisions) carefully in order to understand what NSR requires in any particular situation, instead of relying on general statements in the *Handbook.* Users should also review the disclaimers at the beginning of this document regarding how to proceed when faced with a specific permitting situation that may be subject to Regulation 2-2.

Finally, readers should understand that this *Handbook* assumes a general familiarity with the basic technical and regulatory terms and concepts that arise in the context of air pollution regulation. As such, the *Handbook* does not attempt to define these basic terms and concepts or to discuss them in great detail. The *Handbook* focuses instead on an in-depth explanation of the specific regulatory requirements in the Air District's NSR Program and how they apply to regulated facilities in the Bay Area. Readers are encouraged to consult general technical and legal treatises addressing air quality regulation for background information on the more basic terms and concepts.

Endnotes to Chapter 1

1 EPA, *New Source Review Workshop Manual, Prevention of Significant Deterioration and Non-Attainment Area Permitting* (Draft, Oct. 1990). EPA issued this document as a "draft" in 1990, but the agency never formally finalized it. The "draft" Manual has nevertheless been interpreted as an authoritative statement of EPA policy with respect to many aspects of the federal NSR program (although it is technically not legally binding, and in some areas it has been superseded or disagreed with by subsequent policy and regulatory developments). As EPA's Environmental Appeals Board has explained in a number of cases interpreting the federal NSR program, "[a]lthough it is not a binding Agency regulation, the NSR Manual has been looked to by this Board on many occasions as a statement of the Agency's thinking" on issues of how to implement the NSR program. (*In re Indeck-Elwood, LLC,* 13 E.A.D. 126, 159 & fn. 65 (EAB 2006) (citations omitted).)

2 EPA maintains a comprehensive database of nearly 700 policy memos and guidance documents related to the federal NSR program on its website, at **www.epa.gov/nsr/new-source-review-policy-and-guidance-document-index.** The EPA policy memos and guidance documents cited in this *Handbook* are taken primarily from this database.

3 Environmental Appels Board (EAB) decisions are available on the EAB's website at **www.epa.gov/eab,** as well as in searchable databases on the Lexis and Westlaw legal research services.

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Chapter 2: Applicability of NSR Permitting Requirements

The most important threshold question in the District's New Source Review program is the question of applicability: that is, whether the NSR permitting requirements in District Regulation 2, Rule 2, apply to a project that a regulated facility intends to undertake. All of the substantive provisions in the NSR rules explicitly state that they apply to "new" and "modified" sources, so the answer to this threshold question depends upon whether the project involves the installation of a "new" or "modified" source. These terms are defined in Regulations 2-1-232 (new source) and 2-1-234 (modified source), and they provide the threshold applicability test for the NSR program.

This chapter outlines how these definitions apply. Section I addresses new sources and Section II addresses modifications to existing sources. Section III discusses "alterations" to existing sources, which are changes to existing sources that do not increase emissions in a manner that makes them "modifications" subject to the NSR permitting requirements in Regulation 2, Rule 2, but which still require an authority to construct. Reviewing these definitions in detail will provide an understanding of when NSR applies and when it does not.

I. New Sources

New sources present the easier case for determining NSR applicability. Section 2-1-232 defines a new source as (generally) "any source that has not been in existence before." Any time a facility

intends to construct or install a source that was not in existence before, the NSR requirements will apply (to the extent the source's emissions will be above any of the relevant applicability thresholds for the various NSR requirements).[1]

Section 2-1-232 also includes six subsections that bring specific situations within the definition of "new source," including:

(1) Existing non-exempt sources that were built without a valid District permit (unless they were constructed or proposed before March 7, 1979). Such sources need to be brought into the permit system, and when they are permitted they need to be permitted as new sources even if they have been in existence for some time.

(2) Sources that have gone for a period of a year or more without operating and without a valid District permit to operate (unless this period occurred before March 7, 1979). If a facility idles a source in this manner and then seeks to reactivate it, it needs to permit the source as if it were a new source.

(3) Sources that are moved from one property to a different, non-contiguous property (except portable sources). When the source is permitted for the new property, it needs to be permitted in the same manner as if the facility were installing a new source.

(4) Existing sources that are replaced, including situations where the replacement source is identical to the existing source, and regardless of when the existing source was constructed.

(5) Individual sources that are replaced within a larger group of sources, even if the larger group is not otherwise affected. Even if the larger group has been permitted together under a single source number, where a identifiable individual source within that group is replaced, the replacement equipment that is installed must be permitted as a new source.

(6) "Rebricking" of a glass furnace that involves changes in the furnace's design resulting in a change in heat generation or absorption.

An existing source that has never had a District permit because it is covered by an exemption or exclusion from the District's permit requirements does not become a "new source" under Section 2-1-232 simply because the source loses its exemption or exclusion as the result of a change in applicable laws or regulations. Such sources are referred to as "loss-of-exemption sources," and they are governed by Section 2-1-424. Where a source loses its exemption or exclusion because of a regulation change, the owner/operation is required to apply for a permit within 90 days after written notification by the APCO (or 180 days in the case of pre-2006 animal feeding operations subject to Regulation 2, Rule 10). Such sources are specifically excluded from the definition of "new source" in Section 2-1-232. Accordingly, they are not subject to the New Source Review requirements and do not need to go through the NSR process in order to obtain the permit.

II. Modified Sources

The more complex situations involve changes that a facility intends to make to existing sources. A change to an existing source will be subject to NSR permitting requirements if the change constitutes a "modification" to the existing source.

The definition of what it means to "modify" a source for purposes of District Regulation 2 is set forth in Section 2-1-234.[2] There are two fundamental elements required for a change being made to a source to constitute a "modification" under this definition: (i) there must be a "physical change, change in method of operation, change in throughput or production, or other similar change" made at the source; and (ii) that change must result in an emissions increase triggering either of the two alternative "modification" emissions increase tests, which are set forth in subsections 234.1 and 234.2. The following discussion outlines how this "modification" test applies in practice.

A. Physical Change, Change in Method of Operation, Change in Throughput or Production, or Other Similar Change

The first element of the definition requires that there is some sort of change implemented at the source. This could be any type of change being made to the facility, such as a renovation or overhaul of the equipment, an expansion of capacity, an increase in production, or other similar change. (But note that the change must be something that is not allowed under the source's existing permit. An operational change that is within the normal range of operations currently authorized by the Air District does not implicate the "modification" definition in Section 2-1-234.)

If a facility will be making any such change at a permitted source, then the first element is satisfied and the inquiry moves to the second element: whether the change will result in an increase above the triggering thresholds for either of the two "modification" emissions increase tests.

B. Emissions Increase That Either (i) Increases Potential To Emit or (ii) Triggers The "Federal Backstop"

The two emissions increase tests that determine whether a change at a source constitutes a "modification" are set forth in the respective subsections of Section 2-1-234. The first test, in subsection 234.1, is the Air District's historical "modification" test that the agency has used for many years, which applies to changes at a source that increase the source's potential to emit air pollutants subject to District regulation (known as a "potential-to-potential" test). The second test, in subsection 234.2, incorporates EPA's federal "major modification" definition, which applies to changes at a source that will cause projected future emissions to be higher than historical emission levels (known as an "actual-to-projected-actual" test). The District added this second test in 2012 because EPA took the position that the District's historical "potential-to-potential" test did not satisfy the minimum requirements of the federal NSR program. To respond to this

> ***Terminology Tip:* "Change" vs. "Modification"**
>
> *People sometimes refer to any change being made at a source as a "modification," because "modification" and "change" mean essentially the same thing in normal, non-technical usage. This can be confusing in NSR permitting, however, because a change being made to a source will not be a "modification" under Regulation 2 unless the change results in an emission increase within the language in Regulation 2-1-234. To help keep these concepts straight, it is a good idea to refer to the change being made to the source as a "change," and to say "modification" only to refer to a change that has been determined to fall within the regulatory definition in Section 2-1-234 (and "alteration" for any change that is not within that definition).*

concern, the District added subsection 234.2 to incorporate the federal "modification" test in addition to the District's historical test. The addition of this federal test acts as a "backstop" to ensure that no change at a source that would constitute a "modification" under the federal rules can escape NSR requirements, even if it would not be a "modification" under the District's historical test. For this reason, the additional test in subsection 234.2 is often referred to as the "Federal Backstop" test.

Both of these tests are discussed in further detail below. In reviewing these rules, it is important to note that the two tests function independently, so if a change at a source falls within ***either*** of the two subsections, then the change will be a "modification" for NSR purposes under Section 2-1-234. That is, even if a change does not fall within the language in subsection 234.1, the change will still be a "modification" if it falls within the language in subsection 234.2 and vice versa. A change being made at a source can escape being classified as a "modification" only if it falls outside of ***both*** subsections.

1. The District's Historical Modification Test: "Potential-to-Potential" Emissions Increase

The District modification test in subsection 243.1 is relatively straightforward: a change at an existing source is a "modification" if it will result in "[a]n increase in the source's daily or annual potential to emit . . . ." This means that if the change will increase the maximum amount that the source is capable of emitting, given its current physical and legal constraints that act to limit its emissions, then the change is a "modification" and subject to NSR.

Subsection 234.1 incorporates the generally-understood concept of potential to emit as it is commonly used in the air quality regulatory world. District regulations define potential to emit—or "PTE"—in Section 2-1-217 as "[t]he maximum capacity of [the source] to emit a pollutant based on its physical and operational design." Section 2-1-217 makes clear that this includes enforceable permit limits and other legal constrains by stating that "[a]ny physical or operational limitation on the capacity of [the source] to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or

processed, shall be treated as part of its design only if the limitation, or the effect it would have on emissions, is enforceable by the District or EPA (or both)." Under this definition, the source's potential to emit (PTE) is the maximum amount of emissions it could possibly emit, operating at the maximum capacity that it is physically able to handle given its design and operational constraints as well as any legal restrictions on maximum operations or emissions.[3] It does not matter if the source has never actually achieved this maximum level of emissions, or that it may never actually do so in the future.[4] The source's potential to emit is its theoretical maximum emissions operating at the maximum emissions rate that it can physically and legally achieve.

Thus, determining whether a change being implemented at a source will be a "modification" under subsection 234.1 involves comparing (i) the source's *future* daily and annual PTE after the change is implemented, for each pollutant that will be emitted from the source; with (ii) the source's *current* daily and annual PTE (*i.e.,* before the change is implemented) for each such pollutant. If the PTE after the change exceeds the PTE before the change for any pollutant, then the change is a "modification" under subsection 234.1 (or, in the case of toxic air contaminants and hazardous air pollutants, if the increase in PTE exceeds the risk thresholds specified in Regulation 2, Rule 5 as discussed in more detail below[5]).

a) Applying the PTE Increase Test In Specific Situations

After stating this fundamental rule for applying the District's "modification" test, subsection 234.1 then goes on to provide further language in paragraphs 234.1.1 and 234.1.2 clarifying how the test works in specific circumstances. The concepts expressed in these paragraphs are already inherent in the general concept of "potential to emit" as defined in Section 2-1-217, but the additional language is helpful to make them explicit directly in the text of subsection 234.1. These concepts include the following:

i. Enforceable Operational Constraints Can Serve As Surrogate Emission Limits

Any legally enforceable limit on a source's operations can be taken into account in determining its PTE if the effect of the limit is to restrict the source's physical ability to emit air pollutants.[6] For example, if a source has a permit condition that places a maximum limit on the source's throughput of 10 units per hour, and the maximum amount that the source can physically emit is 10 pounds per unit processed, then this permit condition can be used to establish a PTE of 100 pounds per hour (10 lb/unit x 10 units/hr), assuming that there are no other physical or legal constraints that would prevent the source from actually emitting 100 pounds in an hour if it operated at its maximum emitting capacity.[7]

ii. Short-Term Limits Can Be Used To Establish Longer-Term PTE

Short-term limits can be used to establish longer-term PTE, as long as the source can realistically operate at the maximum short-term emissions rate over a longer time frame.[8] Thus, if a source

is subject to an hourly limit, and it can realistically operate at this maximum hourly rate for a full 24 hours per day, then the daily PTE can be determined by multiplying the hourly PTE by 24. Similarly, if a source is subject to a daily limit and it can realistically operate at this maximum daily rate every day throughout the year, then the annual PTE can be determined by multiplying the daily PTE by 365. Obviously, if a source cannot operate at its maximum short-term emission rate over the longer term (*e.g.,* it cannot operate at its maximum daily rate for the full 365 days per year), then the short-term rate cannot be used in this manner and a more realistic assessment of the longer-term PTE must be made.

Note also that in most cases a longer-term limit cannot be used to establish a source's short-term PTE. For example, if a source has an annual limit, that limit does not necessarily create any limit on the source's daily emissions, as the source could have very high emissions on certain days as long as it has lower emissions on other days to keep the average emissions over the course of the year within the applicable annual limit.

iii. Using Group (or "Bubble") Limits To Establish PTE

Sometimes a permit condition will not establish a specific emissions limit applicable to an individual source by itself, but will instead establish a limit that applies to the combined emissions from a group of multiple individual sources. Such limits are sometimes referred to as "bubble" limits because conceptually they place a "bubble" over the group of sources and leave it up to the facility to determine whether each individual source under the "bubble" will operate with higher or lower emissions, as long as the total combined emissions of all the sources under the "bubble" do not exceed the overall limit for the group. Such group (or "bubble") limits do not normally establish the PTE for any individual source under the bubble, because they do not constrain the maximum emissions from any individual source.[9] If the only limit that applies to a source is a "bubble" limit, in most cases the source will be legally allowed to operate up to its full maximum physical capacity, with the maximum emissions it is physically capable of producing, without necessarily violating the bubble limit. In such a case, the source's PTE is its full maximum emission rate at that maximum operating capacity.

The only exception would be in cases where the group limit has the effect of limiting emissions from an individual source in some way.[10] For example, say a facility has a production line with three units that operate in series. Assume further that the operation of each unit is dependent on the operation of the others, such that the operating rate and emission rate of the three units always follows a ratio of 3:2:5. If there is a "bubble" limit of 100 tpy that applies to the three units as a group, that limit could be used to establish a PTE for the three individual sources of 30 tpy, 20 tpy, and 50 tpy, respectively (assuming it can be confirmed that there is in fact no possible way that any of the units could be operated individually with emissions over these levels while still maintaining combined emissions below the 100 tpy bubble limit).

iv. Determining PTE For Sources With No Effective Permit Limits

If a source is not subject to any enforceable permit limits or other legal constraints that limit its emissions, then its PTE is determined by its maximum physical ability to emit pollutants at the maximum operating levels that it can physically achieve. Similarly, if the source has a permit limit or other legal limit, but the source cannot physically emit that much even at its maximum level of operation, then its PTE is determined by its maximum physical capability to emit pollutants at maximum operations. In these cases the legal emissions limit is irrelevant because the source cannot emit that much, even under worst-case conditions.[11]

v. PTE Should Be Based On The Best Available Technical Information

In determining a source's PTE, the best available technical information should be used. The most relevant and reliable information will depend on the specific circumstances surrounding each individual source being evaluated, but it could include design information showing the maximum level of operation or emissions that the source was designed to achieve; engineering specifications showing how the source was constructed (including any changes that have been implemented since the original construction); direct measurements of emissions or surrogate operating parameters at maximum operating capacity; and other similar types of information. Where multiple sources of information are available, the PTE determination should be based on the most relevant and reliable information available. Best technical engineering judgment should be exercised to make the most precise and accurate assessment of a source's maximum potential to emit under the circumstances.[12]

vi. Maximum "Bottlenecked" Capacity Establishes A Source's PTE

In some cases, the level of operations of an individual source at a complex facility may depend on the level of operation of some other upstream or downstream unit in a production process that involves multiple sources. For example, if a source gets its feedstock from an upstream unit, the source's production rate may be limited by the rate at which that upstream unit can produce the feedstock. Similarly, if a source produces a feedstock to be used by a downstream unit, the source's production rate may be limited by the rate at which the downstream unit can consume the feedstock. In such cases, the source may theoretically have a high maximum operating capacity when viewed in isolation, but in practice the maximum capacity it will actually be able to achieve may be much lower because of the limitations imposed by the maximum capacity of the upstream or downstream unit.

In such situations, the source's actual maximum capacity is established by the "bottleneck" in the production process caused by the upstream or downstream unit, and the source is referred to as a "bottlenecked" source. In these cases, the source's PTE will be based on its actual capacity that it can achieve in practice given the "bottleneck." A change at the facility that removes such a bottleneck, and thus allows the source to increase its effective capacity, can increase the source's PTE and thus constitute a modification.[13] This is referred to as "de-bottlenecking."

b) Fugitive Emissions

Fugitive emissions are included in determining whether a change at a source will increase the source's PTE.[14] Fugitive emissions are not normally limited by permit conditions or other regulatory limits, and so in most cases the source's PTE will need to be calculated based on the source's physical capacity to emit fugitive emissions under normal conditions.[15] Any increase (or decrease) in the source's fugitive emissions resulting from the change at the source must be taken into account in determining whether there will be any increase in PTE resulting from the change.[16]

c) Applying the PTE Increase Test for Toxic Air Contaminants

Toxic air contaminants (TACs) and hazardous air pollutants (HAPs)[17] present a special situation that is governed by subsection 234.1.3. For TACs and HAPs, an increase in the PTE of such pollutants does not constitute a "modification" under the District PTE test unless it will result in an increase in health risk above certain specified levels. For carcinogens, the increase in PTE must increase the cancer risk (as defined in Section 2-5-206) by more than one in one million (10^{-6}). For non-carcinogenic risk, the increase in PTE must increase the chronic Hazard Index (as defined in Section 2-5-208) by more than 0.2. If the increase in PTE from the change being implemented at the source does not increase the health risks by more than these threshold levels, then the change is not a "modification" under Section 2-1-234.1 (unless there is an increase in the PTE of some other pollutant that renders the change a "modification" independently of any TAC or HAP emissions).

Determining whether an increase in PTE will result in an increase in health risk above these thresholds requires a health risk assessment to translate the increase in the TAC/HAP emissions from the source into an increase in risk to surrounding receptors. However, the increase in risk may be presumed to be below the risk thresholds if the increase in the emission rate from the source is below the *de minimis* screening thresholds set forth in Regulation 2, Rule 5.[18] If the increase in the emission rate is below these screening thresholds, the change at the source can be determined not to be a "modification" with respect to TACs and HAPs without any further inquiry. If the increase in the emission rate is above these thresholds, a health risk assessment will be required to establish whether or not the change constitutes a "modification" (*i.e.,* whether the increase in PTE from the change will result in an increase in cancer risk of over one in one million and/or an increase in the chronic Hazard Index of over 0.2).

Note also that any increase in PTE involving any pollutant over the "modification" thresholds established in Section 2-1-234.1 renders the change at the source a "modification" for all purposes. Thus, a change at a source that triggers the "modification" definition for TACs only, and not any other pollutants, is a "modification" for purposes of NSR review and thus is a "modified source" for purposes of applying Regulation 2-2. The substantive NSR requirements in Regulation 2-2 apply on a pollutant-specific basis, however, and so in such situations Regulation 2-2 may not impose any additional regulatory requirements as a practical matter.

Finally, it is also worth noting that there is no "Federal Backstop" test for TACs and HAPs under subsection 234.2. The Federal Backstop test applies only to changes at a facility that would be a "major modification" under the federal NSR regulations,[19] and the federal NSR program excludes "hazardous air pollutants" (HAPs) regulated under Section 112 of the Clean Air Act.[20] For most purposes, the federal definition of HAPs is the same as the District's definition of TACs (although it is important to compare both definitions to ensure that there are no differences relevant to the specific project under consideration).[21]

d) "Grandfathered" Limits in Title V Permits

Potential to Emit is defined by legally enforceable limitations on a source's emissions, or in absence of any legally enforceable limits, by the source's maximum physical capacity to emit air pollutants. Emissions rates (or surrogate operating parameter rates) listed in source descriptions included in a facility's Title V permit (typically listed in tables in Section II of the Title V permit) are not permit limits, and they are not legally enforceable caps on the source's emissions. As such, these emission rates—which are often referred to as "grandfathered limits"—do not establish a source's PTE, where the source's actual capacity to emit air pollutants is greater than the listed rate. A change at the source that results in a PTE above the "grandfathered limit" is therefore not a necessarily a "modification." Such a change is a modification only if the new PTE exceeds the old PTE, as determined per Section 2-1-217.

Title V "grandfathered limits" are important because if a source is going to exceed such a grandfathered limit, that is an indication that there is the potential that the source may exceed its PTE and trigger a "modification." If a source will be exceeding the capacity listed in Table II of its Title V permit, that should be seen as a "red flag" indicating that a "modification" *might* be implicated. A change that will increase emissions over a grandfathered limit should therefore be reviewed carefully to determine whether or not there will in fact be a PTE increase, in which case NSR review will be required. But NSR review is not triggered simply by an increase above a grandfathered limit by itself, where there is no determination that the PTE is being increased as well. (And by the same token, if a grandfathered limit is not exceeded, that does not necessarily mean that NSR review is *not* triggered. Such an increase will constitute a modification if there is an increase in PTE, regardless of the capacity listed in Section II of the facility's Title V permit.)

2. The Federal Backstop Test: NSR Reform "Actual-to-Projected-Actual" Emissions Increase

The second test for what constitutes a "modification," set forth in subsection 2-1-234.2, incorporates EPA's "major modification" test under the federal NSR program codified in 40 C.F.R. Sections 51.165 (for nonattainment pollutants) and 51.166 (for other regulated NSR pollutants). The purpose of this second test is to capture any changes at a facility that do not constitute "modifications" as the District has historically defined that term under its NSR program, but which would be subject to NSR review under the federal NSR program. The second test is therefore referred to informally as the "Federal Backstop" test.

The Federal Backstop test will not be the deciding factor in triggering NSR in most instances, because the District's modification test in subsection 234.1 is generally much more stringent.[22] That is, in most instances a project that will be subject to NSR will be captured by the District's modification test, and it will not be necessary to go on to see whether the Federal Backstop is triggered as well. Conversely, in most instances where a project does not trigger the District's modification test, it will not trigger the Federal Backstop either. However, it is theoretically possible that there could be a project that does not fall within the District's historical definition of "modification," but which would be picked up by the federal program. Thus, if the project does not trigger the District's modification test, conducting the Federal Backstop analysis is an important and required part of the NSR applicability determination. In such cases, the applicability determination should carefully explain and document how the federal NSR applicability thresholds apply to the project under subsection 234.2.[23]

Unlike the first "modification" test in subsection 234.1, which is a "potential-to-potential" test, the Federal Backstop test is (in most cases[24]) an "actual-to-projected-actual" test. That is, the test compares a source's ***current actual emissions*** before the change at the source is implemented with the source's ***projected actual emissions*** that will occur after the change is implemented. (This test is often called the "NSR Reform" test because it was created by a significant revision to the federal NSR regulations adopted in 2002 to addressed perceived problems with the program, which was referred to at the time as "NSR Reform."[25]) If the source's projected actual emissions in the future will be greater than its historical actual emissions by a net "significant" amount (as defined in the regulations), then the change falls within the definition of "major modification" under the federal NSR program. Under subsection 234.2, if the change is a "major modification" under the federal program, then it is a "modification" for purposes of District Regulation 2 and thus subject to NSR requirements.

"NSR Reform" and the Actual-to-Projected-Future-Actual Emission Increase Test

*In 2002, EPA promulgated a set of major revisions to the federal NSR program known as "NSR Reform." These revisions were prompted by a perception by some that NSR was creating perverse incentives for facilities not to install new, cleaner equipment so as not to trigger NSR Review. The previous NSR applicability test, which used an actual-to-potential emissions increase calculation methodology, was central to these concerns. In response, EPA created a new applicability test, which measures increases by looking to a source's projected **actual** emissions in the future—not to its maximum **potential** emissions. This results in a smaller measured increase, and a greater chance that the increase will be able to avoid NSR. EPA contended that this change strengthened the NSR program by encouraging facilities to install new equipment, which will result in fewer emissions. But it was highly controversial, and many saw it as a weakening of the program. In response, the California Legislature enacted SB 288, which prohibited California air districts from weakening any of their existing NSR regulations in response to NSR Reform. The result has created a dichotomy between federal NSR, which uses the NSR Reform methodologies, and the Air District's NSR program in Regulation 2, Rule 2, which (in most situations) uses the pre-NSR Reform methodologies.*

The federal "major modification" test has two variants, which apply in different situations depending on the type of pollutant involved:

- For the ***nonattainment pollutants*** (and precursors)—*i.e.,* NOx, VOC, $PM_{2.5}$ and SO_2—the test is based on the federal "major modification" definition in EPA's nonattainment NSR rules as set forth in 40 C.F.R. Section 51.165(a)(1)(v).[26] The Federal Backstop for these pollutants applies under subsection 234.2.1.

- For ***all other pollutants*** regulated under the federal NSR program (referred to herein as "Other Regulated NSR Pollutants"), the test is based on the "major modification" definition in EPA's Prevention of Significant Deterioration (PSD) rules as set forth in 40 C.F.R. Section 51.166(b)(2). The Federal Backstop for these pollutants applies under subsection 234.2.2.

Subsection 234.2 of the Air District's "modification" definition incorporates both of these respective tests by reference, stating that any change at a source that results in an emissions increase that is a "major modification" under these respective definitions is a "modification" for District permitting purposes under Regulation 2. Subsection 234.2 also includes language stating specifically that all of the related provisions of EPA's NSR rules in 40 C.F.R. Sections 51.165 and 51.166 that help define and interpret the "major modification" definitions are also incorporated by reference and shall be used in implementing subsection 234.2.

In this way, the District's "Federal Backstop" test in Section 2-1-234.2 imports the federal NSR program's "major modification" test wholesale and makes it a part of the District's "modification" definition. Simply put, if EPA would treat a change at a source as a "major modification" under the federal NSR program, then the District will treat it as a "modification" under its own NSR program.

The substance of the Federal Backstop test is mostly the same under the two respective variants applicable for nonattainment pollutants (subsection 234.2.1) and for Other Regulated NSR Pollutants (subsection 234.2.2), and it includes three essential elements. Under this test, a change at a source will be a "modification," and subject to NSR review, if:

(i) The facility where the project is located is a **"major" facility**;

(ii) The project will result in a **"significant" increase** in the facility's actual emissions, calculated using the actual-to-projected-actual methodology; and

(iii) The project will result in a **significant *net* increase** in the source's emissions, taking into account other "contemporaneous" increases and decreases at the facility.

The discussion below addresses each of these elements in more detail, and explains certain important places where they differ under the respective variants for nonattainment pollutants and Other Regulated NSR Pollutants.[27]

a) Major Facility

The Federal Backstop test in subsection 234.2 applies only at "major" facilities as defined under the federal NSR program.[28] The first element of the test therefore requires determining whether the facility at issue is over the applicable major facility thresholds under the federal NSR program.

For the ***nonattainment pollutants***—*i.e.,* for NOx, VOC, $PM_{2.5}$ and SO_2—a "major" facility is a facility that has a potential to emit (PTE) for those pollutants of 100 tpy or more.[29]

For all ***Other Regulated NSR Pollutants*** (excluding greenhouse gases), the "major" facility threshold depends on the type of facility. For facilities that are within any of EPA's 28 specific categories of NSR-listed facility types, the threshold is 100 tpy.[30] Facilities in any of these categories are major facilities if they have a PTE of any Regulated NSR Pollutant of 100 tpy or more.[31] For facilities that are not in any of these 28 categories, the threshold is 250 tpy.[32] Facilities not in any of the listed categories are not major facilities unless they have a PTE of 250 tpy or more of any Regulated NSR Pollutant.

The facility's fugitive emissions are included in calculating its PTE if the facility is in one of the 28 listed NSR facility categories. Fugitive emissions are not included for facilities that are not within any of the listed categories.[33]

Greenhouse gases (GHGs) are never considered in determining whether the facility is a major facility. GHGs are taken into account at the second and third steps of the analysis, in determining whether there is a "significant increase" in emissions and whether there is a "significant net increase," as discussed below. But the facility must be "major" for a Regulated NSR Pollutant *other than GHGs* in order to move on to those subsequent steps. A facility will be excluded from the Federal Backstop test at this first step unless it exceeds the applicable "major" facility threshold for some pollutant other than GHGs.[34]

In addition, where a project is being undertaken at a facility that is *not* above the "major facility" thresholds, but the project will involve an emissions increase that by itself would be above the "major facility" threshold (100 or 250 tpy, depending on the pollutant and the type of facility), then the project is treated as satisfying the "major facility" test. The rules for determining the amount of the emissions increase associated with the project are discussed in more detail in the next section. If the amount of the increase as determined under those rules will be above these "major facility" thresholds all by itself, then the increase results in a "major modification" regardless of the facility's size before the project is undertaken.[35]

Finally, under the federal NSR program a facility that is over the 100 tpy "major" facility threshold for a nonattainment pollutant (NOx, VOC, $PM_{2.5}$ and SO_2) is considered "major" for that pollutant only. For those four pollutants, there must be a significant net increase in emissions of the same pollutant for which the facility is "major" for the Federal Backstop to apply.[36] For all Other Regulated NSR Pollutants, a facility that is "major" for any pollutant is considered "major" for all

of them. For these pollutants, the Federal Backstop will apply if the facility is over the 100/250 tpy "major" facility threshold for any pollutant, and there is a significant net increase in emissions of any Other Regulated NSR Pollutant, even if the significant net emissions increase is of a different pollutant than the one that exceeded the "major" facility threshold.[37]

b) Significant Emissions Increase

The second element of the federal NSR "major modification" test is that the change being implemented at the major facility has to result in a "significant" increase in emissions, using the "actual-to-projected-actual" calculation methodology (or for sources that are less than two years old, a potential-to-potential test).[38] If the increase from the project being permitted will be less than EPA's published "significance" thresholds, then it is not a "major modification" and the analysis is finished. If the increase does exceed any "significance" thresholds then the change will be a "major modification," unless it can "net out" of being significant based on other contemporaneous decreases at the facility, as addressed in the next section.

i. Measuring the Emissions Increase From the Project

The first step in determining whether a change at a source will result in a significant increase is to calculate the amount of the emission increase resulting from the change. EPA's NSR regulations break down the methodology for doing so into three categories of projects: (i) projects involving changes to existing sources that are two years old or older; (ii) projects involving the initial installation of new sources or changes to existing sources that are less than two years old, all of which EPA treats as "new" sources; and (iii) "hybrid" projects involving some "new" sources and some sources that are two or more years old.[39]

Note that for all three categories, fugitive emissions are always included in determining the amount of the increase associated with the change. This is different from the rule for determining whether the facility itself is above the 100/250 tpy "major" facility threshold, under which fugitive emissions are included only if the facility is in one of the 28 listed categories. Once the facility exceeds the "major" facility threshold, then fugitive emissions are included for purposes of determining whether a change is a "major modification" in all cases.[40]

> ***Terminology Tip:* "Facility," "Source," and "Emissions Unit"**
> *The District and EPA use the term "source," and related terms, slightly differently. The District generally refers to an individual piece of equipment that emits air pollution as a "source," and to an entire plant (which normally contains multiple "sources") as a "facility." EPA generally refers to the entire plant as a "source," and to each individual piece of equipment as an "emissions unit." The regulatory definitions of all of these terms are fairly broad and there is a significant amount of overlap in how they could potentially be interpreted, but in general this is how the respective agencies use these terms in practice.*

The three respective methodologies for calculating the project emissions increase function as follows.

Category 1: Changes At Existing Sources That Are Two Or More Years Old

For a change at an existing source that is two or more years old (since initial operation), the amount of the increase is based on a comparison between (i) the source's ***"baseline actual emissions"*** before the project is implemented, and (ii) its ***"projected actual emissions"*** after the project is implemented.[41] There are a number of considerations that go into how these emissions levels are calculated. In addition, there are a number of administrative requirements that may apply for a source that determines that it does not have a "significant" emissions increase using this approach.

- ***CALCULATING THE "ACTUAL-TO-PROJECTED-ACTUAL" EMISSIONS INCREASE***

For calculating the source's ***baseline actual emissions,*** the general rule applicable to most types of sources (except for "Electric Utility Steam Generating Units," which are addressed below) is set forth in the second subsection of EPA's "baseline actual emissions" definition.[42] The ***general rule*** is that the source's baseline emissions are its actual emissions as measured during ***any consecutive 24-month period during the previous 10 years*** immediately prior to the receipt of a complete permit application (or the date construction commences, if earlier).[43] (This 10-year historical period from which the baseline period can be chosen is sometimes called the "10-year lookback" in NSR terminology.) The choice of which 24-month period to use is up to the applicant[44] (as long as there is adequate information with which to determine emissions during the period[45]). Different 24-month periods can be used for different pollutants under review, but if the project involves multiple sources, the same 24-month period must be used for all sources for each particular pollutant.[46] The source's fugitive emissions should be included in the baseline actual emissions to the extent that they are quantifiable, as well as any emissions from startups, shutdowns and malfunctions.[47] Any emissions that exceeded applicable regulatory limits must be excluded, however.[48] Finally, the baseline must be adjusted to reflect current regulatory standards. This means that the source's emissions during the baseline period must be calculated as if current regulatory standards were in effect during that period. If emissions or operating parameters during the baseline period exceeded any such standards, then the baseline emissions must be re-calculated based on an assumption that the source was operating at the time in compliance with the standards.[49]

There is also a ***special baseline rule applicable specifically to Electric Utility Steam Generating Units (EUSGUs),***[50] which is set forth in the first subsection of EPA's "baseline actual emissions" definition. For EUSGUs, the baseline period is ***any consecutive 24-month period during the previous 5 years*** *(i.e.,* a 5-year "lookback" instead of the 10-year "lookback" for other types of sources).[51] The 5-year lookback period runs from the date construction commences in all cases, not the permit application date. There is also a provision for using a different time period, if the APCO determines that it is more representative of normal source operation.[52]

For the most part, the same rules about calculating the baseline emissions discussed in the previous paragraph for non-EUSGU sources apply to EUSGUs as well: (i) the same 24-month baseline period must be used for all sources for each individual pollutant, although different baseline periods can be chosen for different pollutants; (ii) fugitive emissions must be included to the extent quantifiable; (iii) startup, shutdown, and malfunction emissions must be included; (iv) any emissions that were in violation of applicable regulatory standards must be excluded; and (v) there must be adequate data available regarding the level of emissions during the period chosen.[53] The principal difference is that the EUSGU baseline rule does not include the provision requiring an adjustment to the baseline to reflect current regulatory standards. This baseline adjustment requirement appears only in the general baseline provision applicable to non-EUSGU sources.[54]

Once the source's baseline actual emissions are established, the next step is to determine the source's ***projected actual emissions*** in the future after the change is implemented. The projected actual emissions are the maximum emissions that the source is projected to emit during any 12-month period within the 5 years after the change at the source is implemented.[55] The projected actual emissions must include anticipated emissions associated with startups, shutdowns and malfunctions, and fugitive emissions to the extent quantifiable.[56]

There is also an alternative scenario in which a 10-year future emissions projection must be used instead of the general 5-year rule. This scenario applies where the project under review involves an increase in the source's design capacity or its potential to emit, and full utilization of the source at the new capacity or potential to emit would constitute a significant emissions increase and/or a significant net emissions increase. This is essentially a threshold actual-to-potential calculation that must be performed to see whether to use a 5-year projection or a 10-year projection in calculating the source's "projected actual emissions." If the project will increase the source's capacity or PTE, and full utilization at the new capacity or PTE would constitute a significant emissions increase or a significant net emissions increase, then the 10-year future projection must be used.[57]

Emissions can be excluded from the projected-actual-emissions calculation if they will be the result of an increase in demand for the facility's output that would have occurred anyway, regardless of the project being undertaken (or are otherwise unrelated to the project).[58] This principle is called the ***"demand growth exclusion,"*** and its purpose is to eliminate any unfairness that could result from including emissions increases that would have occurred anyway, for reasons unrelated to the project being undertaken. In order to qualify for the exclusion, however, the emissions increases must be something that the source could have accommodated during the 24-month period that was used to establish the baseline emissions.[59] If the source could not have accommodated that level of emissions at the time, then it cannot be the case that such a level of emissions would have occurred anyway regardless of the project.

The projection of future post-project emissions should take into account all relevant data and information, including historical operating rates, projections of future business activity, filings with

regulatory authorities regarding such activity, compliance plans, materials published for business-related purposes that may discuss future operating plans (such as shareholder prospectuses or loan application documents), and any other information that may shed light on how the source will operate in the future.[60] In practice, the applicant will normally propose a projected-actual-emissions level for use in the applicability analysis. However, it is incumbent upon the Air District to review the applicant's proposed level independently in order to determine that it is reasonable and supportable.

Once the projected actual emissions are calculated, the amount of the increase from the change being made at the source is the difference between the calculated "baseline actual emissions" and the calculated "projected actual emissions."[61] This is the number that is then compared to the "significance" thresholds. For projects involving changes at multiple sources, the increases at each individual source are added together to determine whether the total increase for the project as a whole as "significant." These issues are discussed in more detail below.

- ***ADMINISTRATIVE REQUIREMENTS FOR DOCUMENTING NON-APPLICABILITY DETERMINATIONS***

The federal NSR program also includes certain administrative requirements that apply to projects where the emissions increases are projected ***not*** to be significant and are thus not "major modifications" subject to NSR. The purpose of these administrative requirements is to document the NSR non-applicability determination for compliance and enforcement purposes (among other reasons).[62] For projects where the projected actual increase will be 50% or more of any applicable "significance" level—which the regulations refer to has having a "reasonable possibility" that there could be a significant emissions increase—the applicant needs to comply with certain recordkeeping, monitoring, and reporting requirements.[63] These requirements are set forth in 40 C.F.R. Section 51.165(a)(6) (for NOx, VOC, $PM_{2.5}$ and SO_2) and in 40 C.F.R. Section 51.166(r)(6) (for the Other Regulated NSR Pollutants), which are incorporated by reference into Section 2-1-234.2. In general, they apply as follows:

- ***Documenting the Basis for the Non-Applicability Determination:*** For all projects where the projected actual emissions increase will be 50% or more of the significance level for any pollutant *without taking into account any demand growth exclusion,*[64] the owner/operator must document and maintain a record of (A) a description of the project; (B) an identification of all of the sources (emissions units) whose emissions could be affected by the project; and (C) a description of the NSR applicability calculations used to determine that the project is not a "major modification" for that pollutant, including baseline actual emissions, projected actual emissions, the amount of any emissions excluded under the demand growth exclusion along with an explanation of why the exclusion was justified, and any "netting" that was used (netting is described in more detail in Section II.B.2.c. below).[65] In most cases, this information simply needs to be documented and records maintained.[66] The one exception is for EUSGUs in situations where the projected emissions increase still exceeds 50% of the significance threshold

after the demand growth exclusion is applied. If that is the case, the EUSGU must report the information to the Air District before beginning construction (although this submission is not a formal "application," and there is no requirement that the District approve the submission before construction commences).[67] If the demand growth exclusion brings the EUSGU's projected emission increase down below 50%, then this reporting is not required.[68]

- ***Tracking Actual Emissions After the Project is Built:*** In addition, for projects where the projected actual emission increase will be still be 50% or more of the significance level for any pollutant *even after the demand growth exclusion is applied,*[69] the owner/operator must monitor its actual emissions after the project is implemented and report them to the Air District as required. For these projects, the owner/operator must (i) monitor the emissions of each pollutant that could increase as a result of the project at each source (emissions unit) affected by the project; and (ii) keep a record of the emissions (in tons per year on a calendar year basis) for 5 years following resumption of normal operations after the project is implemented, or 10 years for sources (emission units) where the project increases the design capacity or potential to emit of the pollutant.[70] For EUSGUs, the owner/operator must report the information regarding the EUSGU's annual emissions (as monitored) to the District within 60 days after the end of each year during which monitoring is required.[71] For sources other than EUSGUs, the owner/operator must report their monitored actual emissions only if (i) the actual emissions exceed the baseline used to determine NSR applicability by a "significant" amount (*i.e.,* in hindsight, it can be seen that there was in fact a significant actual-to-future-actual emissions increase); ***and*** (ii) actual emissions differ from the "projected actual emissions" calculation used to determine applicability.[72] If the emissions measured by the monitoring exceed both of these thresholds, then the owner/operator must submit a report to the Air District within 60 days after the end of the year stating (A) the facility name, address and telephone number; (B) the source's (emission unit's) annual emissions as calculated based on the emissions monitoring data; and (C) any other information that the owner/operator wishes to include, such as an explanation of why the source's actual emissions differed from the projected emissions.[73]

Thus, if the project's projected actual emissions increase *without* the demand growth exclusion taken into account is 50% or more of the NSR significance level for a pollutant, administrative requirements apply for that pollutant in order to establish that the project is not a "major modification." If subtracting out the amount of the increase that is eligible for the demand growth exclusion brings the emission increase down below the 50% threshold, then only the pre-construction requirement to document how the applicability calculations were performed applies. If the amount of the increase is still above 50% of the significance level for a pollutant even after applying the demand growth exclusion, then the post-project monitoring, recordkeeping and reporting requirements also apply for that pollutant.[74] Note also that the rules require all owner/operators who are subject to any of the recordkeeping requirements outlined above to make all required records and documentation available to the District and the public upon request.[75]

Facilities have the option of avoiding all of these recordkeeping, monitoring and reporting requirements that go along with using the actual-to-projected-actual emissions increase test by using an actual-to-potential test instead. If the emissions increase associated with a project will be less than the applicable "significance" thresholds even when the increase is determined using an actual-to-potential calculation, then the facility can establish that the project does not trigger NSR that way, and it will not have to worry about documenting the basis for its future emissions projections or tracking actual emissions once the project is completed.[76] In such a situation, the concerns about verifying the future emissions projections that underlie the recordkeeping, monitoring and reporting requirements do not apply, because the project could not possibly generate a significant increase even if it operates at its maximum PTE.

Category 2: New Sources And Changes At Existing Sources Less Than 2 Years Old

EPA has a separate test for "new emission units," which is defined to include existing emissions units (sources) that have been operating for less than two years.[77] Where a change is being implemented at such a source, the methodology for determining the emissions increase uses a potential-to-potential test—*i.e.,* the emissions increase is based on the increase in PTE resulting from the change. For such sources, the increase in emissions from the change being implemented at the source is the difference between (i) the source's PTE before the change and (ii) the source's PTE after the change.[78] There will be no change in emissions for purposes of applying this test if the change does not affect the source's PTE (and there could even be a decrease resulting from the change if the change will reduce the PTE).

For projects involving multiple sources (emission units), this test applies where the project involves only "new emissions units"—*i.e.,* installation of truly new sources and changes at existing sources that are less than two years old. The PTE increases from all such sources (emission units) involved in the project are added together to determine the total project increase, which is then compared with the NSR significance thresholds to determine whether the project will result in a "significant" emissions increase.

Category 3: "Hybrid" Projects Involving Both Types of Sources

Finally, there is also a third test for projects that involve (i) some existing sources that are over two years old and (ii) some "new emissions units" (*i.e.,* truly new sources and existing sources that are less than two years old). EPA calls this the "hybrid test," as it involves a hybrid of the tests applicable to the first two categories.

For such projects, the hybrid test requires calculating the emissions increase for each type of emissions unit based on the applicable calculation methodology for that type, and then adding them all together.[79] Thus, one must first calculate the emissions increase for each change at an existing source more than two years old using the actual-to-projected actual test. In doing so, the same 24-month baseline period must be used for all such sources for each individual pollutant analyzed, although different 24-month periods can be chosen for different pollutants.[80]

Second, one must calculate the emission increase for each change at an existing source less than two years old using the potential-to-potential test, as well as the emission increase for each truly new source using the new unit's full PTE (because such sources by definition have a PTE of zero before they are installed). The project emission increase is the sum of all of the emissions increases calculated for the individual emissions units involved. The total increase is then compared with the NSR significance thresholds to determine whether the project will result in a "significant" emissions increase.

ii. Applying the "Significant" Increase Thresholds

Once the emissions increase associated with a change being implemented at a source (or project, if the project involves multiple sources) is calculated using the methodologies outlined above, a determination must be made whether the increase will exceed the "significance" thresholds established by EPA. These thresholds vary by pollutant and include 100 tpy of CO; 40 tpy of NOx, VOC and SO_2; 15 tpy of PM_{10}; 10 tpy of $PM_{2.5}$; 7 tpy for sulfuric acid mist; and 0.6 tpy for lead. The full list of significance thresholds applicable to the Federal Backstop test can be found at 40 C.F.R. Sections 51.165(a)(1)(x) and 51.166(b)(23).[81] For pollutants for which no specific significance threshold has been established, the significance threshold is zero (*i.e.,* any increase in emissions of those pollutants is significant).[82]

In addition, there is also a special additional rule that applies for any major facility located within 10 km of a "Class I" area, which are pristine areas such as national parks. There is only one such Class I Area within the Air District's jurisdictional boundaries, the Point Reyes National Seashore.[83] Given the remoteness of this area in rural Western Marin County, it is unlikely that any major facility would be located within 10 km of this Class I Area. To the extent that one is, however, a change at the facility will result in a "significant" increase of any Other Regulated NSR Pollutant (*i.e.,* not NOx, VOC and $PM_{2.5}$ or SO_2) if it will increase the ambient air concentrations of that pollutant within the Class I Area by 1 µg/m^3 or more (24-hour average).[84]

"De Minimis" Increases: The NSR Significance Thresholds

EPA has adopted thresholds for what constitute "significant" increases under the NSR program. EPA adopted these thresholds based on a determination that emission increases below these levels are de minimis, and thus do not need to be subject to NSR permitting requirements, under the doctrine set forth in Alabama Power v. Costle. These significance levels have been incorporated into EPA's NSR program, and into the District's NSR regulations, in a number of areas. It is a good idea to become familiar with these significance thresholds, as they come up often in the world of NSR permitting. The principal NSR significance levels are as follows:

NOx: 40 tpy	*VOC: 40 tpy*	*PM_{10}: 15 tpy*	*GHG: 75k tpy**
SO_2: 40 tpy	*CO: 100 tpy*	*$PM_{2.5}$: 10 tpy*	*Pb: 0.6 tpy*

*For pollutants for which EPA has not established a specific de minimis threshold, **any** increase is considered "significant."*

**see text for details*

Note also that the significance threshold for greenhouse gases is a two-part threshold that requires (i) an increase in mass of GHG emissions (in absolute terms) by some amount greater than zero; *and* (ii) an increase of 75,000 tpy or more measured as CO_2e.[85] This wrinkle could potentially become important for projects involving increases and decreases in different types of GHGs with different global warming potentials. For example, if a project involves a large decrease in CO_2 emissions (which have a relatively low global warming potential) in conjunction with a small increase in SF_6 emissions (which have a very high global warming potential), the project may increase GHG emissions by a large amount when measured as CO_2e, even though there is an overall *decrease* in emissions on a mass basis. That situation would not constitute a "significant" GHG emissions increase, because it would not satisfy both elements of the two-part test for GHGs.

To determine whether the project at issue will involve a significant emissions increase, the increase from the project must be compared with the established NSR significance thresholds. For the Nonattainment Pollutants (NOx, VOC, $PM_{2.5}$, and SO_2), only the specific pollutant(s) for which the facility is over the 100 tpy Nonattainment NSR "major" facility threshold are compared to the significance thresholds, as the federal Nonattainment NSR "major modification" test applies on a pollutant-specific basis.[86] Thus, even if a project involves an increase in emissions of a Nonattainment Pollutant over the established significance threshold, that increase will not make the project a "major modification" if the facility's PTE for that pollutant is below the 100 tpy "major" facility threshold.

For the Other Regulated NSR Pollutants, however, the significance analysis does not use this pollutant-specific approach. For those pollutants, if the facility's PTE is over the 100/250 tpy PSD "major" facility threshold for any Regulated NSR Pollutant as defined in 40 C.F.R. Section 51.166(b)(49), then the project will result in a "significant increase" for purposes of the Federal Backstop test if the increase exceeds an established significance threshold for *any* of the Other Regulated NSR Pollutants. As long as the facility's PTE is above the 100/250 tpy "major" facility threshold, the project will be a "significant increase" for purposes of the "major modification" test even if the pollutant with the increase above the significance threshold is not the same as the pollutant with the PTE above the "major" facility threshold.[87]

If the project will not involve a "significant increase," then it is not a "major modification" under 40 C.F.R. Sections 51.165 and 51.166 and the analysis is complete. Such a project does not trigger the Federal Backstop test under Section 2-1-234.2. If the project will involve a "significant increase" at a "major" facility,[88] then the analysis turns to the third step: evaluating whether there will be a "significant net increase" when other contemporaneous emissions increases and decreases are taken into account (*see* Section II.C. below).

iii. Special Considerations For Projects Involving Multiple Sources

If a source where a change is being implemented is part of a larger project involving multiple sources (or "emission units," in the language of EPA's regulations), it is important to check

whether the source triggers the Federal Backstop test as a result of the larger project. Unlike the District's historical modification test under Section 2-1-234.1, which uses a source-specific approach that evaluates whether there has been an increase in PTE at an individual source to determine whether that source is being "modified," EPA's "major modification" test applies to the project as a whole. EPA's test therefore includes all of the emissions increases from all of the sources ("emission units") involved in the project to determine whether the project as a whole will have a significant increase.[89]

The Federal Backstop evaluation therefore needs to evaluate the emissions increases from all of the sources that are involved in the project to see whether the total increase will exceed the "significance" thresholds and potentially constitute a federal "major modification" (unless it can "net out" under the third element of the major modification test discussed below). If the project as a whole will be a federal "major modification," then each individual source (emissions unit) that is part of the project must be treated as part of the "major modification." In such a case, each individual source involved in the project will trigger the Federal Backstop modification test under subsection 234.2 and be subject to NSR review (although not every source will necessarily trigger all of the substantive requirements of the NSR program, depending on each source's individual emissions).

The evaluation for projects involving multiple sources uses EPA's three tests outlined above. For projects that involve only changes at existing sources (emissions units) that are two or more years old, the actual-to-projected-actual methodology is applied to each source where a change is being made as part of the project. The total project increase is the sum of the increases from all such changes. For projects where the only changes being made are at existing sources (emissions units) that are less than two years old, the potential-to-potential methodology is applied to each source where a change is being made as part of the project. The total project increase is the sum of the increases from all such changes, plus any increases from any truly new sources that are being installed as part of the project. And for projects where changes are being made to both types of sources, the "hybrid test" is applied.

Aggregating Multiple Nominally-Independent Projects To Avoid Circumvention

One important issue that may arise in evaluating the total project emissions increase under these tests is what changes being made at various sources at a facility need to be aggregated together as part of a single larger "project." In most cases, the extent of the project under review should be fairly obvious. But concerns may arise regarding the potential for circumvention of the NSR requirements by splitting a larger project up into smaller components that are individually below the "major modification" threshold.

EPA's policy on aggregation of nominally-separate projects—and the policy the Air District will follow in implementing the Federal Backstop test—is based on a commonsense, case-by-case approach that looks to all relevant indicators of whether such projects should be considered together for purposes of NSR review. These factors can include: (i) whether the facility submits

multiple applications for successive minor projects (below the "major modification" threshold) simultaneously or within a relatively short period of time; (ii) whether the facility characterizes the successive projects as a single project for purposes of financing the project; (iii) whether the facility's projections of consumer demand that the facility will need to meet can only be met by the multiple projects together; (iv) authorized statements by facility representatives regarding plans for operation of the facility; (v) independent analysis of the economic purpose and viability of the facility; and (vi) other relevant factors.[90] Legal counsel can provide further advice about whether multiple projects should be aggregated together under this policy in specific cases that may implicate factors such as these, or where there may be other concerns about potential circumvention.

Including Emissions Decreases Associated With The Project When Determining Whether The Project Will Have A "Significant" Emissions Increase

Another important issue that may arise in calculating the total project emissions increase is whether enforceable ***decreases*** in emissions that may result at some sources involved in the project can be taken into account. That is, if a project will involve emissions increases at some sources and decreases at other sources as part of the same project, can the decreases be taken into account in order to reduce the overall emissions increase resulting from the project?

The language of the regulations seems to indicate that such decreases should be included in the overall project increase calculation under the "new unit" and "existing unit" tests, but not under the "hybrid test." This is because the "new unit" and "existing unit" tests state that the calculation is based on "the sum of the difference between the [future] emissions . . . and the baseline actual emissions . . . ."[91] This reference to the "difference" contemplates that the difference could be positive (*i.e.,* an emissions increase) or negative (*i.e.,* an emissions decrease), and that both should be taken into account. The "hybrid test," by contrast, states that the calculation is based on "the sum of the emission increases for each emissions unit," which explicitly contemplates including emissions increases only.[92]

EPA endorsed this reading of the regulatory language in a Federal Register notice that addressed this issue.[93] EPA staff have subsequently taken a contrary position regarding specific projects, however.[94] Given the unsettled nature of this issue, it would be wise to consult with legal counsel before taking any emissions decreases into account in the determination of whether the project will have a significant emissions increase under the second prong of the Federal Backstop analysis. Some or all of these decreases may have to be excluded at this stage of the analysis.

Note that even if such decreases cannot be included in determining whether the project ***by itself*** will have a significant increase, they can still be taken into account in determining whether there will a significant ***net*** increase when other contemporaneous increases and decreases are considered. This "netting" evaluation is the third element of the Federal Backstop test, and it is discussed in detail the next section. Evaluating project decreases at the netting stage has certain drawbacks, however, compared to including them in the project increase calculation.

One is that, at the netting stage, the amount of such decreases is calculated using an actual-to-potential test in most cases, instead of using the more generous actual-to-future-actual test that applies in calculating the project emissions increase. Another is that when the analysis proceeds to the netting stage, previous emissions increases from other projects within the 5-plus year "contemporaneous" period will normally have to be included in the netting analysis, which could negate some of the benefits from the decreases associated with the current project in netting out of NSR review.

c) Significant Net Increase

If a change is being implemented at a major facility that will result in a significant increase in emissions under the definitions outlined above, then the analysis proceeds to the third element of the "major modification" test. In order for a project to be a "major modification" under EPA's NSR rules, it must result in a significant ***net*** emissions increase, taking into account other emissions increases and decreases at the facility that are "contemporaneous" with the project as defined in the regulations.[95] The purpose of this requirement is to allow a project to avoid NSR review where there are other emissions decreases at the facility that have recently been implemented (or will be implemented in the near future by the time the project commences operation) such that the overall net increase at the facility is less than the NSR "significance" levels. The process of using recent emissions decreases to avoid NSR review under this prong of the "major modification" test is called "netting." When a project avoids triggering NSR review using netting, it is said to "net out" of NSR.

The rules for NSR netting are governed by the definition of "net emissions increase" in 40 C.F.R. Sections 51.165(a)(1)(vi) (for NOx, VOC, $PM_{2.5}$, and SO_2) and 51.166(b)(3) (for Other Regulated NSR Pollutants). In a nutshell, the netting process involves taking the significant emissions increase from the project under review (as calculated under the second prong of the Federal Backstop test), and then adding or subtracting any emissions increases or decreases from other projects that are (i) within a five-year "contemporaneous" time period before the current project, and (ii) otherwise "creditable," as these terms are defined in the regulations.[96] The amount of such "contemporaneous" increases and decreases is calculated using an actual-to-potential methodology (except where they occurred at sources that were less than two years old, in which case a potential-to-potential methodology applies).

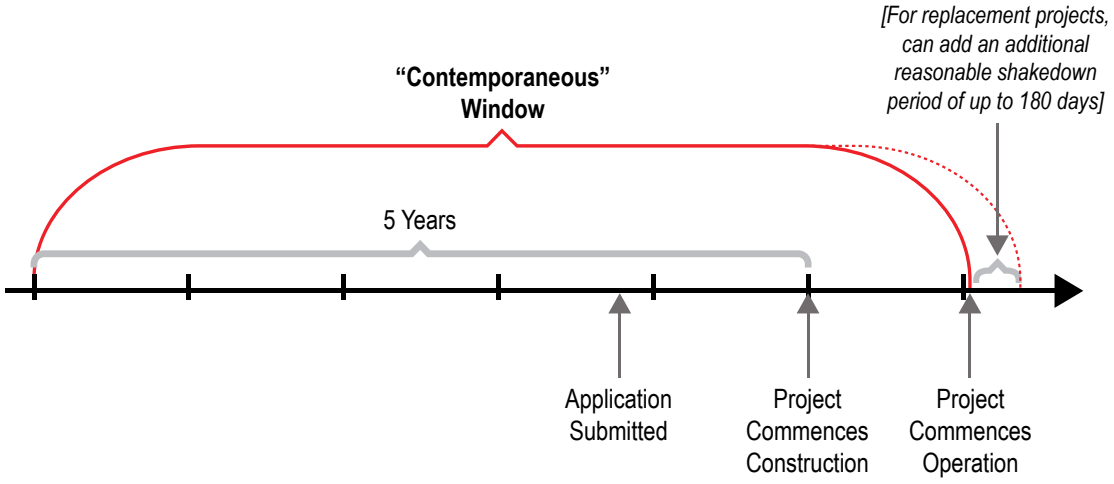
Note also that the netting analysis under this third prong is a way for a project to avoid being a "major modification" under EPA's NSR regulations, but it is not a way for a project to be brought within the "major modification" definition where the project does not by itself involve a significant emissions increase. Put another way, a project can "net out" of NSR, but it cannot "net in" to NSR. A series of minor projects within five years that individually have only small increases, but which together add up to a "significant" emissions increase, will not trigger NSR. Only a project with an increase that is "significant" all by itself can trigger NSR (and even then, such a project can "net out" of NSR if the other contemporaneous increases and decreases bring the "net emissions increase" down below the significance thresholds).[97]

i. The "Contemporaneous" Time Period for Netting

An emissions increase or decrease from a prior project is "contemporaneous" with the current project under review if it occurred within five years preceding the date on which construction on the current project is expected to "commence."[98] (Note that this is different from the Air District's definition of contemporaneous in Section 2-2-206, which applies in most other contexts under Regulation 2-2.) EPA's definition of "commencing" construction includes having obtained all necessary permits and having entered into contractual commitments to undertake the construction,[99] which means that the five-year "contemporaneous" window does not necessarily have to be tied to the date when actual physical construction activities begin. This feature may allow for the five-year "contemporaneous" window to be enlarged somewhat, depending on the circumstances.

An emissions increase or decrease can also be counted as "contemporaneous" if it will occur after the project under review commences construction, as long as it occurs by the time the project becomes operational and begins emitting pollutants (or for a replacement project that requires a shakedown period, by the end of a reasonable shakedown period not to exceed 180 days).[100] This makes for a "contemporaneous" window of a little over five years, as it reaches back five years from the date construction is to commence and also reaches forwards from the commencement of construction to the date the project becomes operational. This provision gives the applicant the ability to take credit for shutdowns or other reductions at the facility that will be implemented in conjunction with the new project being permitted. For example, an applicant may want to keep an existing source operating during the permitting and construction of the new project, and not shut it down until the new project comes on line. The federal netting rules allow it to do so and still count the resulting emission reductions as "contemporaneous." Figure 2-1 illustrates how the "contemporaneous" definition works in this regard.

Figure 2-1: The "Contemporaneous" Window for the Major NSR "Netting" Analysis Under the Federal Backstop Test



Note that the netting analysis under these rules must be based on an estimate of when the proposed project will commence construction and when it will become operational. Project applicants and reviewers should use their best professional judgment to make reasonable assumptions about these time periods. The project applicant will normally be in the best position to provide the information on which to base such estimates. But the Air District retains the authority and the responsibility to ensure that such estimates are reasonable.

Once the "contemporaneous" period is determined, increases and decreases can be evaluated to see whether they "occurred" (or will "occur") within this window. EPA considers increases and decreases to "occur" for purposes of the netting calculation at the time they are actually implemented—*i.e.,* the date on which new or modified equipment begins operation with increased emissions, or on which old equipment is shut down or curtailed to reduce emissions.

For contemporaneous emissions ***increases,*** the regulations contain an explicit provision defining the "occur" date as the date on which the source becomes operational and begins emitting (or for replacement units that require a shakedown period, by the end of a reasonable shakedown period not to exceed 180 days).[101] Technically, the language of this provision applies only to an increase resulting from a *physical change* at the source (*i.e.,* as opposed to an increase resulting from a change in the method of operation). But there is no indication that the rule should be any different for an increase resulting from a change in the method of operation. Thus, if the prior increase involved a change in permit conditions to allow a different method of operation at a source, without any need for physical changes at the source, the date that the increase "occurred" for purposes of determining whether it is "contemporaneous" should be the date on which the source first began operating under the newly-permitted method of operation.[102]

For prior emissions ***decreases,*** there is no explicit rule in the federal NSR regulations defining the "occur" date. But EPA's practice is to use the date that the shutdown or other curtailment at the source was actually implemented. The shutdown or curtailment (and the resulting emission reductions) must be enforceable in order to be "creditable" for use in the netting analysis, but it does not necessarily need to have been made enforceable at the time it occurred. It is possible for the facility to accept enforceable conditions after the fact to make a prior reduction enforceable. In such a situation, the reduction will be treated as having "occurred" on the date when the source was shut down or otherwise curtailed its operations, not on the subsequent date that the reduction was made enforceable.[103] The date of the actual shutdown or curtailment must have been within the "contemporaneous" window in order for the reduction to be eligible for netting.

Note also that any emissions decreases that will be implemented around the same time as the project being permitted must be in effect by the time the project being permitted begins operation (or, for replacement projects, by the end of a reasonable shakedown period not to exceed 180 days) in order to fall within the "contemporaneous" window.[104] An emissions decrease at the facility cannot be included in the netting analysis if it will not "occur" until after the project begins operation (or for a replacement project, after the end of the shakedown period).

ii. "Creditable" Emissions Increases and Decreases

In addition to being "contemporaneous," prior increases and decreases must be "creditable." This requirement has several elements.[105]

First, in order to be "creditable," an increase or decrease cannot previously have been relied on for purposes of an NSR permit.[106] For example, if the increase or decrease was included in a PSD air quality impact analysis for a prior permit, then it has been "relied on" and is not creditable for purposes of any subsequent netting analysis (unless the prior permit has expired or is otherwise no longer in effect).[107] (But note that prior increases or decreases are not "relied on" simply because they were included in the netting analysis that was the basis for a non-applicability determination for a prior project that netted out of NSR; such increases are only "relied on" where a project *does* trigger NSR and they are included in an NSR permit analysis.[108]) For the Nonattainment Pollutants (NOx, VOC and $PM_{2.5}$, and SO_2), an emissions decrease also cannot have been relied on in demonstrating attainment or "Reasonable Further Progress" (RFP) towards attainment.[109]

In addition, a decrease must be enforceable by the time construction commences on the project being permitted.[110] Obviously, if an emissions decrease is not enforceable, then there cannot be any certainty that it will continue and it cannot be relied on for netting purposes. As noted above, prior decreases do not necessarily have to be enforceable at the time they occurred in order to be included in the netting analysis. But the facility must accept enforceable limitations to make any such decreases permanent in order to use them for netting. The enforceable limitations must be in effect by the time construction on the new project being permitted begins (and the date the prior decrease actually occurred must be within the five-year "contemporaneous" window").

There is also a provision that excludes any prior changes at the facility that resulted in an emissions increase only under the "actual-to-potential" measurement methodology. If the ***actual*** emissions after the change do not exceed the actual emissions before the change, then there is no "creditable" increase that needs to be included in the netting analysis.[111] This does not mean that an actual-to-future-actual methodology applies for calculating the amount of prior increases in the netting analysis. That is not the case, as discussed below; the actual-to-potential methodology is used. This provision simply means that if the actual-to-potential methodology shows an increase, that increase can be excluded from the netting analysis if there was no increase in actual emissions using an actual-to-future-actual comparison. In such a situation, there is no "creditable" increase for netting purposes.

Finally, there is also a nebulous catch-all provision that requires any emissions decrease used in netting to have "approximately the same quantitative significance for public health and welfare" as the emissions increase from the new project for which the netting analysis is being undertaken.[112] Since netting is performed on a pollutant-by-pollutant basis and looks only at emissions increases and decreases from the same facility, this requirement will not disqualify prior decreases in most cases. That is, prior decreases will by definition involve the same pollutant at the same

location as the emissions increase from the project under review, and will therefore most likely have approximately the same quantitative significance for the public health and welfare. This determination must be made for each project on a case-by-case basis, however.

iii. Calculating the Amount of Prior Increases and Decreases – Use the Actual-to-Potential Test

If an emissions increase or decrease falls within the "contemporaneous" window and is otherwise creditable, it can be used for netting. The amount of the increase or decrease that can be used for netting purposes is determined using an actual-to-potential test (except for emissions units less than two years old, which use the potential-to-potential test).

Note that this is different from the test for determining whether the emissions increase associated with the project is "significant," which uses the actual-to-projected-future-actual methodology described above. This difference derives from the NSR Reform applicability provisions in 40 C.F.R. Sections 51.165(a)(2)(ii)(B) and 51.166(a)(7)(iv)(*b*). The first sentence of those provisions states that "[t]he procedure for calculating . . . whether a significant emissions increase . . . will occur" is governed by the NSR Reform provisions in 40 C.F.R. Sections 51.165(a)(2)(ii)(C)-(F) and 51.166(a)(7)(iv)(c)-(*f*). But the second sentence of those provisions states that "[t]he procedure for calculating . . . whether a significant ***net*** emissions increase . . . will occur" (emphasis added) is governed by the pre-NSR Reform "net emissions increase" definition in 40 C.F.R. Sections 51.165(a)(1)(vi) and 51.166(b)(3), which do not incorporate the NSR Reform actual-to-projected-future-actual methodology.[113]

Thus, the amount of a prior contemporaneous, creditable emissions increase or decrease at a source that is used in the netting analysis is based on the difference between (i) the source's "baseline actual emissions" before the change was implemented as defined in in 40 C.F.R. Sections 51.165(a)(1)(xxxv) and 51.166(b)(47); and (ii) the source's new PTE after the change was implemented.[114]

Calculating the Baseline Emissions For Contemporaneous Increases and Decreases

The baseline actual emissions calculation for netting follows the same procedures as described above with respect to setting the baseline period. For prior increases and decreases at sources (emissions units) that were over two years old, the general rule (for sources other than EUSGUs) is that the baseline emissions are the average actual emissions during any 24-month period within the 10 years preceding the date of receipt of the complete permit application for the increase or decrease (unless construction began before the receipt of a complete permit application, in which case the date of the beginning of "actual construction" is used).[115] Any emissions that were in violation of any applicable regulatory limit must be excluded from the baseline emissions,[116] and the baseline emissions must be adjusted downwards to reflect currently regulatory standards.[117]

For EUSGUs that were over two years old, the baseline actual emissions are the actual emissions during any 24-month period within the 5 years preceding the date of receipt of the complete permit application for the increase or decrease (regardless of whether construction began before the receipt of the complete permit application). If none of the 24-month periods during the most recent 5 years is sufficiently representative of normal source operation, an alternative, more representative period can be used.[118] As with non-EUSGUs, any emissions that were in violation of any applicable regulatory limit must be excluded.[119] Unlike EUSGUs, however, the baseline actual emissions are not adjusted downwards to reflect current regulatory standards.[120]

For all sources (both EUSGUs and non-EUSGUs), emissions from startups, shutdowns and malfunctions are included in the baseline emissions, as well as fugitive emissions to the extent quantifiable.[121] These are the same rules that apply in determining baseline emissions for calculating whether the project's emissions will be significant. The only difference in the baseline calculation provision in the netting context is that the provision requiring that the same 24-month period must be used for all sources (emissions units) involved does not apply for calculating the baseline emissions for prior increases and decreases.[122]

For prior increases and decreases at sources (emissions units) that EPA defines as "new units"—*i.e.,* new units and existing units that were less than two years old at the time of the increase or decrease—the baseline actual emissions are the source's PTE before the change at the source was implemented.[123] For a truly new unit, the PTE prior to it being installed is zero, as by definition it cannot emit anything before it starts operating.[124] For existing units less than two years old, it is the source's PTE before the change that generated the increase or decrease being calculated.

Note that the baseline period for prior projects evaluated in the netting analysis may extend well beyond the five-year "contemporaneous" window, for two reasons. First, a prior project is counted as "contemporaneous" based on when it actually commenced operation, whereas the baseline period for such a prior project is calculated based on the date of the permit application for the project, which in many cases may be well before the project actually commenced operation. Second, the baseline period can be any 24-month period within the 10 years preceding the permit application. This situation can result in having to look back many years into the past to determine the baseline emissions for a prior increase or decrease to be evaluated in the netting analysis. For example, take a prior project that commenced operation at the very beginning of the 5-year "contemporaneous" window (which is based on the commencement of construction of the current project being permitted). The permit application for that prior project may have been submitted a year or two before that, since it can easily take several years for permitting and construction. With a baseline period selected from within the 10 years before the permit application for the prior project, the baseline period could extend back as far as 16 or 17 years before the commencement of construction on the current project being permitted.

Calculating the Amount of Contemporaneous Emissions Increases and Decreases

Once the baseline emissions for the contemporaneous increase or decrease at a source is calculated, it is then compared with the new PTE after the increase or decrease occurred.

For an emissions ***increase,*** the new PTE is the maximum allowable emissions under the permit that authorized the physical change or change in method of operations that generated the increase. If the emissions increase resulted from a physical change that did not require a permit—for example, because it was not a "major modification" for federal NSR purposes—then the new PTE is the maximum physical capacity of the source after the change was implemented under applicable operational and legal constraints. (Note that changes in the method of operation that did not require a permit are not normally treated as creditable for netting purposes. Increases that were the result of permitted variations in a facility's operations under existing permits and regulations—such as an increase in production rate or hours of operation—are not included in the federal NSR applicability analysis.[125])

For an emissions ***decrease,*** the new PTE is the maximum allowable emissions under the limiting conditions that made the decrease enforceable. Again, a prior emissions decrease does not have to be made enforceable at the time it occurs, as long as it is enforceable by the time of commencement of construction on the current project being permitted. In that case, the "new PTE" for the prior project is the subsequently-imposed emissions limit that makes the prior emissions decrease enforceable. Note also that in such a case, the 10-year window for establishing the baseline period for the prior emissions decrease is established based on the application for the permit limit that makes the prior decrease enforceable.

iv. Determining Whether The Project Will Have A Significant Net Increase

Once all emissions increases and decreases that are "contemporaneous" and otherwise "creditable" have been identified, and the amounts of such increases and decreases have been quantified, the netting calculation can be undertaken. This calculation adds the increase associated with the project to all contemporaneous, creditable increases and decreases to calculate the "net emissions increase" for the project. The project emissions increase is calculated using the NSR Reform methodologies (the actual-to-projected-actual emission increase test), as outlined in Section II.B.2.b. The contemporaneous increases and decreases are then calculated using the pre-NSR Reform methodologies (the actual-to-potential emission increase test), as outlined above. The results of all of these calculations are then summed to give the net emissions increase.

Note that ***all*** "creditable" increases and decreases that "occurred" (or will "occur") within the "contemporaneous" window must be included in the netting analysis. An applicant cannot 'pick and choose' which prior projects to include for netting, for example by selecting only decreases and avoiding the countervailing impact of increases that occurred at the facility within the "contemporaneous" window. (Prior increases that are not "creditable" can be excluded, however, such as increases were previously evaluated in a PSD review.)

Once the total "net emissions increase" for the project is calculated, that number is compared to the NSR significance thresholds to determine if there will be a "significant net emissions increase."

If there is a significant net emissions increase, then the project is a "major modification" and has triggered the Federal Backstop under Section 2-1-234.2. If not, then the project is not a "major modification" under the federal NSR program. In that case, the project has "netted out" of the federal NSR program requirements and it does not trigger the Federal Backstop under Section 2-1-234.2.

d) Summary of the Federal Backstop Mechanism

The foregoing overview of the Federal Backstop test under Section 2-1-234.2 can be summarized as follows.

The Federal Backstop test is a "backstop" in the sense that it applies only in situations where the District's historical modification test in Section 2-1-234.1 is ***not*** triggered. If a change being made at a source will result in an increase in the source's PTE, then the change is a "modification" under Section 2-1-234.1 and there is no need to evaluate further whether the Federal Backstop test is also triggered. The change is subject to NSR permitting at that point based on Section 2-1-234.1, and nothing in the outcome of any Federal Backstop analysis under Section 2-1-234.2 can alter that conclusion one way or the other. Only if the change does ***not*** result in a modification under Section 2-1-234.1 (because there is no increase in PTE) is the Federal Backstop implicated. In that case, the Federal Backstop analysis must be conducted to see if the change is a "modification" under Section 2-1-234.2.

In addition, the Federal Backstop test is applied on a project-wide basis, meaning that it looks to the combined emissions increase from all of the sources where there will be a physical change or change in the method of operation. If the project as a whole will result in a significant net increase, then the project as a whole is a "major modification," and all of the sources involved in the project are part of the "major modification." This is different from the District's historical test, which applies to sources individually. The District's historical test does not treat a source as being "modified" if there is no increase in PTE at that individual source, even if there will be increases from other sources involved in the project. Thus, if a project includes some sources that are not "modifications" under Section 2-1-234.1 because there is no increase in PTE at those particular sources, the Federal Backstop analysis needs to be conducted (for the project as a whole) to see whether those sources will become "modifications" under Section 2-1-234.2—even though those specific sources did not trigger the modification definition under Section 2-1-234.1.

Where a Federal Backstop analysis is required for a project (because one or more sources involved in the project did not trigger Section 2-1-234.1), then the three elements of the Federal Backstop test outlined above must be evaluated in turn.

The ***first element*** looks to whether the facility is a "major" facility for NSR purposes, meaning that the total facility-wide PTE exceeds the 100/250 tpy major facility threshold for any pollutant. (Alternatively, even if the facility is below the threshold before the project is implemented, it will

be treated as a major facility if the emissions increase from the project itself will exceed the major facility threshold.) If the facility is not "major," then the Federal Backstop is not triggered and the analysis is complete. If the facility is "major," then the analysis proceeds to the second element in order to determine whether the project will result in a "significant" emissions increase.

The ***second element*** looks at whether there will be a "significant" emissions increase resulting from the project. For the nonattainment pollutants (NOx, VOC, $PM_{2.5}$, and SO_2), this significance analysis is required only for the specific pollutant(s) for which the facility exceeded the "major" facility threshold. For all Other Regulated NSR Pollutants, the analysis is required for all such pollutants if the facility exceeded the "major" facility threshold for any Regulated NSR Pollutant (except GHGs).[126]

To determine whether the project will have a significant emissions increase, the individual increases from all of the sources involved in the project are calculated and added together. For changes to sources that are two or more years old, the analysis uses the NSR Reform "actual-to-projected-actual" methodology. For changes to sources that are less than two years old, the analysis uses a "potential-to-potential" methodology. All of the increases from all of the changes being made at the sources involved in the project are added together, along with the new PTE from any truly new sources that are being added, and the resulting sum is compared to the NSR significance thresholds.

If the project's emissions increase is less than "significant," then the Federal Backstop is not triggered and the analysis is complete. (There may however be certain recordkeeping and reporting requirements that may apply for sources that used the NSR reform "actual-to-projected-actual" calculation methodology as described in detail above; projects that trigger such requirements will be subject to them even though they are exempt from permitting under the Federal Backstop test.) If the project will have a significant emissions increase, then the analysis proceeds to the third element in order to determine whether there will be a significant ***net*** emissions increase when other contemporaneous increases and decreases at the facility are taken into account.

The ***third element*** considers whether other increases and decreases can be used to lower the overall net emissions increase at the facility to less than the NSR "significance" thresholds. The netting analysis evaluates all increases and decreases at the facility that are "contemporaneous" and otherwise "creditable." "Contemporaneous" means (i) that the emissions increase or decrease occurred more recently than five years before the expected commencement of construction of the new project being permitted; or (ii) for increases and decreases that have not yet occurred, that they will occur before the new project being permitted begins operation (or by the end of the new project's shakedown period if it is a replacement project). "Creditable" means essentially (i) that the emissions increase or decrease has not been previously relied on in a prior NSR permitting analysis; and (ii) for emissions decreases, that the decrease is enforceable.

All increases that satisfy these criteria for being "contemporaneous" and "creditable" are included. For each one, the amount of the increase or decrease is calculated using an "actual-to-potential" calculation methodology. The net emissions increase is then determined by totaling (i) the emissions increase from the project being permitted (calculated using the NSR Reform methodologies); and (ii) all other contemporaneous, creditable emissions increases and decreases at the facility (calculated using the pre-NSR Reform "actual-to-potential" methodologies). If the resulting net emissions increase is less than the NSR "significance" thresholds, then the Federal Backstop is not triggered and the analysis is complete. If the net emissions increase still exceeds the "significance" thresholds, then the project has triggered the Federal Backstop under Section 2-1-234.2. In that case, all sources (emission units) where there will be a physical change or change in the method of operation as part of the project are "modified sources" and are subject to the NSR permitting requirements of Regulation 2-2 (although they may not trigger some or all of those requirements, depending on their respective applicability thresholds).

The depth and complexity of this Federal Backstop requirement may seem daunting at first blush. But upon close reflection, the additional regulatory burden involved will not be especially onerous. The only additional requirements that will apply in most cases will be paperwork requirements for projects that are *not* subject to NSR permitting (*i.e.,* projects that are not "modifications" under either prong of Section 2-1-234). This is because the District's historical modification test in Section 2-1-234.1 is much more stringent than the federal NSR program. Projects that will be subject to NSR permitting under Section 2-1-234 will therefore be "modifications" under 2-1-234.1 in nearly all cases, and there will not be any need to address the Federal Backstop. Conversely, projects that are not "modifications" under the District's historical test are unlikely to be "modifications" under the Federal Backstop test either. In those situations, all that the Federal Backstop test will require is to conduct and document the federal non-applicability determination (although that may impose some recordkeeping and reporting requirements under the NSR Reform methodology as noted above). Doing so will not be unduly difficult for air quality professionals once they familiarize themselves with the federal NSR program elements as set forth in the Code of Federal Regulations and summarized above.

III. Alterations to Existing Sources That Do Not Require NSR Review

The Air District also requires an authority to construct for certain changes that are made to sources in situations where the change does not qualify as a "modification" under Section 2-1-234. Such a change is referred to as an "alteration," which is defined in Section 2-1-233 as any physical change, change in method of operation, change in throughput or production, or other similar change at an existing source "that may affect air pollutant emissions and that does not qualify as a modification . . . ." Alterations include physical or operational changes that could increase the source's emissions, but that will not result in an increase in the source's PTE under the District's historical "modification" test in Section 2-1-234.1, and will not trigger the Federal Backstop under Section 2-1-234.2.

The purpose of the permit requirement for alterations is to allow the Air District to review certain projects that are not "modifications" to ensure that they do not in fact require an NSR permit. It is important for the District to review projects that may be close to triggering the "modification" definition in order to confirm that they do not trigger NSR. If a facility did not have to notify the District and obtain approval for such projects, projects that may actually constitute "modifications" could go forward without obtaining an NSR permit and without the District ever being aware of them. In order to enhance compliance with the NSR permit program, the District requires permits for "alterations" to provide an opportunity for independent District review to ensure that all projects that are subject to NSR are actually going through the NSR review process. If a facility submits an application for an authority to construct for a project as an "alteration," and the District determines that it is actually a "modification," then the District will have an opportunity to impose the NSR requirements under Regulation 2-2 before the project is built.

Examples of projects that will generally constitute "alterations" and will require an authority to construct under Regulation 2 include (i) changing or replacing an abatement device, (ii) adding gas wells to a landfill gas collection system, and (ii) any change defined as a modification or reconstruction under the federal NSPS and NESHAPS requirements (provided of course that the change does not involve any emission increase that triggers Section 2-1-234, in which case the change would require a permit as a "modification" and would no longer be treated as an "alteration").[127] Facilities will be required to apply for and obtain an authority to construct before making any such change. Failure to do so is a violation of District Regulation 2-1-301, which requires that "[a]ny person who . . . alters . . . any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants, shall first secure written authorization from the APCO in the form of an authority to construct." A facility that makes an alteration without first obtaining an authority to construct will be subject to enforcement action, which could include a Hearing Board abatement order proceeding, a lawsuit in Superior Court seeking civil penalties and/or injunctive relief, and other enforcement measures.

The Air District does not treat certain other types of changes as "alterations" and does not require permits before making such changes. Examples of projects that generally will *not* be treated as alterations include (i) changing coating or solvent, assuming the change is not otherwise limited by permit conditions; (ii) a decrease in throughput or production rate; (iii) installing emission testing ports on a stack; (iv) removing fuel oil backup capability for a furnace or boiler; and (v) changing material stored in a tank, provided the new material has equal or lower vapor pressure, and it is not limited by permit condition.[128] The Air District may refine its policies on what types of changes are not treated as alterations, however. The District's Engineering Division maintains a database of all current District policies relating to permitting matters, which may change or add to the general rules of thumb outlined above. Early communication between Air District staff and facility representatives will help ensure that there are no misunderstandings about what types of activities require a permit and what types do not.

Endnotes to Chapter 2

1 The substantive NSR requirements of Air District Regulation 2, Rule 2, apply to all "new" sources that require a permit, but only where the sources exceed the relevant applicability thresholds such the 10 lb/day threshold for the Best Available Control Technology (BACT) requirement in Section 2-2-301, the 10 ton/yr threshold for the NOx and POC offsets requirement in Section 2-2-302, the 100 ton/yr threshold for the $PM_{2.5}$, PM_{10} and SO_2 offsets requirement in Section 2-2-303, *etc*. "New" sources that fall below all of these thresholds are therefore technically subject to the NSR program as "new" sources, but they will not have any NSR requirements imposed in their permits.

In addition, the NSR program applies only to sources that are subject to District permitting requirements under Regulation 2. Regulation 2 contains a number of exemptions, and sources that are exempt from permitting requirements do not need to get a permit, even if they otherwise fall within the definition of "new source."

2 The definition of "modify" in Section 2-1-234 specifically provides that other forms of the root word "modify," such as "modified" and "modification," shall be defined based on the "modify" definition in this section. Defining related words based on the specified definition of the root word is a generally applicable principle of regulatory interpretation, but the District added language to Section 2-1-234 to state this principle explicitly in response to comments suggesting that there could be confusion on this point.

3 Note also that if a source illegally exceeds some enforceable emissions limitation, that does not mean that its PTE is determined by the higher, illegal emissions rate that it achieved. Section 2-1-217 states that a source that exceeds an enforceable emission limitation is not considered to have a PTE that is constrained by that limitation.

4 Although a source's maximum actual emissions do not necessarily establish its PTE (because the source may not ever have operated at its maximum capacity), the source's actual emissions may be used as a screening test to establish that a change being implemented at a source is not a modification under Section 2-1-234.1. This is especially relevant in the case of "grandfathered" sources that pre-date the Air District's NSR regulations and do not have permit conditions that limit their PTE. The PTE for such sources is defined by the maximum amount they can physically emit, given their design, capacity, and other similar constraints. This PTE may be difficult to determine as a practical matter, however—especially if the source's actual maximum capacity is limited by a "bottleneck" created by some upstream or downstream constraint. (*See* 2-1-234.1.2; *see also* Section II.B.1.a.vi. below.) In such cases, an applicant can demonstrate that it will not be increasing a source's PTE by showing that the new PTE will not exceed the source's historical highest actual emissions rate. For grandfathered sources, this is normally achieved by taking a permit limit that incorporates the source's highest actual throughput and/or firing rates. Where the source will be subject to such permit limits after the change is implemented, one can be confident that the change will not result in an increase over the source's prior PTE. The change can therefore be treated as an "alteration" under Section 2-1-233, and not as a "modification" under Section 2-1-234 (assuming that the "Federal Backstop" test in Section 2-1-234.2 is also satisfied). (*See generally* BAAQMD Engineering Division Procedure, *A Method to Confirm that a Grandfathered Source at a Petroleum Refinery is* Altered *rather than* Modified (Apr. 16, 2015).

5 For criteria pollutants, *any* increase in the source's potential to emit will be a "modification." For toxic air contaminants and hazardous air pollutants, the increase must exceed the toxic risk significance thresholds in the District's toxics

rule, Regulation 2, Rule 5. (*See* BAAQMD Reg. 2-1-234.1.3.) The toxics "modification" threshold is discussed in more detail in Section II.B.1.c.

6 BAAQMD Reg. 2-1-234.1.1 (first sentence).

7 *See* BAAQMD Reg. 2-1-234.1.1 (second sentence).

8 BAAQMD Reg. 2-1-234.1.1 (third sentence).

9 BAAQMD Reg. 2-1-234.1.1 (fourth sentence).

10 BAAQMD Reg. 2-1-234.1.1 (fourth sentence).

11 BAAQMD Reg. 2-1-234.1.2 (first sentence).

12 BAAQMD Reg. 2-1-234.1.2 (second sentence).

13 BAAQMD Reg. 2-1-234.1.2 (third sentence).

14 BAAQMD Reg. 2-1-308.

15 Reasonable assumptions about each source's potential to emit fugitives must be used in this analysis. Obviously, if a fugitive source leaks at a high rate, its fugitive emissions could be large. But it is not realistic to expect that all fugitive emissions sources will leak at a high rate at all times. Best engineering judgment should be used in establishing fugitive emission rates for purposes of determining a fugitive component's contribution to a source's PTE.

16 Note that there is an exemption for projects at petroleum refineries, chemical plants and other similar facilities that involve only the installation of equipment such as valves, flanges, pumps, and compressors that do not emit pollutants directly and whose only potential emissions are fugitive emissions. (*See* BAAQMD Reg. 2-1-128.21.) Projects involving no other work besides installing or modifying such components may be exempt from permitting requirements if they satisfy the terms of the exemption, regardless of Section 2-1-234.

17 TACs are defined as the pollutants listed in Table 2-5-1 in Regulation 2, Rule 5. (*See* BAAQMD Reg. 2-1-222; note that at the time of publication the Air District was considering revisions to Regulation 2-5 that may result in a reorganization of the Rule that lists the TACs in a different place.) HAPs are defined as pollutants listed pursuant to Section 112(b) of the federal Clean Air Act. (*See* BAAQMD Reg. 2-1-215.)

18 The screening thresholds are listed in Table 2-5-1 in Regulation 2, Rule 5 (although that rule may be reorganized as stated in note 17, *supra*).

19 BAAQMD Reg. 2-1-234.2.

20 40 C.F.R. §§ 51.165(a)(1)(xxxvii), 51.166(b)(49)(v).

21 Although the District's list of TACs is very similar to the federal list of HAPs, there are certain differences. The specific pollutants included on the TAC list can be found in Table 2-5-1 of Regulation 2-5 (or other provision to the extent Regulation 2-5 may be revised as explained in note 17, *supra*). The specific pollutants included on the HAP list can be found in Section 112(b) of the Clean Air Act, as modified by EPA in 40 C.F.R. Part 63, Subpart C.

22 The District's modification test is more stringent for several reasons. The District's test covers any increase in PTE by any amount, whereas EPA's test excludes increases of up to a "significance" level of 10 to 100 tons per year (depending on the pollutant). The District's test also covers short-term increases in PTE, whereas EPA's test looks only at annual increases, meaning that large increases in a facility's short-term emissions can escape federal NSR applicability as long as the facility caps its annual emissions increase at a less-than-significant level. And the District's test applies to increases from each individual source, whereas EPA's test allows a facility to average out increases and decreases at multiple sources to avoid triggering a modification through the "netting" process.

[23] In addition, even for projects that do not trigger the Federal Backstop test, the federal regulations have certain recordkeeping and reporting requirements that may apply in order to confirm that the test is not triggered, as explained below. The Federal Backstop may impose these additional administrative requirements on a project, even if it does not trigger NSR review.

[24] There is an important exception for sources (emissions units) that are less than two years old, which use a potential-to-potential test as described below.

[25] *See* Final Rule and Proposed Rule, *Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR),* 67 Fed. Reg. 80,186 (Dec. 31, 2002). Before the NSR Reform amendments, the federal NSR program used an "actual-to-potential" applicability test, meaning that calculating the amount of the emissions increase from a project for determining whether it was subject to NSR looked to the difference between the source's *actual* emissions before the project was implemented and its maximum potential emissions (PTE) after the project was implemented. Proponents of NSR Reform believed that this applicability test was overly stringent, and that it actually harmed air quality by encouraging facilities to put off equipment upgrades in order to avoid triggering NSR. Proponents of NSR Reform believed that changing to the actual-to-projected-actual test would allow such upgrades to occur without having to go through NSR permitting, which would encourage older facilities to install new equipment with lower emissions, thus improving air quality.

[26] $PM_{2.5}$ is a federal non-attainment pollutant because the Bay Area is still formally designated as non-attainment for the $PM_{2.5}$ 24-hour NAAQS, even though EPA has made a "Clean Data Determination" finding that ambient $PM_{2.5}$ concentrations in the region are actually below the NAAQS. SO_2 is treated as non-attainment pollutants because EPA's regulations require it to be included as a precursor to secondary $PM_{2.5}$ formation. NOx and VOC are treated as non-attainment pollutants because they are required to be included as ozone precursors (as the Bay Area is non-attainment for ozone).

[27] The two federal definitions of "major modification" (for the non-attainment NSR program and the PSD program, respectively) both incorporate these same three fundamental elements. (*See* 40 C.F.R. §§ 51.165(a)(1)(v)(A) & 51.166(b)(2)(i).) There are some important differences between how the two definitions are applied, some of which are pointed out below. A careful comparison of the regulatory language of each program will help highlight these differences—many of which are fairly subtle—even more.

[28] The federal "major modification" definitions both provide that "major modification" includes only changes at a "major stationary source." (*See* 40 C.F.R. §§ 51.165(a)(i)(v)(A) & 51.166(b)(2)(i).)

[29] *See* 40 C.F.R. § 51.165(a)(1)(iv)(A)(1).

[30] 40 C.F.R. § 51.166(b)(1)(i)(a). The list of 28 facility categories comes up in several places in EPA's NSR Rules. For purposes of applying the "major facility" test for Other Regulated Pollutants under District Regulation 2-1-234.2.2, the relevant provision is in 40 C.F.R. Section 51.166(b)(1)(i)(a). It is also found in other places such as the provisions addressing fugitive emissions in 40 C.F.R. Sections 51.165(a)(1)(iv)(C) and 51.166(b)(1)(iii). The list actually has 26 individually numbered items, but it is usually referred to as covering 28 different types of plants because item No. 9 includes three separate categories: hydrofluoric acid plants, sulfuric acid plants, and nitric acid plants. (Note also that there is a catch-all item at the end of the list, item No. 27, which includes other stationary source categories that EPA has regulated under Section 111 or 112 of the Clean Air Act.)

[31] "Regulated NSR Pollutant" is defined in 40 C.F.R. Section 51.166(b)(49).

[32] 40 C.F.R. § 51.166(b)(1)(i)(b).

[33] *See* 40 C.F.R. § 51.165(a)(1)(iv)(C) & 51.166(b)(1)(iii). Once a facility surpasses the "major" facility threshold, however, fugitives are included for all source categories in determining whether any increase at the facility is a "significant" increase triggering the "major modification" definition. *See Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Reconsideration of Inclusion of Fugitive Emissions; Interim Rule; Stay and Revisions,* Interim Rule; Stay and Revisions, 76 Fed. Reg. 17,548, 17,550 (Mar. 30, 2011) (hereinafter, *"Fugitives Rule Federal Register Notice"*); *see also* further detailed discussion in Section II.B.2.b.i. below.

[34] GHGs are not "subject to regulation" pursuant to in 40 C.F.R. Section 51.166(b)(48)(iv), and are thus not a "Regulated NSR Pollutant" under 40 C.F.R. Section 51.166(b)(49)(iv), unless they are emitted from a facility that is "major" for some other pollutant. EPA originally tried to make GHGs subject to regulation in their own right, but the U.S. Supreme Court held that the Clean Air Act's NSR provisions do not allow EPA to regulate GHGs under the NSR Program unless the facility is a "major facility" based on emissions of some other pollutant. (*See Utility Air Regulatory Group v. EPA,* 134 S.Ct. 2427 (2014).) Thus, if the facility does not exceed the applicable "major" facility threshold for some other pollutant, its GHG emissions are not "subject to regulation" and are not a "Regulated NSR Pollutant," no matter how large they are. As such, they cannot make the facility subject to EPA's NSR requirements, meaning that the facility cannot trigger the "Federal Backstop" based on its GHG emissions alone. It must exceed the "major" facility threshold for some other pollutant—although once it is major for another pollutant, a change being implemented at the facility can trigger NSR based on the GHG emissions increase that will result, as explained below.

[35] *See* 40 C.F.R. §§ 51.165(a)(1)(iv)(A)(*3*) & 51.166(b)(1)(i)(*c*).

[36] The applicability provisions for the federal non-attainment NSR regulations in 40 C.F.R. Section 51.165 are "pollutant-specific," meaning that they apply only to facilities and modifications for the specific pollutants over both the "major" facility and "major" modification thresholds. (*See* 40 C.F.R. § 51.165(a)(2)(i) (nonattainment NSR requirements "apply to any new major stationary source or major modification *that is major for the pollutant for which the area is designated nonattainment"*) (emphasis added); *see also* EPA. *New Source Review Workshop Manual, Prevention of Significant Deterioration and Non-Attainment Area Permitting* (Draft, Oct. 1990) (hereinafter, *"NSR Workshop Manual"*), at p. F.7 ("[O]nly if a modification results in a significant increase . . . of a pollutant, for which the source is major and for which the area is designated nonattainment, do nonattainment requirements apply.")

[37] Unlike the situation with non-attainment NSR regulations in 40 C.F.R. Section 51.165 discussed in the previous note, the applicability provisions for the federal PSD regulations in 40 C.F.R. Section 51.166 (which apply for the Other Regulated Pollutants) are *not* pollutant-specific. (*See* 40 C.F.R. § 51.166(a)(7)(ii) (requirements for attainment pollutants "apply to the construction of *any* new major stationary source or the major modification of *any* existing major stationary source, except as this section otherwise provides.") (emphasis added).) For these pollutants, a modification will be a "major modification" if the facility is "major" for any Regulated NSR Pollutant as defined in 40 C.F.R. Section 51.166(b)(49), even if it is not the same pollutant for which there is a significant increase. (*See also NSR Workshop Manual, supra* note 36, at p. A.25.)

[38] *See* 40 C.F.R. §§ 51.165(a)(*1*)(v)(A)(1) & 51.166(b)(2)(i).

[39] *See* 40 C.F.R. §§ 51.165(a)(2)(ii)(C)-(F) & 51.166(a)(7)(iv)(*c*)-(*f*). The key distinction between sources that are less than two years old and sources that are two or more years old comes

from the definitions of "new emissions unit," which includes existing sources up to two years old, and "existing emissions unit," which includes existing sources that are two or more years old. (*See* 40 C.F.R. §§ 51.165(a)(1)(vii) & 51.166(b)(7) (definition of "emissions unit").) The two years is measured from the date that the unit first operated. (*Ibid.)*

[40] *See Fugitives Rule Federal Register Notice, supra* note 33, 76 Fed. Reg. at 17,550. EPA promulgated a change to this rule in 2008 in order to bring this rule in line with the rule for the threshold "major" facility determination. The 2008 change added 40 C.F.R. Sections 51.165(a)(1)(v)(G) & (a)(1)(vi)(C)(*3*), and 40 C.F.R. Sections 51.166(b)(2)(v) & (b)(3)(iii)(*d*), which revised the definitions of "major modification" and "net emissions increase" to specify that fugitives are taken into account only if the facility is in one of the 28 listed categories. (*See also Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Reconsideration of Inclusion of Fugitive Emissions,* Final Rule, 73 Fed. Reg. 77,882 (Dec. 19, 2008) (explaining the rule change in detail). EPA is reconsidering the 2008 rule change, however, and it has stayed the effectiveness of the 2008 changes indefinitely. *(Fugitives Rule Federal Register Notice, supra* note 33, 76 Fed. Reg. 17,548.) These new paragraphs in 40 C.F.R. Sections 165(a)(1)(v) & (a)(1)(vi) and 166(b)(2) & (b)(3) are therefore not legally effective, and as a result the original rule is still in effect. Once a facility is determined to be a "major" facility, fugitive emissions are taken into account in all cases in determining whether the increase resulting from a change at the facility constitutes a "major modification," regardless of whether the facility is listed or not.

[41] *See* 40 C.F.R. §§ 51.165(a)(2)(ii)(C) & 51.166(a)(7)(iv)(*c*). "Baseline actual emissions" is defined in 40 C.F.R. Sections 51.165(a)(1)(xxxv) and 51.166(b)(47), and "projected actual emissions is defined in 40 C.F.R. Sections 51.165(a)(1)(xxviii) and 51.166(b)(40). These terms are discussed in detail below.

[42] 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B) & 51.166(b)(47)(ii).

[43] 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B) & 51.166(b)(47)(ii).

[44] The definition of "baseline actual emissions" states that the 24-month period is "any consecutive 24-month period selected by the owner or operator . . . ." (40 C.F.R. §§ 51.165(a)(1)(xxxv)(B) & 51.166(b)(47)(ii).) The language does not include any explicit requirement that the emissions during this period be representative of normal operation. The regulations also include a definition of "actual emissions," which says that (in general) "actual emissions" means the rate at which the unit actually emitted pollutants during a 24-month period "which is representative of normal source operation." (40 C.F.R. §§ 51.165(a)(1)(xii)(B) & 51.166(b)(21)(ii).) But that definition states that it does not apply for purposes of determining whether there is a significant increase at a source; the definition of "baseline actual emissions" applies instead. (40 C.F.R. §§ 51.165(a)(1)(xii)(A) & 51.166(b)(21)(i).) As a result, there is no need make any determination that the 24-month baseline period chosen by the applicant is necessarily representative of normal operations.

[45] 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*5*) & 51.166(b)(47)(ii)(*e*).

[46] 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*4*) & 51.166(b)(47)(ii)(*d*).

[47] 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*1*) & 51.166(b)(47)(ii)(*a*).

[48] 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*2*) & 51.166(b)(47)(ii)(*b*). This means that if a source emitted excess emissions in violation of its permit limits or other regulatory requirements, it cannot obtain a benefit from such a violation in the form of an increased emissions baseline. Baseline emissions will be calculated using an emission rate in compliance with all applicable regulatory requirements.

49 *See* 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(3) & 51.166(b)(47)(ii)(*c*).

50 "Electric Utility Steam Generating Unit" is defined in 40 C.F.R. §§ 51.165(a)(1)(xx) & 51.166(b)(30). In a nutshell, the term includes power plants that use steam to generate electricity for sale to the power grid with an output of more than 25 MW.

51 *See* 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A) & 51.166(b)(47)(i).

52 *Ibid.*

53 *See* 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A)(*1*)-(*4*) & 51.166(b)(47)(i)(*a*)-(*d*).

54 *Compare* 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*3*) & 51.166(b)(47)(ii)(*c*) (adjustment required for non-EUSGU sources) *with* 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A) & 51.166(b)(47)(i) (no analogous requirement for EUSGU sources).

55 *See* 40 C.F.R. §§ 51.165(a)(1)(xxviii)(A) & 51.166(b)(40)(i). The 5-year period for projecting these emissions runs from when the source resumes regular operation after the change is implemented.

56 *See* 40 C.F.R. §§ 51.165(a)(1)(xxviii)(B)(2) & 51.166(b)(40)(ii)(*b*). Note that it may be difficult to project emissions associated with "malfunctions," as by definition malfunctions are not normally anticipated operations. To the extent that there is a reliable way to project emissions associated with malfunctions, however, they should be included in the projected-actual-emissions calculations.

57 *See* 40 C.F.R. §§ 51.165(a)(1)(xxviii)(A) & 51.166(b)(40)(i). As with the 5-year period, the 10-year period for calculating projected actual emissions also runs from the date when the source resumes regular operation after the change is implemented.

58 *See* 40 C.F.R. §§ 51.165(a)(i)(xxviii)(B)(*3*) & 51.166(b)(40)(ii)(*c*).

59 *Ibid.*

60 *See* 40 C.F.R. §§ 51.165(a)(1)(xxviii)(B)(*1*) & 51.166(b)(40)(ii)(*a*).

61 40 C.F.R. §§ 51.165(a)(2)(ii)(C) & 51.166(a)(7)(iv)(c).

62 Note that these requirements only apply for non-applicability determinations, where a change being implemented at a source is determined *not* to constitute a "modification" under either element of the "modification" definition in Section 2-1-234. If the change constitutes a "modification" under the District's historical test in subsection 234.1, then the requirements to document non-applicability of the NSR requirements under the Federal Backstop do not apply.

63 *See* 40 C.F.R. §§ 51.165(a)(6) & 51.166(r)(6). The definition of what constitutes having a "reasonable possibility" of a significant emissions increase is set forth in subsections 51.165(a)(6)(vi) and 51.166(r)(6)(vi). The "reasonable possibility" definition establishes the applicability tests for the different elements of the recordkeeping, monitoring and reporting requirements. The elements of this definition are therefore addressed in connection with the substantive aspects of these requirements as outlined below.

64 This threshold of 50% of the significance level without any demand growth exclusion comes from 40 C.F.R. Sections 51.165(a)(6)(vi)(B) and 51.166(r)(6)(vi)(*b*), which set forth the definition of a project with a "reasonable possibility" of a significant emissions increase.

65 40 C.F.R. §§ 51.165(a)(6)(i) & 51.166(r)(6)(i).

66 Subsections 51.165(a)(6)(i) and 51.166(r)(6)(i) apply to all sources, and they simply require

documenting the project information and retaining a record of it. Subjections 51.165(a)(6)(ii) and 51.166(r)(6)(ii) impose the additional requirement of submitting the project information to the District, but they apply only to EUSGUs in certain situations.

67 40 C.F.R. §§ 51.165(a)(6)(ii) & 51.166(r)(6)(ii).

68 40 C.F.R. §§ 51.165(a)(6)(vi)(B) & 51.166(r)(6)(vi)(*b*) (providing an exemption from the reporting requirements in 51.165(a)(6)(ii) & 51.166(r)(6)(ii) (and related monitoring and reporting provisions) in situations where the projected increase is less than significant when the demand growth exclusion is taken into account).

69 This threshold for the post-project emissions tracking requirements comes from 40 C.F.R. Sections 51.165(a)(6)(vi)(B) and 51.166(r)(6)(vi)(*b*), which provide that if the projected emissions increase is less than 50% of the significance level after the demand growth exclusion is applied, then the tracking requirements in subsections 51.165(a)(6)(ii)-(v) and 51.166(r)(6)(ii)-(v) do not apply. Subsections 51.165(a)(6)(vi)(A) and 51.166(r)(6)(vi)(*a*) address the case where the projected increase is over the 50% threshold *including the demand growth exclusion.* In that case, the tracking requirements apply. Subsections (a)(6)(vi)(B) and 51.166(r)(6)(vi)(*b*) address the case where the projected increase is over the 50% threshold *without taking account of any demand growth exclusion.* The exemption stated at the end of those subsections make clear that in that case, only the pre-construction requirement to document the non-applicability analysis in subsections 51.165(a)(6)(i) and 51.166(r)(6)(i) applies to the project; the additional requirements in subsections 51.165(a)(6)(ii)-(v) and 51.166(r)(6)(ii)-(v) do not apply.

70 40 C.F.R. §§ 51.165(a)(6)(iii) & 51.166(r)(6)(iii).

71 40 C.F.R. §§ 51.165(a)(6)(iv) & 51.166(r)(6)(iv).

72 40 C.F.R. §§ 51.165(a)(6)(v) & 51.166(r)(6)(v). Essentially, this provision contemplates a situation where the projected increase was less than the significance threshold and so a determination was made that NSR did not apply, but in reality the actual increase as experienced once the project started operating turned out to be significant after all, contrary to the original projections. In that case, the situation needs to be reported to the Air District.

73 40 C.F.R. §§ 51.165(a)(6)(v)(A)-(C) & 51.166(r)(6)(v)(a)-(*c*). Note that in many cases, the District will not necessarily have the facility's documentation regarding how it calculated NSR applicability—including its determination of baseline actual emissions and its projection of future actual emissions—because in many cases the facility will not be required to report it to the District under subsections 51.165(a)(6)(i) and 51.166(r)(6)(i). Facilities are required to maintain that information on how they made their applicability determination, however, and must make it available for public review under subsections 51.165(a)(7) and 51.166(r)(7). The District (and members of the public) can request the information to use in reviewing the facility's data about what its actual emissions were after the project was implemented and how the actual emissions square up with the facility's pre-project projections. It may therefore behoove facilities to include that information up front in order to help explain why the actual emissions differed from the projected emissions upon which the NSR applicability determination was based.

74 For pollutants for which the projected emissions increase without the demand growth exclusion is less than 50% of the NSR significance threshold, none of these administrative requirements apply at all. In such cases, the facility can go ahead and undertake the project without being subject to any administrative requirements for those pollutants, although as a matter of practice a facility would do well to maintain a record that it considered these issues and concluded that the emissions increase

from the project would be less than the 50% threshold without any demand growth exclusion.

75 40 C.F.R. §§ 51.165(a)(7) & 51.166(r)(7).

76 *See* 40 C.F.R. §§ 51.165(a)(1)(xxviii)(B)(*4*) & 51.166(b)(40)(ii)(*d*); *see also* 40 C.F.R. §§ 51.165(a)(6) & 51.166(r)(6) (recordkeeping, monitoring, and reporting requirements apply only for projects where the projected-actual-emissions increase test is used under 40 C.F.R. §§ 51.165(a)(1)(xxviii)(B)(1)-(*3*) & 51.166(b)(40)(ii)(*a*)-(*c*)).

77 EPA's definition of "emissions unit" in 40 C.F.R. Sections 51.165(a)(1)(vii) and 51.166(b)(7) includes a sub-definition of "new emissions unit" in subparagraphs (a)(1)(vii)(A) and (b)(7)(i), which is "any emissions unit . . . which has existed for less than 2 years from the date such emissions unit first operated." (Subparagraphs (a)(1)(vii)(B) and (b)(7)(ii) provide that "existing emissions units" are any other type of unit that does not fit within this definition, and "replacement units" (as defined in 40 C.F.R. Sections 51.165(a)(1)(xxi) and 51.166(b)(32)) are treated as existing units.)

78 The rules for calculating emissions increases from changes to "new emissions units" provide for using the *pre-existing PTE* as the source's baseline emissions under 40 C.F.R. Sections 51.165(a)(1)(xxxv)(C) and 51.166(b)(47)(iii); and for using the *future PTE* as the source's future emissions after the change under 40 C.F.R. §§ 51.165(a)(2)(ii)(D) and 51.166(a)(7)(iv)(*d*). EPA's regulations refer to this test as an "actual-to-potential" test in the headings of subsections 51.165(a)(2)(ii)(D) and 51.166(a)(7)(iv)(*d*). But in substance, the test functions as a "potential-to-potential" test, because it compares pre-project PTE to post-project PTE. This *Handbook* therefore refers to the "new emissions unit" test as a "potential-to-potential" test.

79 40 C.F.R. §§ 51.165(a)(2)(ii)(F) & 51.166(a)(7)(iv)(*f*).

80 *See* 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A)(*3*) [EUSGUs] & 51.165(a)(1)(xxxv)(B)(*4*) [all other sources]; 40 C.F.R. §§ 51.166(b)(47)(i)(*c*) [EUSGUs] & 51.166(b)(47)(ii)(*d*) [all other sources].

81 Technically, 40 C.F.R. Section 51.165(a)(1)(x) applies for NOx, VOC, $PM_{2.5}$ and SO_2 under Section 2-1-234.2.1, and 40 C.F.R. Section 51.166(b)(23) applies for the Other Regulated NSR Pollutants under Section 2-1-234.2.2. The relevant significance thresholds are the same, however.

82 40 C.F.R. § 51.166(b)(23)(ii).

83 The complete list of California Class I Areas is set forth at 40 C.F.R. § 81.405.

84 40 C.F.R. § 51.166(b)(23)(iii). This provision is only in the "significance" definition in 40 C.F.R. § 51.166 that applies for Other Regulated NSR Pollutants under Section 2-1-234.2.2. There is no corresponding provision in the "significance" definition in 40 C.F.R. § 51.165(a)(1)(x) that applies for NOx, VOC, $PM_{2.5}$ and SO_2 under Section 2-1-234.2.1.

85 This two-part test arises because the federal NSR program does not technically include a "significance" threshold for GHGs. Instead, there is a *de facto* significance threshold established at 75,000 tpy CO_2e that applies as a result of the federal "subject to regulation" definition in 40 C.F.R. Section 51.166(b)(48)(iv)(*b*). Substantively, this provision excludes GHG emissions from being subject to NSR where the increase is less than 75,000 tpy CO_2e, just as a 75,000 tpy CO_2e significance threshold would. But technically it is not a significance level established through the definition of "significant" in 40 C.F.R. Section 51.166(b)(23)(i). This means that for federal purposes, the provision in 40 C.F.R. Section 51.166(b)(23)(ii) comes into effect, which provides that the significance threshold is zero (on an absolute mass basis) for any pollutant without an established "significance" threshold. Thus, for purposes of

applying the Federal Backstop test, a GHG emissions increase (i) must be 75,000 tpy CO_2e or more in order for the emissions to be "subject to regulation" under 40 C.F.R. Section 51.166(b)(48)(iv)(*b*); ***and*** (ii) must exceed zero on an absolute mass basis in order for the increase to be "significant" in 40 C.F.R. Section 51.166(b)(23)(ii).

86 *See supra,* note 36 (discussing the pollutant-specific nature of the "major modification" definition for nonattainment pollutants in 40 C.F.R. § 51.165(a)(1)(iv)).

87 *See supra,* note 37 (discussing the different rule that applies for the "major modification" definition for the Other Regulated Pollutants in 40 C.F.R. § 51.165(b)(2)).

88 Note also that for both Non-Attainment NSR and PSD, if the increase by itself would constitute a "major" facility (*i.e.,* would be over the 100/250 tpy major facility thresholds), then the change is a "major modification" even if the facility was not "major" before the change was implemented. (*See* 40 C.F.R. §§ 51.165(a)(1)(iv)(A)(*3*) & 51.166(b)(1)(i)(*c*).)

89 This rule is inherent in EPA's definition of "major modification," which refers to changes at the "source" and emissions increases from the "source," which is EPA's term that refers to the entire facility. (*See* 40 C.F.R. §§ 51.165(a)(1)(v) & 51.166(b)(2).) It is also reflected in the specific NSR applicability provisions governing how to apply the "major modification" test, which addresses how to add the emissions increases from each "emissions unit" involved in the project. (*See* 40 C.F.R. §§ 51.165(a)(2)(ii) & 51.166(a)(7)(iv).)

90 These specific factors are enumerated in an EPA Memorandum regarding a 3M facility in Maplewood, MN, which EPA has characterized as its most complete statement of its Aggregation Policy. (*See* Memorandum from J. Rasnic, EPA Stationary Source Compliance Division, to G. Czerniak, EPA Region V, re: *Applicability of New Source Review Circumvention Guidance to 3M–Maplewood, Minnesota* (June 17, 1993) (cited in *Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation; Reconsideration,* Proposed Rule, 75 Fed. Reg. 19,567, 19,571 (Apr. 15, 2010) [hereinafter, *Proposed Reconsideration of Aggregation Policy*]).) EPA issued a Final Action in 2009 that purported to clarify the agency's Aggregation Policy further. (*See Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation and Project Netting,* Final Action, 74 Fed. Reg. 2376 (Jan. 15, 2009).) This purported clarification was challenged as an improper substantive revision to the policy, however. (*See* NRDC Petition for Reconsideration (Jan. 30, 2009); *NRDC v. EPA,* No. 09-1103 (D.C. Cir.).) EPA has agreed to reconsider the 2009 Final Action, and has reopened the rulemaking to take further comment on the Aggregation Policy issues. (*See Proposed Reconsideration of Aggregation Policy, supra,* 75 Fed. Reg. 19,567.) EPA has also stayed the effectiveness of the 2009 Final Action pending the outcome of the reconsideration proceeding and/or NRDC's challenge to the 2009 Final Action. (*See Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation,* Delay of Effective Date, 75 Fed. Reg. 27,643 (May 18, 2010).) The D.C Circuit is currently holding NRDC's appeal in abeyance pending EPA's reconsideration proceeding.

91 *See* 40 C.F.R. §§ 51.165(a)(2)(ii)(C)-(D) & 51.166(a)(7)(iv)(*c*)-(*d*).

92 *See* 40 C.F.R. §§ 51.165(a)(2)(ii)(F) & 51.166(a)(7)(iv)(*f*).

93 *See Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Debottlenecking, Aggregation, and Project Netting,* Proposed Rule, 71 Fed. Reg. 54,235, 54,248-49 (Sept. 14, 2006). In this Federal Register Notice, EPA discussed the regulatory language in the different NSR applicability tests under the

existing regulations, noting the difference between the "new unit" and "modified unit" tests and the "hybrid test." EPA proposed revising the language so that it would state explicitly that decreases can be included in the calculations under all three tests. (EPA calls this approach "project netting," as it involves evaluating emissions increases and decreases associated with the project into account in determining whether there is a significant increase associated with the project. This is distinguished from "contemporaneous netting" under the third prong of the Federal Backstop test, discussed below, which evaluates the project's emissions increase in connection with other "contemporaneous" increases and decreases at the facility to determine whether there is a "significant net increase".)

EPA ultimately declined to go forward with the proposal to revise the regulatory language to specify that "project netting" is allowed under the "hybrid test." *(See Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation and Project Netting,* Final Rule, 74 Fed. Reg. 2376, 2381 (Jan. 15, 2009).) EPA's decision not to revise the "hybrid test" language does not necessarily call into question the merits of EPA's earlier analysis of the language in the "new unit" and "modified unit" tests that appears to allow the consideration of emissions decreases (*i.e.,* "project netting") under those tests. EPA did state, however, that "[none] of the statements in the 2006 preamble characterizing our current rules [should] be cited as demonstrating the Agency's interpretation of our current rules. *(Ibid.)*

94 *See, e.g.,* Letter from B. Finazzo, EPA Region 2, to K. Antoine, HOVENSA LLC, *re: HOVENSA Gas Turbine Nitrogen Oxides (GT NOx) Prevention of Significant Deterioration (PSD) Permit Application—Emission Calculation Clarification* (Mar. 30, 2010) (discussing rationale and authorities supporting the interpretation that only increases from the project being permitted are included in determining whether there will be a "significant" increase, and not any decreases associated with the project); *PSD and Title V Permitting Guidance for Greenhouse Gases* (Mar. 2011) at p. 16 ("No emissions decreases are considered in this calculation (*i.e.,* if the sum of the change in [emissions] from an emissions unit included in the modification results in a negative number, that negative sum is not included in this calculation to offset increases at other emissions units.").

95 40 C.F.R. §§ 51.165(a)(1)(v)(A)(2) & 51.166(b)(2)(i).

96 40 C.F.R. §§ 51.165(a)(1)(vi)(A) & 51.166(b)(3)(i).

97 This is a function of the two-step test for being a "major modification" under 40 C.F.R. Sections 51.165(a)(1)(v)(A) and 51.166(b)(2)(i), which requires both a significant increase" and a "significant net increase." EPA has also made clear in guidance that this is the way the major modification test works. (*See, e.g., NSR Workshop Manual, supra* note 36, at p. A.36; Memorandum from J. Calcagni, EPA Office of Air Quality Planning & Standards, to W. Hathaway, EPA Air, Toxics & Pesticides Division, re *Request for Clarification of Policy Regarding the "Net Emissions Increase"* (Sept. 18, 1989); Memorandum from S. Meyers, EPA Office of Air Quality Planning & Standards, to D. Howekamp, EPA Region 9, re *Net Emissions Increase Under PSD* (June 2, 1983).)

98 The rule setting forth the five-year window preceding the commencement of construction comes from EPA's PSD regulations in 40 C.F.R. Section 52.21(b)(3)(ii) (establishing a 5-year "contemporaneous" period for the federal PSD program). Technically, the District's Federal Backstop test incorporates EPA's requirements for SIP approval of State NSR programs in 40 C.F.R. Sections 51.165 and 51.166, not EPA's rules for its own federally-administered PSD program in 40 C.F.R. Section 52.21. (*See* BAAQMD Reg. 2-1-234.2.) But the SIP-approval rules in Sections 51.165 and 51.166 simply provide that the contemporaneous period can extend back "a reasonable period" to

be specified by the reviewing authority in its own regulatory program. (*See* 40 C.F.R. §§ 51.165(a)(1)(vi)(C)(*1*) & 51.166(b)(3)(ii).) They do not specify exactly what "reasonable" period the reviewing authority must choose, leaving it up to the states to determine exactly what contemporaneous period to use for their own NSR programs. Since the Air District's Federal Backstop test was adopted to incorporate EPA's "major modification" test, however, the District uses the federal "contemporaneous" period that EPA uses when it is the reviewing authority under the federal NSR Program. EPA's rule is the 5-year rule applicable under 40 C.F.R. § 52.21(b)(3)(ii). That is the "reasonable time period" the Air District uses to establish whether a prior increase or decrease is "contemporaneous" for purposed of the "major modification" test.

Note also that technically, the provision governing the time period in which prior projects can be used for netting purposes actually falls under the rules for what constitutes a "creditable" increase or decrease in 40 C.F.R. Sections 51.165(a)(1)(vi)(C) and 51.166(b)(3)(iii), not the definition of what it means to be "contemporaneous" in 40 C.F.R. Sections 51.165(a)(1)(vi)(B) and 51.166(b)(3)(ii). But since this provision addresses the *time restriction* on using prior increases and decreases for netting, it makes more sense as a practical matter to think of it as part of the "contemporaneous" requirement. This *Handbook* therefore refers to the previous-five-years rule for past increases and decreases using this terminology.

99 *See* 40 C.F.R. § 52.21(b)(9). Since the five-year "contemporaneous" period preceding the commencement of construction comes from 40 C.F.R. Section 52.21, as explained in the preceding note, the definition of when construction "commences" from 40 C.F.R. Section 52.21 governs application of that five-year period.

100 The contemporaneous period that the Air District uses is the same period that EPA uses in its own NSR Program, which is the period set forth in 40 C.F.R. Section 52.21(b)(3)(ii), as explained in note 98, *supra.* Section 52.21(b)(3)(ii) specifies that an emission increase or decrease is contemporaneous with the project under review if it will occur by the time the emissions from the project under review will "occur." The regulation further provides that the emissions from the project under review "occur" on the date the project becomes operational and begins to emit (or in the case of a "replacement unit," after a reasonable shakedown period not to exceed 180 days). (40 C.F.R. Section 52.21(b)(3)(viii).) This date defines one end of the "contemporaneous" window, with the date five years before commencement of construction defining the other end. Note that the "net emissions increase" provisions in 40 C.F.R. Sections 51.165(a)(1)(vi) and 51.166(b)(3) have similar provisions requiring the change to occur before the project under review begins operating (or by the end of a reasonable shakedown period in the case of replacement projects). (*See* 40 C.F.R. §§ 51.165(a)(1)(vi)(F), 51.166(b)(3)(vii).)

101 40 C.F.R. §§ 51.165(a)(1)(vi)(F) & 51.166(b)(3)(vii).

102 Note that only operational changes that require a permit revision are counted as prior increases in the "netting" analysis. Emissions increases that are part of the source's normal range of operations allowed under its existing permit conditions are not treated as prior NSR increases that have to be counted in determining whether there is a "significant net increase" at the source.

103 *See* Memorandum from J. Calcagni, EPA Air Quality Mgmt. Div., to D. Kee, EPA Air & Radiation Div., re *Proposed Netting for Modifications at Cyprus Northshore Mining Corp., Silver Bay, Minnesota* (Aug. 11, 1992) (reductions "occurred" when facility shut down equipment due to poor market conditions, even though facility was not precluded from continuing to operate it); Letter from C. Newton, EPA Region 5, to G. Hellwig, Mich. Dept. of Envt'l Qual. re Michigan Iron Nugget LLC Netting Analysis (Oct. 5, 2009) (reductions occurred when equipment was "idled" in a non-permanent way, not when it was subsequently dismantled, citing Aug. 11, 1992, Calcagni memorandum, *supra*).

The netting example in EPA's *NSR Workshop Manual* also uses this approach. Two of the units in that example were "retired" but kept as "standby" units. For one of the units, the facility subsequently took an enforceable condition to retire the unit, which made the reduction at that unit "creditable" for netting purposes. The date of that reduction for purposes of the contemporaneous analysis was the date when the unit was retired, not when the reduction was subsequently made enforceable. For the other unit, the facility declined to take an enforceable limit, and so the reduction at that unit was not "creditable." (*See NSR Workshop Manual, supra* note 36, at pp. A.51-A.55.) Other discussions in the *NSR Workshop Manual* support this same approach. (*See id.* at p. A.38 (decrease must either be enforceable when it occurred, or if not the decrease must have been maintained until the time it becomes federally enforceable, suggesting that decreases can "occur" before they become federally enforceable), pp. A.49-A.50 & Fig. A-2 (showing emission reduction occurred when fuel switch was made, even though reduction "will be made federally-enforceable" subsequently through permit conditions).)

104 40 C.F.R. §§ 51.165(a)(1)(vi)(F) & 51.166(b)(3)(vii).

105 The requirement that an emissions increase or decrease must be "creditable" is set forth in 40 C.F.R. Sections 51.165(a)(1)(vi)(A)(*2*) and 51.166(b)(3)(i)(*b*). The specific elements that define what it means to be "creditable" are set forth in 40 C.F.R. Sections 51.165(a)(1)(vi)(C)-(E) and 51.166(b)(3)(iii)-(vi).

As noted above in note 98, the time restriction that applies for determining whether a prior increase or decrease can be used in the netting analysis is actually an element of the "creditable" requirement. (*See* 40 C.F.R. §§ 51.165(a)(1)(vi)(C)(*1*) & 51.166(b)(3)(iii)(*a*).) But because this restriction deals with the *time frame* governing which prior increases and decreases can be included in the netting analysis, it makes more sense as a practical matter to discuss it as part of the "contemporaneous" requirement, not as part of the "creditable" requirement.

106 40 C.F.R. §§ 51.165(a)(1)(vi)(C)(*2*) & 51.166(b)(3)(iii)(*b*).

107 The requirement states that the increase or decrease cannot have been relied on in issuing an NSR permit "which . . . is in effect when the increase in actual emissions [from the project being reviewed] occurs." (40 C.F.R. §§ 51.165(a)(1)(vi)(C)(*2*) & 51.166(b)(3)(iii)(*b*).) Thus, an increase or decrease can still be "creditable" if it was relied on in a permit that will no longer be in effect at the time the project under review becomes operational.

108 EPA has discussed this point in guidance on implementing the netting requirements. (*See* Memorandum from J. Calcagni, EPA Air Quality Mgmt. Div., to B. Miller, EPA Region 4, re *Use of Netting Credits* (Dec. 29, 1989).)

109 40 C.F.R. § 51.165(a)(1)(vi)(E)(*3*). There is no analogous requirement for the other Regulated NSR Pollutants, because no attainment or RFP demonstrations need to be made for any pollutants other than non-attainment pollutants.

110 40 C.F.R. §§ 51.165(a)(1)(vi)(E)(*2*) & 51.166(b)(3)(vi)(*b*).

111 40 C.F.R. §§ 51.165(a)(1)(vi)(D) & 51.166(b)(3)(v). There is a somewhat similar provision for emissions decreases, but it does not add anything of substance that is not already inherent in the use of the actual-to-potential methodology for measuring decreases. It simply says that a decrease is not "creditable" if the new level of actual emissions after the change is higher than either the old level of actual emissions or the old PTE before the change. (*See* 40 C.F.R. §§ 51.165(a)(1)(vi)(E)(*1*) & 51.166(b)(3)(vi)(*a*). But if that is the case (*i.e.,* actual emissions and/or PTE are higher after the change than before), then there is no emissions decrease involved in any event.

112 40 C.F.R. §§ 51.165(a)(1)(vi)(E)(*4*) & 51.166(b)(3)(vi)(*c*). Note that on its face, this provision applies only to decreases—not increases. There is no explicit provision in the regulations for excluding a prior increase from the netting analysis by concluding that it does not have a similar significance for public health and welfare.

113 The "net emissions increase" definition in 40 C.F.R. Sections 51.165(a)(1)(vi) and 51.166(b)(3) incorporates these principles. It states that the NSR Reform actual-to-projected-actual calculation methodology is used for calculating the *increase associated with the project itself* (*see* 40 C.F.R. §§ 51.165(a)(1)(vi)(A)(*1*) & 51.166(b)(3)(i)(*a*)); but it does not state that it is to be used for *contemporaneous increases and decreases used in the netting analysis* (*see* 40 C.F.R. §§ 51.165(a)(1)(vi)(A)(*2*) & 51.166(b)(3)(i)(*b*)). The "net emissions increase" definition does incorporate other NSR Reform elements for contemporaneous increases and decreases, such as the 10-year "look-back" provision allowing the 24-month baseline to be selected anywhere within the 10 years prior to the change. (*See, e.g.,* provisions incorporating the "baseline actual emissions" definitions in 40 C.F.R. §§ 51.165(a)(1)(xxxv) and 51.166(b)(47).) But it does not incorporate the NSR Reform methodology for calculating future emissions (*i.e.,* the actual-to-projected- actual methodology). EPA has also clarified its interpretation on this issue in informal guidance. (*See, e.g.,* Letter from C. Newton, EPA Air & Radiation Div., to K. Baugues, Indiana Dep't of Envt'l Mgmt. (Apr. 4, 2011).)

114 40 C.F.R. §§ 51.165(a)(1)(vi)(A)(*2*) & 51.166(b)(3)(i)(*b*).

115 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B) & 51.166(b)(47)(ii). The baseline period is defined by the earlier of (i) the receipt of the complete permit application or (ii) the beginning of "actual construction" as defined in 40 C.F.R. Sections 51.165(a)(1)(xv) and 51.166(b)(11).

116 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*2*) & 51.166(b)(47)(ii)(*b*).

117 40 C.F.R. §§ 51.165(a)(1)(xxxv)(B)(*3*) & 51.166(b)(47)(ii)(*c*).

118 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A) & 51.166(b)(47)(i).

119 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A)(*2*) & 51.166(b)(47)(i)(*b*).

120 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A) & 51.166(b)(47)(i). The reason why EUSGUs do not require an adjustment to the baseline emissions to account for current regulatory standards is that the adjustment provision for non-EUSGUs in 40 C.F.R. Sections 51.165(a)(1)(xxxv)(B)(*3*) and 51.166(b)(47)(ii)(*c*) is not included in the rule for EUSGUs in 40 C.F.R. Sections 51.165(a)(1)(xxxv)(A) and 51.166(b)(47)(i).

121 40 C.F.R. §§ 51.165(a)(1)(xxxv)(A)(*1*) & 51.166(b)(47)(i)(*a*).

122 40 C.F.R. §§ 51.165(a)(1)(vi)(A)(*2*) & 51.166(b)(3)(i)(*b*).

123 40 C.F.R. §§ 51.165(a)(1)(xxv)(C) and 51.166(b)(47)(iii).

124 40 C.F.R. Sections 51.165(a)(1)(xxxv)(C) and 51.166(b)(47)(iii) actually state this point explicitly. They say that for a "new emissions unit," the baseline actual emissions before initial construction and operation of the unit is zero, and after initial construction and operation it is whatever the source's PTE is.

125 Most such changes in the method of operation, such as allowable changes in fuel or increases in production rate or hours of operation that do not require a permit revision, are excluded from the definition of "physical change or change in the method of operation" as that term is used in the

NSR "major modification" applicability test. (*See* 40 C.F.R. §§ 165(a)(1)(v)(C) & 166(b)(2)(iii).) The netting analysis is aimed at capturing prior changes that would be "modifications" but did not require permitting because they did not trigger the "major" threshold, for example because they did not involve a "significant" emissions increase or because they netted out of NSR. Prior increases that were not the result of a "physical change or change in the method of operation" are therefore outside of the scope of the netting analysis. (*See generally NSR Workshop Manual, supra* note 36, at p. A.46 (discussing the netting requirement to include creditable increases from physical changes or changes in the method of operation that did not require a permit).)

126 As outlined above, a facility must be above the "major" facility threshold for some other regulated NSR pollutant to trigger the first element of the federal NSR applicability test. If the facility is over the "major" facility threshold for some other pollutant at the first step, then GHGs are included at the second step to determine whether there will be any "significant" increase in emissions of a regulated NSR pollutant. (*See generally* discussion in Section II.B.2.a.)

127 *See* Staff Report, *Updates to BAAQMD New Source Review and Title V Permitting Programs, Regulation 2, Rules 1, 2, 5 and 6* (Sept. 26, 2012), at pp. 30-31.

128 *Ibid.*

3

Chapter 3: Best Available Control Technology (BACT)

The first substantive requirement of the District's New Source Review program is the requirement to use the Best Available Control Technology—or "BACT"—to control emissions. This provision is set forth in Section 2-2-301. It requires facilities to use the most current state-of-the-art pollution control equipment on new or modified sources with the potential to emit 10 pounds or more of the criteria pollutants subject to the requirement. The BACT requirement does not require facilities to retrofit existing sources with new control equipment whenever there is any incremental improvement in technology. But when a facility installs a new source or makes a modification to an existing source, it must use the best control equipment (as defined in the regulations) available at that time.

The purpose of the BACT requirement is to help the Bay Area attain and maintain the ambient air quality standards for the pollutants covered by the requirement. Applying BACT will ensure that emissions of these pollutants from new or modified sources installed in the Bay Area are controlled to a very stringent standard.

BACT is intended to be "technology-forcing," meaning that instead of specifying the particular control technology that must be used for each individual type of source, it simply states a generic standard that requires the best available technology to be used as of the time a facility applies to permit a new or modified source. This approach gives the BACT requirement the

flexibility to continually adapt to advances in control technology. When there is a technological advancement that results in more effective pollution controls, those controls are required as BACT automatically, without the need to develop new regulations specifically requiring them. This approach also creates an incentive for the development of new control technology, because if a company finds a way to limit emissions more effectively, then that approach will become the required BACT standard, guaranteeing the company a market for its new product.

The Air District's BACT requirement implements New Source Review program requirements under both the federal Clean Air Act and the California Clean Air Act. Section 173(a)(2) of the federal Act requires that New Source Review programs in nonattainment areas must ensure that major sources and major modifications "comply with the lowest achievable emission rate," or "LAER." The Air District's BACT standard embodies this federal LAER level of emissions control. The California Clean Air Act also imposes a similar requirement for nonattainment areas, which it calls BACT,[1] which applies at much lower thresholds than the federal LAER requirement—at 25 lb/day in moderate nonattainment areas and 10 lb/day in extreme nonattainment areas.[2] The District's BACT requirement, with its 10 lb/day threshold, implements both of these requirements for sources in the San Francisco Bay Area. It also applies to certain additional pollutants beyond just the pollutants for which the Bay Area has been designated a nonattainment area.[3]

The fact that California calls this standard "BACT" while the federal NSR program calls it "LAER" can cause confusion. The potential for confusion is heightened by the fact that the federal program also uses the term "BACT" to refer to a somewhat less stringent level of control that applies under the federal Prevention of Significant Deterioration (PSD) program requirements for attainment pollutants. (This level of control is required for PSD Projects under District Regulation 2-2-304, and is discussed in greater detail in Chapter 5.) To keep these concepts straight, the more stringent LAER-equivalent level of control required under the District BACT provision in Section 2-2-301 is often referred to as "California BACT" (or "District BACT"), whereas the less-stringent level of control that applies under the PSD program is referred to as "PSD BACT" (or "Federal BACT").

***Terminology Tip:* "California BACT" vs. "PSD BACT"**

"California BACT" (or "District BACT") is a more stringent level of control that applies to sources with a PTE of 10 lb/day or more of any District BACT Pollutant. California BACT is equivalent to the "LAER" standard used in the federal non-attainment NSR Program. "PSD BACT" (or "federal BACT") is a somewhat less stringent level of control that applies to PSD Projects.

The principal difference is that federal BACT includes a cost-effectiveness element that applies in all cases. Under California BACT, if any facility has successfully achieved a particular level of emissions control, then that level of control is BACT for all other similar sources regardless of cost. Under federal BACT, a source is not required to use that level of control if it is not cost-effective, even if other similar sources are using it.

I. Applicability of BACT Requirements

The Air District's BACT requirement in Section 2-2-301 applies to "District BACT Pollutants," which are the pollutants identified in Section 2-2-210. The District BACT Pollutants are POC, NPOC, NOx, SO_2, PM_{10}, $PM_{2.5}$, and CO.[4]

The BACT requirement applies at the time of permitting to:

- any ***new source*** with a Potential to Emit (PTE) of any District BACT Pollutant of 10 pounds per day or more; and
- any ***modification to an existing source*** where (i) the source's PTE will be 10 pounds per day or more after the modification, and (ii) the modification will result in an emissions increase measured using the actual-to-potential test.

In order to issue an authority to construct or permit to operate for any such source, the District must review the source to ensure that it is using control technology that meets the BACT standard for each pollutant that exceeds these applicability thresholds—and must impose BACT permit conditions to ensure compliance.[5]

The 10 lb/day PTE source emissions threshold is based on the source's maximum emissions after the project is implemented. For new sources, this is the PTE of the new source after it is installed.[6] For a modification to an existing source, this is the source's new PTE after the modification is completed.[7]

For modifications, the determination of whether there will be any emissions increase is made using the actual-to-potential increase methodology set forth in Section 2-2-604.[8] Pursuant to Section 2-2-604, whether there will be an increase is determined by comparing the source's adjusted baseline emissions before the modification, calculated in accordance with Section 2-2-603, with the source's new PTE after the modification.[9] If there will be any increase in the source's emissions of a District BACT Pollutant, the BACT requirement is triggered for that pollutant (assuming the source's PTE for that pollutant will be 10 lb/day or more after the modification is made).

Because BACT applies for modifications only if the modification will result in an emissions increase, BACT can be avoided by "baselining" a source—*i.e.,* by imposing permit conditions to limit the source's emissions after the modification to its existing baseline emissions level. This will limit the source's PTE to its baseline emissions, meaning that by definition there is no increase in emissions under the actual-to-potential test set forth in Section 2-2-604. By agreeing to take such a permit limit, the source can ensure that it will not trigger BACT. "Baselining" a source in this manner is never required under Section 2-2-301. But in many cases a facility may want to accept permit conditions to do so in order to avoid having to implement current BACT at the source. Baselining the source ensures that emissions will not exceed current actual

emissions, which achieves the purpose of the BACT requirement in ensuring that new sources and modifications do not increase emissions in a manner that interferes with attainment and maintenance of the applicable state and federal ambient air quality standards.

Note also that the BACT requirement applies "on a pollutant-specific basis."[10] This means that it applies only to the specific pollutants that trigger the applicability thresholds—*i.e.,* pollutants for which the source's PTE after the project is implemented will be 10 or more pounds per day; and for modifications, pollutants for which the modification will result in an increase in emissions.[11]

II. Implementing BACT

If a new or modified source triggers the BACT requirement in Section 2-2-301, an analysis must be undertaken to determine what level of control technology constitutes the "Best Available Control Technology" for that source. This standard is governed by the definition of BACT in Section 2-2-202, which states that BACT is:

> An emission limitation, control device, or control technique applied at a source that is the most stringent of:
>
> 202.1 The most effective emission control device or technique that has been successfully utilized for the type of equipment comprising such a source; or
>
> 202.2 The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source; or
>
> 202.3 The most effective control device or technique or most stringent emission limitation that the APCO has determined to be technologically feasible for a source, taking into consideration cost-effectiveness, any ancillary health and environmental impacts, and energy requirements; or
>
> 202.4 The most effective emission control limitation for the type of equipment comprising such a source that is contained in an approved implementation plan of any state, unless the applicant demonstrates to the satisfaction of the APCO that such limitation is not achievable.
>
> Under no circumstances shall BACT be less stringent than any emission control required by any applicable provision of federal, state or District laws, rules or regulations.

Under this definition, BACT can be either a numerical limitation expressed in a permit condition, or a requirement to use a certain type of control device or technique to limit emissions. It must be the most stringent such emission limitation or control device or technique that either (i) has been achieved in practice on another source of the same type, or (ii) is technologically feasible and cost-effective to use on the source, even if it has not been used on any other similar source.

Given the relatively general and open-ended nature of the language of this definition, BACT does not utilize a one-size-fits-all approach to specifying what is required for each individual type of source. To the contrary, BACT requires a case-by-case evaluation that looks at the specific circumstances of each source to determine what type of emission limitation or control device or technique must be used for that source. This approach is in keeping with the purpose of the BACT requirement to require a level of control that continually advances along with the state of the technology. BACT always requires a comprehensive survey of all available control technologies to determine the most stringent level of control that can be required consistent with the definition set forth in Section 2-2-202.

A. Determining the Level of Emissions Control Required

The first step in the process of applying BACT to a new or modified source is to determine what level of emissions control should be required. BACT is defined as "the most stringent of" several different options, so each option needs to be evaluated. The ***most effective level of control*** that meets any of the respective elements of the BACT definition in Section 2-2-202 is required.

1. "Achieved in Practice" BACT (BACT 2)

Subsections 2-2-202.1 and 2-2-202.2 provide that if some other similar source has successfully used a particular control device or technique, or has met a particular emissions limit, then that control device or technique or emissions limit is BACT. Simply put, if some other similar source is doing something to limit its emissions, then BACT requires that any other source of the same type must do the same thing. This element of the BACT requirement is referred to as "achieved in practice" BACT (also known as "BACT 2"), because it provides that if another facility has achieved a certain level of emissions control in practice, then that level of control is required at other facilities. Cost is not an element of the BACT 2 "achieved in practice" analysis. If another facility has successfully achieved that level of control, then any new or modified source consisting of similar equipment must do so as well.

In applying this "achieved-in-practice" BACT standard, determinations often need to be made regarding whether another source is sufficiently similar to the source being permitted to constitute the same "type of equipment comprising such a source." There is no formal definition of what constitutes similar equipment, and best engineering judgment must be used in evaluating what types of sources present the same types of technological attributes that bear on whether a certain level of control should be applied. For example, if a spray booth that is used to coat passenger cars on an automated, high-volume automobile manufacturing production line is equipped with a certain type of control device, a spray booth that coats motor vehicles at another facility may well be required to use that same type of control device. If the other spray booth is different in some way that is material to the considerations that go into designing and implementing the control technology, however, the two sources may not be sufficiently similar to support an "achieved in practice" BACT determination. For example, if the second source does only manual coating of specialty vehicles in low volumes using a materially different type of coating, then

the engineering and emission reduction considerations surrounding the implementation of that control technology may be very different. Determinations of what types of sources are sufficiently similar and what types are not must be made on a case-by-case basis for each specific situation presented.[12]

2. "Technologically Feasible and Cost-Effective" BACT (BACT 1)

Subsection 2-2-202.3 provides that if a more effective level of control is technologically feasible and cost-effective, then it is required as BACT, regardless of whether it has been achieved in practice at another facility. This element of the BACT requirement is referred to as "technologically feasible/cost-effective" BACT (also known as "BACT 1"). This is the technology-forcing aspect of the BACT requirement, because it requires that a new technology be used as soon as it is developed and becomes available, even if the technology has not yet been required at other facilities, and without the need for new regulations to be promulgated to specifically require that it be used.[13]

The first element of the BACT 1 provision is that the control technology must be ***technologically feasible.*** This means that it can be implemented as a practical matter at the source in question, given the current state of the technology. That is, it must be possible as a matter of engineering for the source to be constructed and operated with the control technology, while still retaining the ability to fulfill the basic business purposes for which the source will be used. Moreover, it must be possible for the control technology to function effectively when used on the particular source. If a control device can be installed on a source, but it will not be effective in controlling the source's emissions, then it may not satisfy the "feasibility" requirement. The District also generally requires that the equipment must be commercially available and demonstrated to be effective and reliable on a full-scale unit of similar type as the source under review.[14] Whether a particular control technology is feasible must be judged using best engineering judgment, in conjunction with all relevant, available technical information.

Table 3-1: BAAQMD BACT Cost-Effectiveness Thresholds

Pollutant	Threshold
POC and NPOC*	$17,500/ton
NOx	$17,500/ton
SO_2	$18,300/ton
$PM_{2.5}$	$5,300/ton

*except for specified spray booth sources as discussed below

The second element of the BACT 1 provision is that the control technology must be ***cost-effective.*** This means that it must achieve emission reductions at a reasonable cost. This element of the BACT 1 provision is important so that the Air District does not place uneven compliance burdens on similarly situated facilities. To ensure that the District applies this provision evenly throughout the Bay Area, it has adopted a cost-effectiveness policy that governs BACT determinations, which is set forth in the District's BACT Guidelines in its BACT/TBACT Workbook.[15] The District's current BACT cost-effectiveness thresholds are set forth in Table 3-1.

In addition, the Air District's current cost-effectiveness policy has a special provision for POC and NPOC emissions from certain types of spray booth coating operations, with lower thresholds. The District adopted these lower cost-effectiveness thresholds in recognition of the fact that these specific operations have already significantly reduced their VOC emissions through the use of lower-VOC coatings and/or higher-transfer-efficiency coating methods. These emission reductions are reflected in the more stringent standards for such sources under their applicable Regulation 8 rules. The District also took the high costs of add-on BACT controls such as afterburners and carbon adsorption units, relative to the costs of spray booths, into consideration in setting these thresholds. The POC and NPOC thresholds that apply to these spray booth coating operations are listed in Table 3-2.[16] (For any spray booth source not listed here, the default $17,500/ton threshold applies.)

Table 3-2: POC & NPOC Cost-Effectiveness Thresholds for Spray Booth Sources

Spray Booth Source Category	Threshold
Wood products coating operations complying with Reg. 8-32	$13,750/ton
Coating operations that have reduced VOC emissions by 35% or more (beyond what is legally required) through the use of low-VOC coatings and/or high-transfer-efficiency application methods	$13,750/ton
Flat wood coating operations complying with Reg. 8-23	$10,000/ton
Metal coating operations complying with Reg. 8-19	$10,000/ton
Plastic coating operations complying with Reg. 8-31	$10,000/ton
Coating operations that have reduced VOC emissions by 80% or more (beyond what is legally required) through the use of low-VOC coatings and/or high-transfer-efficiency application methods	$10,000/ton

These cost-effectiveness thresholds were current at the time of publication of this *Handbook,* but they are subject to change in the event that the Air District updates its policy. The current cost-effectiveness thresholds can be found on the Air District's website.

In determining the costs associated with a given level of emissions control, the Air District's policy directs that the "levelized cash-flow" accounting method (also known as the "annualized" cost method) should be used. All of the costs associated with implementing the emissions controls in question are taken into account, including up-front capital costs of the equipment and recurring operation and maintenance costs, and both direct costs such as labor and materials and indirect costs such as overhead, property taxes, insurance, etc.[17] One-time costs are annualized over a reasonably-projected life of the equipment (*e.g.,* 10 years), and are added to the recurring operation and maintenance costs to give a total annualized cost for the controls (in dollars per year). This is then divided by the annual emission reductions that will be achieved (in tons per

year) to give a cost-effectiveness figure for the controls (in dollars per ton of emission reductions achieved). The cost-effectiveness of the controls is then compared to the thresholds outlined above. If the cost of achieving the emission reductions that would result from using a control technology (in dollars per ton of reduction) is less than the District's threshold, then it is sufficiently cost-effective to be required as BACT. Further details on conducting this cost-effectiveness analysis can be found in the District's BACT Guidelines.[18]

Note also that the regulations do not specify whether the BACT 1 element of the BACT definition should be addressed first in the BACT analysis or whether the BACT 2 element should be addressed first, and different NSR permitting professionals who use the Air District's regulations use different approaches. This *Handbook* suggests addressing BACT 2 first, because doing so may avoid the need to undertake a complicated technical feasibility and cost-effectiveness analysis for one or more levels of control. For example, if the most stringent level of control available has been achieved in practice, it will be required as BACT 2 regardless of whether it is technically feasible and cost-effective. If the BACT 2 analysis is undertaken first, that will point be evident at the outset, and the technical feasibility and cost-effectiveness of the control will not need to be analyzed. But if the BACT 1 analysis is undertaken first, the technical feasibility and cost-effectiveness will have to be evaluated as part of the BACT 1 analysis. That work will be wasted if the control will be required anyway as BACT 2, because in that case technical feasibility and cost-effectiveness are irrelevant. It is therefore preferable to address BACT 2 first, and then to consider BACT 1 only to the extent that there may be a more stringent level of control that is technically feasibility and cost-effective.

3. SIP Regulations as BACT

In addition to BACT 1 and BACT 2, Subsection 2-2-202.4 provides that BACT can be no less stringent than any emissions control limitation contained in California's State Implementation Plan (SIP) or in the implementation plan of any other state.[19] In essence, this element of the BACT definition means that if a level of emissions control is required by regulation anywhere in the United States (in an approved implementation plan), then it is required as BACT. This element is rarely implicated, however, as BACT 1 and BACT 2 will be more stringent in almost every case. If a certain level of control is required by regulation, then other facilities will have to implement that level of control in order to comply with the regulation, and so by definition it will be "achieved in practice" and be required as BACT 2, regardless of Subsection 2-2-202.4.[20]

B. Expressing BACT in Permit Requirements

The BACT definition in Section 2-2-202 specifies that BACT must be the most stringent ***emissions limitation*** or ***control device or technique*** that satisfies the various requirements of the definition. This means that BACT can be specified in the permit requirements for a source in a number of different ways:

- *Numerical Emissions Limits:* Numerical limitations on the source's emissions can be imposed, for example as a maximum emission rate in pounds per hour, pounds per day, and/or tons per year, or as a maximum concentration in parts per million (ppm). More than one limitation can be imposed where appropriate and necessary to ensure that BACT is complied with (*e.g.,* short-term and long-term emission limits).

- *Source Operational Requirements:* Limitations can also be placed on how the facility operates the source in order to ensure that emissions are minimized consistent with BACT. For example, a combustion source may be required to use only low-sulfur PUC grade natural gas, and to maintain good combustion practices, in order to control particulate matter emissions.

- *Parametric Operating Limits:* Instead of imposing numerical limitations on emissions directly, numerical limits can be imposed on operating parameters that act as a surrogate for limiting emissions. For example, permit conditions may limit the maximum sulfur content of fuel gas burned in a combustion source as a surrogate for limiting SO_2 emissions from the source.

- *Requirement to Use an Add-On Control Device:* BACT may also be expressed as a requirement to use a particular type of add-on control equipment, such as a selective catalytic reduction (SCR) system, electrostatic precipitator (ESP), thermal oxidizer, or similar device. The associated permit conditions would require that the equipment must be used whenever the source is operated.

- *Operational Requirements for Control Device:* If an add-on control device is required, permit limits may also be imposed to ensure proper functioning of the device, such as a requirement to ensure that a thermal oxidizer is operated above a minimum temperature and with a minimum residence time in order to ensure adequate destruction efficiency.

- *Combination of Multiple Requirements:* The different types of permit conditions outlined above are often used in combination to ensure that BACT is adequately implemented. For example, a combustion turbine may be required to burn only low-sulfur PUC grade natural gas using good combustion practice, to use an SCR system with ammonia injection, and to meet numerical emission limits on both the concentration of NOx emitted (ppm) and total mass of NOx emitted (lb/hr, lb/day and tons/yr).

The form that BACT permit requirements take for a particular source and a particular permit will depend on the specific circumstances of the source and permit at issue. The BACT requirement is sufficiently flexible to allow permit conditions to be tailored to each specific situation to fulfill the requirement of Section 2-2-202 that the ***most stringent*** level of emissions control that satisfies the BACT definition is implemented.

In determining the appropriate BACT requirements for a particular source, the BACT definition is often implicated in both the analysis of what control technology is required by BACT and the analysis of what emission limits or other numerical limits should be specified based on that BACT control technology. For example, in determining what BACT requires for controlling NOx emissions from a combustion device, considerations of what has been achieved in practice and what is technological feasibility and cost-effective will be relevant in determining what type of add-on control device is required. Should the source be required to use an SCR system, or should some other technology be chosen? Once the type of control technology is chosen, the same considerations will then be relevant in determining what specific BACT emissions limits should be imposed. If SCR is chosen as the BACT technology, should the NOx emissions limit be 2.5 ppm or 2.0 ppm? Should the limit be based on a 3-hour averaging period or a 1-hour averaging period? The elements of the BACT definition in Section 2-2-202 should be kept in mind at each step of the analysis to ensure that the most stringent level of emissions control is achieved consistent with the BACT requirement.

C. Useful Resources For Technical Guidance on BACT Determinations

There are a number of useful resources that can help in making a BACT determination for a particular source under review. The District's ***BACT Guidelines*** in the ***BACT/TBACT Workbook*** provide an excellent starting point, with BACT determinations for a wide range of source categories based on actual BACT permit requirements that have been imposed for sources in each individual category. The BACT/TBACT Workbook is available electronically at **www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook**, and it provides general guidance on conducting BACT analyses along with BACT determinations for multiple pollutants for 155 different source categories.

In addition, EPA maintains a comprehensive database of BACT determinations in its ***BACT/RACT/LAER Clearinghouse.*** The Clearinghouse contains a large number of determinations that have been made in permitting sources under the equivalent of the District's BACT standard, which is known in the federal NSR program as the "Lowest Achievable Emissions Rate" or "LAER" standard as noted above. The Clearinghouse also includes determinations that have been made under the less-stringent federal BACT standard that applies under the federal Prevention of Significant Deterioration requirements (discussed in Chapter 5), as well as emissions controls required under the "Reasonably Available Control Technology" ("RACT") standard that governs the retrofit requirements that states must adopt in their State Implementation Plans to control emissions from existing sources. The Clearinghouse database is available electronically at **http://cfpub.epa.gov/RBLC/**, and it includes over 5,000 determinations covering over 200 different air pollutants and 1,000 industrial processes. The online database includes a detailed search function that can be used to identify specific BACT (or LAER) determinations for the type of source under review. The search function will also rank previous determinations in order of stringency, so that it is easy to see the most stringent level of controls that have been included in recent permits issued for a particular type of source.

In addition, the California Air Resources Board (ARB) maintains its own ***Statewide BACT Clearinghouse,*** containing BACT determinations from around the state. The ARB database is available at **www.arb.ca.gov/bact/bactnew/rptpara.htm.** The ARB database may provide additional information relevant to BACT determinations, although it is somewhat less extensive that EPA's Clearinghouse.

Finally, other previously-issued permits with BACT determinations may be a useful resource, to the extent that they are not already included in these databases. Furthermore, even where a database identifies summary information about a particular determination, it may be useful to obtain a copy of the full engineering analysis upon which the determination was based in order to see how the agency arrived at its BACT determination. The details of the analysis, such as how other similar sources were identified and how cost-effectiveness calculations were undertaken, may help inform the BACT analysis for the source under review.

All of these resources provide useful information that can help in identifying the most stringent level of control that has been achieved in practice and/or is technologically feasible and cost-effective. These resources are only a starting point, however.[21] The BACT analysis must always be based on as complete a survey as is reasonably practicable in order to identify any other similar sources that may have successfully implemented a more effective level of control—as well as a review of the latest technological developments to see whether there may be any additional advancements that are technologically feasible and cost effective to use at the source under review. It is likely that in many (if not most) cases, there will not have been any additional advancement in the state of the technology since the most recent permits listed in these databases. In such cases, the BACT determination will be fairly straightforward because it will simply mirror the previous BACT determinations made for the same source category. But because BACT is a case-by-case determination that must be made for each individual source at the time it is evaluated, the question must at least be asked as to whether there have been any recent advances in pollution control technology that can be used at the source under review.

D. Summary of the BACT Analysis Process

To summarize the features of the District's BACT requirement outlined above, the process for evaluating how the requirement applies to a particular permit application is as follows.

The first, ***threshold question*** is whether the source(s) at issue are subject to the BACT requirement. For a new source, BACT is required for any District BACT Pollutant for which the source will have a PTE of 10 lb/day or more. For a modification to an existing source, BACT is required for any District BACT Pollutant for which (i) the source's PTE of that pollutant will be 10 lb/day or more after the modification, and (ii) the modification will result in an increase in emissions of that pollutant measured using the actual-to-potential test.

If the source is subject to BACT, then a determination of what constitutes BACT for the specific source under review must be made, for each pollutant that is subject to BACT.

The first element of the BACT determination is to establish the ***BACT 2 "achieved in practice"*** level of emissions control. This requires a survey of other similar sources to determine the most stringent type of control device or technique and/or the most stringent emissions limitation that has been achieved at a similar source.

Note that as long as one other similar source has achieved a certain level of emissions control, then that level of control is "achieved in practice" and will be required as BACT 2 for similar other sources. It is therefore adequate and acceptable to base a BACT analysis on only one single similar source. Where the level of control has been achieved at multiple sources, however, it is advisable to reference more than just one in the documentation of the BACT analysis. This will reduce the possibility that anyone may question the BACT analysis based on a disagreement about whether a particular source is sufficiently similar to the source being permitted. If there are multiple other sources referenced in the BACT analysis, then even if there is disagreement about whether one of the sources is sufficiently similar, it will still be clear that the control technology is required based on the other sources evaluated.

Once the BACT 2 level of control has been established, the next element of the BACT determination is to establish the ***BACT 1 "technologically feasible/cost-effective"*** level of emissions control. This requires a survey of (i) whether there are any other types of *control devices or techniques* that could be more effective at reducing emissions than what has been achieved in practice at other similar sources, and/or (ii) whether any *emissions limitation* can be achieved using a particular control technology that is lower than what has been achieved in practice at other similar sources. If there is any more effective control device or technique, or lower emissions limitation, that is technologically feasible, it must be evaluated to determine its cost-effectiveness. If the cost of implementing the more stringent level of control is less (in dollars per ton of emissions reduced) than the District's cost-effectiveness thresholds, then that level of control is required as BACT. If the cost is higher than the cost-effectiveness thresholds, then it is not required.

Note that the BACT 1 "technologically feasible/cost-effective" analysis is ***always*** required for every BACT determination. In many cases, the conclusion of this analysis will be that there is no more stringent level of control that satisfies the BACT 1 standard, and so the result of the BACT determination will be to default to the BACT 2 "achieved in practice" level of control. This is especially true for sources with mature control technologies where the state of the art in reducing emissions is not continuing to advance. But the question must still be asked, even if the answer is that there is not any more stringent level of control that is technologically feasible and cost-effective. Furthermore, the analysis should be documented in the written BACT determination to demonstrate that the BACT standard has been properly applied.[22]

Third, if there are any ***more stringent emission limitations in any regulations that are contained in any state's implementation plan***, that level of emissions control must be required as BACT. As noted above, however, it is unlikely that any regulatory limitation will be more stringent than the BACT 1 and BACT 2 level of control.

Finally, once the most stringent BACT level of emissions control has been determined, it must be translated into specific permit conditions to be included in the authority to construct and permit to operate for the source(s) under review. The District retains substantial flexibility to impose BACT permit conditions as numerical emissions limitations, requirements to use particular equipment or to operate equipment in a certain way, or a combination of multiple requirements. Monitoring, recordkeeping and reporting requirements may also be imposed to assist in implementation and enforceability of the BACT requirements.

Note that implementing BACT under this process can involve a substantial amount of discretion in the application of sound engineering judgment. In many cases, there may be room for reasonable differences in professional opinion in determining whether a certain control technology or emission limitation is technically feasible for a given source, or whether it is sufficiently cost-effective. In such cases, the Air District must use its best professional judgment to determine what control technology or emission limitation is most appropriate for the particular source in question. In some cases the required control technology or emission limitation may be clear, however, leaving the Air District with no discretion in choosing how to implement BACT for the source in question. This situation may arise, for example, for source categories that use off-the-shelf emission control equipment, rather than designing a control system specifically for the source in question. In those cases, BACT can be implemented only with what is currently available on the market, which may leave the Air District with no discretion whatsoever in how to implement BACT.

Endnotes to Chapter 3

1 *See* Health & Saf. Code § 40405. The definition of BACT in Section 40405 states that BACT is equivalent to the lowest achievable emission rate, and then goes on to provide a definition similar to the District's definition in Section 2-2-202. Note that Section 40405 technically applies only to the South Coast Air Quality Management District, and there is no other general definition of "BACT" that applies by its terms throughout the state. The Health & Safety Code references this definition in Section 40405 in other contexts in which the term appears, however (*see* Health & Saf. Code §§ 40951, 41514.9, 41514.10), and the definition is generally accepted as the state-wide legal definition of the term.

2 Health & Saf. Code §§ 40918(a)(1) (BACT required for sources with PTE of 25 lb/day or more in moderate nonattainment areas), 40919(a)(2) (BACT required for sources with PTE of 10 lb/day or more in extreme nonattainment areas).

3 The full list of pollutants to which the District's BACT requirement applies is set forth in Section 2-2-210 (District BACT Pollutants).

4 *See* BAAQMD Reg. 2-2-210.

5 *See* BAAQMD Reg. 2-2-301.

6 *See* BAAQMD Reg. 2-2-301.1.

7 *See* BAAQMD Reg. 2-2-301.2.1.

8 *See* BAAQMD Reg. 2-2-301.2.2.

9 *See* BAAQMD Reg. 2-2-604.

10 *See* BAAQMD Reg. 2-2-301 (last sentence).

11 *See* BAAQMD Reg. 2-2-222.

12 Because the District makes a large number of BACT determinations, it has developed *de facto* "source categories" under which sources in the same category are treated as being the same "type of equipment comprising such a source" for BACT purposes. These established categories may generally be relied on as a basis for evaluating a specific permit application, but they are not formally established by regulation and they are not determinative in cases where the specific circumstances of an individual source suggest that they should not be applied in a particular case.

13 This element of the BACT requirement also encourages "technology transfer," which is when a control technology that has been successfully used on one type of source is applied to a different type of source where it has not been used before. Such a technology would not be "achieved in practice" for the different source category because it has not yet been used for that category. But if it can be shown to be technologically feasible and cost-effective, it would be required as BACT 1. *See generally* BAAQMD BACT/TBACT Workbook, Section 3 (Policy and Implementation Procedure), Subsection 3.1 (Interpretation of BACT), available at: **www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policy-and-implementation-procedure.pdf?la=en**.

14 *See* BAAQMD BACT/TBACT Workbook, § 3 (Policy and Implementation Procedure), Subsection 3.1 (Interpretation of BACT), available at: **www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policy-and-implementation-procedure.pdf?la=en**.

15 *See* BAAQMD BACT/TBACT Workbook, § 3 (Policy and Implementation Procedure), Subsection 3.4 (Maximum Cost Guidelines for BACT), available at: **www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policy-and-implementation-procedure.pdf?la=en**.

16 *Ibid.*

17 The cost-effectiveness calculations are normally performed for each individual source by itself, using the costs associated with implementing the control technology on that individual source and the emission reductions that would be achieved at that individual source. Where a group of sources subject to BACT all emit a common pollutant and they are configured in such a manner as to share a common abatement device, then the sources can be evaluated as group, using the total cost for all sources in the group and the total emission reductions for all sources in the group. *See* BAAQMD BACT/TBACT Workbook, § 3 (Policy and Implementation Procedure), Subsection 3.1 (Interpretation of BACT), available at: **www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policy-and-implementation-procedure.pdf?la=en**.

18 *See* BAAQMD BACT/TBACT Workbook, § 3 (Policy and Implementation Procedure), Subsection 3.3 (Cost-Effectiveness Determination for BACT), available at: **www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/policy-and-implementation-procedure.pdf?la=en.**

19 *See* BAAQMD Reg. 2-2-202.4.

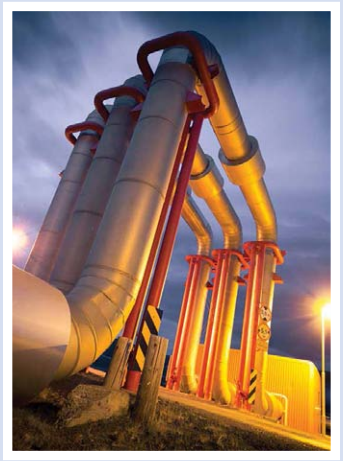
20 Note also that there is an exception in Subsection 2-2-202.4 for situations in which the level of control required under a state implementation plan is not achievable. This exception is unlikely to be implicated either, as requirements are not usually adopted and included in a state implementation plan unless they are achievable.

21 As the *BACT/TBACT Workbook* clearly explains, "[t]he BACT/TBACT Workbook specifies the requirements for commonly permitted sources and is intended to be used as a guide. BACT and TBACT determinations will continue to be made or confirmed on a permit-by-permit basis, as necessary, as they have been in the past." (BAAQMD BACT/TBACT Workbook, Preface (emphasis in original) (not available online).) The Workbook's BACT "User's Guide" further explains that "[t]his Workbook is meant to be only a guide to Best Available Control Technology and Best Available Control Technology for Toxics. BACT and TBACT determinations can continue to be made on a case-by-case basis whenever site-specific limitations or opportunities are evident." (*Id.,* § 4 (User's Guide to BACT/TBACT Workbook), available at: **www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/bact-tbact-policy-and-implementation/user-guide.pdf?la=en.)**

22 When the outcome of the BACT 1 cost-effectiveness analysis is that a more stringent level of control is not required, people sometimes say that "BACT 1 is not required." This is not a legally correct description of the situation. BACT 1 is always required, in the sense that BACT must always be the most stringent level of control that satisfies the definition in Section 2-2-202. The BACT analysis must always evaluate the technological feasibility and cost-effectiveness of any new and more stringent levels of control that no other facility is using. It is just that in many cases there is no additional level of control beyond what has been achieved in practice at other facilities that can be justified on cost-effectiveness grounds. The source will still have to implement BACT 1 in this situation, but the analysis will conclude that BACT 1 is not any more stringent than BACT 2.

4

Chapter 4: Emission Offsets



The second main substantive element of the New Source Review program is the offsets requirement. This element requires that any emissions increase resulting from a new or modified source must be counter-balanced by an equal or greater emissions decrease from some other existing source, such that there is no overall net increase region-wide from facilities that are subject to the requirement.

The NSR program implements the offsets requirement through Section 2-2-302, which sets forth the offsets requirements for NOx and POC, and Section 2-2-303, which sets forth the offsets requirements for $PM_{2.5}$, PM_{10}, and SO_2. Both provisions require that for any facility over the respective applicability thresholds (total facility PTE of 10 tpy or 100 tpy, depending on the pollutant), emissions "offsets" must be provided for the full amount of the facility's "cumulative increase" in emissions, which is the cumulative total of all increases in the facility's potential to emit back to when the respective offset requirement was first implemented. (The offsets program baseline date varies depending on the specific pollutant involved.) This mechanism ensures that all of the facility's emissions—up to its maximum PTE—are offset by corresponding emissions decreases (with an exclusion for "grandfathered" emissions that preceded the beginning of the offsets program).

Regulation 2-2 provides two methods for a facility to comply with the offsets requirements. One method is for the facility to use emission reductions from the shutdown or curtailment of other sources at the facility to counterbalance the new emissions from the new project being permitted. The facility can take credit for such emission reductions if they are "contemporaneous" with the project being permitted, which means they occurred within five years before the permit application for the current project, or will occur by the time the current project begins operation (or for a replacement unit, by 90 days after the replacement unit begins operation).[1] Such ***contemporaneous onsite emission reduction credits*** reduce the "cumulative increase" at the facility, and therefore reduce the amount of offsets that have to be provided.[2] If the onsite contemporaneous emission reduction credits equal the full incremental cumulative increase for the project being permitted, then the facility will not have to provide any offsets at all.

The other method to comply with the offsets requirements, if the facility does not use contemporaneous onsite emission reduction credits, is to use ***banked emission reduction credits.*** The District has developed an emissions banking program (set forth in Regulation 2, Rule 4), which allows facilities to "bank" their emissions reductions if they do not intend to use them as contemporaneous onsite emission reduction credits. Banked emission reduction credits can be kept indefinitely for use in connection with future projects at the facility (they are not restricted to the five-year "contemporaneous" period), or they can be sold or traded to other facilities that need them for permitting their own projects. If the project being permitted will result in an incremental cumulative increase in emissions subject to the offsets requirements, and the facility does not have any contemporaneous onsite emission reduction credits to bring down that cumulative increase, then it will have to provide "offsets"—*i.e.,* banked credits from the District's emission bank (or in some circumstances from a neighboring air district's emissions bank).[3]

Sections 2-2-606 through 2-2-609 provide detailed procedures for calculating the amount of the cumulative increase at a facility and the amount of offsets that need to be provided. In most cases,

***Terminology Tip:* "Offsets" vs. "Emission Reduction Credits"**

The terms "offsets" and "emission reduction credits" are often used interchangeably, but they have distinct meanings for NSR permitting. An "emission reduction credit" (also referred to as an "ERC") can be any emission reduction that satisfies Section 2-2-211's requirements of being enforceable, surplus, etc. An "offset," by contrast, is a banked credit that is provided to counterbalance the cumulative emissions increase associated a new or modified source (see Section 2-2-221). Emission reduction credits that have not been banked can be used to counteract emissions increases per the provisions for "contemporaneous onsite emission reduction credits" in Section 2-2-607. These are "ERCs," but they are not "offsets." They are taken into account by reducing the amount of "cumulative increase" for which offsets have to be provided. For example, if a modification will increase emissions by 10 tpy, and that increase will be counterbalanced by 10 tpy in contemporaneous onsite ERCs, then there will be no incremental cumulative increase from the modification, and no "offsets" will be required.

the calculation will be very simple. Most facilities that are subject to the offsets requirements (*i.e.,* that are above the applicability thresholds in Section 2-2-302 and 2-2-303) will already have been required to provide offsets for their full cumulative increase in connection with their most recent permitting action. In these cases, all that is required is to determine the incremental additional cumulative increase associated with the new project being permitted—that is, the new emissions from the new project minus any contemporaneous onsite emission reduction credits being provided with the application for the new project. The applicant will simply have to provide offsets (banked credits) for the amount of this incremental cumulative increase from the new project. In other cases, where the facility has not provided offsets before, the calculation may be more complicated. In those cases, the full amount of the cumulative increase from all prior permitting actions since the offsets requirements were first implemented must be calculated, and offsets will have to be provided for this entire cumulative increase. The calculation provisions in Sections 2-2-606 through 2-2-609 spell out exactly how to do so. All of these provisions are described in detail in this Chapter.

I. Determining Whether A Facility Is Subject to Offset Requirements

The NOx and POC offset requirements in Regulation 2-2-302 apply to facilities with a facility-wide potential to emit more than 10 tpy of these pollutants (with a provision for the District to provide the offsets from its Small Facility Bank for facilities up to 35 tpy as discussed below).[4] The $PM_{2.5}$, PM_{10} and SO_2 offset requirements in Regulation 2-2-303 apply to facilities with a facility-wide potential to emit 100 tpy or more of those pollutants.[5] The offset requirements do not apply unless a facility's PTE exceeds these thresholds. Moreover, the requirements are pollutant-specific: they apply only to each individual pollutant for which the facility's PTE exceeds the relevant threshold for that pollutant.[6]

To determine whether a new source or modification will be subject to offset requirements, the individual PTEs of all the sources at the facility must be added together,[7] including the new PTE from the new and/or modified sources that are the subject of the permit application.[8] Fugitive emissions[9] and emissions from any cargo carriers associated with the facility (other than motor vehicles)[10] must also be included. If the facility's PTE exceeds the applicability thresholds in Sections 2-2-302 and 2-2-303, then the District must ensure that the facility's entire "cumulative increase" has been offset before issuing an authority to construct or permit to operate for a new source or modification at the facility. The cumulative increase calculations are discussed in the next section.

Note that the definition of "facility" in Section 2-1-213 includes any "support facility" as defined in Section 2-1-242. A "support facility" is a facility that coveys, stores, or otherwise significantly assists in the production of the principal product of the main facility. Sources at any such support facility must be included when determining a facility's potential to emit for purposes of applying the offset thresholds. A facility becomes a "support facility" only if it ***significantly*** assists the main facility. When this definition was adopted, the District had in mind a 50% threshold as general a rule of thumb for determining whether a facility's assistance is "significant" or not under

Section 2-1-242. If over 50% of a facility's output goes to support another facility, that is a good indication that the facility "significantly assists" in the operation of the other facility—although it is not necessarily determinative if there are other indications to the contrary.[11] Ultimately, the determination of whether a related facility "significantly" assists the main facility will have to be made on a case-by-case basis depending on the specific facts and circumstances presented by each particular permitting situation.

II. Calculating the Amount of Offsets That Must Be Provided

If the facility's potential to emit is over one or more of the applicable offset thresholds discussed in the previous section, then it will be subject to offsets requirements for any new source or modification that will increase emissions of the pollutant(s) for which the threshold is exceeded. For each such pollutant, the facility's total "cumulative increase" in emissions must be offset. Implementing this requirement involves adding up all of the emissions increases that will result from the project under review along with all previous increases at the facility back to the applicable "baseline date" to obtain the facility's total cumulative increase; and then adding up all of the offsets that have been provided—including any that will be provided in connection with the project being permitted—to ensure that all of the cumulative increase is offset.

Sections 2-2-606 through 2-2-609 provide a step-by-step procedure for undertaking these calculations. In summary, the procedure first calculates the cumulative increase associated with the *application under review,* which is the emissions increase from the project minus any onsite contemporaneous emission reduction credits that are being used in connection with the project. The procedure then calculates the cumulative increase associated with all *prior permits* that have been issued for the facility going back to the applicable cumulative increase baseline date, along with any offsets that were provided with such permits. This calculation establishes the amount of any prior cumulative increase that has not already been offset. Offsets (banked credits) must be provided for the cumulative increase associated with the project under review plus any previous cumulative increase that has not already been offset before the District may issue the authority to construct or permit to operate for the project.

How Complex Will The Offsets Calculation Be?

It depends. In many cases, the facility will have already offset its full pre-existing cumulative increase prior to the current application under review. In such cases, additional offsets will need to be provided only for the additional increase in PTE that will result from the current application, and the cumulative increase calculation will be fairly straightforward. In other cases, the facility will not have provided offsets already for its pre-existing cumulative increase. In these cases the applicant will need to provide offsets for emissions increases from prior projects as well as the current project, and the cumulative increase calculation procedure will be more complicated. Special care should be taken in such cases to ensure that the offset requirements are applied correctly.

The step-by-step procedure for calculating the facility's cumulative increase and applying the offset requirements works as follows:

Step 1: Calculate the Emissions Increase for the Project Under Review:

The first step in the procedure is to calculate the increase in emissions from the new and/or modified sources that are the subject of the application under review (including cargo carrier emissions, which are treated as emissions from the source that receives or loads the cargo[12]). The rules governing this calculation are set forth in Section 2-2-606, and they apply as follows.

For a ***new source,*** the amount of the increase is the source's full potential to emit.[13]

For a ***modification to an existing source,*** the amount of the increase depends on whether offsets have already been provided for the source. If the facility has already provided offsets for the source's current emissions, then the increase is calculated using a "potential-to-potential" methodology. The increase is the amount by which the modification will increase the source's PTE, over a "surplus-adjusted" current PTE baseline. This means that one takes the source's current PTE and adjusts it downward (if necessary) to reflect the most stringent current regulatory requirements.[14] The amount of the increase is the difference between this adjusted current PTE and the source's new PTE that will result from the modification.

If the facility has *not* already provided offsets for the source's current emissions, then the increase is calculated using an "actual-to-potential" methodology—*i.e.,* based on the difference between the source's current actual emissions and its future potential to emit.[15] Current actual emissions are the source's average emissions during the 3-year period immediately preceding the date on which the current permit application is complete, adjusted downward (if necessary) to reflect the most stringent current regulatory requirements.[16] The amount of the increase is the difference between the (adjusted) actual emissions during this three-year baseline period and the source's new PTE that will result from the modification.

The practical impact of this two-part test for modifications involves old sources that were constructed before the offset requirements came into effect (or before the facility exceeded the applicability thresholds and became subject to them). These older sources are "grandfathered" with respect to the offsets requirements in the sense that they can continue to operate for a long time without having their emissions offset, as long as they are not "modified" so as to become subject to NSR review. When they are subsequently "modified" they come into the offsets program, and at that point they must provide offsets for the full amount of their PTE above their actual emissions baseline. Once they have provided offsets up to their full PTE, they need to provide further offsets only to the extent that additional modifications increase that PTE by some amount. Thus, the offsets program does not capture a source's "grandfathered" emissions baseline before the source comes into the offsets program. But it does ensure that once the source comes into the program, it will offset its full PTE (above the excluded baseline) at that point, and will further offset any subsequent increases in PTE that may occur in the future.

For a project involving multiple sources, the emissions increase from the project is simply the sum of the increases associated with all new and modified sources that are part of the project, calculated according to the rules outlined above.

Step 2: Calculate the Amount of any Contemporaneous Onsite Emission Reduction Credits:

The second step is to determine the amount of any contemporaneous onsite emission reduction credits that the applicant will be relying on to reduce its cumulative increase—and thus its offset obligations. This step reflects the provision in Section 2-2-208 defining the cumulative increase for a project as the emissions increase from the project "less any contemporaneous onsite emission reduction credits" associated with the project.[17]

An applicant can take credit for emission reductions if the reductions are ***real, permanent, quantifiable,*** and ***enforceable,***[18] and ***"surplus"*** in the sense that they are beyond what is required by existing regulatory requirements.[19] In addition, the reductions must have occurred at the same facility (i.e., ***"onsite"***). They must also be ***"contemporaneous,"*** meaning that they occurred (i) within 5 years before the date of the complete permit application, or (ii) after the permit application date, but before initial operation of the source(s) that are the subject of the application (or if the source is a replacement of an existing source, within 90 days after initial operation of the existing source).[20] This means that the applicant can rely on equipment shutdowns or other emission reductions from past projects as long as they occurred within the past 5 years (before the complete application date); and it can also rely on shutdowns or other reductions that will be undertaken in conjunction with the current project, as long as the reductions will occur (and become enforceable) by the time the project's new and/or modified sources become operational (or within 90 days afterwards for replacement sources).[21]

It is the applicant's responsibility to identify any such contemporaneous onsite emission reduction credits associated with the project, and to demonstrate that they satisfy all of these requirements. It is the District's responsibility to review the reductions identified by the applicant to ensure that they are in fact eligible to be credited.

If the emission reductions satisfy all of the requirements outlined above, they can be used to reduce the cumulative increase associated with the application. Calculating the amount of such contemporaneous onsite emission reduction credits is governed by Section 2-2-605, and it involves (i) determining the emissions baseline for the reduction; (ii) adjusting the baseline downward to reflect current regulatory requirements (the "surplus" adjustment); and (iii) calculating the amount of the reduction from this adjusted baseline, based on the source's PTE after the shutdown or other change that resulted in the emission reductions.

(i) Calculate the Baseline Emissions Rate:

The baseline for determining the amount of emission reduction credits depends on whether the source that generated the reductions was "fully offset" as defined in Section 2-2-213. To be

"fully offset," the source that generated the reductions must have had a permit condition limiting the emissions at issue, and the facility must have provided offsets or contemporaneous onsite emission reduction credits for the full amount of the emissions allowed by that condition.[22]

If the source that generated the emission reductions was fully offset, then its baseline is calculated based on the source's full potential to emit before the reductions were implemented (subject to the "surplus" adjustment as outlined below).[23] The principle at work here is that if a facility has already offset a source's maximum permitted emission rate (*i.e.,* its PTE) when the source was permitted, then the source's full PTE is already reflected in the offsets program accounting. Full credit for the source's entire PTE can therefore be given back to the facility when the source is subsequently shut down without raising any concerns about allowing a net emissions increase through the use of that credit—even if the source's actual emissions may be somewhat less than the full PTE.

If the source that generated the emission reductions was *not* "fully offset" as defined in Section 2-2-213, then the baseline for determining the amount of emission reduction credits is based on the source's actual emissions calculated as provided in Section 2-2-603.[24] The source's baseline emissions are the source's average actual emissions during the 3-year period before the shutdown or other change that generated the emission reductions became enforceable.[25] If the reductions became enforceable through a permit condition or similar legal requirement, then the applicable date is the date that the condition or other requirement became effective. If the reductions became enforceable because the facility demolished the unit or otherwise removed it from service in a manner that made it impossible for the emissions to continue, then the applicable date is the date of the demolition or other removal from service.[26] The source's average annual throughput and average annual emissions during the 3-year baseline period are calculated, and then the average emissions are divided by the average throughput to obtain the source's Baseline Emissions Rate (in emissions per unit of throughput).[27]

(ii) Apply the "Surplus" Adjustment to Calculate Adjusted Baseline Emissions:

Once the Baseline Emissions Rate is calculated for the source that generated the emission reductions—either the source's full PTE in the case of a fully-offset source, or the source's

***Terminology Tip:* "RACT Adjustment " vs. "Surplus Adjustment"**

The downward adjustment to a source's baseline emissions to reflect current regulatory standards has sometimes been called the "RACT adjustment," because RACT rules are often the applicable standards that make the adjustment necessary. But the adjustment also needs to take into account BARCT rules and any other applicable regulations, not just RACT rules. "Surplus adjustment" is therefore a more accurate term, indicating that the source's reductions need to be surplus of any reductions otherwise required by law in order to be creditable.

average actual emissions rate during the 3-year baseline period in the case of a non-fully-offset source—then the baseline emissions must be adjusted downward as necessary to reflect current regulatory requirements. This is the "surplus" adjustment, and it ensures that a source gets credit only for emission reductions that are over and above what is already legally required. For both fully-offset and non-fully-offset sources, the source's Baseline Emissions Rate must be "adjusted downward, if necessary, to reflect the most stringent of RACT, BARCT, and applicable federal and District rules and regulations in effect or contained in the most recently adopted Clean Air Plan."[28]

(iii) Subtract the Source's Post-Reduction PTE From Its Adjusted Baseline Emissions to Determine the Amount of Credit Available:

The amount of the available contemporaneous onsite emission reduction credit is the difference between (i) the source's adjusted baseline emissions prior to the change that generated the emission reductions and (ii) the source's new PTE after the change that generated the emission reductions.[29] For situations where the emission reduction credit was generated by a complete shutdown of the source (which is the most common scenario that arises in District permitting), then the PTE after the shutdown is zero, and so the amount of the emission reduction credit is simply the full amount of the adjusted baseline emissions before the shutdown (based on the date that the reduction becomes enforceable). For situations where an emission reduction credit was generated by an enforceable curtailment of the source's operations (*e.g.,* by taking a voluntary permit limit on emissions in excess of current regulatory requirements), then the PTE after the reduction is determined by the permit condition or other restriction that makes the reduction enforceable. The amount of available emission reduction credit in these situations is the difference between the prior adjusted baseline emissions and the new PTE as established by the enforceable permit condition.

More than one contemporaneous onsite emission reduction credit can be used in connection with a project. If a facility has multiple shutdowns or other enforceable emission reductions that are within the "contemporaneous" window and otherwise satisfy the requirements outlined above, all such contemporaneous onsite emission reduction credits can be added together for use in reducing the cumulative increase associated with a project. An emission reduction credit from a prior shutdown or other enforceable reduction can be counted only once, however. If a credit is used to reduce the cumulative increase associated with one project, it cannot be used again to reduce the cumulative increase associated with a subsequent project, even if it is still within the 5-year "contemporaneous" window for the subsequent project.[30]

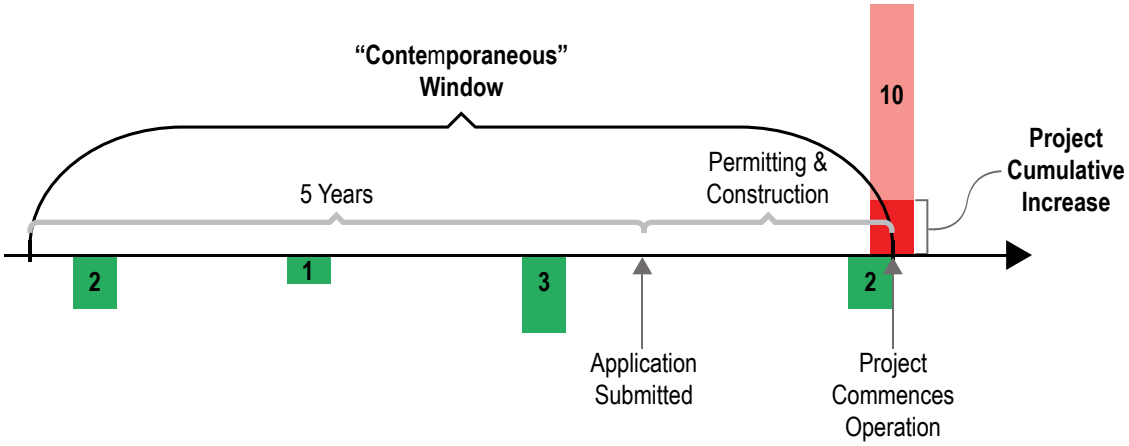
Step 3: Calculate the Project Cumulative Increase (Project Increase Less Contemporaneous On-Site Emission Reduction Credits):

The third step is to calculate the amount of the cumulative increase associated with the project being permitted. This calculation is governed by Section 2-2-607, and it is relatively straightforward. The cumulative increase is the emissions increase that will result from the

project as determined in Step 1, minus the amount of any contemporaneous on-site emission reduction credits as determined in Step 2.[31]

Figures 4-1 and 4-2 demonstrate how this calculation works. The hypothetical project illustrated in these figures involves the installation of a new source with a PTE of 10 tpy, as well as removal of an existing source with (adjusted) baseline emissions of 2 tpy. This existing source will be shut down and permanently removed from service at the point when the new source is installed and is ready to begin operating. In addition, the facility had three other sources that it previously shut down and permanently removed from service within the past five years before the current application was submitted. These sources had (adjusted) baseline emissions of 3, 1 and 2 tpy, respectively.

Figure 4-1: Calculating A Project's Cumulative Increase Using Contemporaneous Onsite Emission Reduction Credits



- On-site emission reduction credits are "contemporaneous" if they occur during the period from 5 years before the date of the complete application through initial operation of the project (or, for shutdown of a source being replaced by a "replacement unit," 90 days after initial operation).

- The project in this illustration is taking credit for (i) a shutdown that will be implemented as part of the project and (ii) 3 prior shutdowns within the past 5 years before the application was submitted.

- The cumulative increase for this project is 2 tpy: a 10 tpy increase that will result from the project, less 8 tpy in contemporaneous on-site emission reduction credits (2+1+3+2).

To calculate the cumulative increase associated with this project, the increase in PTE from the new source being installed is determined at Step 1. It is 10 tpy under this hypothetical—*i.e.,* the full PTE of the new source that will be installed. The amount of the contemporaneous onsite emission reduction credits is then determined under Step 2. The contemporaneous period extends back five years before the date of the complete permit application for the project and forward up until the date that the project will commence operation (or 90 days after that date in the case of a replacement unit). There are four emission reductions that occurred (or will occur) within the contemporaneous window in this example: the three previous shutdowns within the past five years of 3, 1 and 2 tpy; and the 2 tpy reduction that will occur when the existing source is shut down just before the project commences operation. Step 3 then subtracts the total contemporaneous onsite emission reduction credits (8 tpy) from the project's emissions increase (10 tpy) to determine the cumulative increase associated with the project. This calculation is shown graphically in Figure 4-1.

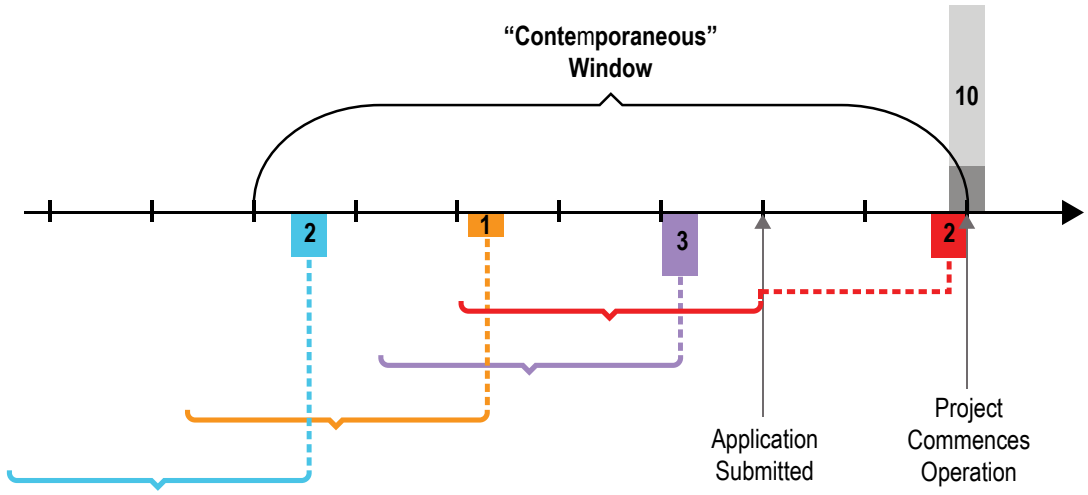
Note that different baseline periods will apply to the various different emission reductions involved, as the baseline period for each reduction is defined by the date that that particular reduction became enforceable. Moreover, some of the baseline periods may extend back beyond the beginning of the 5-year "contemporaneous" window. The "contemporaneous" requirement simply requires the reduction to have occurred (*i.e.,* to have become enforceable) within the 5-year window,[32] and the baseline rules extend the baseline period 3 years back before the date the reduction occurred.[33] Calculating the emissions baseline could therefore require looking back as far as 8 years, for a reduction that occurred at the very beginning of the 5-year window. These principles are illustrated in Figure 4-2.

For an emission reduction that will occur in the future (but before the project being permitted begins operation, so that the reduction is within the "contemporaneous" window), the emissions between the date of the permit application and the date that the emission reduction is implemented have not yet happened. Emissions during this portion of the baseline period (the 3-year period preceding the date in the future when the reduction becomes enforceable) must therefore be based on a projection of what the source's emissions will be during that time. In most cases, this can be accomplished by using the source's emissions during a surrogate baseline period, consisting of the 3-year period immediately preceding the date of the permit application, to establish the emissions baseline.

Step 4: Calculate the Un-Offset Cumulative Increase Associated With Prior Projects (Back to the Applicable Baseline Date):

The fourth step is to calculate the cumulative increase associated with prior projects at the facility going back to the ***cumulative increase baseline date,*** along with the amount of offsets that have been provided in connection with those prior projects. The purpose of this calculation is to see whether there is any prior cumulative increase that has not already been offset—what the regulations call "prior un-offset cumulative increase."[34] If there is any un-offset cumulative increase from these prior projects, it will need to be offset at the time of the permitting of the current project under review.

Figure 4-2: Determining Emission Baselines for Contemporaneous Onsite Emission Reduction Credits



- The baseline period for a past reduction is the 3 years immediately preceding the date the reduction took effect (*i.e.*, became enforceable). The baseline periods for the prior reductions credited to this hypothetical project are outlined in **purple, orange** and **blue**.

- The baseline period for future reductions (that will occur by the time the project commences operation) is the 3 years immediately preceding the future date that the reduction becomes enforceable—which will normally be estimated using the 3 years preceding the application date. This baseline period for the hypothetical project is outlined in **red**.

The procedure for calculating the prior un-offset cumulative increase is set forth in Section 2-2-608.2. For each prior project for which an authority to construct and/or permit to operate was issued at the facility since the applicable baseline date, the cumulative increase for the project must be calculated using the methodology outlined in Steps 1 through 3 (*i.e.,* the emissions increase from the project is calculated and then any contemporaneous on-site emission reduction credits that were used in connection with the project are subtracted out).[35] Once the cumulative increase for the prior project is determined, the amount of any offsets (banked credits) that were provided in connection with the authority to construct/permit to operate — including any credits from the District's Small Facility Banking Account — are taken into account to calculate the un-offset cumulative increase associated with the project.[36] If the cumulative

Cumulative Increase Baseline Dates:

$PM_{2.5}$: August 31, 2016
All other pollutants: April 5, 1991

increase from a prior project was offset (*i.e.,* banked credits were provided), then there is no *un-offset* cumulative increase associated with that project, and that prior project will not increase the amount of offsets that need to be provided with the permit application for the current project under review.[37] If no offsets were provided for the project, then the project's cumulative increase is "un-offset," and it will have to be offset in connection with the permitting of the current project.

The process of determining the "un-offset cumulative increase" is repeated for each project at the facility for which an authority to construct and/or permit to operate was issued since the applicable cumulative increase baseline date, which is August 31, 2016, for $PM_{2.5}$ and April 5, 1991, for the other offsets pollutants (NOx, POC, SO_2 and PM_{10}).[38] Projects involving "related sources" (sources where the operation of one source is dependent upon, supports or affects the operation of the other source) must be included in this calculation, so any prior authority to construct/permit to operate issued for a related source must be reviewed to determine whether there was any un-offset cumulative increase associated with it.[39] Authorities to construct/permits to operate are excluded if they were issued because the source lost its permit exemption per Section 2-1-424, or if they were issued for a source that has been permanently removed from service.[40]

In performing these calculations, note that the amount of the cumulative increase associated with a prior project is determined as of the time the prior project was permitted. It is not re-evaluated when subsequent projects undergo permitting review.[41] For example, when a prior project was permitted, the cumulative increase calculations may have used emissions baselines that involved a "surplus" adjustment to reflect the current regulatory requirements in effect at the time of that prior permitting analysis. These calculations are not re-evaluated in permitting evaluations for subsequent projects, even if applicable regulatory requirements have changed. Similarly, prior projects may have relied on contemporaneous onsite emission reduction credits that occurred within the five-year "contemporaneous" window with respect to the prior project, but which are more than five years old at the time of a subsequent permitting analysis. The cumulative increase associated with the prior project still takes these emission reduction credits into account as long as they were "contemporaneous" with the prior project, regardless of any subsequent passage of time.

The Air District maintains a database of cumulative increases associated with prior projects, and of the contemporaneous onsite emission reduction credits and offsets (banked credits) that were provided in connection with them, which will help streamline the process of determining the un-offset cumulative increase from a facility's prior projects. In most cases, the database will provide all of the information necessary to calculate the amount of any prior un-offset cumulative increase, without the need for any additional independent research or analysis.[42] Moreover, facilities that have previously been subject to the offset requirements should already have fully offset their pre-existing cumulative increase. In such cases, only the new increase in PTE from the project currently under review will require offsets. In those cases, evaluating the prior un-offset cumulative increase will simply be an academic exercise of checking the database to make sure that the prior cumulative increases and offsets match up. In these types of situations, calculating the amount of offsets required will be simple and straightforward. It is important to

understand the concepts behind the cumulative increase, emission reduction credit, and offsets calculations, however, in order to be able to address more complicated situations—such as when a facility first becomes subject to the offsets requirements and must provide offsets for the cumulative increase associated with prior projects.

Step 5: Calculate the Total Facility Un-Offset Cumulative Increase (Project Cumulative Increase Plus Any Un-Offset Cumulative Increase From Prior Projects):

The fifth step involves adding (i) the cumulative increase from the current project to (ii) any un-offset cumulative increase from prior projects since the applicable baseline date as determined in Step 4.[43] This is the total facility un-offset cumulative increase associated with the application under review, and it is the basis on which the amount of offsets that need to be provided in connection with the application is calculated, as provided in Section 2-2-608.3.

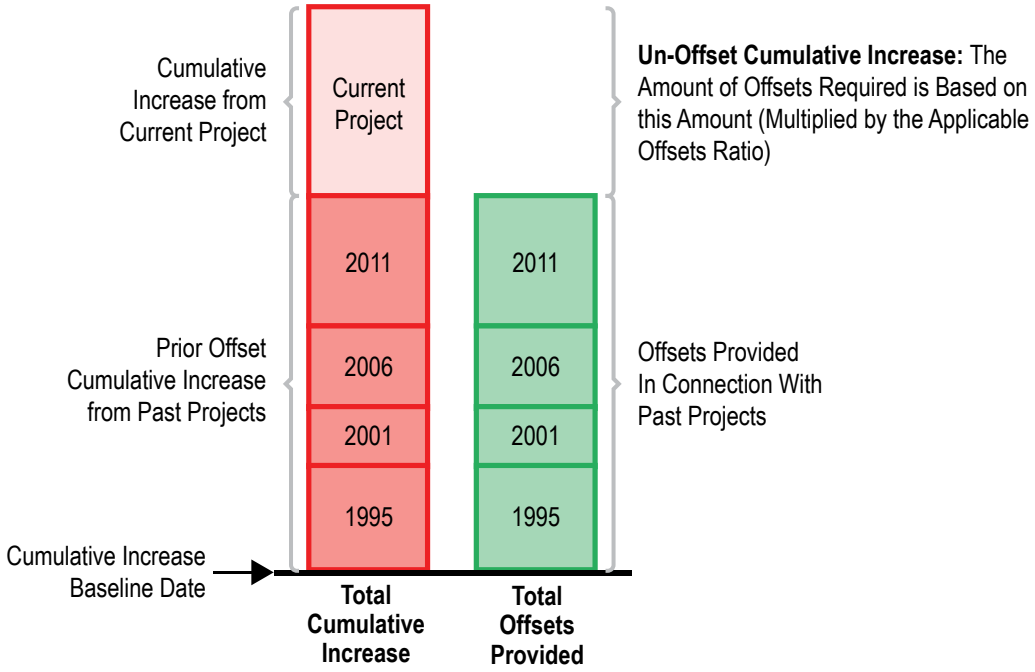
Figure 4-3 illustrates how the process works for a typical, simple example. In this case, a facility with a PTE over the applicable offsets threshold is seeking an authority to construct for a project called the "Current Project."

First, the cumulative increase for the Current Project is determined in accordance with Section 2-2-607 by (i) calculating the emissions increase from the project pursuant to Section 2-2-606 (using either an actual-to-potential test or a potential-to-potential test, depending on whether offsets were previously provided); and then (ii) subtracting the amount of any contemporaneous onsite emission reduction credits calculated pursuant to Section 2-2-605. These are the calculations addressed in Steps 1-3 above, and they yield the cumulative increase for the Current Project as shown in the cross-hatched box at the top of the left-hand column in Figure 4-3.

Once the Current Project's cumulative increase is calculated, the amount of any un-offset cumulative increase from prior projects must be determined pursuant to Section 2-2-608.2. In this example, there have been four prior projects at the facility since the cumulative increase baseline date for which the District has issued authorities to construct and/or permits to operate, in 1995, 2001, 2006, and 2011. As will be the case for many facilities, these prior projects were subject to the offsets requirements at the time, and so the facility provided offsets for the cumulative increase associated with each of those projects at the time of permitting. There is therefore no un-offset cumulative increase associated with any of these prior projects. Moreover, the amount of the cumulative increase and offsets provided for each of these projects should be listed in the district's database, and so it will be a simple matter just to check the database and confirm that there is not in fact any prior un-offset cumulative increase from these projects. This is the calculation process addressed in Steps 4-5 outlined above.

The facility's resulting un-offset cumulative increase in this example is shown as the area above the top of the right-hand column in Figure 4-3, for which offsets have yet to be provided. The amount of offsets that will be required in order to obtain an authority to construct for the Current Project will be based on this number, multiplied by the applicable offset ratio as discussed in Step 6.

Figure 4-3: Schematic Example of How to Calculate Offsets Requirements



- The facility's **total cumulative increase** is (i) the increase associated with the Current Project, plus (ii) the increase associated with all prior projects for which permits were issued back to the baseline date.
- The facility's **total offsets** are all of the offsets (banked emission reduction credits) that were provided in connection with those prior projects. (For simplicity's sake an offset ratio of 1:1 has been assumed for these prior projects.)
- The **un-offset cumulative increase** is the difference between the facility's total cumulative increase, including the current project, and the amount of cumulative increase for which offsets have already been provided. ***The amount of offsets required for the authority to construct for the Current Project is based on this amount (multiplied by the applicable offset ratio).***

Step 6: Calculate the Amount of Offsets to be Provided (Facility Un-Offset Cumulative Increase Multiplied by the Applicable Offset Ratio):

The sixth and final step involves applying the applicable offset ratio. Section 2-2-608 provides that offsets must be provided for the facility's un-offset cumulative increase multiplied by the applicable offset ratio specified in Sections 2-2-302 and 2-2-303. The ratio is 1:1 for $PM_{2.5}$, PM_{10} and SO_2. It is also 1:1 for NOx and POC if the facility in question has a PTE of less than

35 tpy of those pollutants.[44] If the facility will have a PTE of 35 tpy or more of NOx or POC after implementation of the project that is the subject of the current application, then the ratio is 1.15:1.[45] Offsets (*i.e.,* banked emission reduction credits) must be provided in the amount of the facility's un-offset cumulative increase multiplied by these offset ratios in order for the facility to receive its authority to construct and/or permit to operate. The offsets may be provided by the facility itself, or in some cases they may be provided by the District from the District's Small Facility Banking Account as discussed in the next section.

Note also that once a facility's PTE is over the 35 tpy threshold at which the 1.15:1 offset ratio takes effect for NOx and POC, this ratio applies to all of the cumulative increase that needs to be offset, not just that portion of the un-offset cumulative increase that pushes the facility over the 35 tpy threshold. For example, if a facility has a PTE of 30 tpy NOx and applies for an authority to construct for a modification that will increase its PTE to 40 tpy NOx, and thereby generate an un-offset cumulative increase of 10 tpy, the entire 10 tpy increase must be offset at the 1.15:1 ratio, not just the 5 tpy that will push the facility above the 35 tpy PTE threshold. In that case, the facility must provide 11.5 tpy of NOx offsets [10 tpy x 1.15], not 10.75 tpy [(5 tpy x 1) + (5 tpy x 1.15)].[46]

III. Mechanics of Applying the Offset Requirements

Once the amount of required offsets is calculated, the District must ensure that the offsets are provided in accordance with Sections 2-2-302 and/or 2-2-303 before issuing the authority to construct or permit to operate for the project. The following rules apply to the provision of offsets under these Sections.

A. Banked Emission Reduction Credits Provided to Satisfy Offset Requirements

The applicant must provide offsets in the form of banked emission reduction credits approved by the District under Regulation 2, Rule 4 (unless the District is providing them from the Small Facility Banking Account as discussed below). To do so, the applicant must surrender the banking certificate issued by the District documenting the amount of banked credit.

In addition, the applicant may also use banked emission reduction credits approved by an adjacent air district if the credits satisfy certain requirements.[47] These include (i) a requirement that the adjacent air district be a nonattainment area with an equal or higher nonattainment classification than the Bay Area, and (ii) a requirement that emissions from the adjacent district contribute to a violation of the National Ambient Air Quality Standards in the Bay Area, among others.[48] In practice, however, applicants rarely (if ever) use offsets from outside of the Bay Area.

B. Using Credits From The Small Facility Banking Account

The Air District's Emissions Bank has an account known as the "Small Facility Banking Account," which is used to provide offsets for small facilities with a NOx and POC PTE of less than 35 tpy.

If such facilities are subject to the NOx and POC offsets requirements (*i.e.,* they have a PTE of over 10 tpy but under 35 tpy), the District will provide any required offsets from the Small Facility Banking account, assuming that there are sufficient credits in the account, and assuming that the applicant actually needs them because it does not have any credits of its own (and that no other entity under the same common ownership or control has any).[49] If the Small Facility Banking Account is exhausted, or if the applicant has access to credits on its own, then the applicant must provide them.[50]

In addition, credits from the Small Facility Banking Account may not be used to obtain an artificially high permit limit. If an applicant can take advantage of the Air District's credits in this account, it would not be fair for the applicant to abuse this privilege by using up more credits than it reasonably needs. Thus, if a facility seeks to use Small Facility Banking Account credits to permit a source, the applicable permit limits for which the credits are used must not be any higher than is reasonably necessary to allow the source to operate. In determining the extent to which a permit limit is "reasonably necessary," sufficient flexibility must be provided to allow for reasonably anticipated future changes in operational requirements. The Air District will provide credits from its Small Facility Banking Account for emissions up to this level, but not beyond.[51]

Once a facility exceeds the 35 tpy threshold, it is no longer eligible for accessing the Small Facility Banking Account, and it must reimburse the District for any credits that have previously been provided from that account. This occurs the first time the facility applies for an authority to construct or permit to operate for a new or modified source, and its facility-wide PTE (including the increase in PTE from the new or modified source) is 35 tpy or more. At that point, the facility must reimburse the Small Facility Banking Account for any credits previously provided, as well as providing new credits for any new cumulative increase that will result from the new or modified source.[52] (Note also that the offsets requirements apply on a pollutant-specific basis, and so it is possible for a facility to have a PTE of over 35 tpy for NOx and under 35 tpy for POC (or vice-versa) and thus be eligible to access the Small Facility Banking Account for one pollutant but ineligible to access it for the other pollutant.)

When a facility needs to reimburse the Small Facility Banking Account, it can do so either (i) by providing banking certificates or (ii) by reducing the cumulative increase associated with the permitting actions for which the Air District provided credits from the Small Facility Banking Account.[53] To take advantage of the latter option, the facility must request lower emissions limits on sources that were permitted in the prior permitting actions for which the Small Facility Banking Account credits were provided. The District can then adjust the amount of the cumulative increase associated with those permitting actions based on the reduced permit limits, and adjust the amount of Small Facility Banking Account credits associated with the permitting actions accordingly. The outcome is essentially the same as if the facility were to request new emissions limits for these sources and submit a banking application based on the resulting emission reductions, and then surrender the resulting banking certificates back to the Small Facility Banking Account, but it avoids the additional administrative burdens of going through the formal banking process under Regulation 2-4.[54]

C. Inter-Pollutant Trading for Offsets

Where a new or modified source will result in an emissions increase that is subject to offset requirements, the offsets that are provided must generally be for the same pollutant as the emissions increase that triggered the offsets requirements. That is, for most purposes there is no "inter-pollutant trading" in which an increase in emissions of one pollutant can be offset with a reduction in emissions of a different pollutant.[55]

The one exception is for PM_{10}. If a new or modified source will result in an increase in PM_{10} emissions that must be offset under Section 2-2-303, subsection 2-2-303.2 provides that NOx and/or SO_2 offsets (banked emission reduction credits) may be provided to satisfy that PM_{10} offset obligation, subject to a number of specific requirements. To use this provision, the District must undertake an evaluation of the individual facility involved—which must include adequate modeling analyses—in order to determine an appropriate offset ratio that will ensure that there is a "net air quality benefit" from the inter-pollutant trading.[56] The District must provide public notice of its determination and an opportunity for interested members of the public to comment, and it must obtain EPA's concurrence. Once the District has determined the appropriate offset ratios through this process, the applicant can satisfy its PM_{10} offset requirements by providing NOx and/or SO_2 banking certificates. The amount of NOx and SO_2 banking certificates that must be provided is the amount of PM_{10} offsets required times the offset ratios the District has determined to be appropriate for the facility.

Note also that the NOx and SO_2 credits provided must be in addition to any credits required independently for the project because of increases in NOx or SO_2 emissions. That is, the facility cannot "double-count" NOx and SO_2 credits by applying them to satisfy both PM_{10} requirements and NOx/SO_2 requirements.[57] Thus if a project at a facility will require 5 tpy of NOx offsets, 5 tpy of SO_2 offsets, and 10 tpy of PM_{10} offsets, and the District determines that the appropriate NOx:PM_{10} and SO_2:PM_{10} trading ratios are 1:1, the facility cannot submit 5 tpy of NOx credits and 5 tpy of SO_2 credits and claim that it has satisfied all of its offset requirements. In this situation, the facility can use the credits to satisfy the NOx and SO_2 offset requirements or the PM_{10} offset requirements, but not both.

D. Deferral of Offsets for Small Increases in $PM_{2.5}$, PM_{10} and SO_2 of Under 1 tpy

For $PM_{2.5}$, PM_{10} and SO_2, Section 2-2-303.1 provides for a deferral of sorts for small emissions increases. This subsection states that offsets need to be provided in connection with an authority to construct or permit to operate only if the un-offset cumulative increase exceeds 1 tpy. For facilities that have currently offset their full cumulative increase for these pollutants, this provision allows the facility's cumulative increase to rise by up to 1 tpy without the facility having to provide additional offsets. Small projects can thus be effectively exempt from having to provide offsets. Each successive small project that takes advantage of this provision will add to the facility's

un-offset cumulative increase, however, and so eventually the facility will have a total un-offset cumulative increase that exceeds 1 tpy. At that point the facility will have to provide offsets for this total un-offset cumulative increase, including the portions of the cumulative increase from the prior small projects for which offsets were not provided at the time of permitting. This provision allows minor projects to be permitted without the administrative hassles of providing offsets, but still captures all emissions associated with such projects before the total un-offset cumulative increase associated with multiple minor projects becomes significant. (Note that the offsets requirements for $PM_{2.5}$, PM_{10} and SO_2 do not kick in until the facility's total PTE hits 100 tpy. This provision therefore applies only to large facilities that have already provided offsets, but which subsequently have small additional increases of less than 1 tpy.)

E. Offset Refunds

Sometimes an applicant for an authority to construct will submit more offsets with its application than are actually required under Sections 2-2-302 and 2-2-303. For example, an applicant may hold a banking certificate worth 100 tpy of emission reduction credits, whereas only 50 tpy of offsets are required for a given project. In that situation, when the applicant submits the 100 tpy banking certificate it will have provided 50 tpy more offsets than are actually required. Section 2-2-411 provides a process for refunding the difference. Specifically, Section 2-2-411.1 provides that the District shall refund the difference between the amount of offsets provided and the amount of offsets required, upon request by the applicant, and without charging any banking transaction fees.[58]

In addition, if an applicant provides offsets and obtains an authority to construct for a source, but that source is never constructed (or is constructed but never operated), the applicant can similarly obtain a refund of the offsets provided. As with the offsets over-payment situation outlined above, in this case the emission reduction credits provided are not in fact needed to offset any new emissions from the source, because the source never actually emitted the pollutants it was permitted for. Section 2-2-411.2 provides that the District shall refund the offsets that were provided in connection with the authority to construct, upon request by the applicant, and without charging any banking transaction fees.[59] To be eligible for such a refund, the authority to construct and/or permit to operate must have expired—or must have been surrendered by the applicant, if it has not yet expired—to ensure that the source never begins operating and emitting pollutants.

Once a source is constructed and starts operating, a subsequent shutdown of the source does not confer a right to have the offsets provided for that source refunded. Instead, the shutdown is treated as generating emission reduction credits, which can then be used to help satisfy offset requirements for future projects—either used as contemporaneous onsite emission reduction credits or banked under Regulation 2, Rule 4. The rules for how much credit is generated in such situations are set forth in Section 2-2-605, as discussed above.

Endnotes to Chapter 4

[1] Section 2-2-206 sets forth the definition of "contemporaneous."

[2] Sections 2-2-208 and 2-2-607 provide that the "cumulative increase" associated with a project is the emissions increase that will result from the project minus any contemporaneous onsite emission reduction credits.

[3] Section 2-2-221 defines the "offsets" that have to be provided under Sections 2-2-302 and 2-2-303. It provides that they can be either (i) banked emission reduction credits from the Air District's emissions bank or (ii) banked emission reduction credits from an adjacent air district's emissions bank, subject to certain additional restrictions.

[4] BAAQMD Reg. 2-2-302.

[5] BAAQMD Reg. 2-2-303.

[6] *See* BAAQMD Regs 2-2-302.4 & 2-2-303.4; *see also* BAAQMD Reg. 2-2-222 (definition of "pollutant-specific basis").

[7] Sources that do not require an Air District permit as a result of an exemption in Regulation 2 must still be included when calculating the facility's PTE. They are still stationary sources adding to the facility's emissions, even if they do not require a permit.

[8] The first sentence of both Section 2-2-302 and Section 2-2-303 provide that the facility's PTE is assessed after the new or modified source being permitted is installed for purposes of determining whether the offsets requirements apply to the facility.

[9] Section 2-1-308 provides that fugitive emissions are included for all purposes under the District's permitting rules, unless a regulation specifically states otherwise. (*See also* BAAQMD Reg. 2-2-611 (providing that fugitives are included for all purposes under the NSR regulations in Regulation 2, Rule 2, with certain exceptions that do not include the offsets requirements).)

[10] Section 2-2-610 provides that a facility's potential to emit includes emissions from cargo carriers (other than motor vehicles). Cargo carrier emissions are included as emissions from the source that receives or loads the cargo. All emissions from cargo carrier operation within the District's jurisdictional boundaries must be included, and in cases of ships, emissions from off-shore operation out to 11 nautical miles (12.66 statute miles) from the Golden Gate Bridge must also be included. (*See* BAAQMD Reg. 2-2-610 for further details.)

[11] This issue was discussed in during the rulemaking process in which the current definition of "support facility" was adopted. (*See* BAAQMD Responses to Comments on Second Draft of Proposed Amendments (Oct. 2, 2012), pp. 19-20.)

[12] BAAQMD Reg. 2-2-610.

[13] BAAQMD Reg. 2-2-606.1.

[14] BAAQMD Reg. 2-2-606.2. The current PTE must be adjusted downward to reflect the most stringent RACT, BARCT, and applicable federal and District rules currently in effect or contained in the District's most recent Clean Air Plan. This adjustment is sometimes referred to as the "RACT" adjustment, because RACT standards are one of the main regulatory areas that must be taken into account in the adjustment. But RACT standards are not the only standards that must be evaluated. The term "surplus adjustment" is more comprehensive and better captures the concept of adjusting the baseline emissions to ensure that any emission reductions are surplus of what is required under existing regulatory standards.

[15] BAAQMD Reg. 2-2-606.3.

[16] The relevant rules for determining the adjusted baseline emissions are set forth in Sections 2-2-603.1.1 (baseline period calculated from date of complete application), 2-2-603.2.1 (baseline period is 3-year period), and 2-2-603.3-603.7 (rules for making the adjustment to reflect current regulatory standards). Emissions during the baseline period must be adjusted downward to reflect the most stringent RACT, BARCT, and applicable federal and District rules currently in effect or contained in the District's most recent Clean Air Plan.

[17] District Regulation 2-2-208 (definition of "Cumulative Increase"). Note that banked emission reduction credits are not counted at this stage. At this stage, only *contemporaneous onsite* emission reduction credits are counted, and they are used in determining the amount of the facility's "cumulative increase"—and thus the amount of offsets that have to be provided. Once the amount of offsets that are needed has been established, banked emission reduction credits are then counted in satisfying the applicable offsets requirements.

[18] Emission reductions can be made "enforceable" in several ways, including (i) through enforceable permit conditions that prohibit or limit a source's operation and (ii) through physical removal of the source such that rebuilding or replacing it would require a permit application and related NSR review. (*See generally* BAAQMD Reg. 2-2-605, first sentence after subsection 605.2.) The touchstone for enforceability is whether the District has the legal authority to prevent the emissions from occurring, either absolutely or subject to a requirement to obtain a permit.

[19] The "real," "permanent," "quantifiable," and "enforceable" requirements are elements of the definition of "Emission Reduction Credit" in Section 2-2-211. If reductions are not real, permanent, quantifiable, and enforceable, they cannot be contemporaneous onsite "emission reduction credits" as that term is defined. The "surplus" requirement is applied through the emissions baseline calculation procedures in Section 2-2-603, which adjust the baseline to account for current regulatory requirements. All of these requirements are also restated in the Emission Reduction Credit Calculation Procedures in Section 2-2-605.

[20] BAAQMD Reg. 2-2-206. For additional details regarding the rules for replacement sources, see the specific language set forth in Section 2-2-206.

[21] In order for an emission reduction to be "contemporaneous," all of the requirements of an "emission reduction credit" must be satisfied within the contemporaneous window, including the requirement that the reduction must be "enforceable."

[22] BAAQMD Reg. 2-2-213 (definition of "Fully Offset Source").

[23] BAAQMD Reg. 2-2-605.2(i).

[24] BAAQMD Reg. 2-2-605.1(i).

[25] BAAQMD Regs. 2-2-603.2.1 (baseline period is 3-year period); 2-2-603.1.3 (3-year baseline period runs from date the reduction becomes enforceable).

[26] In these cases, the emission reductions become "enforceable" because when a facility demolishes a source, it cannot rebuild or replace the source without a permit application and related NSR review. That is, the District retains the legal authority to enforce applicable regulatory requirements to prevent the emissions from the source from occurring again, even if there is no specific permit condition currently in existence that applies to the demolished source. (*See generally* BAAQMD Reg. 2-2-605, first sentence after subsection 605.2.)

[27] BAAQMD Regs. 2-2-603.3 through 2-2-603.5. Note that these provisions contain additional

details on specific issues involved in determining baseline throughput and emissions, including (i) what to do if actual throughput or emissions exceeded applicable limits and (ii) what to do if the applicant does not have sufficient verifiable records to demonstrate actual throughput or emissions levels.

[28] For fully-offset sources, the surplus adjustment is specified in Section 2-2-605.2(i) (surplus adjustment to PTE baseline). For non-fully-offset sources, the surplus adjustment is specified in Section 2-2-605.1(i), which incorporates by reference the surplus adjustment procedures in Section 2-2-603.6 (surplus adjustment to actual emissions baseline).

[29] BAAQMD Regs. 2-2-605.1 (non-fully-offset sources) & 2-2-605.2 (fully-offset sources).

[30] BAAQMD Reg. 2-2-607, second sentence after subsection 607.2.

[31] BAAQMD Reg. 2-2-607.

[32] BAAQMD Reg. 2-2-206.

[33] BAAQMD Regs. 2-2-603.1.3, 2-2-603.2.1.

[34] *See* BAAQMD Reg. 2-2-608.2.

[35] *See* BAAQMD Reg. 2-2-608.2.1.

[36] *See* BAAQMD Reg. 2-2-608.2.2.

[37] If the amount of offsets provided for a project exceeded the cumulative increase for that project because of an applicable offset ratio of greater than 1:1, the additional offsets cannot be used to offset cumulative increases for other projects. All of the offsets that were provided are tied to the cumulative increase for which they were provided. For example, a facility may have had a prior project with a 10 tpy NOx increase, for which it had to provide 11.5 tpy of banked NOx emission reduction credits because of the 1.15:1 offsets ratio applicable under Section 2-2-302.2. The facility cannot claim in such a situation that the prior project's 10 tpy cumulative increase was offset by 10 tpy of the banked credits, and that the other 1.5 can be credited to offset cumulative increases from other projects at the facility.

[38] BAAQMD Regs. 2-2-608.2, 2-2-209 (definition of Cumulative Increase Baseline Date).

[39] BAAQMD Reg. 2-2-608.2. "Related Sources" are defined in Section 2-2-226 as two or more sources where the operation of one is dependent upon, supports or affects the operation of the other(s).

[40] BAAQMD Reg. 2-2-608.3.

[41] BAAQMD Reg. 2-2-607, first sentence after subsection 607.2.

[42] *See* BAAQMD Reg. 2-2-609. This provision explicitly recognizes and authorizes the use of this database. The information in this database can be presumed to be accurate and conclusive, absent any indication to the contrary, and no further analysis or calculation needs to be undertaken if information for the facility is available in the database. In the event that there is some indication that the database is incorrect, however, the database should not be relied upon. In such situations, further investigation should be undertaken to ascertain the actual amounts of the cumulative increase from and offsets provided for a prior project, and the database should be corrected accordingly.

[43] BAAQMD Reg. 2-2-608.3.

[44] BAAQMD Regs. 2-2-302.1 & 2-2-303.1. Note that the offsets applicability threshold for $PM_{2.5}$, PM_{10} and SO_2 is a facility PTE of 100 tpy, and the threshold for NOx and POC is a facility PTE of 10 tpy. The 1:1 ratio therefore applies for $PM_{2.5}$, PM_{10} and SO_2 at facilities with a PTE of 100+ tpy;

and for NOx and POC at facilities with a PTE of 10-35 tpy.

[45] BAAQMD Reg. 2-2-302.2. The 1.15:1 ratio means that 1.15 tons of offsets are required for each ton of NOx or POC increase. These requirements apply on a pollutant-specific basis, meaning that the higher ratio is applicable only to the specific pollutant(s) for which the facility PTE exceeds the 35 tpy threshold.

[46] The District addressed this situation in detail in the Staff Report for the 2012 amendments to Regulation 2. (*See* Staff Report, *Updates to BAAQMD New Source Review and Title V Permitting Programs, Regulation 2, Rules 1, 2, 5 and 6* (Sept. 26, 2012), at p. 64.)

[47] *See* BAAQMD Reg. 2-2-221 (definition of "Offsets"). Under subsection 221.2, the "offsets" that must be provided under Sections 2-2-302 and 2-2-303 are defined to include banked credits from adjacent districts—provided that the applicant demonstrates that the requirements of CAA Section 173(c)(1) and Health & Safety Code Section 40709.6 are satisfied (or are not applicable).

[48] Clean Air Act § 173(c)(1), 42 U.S.C. § 7503(c)(1); *see also* Health & Saf. Code § 40709.6 for additional requirements.

[49] BAAQMD Reg. 2-2-302.1.1.

[50] BAAQMD Reg. 2-2-302.1.2. If a parent company holds banked credits at one facility within the District, it is required to use those credits to satisfy offsets requirements at other facilities it owns within the District. If the parent company has access to banked credits in this manner, it cannot take advantage of the Small Facility Banking Account. (*Ibid.; see also* BAAQMD Engineering Division Policy, *Clarification Regarding Provider of Emission Reduction Credits/Offsets* (Dec. 31, 2004).)

[51] BAAQMD Reg. 2-2-302.1.3.

[52] BAAQMD Reg. 2-2-302.2. The reimbursement of credits previously provided from the Small Facility Banking Account is done at a 1:1 ratio, whereas the provision of new credits for any new cumulative that has not been offset is done at a 1.15:1 ratio. For example, consider a facility that has an existing PTE for NOx of exactly 35 tpy, which has been offset by 35 tpy of credits from the Small Facility Banking Account. If the facility intends to make a modification that will increase its NOx PTE by an additional 5 tpy, it will have to reimburse the Small Facility Banking Account at a 1:1 ratio by providing 35 tpy of NOx credits (subsection 302.2.1); and then it will have to offset the new increase from the modification at a 1.15:1 ratio by providing an additional 5.75 tpy of NOx credits (subsection 302.2.2).

[53] BAAQMD Reg. 2-2-302.3.

[54] The emission reduction credit calculation procedures in Section 2-2-605 apply for calculating the amount of the emission reductions generated under this approach, just as they would for any other emission reduction credits. Since offsets have been provided for the sources being addressed in this scenario, in many cases the provision for "Fully Offset Sources" in Section 2-2-605.2 may apply, and the facility may be eligible for credit for the full amount of the reduction from the originally permitted emission limits, even if the sources' baseline actual emissions are below that level.

[55] Earlier versions of Regulation 2, Rule 2 allowed for limited inter-pollutant trading, for example by providing POC credits to offset NOx increases. These provisions were eliminated in the 2012 revisions, with the exception of PM_{10}.

[56] "Net air quality benefit" is defined in Section 2-2-219 to mean "[a] net improvement in air quality as determined by the APCO resulting from emission reduction credits impacting the same general area affected by the new or modified source and which will be consistent with reasonable further progress towards attainment of the applicable air quality standard."

[57] BAAQMD Reg. 2-2-303.3.

[58] BAAQMD Reg. 2-2-411.1.

[59] BAAQMD Reg. 2-2-411.2.

5

Chapter 5: Prevention of Significant Deterioration (PSD)

The third main substantive element of the Air District's New Source Review program is the Prevention of Significant Deterioration (PSD) element. Prevention of Significant Deterioration is the element of the NSR program that is aimed at pollutants for which the Bay Area is in attainment of applicable ambient air quality standards. Attainment of the air quality standards for these pollutants means that there is less urgency to address them from a regulatory perspective, compared to pollutants for which the Bay Area is not in attainment. Attainment does not mean that the Bay Area can ignore these pollutants, however. If emissions of attainment pollutants are allowed to grow unchecked, the region could fall out of attainment and find itself facing serious air pollution problems. The PSD program aims to prevent that from happening—hence the name "Prevention of Significant Deterioration." This chapter provides an overview of the regulatory requirements that make up the Air District's PSD program.

I. Incorporation by Reference of Federal PSD Program Requirements

The PSD permitting program has its genesis in the federal Clean Air Act, which provides for states to adopt their own PSD regulations, but also allows states to decline to adopt their own programs and have EPA implement the federal PSD program instead. Many states have opted

for the latter approach (including much of California), leaving it to EPA to implement the PSD program through EPA's own regulations. As a result, EPA has developed a comprehensive and effective federal program of PSD regulation.

The District's PSD regulations take advantage of this situation by incorporating by reference many of the details of EPA's PSD program. The District's regulations do so by (i) defining the universe of "PSD Pollutants" (in Section 2-2-223) and "PSD Projects" (in Section 2-2-224) that are subject to the PSD requirements; and then (ii) requiring each "PSD Project" to implement each of the substantive requirements of the PSD program for each "PSD Pollutant" they emit, using the approach that EPA uses under its federal PSD regulations. For each substantive requirement, the District's regulation states that the PSD Project must implement that requirement, and then it incorporates by reference the specific details of how the requirement must be implemented from the federal regulations. In this way, the District's regulations create a District-specific PSD regulatory program in Regulation 2, Rule 2, but one that takes advantage of the wealth of implementation guidance that EPA has developed in its federal program over nearly four decades of experience. This approach also means that anyone who has experience with the federal PSD regulations in Title 40 of the Code of Federal Regulations will have an easier time familiarizing themselves with the District's PSD provisions in Regulation 2-2.

In a nutshell, Regulation 2-2 implements the substantive PSD requirements in the Bay Area as follows:

- **PSD BACT:** Section 2-2-304 requires that PSD Projects must use the "Best Available Control Technology" (BACT) to control emissions of the pollutants that are subject to PSD review. Section 2-2-304 provides that this PSD BACT requirement will be implemented according to the federal PSD BACT requirements set forth in 40 C.F.R. Section 52.21(j). (Note that the federal PSD BACT standard is less stringent than the District's "California BACT" requirement in Section 2-2-301, as discussed in more detail below.)

- **PSD Source Impact Analysis:** Section 2-2-305 requires PSD Projects to demonstrate that they will not cause or contribute to a violation of (i) any applicable ambient air quality standard or (ii) any PSD "Increment" (which is a measure of the amount of deterioration in air quality that is allowed before it is considered "significant"). Section 2-2-305 provides that this Source Impact Analysis requirement will be implemented according to the federal PSD Source Impact Analysis requirements set forth in 40 C.F.R. Sections 52.21(k)-(m).

- **PSD Additional Impacts Analysis:** Section 2-2-306 requires PSD Projects to prepare an analysis of any impacts to visibility, soils and vegetation that will occur as a result of the project and any commercial, residential, industrial or other growth associated with the project. Section 2-2-306 provides that this Additional Impacts Analysis requirement will be implemented according to the federal PSD Additional Impacts Analysis requirements set forth in 40 C.F.R. Section 52.21(o).

- **Class I Area Impacts Analysis:** Section 2-2-307 requires PSD Projects to demonstrate that their emissions will not adversely impact any "Air Quality Related Values" in any Class I Areas, which include national parks and similarly pristine areas. The primary responsibility for protecting Class I Areas lies with the Federal Land Manager for each Class I Area, and the Federal Land Managers typically require the Class I Area Impact Analysis to be undertaken according to the federal PSD Class I Area Impact Analysis requirements set forth in 40 C.F.R. Section 52.21(p). (Note that the Class I Area Impact Analysis is also required as part of the Clean Air Act's Nonattainment NSR program, and so it applies to certain other types of projects under the Air District's NSR Rule, not just to PSD Projects.[1] As this requirement has broader applicability than just the PSD Program, it is addressed separately in Chapter 6.)

Given this structure of the District's PSD regulations, in order to understand how PSD requirements apply to facilities in the Bay Area, one must be familiar with the PSD-related provisions of the District's regulations *and* with the relevant provisions of EPA's PSD program that the District's regulations incorporate by reference. The subsequent sections of this chapter discuss all of these provisions in more detail.

Before moving on, however, it is important to note the legal basis for the Air District's PSD provisions. Although these provisions incorporate aspects of the federal PSD program by reference, they are not federal requirements. They are Air District regulatory requirements that are implemented and enforced under California law, as they were adopted by the District's Board of Directors using authority granted to it by the California legislature through the Health & Safety Code. Their ultimate constitutional authority derives from the State's police power under the California Constitution, not from the federal Interstate Commerce Clause in the United States Constitution, which is the ultimate source of authority for EPA's federal PSD program in the Code of Federal Regulations.

The Air District's state-law PSD regulations are primarily enforceable by the District in state court, although they are also enforceable in federal court under Sections 113 and 304 of the federal Clean Air Act because they have been approved by EPA as part of the California State Implementation Plan (SIP). But the reason they are enforceable in federal court is not because they are federal regulations. They are federally enforceable because the Clean Air Act created a legal mechanism for the federal courts to hear cases involving violations of state regulations that have been approved by EPA into the SIP, even though they are still only state regulations. SIP approval and the resulting federal enforceability does not change the fundamental character of the District's regulations as state-law requirements adopted under the Health and Safety Code.

II. Pollutants Subject to the PSD Requirements

The PSD provisions of Regulation 2-2 apply to "PSD Pollutants" as defined in Section 2-2-223. Section 2-2-223 provides that PSD Pollutants are all "Regulated NSR Pollutants" as defined in 40 C.F.R. Section 55.21(b)(50), except for pollutants for which the Bay Area is designated as

nonattainment of a California or National Ambient Air Quality Standard. This is a broad definition that includes a wide range of air pollutants, but it excludes NOx, VOC, and $PM_{2.5}$, which are nonattainment pollutants (or precursors to the formation of nonattainment pollutants);[2] and hazardous air pollutants listed under Section 112(b) of the Clean Air Act.[3]

"PSD Pollutant" includes greenhouse gases to the extent that they are emitted in an amount over 75,000 tpy CO_2e from a facility that exceeds the 100/250 tpy federal PSD "major" facility threshold for some other "Regulated NSR Pollutant."[4] This means that a facility cannot become subject to the PSD requirements based solely on its greenhouse gas emissions. But if the facility is over the "major" facility threshold for some other PSD Pollutant, then it will be subject to the PSD requirements for its greenhouse gas emissions if there will be an increase in GHG emissions of 75,000 tpy CO_2e or more.[5]

In addition, the "PSD Pollutant" definition in Section 2-2-223 provides that if a pollutant is subject to both National Ambient Air Quality Standards (NAAQS) and California ambient air quality standards, and the Bay Area is attainment (or unclassifiable) for one standard and nonattainment for the other, then the pollutant is a "PSD Pollutant" only with respect to the standard for which the Bay Area is ***not*** nonattainment. This provision is primarily relevant to the District's PSD Source Impact Analysis requirement in Section 2-2-305, which goes beyond the federal PSD program's requirement to evaluate whether a project will cause or contribute to a violation of the federal NAAQS, and requires an evaluation of whether the project will cause or contribute to a violation of the California ambient air quality standards as well. If the region is already nonattainment for a California standard, it does not make sense to require an analysis to see whether the standard will be exceeded. This provision would exempt the pollutant from the requirement to evaluate the California standard by excluding it from being a "PSD Pollutant" with respect to the California standard. If the Bay Area is attainment (or unclassifiable) with respect to the federal NAAQS, however, the pollutant will still be a "PSD Pollutant" with respect to that standard, and the Source Impact Analysis will still be required for that standard.[6]

Finally, if the Bay Area is designated as nonattainment of a standard for one averaging time, then that pollutant is excluded from the "PSD Pollutant" definition even if the region is attainment (or unclassifiable) for another standard for that same pollutant for a different averaging time. This is sometimes referred to as a "split" attainment designation, and in such cases the pollutant is treated as a nonattainment pollutant and not subject to PSD requirements. For $PM_{2.5}$, for example, the District is nonattainment for the 24-hour-average NAAQS but unclassifiable for the annual-average NAAQS.[7] $PM_{2.5}$ is therefore excluded from the definition of "PSD Pollutant" for all purposes, notwithstanding the classification for the annual-average standard.[8] (Note that PSD still applies for PM_{10}, however, as the Bay Area is designated as unclassifiable for PM_{10}.)

III. Applicability of PSD Requirements to "PSD Projects"

Whether the PSD Requirements in Sections 2-2-304 through 2-2-307 apply to an application for an authority to construct depends on whether the new/modified source(s) that are the subject

of the application constitute a "PSD Project." The opening words of each of these substantive PSD requirements refer to an "authority to construct for a PSD Project," and so an application is subject to them if and only if it is for a PSD Project. The term "PSD Project" is therefore the key applicability test for Regulation 2, Rule 2's PSD requirements.

"PSD Project" is defined in Section 2-2-224. The definition creates a 3-part applicability test for the PSD requirements. It defines "PSD Project" as a new or modified source of emissions of any PSD Pollutant (or a combination of such sources that are part of a single common project) that:

*(i) Is located at a **"major"** PSD facility (i.e., a facility with a potential emit any PSD Pollutant in an amount over the 100/250 tpy "major" PSD applicability threshold);*

*(ii) Will result in a **"significant increase"** in emissions of any PSD Pollutant (i.e., an increase in emissions of any PSD Pollutant in an amount that exceeds the NSR "significance" thresholds in Section 2-2-227.1); and*

*(iii) Will result in a **"significant net increase"** in emissions (i.e., the net emissions increase is still above the significance thresholds when prior increases and decreases at the facility within the past 5 years are taken into account).*

Each of the elements of this "PSD Project" definition is described in more detail below.

Note that this 3-part "PSD Project" applicability test is similar to the 3-part "Federal Backstop" test for determining whether a change being implemented at a source is a "modification" under Section 2-1-234.2, which is discussed above in Chapter 2 (*see* Section II.B.2.). It is important to keep these concepts distinct, however, because they play very different roles in NSR permitting. The "Federal Backstop" test is used in determining whether a change at a source needs to go through NSR permitting in the first place as a "new or modified source." If the change does not constitute a "modification," then it is not subject to NSR at all under Regulation 2-2, and questions about what specific NSR requirements apply do not even come into play. If the change does constitute a "modification" under Section 2-1-234, however, one needs to turn Regulation 2, Rule 2 and consider which NSR requirements in that Rule apply to the modification. This is where the "PSD Project" definition becomes relevant: if the modification is a "PSD Project" as defined in Section 2-2-224, then it will be subject to the PSD requirements in Section 2-2-304 through 2-2-307, as applicable.

Moreover, although this "PSD Project" test under Section 2-2-224 is similar to the "Federal Backstop" test in some ways, it also has certain differences that need to be kept in mind. For example, the Federal Backstop test uses the NSR Reform "actual-to-projected-actual" emissions increase calculation methodology, whereas the District's "PSD Project" test uses the pre-NSR Reform "actual-to-potential" methodology. The Federal Backstop test also uses a different time

period to calculate a source's baseline emissions. And a number of important terms are defined somewhat differently, such as "new source" (which includes existing sources less than two years old under the federal regulations, but means only a truly new source under the Air District's regulations) and "contemporaneous" (which stretches back five years from commencement of construction under the federal regulations, but five years from the date of the complete application under the Air District's regulations). Care should therefore be taken to understand the conceptual differences between the "Federal Backstop" test and the "PSD Project" test, and the details of how they are applied under the specific regulatory language of each one, in undertaking any permitting analysis.

The following sections outline each of the elements of the "PSD Project" definition in detail.

A. Major PSD Facility

The PSD requirements apply only at facilities over the 100/250 tpy PSD "major" facility threshold. This is the first element of the "PSD Project" definition, set forth in Section 2-2-224.1.[9] For facilities that are in one of the 28 listed NSR facility categories, the facility is "major" if it has a potential to emit of 100 tpy or more of any PSD Pollutant (including fugitive emissions).[10] For facilities that are *not* in any of the listed categories, the facility is "major" if it has a potential to emit of 250 tpy or more of any PSD Pollutant (and fugitives are not counted towards the threshold for these facilities).[11]

The facility's "major" status is determined at the time of the permit application for the project being permitted, using the facility's pre-project potential to emit. Thus, if the facility has a PTE under the 100/250 tpy "major" facility threshold before the project is implemented it will not be subject to PSD requirements, even if the result of the project will be to push the facility's PTE over the threshold.[12] The one exception applies where the project itself will be of sufficient magnitude that it would constitute a "PSD Project" all by itself, apart from the fact that it is not being implemented at a "major" facility. In that event, the project is a "PSD Project" and subject to the PSD requirements.[13]

Note also that greenhouse gases are not evaluated for purposes of determining whether the facility is over the 100/250 tpy PSD major facility threshold under the first element of the "PSD Project" definition. As noted above, greenhouse gases are a "PSD Pollutant" regulated under the Air District's PSD provisions only to the extent that they are emitted from a facility that exceeds the "major" facility threshold for some other PSD Pollutant.[14] As a result, GHG emissions cannot make a facility subject to the PSD provisions in Regulation 2-2 where the facility is below the "major" facility thresholds for all PSD other pollutants. If the facility is "major" for another pollutant, however, GHG emissions are evaluated in determining whether there is an "significant increase" and "significant net increase" in PSD Pollutant emissions at the second and third steps of the "PSD Project" applicability test.

B. Significant Increase In Emissions

If the project is being constructed at a facility with a PTE over the applicable 100/250 tpy "major" facility threshold under Section 2-2-224.1, the second element of the "PSD Project" test is whether the emissions increase associated with the project will be "significant" under Section 2-2-224.2. Applying this element involves determining the amount of the emissions increase that will result from the project under the calculation procedure outlined in Section 2-2-604, and then comparing the increase with the NSR "significance" thresholds set forth in Section 2-2-227.1 to establish whether the increase will be "significant."[15]

1. Determining the Project's Emissions Increase

The emission increase calculation procedure applicable to Air District regulatory provisions such as Section 2-2-224.2 is the procedure set forth in Section 2-2-604. It uses an "actual-to-potential" methodology (with one minor exception involving greenhouse gases as explained below). This means that the amount of the increase is based on the difference between (i) the source's *actual emissions* during a specified baseline period before the modification is implemented (adjusted to reflect current regulatory standards); and (ii) the source's *maximum potential emissions* in the future after the modification is implemented. The procedure is as follows:

For a ***new source,*** the calculation is easy because the source's emissions before it is built are zero by definition.[16] The increase associated with the new source is simply the source's full potential to emit once it is built.[17]

For a ***modification to an existing source,*** the calculation is more complicated. To determine the increase associated with a modification, the source's "Baseline Emissions Rate" must be established using data on actual emissions and throughput during the applicable baseline period, and then any necessary "surplus" adjustment must be applied to determine the source's "Adjusted Baseline Emissions Rate." This Adjusted Baseline Emissions Rate is then multiplied by the source's average annual throughput during the baseline period to obtain the source's Adjusted Baseline Emissions in tons per year. These procedures are set forth in Section 2-2-603.[18] The increase associated with the modification is the difference between the Adjusted Baseline Emissions for the source prior to the modification and the new PTE of the source after the modification. The following discussion walks through each of these steps in detail.

Note also that this part of the analysis does include GHG emissions. As outlined above, once a facility is determined to exceed the 100/250 tpy PSD "major" facility threshold for some *other* PSD Pollutant besides GHGs, GHGs are included in determining whether there is a significant net increase in emissions of any PSD Pollutants as a result of the project under review.[19] The Air District's PSD provisions will apply for GHG emissions if the emissions increase from the project under review (and the net emissions increase, as addressed in the next section) is 75,000 tpy CO_2e or more.[20]

a) Establishing the Baseline Emissions Rate

The first step in calculating the emissions increase from a project is to determine the "Baseline Emissions Rate" for each source and each PSD Pollutant involved. The Baseline Emissions Rate is the average rate of emissions per unit of throughput during the applicable baseline period.[21] The applicable baseline period is determined as follows:

- For ***all pollutants other than GHGs,*** the baseline period is the three-year period immediately preceding the date on which the application for the authority to construct for the modified source was complete.[22]

- For ***GHGs,*** there is a special rule that more closely follows EPA's federal model. The baseline period for calculating the Baseline Emissions Rate for a source's GHG emissions is determined as follows:

  - For GHG emissions from an ***existing source that has been operating for less than 24 months*** (as of the date of the complete application), the baseline emissions and adjusted baseline emissions are the source's full potential to emit.[23] In this case, there is no need to adjust the baseline emissions to reflect current regulatory standards. The emissions increase associated with such a source will be the difference between the source's PTE before the project is implemented and its new PTE after the project is implemented.

  - For GHG emissions from an ***existing source that has been operating for 24 months or more*** (as of the date of the complete application), there are two separate rules depending on whether the source is an Electric Utility Steam Generating Unit (EUSGU) or not.[24]

    - For ***EUSGUs,*** the baseline period is any 24-month period (selected by the applicant) within the 5 years immediately preceding the date on which the application for the authority to construct was complete, or another time period that the District determines is more representative of normal operation of the source. If the project involves multiple sources, the same 24-month baseline period must be used for all sources.[25]

    - For ***all sources other than EUSGUs,*** the baseline period is any 24-month period (selected by the applicant) within the 10 years immediately preceding the date on which the application for the authority to construct was complete. If the project involves multiple sources, the same 24-month baseline period must be used for all sources.[26]

When the applicable baseline period has been established for a given pollutant from a given source, the Baseline Emissions Rate can be determined for the emissions of that pollutant from

that source. The Baseline Emissions Rate is measured in emissions per unit of throughput, which is obtained by dividing (i) the source's actual emissions during the baseline period by (ii) the source's throughput during the baseline period.[27] The source's emissions should be based actual emissions data obtained through monitoring, if available. If not, operational data coupled with an appropriate emission factor may be used. The source's throughput should be based on the source's operational parameter that most closely correlates with the source's emissions (*e.g.,* amount of feedstock consumed, amount of fuel burned, amount of output produced, *etc.*). If the emissions or throughput during the baseline period exceeded a permit or other regulatory limit, any excess is excluded from the calculation. In addition, the applicant can take credit for baseline emissions or throughput only to the extent that it has sufficient verifiable records. If the applicant does not have sufficient verifiable records to substantiate emissions or throughput for any portion of the baseline period, it cannot take credit for any baseline emissions during that portion.[28]

b) Establishing the Adjusted Baseline Emissions Rate

Once the Baseline Emissions Rate has been established, a "surplus" adjustment needs to be applied to ensure that emissions are reflected in the baseline only to the extent that they would be allowed by current regulatory standards.[29] This adjustment requirement applies to all sources except for EUSGUs.[30]

To apply this "surplus" adjustment, the Baseline Emissions Rate is adjusted downward as necessary to reflect the most stringent regulatory standards currently in effect. If any such standard would have restricted the source's emissions rate (*i.e.,* emissions per unit of throughput) below what it actually was, then the emissions rate must be adjusted downwards to a level that conforms to the standard.[31] This is the source's Adjusted Baseline Emissions Rate, expressed as the source's emissions per unit of throughput under current regulatory standards.

c) Establishing the Adjusted Baseline Emissions

Once the Adjusted Baseline Emissions Rate is calculated, it is then multiplied back up by the source's average annual throughput during the baseline period. This normalization calculation provides a "surplus"-adjusted total annual emissions number, which is the source's Adjusted Baseline Emissions.[32]

d) Calculating the Emissions Increase from the Modification

The final step is to determine the emissions increase that will result from the modification to the source based on the Adjusted Baseline Emissions. The increase at the source as a result of the modification is the difference between (i) the Adjusted Baseline Emissions before the modification, and (ii) the new PTE that the source will have after the modification.[33] (Again, this is an "actual-to-potential" test for determining whether a modification is a "PSD Project" subject

to the District's PSD requirements in Sections 2-2-304 through 2-2-307. It does ***not*** use the NSR Reform "actual-to-projected-actual" calculation methodology that is incorporated by reference into the "Federal Backstop" element of the "modification" definition in Section 2-1-234.2.)

For projects involving multiple sources, the emissions increases associated with each source must be added together to obtain the total project emissions increase. Only emissions *increases* are included in this calculation; any emissions decreases that will occur at any sources involved in the project are not taken into account at this stage in the analysis.[34] Enforceable emissions decreases associated with the project are included in the third stage of the analysis, where the net emissions increase is evaluated taking into account all contemporaneous, creditable increases and decreases at the facility.

2. Comparing the Project's Increase With the NSR "Significance" Thresholds

Once the total project emissions increase has been calculated, it must be compared with the NSR "significance" levels set forth in Section 2-2-227.[35] These significance thresholds are shown in Table 5-1.[36]

Table 5-1: NSR Significance Thresholds

Pollutant	Significant Emissions Rate	
	kg/yr	ton/yr
Carbon monoxide	90,500	100
Nitrogen dioxide	36,200	40
Sulfur dioxide	36,200	40
PM_{10}	13,575	15
GHGs*	67,875,000	75,000
Lead	530	0.6
Fluorides	2720	3
Sulfuric Acid Mist	6350	7
Hydrogen Sulfide	9050	10
Total Reduced Sulfur	9050	10
Reduced Sulfur Compounds	9050	10
Municipal waste combustor organics	3.2×10^{-3}	3.5×10^{-6}
Municipal waste combustor metals	13,575	15
Municipal waste combustor acid gases	36,200	40
Municipal solid waste landfill emissions	45,250	50
*GHG emissions are measured as CO_2e		
Source: BAAQMD Reg. 2-2-227		

If the modification will result in an increase in emissions of any of these pollutants in an amount equal to or greater than the value listed in the table, then it is "significant" for purposes of Section 2-2-224.2.[37] For any PSD Pollutant that does not have a significance threshold listed in the table, the significance level is zero.[38] For such pollutants, any increase at all is "significant" for purposes of Section 2-2-224.2.

Finally, for sources located within 10 km of a Class I Area, an increase in emissions will be "significant" if it will result in an increase in the concentration of that pollutant in the ambient air within the Class I Area by 1 µg/m3 or more (averaged over 24 hours).[39] This element of the "significance" threshold could potentially require modeling of air quality impacts up-front in order to determine whether the PSD requirements apply to a project in the first place. In reality, however, it is highly unlikely that this provision will ever be applicable for most projects. There is only one Class I Area located within the Air District's jurisdictional boundaries (or within 10 km of those boundaries), the Point Reyes National Seashore in western Marin County. The land use within 10 km of the Point Reyes National Seashore is primarily rural and agricultural, and so it is highly unlikely that there would ever be a major facility sited within that area that would implicate any consideration of whether an emissions increase from a project was "significant" under Section 2-2-227.

C. Significant Net Increase In Emissions

If a project at a major facility will result in a significant increase in a PSD Pollutant, the third element of the "PSD Project" definition is whether there will be a significant ***net*** emissions increase when other increases and decreases from related projects within the 5-year "contemporaneous" window are taken into account.[40] If there are sufficient contemporaneous decreases at the facility to bring the net emissions increase below the significance thresholds, a project can avoid being a "PSD Project" and will not be subject to the PSD requirements in Sections 2-2-304 through 2-2-307. The analysis under this element of the "PSD Project" definition is referred to as "netting," and a project that avoids PSD review in this manner is said to "net out" of the PSD requirements.

The term "net emissions increase" as used in this analysis is defined in Section 2-2-220. A project's net emissions increase is the emissions increase that will result from the project, plus any other creditable, contemporaneous emissions increases at the facility, minus any other creditable, contemporaneous emissions decreases at the facility.[41] The netting analysis therefore requires (i) determining what emissions increases at the facility are "creditable" and "contemporaneous" and calculating the amount of such increases; (ii) determining what emissions decreases at the facility are "creditable" and "contemporaneous" and calculating the amount of such decreases; and (iii) adding all of the creditable, contemporaneous increases and decreases together, along with the increase from the project being permitted, to determine whether there is a significant net increase.

1. Identifying Creditable, Contemporaneous Emissions Increases and Decreases to be Used for Netting

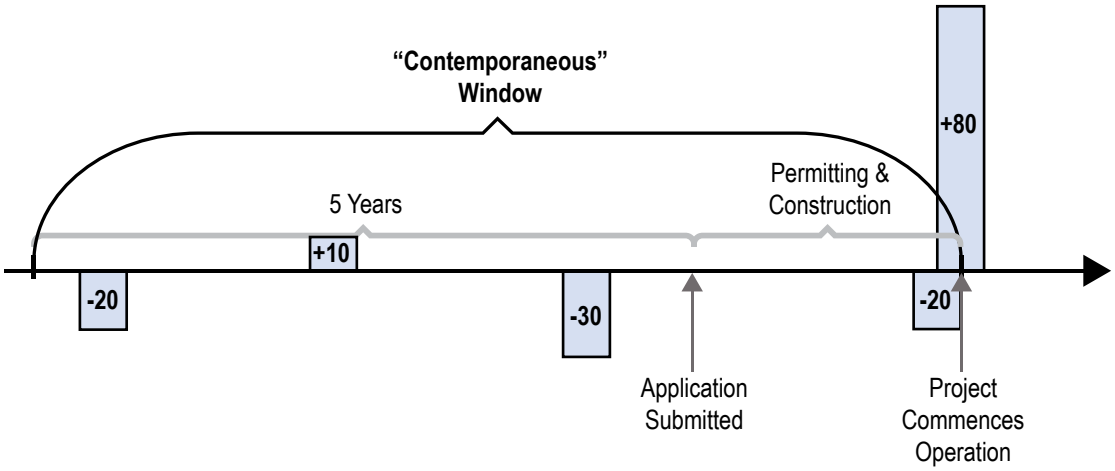
The facility's permitting and operational history must be reviewed to identify all creditable, contemporaneous emissions increases and decreases for inclusion in the netting analysis.

Emissions increases that are counted in the netting analysis are generally those that result from a physical change or change in the method of operation of a source that causes it to increase its emissions. Simply increasing the source's hours of operation or utilization factor does not count as an increase in emissions (unless it requires a change in permit conditions). In nearly every case, such changes will be "modifications" as defined in Section 2-1-234 that will have been subject to the NSR permitting requirements in Regulation 2-2. It is possible, however, that there will be some physical changes or changes in method of operation that need to be counted that do not constitute "modifications" under Section 2-1-234. This situation could arise if a physical change or change in method of operation does not result in any increase in the facility's maximum potential emissions (PTE), so it is not a modification under the District's historical modification test as specified in Subsection 2-1-234.1; and it results in an increase in the facility's actual emissions, but at a level below the NSR significance thresholds, meaning that it is not a modification under the Federal Backstop test in Subsection 2-1-234.2 either. In such a case, the change must be evaluated as part of the netting analysis (assuming it is "contemporaneous" and "creditable").[42]

Emissions decreases that are counted in the netting analysis similarly arise from a physical change or change in the method of operation of a source that results in a permanent, enforceable reduction in emissions. For example, a facility may shut down a source such that it will no longer have any emissions. Alternatively, a facility may take a lower permit limit on emissions from a source and reduce emissions that way. Either way, an emissions decrease may be used for netting purposes only to the extent that it is real, permanent, quantifiable, "surplus" (*i.e.*, in excess of reductions required by applicable regulatory requirements), and legally enforceable.[43]

"Contemporaneous" is defined in Section 2-2-206. Emissions increases and decreases are "contemporaneous" if they (i) occurred within the 5 years immediately preceding the complete application for the authority to construct for the current project under review; or (ii) will occur by the time the current project begins operating (or for replacement units, within 90 days after it begins operating).[44] This is the same definition of "contemporaneous" that is used for purposes of applying the offsets requirements in Sections 2-2-302 and 2-2-303 (*see* Chapter 4, Section II). It is slightly different from the contemporaneous period used for netting under the Federal Backstop test for NSR applicability, however, which uses a contemporaneous period of five years preceding the *commencement of construction,* not the date of the complete permit application. Figure 5-1 below shows an example of how the contemporaneous period applies in the "PSD Project" netting context under Section 2-2-224.3.

Figure 5-1: Determining What Emissions Increases and Decreases are "Contemporaneous" For Purposes of Netting Under Section 2-2-223.3



- Increases and decreases are "contemporaneous" if they occur during the period from 5 years before the date of the complete application through initial operation of the project (or, for shutdown of a source being replaced by a "replacement unit," 90 days after initial operation).

- The project illustrated here will increase emissions by 80 tpy. The contemporaneous increases and decreases included in the netting analysis are (i) two decreases and one increase that occurred before the complete application for the current project was submitted, but within 5 years before that date (-20 tpy, +10 tpy, and -30 tpy); and (ii) another decrease that will occur at the time the current project becomes operational.

- Assuming all of these increases and decreases are "creditable," the net emissions increase for purposes of determining whether the current project being permitted is a "PSD Project" is 20 tpy: an 80 tpy increase that will result from the project, plus 10 tpy from the prior contemporaneous increase, minus 70 tpy from the three contemporaneous decreases (-20, -30, -20).

Increases and decreases are ***"creditable"*** if they have not previously been relied on in issuing a PSD permit, either by EPA in issuing a federal PSD Permit under 40 C.F.R. Section 52.21 (or by the District issuing a federal PSD permit on EPA's behalf under a delegation agreement), or by the District in issuing an authority to construct under Regulation 2, Rule 2 that was subject to the PSD requirements in Sections 2-2-304 through 2-2-307.[45] When such a permit is issued, the permitting authority will conduct an analysis of the impacts of the facility's emissions, and

that analysis will reflect emissions increases and decreases that have occurred as a result of recent projects at the facility. If prior increases and decreases are taken into account in such a PSD analysis, they are no longer "creditable" for purposes of future PSD netting analyses (as long as the permit for which the analysis was undertaken is still in effect).[46] Such increases and decreases are not included in the netting analysis for any subsequent permit applications.

2. Calculating the Amount of Creditable, Contemporaneous Emissions Increases and Decreases

Once the creditable, contemporaneous emissions increases and decreases have been identified for use in the netting analysis, the amount of each increase and decrease must be calculated. The calculation uses the "actual-to-potential" methodology set forth in Section 2-2-604, incorporating the baseline emissions calculation procedures in Section 2-2-603.

For ***emissions increases,*** most contemporaneous emissions increases will be associated with a prior modification that went through the NSR permitting process, as discussed above. For those increases, the baseline emissions are calculated based on the 3-year period immediately preceding the date on which the associated NSR permit application (the application for the authority to construct/permit to operate for the modification) was determined to be complete.[47] For any increases that were not "modifications" and did not go through NSR permitting,[48] the baseline emissions are calculated based on the 3-year period immediately preceding the date that the physical change or change in method of operation that generated the increase was first implemented.[49] For both types of increase, the source's Adjusted Baseline Emissions are calculated based on the 3-year period immediately preceding the applicable baseline period ending date (except for greenhouse gases, which use a different time period as discussed below).[50] The amount of the emissions increase is then determined by subtracting the Adjusted Baseline Emissions from the new maximum Potential to Emit (PTE) after the change that generated the emissions increase was implemented.[51] The specifics of how the Adjusted Baseline Emissions are calculated using the relevant baseline period are the same as for determining the increase associated with the current project being permitted, which are discussed in detail in Section III.B.1. above.

For ***emissions decreases,*** the process is similar. The baseline period ending date is the date that the reductions became enforceable, which is the date of permit issuance (or other applicable effective date) for reductions that were made enforceable through permit conditions, or the date a source was shut down and permanently removed from service for shutdowns that were not implemented in connection with any permit conditions.[52] The baseline period is the 3-year period immediately preceding the baseline period ending date (except for greenhouse gases, which again use a different time period as discussed below).[53] The Baseline Emissions Rate, Adjusted Baseline Emissions Rate, and Adjusted Baseline Emissions are calculated based on the actual average throughput and actual average emissions during the applicable baseline period,[54] and the amount of the emissions decrease is then be calculated by subtracting the new PTE after the reduction is implemented from the Adjusted Baseline Emissions.[55]

For calculating the amount of ***greenhouse gas increases or decreases,*** a different baseline period applies, depending on what type of source is involved and how long it has been operating. If the source has been operating for less than 24 months before the date that the permit application is determined to be complete, the baseline emissions are the source's full PTE at the time of the application.[56] (This rule effectively results in a potential-to-potential increase test for such sources.) If the source has been operating for 24 months or longer before the completeness date of the current application, the baseline period is any 24-month period from within the past 10 years preceding the applicable baseline period ending date (or from within the past 5 years for Electric Utility Steam Generating Units as defined in 40 C.F.R. Section 51.166(b)(30), unless the APCO determines that some other time period is more representative of normal source operation).[57] Once the baseline period is established under these special rules, all of the other procedures for evaluating the Adjusted Baseline Emissions that apply for other pollutants apply for greenhouse gas emissions as well. The source's Adjusted Baseline Emissions are calculated as provided in Section 2-2-603.3 through 2-2-603.7, and then the Adjusted Baseline Emissions are compared to the source's new maximum PTE after the increase or decrease is implemented to calculate the amount of the increase or decrease, as set forth in Section 2-2-604.

Note that some cases, the applicable baseline period ending date for calculating the amount of a "contemporaneous" emissions increase or decrease may be in the future. That is, there may be "contemporaneous" emissions increases or decreases that an applicant wants to use in the "PSD Project" netting analysis that will not be implemented until after the netting analysis is undertaken. This is allowed under the "contemporaneous" concept, as the "contemporaneous" period extends into the future up until the time the project under review commences operation. But if the baseline period for such increases or decreases is tied to the future date on which the increase or decrease will be implemented, then a portion of the baseline period will include future emissions that are not yet known at the time of the netting analysis. In such cases, the Baseline Emissions and Adjusted Baseline Emissions calculations should look to available actual emissions data to project a representative estimate of what the source's emissions will be during the interim period between the date of the current permit application and the date the increase or decrease is actually implemented. The most representative actual emissions data existing at the time of the application should be used to calculate what the source's emissions will be during this interim period. In most cases, this will simply entail using the 3-year period of actual emissions immediately preceding the complete application date.

3. Performing the Netting Calculation to Determine Whether the Net Emissions Increase is Significant

Once all of the creditable and contemporaneous emissions increases and decreases have been identified and quantified, the final step is to calculate the net emissions increase. As provided in Section 2-2-220, the net emissions increase is the sum of (i) the emissions increase associated with the project (as calculated in the second step of the "PSD Project" applicability analysis); plus (ii) any other creditable emissions increases within the contemporaneous period; minus (iii) any creditable emissions decreases within the contemporaneous period. When this number is

calculated, it is compared with the applicable NSR "significance" threshold in Section 2-2-227 to determine if there has been a "net emissions increase" that exceeds the thresholds for any PSD Pollutant.

If the project's net emissions increase is less than the applicable NSR significance threshold, then the project does not fall within Section 2-2-224.3 and it does not qualify as a "PSD Project." In that case, the project has "netted out" of PSD, and the PSD requirements do not apply to it.

If the project's net emissions increase still exceeds any of the applicable significance thresholds for any PSD Pollutants, then the project is a "PSD Project" and it must comply with the PSD requirements in Sections 2-2-304 through 2-2-307. These respective PSD requirements are discussed in more detail in the following sections of this chapter.

IV. The PSD BACT Requirement

Projects that fall within the "PSD Project" definition in Section 2-2-224 are subject to the PSD BACT requirement in Section 2-2-304. Section 2-2-304 provides than an authority to construct issued for a PSD Project must require federal PSD "Best Available Control Technology," as defined in the Clean Air Act and EPA's PSD regulations in 40 C.F.R. Section 52.21(j). By referencing the federal BACT regulations in this manner, the Air District's provisions incorporate the substance of the federal BACT requirements and import them into the District's own NSR permitting program. The result is that Section 2-2-304 requires PSD BACT to be applied in exactly the same manner as EPA would apply it if EPA were issuing a federal PSD permit under 40 C.F.R. Section 52.21. This federal PSD BACT standard is different from the Air District's own BACT standard applicable under Section 2-2-301 (and defined in Section 2-2-202) in a number of respects. Most notably, it incorporates a cost-effectiveness requirement in all cases, even where a control technology or emission limitation has been achieved in practice at other similar facilities. The mechanics of applying this federal PSD BACT standard are outlined below.

A. Applicability of the PSD BACT Requirement

Under Section 2-2-304, PSD BACT is required for each PSD Pollutant for which the project will result in a ***significant*** net emissions increase.[58] Furthermore, for each such pollutant, BACT applies to every source (emissions unit) that is part of a PSD project at which there will be ***any*** increase in emissions of that pollutant.[59]

For PSD Projects involving multiple sources (emissions units), this means that there is a two-part test for determining which specific sources are subject to BACT. The first step is to identify all of the Regulated NSR Pollutants for which the PSD Project as a whole will have a significant net increase. These pollutants should already have been identified at the PSD applicability stage in determining whether the project is a "PSD Project" under Section 2-2-224 (as discussed in Section III.C of this Chapter, above). The second step is then to determine what specific sources

will have any increase in emissions of any of those pollutants. Each source involved in the project will be required to implement federal PSD BACT for each such pollutant for which there will be any emissions increase from that source.

B. Determining PSD BACT

Section 2-2-304 requires federal PSD BACT to be applied using the BACT definition in Clean Air Act Section 169(3), which is also set forth in EPA's PSD regulations at 40 C.F.R. Section 52.21(b)(12). This definition defines federal PSD BACT as:

> [A]n emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the [Clean Air] Act which would be emitted from any proposed major stationary source or major modification which the [permitting agency], on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning, or treatment or innovative fuel combustion techniques for control of each such pollutant.[60]

This standard is similar to the District BACT standard set forth in District Regulation 2-2-202 (*see* Chapter 3) in that it is a technology-forcing standard that requires the most stringent level of emissions control that falls within the scope of this definition based on the specific circumstances of each individual project. The main important difference between the federal PSD BACT standard and the District BACT standard in Section 2-2-202 is that federal PSD BACT involves a cost-effectiveness analysis in all cases. There is no "achieved-in-practice" requirement in the federal PSD BACT standard. Even if another facility has been successfully using a control technology to limit emissions, or has been successfully meeting a given emissions limit, an identical operation does not necessarily have to use the same control technology or meet the same emissions limit if it would not be sufficiently cost-effective for that specific operation.[61]

As with the District's BACT standard in Section 2-2-202, the federal PSD BACT standard must be applied on a case-by-case basis, taking into account the specific facts and circumstances of the source being permitted. The general concept is to determine the most stringent level of control appropriate for that particular source. As EPA's Environmental Appeals Board has explained, the federal PSD BACT requirement must be applied "on a case-by-case basis, taking a careful and detailed look, attentive to the technology or methods appropriate for the particular facility, . . . to seek the result tailor-made for that facility and that pollutant."[62]

Note also that the federal NSPS standards establish a floor for the application of the federal PSD BACT standard. The federal PSD BACT definition provides that in no event shall application of PSD BACT result in emissions that would exceed a federal NSPS standard.[63]

District BACT vs. PSD BACT

The District BACT requirement in Section 2-2-301 and the PSD BACT requirement in Section 2-2-304 both use the term "BACT," but the substance of the two requirements differs in several important ways. The District BACT requirement is the more stringent, and it is equivalent to the federal "Lowest Achievable Emission Rate" (LAER) standard required for major sources of nonattainment pollutants under the federal NSR program. (It is also sometimes called "California BACT" because it is used by the California air districts in their Nonattainment NSR programs.) The principal difference is the use of a cost-effectiveness analysis. Under District BACT, if a control technology or emission standard has been achieved in practice, then all other similar sources must use it regardless of the cost. Under PSD BACT, by contrast, a source is not required to use any control device or meet any emission standard if it would not be cost-effective for that particular source (or if it would not be warranted given other ancillary adverse effects such as environmental or energy impacts). Compare the District BACT definition in Section 2-2-202 and the federal PSD BACT definition in 40 C.F.R. Section 52.21(b)(12) for further details.

1. EPA's "Top-Down" Approach to the BACT Analysis

EPA's approach to making a BACT determination for its federal PSD BACT standard is somewhat different from the approach the Air District takes to implementing District BACT under Section 2-2-301. Whereas the District's approach first determines what level of control has been "achieved in practice" at other facilities (the BACT 2 analysis) and then determines if there is any more stringent level of control that is technologically feasible and cost-effective (the BACT 1 analysis), EPA uses what it calls the "top-down" approach to determining federal PSD BACT. This "top-down" approach is described in EPA's *NSR Workshop Manual,* and it consists of five steps.[64]

In ***Step 1,*** the permitting authority will identify all "available" control technologies, which means those that have "a practical potential for application to the emissions unit and the regulated pollutant under evaluation."[65] Available control options should include not only technologies that have been applied to the same type of source as the one being evaluated, but also those that have been used on other similar types of sources that could potentially be transferred to the source under review.

The permitting agency is not required to consider any control technologies that would require the source to be redesigned in a way that would fundamentally change the nature and purpose of its intended use.[66] For example, sometimes a change to a cleaner fuel or a more efficient production process can be effective to reduce emissions, and when such approaches are available they should be evaluated in the BACT analysis. But sometimes such changes would require the source to change the way it operates so substantially that it would no longer be able to fulfill the basic purpose for which it is intended. In such cases, the control technology (*i.e.,* the cleaner fuel or more efficient production process) does not need to be included as an "available" control

technology. EPA refers to this as the ***"redesigning the source"*** doctrine, and it has been applied to exclude from consideration approaches like switching from a coal-fired electric generator to a natural-gas-fired turbine;[67] changing the design of a "peaker" power plant from a simple-cycle plant to a combined-cycle plant;[68] and requiring a coal-fired power plant at the mouth of a coal mine to switch to lower-sulfur coal from a different source, where the whole purpose of siting the plant next to the coal mine was to burn coal from that mine.[69]

Once all available control technologies have been identified at Step 1, ***Step 2*** eliminates any "technically infeasible" options.[70] This step first determines whether each technology has been "demonstrated"—*i.e.,* whether it has been installed and operated successfully at a similar facility elsewhere. If not, the permitting authority must determine whether the technology is both (i) "available," meaning that it can be obtained by the applicant through commercial channels or is otherwise available under the common meaning of that term; and (ii) "applicable," meaning that it can reasonably be installed and operated on the source under review. If a control technology has not been "demonstrated" for a particular source, or it is not "available" and "applicable" for that source, it is eliminated from further consideration at step 2.[71]

At ***Step 3,*** the permitting authority ranks all of the remaining control technologies in order of their effectiveness at reducing emissions, with the most effective technology at the top.[72]

Step 4 involves an evaluation of the cost-effectiveness of the remaining control technology options, as well as any energy and ancillary environmental impacts.[73] The purpose of these analyses at Step 4 is either to validate the top control option as the appropriate BACT technology, or to provide a clear justification as to why that option should not be selected.[74] Step 4 focuses on the language in the federal PSD BACT definition directing the permitting agency to "tak[e] into account energy, environmental, and economic impacts and other costs . . . ."

Regarding cost-effectiveness, the evaluation should consider both the *average* cost-effectiveness of the control technology under review, as well as the *incremental* cost-effectiveness of the additional reductions the technology will achieve compared to using a less-effective approach, measured in dollars per ton of emission reductions achieved.[75]

- ***Average cost-effectiveness*** is calculated by dividing the total annualized costs of implementing the control technology (including up-front capital costs and ongoing costs for operation and maintenance of the equipment once it is installed) by the total amount of emission reductions that would be achieved.[76]

- ***Incremental cost-effectiveness*** is calculated by dividing the extra costs of the control technology under consideration compared to the next-most-effective technology (based on total annualized costs) by the additional emission reductions it would achieve compared to the next-most-effective technology.[77]

A control technology can be eliminated at Step 4 if it is not cost-effective, meaning that it will cost substantially more to achieve a given level of emission reduction than the costs that other permittees have been required to bear in similar situations.[78] The Air District's cost-effectiveness thresholds can be used in making this determination, if applicable, as can the cost-effectiveness thresholds adopted by other California air districts, or similar agencies in other states, in situations where the District has not adopted a threshold of its own. Costs imposed by previously-issued permits can also be used in this analysis, and EPA's RACT/BACT/LAER Clearinghouse includes information on cost-effectiveness analyses for permits in its database.

Regarding energy impacts and ancillary environmental impacts, these considerations allow a control technology to be eliminated from consideration if there will be significant adverse impacts from secondary pollution that will be generated by using the technology, or if excessive energy will be required.[79] All of the control technologies being evaluated will provide benefits in reducing emissions of the air pollutant being targeted in the BACT analysis, but some of them may also involve collateral emissions of other air pollutants, or may have other types of adverse environmental or energy impacts. For example, using an afterburner to control VOC emissions may require burning natural gas to maintain a pilot flame, which will result in GHG emissions. If the additional benefit in VOC reduction is minimal compared to some other alternative, it may be preferable to select the alternative approach in order avoid the climate impacts from the GHG emissions. A control technology can be eliminated at Step 4 if there is another alternative technology that may not be quite as effective, but will avoid significant ancillary environmental or energy impacts.

Finally, ***Step 5*** involves the selection of the BACT control technology, which is the most effective control option that was not eliminated at Step 4.[80] Step 5 also involves specifying an emission limit that reflects the use of the selected control technology.[81] Unlike the District's BACT standard in Section 2-2-202, which allows BACT to be specified as a control device or technique instead of as a numerical emissions limit if that is more appropriate,[82] the federal PSD BACT definition states that BACT is "an emissions limitation" based on the level of emissions control that can be achieved by the chosen BACT technology.[83] Accordingly, EPA has normally required PSD BACT to be imposed as a specific numerical permit limit, not just as a requirement to apply a particular technology to control emissions.[84] The specified emission limitation imposed in the permit conditions should incorporate a reasonable compliance margin (or "margin of safety") in order to ensure that the facility can comply with the limitation throughout the operational lifetime of the source being permitted.[85] If a numerical emissions limit would not be feasible because there is no effective way to measure compliance, however, then the BACT requirement can be imposed in some other way, such as through design, equipment, operational, or work practice standards.[86]

Any federal PSD BACT analysis under District Regulation 2-2-304 should be consistent with this 5-step "top-down" approach in order to satisfy the requirement in Section 2-2-304 to implement federal PSD BACT in the same manner as EPA would under 40 C.F.R. Section 52.21(j). Notably,

the substantive outcome of determining BACT in this way should not be any different than determining BACT using the Air District's traditional approach (except that the BACT 2 level of control will not be required under the federal PSD BACT standard if it is not cost-effective, as noted above). Nevertheless, it is still a good idea to keep this federal top-down process in mind when applying Section 2-2-304 to ensure consistency. Documenting consistency with this top-down approach will help avoid any question as to whether the federal PSD BACT analysis properly implements the federal approach under 40 C.F.R. Section 52.21(j).

2. Pollutants That Are Also Subject to District BACT

In many cases, a source subject to the federal PSD BACT requirement under Section 2-2-304 will also be subject to the District BACT requirement under Section 2-2-301. The District BACT requirement is generally more stringent (*i.e.,* because it applies at a much lower threshold and because it requires achieved-in-practice controls regardless of cost-effectiveness), and so in most cases Section 2-2-304 will not require anything more than is already required under Section 2-2-301.

If federal PSD BACT is less stringent than District BACT in a given situation, that does not give an applicant a reason to avoid having to apply District BACT. An applicant subject to both standards must comply with both, and in cases where there is a more stringent standard and a less stringent standard, the only way to comply with both is to satisfy the more stringent standard. This may require more than is necessary to comply with the federal PSD BACT requirement, but there is nothing in the federal PSD BACT requirement that precludes having to comply with a more stringent District BACT requirement.

3. Special Considerations for GHG BACT Determinations

Determining BACT for greenhouse gases warrants special mention here, as GHGs have only recently become subject to regulation under the NSR Program. As such, the most appropriate way to apply the federal PSD BACT requirement to GHGs has been the subject of much debate. EPA has addressed many of the questions that have arisen in this regard in a guidance document it published in March of 2011 entitled *PSD and Title V Permitting Guidance for Greenhouse Gases.*[87] That guidance document points out that the BACT analysis for GHGs should proceed according to the same top-down analysis that applies to all other pollutants, as outlined above, although the unique nature of GHGs gives rise to some special considerations that need to be addressed in doing so.

The Guidance notes that, unlike with most criteria pollutants, there are no well-developed add-on control technologies that are commonly used to control GHGs at the emissions point. One technology under development is Carbon Capture and Storage (CCS), which holds promise for use in large-scale applications but has not yet been widely adopted. EPA considers CCS to be an "available" technology for large CO_2 emitters such as power plants and industrial facilities, and

it should therefore be included as an alternative for consideration at step one of the top-down analysis.[88] EPA recognizes, however, that CCS will usually be eliminated from consideration as not feasible for a given application at step two,[89] or as insufficiently cost-effective at step four,[90] given the early nature of the development of the technology and the engineering and related technological issues that are still being worked out.

EPA has not specified any specific dollar-per-ton cost-effectiveness threshold that should be applied at step four, although it notes that GHGs are typically emitted in much greater volumes than traditionally-regulated criteria pollutants, suggesting that the appropriate cost threshold per ton of GHGs will be much lower than for criteria pollutants (*i.e.,* a permitting agency will not be able to justify requiring an applicant to spend as much to reduce a ton of GHG emissions, compared to how much an applicant can be required to spend to reduce a ton of criteria pollutant emissions).[91] This is an area that is evolving rapidly, however, and so permit applicants and reviewers should consult the most recent technical information, and regulatory resources such as EPA's RACT/BACT/LAER Clearinghouse, when evaluating technologies like CCS.

In cases where an add-on control technology like CCS is not feasible or not sufficiently cost-effective (which may be nearly all cases until such technologies become better developed), EPA recognizes that energy efficiency will likely be the most appropriate way to control GHG emissions. That is, the best method of controlling a facility's GHG emissions, if they cannot be controlled with an add-on control device, is to design and operate the facility in the most efficient manner possible, so that it can produce its required output with the minimum amount of emissions.[92] In recognizing the benefits of implement BACT for GHGs in this manner, however, EPA also points out that a permitting agency is not required to force an applicant to "redesign the source" in order to implement a more energy-efficient design, as discussed above in connection with step one of the analysis.[93]

V. The PSD Source Impact Analysis Requirement

Projects that fall within the definition of "PSD Project" are also subject to the PSD Source Impact Analysis Requirement in Section 2-2-305. This requirement is one of the most fundamental elements of the PSD program, and it is designed to ensure that major sources of PSD Pollutants will not cause significant deterioration in air quality. More specifically, it requires a showing that the emissions from the PSD Project will not cause or contribute to a violation of (i) any applicable ambient air quality standard (including the National Ambient Air Quality Standards and the California standards) or (ii) any PSD "Increment," which is a maximum allowable increase in ambient pollutant concentrations that defines a "significant" deterioration in air quality. The procedures for making this determination are spelled out in detail in Section 2-2-305, and they incorporate by reference the requirements of the analogous federal PSD Source Impact Analysis provisions in 40 C.F.R. Sections 52.21(k)-(m). The discussion below presents a summary of what is involved.

A. Overview of Basic Principles

The Source Impact Analysis (also commonly referred to as the "Air Quality Impact Analysis") is required for each PSD Pollutant for which a PSD Project will have a ***significant net increase*** in emissions.[94] For each such pollutant, the Source Impact Analysis undertakes a computer modeling exercise to determine what the project's impacts will be on ambient pollutant concentrations in the vicinity of the proposed project. Under the federal PSD requirements incorporated by reference into Section 2-2-305, the analysis consists of two parts.

The first part is the ***Pre-Application Analysis,*** which summarizes existing ambient air quality concentrations in the vicinity of the proposed project. The Pre-Application Analysis requirements are governed by 40 C.F.R. Section 52.21(m)(1), which requires the submission of ambient air quality monitoring data for certain pollutants as outlined in Section V.B. below.

The second part is the ***Ambient Air Quality Standard and Increment Compliance Demonstration,*** which evaluates what the project's impacts on ambient concentrations will be in order to ensure that they will not cause or contribute to a violation of any applicable ambient air quality standard or PSD Increment. The requirements for making this demonstration are governed by 40 C.F.R. Section 52.21(k). The demonstration begins with a ***"Preliminary Analysis"*** that looks only at the project itself. If the modeled impacts of the project taken alone are below certain *de minimis* thresholds, they may be considered less-than-significant and the analysis can stop there (with some important caveats as discussed below). If the Preliminary Analysis cannot conclude that the impacts are *de minimis,* then a ***"Full Impact Analysis"*** is undertaken that considers the cumulative impact from the project being permitted in conjunction with other emissions sources in the area. (For this reason, the analysis is also sometimes referred to as the "Cumulative Impacts Analysis."[95]) This Full Impact Analysis is required to demonstrate the following:

- For ***ambient air quality standards,*** that the additional emissions associated with the project will not cause existing ambient air pollutant concentrations to rise to such an extent that they will exceed any applicable standard. This is done by modeling the combined impact of the project's emissions and emissions from other nearby sources, and then adding the result to existing background concentrations, to demonstrate that the total impact will not cause or contribute to a violation of any applicable ambient air quality standard.

- For ***PSD Increments,*** that the additional emissions from the project, along with all other emissions increases and decreases in the area that have occurred since a defined baseline date, will not result in an increase in ambient air pollutant concentrations that exceed any PSD Increment. This is done by determining the relevant baseline date, and then identifying all other sources that have experienced emissions increases or decreases since that baseline date that may have affected ambient concentrations

in the area. All of these increases and decreases are modeled together to determine the resulting cumulative increase (or decrease) in ambient concentrations, and the results are compared with the Increments (*i.e.,* the allowable increase above baseline concentrations) in order to demonstrate that the project will not cause or contribute to any Increment violation.

The procedures for undertaking these compliance demonstrations are outlined in Section V.C. below.

It is important to emphasize at the outset of this discussion that conducting the PSD Source Impact Analysis necessarily requires the application of discretion and sound judgment, as there are relatively few hard-and-fast rules on how exactly the analysis must be undertaken in a particular case. Section 2-2-305, which creates the Source Impact Analysis requirement, contains only a few short paragraphs, as do the analogous federal provisions in 40 C.F.R. Sections 52.21(k)-(m) that Section 2-2-305 incorporates by reference. There is a more detailed set of provisions set forth in EPA's *Guideline on Air Quality Models*—commonly referred to as "Appendix W" because it is codified as Appendix W to 40 C.F.R. Part 51—which the Source Impact Analysis is required to follow under Section 2-2-305.3.[96] But the Appendix W Guideline provides specific, prescriptive rules only in a few limited areas, and it emphasizes that it is primarily intended to provide "recommendations" and "guidelines" to be considered in determining how best to proceed in an individual case, leaving many relevant decisions to the sound engineering judgment of the permit applicant and the reviewing agency.[97] As the Appendix W *Guideline* explains, it is intended to "recommend[] procedures that permit some degree of standardization while at the same time allowing the flexibility needed to assure the technically best analysis for each regulatory application."[98]

Accordingly, the most appropriate approach to conducting the PSD Source Impact Analysis will necessarily vary from one situation to the next depending on the specific facts and circumstances of each permit application. The Air District (and applicants) will therefore need to consider carefully how exactly to undertake this analysis in each situation. Applicants and reviewers should start with the text of Section 2-2-305 and 40 C.F.R. Sections 52.21(k)-(m), along with Appendix W *Guideline on Air Quality Models,* which are the mandatory regulatory provisions. Beyond these authorities, guidance on how to determine the most appropriate approaches and methodologies is available from a number of sources, including EPA's *NSR Workshop Manual,*[99] EPA's *Ambient Monitoring Guidelines,*[100] various Environmental Appeals Board decisions addressing Source Impact Analyses,[101] and other relevant EPA guidance documents.[102] Applicants and Air District Staff should consult these guidance documents closely for additional details on how to undertake a PSD Source Impact Analysis, and they should communicate closely with one another about how the analysis should be conducted for a specific project. Early consultation on these issues will allow for agreement on procedures and protocols, which will help to avoid any differences in opinion that could cause delays later on in the process.[103]

It is also important to note at the outset that some of the procedures for conducting the Source Impact Analysis are currently in a state of flux. In 2013, the D.C. Circuit issued a decision in

the *Sierra Club v. EPA* case that invalidated certain portions of EPA's regulations and policies on how to conduct the Source Impact Analysis.[104] In several other areas the decision called EPA's regulations and policies into question, but without providing any definitive determination on whether or not they are legally valid. EPA has revised some elements of its regulations in response to this ruling, and it has issued policy guidance regarding how the agency has changed its approach to the PSD Source Impact Analysis accordingly. But there are a number of open questions remaining that EPA has not addressed, and it is likely that there will be continued litigation as well. Given the unsettled nature of these issues, permit applicants and reviewers are advised to check carefully for recent regulatory and policy developments and to consult with legal counsel in deciding how best to proceed. The impact of the *Sierra Club v. EPA* decision is addressed in more detail below in connection with the specific issues that were implicated in that case.

B. The Pre-Application Air Quality Analysis & Ambient Air Quality Monitoring Data

As noted above, the first step in the Source Impact Analysis process is for the applicant to prepare and submit a "Pre-Application Analysis" of the air quality in the vicinity of the project location. This requirement is set forth in Section 2-2-305.1, which incorporates by reference 40 C.F.R. Section 52.21(m)(1). The Pre-Application Analysis must include information about current local concentrations for (i) each PSD Pollutant for which the net increase from the project will be "significant," and (ii) for each PSD Pollutant for which the facility's total PTE (after the project is built) will be "significant" (even if the project does not involve a significant net increase for that pollutant).[105] ("Significant" in this context refers to the NSR significant emissions increase thresholds, as reflected in Section 2-2-227.)

1. Potential For Exemptions Using EPA's "Significant Monitoring Concentrations" (SMCs)

Historically, EPA has provided an exemption for permit applications involving pollutant concentrations below certain *de minimis* thresholds specified in the federal PSD regulations, although this approach has been called into question by the *Sierra Club v. EPA* case discussed above. Applicants and reviewers should be aware of this avenue for potentially exempting applications from the Pre-Application Analysis requirements. But given the uncertainties surrounding this approach, it would be advisable simply to include pre-application ambient air monitoring data in all PSD applications, regardless of whether an exemption may be available—especially as such information will be needed later on in order to make the required compliance demonstrations.

EPA's exemption thresholds are known as "Significant Monitoring Concentrations," or "SMCs," and they are set forth in 40 C.F.R. Section 52.21(i)(5) (*see* Table 5-2). Where a project's emissions of a given pollutant will not result in concentrations above the applicable SMC for that pollutant, ***or*** where existing background concentrations of the pollutant do not exceed the SMC,

Table 5-2: Significant Monitoring Concentrations (SMCs)	
PSD Pollutant	**SMC**
CO	575 µg/m^3 (8-hour average)
NO_2	14 µg/m^3 (annual average)
PM_{10}	10 µg/m^3 (24-hour average)
SO_2	13 µg/m^3 (24-hour average)
Lead	0.1 µg/m^3 (3-month average)
Fluorides	0.25 µg/m^3 (24-hour average)
Total reduced sulfur	10 µg/m^3 (1-hour average)
H_2S	0.2 µg/m^3 (1-hour average)
Reduced sulfur compounds	10 µg/m^3 (1-hour average)
Source: 40 C.F.R. § 52.21(i)(5)	

the application can be exempted from the Pre-Application Analysis requirement with respect to that pollutant under the terms of Section 52.21(i)(5).[106] Subsection 52.21(i)(5)(iii) also provides a blanket exemption for all pollutants for which no SMC has been adopted.[107] On their face, these exemption provisions provide broad authority to exempt applications from this requirement in these situations.

The D.C. Circuit addressed the SMCs in *Sierra Club v. EPA,* which involved a challenge to the SMC for $PM_{2.5}$ that EPA adopted in 2010. The D.C. Circuit invalidated that particular SMC, explaining that the Clean Air Act imposes "an extraordinarily rigid mandate that a PSD permit applicant undertake preconstruction monitoring," and that "Congress did not intend any . . . exceptions."[108] Technically the court's decision was limited to the $PM_{2.5}$ SMC that was at issue in the case, but the court's broadly-stated reasoning applies equally well to all of the other SMCs.

On remand, however, EPA removed only the exemption involving the $PM_{2.5}$ SMC, and it left all of the other SMCs on the books. Moreover, the way EPA addressed the $PM_{2.5}$ SMC suggests that all of the other SMC provisions are still legally valid, notwithstanding the D.C. Circuit's broad pronouncements quoted above. Instead of simply deleting the $PM_{2.5}$ SMC, EPA set the $PM_{2.5}$ SMC to zero—which has the substantive effect of removing the exemption for $PM_{2.5,}$ because no applications will be able to take advantage of the exemption if the threshold is zero. EPA explained that it had to proceed in this manner because simply deleting the $PM_{2.5}$ SMC would continue to allow an exemption for $PM_{2.5}$ as a result of the provision in Subsection 52.21(i)(5)(iii) exempting all pollutants for which no SMC is specified.[109] Removing the $PM_{2.5}$ SMC altogether would therefore have the effect of allowing the exemption for $PM_{2.5}$ to continue, according to EPA's reasoning, because of how the other SMC exemption provisions function. This outcome is an implicit endorsement by EPA that the remaining SMC provisions are still effective.

Accordingly, permit applicants and reviewers can still legally rely on these SMC provisions to exempt permit applications from the Pre-Application Analysis requirements, as they are still in EPA's PSD regulations and EPA is continuing to treat them as valid and legally binding. Doing so could raise questions about consistency with the Clean Air Act, however, given the D.C. Circuit's broad language in *Sierra Club v. EPA* regarding Congress' intent not to allow for any exemptions whatsoever.

Given this situation, the best approach is simply to decline to use the SMC exemption provisions, even if they may be available, and instead to conduct the Pre-Application Analysis for all pollutants for which the Pre-Application Analysis requirement is triggered—*i.e.,* for each pollutant for which (i) the project will have a significant net increase or (ii) the facility's total PTE is above the NSR significance threshold. Information on pre-existing background concentrations will be necessary at the next step of the Source Impact Analysis process anyway, regardless of whether any exemption applies. It would therefore be preferable simply to provide that information in a Pre-Application Analysis to satisfy the language of Section 2-2-305.1 and 40 C.F.R. Section 52.21(m)(1), rather than have to address any questions about the propriety of using an SMC exemption in the wake of *Sierra Club v. EPA.*

2. Monitoring Data Required in the Pre-Application Analysis

The information required in the Pre-Application Analysis includes air quality monitoring data regarding background pollutant concentrations for each PSD Pollutant for which either of the trigger thresholds are exceeded (*i.e.,* either the net emissions increase of the project, or the facility's total PTE (after the project is built), exceeds the significance thresholds). This monitoring data is used to establish what the current levels of PSD Pollutants in the vicinity of the project are. The PSD Source Impact Analysis is principally aimed at PSD Pollutants for which a NAAQS has been established (CO, NO_2, PM_{10}, SO_2, and lead), as the substance of the analysis addresses whether there will be any violation of a NAAQS or PSD Increment for these pollutants. For these pollutants, the monitoring data in the Pre-Application Analysis must be "continuous air quality monitoring data gathered for purposes of determining whether emissions of [the] pollutant would cause or contribute to a violation" of the NAAQS or a PSD Increment.[110]

An application subject to these requirements can use existing monitoring data as the basis for the Pre-Application Analysis, as long as it is sufficiently representative of actual conditions in the vicinity of the project location. Such existing monitoring data may be available from the District's own network of monitoring sites, or alternatively from other monitors maintained by third parties. If the applicant intends to use existing monitoring data, the District will have to evaluate whether it is sufficiently representative of actual conditions in the vicinity of the project to allow it to be used in the PSD Source Impact Analysis. This evaluation is based on (i) the location of the monitor that was used to collect the data; (ii) the quality of the data; and (iii) how current the data is.[111] Based on these factors, the applicant will need to demonstrate that the data are sufficiently representative of existing background concentrations at (i) the location of the maximum concentration increase from the proposed project, (ii) the location of the maximum

background concentrations from existing sources, and (iii) the location of the maximum combined concentration from the proposed project and existing sources.[112] If the existing monitoring data is determined to be sufficiently representative at these locations, it can be used to satisfy the Pre-Application Analysis requirements under 40 C.F.R. Section 52.21(m)(1).

If there is no existing monitoring data that is sufficiently representative, the applicant will have to conduct its own monitoring in the vicinity of the project location in order to provide the required data. The monitoring should be conducted over a period of at least a year and should represent the year immediately preceding submission of the application, although the District can allow a shorter period (but not less than 4 months) on a case-by-case basis if such shorter period can provide sufficient data to allow for a complete and adequate analysis.[113] Applicants should consider this requirement carefully when planning projects in order to allow sufficient time to conduct the required monitoring. Applicants should contact the Air District to discuss their planned protocol for conducting pre-application monitoring and obtain District approval before starting work.[114]

Note that there is also a provision in the regulations addressing pollutants for which no NAAQS have been established (*e.g.*, GHGs, fluorides, total reduced sulfur, H2S, and reduced sulfur compounds), in 40 C.F.R. Section 52.21(m)(1)(ii). This subsection provides that the permitting authority can require data on concentrations of such pollutants if it determines it is necessary to assess ambient air quality.[115] In most cases, such information will not be necessary because these pollutants are not problematic at most locations in the Bay Area and because such information will not be needed for demonstrating compliance with the NAAQS and PSD Increments, which is the principal purpose of the PSD Source Impact Analysis. EPA's guidance with respect to PSD permitting for GHGs is illustrative on this point. As the agency explained there, "EPA does not consider it necessary for applicants to gather monitoring data to assess ambient air quality for GHGs under section 52.21(m)(1)(ii) [because] GHGs do not affect 'ambient air quality' in the sense that EPA intended when these parts of EPA's rules were initially drafted."[116] In cases where information on non-NAAQS pollutants may be necessary, however, the Air District retains the discretion to require it in the Pre-Application Analysis.

C. The Ambient Air Quality Standard & PSD Increment Compliance Analysis

The second step in the Source Impact Analysis process is to use computer modeling to determine the impact that the project will have on pollutant concentrations in the ambient air in the vicinity of the project. This computer modeling must be undertaken for all PSD Pollutants (i) for which there is an applicable ambient air quality standard (either a National Ambient Air Quality Standard or a California standard) or PSD Increment, and (ii) for which the project will have a significant net emissions increase.[117] The results of the modeling are used to determine whether the project, along with other emissions sources in the area, will cause or contribute to any violation of an ambient air quality standard or Increment.

1. Guidelines for Computer Modeling

The procedures governing the modeling exercise are set forth in EPA's *Guideline on Air Quality Models* discussed above in Appendix W to 40 C.F.R. Part 51.[118] Computer modeling is complicated, and undertaking the modeling requires specialized skills as well as close familiarity with Appendix W and with the computer modeling program being used. The principal aspects are outlined below; Appendix W and related guidance documents should be consulted for additional details.

The Appendix W *Guideline* governs the choice of computer modeling program for the PSD Source Impact Analysis. The various models that EPA has approved are listed in Appendix A of the *Guideline,* which discusses the approved models in detail and explains the circumstances under which each of them should be used.[119] The approved models include AERMOD, which is a model of general applicability that can be used in a wide range of situation situations, and CALPUFF, which is another model that is normally preferred when assessing impacts over 50 km away from the emissions source, among others.[120] The *Guideline* should be reviewed carefully to determine which model is preferred in a particular situation. In addition, in the event that the models specified in Appendix A of the *Guideline* are not appropriate for a particular project, a model may be modified or another model substituted for those specified in Appendix A.[121] The applicant must obtain written approval from the District for the modification or substitution, and the modification or substitution must be subject to public notice and comment (unless the modeling is only for use in determining compliance with a California ambient air quality standard).[122]

Once the appropriate model to use is determined, the input data for the modeling exercise must be selected. The Appendix W *Guideline* outlines how these inputs should be chosen. Regarding meteorological data, Appendix W generally recommends the use of five years of representative meteorological data from a nearby National Weather Service station (or other similar station), or at least one year of site-specific meteorological data.[123] Meteorological data will be considered representative based on (i) the proximity of the meteorological monitoring site to the area under consideration; (ii) the complexity of the terrain; (iii) the exposure of the meteorological monitoring site; and (iv) the period of time during which data are collected.[124]

In addition, the emissions must be modeled using an emissions point at a reasonable elevation. This requirement is important to ensure that applicants do not try to dilute the ambient impacts from a source by simply increasing the stack height. District Regulation 2-2-602 specifically provides that stack heights beyond what is consistent with good engineering practices cannot be used for purposes of air quality modeling. (A facility can be built with a stack that is higher, but the modeling analysis would be required to use an emission point no higher than what is consistent with good engineering practices.) "Good engineering practice" in this context is determined according to 40 C.F.R. Section 52.100(ii) and EPA's *Guideline for Determining Good Engineering Practice Stack Height.*[125]

The modeling exercise also needs to include any "secondary emissions" related to the source being permitted.[126] Secondary emissions are emissions that do not come from the source itself,

but will occur as a result of the construction and operation of the source.[127] They do not include emissions from mobile sources, however, such as tailpipe emissions from a motor vehicle, locomotive, or ocean vessel.[128] Secondary emissions cover emissions from off-site support facilities, for example where a mine owned by one company is located next to a proposed power plant owned by another company and would supply fuel for the power plant. In such a case, any increase in emissions from the mine that would occur as a result of supplying the power plant must be included in the modeling analysis undertaken for permitting the power plant.[129] Note, however, that secondary emissions are included only to the extent that they are specific, well-defined, quantifiable, and impact the same general area as the project under review.[130] In addition, EPA's practice is to exclude secondary emissions at the Preliminary Analysis stage, and to address them instead in the Full Impact Analysis, as discussed below.[131]

Temporary emissions can be excluded from the modeling exercise, as long as they will not impact any Class I Area or any area where an applicable Increment is known to be violated.[132]

The selected computer modeling program will take all of these inputs and use them to estimate the project's ambient air impacts. The result will be a set of data predicting ambient pollutant concentrations in the vicinity of the project. The data set will include the predicted pollutant concentrations at each individual receptor location across the area being evaluated, which can be compared to the ambient air quality standards and Increments to determine whether there will be any violations. The Appendix W *Guideline* also provides guidelines on how the receptor network should be specified in the model, taking into consideration factors such as the topography and climatology of the area involved.[133]

The level of detail and rigor involved in any modeling run will depend on whether it is intended to be used for screening purposes to rule out the potential for significant adverse impacts or for a more refined analysis to determine impacts with more precision.[134] For example, an initial assessment may be warranted, using highly conservative default assumptions, to assess whether the potential for adverse impacts can be dismissed summarily. If this initial screening assessment cannot rule out such impacts, then further refinements can be made using more realistic assumptions that accurately reflect the specific circumstances of the particular project and the model re-run. Often, a screening-level analysis that initially indicates a potential violation based on conservative assumptions will demonstrate compliance when a more refined analysis is conducted. Similarly, an initial assessment can be run using a relatively course grid across a broad area in order to determine where within that area the highest concentrations will be expected. A further, more refined assessment can then be run using a relatively fine grid within that specific area in order to more precisely determine the location and extent of the maximum predicted concentration.[135]

2. The Preliminary Analysis

As noted above, EPA's PSD Source Impact Analysis procedures provide for an initial, less-rigorous "Preliminary Analysis" to identify projects with less than *de minimis* impacts. This

Preliminary Analysis looks only at the emissions from the project under review (*i.e.,* without considering impacts from any other emissions sources in the area). If the Preliminary Analysis concludes that the increase in ambient concentrations resulting from the project will be less than *de minimis* levels, then the project can be found not to cause or contribute to any ambient air quality standard or Increment violation without undertaking the full, comprehensive analysis that evaluates the impacts of other nearby sources as well (*i.e.,* the Full Impact Analysis).[136]

EPA calls the *de minimis* ambient concentrations used in the Preliminary Analysis "Significant Impact Levels," or "SILs." The SILs are not codified anywhere in the PSD Source Impact Analysis regulations, but they have been incorporated into EPA's policies and practices for decades.[137] The SILs for the PSD Pollutants subject to the Section 2-2-305 Source Impact Analysis requirements are shown in Table 5-3. (In addition, for projects that may impact a Class I Area, EPA uses a special SIL of 1.0 µg/m^3, applicable for all pollutants. EPA has historically used this Class I Area SIL for purposes of the Preliminary Analysis to determine whether a Full Impact Analysis is required for evaluating whether a project will cause any Class I Increment to be exceeded in a Class I Area.[138])

Table 5-3: Significant Impact Levels (SILs)

Standard	SIL
CO (8-hour standard)	500 µg/m^3
CO (1-hour standard)	2,000 µg/m^3
NO_2 (annual standard)	1.0 µg/m^3
PM_{10} (annual standard)	1.0 µg/m^3
PM_{10} (24-hour standard)	5 µg/m^3
SO_2 (annual standard)	1.0 µg/m^3
SO_2 (24-hour standard)	5 µg/m^3
SO_2 (3-hour standard)	25 µg/m^3

The *Sierra Club v. EPA* case curtailed the ability to rely on the SILs to some extent, although they will still be valid in many cases. That case involved a challenge to the SILs for $PM_{2.5}$, which EPA adopted in 2010 along with the $PM_{2.5}$ SMC discussed above. (Unlike the rest of the SILs, EPA actually codified the $PM_{2.5}$ SILs in its PSD regulations.) The Sierra Club argued that the Clean Air Act does not allow EPA to exclude any sources from the PSD Source Impact Analysis requirements, even at *de minimis* levels. To illustrate the point, it cited an example where the amount of 'headroom' between existing background concentrations and the applicable air quality standard is less than the SIL. In that case, allowing an increase up to the SIL would result in a violation of the standard, which is prohibited by the Clean Air Act's PSD requirements. But the source would be able to get a permit because its impacts would be below the SIL.[139]

Faced with this argument, EPA conceded that its $PM_{2.5}$ SILs as codified were flawed, and it voluntarily agreed to a remand of the relevant regulatory provisions to fix them. EPA took the position that it never intended the SILs to be binding in such a situation, citing statements in the rulemaking record such as "the use of a SIL may not be appropriate when a substantial portion of any NAAQS or increment is known to be consumed,"[140] and "notwithstanding the existence of a SIL, permitting authorities should determine when it may be appropriate to conclude that even a *de minimis* impact will 'cause or contribute' to an air quality problem and to seek remedial

action from the proposed new source or modification."[141] But the $PM_{2.5}$ SILs in the regulations as written were binding in all cases, and they did not allow any discretion to require the Full Impact Analysis in any situations where a source's impacts are below the SIL. EPA conceded that this was impermissible under the Clean Air Act, and so it agreed that the regulation as written should be vacated and remanded.[142]

Subsequently, EPA has removed the $PM_{2.5}$ SILs from its PSD regulations,[143] and it has advised that having impacts below the SILs does not automatically exempt projects from the Full Impact Analysis requirement, consistent with the *Sierra Club v. EPA* decision.[144] But EPA has also taken the position that the $PM_{2.5}$ SILs can still be used to exempt projects in situations where existing background concentrations are sufficiently below the applicable standard, and where there is a sufficient amount of any applicable Increment available to be consumed.[145] Where there is sufficient 'headroom' beneath the $PM_{2.5}$ NAAQS and Increments such that an increase in ambient concentrations of up to the SIL will not cause a violation, EPA has taken the position that the SILs can still be used to provide a *de minimis* exemption for projects whose $PM_{2.5}$ impacts will be below the SIL.

EPA's statements in this regard apply on their face only to $PM_{2.5}$, and EPA has not issued any guidance or policy statements explicitly addressing the SILs for other pollutants. But the same general principles applicable to using the $PM_{2.5}$ SILs apply equally well to the other SILs. And if EPA has revised (or at least clarified) its position on the fundamental legal basis for using SILs in the context of $PM_{2.5}$, the same position should apply to how the other SILs can be used as well.[146]

Accordingly, in the wake of *Sierra Club v. EPA* and EPA's subsequent pronouncements on these issues, permit applicants and reviewers should not assume that the SILs provide an automatic exemption from the Full Impact Analysis requirement at the screening stage. But the SILs can generally continue to be relied on to provide such an exemption in situations where existing background concentrations provide a sufficient amount of 'headroom' below the applicable ambient air quality standards, and where there is a sufficient amount of Increment remaining that has not yet been consumed. If that is the case, then an increase of up to the SIL will not cause a violation, and the project's impacts can be considered to be *de minimis* if they are below the SIL.[147] But if that is not the case, then showing that a project's impacts are below the SILs may not be sufficient to exempt the project as *de minimis* at the screening stage, and a Full Impact Analysis may be required for that pollutant. (Note also that any such assessment about whether the SILs can be relied upon in this way will need to be based on monitoring data showing existing background conditions. This is another reason why such information should be documented in the Pre-Application Analysis, regardless of whether an exemption from the Pre-Application Analysis requirement may be available under the SMCs discussed above.[148]) Given the uncertainties surrounding these issues, however, applicants and permit reviewers should check for the latest regulatory and policy developments from EPA and should consult with legal counsel to determine whether and to what extent the SILs can be used for a particular project.

In situations where the SILs can appropriately be relied on for screening purposes, the model will evaluate the increase in ambient pollutant concentrations expected from the project, in

order to determine whether the increase will exceed any SIL.[149] The modeling must take into account each source's emissions assuming it is operating with maximum emissions impact.[150] Quantifiable fugitive emissions should also be included.[151] Temporary emissions do not need to be included, unless they would impact a Class I Area or an area where were an applicable PSD Increment is known to be violated.[152]

The results of the computer modeling exercise will show the predicted increase in pollutant concentrations at each location across a grid surrounding the project location. If the maximum projected increase in ambient concentrations of a pollutant at each location across the grid will be below the SIL, then the analysis ends there for that pollutant.[153] The analysis can conclude that the project will not "cause or contribute" to any violation of an ambient air quality standard or Increment in violation of Section 2-2-305 based solely on the Preliminary Analysis. If the impact for any pollutant exceeds the SIL at any location, however, a Full Impact Analysis needs to be conducted for that pollutant.

In situations where reliance on a SIL is not appropriate under EPA's post-*Sierra Club v. EPA* policy pronouncements outlined above, a Full Impact Analysis will be required regardless of what the Preliminary Analysis shows. The Preliminary Analysis still needs to be conducted in such cases, however (*i.e.,* the project's impacts need to be modeled in isolation, without considering other nearby sources) in order to define the geographical area that must be evaluated in the Full Impact Analysis. This "Impact Area" is defined by locations where the project's emissions will cause an increase above the SIL, as discussed in more detail below.

3. The Full Impact Analysis

If the project cannot be determined to be *de minimis* using the SIL approach, then the analysis needs to proceed to the second step, the Full Impacts Analysis.[154] This is a more comprehensive analysis that takes into account the contributions to ambient air pollutant concentrations from the project under review along with other sources in the area, and then compares the combined impacts to the applicable ambient air quality standards and PSD Increments to determine whether there will be any violation. This requires two separate analyses and compliance demonstrations, one for the ambient air quality standards and one for the PSD Increments. The following discussion outlines a step-by-step approach for conducting each one.

a) Demonstrating Compliance With Ambient Air Quality Standards

The ambient air quality standard compliance demonstration consists of five steps: (i) modeling the proposed project's emissions to determine the "Impact Area" where the project's emissions impacts will be evaluated; (ii) identifying other nearby sources in or close to the Impact Area to be modeled together with the project under review (in what is called the multi-source modeling exercise); (iii) modeling the combined ambient air quality impacts of the project's emissions in conjunction with the emissions from these other nearby sources; (iv) adding the modeled ambient air quality impacts to existing background concentrations in the area; and finally (v)

comparing the results with the applicable ambient air quality standards to determine whether any such standards would be exceeded.

Step One: Model The Proposed Project's Emissions to Determine the "Impact Area"

The first step is to establish the "Impact Area" for the project for each pollutant that will be analyzed. The Impact Area is the geographical area where impacts will be evaluated for a given pollutant, and it is defined by the farthest location identified in the Preliminary Analysis where the project's impacts will exceed the SIL for that pollutant. The Impact Area is a circular area with a radius extending from the project location out to this farthest point with a project impact above any SIL, up to a maximum of 50 km.[155] The project's modeled impact will not necessarily exceed the SIL at all of the points located within the Impact Area, but the entire Impact Area (the circle defined by the most distant point above the SIL) must be included in the Full Impacts Analysis.[156]

Where the analysis is addressing multiple pollutants, the impact area does not have to be the same for each one, and in fact it will most likely vary because the most distant point with an impact above the SIL will be different for different pollutants. Where the analysis is addressing a pollutant with multiple SILs for different averaging periods, however, a single Impact Area is defined for that pollutant, based on the farthest point at which there is any exceedance of any of the SILs for that pollutant.[157]

In some cases, there may be ambient air quality standards that need to be evaluated in the Full Impact Analysis for which SILs have not been established. For example, there is no SIL for lead, and there is no SIL for short-term NO_2 concentrations (the existing NO_2 SIL is for annual-average concentrations only). In these cases, an appropriate threshold to use for defining the boundary of the Impact Area will need to be developed on a case-by-case basis. EPA has made clear that permitting agencies have the authority to adopt SILs for use in individual PSD permit analyses in situations such as these where EPA has not formally adopted a SIL.[158]

The appropriate SIL to use for establishing the Impact Area for a particular project may also have to be established on a case-by-case basis in situations where the use of EPA's SIL would be questionable given the concerns raised in the *Sierra Club v. EPA* decision. That case addressed the use of the SILs at the screening stage to exempt projects from the Full Impact Analysis altogether, as discussed above. It did not address the propriety of using the SILs to define the geographical area that must be evaluated when a Full Impact Analysis *is* undertaken (*i.e.,* the Impact Area). But the concerns about using the established SILs in situations where existing background concentrations are already very close to the applicable air quality standards could potentially be applied to the context of setting the Impact Area as well. That is, an argument could be made that the Impact Area in such situations should include areas where the project will cause even a very small increase, because even a very small increase could result in a violation of the standards. In such cases, it may be preferable to use a more conservative value than EPA's established SIL in setting the Impact Area. An alternative SIL value used to define the Impact Area in such a situation would have to be determined on a case-by-case basis, taking into

account the specific circumstances of the project and location at issue. Where such a situation arises, permit applicants and reviewers are advised to check for recent EPA guidance updates and to consult with legal counsel, given the unsettled nature of these issues in the wake of *Sierra Club v. EPA.*

Finally, it is also worth noting that existing background concentrations in the Impact Area are incorporated into the Full Impact Analysis for purposes of determining whether the project will cause a violation of any applicable ambient air quality standard. The Impact Area will therefore inform the area that must be covered by the background monitoring data submitted in the Pre-Application Analysis.[159] If existing monitoring data are used, they must be sufficiently representative of existing background concentrations within this area.[160]

Step Two: Identify Other Sources to be Included in Multi-Source Modeling Analysis

Once the Impact Area has been established (for each pollutant for which the project will have a significant net increase, and for which the project was not screened out of the Full Impact Analysis requirement using an appropriate SIL), other emissions sources in the vicinity of the project need to be identified that will be included in the multi-source modeling exercise. The Appendix W *Guideline On Air Quality Models* refers to the additional sources that need to be modeled as "nearby sources."[161] In general, these "nearby sources" are sources whose contributions will not be adequately reflected in monitored background data, which is why they need to be specifically included in the modeling exercise.

The Appendix W *Guideline* provides that sources should be included in the model as "nearby sources" if they are "expected to cause a significant concentration gradient" within the Impact Area.[162] The evaluation should consider potential sources out to 50 km beyond the Impact Area, and it should include any sources out to that distance that have the potential to cause a significant concentration gradient with the Impact Area.[163] The Appendix W *Guideline* does not attempt to define the universe of "nearby sources" that need to be modeled with any more specificity than this, and it stresses that the determination of what sources to include necessarily calls for the exercise of professional judgment and will depend on the specific circumstances of the particular project under review.[164] The *Guideline* does note, however, that the number of such sources that need to be included in the model will normally be small, except in unusual circumstances.[165] In addition, EPA has stated in guidance documents that in most cases the focus should primarily be on the area within about 10 km of the project location.[166]

Beyond these "nearby sources" that are included in the multi-source modeling exercise, the Appendix W *Guideline* also refers to "other sources" that contribute to ambient air concentrations in the Impact Area. The contribution of these sources is considered in the analysis as being part of existing background concentrations, which is normally established based on air quality monitoring data.[167] These "other sources" are taken into account when the modeled impacts of the project under review and the other "nearby sources" are added to the existing background

data to determine whether the applicable ambient air quality standards will be violated. They do not need to be included in the multi-source modeling exercise.

Note also that this is the point where secondary emissions associated with the proposed project are taken into account, as explained above.[168] Secondary emissions are emissions that do not come directly from the project itself, but will occur as a result of the project.[169] They must be included in the multi-source modeling exercise to the extent that they are specific, well-defined, quantifiable, and impact the same general area as the project under review.[170] Secondary emissions are considered to impact the same general area as the project under review if they will have an impact within the Impact Area established for the project under review.[171] If so, they should be included in the modeling along with other nearby sources.

Step Three: Model Combined Impacts from Project Emissions and Emissions from Nearby Sources

Once the inventory of additional sources has been selected for inclusion in the multi-source modeling exercise, the emissions from each source need to be input into the model. The emissions rates to be used are specified in Table 8-2 of the Appendix W *Guideline.* In general, the emission rate used for the proposed project under review must be based on the maximum potential emissions of the source(s) involved, under whatever operating scenario will result in the highest ambient concentrations. For other "nearby sources" included in the model, the emissions rates may reflect the sources' "operating factor" (*i.e.,* the number of hours per day or days per year they actually operate) when modeling annual or quarterly impacts. The emissions rate must be based on the sources' maximum potential emissions while they are operating, but if they do not operate all the time, that fact can be taken into account by applying an appropriate operating factor. The operating factor should be based on each source's actual operating history over the previous two years. This provision is only for modeling longer-term impacts, however; for impacts over shorter periods of 24 hours or less, the emissions rate must be based on continuous operation (unless limited by permit conditions).[172]

Step Four: Add Multi-Source Modeling Results to Background Ambient Pollutant Concentrations

Once the combined impact of the source under review and other nearby sources has been modeled, the results are added to the existing background concentrations to generate an estimate of what the total ambient concentrations will be if the project is built.[173] This estimate can then be compared to the applicable ambient air quality standards to determine whether any standard will be violated.

Note that once again, information on existing background concentrations is necessary at this stage in order to complete the PSD Source Impact Analysis. This is another reason why such information should be documented in the Pre-Application Analysis, regardless of whether an

exemption from the Pre-Application Analysis monitoring requirements may be available under the SMCs as discussed above.

Step Five: Compare the Results with the Applicable Ambient Air Quality Standards

The final step is to compare the modeled estimates of what ambient air quality impacts will result if the project is built to the applicable air quality standards (including all applicable California and National Ambient Air Quality Standards). This comparison will demonstrate whether the project will cause or contribute to a violation of any standard.

- **What Model Results to Use In Determining Compliance With The Standards**

Generally speaking, this compliance determination is made by comparing the predicted pollutant concentration at each modeled receptor location to the applicable ambient air quality standard. Which predicted pollutant concentration to use depends on the form of the air quality standard at issue, however. Ambient air quality standards are normally specified to allow ambient concentrations to exceed the standard's numerical value one or more times per year, to allow for situations like unusual and unrepresentative weather conditions. Accordingly, the maximum modeled concentration at each receptor location does not necessarily determine whether the standard will be violated, because in many cases the standard will allow for that one maximum concentration to be over the standard without resulting in a violation. The compliance determination should be made in such cases using the *second-highest* predicted concentration at each receptor location in a given year (or some other lower concentration, depending on how the standard is expressed). The choice of what modeled concentration to use for determining compliance in a given situation depends on (i) the type of standard involved (*i.e.,* deterministic or statistical); (ii) the averaging period used in the standard; and (iii) the amount of meteorological data used in the modeling exercise.[174] The Appendix W *Guideline* provides further guidance on how to make the compliance determination in particular case.[175]

- **Whether the Project Will Make Any Significant Contribution to Any Violation of the Standards**

In addition, even if the selected model value used in the compliance determination exceeds the applicable standard, the project will not necessarily be "causing or contributing" to the exceedance in violation of Section 2-2-305. If the project's contribution to the exceedance is determined to be below a *de minimis* level, its contribution will not be "causing or contributing" to the exceedance as EPA interprets that phrase under EPA's federal PSD program, and so the project will be able to satisfy Section 2-2-305.

EPA has historically used the SILs as the measure of whether the project's contribution is *de minimis.* This means that a project is considered to be causing or contributing to violation of an applicable air quality standard only where its own modeled contribution exceeds the SIL at the specific receptor location where the violation of the standard occurs, and at the specific

time that the violation occurs. (This is sometimes referred to as the "culpability analysis.") Thus, even if the modeling shows that there could potentially be ambient concentrations that exceed the applicable standard, the project can still be approved as long as (i) the project's impact is below the SIL wherever and whenever there is an exceedance of the standard, and (ii) there is no exceedance of the standard at any location where the project's impact exceeds the SIL at the time it exceeds the SIL. EPA has treated such projects as making only a *de minimis* contribution to the violation of the standard, which EPA does not consider to be "causing or contributing" to the violation within the meaning of the PSD regulations in 40 C.F.R. Section 52.21(k).[176]

The D.C. Circuit's decision in *Sierra Club v. EPA* has raised some questions about whether (and to what extent) this approach continues to be valid. The court did not address this particular aspect of the SILs, as it focused only on the use of the SILs at the screening stage to exempt projects from having to undertake the Full Impact Analysis in the first place. But given the questions raised by that case about the propriety of the SILs in general, EPA is now counseling caution with respect to using the SILs to find that a source's contribution to an exceedance is not "causing or contributing" to any NAAQS violation.[177] Moreover, EPA has indicated that it will be engaging in further rulemaking to address these issues going forward.[178] Permit applicants and reviewers are therefore advised to carefully consider how the SILs may be used in a situation like this, and to follow up with EPA representatives for further information and guidance on the subject.

- **A Note on the California Ambient Air Quality Standards**

Finally, it is worth pointing out that the Air District's Source Impact Analysis requirement applies to the California ambient air quality standards for which the Bay Area is in attainment. This is because Section 2-2-223 defines "PSD Pollutant" to include Regulated NSR Pollutants for which the Bay Area is designated as attainment of the California standards; and because Section 2-2-305 requires that any PSD Project with a significant net increase of any "PSD Pollutant" must ensure that it will not cause or contribute to any violation of "any applicable air quality standard," which is not limited to the federal standards (*i.e.,* the NAAQS).[179]

This is an additional requirement beyond what is required under the federal PSD regulations, which require the analysis to consider only compliance with the NAAQS. As a result, EPA's procedures and guidance do not explicitly address how to conduct the analysis for the California standards. But the requirement to consider the potential to violate these standards in Section 2-2-305 is identical with respect to the NAAQS and the California standards, and so the analysis for the California standards should be conducted in exactly the same way as for the NAAQS. The analysis should address each PSD Pollutant for which a California standard has been established and for which the project will result in a significant net emissions increase, and it should do so following all of the same procedures outlined above. At the final step in the process, the predicted ambient concentrations that will result if the project is built (*i.e.,* modeled impacts plus background concentrations) will then be compared with any applicable California standards for which the Air District is in attainment, in addition to any applicable NAAQS.[180] (Note that this

situation applies to the ambient air quality standards compliance demonstration only, not the Increment compliance demonstration. There are no California Increments.)

b) Demonstrating Compliance With PSD Increments

In addition to determining compliance with applicable ambient air quality standards, the Full Impact Analysis must also determine whether the project will cause or contribute to a violation of any PSD Increment. As noted above, Increments represent the maximum amount of increase in ambient concentrations of a pollutant over a "baseline concentration" that can be allowed before "significant deterioration" in air quality occurs. Increments have been established for three PSD Pollutants subject to the Air District's PSD requirements, PM_{10}, NO_2 and SO_2. The Increment-compliance demonstration must be made for each of these pollutants for which the project will have a significant net increase (unless the project's impacts can be determined to be de minimis using the SILs as discussed above).[181]

The Increment consumption analysis is somewhat different from the ambient air quality standard analysis in that it does not focus on absolute pollutant concentrations that will occur if a project is built. Instead, it focuses on the *increase* in pollutant concentration that will occur compared to the concentration as of a defined baseline date. The "Increment" is the maximum amount of increase that is allowed above the ambient concentration that existed as of that baseline date. The Increment consumption analysis therefore requires an evaluation of all emissions increases and decreases that have occurred from all relevant sources since the applicable baseline date. All of these increases and decreases are modeled, along with the emissions from the proposed project under review (and any other projects that are permitted but not yet operational) to predict what the overall increase in ambient concentration will be once the project is built. The amount of the increase, if any, is then compared to the applicable Increment to see if there will be any violation.[182]

Note that emissions from some sources may have gone down since the baseline date, meaning that there is more room for increases from other sources without causing ambient concentrations to exceed the Increment. This is referred to as "expansion" of the Increment. Where emissions from sources in the region increase, this is referred to as "consumption" of the Increment.[183]

In general terms, the Increment consumption analysis is conducted as follows:

Step One: Establish The Applicable "Baseline Area"

The first step is to establish the "Baseline Area" for the project. The Baseline Area is defined as including (i) the attainment area or unclassifiable area in which the project will be located *(i.e.,* the Bay Area district); plus (ii) any other adjacent attainment or unclassifiable areas (*i.e.,* adjacent air districts designated as attainment or unclassifiable) where the project's emissions will cause an increase in ambient concentrations of 1 $\mu g/m^3$ or more (annual average).[184] A

Baseline Area must be established for each individual pollutant being evaluated for Increment consumption, and they will not necessarily be the same for each pollutant.[185] The Baseline Area includes the entirety of each such attainment/unclassifiable area, even if the project's impacts will not exceed 1 μg/m^3 throughout the area.[186]

Step Two: Identify The Applicable "Baseline Dates"

The second step is to determine the applicable baseline dates from which the increase in ambient concentrations will be measured. For each pollutant,[187] there will be two relevant dates that need to be determined. The principal baseline date is called the ***"Minor Source Baseline Date,"*** and it is the date after which all emissions increases and decreases of any type need to be evaluated. The Increment consumption analysis looks back to this Minor Source Baseline Date and evaluates all emissions increases and decreases since that date in determining how much of the Increment has been consumed. The second relevant baseline date is called the ***"Major Source Baseline Date,"*** and it precedes the Minor Source Baseline Date. The analysis looks back to this Major Source Baseline Date only for increases or decreases that resulted from a physical change or change in method of operations at a "major" facility (*i.e.,* a facility with emissions over the 100/250 tpy "major source" thresholds that apply under the federal Clean Air Act).

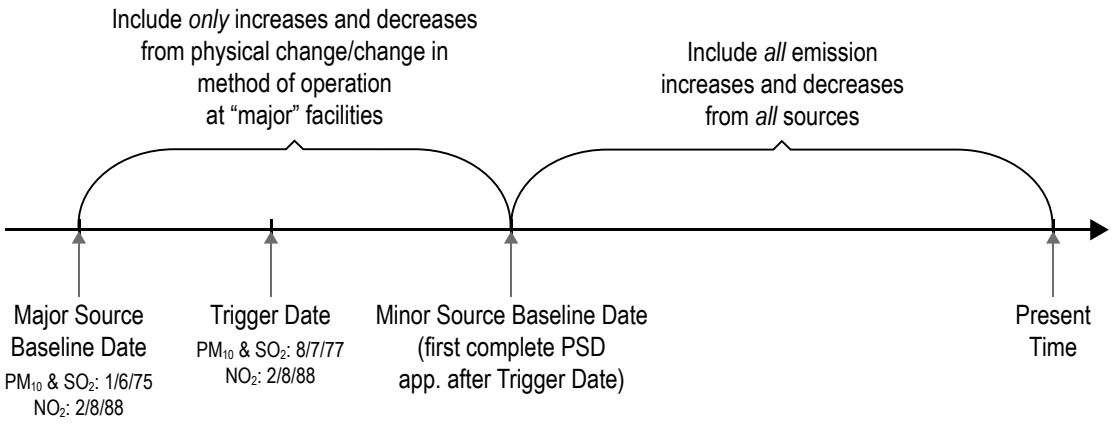
These dates determine what emissions increases and decreases need to be evaluated in the Increment consumption analysis, because emissions that were in existence before these dates are defined to be part of the "Baseline Concentration."[188] The Increment consumption analysis concerns itself with new emissions increases (or decreases) since those dates, which determine the amount of any increase above the Baseline Concentration.[189]

The Major Source Baseline Date is specified in EPA's regulations for each pollutant. For PM_{10} and SO_2, the Major Source Baseline Date is January 6, 1975.[190] For NO_2, the Major Source Baseline Date is February 8, 1988.[191]

The Minor Source Baseline Date is not fixed by regulation. Instead, it is defined by the first complete PSD permit application that is submitted after a specified "trigger date" within a particular attainment area.[192] The trigger dates are August 7, 1977 for PM_{10} and SO_2, and February 8, 1988 for NO_2.[193] The Minor Source Baseline Date for each attainment area is therefore the date of the first complete PSD permit application affecting that attainment area that was received by the relevant permitting authority (either EPA Region 9 or the air district for the relevant attainment area) after August 7, 1977 (for PM_{10} and SO_2) or February 8, 1988 (for NO_2).

The Minor Source Baseline Date is more important (and is sometimes simply referred to as the "baseline date") because *all* emissions increases and decreases need to be evaluated back to that date. There is no need to look back beyond the Minor Source Baseline Date, with one important exception. The exception covers increases and decreases before that date (i) that occurred at a "major" facility and (ii) that are the result of a physical change or change in method

Figure 5-2: Increment Consumption Baseline Dates



of operation at the facility. This more limited category of increases and decreases needs to be included going all the way back to the Major Source Baseline Date. Figure 5-2 shows graphically how these dates apply, and how the Increment consumption analysis looks back to various emissions increases and decreases based on the different dates.

Note that the Minor Source Baseline Date may well be different in different air districts (*i.e.,* different attainment areas), because there may have been different initial PSD permit applications that established the date in different districts. For a project whose analysis will cover more than one air district, the Minor Source Baseline Date will need to be established for each district (as discussed further below). It is possible, however, that the same initial PSD permit application established the Minor Source Baseline Date for two adjacent districts. A PSD permit application establishes the Minor Source Baseline Date for the entire Baseline Area applicable to the permit application (assuming it is the first application after the Trigger Date)—which covers adjacent districts where impacts will be 1 µg/m^3 or more. Thus two adjacent districts may have the same Minor Source Baseline Date, if one PSD permit application established the date for both of them. Determining the applicable Minor Source Baseline Date(s) to be used in the analysis may therefore require considering PSD permit applications from adjacent air districts as well as those from within the Bay Area.[194]

Step Three: Determine the Project's "Impact Area"

The third step is to determine the Impact Area for the project. This is the same Impact Area that is used for the evaluation of the ambient air quality standards, and it follows the procedures outlined above. The Impact Area is defined by a circle around the project being evaluated, with

its radius extending out from the project location to the farthest point from the project where the project's impacts will exceed the applicable Significant Impact Level (SIL).[195] The Impact Area established in this manner will determine the area in which emissions increases and decreases since the relevant baseline dates will be evaluated for compliance with the PSD Increments.[196]

Note that for the Increment consumption analysis, there are more stringent Increments that apply in Class I Areas. (This is not the case with the NAAQS, which are the same for all areas.) Different (lower) SIL values will therefore most likely be appropriate for purposes of evaluating the Class I Increments. EPA normally uses a SIL of 1 μg/m^3 for the Class I Area Increment consumption analysis (for all pollutants), as noted above, although a different SIL value may be more appropriate in a some cases, depending on the circumstances.[197] The Class I Area Increment consumption analysis will evaluate increases and decreases in any portions of the relevant Class I Area that fall within the Impact Area established for this purpose using the Class I Area SIL.[198]

Step Four: Identify Sources To Be Evaluated in the Modeling Exercise

The fourth step involves identifying other sources in the vicinity of the project with emissions increases or decreases that could affect the Increment.[199] These increases or decreases will be modeled to evaluate the amount of Increment that has been consumed.

As with the ambient air quality standard compliance demonstration, potential candidates for inclusion in the modeling exercise should be evaluated throughout the Impact Area and out to a distance of 50 km beyond the Impact Area.[200] Sources should be considered for inclusion if they have experienced actual emission increases or decreases since the relevant baseline date that may have affected the amount of Increment consumed. Secondary emissions (emissions that do not come directly from the project itself, but will occur as a result of the project) should be included to the extent that they are specific, well-defined, quantifiable, and impact the same general area as the project under review (*i.e.,* will have an impact within the Impact Area established for the project under review).[201]

As noted above, ***any*** actual emissions increase or decrease of any kind at any type of source should be considered going back to the Minor Source Baseline Date. This includes increases or decreases associated with permitted changes at a stationary source (including both "major" sources and "minor" sources), as well as increases or decreases that did not require any permit revision, such as in increase or decrease in throughput, hours of operation, or capacity utilization.[202] It also includes increases or decreases in emissions from area and mobile sources since the Minor Source Baseline Date, to the extent that there is information available about any such increases or decreases.[203]

Looking back even further, before the Minor Source Baseline Date, actual emissions increases associated with physical changes or changes in the method of operation occurring at facilities over the 100/250 tpy PSD "major" facility threshold should be considered, going back to the Major Source Baseline Date. This is a more restricted universe of potential changes to consider,

as it excludes changes at area sources, mobile sources, and "minor" sources (*i.e.,* below the PSD "major" facility threshold), and it excludes simple increases and decreases in usage or throughput that are not associated with a physical change or change in method of operations.[204] In particular, actual emission reductions at major facilities occurring before the Minor Source Baseline Date must be enforceable in order to be included.[205]

Note also that it is possible that the area to be evaluated for other sources with increases and decreases may span more than one air district, and there may be different Minor Source Baseline Dates that apply in the different districts. The only difference that would make in selecting sources to include in the modeling analysis would involve how far back in time one looks for increases and decreases at each source. For sources in one district, one would include all actual emissions increases and decreases back to the Minor Source Baseline Date for that district. For sources in the other district, one would include all actual emissions increases and decreases back to the Minor Source Baseline Date for that other district.[206] (The Major Source Baseline Date will be the same for each district, as it is specified by regulation.)

Step Five: Model the Amount of the Increase in Ambient Concentrations Over the Baseline Concentration

Once the universe of sources with increases and decreases to be included in the modeling exercise has been identified, the next step is to model all of the increases and decreases, along with the emissions from the project under review, to determine what the overall increase in ambient concentrations will be compared with the Baseline Concentration.[207] The amount of such increase determines whether the Increment will be violated.

Note that the "Baseline Concentration" does not actually have to be explicitly calculated in order to determine the degree of Increment consumption. Increment consumption is simply a matter of the *increase* in ambient concentrations above the Baseline Concentration, and it does not depend on what the Baseline Concentration actually was as of the baseline date. The amount of the increase over the Baseline Concentration is therefore evaluated by modeling the impacts of all of the increases and decreases that have taken place since the relevant baseline dates, which provides an assessment of how much ambient concentrations have increased.[208]

The emissions increase associated with the ***project under review*** should be modeled at the source's maximum potential emission rate. This is the same rule that applies to the compliance demonstration for the ambient air quality standards.[209] In addition, as with the ambient air quality standards analysis, the project emissions increase must include any "secondary emissions" associated with the project, to the extent that they are specific, well-defined, quantifiable, and impact the same general area as the project under review.[210]

Increases and decreases at ***other sources*** that may affect the Increment are modeled based on their actual emissions, as reflected by normal source operation over a period of 2 years (assuming that time period is generally representative), as follows:[211]

- For *annual-average* emissions, the amount of the actual emission increase or decrease should be based on the difference between (i) the current actual annual-average emission rate (*i.e.,* average emissions during the most recent 2 years), and (ii) the actual annual-average emission rate as of the baseline date (*i.e.,* average emissions during the 2 years preceding the baseline date).[212]

- For *short-term emissions,* the amount of the actual emission increase or decrease should be based on the difference between (i) the current maximum actual emission rate (*i.e.,* the highest emission rate the source actually experienced over the most recent 2 years) and (ii) the maximum actual emission rate as of the baseline date (*i.e.,* the highest emission rate the source actually experienced during the 2 years preceding the baseline date), where such a comparison is appropriate and can readily be made.[213] Short-term emission rates for such increases and decreases can also be derived from annual-average emission rates in appropriate circumstances—for example, if information on the highest short-term rate experienced is not available.[214]

- For sources that have been permitted but have not yet begun operation, or in cases where there is little or no operating data or actual emissions data for a source, the source's full PTE should be used instead.[215]

Note also that if there has been any change in stack parameters or other conditions that would affect the ambient impacts of a given amount of emissions from a source, the effect of such changes needs to be evaluated in the model as well.[216]

Changes in mobile source emissions can be evaluated in a number of ways. One approach identified in EPA's *NSR Workshop Manual* is to use information on vehicle miles traveled and vehicle fleet characteristics to calculate emissions increases,[217] although other methodologies could be used as well.

Ultimately, sound judgment must be applied in determining what specific emission rates are used in the modeling exercise in accordance with the principles outlined above. There may be limited data available for some increases or decreases that must be modeled, especially where they occurred many years ago. Emission rates should be determined in a way that the modeler concludes is most representative of actual emissions, given the information available. The Appendix W *Guideline* specifies that "[t]he most appropriate data available should always be selected for use in modeling analyses,"[218] and EPA has recognized that "where the available data are poor, substantial judgment must be used to estimate actual emissions."[219]

Step Six: Compare the Modeled Increase to the PSD Increments

The result of the modeling exercise will be a set of predicted concentration increases (compared to baseline concentrations) at each receptor location modeled. These predicated concentration increases are compared to the PSD Increments to determine if the project will cause or

contribute to an Increment violation—*i.e.,* an increase over baseline concentrations by more than the maximum allowable amounts specified in 40 C.F.R. Section 52.21(c).[220] The various Increments for each pollutant are shown in Table 5-4.

Table 5-4: The PSD Increments

Class II Areas:	
PM_{10} (annual)	17 µg/m^3
PM_{10} (24-hour)	30 µg/m^3
SO_2 (annual)	20 µg/m^3
SO_2 (24-hour)	91 µg/m^3
SO_2 (3-hour)	512 µg/m^3
NO_2 (annual)	25 µg/m^3
Class I Areas:	
PM_{10} (annual)	4 µg/m^3
PM_{10} (24-hour)	8 µg/m^3
SO_2 (annual)	2 µg/m^3
SO_2 (24-hour)	5 µg/m^3
SO_2 (3-hour)	25 µg/m^3
NO_2 (annual)	2.5 µg/m^3
Source: 40 C.F.R. § 52.21(c)	

The rules discussed previously governing which data point to use at each modeled receptor location in the context of the ambient air quality standard compliance determination apply to the Increment consumption determination as well. As 40 C.F.R. Section 52.21(c) specifies the short-term Increments in a form that allows one exceedance per year at any given location, the Increment consumption determination for these Increments can be based on the second-highest modeled concentration at each location for each year modeled.[221] Such an approach recognizes the fact that the highest modeled concentration at each location can exceed the Increment, as long as it is the only time during the year when the concentration exceeds the Increment (*i.e.,* the second-highest modeled concentration during that year is below the Increment).

In addition, the rules regarding situations where the project's emissions will be contributing to any violation at levels below the SILs discussed above in the context of ambient air quality standard violations apply to Increment violations in the same way. In cases where the project's modeled impact will be below the SIL at each receptor where there the Increment is exceeded, and at each time where the Increment is exceeded, then EPA has historically considered the project's impacts to be *de minimis.* EPA has interpreted such situations to mean that the proposed project will not be "causing or contributing" to any NAAQS violation.[222] As noted in the discussion above, however, the *Sierra Club v. EPA* decision has raised some questions about the propriety of this approach. Accordingly, permit applicants and reviewers should carefully consider whether and how the SILs can be used in this manner, and should check for the most recent regulatory and policy developments from EPA in order to determine how best to proceed.[223]

Note also that there are different Increments provided for Class I Areas and Class II Areas for each pollutant and averaging time (*see* Table 5-4). The Class I Area Increments represent an additional layer of air quality protection applicable in Class I Areas. (Class I Areas are specially-protected areas such as national parks, as discussed in more detail in Chapter 6.) All modeled receptors must be compared to the Class II Increments to determine whether there has been a

violation. But for receptors located in Class I Areas, the Class I Increments must be evaluated as well.

If the project will cause or contribute to an exceedance of any Class I increment, however, that does not necessarily mean that the project cannot be approved. Instead, it implicates the determination by the Federal Land Manager for the Class I Area where the Increment will be exceeded as to whether there will be any adverse impacts to any "Air Quality Related Values" in the Class I Area. The Federal Land Manager's analysis of impacts to Air Quality Related Values is addressed in detail in Chapter 6. Under the system set up by Clean Air Act Section 165(d)(2), the Federal Land Manager can object to a project on the basis of impacts to Air Quality Related Values even if there is no violation of a Class I Increment, but in that case it bears the burden of demonstrating that the project should not be approved. If there will be a violation of a Class I Increment, the burden shifts to the applicant to demonstrate to the satisfaction of Federal Land Manager that there will be no adverse impact, notwithstanding the Class I Increment violation.[224] Thus, as Congress put it when it enacted these provisions, "[t]he Class I increment is a test for determining where the burden of proof lies and is an index of changes in air quality. It is not the final determinant for approval or disapproval of a permit application."[225]

In the event of a Class I Increment exceedance, applicants and reviewers should look to EPA's procedures for Federal Land Manager certification that there will not be any adverse impacts to Air Quality Related Values, as specified in 40 C.F.R. Section 52.21(p)(5)-(p)(8). If the Federal Land Manger certifies that it concurs with the applicant's demonstration of no adverse impact, the permit may be issued, provided that there will be no exceedances of any Class II Increment.[226] The Class II Increments therefore function as a backstop beyond which air quality is never allowed to deteriorate, even if an exceedance of a Class I Increment is allowed. Note that there are also procedures to appeal to the Governor if the Federal Land Manager does not concur that there will be no adverse impacts.[227]

4. District Review & Independent Determination of Compliance

Section 2-2-305 and EPA's PSD requirements place the initial onus on the project applicant to conduct the PSD Source Impact Analysis. But Section 2-2-305.4 makes clear that the Air District has the responsibility to review the applicant's demonstration to ensure that the proposed project will not cause or contribute to a violation of any ambient air quality standard or PSD Increment. The Air District must therefore conduct a thorough review of the model used in the analysis, the input data used, and whether the analysis as a whole is consistent with 40 C.F.R. Sections 52.21(k)-(m), the Appendix W *Guideline on Air Quality Models,* and other relevant requirements.[228]

If the analysis concludes that the project will not cause or contribute to any violation of any applicable ambient air quality standard or PSD Increment, then the project satisfies the requirements of Section 2-2-305 and the APCO can issue the permit (assuming all other applicable requirements are met). If the analysis finds that the project will cause or contribute

to a violation, then the APCO cannot issue the permit unless the applicant finds some way to offset the project's emissions increase such that the violation will be avoided. This could be done by reducing the emissions from the proposed project, or by generating sufficient emission reductions from other sources in the area to compensate for the adverse impacts that will result from the project.[229] If such reductions are obtained, the modeling exercise should be reevaluated to determine what the net ambient concentrations will be including such reductions. If the revised modeling results show no violation of any ambient air quality standard or PSD Increment, the project will satisfy Section 2-2-305 and can be issued a permit.[230]

VI. The PSD Additional Impacts Analysis Requirement

The third main element of the PSD requirements is the "Additional Impacts Analysis" requirement. If a project is a "PSD Project" under Section 2-2-224, then Section 2-2-306 requires an Additional Impacts Analysis to be undertaken before the Air District can issue an authority to construct.

Subsection 2-2-306.1 requires the applicant to prepare and submit an analysis of any impairment to "visibility" and "soils and vegetation" that would occur as a result of the project and any "commercial, residential, industrial, and other growth" associated with the project. Subsection 2-2-306.2 sets forth a related but distinct requirement for the applicant to prepare and submit an analysis of the projected air quality impacts of the general commercial, residential, industrial and other growth associated with the project. Both subsections incorporate their respective parallel provisions in the federal PSD regulations by reference, stating (i) that the analysis of visibility and soils and vegetation impacts should be conducted in accordance with the federal requirements for such analyses under 40 C.F.R. Section 52.21(o)(1), and (ii) that the analysis of growth associated with the project should be conducted in accordance with the federal requirements for such analyses under 40 C.F.R. Section 52.21(o)(2). The analysis should address all emissions from the project of pollutants subject to regulation under the Clean Air Act,[231] with exceptions for nonattainment pollutants,[232] greenhouse gases,[233] and any emissions that would be temporary (unless they would impact a Class I Area where an Increment is known to be violated).[234]

Taken together, these provisions establish three separate requirements that need to be addressed in the Additional Impacts Analysis:

- The Associated Growth Analysis;
- The Soils and Vegetation Impact Analysis; and
- The Visibility Impairment Analysis.

Under Subsection 2-2-306.3, the applicant bears the initial responsibility for preparing the Additional Impacts Analysis addressing these areas in its application. The Air District bears the ultimate responsibility for reviewing the analysis to ensure that it is complete and accurate, however.[235]

As with other aspects of PSD permitting, the Additional Impacts Analysis requires the exercise of sound judgment in determining how best to proceed in any given situation. Although EPA has established some guidelines that lay out the general parameters regarding what the analysis must cover, there are few hard-and-fast rules setting forth exactly how it must be conducted. As EPA put it in the *NSR Workshop Manual,* the Additional Impacts Analysis "does not lend itself to a 'cookbook' approach."[236]

Finally, it is worth noting that there is no demonstration that needs to be made under the Additional Impacts Analysis Requirement. That is, there is no regulatory standard in Section 2-2-306 (or the incorporated federal regulations) defining how much of an impact on visibility, soils and vegetation is allowable, and no level above which a project would not be eligible for a permit. The analysis will help provide a full picture of the project's environmental impacts, however, and it may also be useful for other regulatory purposes such as evaluating the project under the California Environmental Quality Act.[237]

A. Associated Growth

Numerically, the requirement directed specifically at impacts from associated growth is the second provision listed in Section 2-2-306 (in subsection 306.2). It makes sense to evaluate the extent of any growth associated with the project at the beginning of the analysis, however. The amount of any such growth needs to be established up front, so that the emissions from such growth can be included when considering whether there will be any impairment of visibility or soils and vegetation.

The regulation requires an evaluation of "commercial, residential, industrial, and other growth associated with the PSD Project." This "associated growth" includes any expansion of existing infrastructure that may be necessary to support the operation of the facility under review, such as additional growth in industries necessary to provide goods and services the facility will need to operate (*e.g.,* the production of raw materials, the development of maintenance facilities, etc.). It also includes any additional growth in residential development and related infrastructure needed to serve the project's workers (*e.g.,* new housing, schools, shopping facilities, etc.), and other similar types of new support infrastructure.[238] The potential for significant growth arising from projects in the Bay Area will likely be minimal in most cases, as the region has a large population and a highly developed and diversified economy that will be able to accommodate most projects without the need for adding significant new infrastructure. Each project needs to be evaluated on a case-by-case basis, however, to see if the existing workforce and the commercial and industrial infrastructure that will serve the project are adequate.[239] If not, the amount of new infrastructure that the project will necessitate must be determined.

Once the amount of additional growth associated with the project (if any) is determined, the amount of any additional air emissions from such growth needs to be calculated.[240] Mobile source emissions are excluded from this review, however, such as emissions from increased car and truck traffic generated by the growth.[241] The impact on ambient air pollutant concentrations from the "associated growth" emissions should be evaluated,[242] and the emissions should be included along with the project's direct emissions in evaluating the impacts on visibility and soils and vegetation, as discussed below.[243]

Note that any emissions from associated growth will also be relevant to the PSD Source Impact Analysis required under Section 2-2-305, which is required to take "secondary emissions" into consideration. Although "secondary emissions" and "associated growth" are distinct concepts, they are closely related and in most cases any emissions from associated growth will fall within the definition of "secondary emissions" that must be included in the Source Impact Analysis.[244] These issues are discussed in more detail in Sections V.C.3.a. and V.C.3.b. above.

B. Soils & Vegetation Impacts

The second element of the Additional Impacts Analysis is the soils and vegetation analysis. It is required by Section 2-2-306.1, which incorporates the federal PSD requirement in 40 C.F.R. Section 52.21(o)(1). The analysis evaluates the potential for air emissions from the project (and any associated growth) to cause adverse impacts to soils and vegetation. The analysis should be based on a comprehensive survey of soil types and vegetation in the vicinity of the project. In many cases, the Impact Area established for the PSD Source Impact Analysis (see Section V.C.3. above) will provide the appropriate area in which to undertake the survey, although in some cases a different survey area may be more appropriate. There are no specific rules governing how to define the survey area, so best technical judgment should be used. The survey does not need to include vegetation that does not have any significant commercial or recreational value.[245]

In most cases, soils and vegetation will not be adversely affected by pollutant concentrations below the NAAQS. In those cases, the demonstration made in the Source Impact Analysis that the project will not cause or contribute to pollutant concentrations exceeding the NAAQS will be sufficient to establish that there will be no adverse soils or vegetation impacts. (Note that the secondary NAAQS are established at levels designed to prevent any adverse impact to public welfare, which includes impacts on soils and vegetation.[246]) Some soils and vegetation types are especially sensitive, however, and can be harmed even at ambient concentrations below the NAAQS. Thus, the NAAQS-compliance demonstration in the Source Impact Analysis cannot necessarily be relied on in all cases.[247]

Instead, a careful literature search should be carried out for the vegetation types with significant commercial or recreational value in the vicinity of the project to identify the relevant air pollution levels that may cause them harm. These impact thresholds should then be compared to the concentrations that will result from the project (plus any associated growth) to see whether there will be any potential for adverse impacts. If pollutant concentrations will exceed any such thresholds, the analysis should evaluate the nature and extent of the project's effects, compared to existing (*i.e.,* pre-project) conditions.[248]

C. Visibility Impacts

The third element of the Additional Impacts Analysis is the visibility analysis, which is also required under Section 2-2-306.1 (incorporating the federal PSD requirement in 40 C.F.R. Section 52.21(o)(1)). As the name implies, the analysis evaluates whether the project (and any associated growth) will impair visibility in the vicinity of the project.

Note that this requirement is distinct from the requirement set forth in Sections 2-2-401.4 and 2-2-307 requiring an evaluation of impacts on visibility and other "Air Quality Related Values" in Class I Areas. That requirement, which is discussed in detail in Chapter 6, is focused exclusively on Class I Areas, whereas the visibility analysis required by Section 2-2-306 evaluates visibility generally in all areas around the facility (*i.e.,* in the Impact Area or other appropriate area identified for evaluation).[249] The Class I Area analysis is required only if the project is within 100 km of a Class I Area, whereas the Section 2-2-306 visibility analysis is required for all PSD Projects in the Bay Area, regardless of location.[250] In addition, the Class I Area analysis is prepared for review by the Federal Land Manager (in the first instance, at least), whereas the Section 2-2-306 visibility analysis is reviewed and approved directly by the Air District.[251] And Section 2-2-306 simply requires that the potential for impacts on visibility must be analyzed; it does not specify any maximum amount of visibility impairment above which the project will be ineligible for a permit.[252] Under Section 2-2-307's requirements for Class I Areas, the APCO can deny a permit for a project where the Federal Land Manager finds that the project will cause adverse impacts on visibility (or any other Air Quality Related Values) under the process outlined in Chapter 6.

Despite these differences between the consideration of visibility impacts in the Section 2-2-306 Additional Impacts Analysis and the consideration in the Section 2-2-307 Class I Area Impacts Analysis, the two analyses will most likely have significant overlap, for obvious reasons. It will therefore be advisable in most cases to keep both requirements in mind in planning for how to undertake the analyses, although care must be taken to ensure that all of the required elements of the two separate provisions are satisfied.

As with so many other aspects of PSD analysis, there are few hard-and-fast rules governing how to analyze visibility impacts under Section 2-2-306.1 and the incorporated federal requirements in 40 C.F.R. Section 52.21(o)(1).[253] The basic approach normally utilizes a screening procedure to rule out sources with little potential for affecting visibility. The first level of the screening analysis uses a model like VISCREEN or CALPUFF (for longer-range impacts) to compare a source's impacts to standardized screening values using conservative assumptions. Sources below the screening values are determined not to have any adverse impacts. Sources above the screening values move on to the second level, where the potential impacts are modeled using more specific information regarding the source, local topography, regional visible range, and worst-case meteorological conditions. If the second-level screening still indicates a potential for adverse impacts, a third level of analysis is undertaken using a detailed plume visibility model and meteorological and other regional data. This most refined level of analysis will provide an accurate assessment of the magnitude and frequency of any potential visibility impacts.[254]

EPA has published a number of guidance documents that can provide more information on conducting the visibility analysis, including its *Workbook for Plume Impact Screening and Analysis,*[255] *User's Manual for the Plume Visibility Model,*[256] and *Workbook For Estimating Visibility Impairment.*[257] Applicants and reviewers are encouraged to consult those guidance documents.

Endnotes to Chapter 5

[1] *See* BAAQMD Reg. 2-2-307. The first sentence of Section 2-2-307 provides that the requirement applies to (i) a new major facility or a major modification to a major facility for NOx, VOC, SO_2 or $PM_{2.5}$, and (ii) any PSD Project. The Class I Area Analysis requirement is addressed separately in Chapter 6, as it applies to a larger universe of projects than just PSD Projects.

[2] Nonattainment pollutants are excluded from the District's PSD requirements under the definition of "PSD Pollutant" in Section 2-2-223. Nonattainment pollutants are also excluded from PSD regulation under 40 C.F.R. Section 52.21(i)(2), which provides that the PSD requirements in 40 C.F.R. Sections 52.21(j) through (r) (*i.e.,* all of the substantive provisions of the PSD regulation) do not apply with respect to a particular pollutant in an area that is designated as nonattainment for that pollutant. All of the PSD provisions in Regulation 2-2 explicitly incorporate this exemption for nonattainment pollutants.

[3] *See* 40 C.F.R. Section 55.21(b)(50)(v), which excludes listed Hazardous Air Pollutants (HAPs) from the "Regulated NSR Pollutant" definition. The specific listed HAPs that are excluded under this provision can be found in Section 112(b) of the Clean Air Act, as modified by EPA in 40 C.F.R. Part 63, Subpart C. Note that this list is largely the same as the District's list of Toxic Air Contaminants, with a few exceptions.

[4] 40 C.F.R. Section 52.21(b)(50)(iv) defines "Regulated NSR Pollutant" to include "[a]ny pollutant that otherwise is subject to regulation under the Act as defined in paragraph (b)(49) of this section." 40 C.F.R. Section 52.21(b)(49)(iv), in turn, provides that GHGs are "subject to regulation" where they are emitted from a facility that is a "major" facility for some other PSD pollutant other that GHGs, and there will be new emissions (or an increase in emissions) of 75,000 tpy CO_2e from the facility. Thus, in order for a facility's GHG emissions to be subject to PSD requirements, (i) the facility must exceed the 100/250 tpy "major" facility threshold for a regulated pollutant *other* than GHGs; and (ii) the project at issue must involve an increase in GHG emissions of 75,000 tpy CO_2e or more. If either of these conditions is not met, then the GHGs are not "subject to regulation" and are not a "Regulated NSR Pollutant" under EPA's federal provision—and thus not a "PSD Pollutant" under District Regulation 2-2-223.

[5] An additional provision in 40 C.F.R. Section 52.21(b)(49)(v) would have made facilities subject to PSD regulation if they emitted greenhouse gases in amounts of 100,000 tpy CO_2e or more, regardless of whether or not the facility was over the 100/250 tpy threshold for another pollutant. But this provision was vacated by the United States Court of Appeals for the D.C Circuit in *Coalition for Responsible Regulation, Inc. v. EPA,* D.C. Cir. Case Nos. 09-1322 et al. (Amended Judgment, Apr. 10, 2015), in the wake of the Supreme Court's decision in *Utility Air Regulatory Group,* 134 S.Ct. 2427 (2014). As a result, greenhouse gases are subject to PSD regulation only if they are emitted from a facility that is "major" for some other PSD pollutant.

[6] This feature of the "PSD Pollutant" does not affect any of the other substantive BACT requirements in Regulation 2-2, because they all incorporate the federal PSD requirements by reference, and the federal PSD requirements apply only for pollutants that are attainment (or unclassifiable) for the federal NAAQS. Federal nonattainment pollutants are exempted from the PSD requirements under 40 C.F.R. Section 52.21(i)(2), which is incorporated by reference into all of the other substantive PSD requirements in Regulation 2-2.

[7] *See* 40 C.F.R. § 81.305.

[8] This is also the approach taken under the federal PSD regulations, as 40 C.F.R. Section 52.21(i)(2) exempts a pollutant from PSD regulation if the region is nonattainment for any standard applicable to that pollutant. This exemption is also incorporated into the District's PSD requirements.

[9] Section 2-2-224.1 does not actually use the term "major facility" in its regulatory text. It simply specifies the 100 tpy and 250 tpy thresholds that constitute the major facility thresholds in the federal PSD Program. (The term "major facility" is referenced in the title of subsection 224.1, but not in the actual regulatory language of the subsection, which is the legally binding regulatory language.)

The Air District's regulations do not use this term in connection with defining projects subject to the PSD requirements because "major facility" used in another place in the regulations in a different context. (*See* BAAQMD Reg. 2-2-217.) To avoid confusion, Section 2-2-224.1 simply states the applicable thresholds for being a PSD major facility, without actually creating a new definition of "major facility" for purposes of the PSD provisions.

[10] BAAQMD Reg. 2-2-224.1. As noted above in Chapter 2, Section II.B.2.a. (note 30), the list of the 28 specific NSR facility categories appears in a number of places throughout the NSR program. For purposes of the District's "PSD Project" definition, the list is the one set forth in Section 169(1) of the Clean Air Act. The specific list referenced does not make a difference, however: the list is the same in each of the different places in which it appears.

[11] BAAQMD Reg. 2-2-224.1.

[12] If the current project pushes the facility's PTE over the 100/250 tpy threshold, then the facility will be a "major" facility for any *subsequent* projects, of course.

[13] BAAQMD Reg. 2-2-224, last sentence. For example, if a facility in one of the listed categories has a PTE of only 50 tpy, it is below the applicable 100 tpy PSD "major" facility threshold. New or modified sources at such a facility would therefore not normally constitute a "PSD Project" because the facility does not trigger Section 2-1-224.1. If the facility were to implement a project that would result in an emissions increase of 125 tpy all by itself, however, the project could constitute a "PSD Project" (assuming the requirements for a significant increase and a significant net increase under subsections 224.2 and 224.3 are met).

[14] The exclusion of GHGs arises from the fact that the Air District's definition of "PSD Pollutant" in Section 2-2-223 is based on the federal definition of "Regulated NSR Pollutant" under in 40 C.F.R. Section 52.21(b)(50), which in turn is defined as any pollutant "subject to regulation" as provided in 40 C.F.R. Section 52.21(b)(49). GHGs are not "subject to regulation" under 40 C.F.R. Section 52.21(b)(49)(iv) unless they are emitted from a facility that is "major" for some other pollutant, meaning that they are not a "Regulated NSR Pollutant" under in 40 C.F.R. Section 52.21(b)(50)—and thus not a "PSD Pollutant" under Section 2-2-223 of the District's regulations—unless they are emitted from a facility that is "major" for some other pollutant. If the facility is a "major" facility for some other pollutant, then the facility's GHG emissions will be "subject to regulation" (and will thus be a "Regulated NSR Pollutant" and a "PSD Pollutant") where the project under review will result in a GHG emissions increase of 75,000 tpy CO_2e or more. (*See* 40 C.F.R. § 52.21(b)(49)(iv).)

[15] BAAQMD Reg. 2-2-224.2.

[16] "New Source" is defined for purposes of Regulation 2 in Section 2-1-232 as any source that has not been in existence before. Note that this is different from the federal definition of "new emissions unit," which includes truly "new" sources as well as existing sources that have been in operation for up to two years. (*See* 40 C.F.R. §§ 51.165(a)(1)(vii)(A), 51.166(b)(7)(i), 52.21(b)(7)(i).) For purposes of Section 2-2-604, a "new" source includes only true new sources.

[17] BAAQMD Reg. 2-2-604.1.

[18] BAAQMD Reg. 2-2-604.2 (referencing Section 2-2-603's calculation procedures).

[19] Section 2-2-223 of the Air District's regulations defines "PSD Pollutant" to include GHGs to the extent they are a "Regulated NSR Pollutant" under EPA's federal regulations in 40 C.F.R. Section 52.21(b)(50). As noted above (*see* note 14), GHGs are a "Regulated NSR Pollutant"—and thus a "PSD Pollutant"—where they are emitted from a facility that is above the 100/250 tpy "major" facility threshold for some other pollutant, and where the emissions increase from the project under review will be 75,000 tpy CO_2e or more.

[20] If the GHGs from a project satisfy the requirements for being a "Regulated NSR Pollutant" and a "PSD Pollutant" as outlined in the preceding note, then the project will by definition satisfy the first two elements of the "PSD Project" definition in Section 2-2-224. That is, they will by definition be emitted from a facility over the 100/250 tpy "major" facility threshold under subsection 2-2-224.1, and they will be emitted in an amount of 75,000 tpy CO_2e or more, which is the "significant" increase threshold specified in Section 2-2-227.1. The only remaining question in that case would be whether there will be a "significant net increase" in emissions.

Note also that under the Air District's definition of "PSD Project" in Section 2-2-224, the two-part federal "significant increase" test in the federal NSR applicability rules—requiring (i) an increase in the absolute mass of GHG emissions by some amount more than zero; and (ii) an increase in CO_2e by 75,000 tpy or more—does not apply. (This two-part federal test was discussed in Chapter 2, Section II.B.2.b.ii.) The Air District's PSD provisions simply use a straightforward 75,000 tpy CO_2e threshold.

The two-part federal test arises because technically, the federal "significance" definition in 40 C.F.R. Sections 51.166(b)(23)(i) and 52.21(b)(23)(i) does not state a significance level for GHGs. As such, the catch-all provision in 40 C.F.R. Sections 51.166(b)(23)(ii) and 52.21(b)(23)(ii) applies instead, establishing that the "significance" threshold is actually zero pounds (on a mass basis). This means that the GHG emissions increase has to be 75,000 tpy CO_2e in order for the GHGs to be a "Regulated NSR Pollutant," *and* the increase has to be more than zero in terms of absolute mass of emissions in order for the increase to be "significant" under the federal definition.

The Air District's regulations are different, because they *do* define a "significance" threshold for GHGs, at 75,000 tpy CO_2e. (*See* BAAQMD Reg. 2-2-227.1.) This 75,000 tpy CO_2e threshold matches the 75,000 tpy CO_2e threshold in the "subject to regulation" definition, making a single threshold level that applies both for making GHGs "regulated" and making them "significant." The bottom line is that if an emissions increase is 75,000 tpy CO_2e or more, it can trigger the PSD requirements under the Air District's regulations (assuming it is at a facility that is "major" for some other pollutant and all other requirements for applicability are present)—regardless of whether or not there is any increase on an absolute mass basis.

[21] BAAQMD Reg. 2-2-603.5.

[22] BAAQMD Regs. 2-2-603.1.1 (end date for baseline period is date of complete application) & 2-2-603.2.1 (3-year baseline period for all pollutants except GHGs).

[23] BAAQMD Reg. 2-2-603.2.2.2.

[24] BAAQMD Regs. 2-2-603.2.2.3 & 603.2.2.4. The applicable definition for Electric Utility Steam Generating Unit is the federal definition listed in 40 C.F.R. Section 51.166(b)(30). *(Id.)*

[25] BAAQMD Reg. 2-2-603.2.2.3. The requirement to use the same 24-month baseline period for all sources involved in a project applies to each individual baseline emissions calculation. It does

not restrict the use of different baseline periods for the respective baseline emissions calculations for different pollutants, as long as the same 24-month period is used for all sources for each individual pollutant.

[26] BAAQMD Reg. 2-2-603.2.2.4. The requirement to use the same 24-month baseline period for all sources involved in a project applies to each individual baseline emissions calculation. It does not restrict the use of different baseline periods for the respective baseline emissions calculations for different pollutants, as long as the same 24-month period is used for all sources for each individual pollutant.

Note also that for non-EUSGU sources, there is no option to use an alternative, more representative baseline. This is the trade-off for getting the longer 10-year "look-back" period from which the 24-month baseline period can be selected.

[27] BAAQMD Reg. 2-2-603.5.

[28] BAAQMD Regs. 2-2-603.3 & 603.4.

[29] BAAQMD Reg. 2-2-603.6. Note that any downward adjustment in the baseline emissions is limited to the adjustment that would have to be applied under the federal PSD baseline rules in 40 C.F.R. Sections 51.166(b)(47)(i)(b) (for EUSGUs) and 51.166(b)(47)(ii)(b)&(c) (for sources other than EUSGUs). This may exclude certain MACT standards from the "surplus" adjustment in some cases.

[30] BAAQMD Reg. 2-2-603.6 (final clause). The federal baseline rules do not require the "surplus" adjustment for EUSGUs. The adjustment requirement in the non-EUSGU provision in 40 C.F.R. Section 51.166(b)(47)(ii)(c) has no analogous requirement in the EUSGU provision in 40 C.F.R. Section 51.166(b)(47)(i). Therefore, no adjustment is required under the District's rule either pursuant to Section 2-2-603.6., which states that no adjustment needs to be applied beyond what is required under the federal rules.

[31] BAAQMD Reg. 2-2-603.6.

[32] BAAQMD Reg. 2-2-603.7.

[33] BAAQMD Reg. 2-2-604.2.

[34] *See* BAAQMD Reg. 2-2-224.2. Under the language of this definition, the second step in the test for whether a modification constitutes a "PSD Project" looks only at "[t]he emissions from the new source(s) and/or the *increase* in emissions from the modified source(s) . . ." (emphasis added)—*i.e.,* not any decreases. This rule tracks what appears to be EPA's current approach under the federal NSR program. (*See* discussion in Chapter 2, Section II.B.2.b.iii. & note 94.)

[35] BAAQMD Reg. 2-2-224.2. Note that the table in Section 2-2-227 also includes significance levels for a few pollutants that are not "PSD Pollutants" subject to the PSD provisions in Regulation 2-2, such as VOC and $PM_{2.5}$. These pollutants are included in the table because they are relevant to the NAAQS Protection requirement, which is discussed in Chapter 6, Section II. They are excluded from the PSD requirements in Sections 2-2-304 through 2-2-307 because they are nonattainment pollutants. 40 C.F.R. Section 52.21(i)(2), which is incorporated by reference into those provisions, excludes nonattainment pollutants from PSD requirements.

[36] BAAQMD Reg. 2-2-227.1.

[37] There is also an additional requirement under the federal PSD program that there must be ***both*** an increase in GHGs of over 75,000 tpy measured on a CO_2e basis ***and*** an increase of any amount (over zero) measured on an absolute mass basis. This requirement does not apply under the District's program, however. (*See* note 20, *supra.*) The Air District's NSR Program uses its own "sig-

nificance" thresholds, set forth in Section 2-2-227; it does not incorporate the federal regulation with respect to this provision.

[38] BAAQMD Reg. 2-2-227.1.1.

[39] BAAQMD Reg. 2-2-227.1.2.

[40] BAAQMD Reg. 2-2-224.3.

[41] BAAQMD Reg. 2-2-220.

[42] *See generally* BAAQMD Reg. 2-2-603.1.2, specifying the baseline period calculation methodology for such changes.

[43] These requirements for emissions reductions to qualify for the netting exercise are stated explicitly in the definition of "Emission Reduction Credit" in Section 2-2-211. But they are also inherent in the baseline calculation procedures applicable to the netting analysis in Section 2-2-603. If an emission reduction does not satisfy these requirements, then it will not generate any usable reductions when Section 2-2-603's calculation procedures are applied.

[44] BAAQMD Reg. 2-2-206.

[45] BAAQMD Reg. 2-2-207.

[46] *Ibid.*

[47] BAAQMD Reg. 2-2-603.1.1 (baseline period ends on date of complete application for authority to construct); BAAQMD Reg. 2-2-603.2.1 (baseline period is the 3 years preceding that date for pollutants other than GHGs).

[48] This type of prior increase could include physical changes to a source or changes in a method of operation of a source that increased emissions, but not to such an extent that the change constituted a "modification" that had to go through NSR permitting. It is not likely that there will be many such changes, given the stringency of the Air District's "modification" test, which should pick up nearly all such increases. It is conceivable, however, that there could potentially be a prior change that resulted in an increase that was not a "modification" subject to NSR permitting.

[49] BAAQMD Reg. 2-2-603.1.2 (for increases that were not a "modification," baseline period ends on date change was first implemented); BAAQMD Reg. 2-2-603.2.1 (baseline period is the 3 years preceding that date for pollutants other than GHGs).

[50] BAAQMD Regs. 2-2-603.3 through 2-2-603.7.

[51] BAAQMD Reg. 2-2-604.

[52] BAAQMD Reg. 2-2-603.1.3.

[53] BAAQMD Reg. 2-2-603.2.1.

[54] BAAQMD Regs. 2-2-603.3 through 2-2-603.7.

[55] BAAQMD Reg. 2-2-604.2.

[56] BAAQMD Reg. 2-2-603.2.2.2.

[57] BAAQMD Regs. 2-2-603.2.2.3 and 2-2-603.2.2.4.

[58] BAAQMD Reg. 2-2-304, first sentence.

[59] BAAQMD Reg. 2-2-304, second sentence.

[60] 40 C.F.R. § 52.21(b)(12). This definition is derived from CAA Section 169(3), 42 U.S.C. § 7479(3), which is identical except for a few minor non-material word changes.

[61] In addition to cost-effectiveness, other reasons that a facility may not have to apply the same controls as other similar facilities have achieved in practice include energy impacts and ancillary

environmental impacts. (*See* discussion of Step 4 of the top-down BACT analysis below.)

[62] *In re Northern Mich. Univ. Ripley Heating Plant,* 14 E.A.D. 283, 291 (EAB 2009) (internal quotation marks and citations omitted); *see also In re Prairie State Generating Co.,* 13 E.A.D. 1, 12 (EAB 2006), *aff'd sub nom. Sierra Club v. EPA,* 499 F.3d 653 (7th Cir. 2007); *In re Three Mountain Power, LLC,* 10 E.A.D. 39, 47 (EAB 2001); *In re Knauf Fiber Glass, GmbH,* 8 E.A.D. 121, 128-29 (EAB 1999).

[63] 40 C.F.R. § 52.21(b)(12).

[64] EPA, *New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting* (Draft, Oct. 1990) (hereinafter, *"NSR Workshop Manual"*), at pp. B.5-B.9. EPA has consistently applied the "top-down" approach since the *NSR Workshop Manual* came out. (*See* EPA Office of Air Quality Planning & Standards, *PSD and Title V Permitting Guidance for Greenhouse Gases* (Mar. 2011), available at **www.epa.gov/sites/production/files/2015-07/documents/ghgguid.pdf** (hereinafter *"GHG Permitting Guidance"*), at pp. 17-19; *see also generally Northern Mich. Univ., supra* note 62, 14 E.A.D. at 292-94; *In re Desert Rock Energy Co.,* 14 E.A.D. 484, 521-24 (EAB 2009); *Prairie State, supra* note 62, 13 E.A.D. at 13-14.) The Environmental Appeals Board has emphasized that the "top-down" approach is not mandatory (*Prairie State, supra* note 62, 13 E.A.D. at 13), but an analysis that follows this approach will presumptively comply the federal PSD BACT procedure required under 40 C.F.R. Section 52.21(j).

[65] *NSR Workshop Manual, supra* note 64, at p. B.5.

[66] *Id.* at p. B.13; *GHG Permitting Guidance, supra* note 64, at pp. 26-27. Note, however, that the federal PSD BACT standard does not *prohibit* permitting agencies from requiring a redesign of the source in order to implement BACT. It simply does not require permitting agencies to do so, leaving them with the discretion to choose to do so in appropriate circumstances. (*NSR Workshop Manual, supra* note 64, at p. B.13; *GHG Permitting Guidance, supra* note 64, at pp. 26-27 & fn. 71.)

[67] *NSR Workshop Manual, supra* note 64, at p. B.13; *In re SEI Birchwood, Inc.,* 5 E.A.D. 25, 29-30 & fn. 8 (EAB 1994).

[68] *In re Kendall New Century Dev.,* 11 E.A.D. 40, 50-52 & fn. 14 (EAB 2003).

[69] *Sierra Club v. EPA,* 499 F.3d 653, 656 (7th Cir. 2007).

[70] *NSR Workshop Manual, supra* note 64, at p. B.7.

[71] *Id.* at pp. B.17-B.22; *see also Prairie State, supra* note 62, 13 E.A.D. at 34-38; *In re Cardinal FG Co.,* 12 E.A.D. 153, 163-68 (EAB 2005); *In re Steel Dynamics, Inc.,* 9 E.A.D. 165, 199-202 (EAB 2000).

[72] *NSR Workshop Manual, supra* note 64, at pp. B.7.-B.8, B.22; *see also In re Newmont Nev. Energy Inv., LLC, TS Power Plant,* 12 E.A.D. 429, 459-64 (EAB 2005).

[73] *NSR Workshop Manual, supra* note 64, at pp. B.8-B.9 and B.26-B.53.

[74] *Id.* at p. B.26; *see also Prairie State, supra* note 62, 13 E.A.D. at 38-51; *Three Mountain Power, supra* note 62, 10 E.A.D. at 42-43 fn. 3; *Steel Dynamics, supra* note 71, 9 E.A.D. at 202-07, 212-13.

[75] *Steel Dynamics, supra* note 71, 9 E.A.D. at 202.

[76] *NSR Workshop Manual, supra* note 64, at pp. B.36-B.41.

[77] *Id.* at pp. B.41-B.44.

[78] *Id.* at pp. B.44-B.46.

[79] *Id.* at pp. B.46-B.53.

[80] *Id.* at pp. B.9, B.53.

[81] *Id.* at pp. B.2, B.56; *see also Prairie State, supra* note 62, 13 E.A.D. at 14, 51.

[82] Section 2-2-202 allows BACT to be imposed either as "the most effective control device or technique" that is achieved in practice or technologically feasible and cost-effective (subsections 202.1 and 202.3), or as "the most stringent emission limitation" that is achieved in practice or technologically feasible and cost-effective (subsections 202.2 and 202.3).

[83] 40 C.F.R. § 52.21(b)(12).

[84] *See, e.g., Three Mountain Power, supra* note 62, 10 E.A.D. at 54; *NSR Workshop Manual, supra* note 64, at p. B.56.

[85] *See, e.g., In re Russell City Energy Center LLC,* 15 E.A.D. 1, 58-59 (EAB 2011), *aff'd sub. nom Chabot-Las Positas Comm. Coll. Dist. v. EPA,* 482 Fed. App'x 219 (9th Cir. 2012); *Prairie State, supra* note 62, 13 E.A.D. at 55; *Newmont Nev. Energy, supra* note 72, 12 E.A.D. at 441-43; *Steel Dynamics, supra* note 71, 9 E.A.D. at 188.

[86] 40 C.F.R. § 52.21(b)(12); *see also NSR Workshop Manual, supra* note 64, at p. B.56.

[87] *GHG Permitting Guidance, supra* note 64.

[88] *Id.* at p. 32.

[89] *Id.* at p. 36.

[90] *Id.* at pp. 42-43.

[91] *Id.* at p. 43.

[92] *Id.* at pp. 28-32. This same principle applies for criteria pollutants as well, of course, as EPA recognizes in the *Guidance.* But the nature of GHG emissions, with few well-developed add-on control options, highlights this point all the more.

[93] *Id.* at p. 30.

[94] Although EPA's regulations do not say so explicitly, the Environmental Appeals Board has held that the Source Impact Analysis requirement applies only to pollutants for which the project will cause a significant net emissions increase. *(See Northern Mich. Univ., supra* note 62, 14 E.A.D. at 307-08 & fn. 34.) The Air District's regulation in Section 2-2-305 incorporates this significant net increase applicability threshold explicitly.

[95] *See, e.g.,* EPA Office of Air Quality Planning & Standards, *Guidance for $PM_{2.5}$ Permit Modeling,* Pub. No. EPA-454/B-14-001 (May 2014) (hereinafter, *"Guidance for $PM_{2.5}$ Permit Modeling"),* at pp. 21, 51.

[96] *Guideline on Air Quality Models,* 40 C.F.R. pt. 51, App. W (hereinafter, *"Appendix W Guideline on Air Quality Models").* Appendix W is binding under the federal regulations as well, pursuant to 40 C.F.R. Section 52.21(l).

[97] *See, e.g., Prairie State, supra* note 62, 13 E.A.D. at 99-100 ("Appendix W is replete with references to 'recommendations,' 'guidelines,' and reviewing authority discretion."); *see also* Proposed Rule, *Prevention of Significant Deterioration New Source Review: Refinement of Increment Modeling Procedures,* 72 Fed. Reg. 31,372, 31,376 (June 6, 2007) (hereinafter, (*"Increment Consumption Modeling Refinement Preamble"*).

[98] *Appendix W Guideline on Air Quality Models, supra* note 96, § 10.1.a.

[99] *See NSR Workshop Manual, supra* note 64. The *NSR Workshop Manual* provides a great deal

of detailed guidance on how to conduct the PSD Source Impact Analysis (along with a number of other NSR-related topics), and it has been cited as very influential in setting forth how the analysis should be conducted. (*See, e.g., In re Indeck-Elwood, LLC,* 13 E.A.D. 126, 159 & fn. 65 (EAB 2006) (collecting cases).) It is not a formal regulation, however, and it is not legally binding, and in certain areas it has been superseded by other EPA regulatory and policy developments. (*See Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,379-80.) Applicants and reviewers are therefore advised to familiarize themselves with the *NSR Workshop Manual's* procedures, but also to check other authorities before relying on the guidance set forth in the *Manual.*

[100] EPA Office of Air Quality Planning & Standards, *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD),* Pub. No. EPA-450/4-87-007 (May 1987) (hereinafter, *"Ambient Monitoring Guidelines"*), available at **www.epa.gov/region07/air/nsr/nsrmemos/monguide.pdf.** The *Ambient Monitoring Guidelines* have been cited as persuasive by the Environmental Appeals Board regarding EPA Policy for implementing PSD monitoring requirements. (*See, e.g., Northern Mich. Univ., supra* note 62, 14 E.A.D. at 323-26; *In re Hawaii Elec. Light Co., Inc.,* 8 E.A.D. 66, 99 (EAB 1998).)

[101] EPA publishes all of its EAB opinions on its website at **www.epa.gov/eab.** In addition, the Lexis and Westlaw legal research services have searchable databases of EAB opinions.

[102] EPA has a webpage that collects various agency guidance documents and related resources regarding PSD modeling at **www.epa.gov/ttn/scram/guidance_permit.htm.**

Notable sources of guidance include EPA's *Increment Consumption Modeling Refinement Preamble* (*supra*, note 97), in which EPA proposed a number of regulatory revisions to clarify how the PSD Increment analysis should be conducted. This proposed rulemaking was never finalized, but the discussion in the *Preamble* for the proposed rule summarizes many of EPA's policies and procedures for conducting the Increment analysis under the current regulations, which are still applicable today.

In addition, EPA's Office of Air Quality Planning and Standards published a *Guidance for $PM_{2.5}$ Permit Modeling* in May of 2014 (*see supra* note 95) to address how the PSD Source Impact Analysis should be conducted in the wake of the *Sierra Club v. EPA* decision. This guidance document is aimed principally at $PM_{2.5}$, which is not subject to PSD requirements in the Bay Area because the region is nonattainment for $PM_{2.5}$. But the guidance addresses a number of issues that apply to PSD permitting generally, and in those respects it is helpful for understanding EPA policy and practice for addressing other PSD pollutants as well.

Other relevant and useful guidance documents include EPA's *Screening Procedures for Estimating Air Quality Impact of Stationary Sources (Revised),* Pub. No. 454/R-92-019 (Oct. 1992) and Final Report, *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals,* Pub. No. 450/2-81-078 (Dec. 12, 1980).

[103] *See Appendix W Guideline on Air Quality Models, supra* note 96, § 10.2.1; *NSR Workshop Manual, supra* note 64, at p. C.2.

[104] *Sierra Club v. EPA,* 705 F.3d 458 (D.C. Cir. 2013).

[105] *See* BAAQMD Reg. 2-2-305.1, which incorporates the requirements of 40 C.F.R. Section 52.21(m)(1). Section 52.21(m)(1) sets forth the requirements for information on pollutants for which the project will have a significant net increase (subsection (m)(1)(i)(b)) and pollutants for which the facility's PTE will be significant (subsection (m)(1)(i)(a)). The applicable "significant" thresholds

for purposes of this requirement are the standard NSR significance thresholds set forth in Section 2-2-227.1 and in 40 C.F.R. Section 52.21(b)(23).

[106] 40 C.F.R. §§ 52.21(i)(5)(i) & (i)(5)(ii). Pollutants are also exempted altogether if they do not have an established SMC. (40 C.F.R. § 52.21(i)(5)(iii).)

[107] 40 C.F.R. § 52.21(i)(5)(iii).

[108] *Sierra Club v. EPA, supra* note 104, 705 F.3d at 467 (citations and internal quotation marks omitted).

[109] Final Rule, *Prevention of Significant Deterioration for Particulate Matter Less Than 2.5 Micrometers—Significant Impact Levels and Significant Monitoring Concentration: Removal of Vacated Elements* (hereinafter, *"Removal of Vacated $PM_{2.5}$ SIL & SMC Provisions"),* 78 Fed. Reg. 73,698, 73,699 (Dec. 9, 2003).

[110] 40 C.F.R. § 52.21(m)(1)(iii).

[111] *NSR Workshop Manual, supra* note 64, p. C.19; *In re Encogen Cogeneration Facility,* 8 E.A.D. 244, 256 (EAB 1999); *Ambient Monitoring Guidelines, supra* note 100, at pp. 6-9.

[112] *Northern Mich. Univ., supra* note 62, 14 E.A.D. at 326; *In re Hawaii Electric Light Co., Inc.,* 10 E.A.D. 219, 225-26 (EAB 2001); *Ambient Monitoring Guidelines, supra* note 100, at p. 6.

[113] 40 C.F.R. § 52.21(m)(1)(iv); *see also NSR Workshop Manual, supra* note 64, at p. C.19.

[114] *Appendix W Guideline on Air Quality Models, supra* note 96, § 10.2.2.d.

[115] 40 C.F.R. § 52.21(m)(1)(ii).

[116] *GHG Permitting Guidance, supra* note 64, at p. 48.

[117] BAAQMD Reg. 2-2-305. The universe of pollutants for which modeling must be undertaken is determined by the pollutants for which the determination of no violation of an ambient air quality standard or PSD increment must be made under Section 2-2-305. This determination, by definition, is required only for pollutants for which an ambient air quality standard and/or PSD increment has been established. Furthermore, under the terms of Section 2-2-305, it applies only for pollutants for which "the net increase in emissions will be significant."

[118] BAAQMD Reg. 2-2-305.3 (specifying that all required modeling shall be based on applicable air quality models, databases, and other requirements specified in Appendix W *Guideline on Air Quality Models*); *see also* 40 C.F.R. § 52.21(l)(1) (same).

[119] *Appendix W Guideline on Air Quality Models, supra* note 96, § 3.1 & App. A.

[120] *Id.,* §§ 6.1.c., 6.2.3.b.

[121] BAAQMD Reg. 2-2-305.3; *see also* 40 C.F.R. § 52.21(l)(2), *Appendix W Guideline on Air Quality Models, supra* note 96, at § 3.2.

[122] BAAQMD Reg. 2-2-305.3. In order to satisfy this public notice and comment requirement for alternative models, the document discussing the PSD Source Impact Analysis that is circulated for public comment under Section 2-2-404 should include a section specifically discussing model selection issues. This discussion should state the reasons why the model suggested in the *Guideline's* Appendix A is not appropriate and why the modification or substitution of another model is more appropriate. The District should also consider and respond to any comments received on this issue during the comment period. Note that this notice-and-comment requirement is only applicable to federally-required modeling. For modeling used solely to demonstrate compliance with California ambient air quality standards, any APCO-approved alternative model may be used,

with no public notice and comment opportunity required.

123 *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.3.1.2.b.; *see also NSR Workshop Manual, supra* note 64, at p. C.39. For long-range transport situations, less than 5 (but at least 3) years of data can be used. (*Appendix W Guideline on Air Quality Models, supra* note 96, § 8.3.1.2.d.)

124 *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.3.a.; *see also id.* § 8.3.c.

125 BAAQMD Reg. 2-2-606; *see also NSR Workshop Manual, supra* note 96, at pp. C.42-C.43.

126 40 C.F.R. §§ 52.21(k); *NSR Workshop Manual, supra* note 64, at p. A.18; *Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 165 fn. 60.

127 *See* 40 C.F.R. § 52.21(b)(18). Emissions from "associated growth," which is addressed in the Additional Impacts Analysis required under Section 2-2-306 (*see* discussion in Section VI.A. below), are included as "secondary emissions." (*See NSR Workshop Manual, supra* note 64, at pp. C.25 & D.3., fn. 5.)

128 *See* 40 C.F.R. § 52.21(b)(18). Note that there is some confusing language in subsection (b)(18)(i) that references emissions from ships and trains, which appears immediately after the language excluding emissions that come directly from mobile sources. It is not exactly clear what the purpose of this subsection is, but it does not appear to suggest that ship and train emissions should be included as secondary emissions. The language does not make grammatical sense, as it does not itself state whether such emissions should or should not be included as secondary emissions. Moreover, reading it to bring ship and train emissions within the definition of "secondary emissions" would be contrary to EPA's stated regulatory intent. (*See* Final Rule, *Requirements for Preparation, Adoption, and Submittal of Implementation Plans; Approval and Promulgation of Implementation Plans,* 47 Fed. Reg. 27,554 (June 25, 1982).)

129 Final Rule, Requirements for Implementation Plans; Air Quality New Source Review (hereinafter, (*"Secondary Emissions Rulemaking"*), 54 Fed. Reg. 27,286, 27,289 (June 28, 1989). Another example is a quarry owned by one company that would be located next to a proposed cement plant owned by another and that would supply the cement plant. (*Id.*)

130 *See NSR Workshop Manual, supra* note 64, at p. A.18; *Secondary Emissions Rulemaking, supra* note 129, 54 Fed. Reg. at 27,289; *Encogen Cogeneration Facility, supra* note 111, 8 E.A.D. at 258.

131 *See NSR Workshop Manual, supra* note 64, at pp. C.25, C.27 (fig. I-C-3), C.34; *In re Mississippi Lime Co.,* 15 E.A.D. 349, 374 & fn. 22 (EAB 2011); *Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 165 fn. 60.

132 *See* 40 C.F.R. § 52.21(i)(3). There is an unsettled question regarding whether emissions resulting from the construction of a project can be excluded from the Source Impact Analysis. On the one hand, construction emissions are by their nature temporary. On the other hand, the definition of "secondary emissions" in 40 C.F.R. Section 52.21(b)(18) specifically includes "emissions that would occur as a result of *construction* or operation" of a source (emphasis added). The NSR Workshop Manual advises that construction emissions can be excluded as temporary emissions, but the Environmental Appeals Board has declined to adopt such a blanket approach. The Board has not stated definitively whether construction-related emissions can ever be excluded, however. (*See In re Hadson Power 14—Buena Vista,* 4 E.A.D. 258, 273-75 (EAB 1992).) Note that "secondary emissions" exclude mobile source emissions from vehicle tailpipes, however, so to the extent that the majority of construction emissions will come

from construction vehicle exhaust, this issue may become moot. (*See also Cardinal FG, supra* note 71, 12 E.A.D. at 175.) Moreover, even if there are any construction emissions that need to be evaluated, they can be evaluated separately from the source's operating emissions, since construction emissions and operating emissions will not occur at the same time.

133 *Appendix W Guideline on Air Quality Models, supra* note 96, § 7.2.2.; *see also NSR Workshop Manual, supra* note 64, at pp. C.39-C.42.

134 *See, e.g., Appendix W Guideline on Air Quality Models, supra* note 96, §§ 4.2.1., 4.2.2; *NSR Workshop Manual, supra* note 64, at p. C.37.

135 *NSR Workshop Manual, supra* note 64, at p. C.40.

136 *See id.* at pp. C.24-C.25, C.30 C.51; *Northern Michigan University, supra* note 62, 14 E.A.D. at 307-08; *Prairie State, supra* note 62, 13 E.A.D. at 92; *see also Appendix W Guideline on Air Quality Models, supra* note 96, § 10.2.1.b-c.

137 EPA published the SILs in its *NSR Workshop Manual, supra* note 64 (*see* Table C-4, p. C.28), and it has also formally codified them for purposes of EPA's Nonattainment NSR rules in 40 C.F.R. Section 51.165(b)(2). They have not been formally adopted in the PSD regulations, however. Instead, EPA applies the SILs to PSD permitting as a matter of longstanding policy. (*See Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers ($PM_{2.5}$)—Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentrations (SMC),* Final Rule (hereinafter, *"Final $PM_{2.5}$ SIL & SMC Rulemaking"*), 75 Fed. Reg. 64,864, 64,895 (Oct. 20, 2010) (It is EPA's "longstanding policy to use those values, as codified in 40 CFR 51.165(b)(2), for PSD permitting."); *see also Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,377 fn. 4.

The one exception is the $PM_{2.5}$ SILs, which EPA did formally adopt in 40 C.F.R. Section 52.21(k)(2). These SILs are not directly relevant to PSD permitting in the Bay Area, as the Bay Area is designated as nonattainment for $PM_{2.5}$, so $PM_{2.5}$ is not subject to PSD requirements. Moreover, the $PM_{2.5}$ SILs have been vacated as a result of the *Sierra Club v. EPA* case, as discussed below.

A good summary discussion of the SILs, including how EPA has used the SILs and its legal rationales for them, can be found in EPA's *Final $PM_{2.5}$ SIL & SMC Rulemaking, supra,* 75 Fed. Reg. at 64,891-92.

138 *See Northern Mich. Univ., supra* note 62, 14 E.A.D. at 328-31 (EAB 2009) ("For Class I areas, in lieu of actual SILs, but serving roughly the same function, the Agency has chosen instead to recommend that a full source impact analysis be conducted for any proposed facility that will increase pollutant concentrations in a Class I area by 1 [µ]g/m3 (24-hour average) or more.") (citations omitted).

The Class I Area SIL is implicated only in the context of the Increment consumption analysis, and not in the context of the NAAQS exceedance analysis. This is because there is only one set of NAAQS, which applies in all areas regardless of Class. But there are special Class I Area Increments, which are more stringent than the Class II Area Increments. Determining whether (and how) to conduct a Full Impact Analysis for the Class I Area Increments therefore requires special considerations and a special, more stringent SIL. These special considerations do not apply for the NAAQS, which apply equally in Class I Areas as in Class II Areas. (*See also* additional discussion in Section V.C.3.b. below (regarding the Increment consumption analysis).)

139 *Sierra Club v. EPA, supra* note 104, 705 F.3d at 463.

140 *Final $PM_{2.5}$ SIL & SMC Rulemaking, supra* note 137, 75 Fed. Reg. at 64,894.

[141] *Id.*

[142] *Sierra Club v. EPA, supra* note 104, 705 F.3d at 463-64.

[143] *See Removal of Vacated $PM_{2.5}$ SIL & SMC Provisions, supra* note 109, 78 Fed. Reg. at 73,699.

[144] EPA initially issued a "Questions & Answers" guidance document in the weeks following the D.C. Circuit's decision (EPA Office of Air Quality Planning & Standards, *Circuit Court Decision on $PM_{2.5}$ Significant Impact Levels and Significant Monitoring Concentration* (March 4, 2013) (hereinafter, *"$PM_{2.5}$ SILs & SMC Questions & Answers Document"*), and it subsequently issued a more formal and comprehensive guidance document in May of 2014 (*see Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95). These guidance documents set forth EPA's position on how SILs for $PM_{2.5}$ may be used in the wake of *Sierra Club v. EPA.*

Note that *Sierra Club v. EPA* vacated the $PM_{2.5}$ SILs as a *formal regulation* set forth in EPA's PSD regulations, but that does not necessarily preclude their use as a matter of *agency policy* regarding how to conduct the PSD Source Impact Analysis. This is how all of the other PSD SILs function, as they have never been formally adopted into the PSD regulations—EPA simply applies them as a matter of policy (*see* note 137, *supra*). EPA can take this same policy approach with respect to $PM_{2.5}$ as it has done with other pollutants, as long as it remains consistent with the D.C. Circuit's holding in *Sierra Club v. EPA.* EPA's statements on how $PM_{2.5}$ SIL values can be used, consistent with *Sierra Club v. EPA,* are based on this authority. EPA has stated that it will initiate a formal rulemaking proceeding to address these issues (*see Removal of Vacated $PM_{2.5}$ SIL & SMC Provisions, supra* note 109, 78 Fed. Reg. at 73,698; *see also Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at p. 17), but it has not done so to date.

[145] *Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at pp. 17-20 & 72; *$PM_{2.5}$ SILs & SMC Questions & Answers Document, supra* note 144, at p. 3.

[146] It may be more accurate to say that EPA has clarified its policy on how SILs can be used (not revised it), as EPA has made statements in the past suggesting that a Full Impact Analysis may be required in some cases even where a project's impacts are below the applicable SIL. But even if EPA's statements regarding the use of the $PM_{2.5}$ SILs are simply a clarification, the clarification should apply to how the other SILs are used as well, as the other SILs are based on the same rationales as the $PM_{2.5}$ SIL.

[147] EPA's guidance documents do not provide any definitive direction on whether an impact exactly at the SIL should be considered significant or not. In some places, EPA suggests that only where an impact *exceeds* the SIL will the impact be significant and further analysis be warranted. In other places, EPA suggests that an impact that *equals or exceeds* the SIL is significant and warrants further analysis. Given the flexibility that permitting agencies are given in implementing a SIL approach to the Source Impact Analysis (where an appropriate SIL can be used), it appears that EPA would not object to an agency using either alternative, as long as the agency has a reasoned basis for its choice.

[148] *See Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at p. 19.

[149] *NSR Workshop Manual, supra* note 64, at p. C.30. For a new source, the source's maximum potential emissions are modeled. For a modified source, the source's net emissions increase is modeled, with contemporaneous emissions decreases entered as negative emissions in the model. (*Id.*)

[150] *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.1.2. Generally, this means that each source is modeled operating at 100%, although if operation at a lower capacity could have higher ambient air impacts for some reason (*e.g.,*

because of changes in stack parameters or other operating conditions), then operation at that lower level should be modeled as well. Emissions are modeled assuming pollution control equipment is functioning normally for the source operating mode being modeled (*e.g.,* start-up mode vs. steady-state operating mode) (*id.* § 8.1.2.g); and potential excess emissions from equipment malfunctions or other regulatory violations do not need to be included in the modeling (*id.* § 8.1.2.a., fn. a).

151 *NSR Workshop Manual, supra* note 64, at p. C.30, C.47, C.49.

152 40 C.F.R. § 52.21(i)(3); *see also NSR Workshop Manual, supra* note 64, at p. C.30.

153 *See NSR Workshop Manual, supra* note 64, at pp. C.24-25, C.30, C.51. The highest modeled concentration at each receptor location is used in the Preliminary Analysis for determining whether the project's impacts exceed the SILs. (*Id.* at pp. C.26, C.51.) Note that this is different from the approach used in determining compliance with applicable air quality impacts under the Full Impact Analysis, for which values less than the highest modeled impacts are often used. (*See* Section V.C.III. below for further details.)

154 *NSR Workshop Manual, supra* note 64, at p. C.25; *Northern Michigan University, supra* note 62, 14 E.A.D. at 307-08.

155 *NSR Workshop Manual, supra* note 64, at p. C.26.

156 *Ibid.*

157 For example, consider a project with SO_2 impacts where the farthest impact above the 1.0 µg/m^3 annual-average SIL is at 2 km; the farthest impact above the 5 µg/m^3 24-hour-average SIL is at 4.3 km; and the farthest impact above the 25 µg/m^3 1-hour-average SIL is at 3.8 km. In that case, the Impact Area for analyzing SO_2 impacts (for all three SO_2 standards) extends out to 4.3 km. (*See NSR Workshop Manual, supra* note 64, at p. C.26-C.30.)

158 *See* EPA Office of Air Quality Planning & Standards, Response to Comments, Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers in Diameter ($PM_{2.5}$) (Mar. 2008), at p. 82; *Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at p. 18 & fn. 20; *In re ConAgra Soybean Processing Co.,* PSD Appeal Nos. 98-27 & 98-28, Slip. Op. at pp. 8-10, 1999 EPA App. LEXIS 44, *10-*12 (EAB Sept. 8, 1999).

159 *See NSR Workshop Manual, supra* note 64, at pp. C.22-23.

160 *See generally* Section V.B.2. of this Chapter and notes 111-12, *supra.*

161 *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.2.3.; *NSR Workshop Manual, supra* note 64, at pp. C.32-34.

162 *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.2.3.b; *see also NSR Workshop Manual, supra* note 64, at p. C.32.

163 *NSR Workshop Manual, supra* note 64, at pp. C.32-C.34 & Fig. C-5. If a source is identified for inclusion in the modeling analysis that more than 50 km away, special considerations for long-range modeling may be needed. (*Id.* at pp. C.33-C.34.)

164 *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.2.3.b; *see also NSR Workshop Manual, supra* note 64, at p. C.32 (noting that the Appendix W "necessarily provides flexibility and requires judgment to be exercised by the permitting agency.").

165 *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.2.3.b.

[166] *See* EPA Office of Air Quality Planning & Standards, Guidance Memorandum re *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard* (Mar. 1, 2011), at p. 16.

[167] *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.2.3.f.; *see also id.* §§ 8.2.1.b., 8.2.2.a.-c., Table 8-2 fn. 9; *see also generally Guidance for $PM_{2.5}$ Modeling, supra* note 95, at p. 54. Existing mobile source emissions are normally included in background, although in appropriate circumstances they can also be modeled as "nearby sources." *NSR Workshop Manual, supra* note 64, at p. C.34.

[168] *See NSR Workshop Manual, supra* note 64, at pp. C.25, C.27 (fig. I-C-3), C.34; *Mississippi Lime, supra* note 131, 15 E.A.D. at 374 & fn. 22; *Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 165 fn. 60.

[169] 40 C.F.R § 52.21(b)(18).

[170] *See NSR Workshop Manual, supra* note 64, at p. A.18; *Secondary Emissions Rulemaking, supra* note 129, 54 Fed. Reg. at 27,289; *Encogen Cogeneration Facility, supra* note 111, 8 E.A.D. at 258 (EAB 1999).

[171] *See* Order on Motions for Reconsideration, *In re Knauf Fiber Glass, GmbH,* PSD Appeal Nos. 98-3 through 98-20 (EAB Feb. 4, 1999), slip. op. at pp. 13-14.

[172] *Appendix W Guideline on Air Quality Models, supra* note 96, Table 8-2; *see also* NSR Workshop Manual at C.45-C.47 & Table C-5.

[173] *Appendix W Guideline on Air Quality Models, supra* note 96, § 7.2.1.1.a.

[174] *See NSR Workshop Manual, supra* note 64, at p. C.51.

[175] *See Appendix W Guideline on Air Quality Models, supra* note 96, §§ 7.2, 10.1.c., 10.2.3.2.; *see also NSR Workshop Manual, supra* note 64, at p. C.51-C.52.

[176] *Appendix W Guideline on Air Quality Models, supra* note 96, § 10.2.3.2 (discussing "the significance of the spatial and temporal contribution to any modeled violation" and whether "the source contributes significantly, in a temporal and spatial sense, to any modeled violation"); *see also NSR Workshop Manual, supra* note 64, at p. C.52; *Final $PM_{2.5}$ SIL & SMC Rulemaking, supra* note 137, 75 Fed. Reg. at 64,891; Notice of Proposed Rulemaking, *Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR),* 61 Fed. Reg. 38,250, 38,293 (July 23, 1996); *Prairie State, supra* note 62, 13 E.A.D. at 105 ("[A] source will not be viewed as causing or contributing to a violation if the source's impact is lower than the SILs at the location and time of the violation.") (citation omitted).

The point about the project's impact exceeding the SIL and the overall pollutant concentration exceeding the standard at the same location at the same time is important, because computer models predict different impacts at different times based on variations in inputs such as weather patterns. For example, at some times during the year the wind may predominantly blow in one direction, and at other times during the year it may predominantly blow in the other direction. It is therefore possible to have a receptor location that is predominantly upwind of the source during times of the year when ambient concentrations are elevated and air quality standards may be violated, but downwind of the source during other times of the year when ambient concentrations are low. In this scenario, the source may be contributing little if anything to any violations of the standard at that receptor location, as its emissions will be carried in the opposite direction at the times of the year when violations occur. And during the times of the year when the source's emissions are carried towards that receptor location, there may not be any violation of the standard. In such situations, EPA has not treated the source as "causing or contributing" to any violations of the standard at that receptor location.

[177] *Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at pp. 64-65 ("EPA advises permitting authorities to consult with the EPA before using the SIL value for $PM_{2.5}$ . . . as the basis for concluding that a source with an impact below this value does not cause or contribute to a modeled violation."); *see also $PM_{2.5}$ SILs & SMC Questions & Answers Document, supra* note 144, at pp. 3-4 ("As part of a [Full Impact Analysis], the applicant may continue to show that the proposed source does not contribute to an existing violation of the $PM_{2.5}$ NAAQS by demonstrating that the proposed source's $PM_{2.5}$ impact does not *significantly* contribute to an existing violation of the $PM_{2.5}$ NAAQS. However, permitting authorities should consult with the EPA before using any of the SIL values in EPA's regulations for this purpose . . . .") (emphasis in original). Note that this *Guidance,* and the quoted language about consulting with EPA, refers explicitly to the $PM_{2.5}$ SIL only. But the same concerns apply to the SILs for other PSD pollutants as well, as there is nothing in the *Guidance* or in the D.C. Circuit's reasoning in *Sierra Club v. EPA* that is unique to $PM_{2.5}$.

[178] *Removal of Vacated $PM_{2.5}$ SIL & SMC Provisions, supra* note 109, 78 Fed. Reg. at 73,698; *see also Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at p. 17. EPA's announcements of its plans for future rulemaking have explicitly mentioned only the $PM_{2.5}$ SILs, but even if further regulatory developments are limited to $PM_{2.5}$, it is likely that they will inform how other SILs can be used as well.

[179] BAAQMD Regs. 2-2-305, 2-2-223. This requirement originates from an earlier version of the District's regulations that required the Source Impact Analysis to address compliance with the NAAQS, which was defined to include state ambient air quality standards. (*See* Staff Report, *Updates to BAAQMD New Source Review and Title V Permitting Programs, Regulation 2, Rules 1, 2, 5 and 6* (Sept. 26, 2012), at pp. 77-78 & fn. 63.) The regulatory language implementing this requirement has changed in the current version of Regulation 2, but the substance of the requirement has not.

[180] Only standards for which the Bay Area is attainment need to be addressed in the Source Impact Analysis. For any pollutant which the Bay Area is nonattainment, that pollutant is explicitly excluded from the definition of "PSD Pollutant" for that specific standard under Section 2-2-223, and thus the Source Impact Analysis requirement in Section 2-2-305 (which applies only to "PSD Pollutants") does not apply for that standard.

[181] *See* BAAQMD Reg. 2-2-305.

[182] *See generally Increment Consumption Modeling Refinement Preamble, supra* note 97. That Federal Register notice addressed a proposed rule issued by EPA that sought to formally clarify by regulation a number of EPA policies regarding how to conduct the Increment consumption analysis, as well as to make certain revisions sought by stakeholders. The proposed rule has never been finalized, and so the revisions that were proposed have not been adopted. But to the extent that the proposal was simply a clarification of existing policies, EPA's discussion in the Federal Register notice of how the Increment consumption analysis is conducted under the existing rules provides an excellent summary of the agency's current approach.

[183] *See generally NSR Workshop Manual, supra* note 64, at p. C.10.

[184] 40 C.F.R. § 52.21(b)(15)(i); *see also NSR Workshop Manual, supra* note 64, at p. C.9.; *Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,375. Note that there is also a provision for establishing Baseline Areas for $PM_{2.5}$ that uses a concentration of 0.3 $\mu g/m^{3,}$ but this provision is not applicable in the Bay Area, as the region is nonattainment for $PM_{2.5}$ so no PSD requirements apply for that pollutant.

185 40 C.F.R. § 52.21(b)(15)(i) (stating that the impact in the adjacent attainment/unclassifiable area must be 1 μg/m^3 or more "for the pollutant for which the baseline date is established"). For example, the Baseline Area for one pollutant may include the Bay Area district and an adjacent district where the impact for that pollutant will be over 1 μg/m^3. But the Baseline Area for a different pollutant may include only the Bay Area district, if there are no other districts where there will be any impacts over 1 μg/m^3 for that pollutant.

186 40 C.F.R. § 52.21(b)(15)(i) (baseline area includes relevant attainment areas "and every part thereof").

187 Baseline dates are pollutant-specific. (*See Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,375, fn. 2.)

188 40 C.F.R. § 52.21(b)(13).

189 *See generally Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,375-76, 31,377; *NSR Workshop Manual, supra* note 64, at pp. C.6-C.11.

190 40 C.F.R. § 52.21(b)(14)(i)(*a*).

191 40 C.F.R. § 52.21(b)(14)(i)(*b*).

192 40 C.F.R. § 52.21(b)(14)(ii).

193 40 C.F.R. § 52.21(b)(14)(ii)(*a*)-(*b*).

194 *NSR Workshop Manual, supra* note 64, at pp. C.12-C.15.

195 The process for determining the Impact Area is discussed above in Section V.C.3.a. in connection with the NAAQS compliance demonstration. The SILs used to establish the Impact Area are listed in Table 5-3.

196 I*ncrement Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,377; *NSR Workshop Manual, supra* note 64, at pp. C.35-C.36.

197 *See Northern Mich. Univ., supra* note 62, 14 E.A.D. at 328-31 (EAB 2009).

198 The Class I Increment analysis needs to consider only the portions of the Impact Area that lie within the Class I Area, as the Class I Increments apply only within the Class I Area. That is, there are no Class I Increments that apply in any portions of the Impact Area that are outside the Class I Area, so there is no need to undertake any Class I Increment analysis for those portions of the Impact Area.

199 *Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,377; *see also NSR Workshop Manual, supra* note 64, at pp. 35-36. Note than an inventory of increase and decreases that may affect the Increment needs to be prepared for each averaging period for which an Increment has been specified.

200 *NSR Workshop Manual, supra* note 64, at p. C.35.

201 *See* discussion above in Section V.C.3.a. regarding including secondary emissions in the multi-source modeling exercise. The same principles discussed there for purposes of the NAAQS compliance analysis apply to the Increment consumption analysis as well.

202 *NSR Workshop Manual, supra* note 64, at p. C.35.

203 *Id.* at p. C.36; *see also Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,380 (regarding mobile sources).

204 *NSR Workshop Manual, supra* note 64, at p. C.35.

[205] *Id.* at p. C.10.

[206] *Id.* at pp. C.63-C.64 and Table C-6.

[207] *See Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,377.

[208] *See id.* at 31,376, 31,385; *NSR Workshop Manual, supra* note 64, at p. at C.10. EPA does allow the Increment consumption analysis to proceed by identifying a specific baseline concentration (*e.g.,* using monitoring data) as an alternative to modeling the effect of increase and decreases since the baseline dates. But the approach of identifying all emissions increases and decreases since the relevant baseline dates and then modeling their impact on ambient concentrations is normally the easier and more effective approach. (*Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,376) There may be situations where it will be preferable to proceed by identifying the baseline concentration based on ambient monitoring data and assessing Increment consumption from that measured baseline. (*See, e.g. Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at pp. 76-77.) The discussion in this document assumes that the traditional method will be used, *i.e.,* identifying all individual emissions increases and decreases since the baseline date that may affect the increment and modeling their affect on ambient concentrations.

[209] *NSR Workshop Manual, supra* note 64, at pp. C.45-C.46 & Table C-5. Modeling emissions associated with less than the source's maximum operating rate may be appropriate in cases where the ambient impacts would be higher at a different rate.

[210] 40 C.F.R. §§ 52.21(k), 52.21(b)(18); *see also Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,380.

[211] *Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,378-79, 31,384-87; *NSR Workshop Manual, supra* note 64, at pp. C.11, C.35, C.48-C.49. EPA's PSD regulations define "actual emissions" in 40 C.F.R. § 52.21(b)(21)(ii) using a two-year (24-month) baseline period, and the "baseline concentration" above which increases are measured is defined in terms of actual emissions as of the baseline date. (*See* 40 C.F.R. § 52.21(b)(13).)

[212] *Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,385; *NSR Workshop Manual, supra* note 64, at pp. C.48-C.49. The applicable baseline date will be either the Minor Source Baseline Date or the Major Source Baseline Date, as appropriate. (*See* discussion regarding "Step 2" of the Increment consumption analysis, *supra,* and Fig. 5-2.)

[213] *NSR Workshop Manual, supra* note 64, at p. C.49; *see also Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,389.

[214] *Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,389-90.

[215] *Id.* at 31,391; *NSR Workshop Manual* at C.11.

[216] *NSR Workshop Manual, supra* note 64, at p. C.49.

[217] *Id.* at p. C.50.

[218] *Appendix W Guideline on Air Quality Models, supra* note 96, § 8.0.a.

[219] *Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,386.

[220] *See id.* at 31,377-78.

[221] *See Appendix W Guideline on Air Quality Models, supra* note 96, §§ 7.2, 10.2.3.3.; *see also NSR Workshop Manual, supra* note 64, at pp.

C.51-C.52. For annual-average Increments, the highest modeled annual average must be below the Increment. No exceedances of the annual-average Increments are allowed under 40 C.F.R. Section 52.21(c).

222 *Appendix W Guideline on Air Quality Models, supra* note 96, § 10.2.3.3.b. ("modeling must demonstrate that the allowable increments are not exceeded temporally and spatially, *i.e.,* for all receptors for each time period throughout the year(s) . . . ."); *see also Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,377 fn. 5; NSR Workshop Manual at C.52.

223 *Guidance for $PM_{2.5}$ Permit Modeling, supra* note 95, at pp. 77-78.

224 *See Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,381-82.

225 S.Rep. 95-127 at p. 35 *(cited in Increment Consumption Modeling Refinement Preamble, supra* note 97, 72 Fed. Reg. at 31,381 fn. 9).

226 40 C.F.R. § 52.21(p)(5). The maximum allowable increases that can be allowed in the event the Federal Land Manager concurs in a variance from the Class I Increments are set forth in subsection (p)(5), and so they are technically a distinct requirement from the Class II Increments specified in 40 C.F.R. Section 52.21(c). In substance, however, they are identical to the Class II Increments.

227 *See* 40 C.F.R. §§ 52.21(p)(6)-(p)(8).

228 *See also NSR Workshop Manual, supra* note 64, at p. C.25.

229 Such reductions must be enforceable in order to be used to demonstrate compliance. (*See NSR Workshop Manual, supra* note 64, at p. C.53.)

230 *NSR Workshop Manual, supra* note 64, at p. C.53. Note that if there is any Increment violation associated with the project, the Increment violation must be entirely corrected. In an area where an Increment violation already exists as a result of existing sources, the proposed source would have to obtain sufficient offsetting emission reductions to entirely cure the pre-existing violation.

231 *NSR Workshop Manual, supra* note 64, at p. D.1.; *see also Indeck-Elwood, supra* note 99, 13 E.A.D. at 134.

232 40 C.F.R. § 52.21(i)(2) (which excludes nonattainment pollutants from the substantive PSD requirements in subsections (j) through (r)).

233 *GHG Permitting Guidance, supra* note 64, at p. 48. EPA has taken the position that the Additional Impacts Analysis does not need to address GHG emissions, because any impacts on environmental resources such as visibility, soils and vegetation that could arise from climate changes resulting from GHG emissions would involve emissions orders of magnitude larger than what is normally emitted by any individual facility, such that it would not be possible to attempt to quantify the impacts from a single project's emissions.

234 40 C.F.R. § 52.21(i)(3).

235 EPA's general criteria for evaluating the completeness and adequacy of the Additional Impacts Analysis include (i) whether it presents a clear and accurate portrait of the soils, vegetation, and visibility in the area; (ii) whether it is adequately documented; and (iii) whether the data and conclusions are presented in a logical and understandable manner. (*See NSR Workshop Manual, supra* note 64, at p. D.7.)

236 *NSR Workshop Manual, supra* note 64, at p. D.2.

237 *Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 156 (visibility analysis performed as part of CEQA Environmental Impact Report).

238 *NSR Workshop Manual, supra* note 64, at p. D.3.

239 *Id.* at pp. D.9-D.10.

240 *Id.* at pp. D.3.-D.4.

241 *See generally id.* at p. D.3.

242 BAAQMD Reg. 2-2-306.2; *see also* 40 C.F.R. § 52.21(o)(2).

243 BAAQMD Reg. 2-2-306.1; *see also* 40 C.F.R. § 52.21(o)(1).

244 *See* 40 C.F.R. § 52.21(b)(18); *see also NSR Workshop Manual, supra* note 64, at pp. C.25 and D.3., fn. 5.

245 BAAQMD Reg. 2-2-306.1; 40 C.F.R. § 52.21(o)(1); *NSR Workshop Manual, supra* note 64, at pp. D.4-D.5, D.11-D.12.

246 *See* CAA § 109(b)(2), 42 U.S.C. § 7409(b)(2).

247 *NSR Workshop Manual, supra* note 64, at p. D.5. Note also that it is similarly not appropriate to rely on published screening techniques designed to rule out the potential for soils and vegetation impacts without a detailed analysis, such as EPA's *Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals,* Pub. No. 450/2-81-078 (Dec. 12, 1980). The Environmental Appeals Board has disapproved of relying on such screening procedures. (*See Indeck-Elwood, supra* note 99, 13 E.A.D. at 158-60.)

248 *NSR Workshop Manual, supra* note 64, at pp. D.4-D.5, D.11-D.12; *Indeck-Elwood, supra* note 99, 13 E.A.D. at 157, 159-60 (EAB 2006).

249 CAA § 165(e)(3)(B), the ultimate source of the requirement, provides that the analysis must address "visibility at the site of the proposed major emitting facility and in the area potentially affected by the emissions from such facility." (CAA § 165(e)(3)(B), 42 U.S.C. § 7475(e)(3)(B); *see also Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 157 & fn. 51.)

250 *See Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 156 fn.51.

251 BAAQMD Reg. 2-2-306.3.

252 *Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 157.

253 *Id.* at 156-57.

254 *NSR Workshop Manual, supra* note 64, at pp. D.6-D.7; *Knauf Fiber Glass, supra* note 62, 8 E.A.D. at 157.

255 EPA Office of Air Quality Planning & Standards, *Workbook for Plume Visual Impact Screening and Analysis (Revised),* Pub. No. EPA-454/R-92-023 (Oct. 1992) available at **http://nepis.epa.gov/Adobe/PDF/2000DDSL.PDF.**

256 EPA Office of Air Quality Planning & Standards, *User's Manual for the Plume Visibility Model, PLUVUE II (Revised),* Pub. No. EPA-454/B-92-008 (Oct. 1992), available at **http://nepis.epa.gov/Adobe/PDF/2000F6KM.PDF;** EPA Office of Air Quality Planning & Standards, *Addendum to the User's Manual for the Plume Visibility Model, PLUVUE II (Revised),* Pub. No. EPA-454/B-95-001 (June 1996), available at **http://nepis.epa.gov/Adobe/PDF/2001203W.PDF.**

257 EPA Office of Air Quality Planning & Standards, *Workbook For Estimating Visibility Impairment,* Pub. No. EPA-450/4-80-031 (Nov. 1980), available at: **http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=9101143E.txt.**

Chapter 6: Additional Substantive NSR Requirements

In addition to the main NSR Program requirements outlined in the preceding chapters, there are four additional substantive provisions in Regulation 2, Rule 2, which are set forth in Sections 2-2-307 through 2-2-310. These miscellaneous additional requirements are discussed below.

I. The Class I Area Requirements

The Air District's NSR Program contains a set of requirements designed to protect air quality in "Class I Areas," as required by the federal Clean Air Act. Class I Areas are special areas such as national parks and wilderness areas that have been identified for heightened protection because of their unique natural, scenic, recreational, and/or historic value. The Air District's NSR regulations implement these requirements for protecting Class I Areas through Section 2-2-307, with related procedural requirements in Sections 2-2-401.4 and 2-2-402.

The federal Clean Air Act actually contains two related requirements for protecting Class I Areas, one in the Act's PSD permit provisions in CAA Section 165, which applies in attainment (and unclassifiable) areas;[1] and the other in the Act's general Class I Area visibility protection provisions in CAA Sections 169A and 169B, which applies in both attainment and nonattainment areas.[2] EPA's implementing regulations envision that both of these requirements will be

addressed through a single combined process, however.[3] EPA created this combined process in its PSD regulations, and so the Class I Area requirements are often thought of as part of the PSD program. But in reality, they are not just PSD requirements because they cover nonattainment pollutants as well. As such, this *Handbook* discusses the Class I Area requirements here in Chapter 6, instead of in the previous chapter addressing the PSD requirements.

The Air District's NSR Program follows EPA's combined approach, with a single regulatory process implementing the Class I Area Analysis requirement for both attainment/unclassifiable pollutants and nonattainment pollutants. The process is governed by Section 2-2-307 and the associated procedural requirements in Sections 2-2-401.4 and 2-2-402, as noted above. These provisions require a Class I Area Impact Analysis for projects that will be located within 100 km of any Class I Area if they fall into either of two categories: (i) PSD Projects, which covers attainment/unclassifiable pollutants as discussed in detail in Chapter 5; and (ii) new Major Facilities and Major Modifications to existing Major Facilities for NOx, VOC, SO_2 or $PM_{2.5}$, which covers the relevant nonattainment pollutants in the Bay Area.

The Class I Area Analysis process places the primary responsibility on the Federal Land Manager for each Class I Area to review and evaluate the potential for adverse impacts on that Class I Area. The Federal Land Manger is the Secretary of the federal department with responsibility for administering the Class I Area at issue, or the specific staff person within the department delegated the responsibility for that particular Class I Area.[4] Under the Clean Air Act, the Federal Land Manager has an "affirmative responsibility" to ensure that there will not be any adverse impacts to visibility or any other "Air Quality Related Values" within the Class I Area.[5] The Air District's role is to ensure that the project applicant prepares an analysis of the project's potential to cause such impacts; to notify the Federal Land Manger of the project application and to make sure he or she receives a copy of the Class I Area Impacts Analysis and related information about the project; and to review and consider any determination by the Federal Land Manager that the project may result in adverse impacts. The District then makes the final decision to approve or deny the application, either agreeing or disagreeing with the Federal Land Manager's conclusions about the potential for adverse impacts.[6] The discussion below outlines the process for undertaking this review and reaching the ultimate permitting decision.

It is important to note that the Class I Area Impacts Analysis required under Section 2-2-307 is distinct from the PSD impact analyses required under Sections 2-2-305 (Source Impact Analysis) and 2-2-306 (Additional Impacts Analysis)—although the issues involved will usually overlap, and work undertaken for one analysis may inform the others. For example, the Source Impact Analysis under Section 2-2-305 is required to demonstrate that there will be no violation of any applicable PSD Increments in Class I Areas, which is relevant to how the Class I Area Impacts Analysis is conducted under Section 2-2-307, as discussed below. But even if there are no violations of any Class I Area Increments, that does not necessarily mean that there will not be any adverse impacts to any Air Quality Related Values (and vice versa). Similarly, the Class I Area Impact analysis under Section 2-2-307 is required to demonstrate that there will not be any adverse impact on visibility in any Class I Areas, which is relevant to

the visibility analysis required under Section 2-2-306.1. But just because there will not be any visibility impairment in any Class I Areas does not necessarily mean that there will not be any impairment in other areas. Applicants and reviewers should keep all of these requirements in mind when planning the best approach to permitting a project under Regulation 2-2, given these commonalities and areas of overlap. But it is also important to keep the distinct features of the different regulatory requirements straight so as not to overlook any of the required elements of any of these provisions.

A. Class I Areas In and Near the San Francisco Bay Area

The Class I Area Impact Analysis process applies only to new and modified sources that are located within 100 km (62.2 miles) of a Class I Area.[7] There is one Class I Area within the jurisdictional boundaries of the Bay Area Air Quality Management District, the Point Reyes National Seashore in western Marin County. In addition, there are two other Class I Areas within 100 km of the Air District's jurisdictional boundaries:

Pinnacles National Monument, which is located on the border of San Benito County and Monterey County approximately 25 miles south of Hollister; and the Ventana Wilderness in the Big Sur area of Monterey County. Facilities located on the southern edge of the District's geographical jurisdiction, and thus subject to District NSR permitting under Regulation 2-2, could potentially implicate these Class I Areas (assuming they are above the size thresholds addressed in the next section).[8] Facilities located more than 100 km from any of these Class I Areas will not need to consider the Section 2-2-307 Class I Area requirements.

B. Projects Subject to Class I Area Requirements

If a new or modified source is located within 100 km (62.2 miles) of any of these Class I Areas, it will be subject to the Class I Area Impact Analysis requirements if it is either (i) a "PSD Project"; or (ii) a new "Major Facility" or a "Major Modification" of an existing Major Facility for NOx, VOC, SO_2, or $PM_{2.5}$.

"PSD Project" is defined in Section 2-2-224. This is the provision that defines applicability of the general PSD provisions. It is discussed at length in Chapter 5, Section III.

"Major Facility" and ***"Major Modification"*** are defined in Sections 2-2-217 and 2-2-218, respectively. These definitions generally incorporate the federal concepts of "major source" and "major modification," although with some important differences so it is important to read and follow the language of the definitions closely.

- A *"Major Facility"* (Section 2-2-217) is a facility with a PTE of 100 tpy or more, with fugitive emissions included if the facility is in one of the 28 NSR-listed facility categories. As under the federal rules, if a project at a non-major facility would constitute a "major facility" all by itself (because it would increase emissions by 100 tpy or more), then the

facility is "major" even if the existing PTE before the project is implemented is below 100 tpy.[9]

- A *"Major Modification"* (Section 2-2-218) is a new or modified source (or group of multiple sources that are part of the same project) at an existing Major Facility that will result in an emissions increase over any of the NSR significance thresholds, which for the pollutants relevant here are 40 tpy for NOx, VOC, and SO_2, and 10 tpy for $PM_{2.5}$.[10] Since Section 2-2-218 is a District regulation, not a federal provision, the District's emissions increase calculation procedures in Sections 2-2-603 and 2-2-604 (which use the actual-to-potential calculation methodology) apply. Fugitive emissions are included in all cases in calculating the amount of the increase.[11] Note also that the definition applies only for pollutants for which the facility is over the 100 tpy "Major Facility" threshold. This means that, for any given pollutant, the facility's PTE for that pollutant must be 100 tpy or more, *and* the emissions increase for that pollutant must be 40 tpy or more (or 10 tpy or more for $PM_{2.5}$), in order to constitute a "Major Modification." Furthermore, unlike the federal "major modification" concept, there is no "netting" provision in Section 2-2-218 that would allow a facility to "net out" of being a "Major Modification" based on prior decreases at the facility.

If a project is either a "PSD Project", or a new "Major Facility" or a "Major Modification" of an existing Major Facility for NOx, VOC, SO_2, or $PM_{2.5}$, and the facility is located within 100 km of one of the Class I Areas described above, then it is subject to the Class I Area Impacts Analysis requirements in Section 2-2-307.

C. Contents of the Class I Area Analysis

The substance of the Class I Area Impacts Analysis is an evaluation of whether the project at issue will have any adverse impacts on any ***Air Quality Related Values*** in a Class I Area.[12] The District's regulations incorporate this term "Air Quality Related Values" from the Clean Air Act and EPA's implementing regulations.[13] The Act and EPA's regulations do not explicitly define what kinds of Values are covered by the term, however, other than to provide that they include "visibility."[14] As a result, there is no one-size-fits all rule for determining what Air Quality Related Values need to be evaluated for a given Class I Area.

In practice, it is the Federal Land Manager for each Class I Area that primarily determines what Values need to be considered for that particular Class I Area. Since it is the Federal Land Manager that will be reviewing the analysis and making the determination as to whether there will be any adverse impacts, applicants should look to the Federal Land Manager's views as to what Air Quality Related Values should be considered. If those Values are not addresses in the applicant's analysis, the Federal Land Manager is likely to object to the project.

To address these issues, the U.S. Forest Service, the National Park Service, and the U.S. Fish & Wildlife Service have published a joint guidance document under the auspices of the Federal

Land Managers' Air Quality Related Values Work Group (referred to as the *"FLAG Guidance"*).[15] The *FLAG Guidance* contains a wealth of information on the types of Values that the Federal Land Managers will consider important (among other issues), and applicants are encouraged to review it when planning to undertake a Section 2-2-307 Class I Area Impacts Analysis. The *Guidance* provides a general definition of "Air Quality Related Value" as:

> A resource, as identified by the FLM for one or more Federal areas that may be adversely affected by a change in air quality. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the FLM for a particular area.[16]

The *FLAG Guidance* further identifies the most important issues, in the eyes of the Federal Land Managers, as visibility impairment, impacts to vegetation (*e.g.,* mottling, stippling, and flecking of leaves due to exposure to air pollution), and pollutant deposition onto soils and surface waters.[17]

Beyond reviewing the *FLAG Guidance,* applicants should also consult with the specific Federal Land Manager staff person(s) with immediate responsibility for Air Quality Related Values for each Class I Area that the applicant will be required to evaluate. Such consultation—preferably at an early stage in the process—will allow the applicant and the relevant Federal Land Manager(s) to identify all of the Air Quality Related Values that will need to be evaluated for a particular application, as well as to reach agreement on all other relevant aspects of how the analysis will be conducted.[18]

Once the relevant Air Quality Related Values that will be evaluated for a particular Class I Area have been identified, the applicant will prepare a modeling analysis to estimate the extent of any impacts to these Values within the Class I Area.[19] This modeling analysis is similar in many ways to the PSD analyses addressed in Chapter 5. For example, the same Appendix W *Guideline* dispersion modeling protocols EPA requires for the PSD analyses apply for the Class I Area analysis;[20] GHG emissions do not need to be included in the Class I Area analysis;[21] and the analysis should include emissions from other sources that have been permitted but are not yet operation.[22]

In addition, EPA recommends using a Significant Impact Level (SIL) approach similar to the one used in the PSD analyses to define the portion of the Class I Area within which the impacts will be modeled.[23] As discussed in more detail in Chapter 5, Section V.C.3., this approach establishes an "Impact Area" for the evaluation by (i) identifying the farthest point from the source being permitted where the source will cause an increase in ambient concentrations over the SIL; and then (ii) establishing the Impact Area as the area defined by a circle surrounding the source with a radius extending out to this farthest point where the increase exceeds the SIL. The analysis evaluates the project's potential impacts on the identified Air Quality Related Values in any portions of the relevant Class I Area(s) that fall within this Impact Area.[24] EPA recommends using a SIL of 1 $\mu g/m^3$ for this process for Class I Areas (for all pollutants), although a different

SIL value may be more appropriate in some cases.[25] Early consultation with the Federal Land Manager will help clarify the best approach in any given case.[26]

1. Visibility Impacts

Visibility is perhaps the most important Air Quality Related Value, as it is the only Value explicitly called out in the Clean Air Act and the relevant regulations as being included in all cases. In addition, visibility impacts are governed by the Class I Area visibility protection requirements in CAA Section 169A and in 40 C.F.R. Section 51.307, as well as the general Class I Area protection requirements under CAA Section 165(d) and 40 C.F.R. Sections 51.166(p) and 52.21(p). Those authorities provide some additional regulatory guidance for assessing visibility impacts in Class I Areas, which the Federal Land Managers follow.[27]

Specifically, EPA's regulations define "adverse impact on visibility" as "visibility impairment which interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of the Federal Class I Area."[28] They define "visibility impairment" as "any humanly perceptible change in visibility (light extinction, visual range, contrast, coloration) from that which would have existed under natural conditions."[29] The *FLAG Guidance* follows these definitions, including the requirement to evaluate a source's visibility impacts as compared to what would have existed under "natural conditions"—*i.e.,* not compared to *current* background conditions in situations where visibility may already be degraded because of existing pollution sources.[30] ("Natural conditions" is defined as "naturally occurring phenomena that reduce visibility as measured in terms of light extinction, visual range, contrast, or coloration."[31]) EPA has published "natural conditions" estimates for each Class I Area, and the *FLAG Guidance* advises applicants to use those as the starting point for the visibility assessment.[32]

In addition, EPA has also published thresholds for when a source will be considered to be contributing to "visibility impairment" as part of its regional haze regulatory program. The Federal Land Managers have incorporated these thresholds into the *FLAG Guidance* on how such impacts should be evaluated.[33] The visibility analysis should compare the modeled visibility conditions after the project under review is built to these thresholds, in coordination with input from the relevant Federal Land Manager(s).

The *FLAG Guidance* also sets forth detailed procedures on how to model visibility impacts. The normal recommended approach is to use a model such as VISCREEN (or PLUVUE II for more refined analyses), or CALPUFF for considering long-range transport.[34] The *Guidance* follows EPA's multi-level screening methodology, which allows for the elimination of certain sources from further analysis where they have negligible potential for adverse impacts, and applies progressively more rigorous procedures to evaluate sources in greater detail where their impacts cannot be dismissed at an earlier screening stage.[35] These methodologies are similar to those discussed in connection with evaluating visibility as part of the PSD Additional Impacts Analysis (*see* Chapter 5, Section VI.C.).[36]

Note also that although EPA's regulations require that the assessment of whether there will be any visibility impairment in the Class I Area after the project is built must be based on degradation compared to natural conditions, the reviewing authorities (*i.e.,* the Federal Land Manager, and the Air District in reviewing the Federal Land Manager's assessment) can take existing conditions into account in determining whether the source will have any *adverse impact* on visibility. Thus, if there is pre-existing degradation from existing sources in the area that is causing visibility impairment, that does not necessarily mean that the proposed project under review will have an adverse impact on visibility. Whether the proposed project will have an adverse impact will be based on a case-by-case determination taking into account existing conditions and factors such as whether the region is making progress towards improved visibility.[37]

2. Other Air Quality Related Values

The *FLAG Guidance* also provides valuable information on how to evaluate other Air Quality Related Values (primarily ozone impacts on vegetation and deposition onto land and waterbodies),[38] although the guidance is less specific and well-developed in these areas than it is for visibility impacts. This relative paucity of definitive guidance in these areas makes it even more important for applicants to coordinate closely with the relevant Federal Land Manager(s) to ensure that there are no disagreements on how the analysis will be conducted.

Generally, the *FLAG Guidance* recommends an approach to evaluating impacts to other Air Quality Related Values that is similar to how soils and vegetation impacts are evaluated in the Additional Impacts Analysis under Section 2-2-306.1 (*see* Chapter 5, Section VI.B.). The first step is to inventory sensitive resources (*e.g.,* sensitive plant species, polluted waterbodies, *etc.*) within the Impact Area being evaluated. The Federal Land Managers have published a number of information databases to help identify such resources within each Class I Area.[39] Once the sensitive resources have been identified, the ambient pollutant concentrations at which adverse effects could occur must be determined. The Federal Land Mangers have published information to help make these determinations as well.[40] Finally, once the thresholds of concern have been ascertained, the project's emissions are modeled to determine if the project will result in ambient concentrations above these threshold levels.[41]

If the project will not result in any ambient concentrations above any thresholds of concern, the Federal Land Managers will treat the project as presumptively having no adverse impact on Air Quality Related Values.[42] If a threshold of concern is exceeded, the Federal Land Manager will make a determination as to whether there will be any adverse impact to the relevant Air Quality Related Value resulting from the project. The Federal Land Manager will consider factors such as the magnitude, frequency, duration, location, geographic extent, and timing of any impacts in making this determination.[43]

If the Federal Land Manager concludes that there will be an adverse impact, he or she will notify the Air District of that determination, and the District will need to review and consider the determination as part of its final permitting decision. That process is described in the next section.

D. Process for Considering Potential Class I Area Impacts

The process for considering a project's potential for adverse impacts on Air Quality Related Values is one of close coordination between the applicant and the Federal Land Manager for the relevant Class I Area, in consultation with the Air District as the ultimate permitting authority.[44] The process is governed by several procedural provisions in Regulation 2, Rule 2.

Under Section 2-2-402, the Air District must notify the Federal Land Manger of any affected Class I Area(s) upon receiving any advance notice that an application may be submitted for a project that will be subject to the Class I Area Impact analysis requirements.[45] This could include a pre-application meeting, or any other formal notice that the applicant will be submitting such an application. When the District actually receives the application, it must then send a copy to the Federal Land Manager (once the application is complete) within 30 days, and at least 60 days before holding any public hearing on the application.[46] The District needs to ensure that the application materials sent to the Federal Land Manager include the applicant's analysis of potential Class I Area impacts.[47] This analysis forms the basis of the Federal Land Manager's review.

Providing the Federal Land Manager with a copy of the application and the Class I Area Impact Analysis gives the Federal Land Manager an opportunity to raise any concerns about possible harm to Air Quality Related Values within the Class I Area. If the Federal Land Manager has any such concerns, Section 2-2-307 provides 30 days for him or her to provide the Air District with a demonstration that the project will have an adverse impact on Air Quality Related Values. The District is required to review any such demonstration promptly upon receipt, and based on that review it must either concur or dissent.

When the Federal Land Manager conducts its review, the burden of demonstrating whether or not there will be any adverse impact on Air Quality Related Values will depend on whether the project will cause or contribute to any violation of any Class I Increment in the Class I Area, as discussed above (see Chapter 5, Section V.C.3.b.). If the project *will not* violate a Class I Increment, then the burden is on the Federal Land Manager to demonstrate why he or she believes that Air Quality Related Values will be adversely impacted. If the project will violate a Class I Increment, then the burden shifts to the applicant to demonstrate why it believes there will be no such impacts, notwithstanding the Class I Increment violation. If the Federal Land Manager certifies that he or she concurs with the applicant that there will be no adverse impacts, then the project can proceed (as long as there will not be any violations of any Class II Increments).[48]

If the Federal Land Manager submits a demonstration that the project will have an adverse impact on Air Quality Related Values and the Air District concurs with it (or if the District determines based on its own independent review that the project will have an adverse impact on

Air Quality Related Values), then the Air District will deny the application after consultation with the Federal Land Manager. If the Air District does not concur with the Federal Land Manager's demonstration, or if no such demonstration is received from the Federal Land Manager, then the District will continue with processing the application and will issue the authority to construct (assuming all other requirements for issuance are satisfied).[49] The Air District must document the reasons why it does not concur with a Federal Land Manager demonstration in the permitting record;[50] and it must explain the reasons why it disagrees in any subsequent public hearing notice (or state where such an explanation can be obtained).[51]

Beyond these formal requirements, it is advisable for the applicant, the Federal Land Manager, and the Air District to work together informally to address any potential areas of concern that are identified. In many cases, such concerns can be addressed through project revisions or appropriate permit conditions that will minimize the potential for impacts to the Class I Area. If the applicant can incorporate such measures into the project and/or the District can incorporate them into its proposed conditions of approval, that may be able to ensure protection of the Class I Area's Air Quality Related Values without the need for the Federal Land Manager to make a formal determination of adverse impact under the Section 307 process.[52]

Note also that these provisions confer primary responsibility for considering the Class I Area Impact Analysis upon the Federal Land Manager, and there is no obligation for the District to conduct an independent analysis of its own (other than reviewing any determination by the Federal Land Manager that the project will have an adverse impact). The District can do so if it finds that it would be appropriate, however. Air District staff working on an application should therefore consider early on in the review process whether there is any reason to conduct an independent Class I Area review for a particular project.

II. The NAAQS Protection Requirement

The Air District's NSR Program also contains a new requirement enacted in 2012 designed to provide additional assurances that air quality in the Bay Area will continue to attain and maintain the National Ambient Air Quality Standards (NAAQS). The requirement, known as the "NAAQS Protection Requirement," is set forth in Section 2-2-308.

Section 2-2-308 requires that all new and modified sources that will involve a significant net increase in emissions of any pollutant for which a National Ambient Air Quality Standard has been established must demonstrate that the emissions will not cause or contribute to an exceedance of the NAAQS for that pollutant. This requirement is essentially the same as the Source Impact Analysis modeling requirement applicable to PSD Projects under Section 2-2-305 (*see* Chapter 5, Section V), with two main differences. First, Section 2-2-308 applies to all facilities (as long as the project at issue involves a significant net emissions increase), whereas Section 2-2-305 applies only at facilities over the 100/250 tpy PSD "major" facility threshold. Second, Section 2-2-308 applies to all pollutants for which a federal NAAQS standard has been adopted (except

ozone, as explained below) regardless of attainment status, whereas Section 2-2-305 applies only to pollutants for which the Bay Area is designated as attainment or unclassifiable. This means that Section 2-2-308 applies to federal nonattainment pollutants such as $PM_{2.5}$, which are excluded from the Section 2-2-305 requirement; but it does not apply to any of the California ambient air quality standards, which Section 2-2-305 does cover.

The NAAQS Protection analysis is not required to address the ozone NAAQS because modeling ozone impacts is not practicable in the context of permitting individual sources.[53] Ozone is not emitted directly, but is formed through a complex chemical reaction between oxides of nitrogen and volatile organic compounds in the presence of heat and sunlight. As such, the dispersion models that are used for standard air quality modeling are not appropriate for ozone modeling, and effective modeling tools simply do not exist for most applications.[54]

The first step in evaluating compliance with the Section 2-2-308 NAAQS Protection Requirement is to determine whether it is applicable. The provision applies to any new or modified source that will result in a ***significant net increase*** in CO, lead, NO_2, SO_2, PM_{10}, or $PM_{2.5}$ (*i.e.,* the pollutants for which NAAQS have been established, excluding ozone). The amount of the net emissions increase associated with the application under review is determined in accordance with Section 2-2-604, which uses the District's pre-NSR Reform "actual-to-potential" calculation methodology.[55] The net increase is then compared to the significance thresholds in Section 2-2-227 to determine if the NAAQS Protection Requirement applies. The applicable significance thresholds for the relevant NAAQS pollutants are listed in Table 6-1. (Note that this is the same significant net increase test that applies to the definition of "PSD Project" under Sections 2-2-224.2 and 2-2-224.3.[56] Readers are referred to the detailed discussion of how to apply those calculation methodologies in Sections III.A. and III.B of Chapter 5.)

If the new or modified source under review will result in a net emissions increase of CO, lead, NO_2, SO_2, PM_{10}, or $PM_{2.5}$ exceeding the relevant significance threshold, the applicant is required (i) to conduct a modeling analysis of the impacts of the project on pollutant concentrations in the ambient air, and (ii) to demonstrate based on this modeling analysis that the project will not cause or contribute to a violation of the NAAQS for that pollutant.[57]

The modeling analysis and NAAQS compliance demonstration under Section 2-2-308 follow the same procedures that apply for the PSD Source Impact Analysis required

Table 6-1: NAAQS Protection Significance Thresholds

Pollutant	Significant Emissions Rate	
	kg/yr	ton/yr
CO	90,500	100
NO_2	36,200	40
SO_2	36,200	40
PM_{10}	13,575	15
$PM_{2.5}$	9,050	10
Lead	530	0.6

Source: BAAQMD Reg. 2-2-227

under Sections 2-2-305.1 through 2-2-305.4.[58] Those provisions incorporate EPA's approach for air quality analyses under the federal PSD program. These procedures are set forth in EPA's *Guideline on Air Quality Models* (codified in 40 C.F.R. Part 51, Appendix W) and related EPA guidance documents, as discussed in detail in Section V. of Chapter 5. Generally speaking, applicants will be required to model the ambient air quality impacts from any emission increases subject to Section 2-2-308 to determine if they exceed an appropriate "Significant Impact Level" (SIL). If they do exceed the SIL, the emissions from the project and other nearby sources need to be modeled together, and the combined impacts added to existing background concentrations to determine what the project's total ambient air quality impact will be. The total impact is then compared to the applicable NAAQS to determine whether the project will be considered to "cause or contribute" to an exceedance.[59] Readers are referred to the discussion in Section V. of Chapter 5 for further information.

Note also that for a project that is already required to conduct an analysis of its potential impacts on compliance with a NAAQS under Section 2-2-305 (*i.e.,* because it is a PSD Project), that same analysis can be used to establish compliance with that NAAQS under Section 2-2-308 as well.[60]

III. The Major Facility Compliance Certification Requirement

Section 2-2-309 implements an important element of the Clean Air Act's NSR Program, the requirement for major facilities to submit a compliance certification in order to be eligible for an NSR permit for a new source or modification. This provision applies to an applicant for an authority to construct for any new "major facility" or "major modification" at a major facility. Major facility is defined in Section 2-2-217 as a facility with a PTE of 100 tpy or more of POC, NOx, SO_2, PM_{10}, $PM_{2.5}$, or CO.[61] Major modification is defined in Section 2-2-218 as a new source or modification at a major facility that will result in an increase of 40 tpy or more of POC, NOx, or SO_2; 15 tpy of PM_{10}; 10 tpy of $PM_{2.5}$; or 100 tpy of CO. As these are Air District regulatory definitions, the District's emissions increase calculation procedures in Section 2-2-604 and related provisions (which use the pre-NSR Reform actual-to-potential methodologies) apply, not the federal calculation procedures. These definitions are also discussed in more detail in Section I.B. of this Chapter.

If a proposed project exceeds any one or more of these applicability thresholds, the applicant will be required to submit a compliance certification. The required certification is a statement made under penalty of perjury that all major facilities in California under the same ultimate ownership or control as the facility that is the subject of the application are in compliance with all applicable air quality requirements (or are on a schedule of compliance for any requirements that are not being complied with).[62]

The purpose of this requirement is (among other things) to aid in air quality enforcement by ensuring that major facilities are in compliance at the time of permitting and by identifying any

non-compliance so that appropriate enforcement action can be taken. The requirement is implemented primarily through the obligation on the applicant to investigate its own compliance status and make the required certification. In most cases, the Air District will rely on the certification to demonstrate compliance, and there is no requirement for any independent investigation to confirm its accuracy. If the Air District has affirmative information that there is non-compliance that was not identified in the certification, however, the District can undertake further investigation and enforcement action as appropriate, and Section 2-2-309 provides that the District can request technical information relied on by the applicant in making the certification. As the certification is made under penalty of perjury and pursuant to a requirement of Air District regulations, serious civil and criminal penalties can apply for anyone knowingly making a false certification.

IV. Denial For Failure to Meet Permit Conditions

Finally, Section 2-2-310 includes a provision that disqualifies a permit applicant from obtaining its permit to operate if it is not complying with the conditions in its authority to construct.

A central purpose of the authority to construct is to authorize an applicant to install its new or modified source and to start operating it during a limited start-up period, during which time the Air District can evaluate the source to ensure that it has been built and is operating in compliance with all relevant conditions the District has imposed. This evaluation can include source testing or any other type of testing or inspection to ensure compliance with emissions limits or other conditions in the authority to construct. If this evaluation shows that the new source or modification is not complying with those conditions, Section 2-2-310 provides that the District will deny the permit to operate to ensure that the non-compliance will not continue.

Section 2-2-310 requires the Air District to provide written notification to the applicant of the non-compliance, and to provide the applicant with an opportunity to remedy it, before denying the permit to operate. In practice, Air District staff will work closely with the applicant to determine the source of the non-compliance and how it can be remedied. The purpose of Section 2-2-310 is not to trip up applicants that experience technical problems during the construction or commissioning of their projects, it is to ensure that projects are built and operated in compliance with their authority to construct conditions over the long term.[63] Only if there is no way that a project can be made to conform to its conditions of approval in the authority to construct will the permit to operate have to be denied.

Section 2-2-310 also applies to any permit conditions applicable to other sources owned or operated by the applicant that were used to provide emission reduction credits for the new or modified source that is the subject of the authority to construct. If conditions were imposed on another source (*e.g.,* a reduced emission limit, a requirement to shut down the source, *etc.*) in order to make emissions reductions at that source enforceable so that they could be used as emission reduction credits for the authority to construct, the applicant needs to ensure that those conditions are being implemented as well. If not, then those emission reduction credits are not actually being provided, and the District will deny the permit to operate (after written notice and an opportunity to cure the violation as noted above).

Endnotes to Chapter 6

[1] *See* CAA § 165(d)(2), 42 U.S.C. § 7475(d)(2).

[2] *See* CAA §§ 169A & 169B, 42 U.S.C. §§ 7491 & 7492. These two provisions are in Part C of Title I of the Act, the Part that contains the PSD requirements, so in a way they are PSD-related requirements. But PSD is normally considered to be a requirement applicable to attainment/unclassifiable areas, whereas the visibility protection requirements in Sections 169A and 169B apply to nonattainment areas as well.

[3] *See* 40 C.F.R. § 51.307(c) (referencing the federal PSD provisions for addressing Class I Areas and visibility in 40 C.F.R. Sections 51.166(o)-(q)).

[4] BAAQMD Reg. 2-2-212.

[5] The Clean Air Act specifies that the Federal Land Manager has "an affirmative responsibility to protect the air quality related values of . . . lands within [the] Class I area," and to consider (in consultation with EPA) whether any PSD Project will have an adverse impact on such values. (CAA § 165(d)(2)(B), 42 U.S.C. § 7475(d)(2)(B).)

[6] BAAQMD Regs. 2-2-401.4, 2-2-402, 2-2-307.

[7] Sections 2-2-401.4 and 2-2-402 of the Air District's regulations require the submission of a Class I Area Impact Analysis and transmittal to the Federal Land Manager only for projects within 100 km of a Class I Area.

[8] Class I designations can be updated from time to time. The current full list of formally-designated California Class I Areas is set forth at 40 C.F.R. § 81.405. Note that the federal list includes some outdated area names (*e.g.,* Minarets Wilderness has been renamed Ansel Adams Wilderness). Note also that California has the authority to name additional Class I Areas beyond the federally-designated ones, although to date it has not done so. (*See* ARB's regional haze website at **www.arb.ca.gov/planning/reghaze/reghaze.htm** for more information about California's initiatives regarding Class I Areas.)

[9] BAAQMD Reg. 2-2-217.

[10] BAAQMD Reg. 2-2-218.

[11] BAAQMD Regs. 2-1-308, 2-2-611.

[12] BAAQMD Regs. 2-2-401.4, 2-2-307.

[13] *See* CAA § 165(d)(2), 42 U.S.C. § 7475(d)(2); 40 C.F.R. §§ 51.166(p), 52.21(p).

[14] The relevant regulations (both state and federal) specifically call out "visibility" as an Air Quality Related Value to be covered in all cases. (*See* BAAQMD Regs. 2-2-401.4, 2-2-307; 40 C.F.R. §§ 51.166(p), 51.307(a) & (b), 52.21(p).)

[15] National Park Service Natural Resource Program Center, *Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report—Revised (2010),* Natural Resource Report NPS/NRPC/NRR–2010/232 (Oct. 2010) (hereinafter, *"FLAG Guidance"*), available at **www.nature.nps.gov/air/Pubs/pdf/flag/FLAG_2010.pdf.**

[16] *Id.,* p. 4. This definition is also consistent with how EPA defines Air Quality Related Values, and with the legislative history of the term in the Clean Air Act. (*See* Proposed Rule, *Prevention of Significant Deterioration New Source Review: Refinement of Increment Modeling Procedures,* 72 Fed. Reg. 31,372, 31,381 (June 6, 2007) (hereinafter, *"Increment Consumption Modeling Refinement Preamble"*).)

[17] *FLAG Guidance, supra* note 15, at pp. 2-3.

[18] *See* EPA, *New Source Review Workshop Manual, Prevention of Significant Deterioration and Non-Attainment Area Permitting* (Draft, Oct. 1990) (hereinafter, *"NSR Workshop Manual"*), at p. E.17; *FLAG Guidance, supra* note 15, at pp. 9, 10-11. In particular, the applicant should submit its proposed modeling protocol—including the proposed methodology, model inputs (*e.g.,* emissions data, stack information, meteorological data, *etc.*), and receptor locations—for review and approval by the Federal Land Manager before starting the analysis. Undertaking the analysis without getting prior approval of the modeling protocol risks disapproval down the road, which will delay the permitting of the project while the analysis is being re-done.

[19] BAAQMD Reg. 2-2-401.4. The applicant prepares this analysis as part of its application to the Air District, and the District then forwards it on to the relevant Federal Land Manager for consideration. (BAAQMD Reg. 2-2-402.)

[20] *FLAG Guidance, supra* note 15, at pp. 5, 9.

[21] EPA has taken the position that the Class I Area Impacts Analysis does not need to address GHG emissions, even if a project will involve a significant net increase in GHG emissions. EPA notes that the impacts on Class I Area Air Quality Related Values that could arise from climate changes resulting from GHG emissions involve emissions orders of magnitude larger than what is normally emitted by any individual facility, such that it would not be possible to attempt to quantify the impacts from a single project's emissions. (*See* EPA Office of Air Quality Planning & Standards, *PSD and Title V Permitting Guidance for Greenhouse Gases* (Mar. 2011), available at **www.epa.gov/sites/production/files/2015-07/documents/ghgguid.pdf, at p. 48.)**

[22] *FLAG Guidance, supra* note 15, at p. 10; *In re Old Dominion Elec. Coop. Permit App.,* 3 E.A.D. 779, 1992 EPA App. LEXIS 37 (EAB Jan. 29, 1992), at fn. 24. The analysis does not need to include proposed sources for which applications have been submitted, but which have not yet been permitted. Impacts from those sources will be evaluated as part of their own permit applications. *(Ibid.)*

[23] *See In re Knauf Fiber Glass, GmbH,* 8 E.A.D. 121, 155-56 & fn. 49 (EAB 1999).

[24] There seems to be little reason to question the use of a SIL approach for this purpose under the *Sierra Club v. EPA,* 705 F.3d 458 (D.C. Cir. 2013), the case discussed in Chapter 5 (Sections V.B. and V.C.) in the context of the PSD Source Impact Analysis. Legally speaking, that case did not involve the Class I Area Impacts Analysis and so it is not directly applicable in this context. Moreover, the case focused on whether it is appropriate to excuse a project from the impact modeling requirements altogether—not on the question of how to define the geographic area to be evaluated when a modeling exercise is conducted. Where the modeling *is* required, there necessarily needs to be some determination of how far out from the source the analysis will extend. That is what the SIL represents in this context: A reasonable limit on the geographic area that will be evaluated in the Class I Area Impact Analysis. As long as the choice of SIL value is reasonable, it is unlikely that there will be any strong grounds to question the use of the SIL approach under *Sierra Club v. EPA.* Furthermore, the Federal Land Manager has the affirmative responsibility to protect Air Quality Related Values in a Class I Area, and as long as the Federal Land Manager finds the SIL acceptable, there will be no reason to question it. The Federal Land Manager enjoys great discretion in how to evaluate potential impacts to Air Quality Related Values in any particular case.

[25] *NSR Workshop Manual, supra* note 18, at pp. E.16-E.17; *Knauf Fiber Glass, supra* note 23, 8 E.A.D. at 155-56 & fn. 49.

[26] *FLAG Guidance, supra* note 15, at p. 10; *NSR Workshop Manual, supra* note 18, at pp. E.16-E.17. SILs in this context are not regulatory thresholds,

but are derived from sound policy judgments regarding how far to extend the geographical area to be evaluated. The reviewing agencies therefore have considerable discretion to use a SIL that is tailored to the specific circumstances of each case. (*See Knauf Fiber Glass, supra* note 23, 8 E.A.D. at 156 fn. 49.) Early input from the Federal Land Manager will allow the applicant to develop a sound and defensible protocol for undertaking the analysis.

[27] *FLAG Guidance, supra* note 15, at p. 19.

[28] 40 C.F.R § 51.301.

[29] *Ibid.*

[30] *FLAG Guidance, supra* note 15, at pp. 19, 20, 23-24.

[31] 40 C.F.R § 51.301.

[32] *FLAG Guidance, supra* note 15, at pp. 20, 24. The FLAG Guidance also includes detailed information on how to determine natural visibility conditions in a particular situation. (*See id.* at pp. 26-53.)

[33] *Id.* at p. 23.

[34] The Federal Land Managers use the same dispersion modeling protocols required by EPA for PSD permitting under the *Guideline on Air Quality Models* in Appendix W of 40 C.F.R. Part 51, as discussed in Section V.C.1 of Chapter 5. (*FLAG Guidance, supra* note 15, at pp. 5, 9.)

[35] *Id.* at pp. 19-26.

[36] Readers are encouraged in particular to consult the EPA guidance documents cited in the discussion in Chapter 5, Section VI.C.

[37] *See* Letter from B. Bannister, EPA Region 4, to K. Waylett, N.C. Dep't of Justice, and S. Holman, N.C. Dep't of Env't & Nat. Res. (Apr. 16, 2013), and enclosures.

[38] *FLAG Guidance, supra* note 15, at pp. 54-72.

[39] The FLAG Guidance references a number of agency websites where such information can be accessed for individual Class I Areas. (*See FLAG Guidance, supra* note 15, at pp. 55, 58, 59.)

[40] *Id.* at pp. 56-57, 62-64.

[41] *Id.* at p. 57 fig. 6, p. 67 fig. 7. The Federal Land Managers require applicants to use the same Appendix W *Guideline* models required by EPA. (*Id.* at pp. 5, 9.)

[42] *Id.* at p. 57 fig. 6, p. 67 fig. 7.

[43] *Id.* at p. 9.

[44] Note that the Federal Land Managers may also be interested in other aspects of a project and its impacts, beyond just Class I Area considerations. They may therefore coordinate with the applicant and the Air District on other issues of interest, either informally or formally by submitting comments through the public comment process. (*See NSR Workshop Manual, supra* note 18, at p. E.20; *FLAG Guidance, supra* note 15, at p. ix fn. 1, p. 1 fn. 3.) This chapter is limited to discussing the formal process relating to Class I Area considerations under District Regulations 2-2-401.4, 2-2-402, and 2-2-307, however.

[45] BAAQMD Reg. 2-2-402.

[46] *Ibid.* The Air District also needs to send a copy to EPA Region 9, if the application involves a PSD Project.

[47] BAAQMD Reg. 2-2-402.

[48] *See* CAA § 165(d)(2)(C), 42 U.S.C. § 7475(d)(2)(C); 40 C.F.R. §§ 51.166(p)(4), 52.21(p)(5); *In-*

crement Consumption Modeling Refinement Preamble, supra note 16, 72 Fed. Reg. at 31,381-82.

[49] BAAQMD Reg. 2-2-307 (final sentence); *see also Old Dominion Elec. Coop., supra* note 22, 3 E.A.D. 779, at fn. 30 ("[T]he State was authorized to reject the Federal Land Managers' findings after concluding on reasonable grounds, as it did here, that they could not be substantiated."); *see also id.,* fn. 9.

[50] *See In re Prairie State Generating Co.,* 13 E.A.D. 1, 115-16 (EAB 2006), *aff'd sub nom. Sierra Club v. EPA,* 499 F.3d 653 (7th Cir. 2007) ("If a state determines that an FLM has not satisfactorily demonstrated an adverse impact the state must provide a rational basis for such a conclusion.") (citation and internal quotation marks omitted).

[51] BAAQMD Reg. 2-2-307.

[52] *See NSR Workshop Manual, supra* note 18, at p. E.21; *FLAG Guidance, supra* note 15, p. 11.

[53] BAAQMD Reg. 2-2-308, third sentence.

[54] *See* Staff Report, *Updates to BAAQMD New Source Review and Title V Permitting Programs, Regulation 2, Rules 1, 2, 5 and 6* (Sept. 26, 2012), at p. 81 & fn. 68.

[55] *See* BAAQMD Reg. 2-2-220 (incorporating BAAQMD Reg. 2-2-604).

[56] The "PSD Project" definition in Section 2-2-224 is not directly applicable, because (i) the applicability determination for purposes of the NAAQS Protection Requirement does not consider whether the new or modified source will be at a facility exceeding the 100/250 tpy PSD "major facility" threshold, and (ii) the NAAQS Protection Requirement applies to all pollutants for which a NAAQS has been established, which excludes California standards, but includes nonattainment standards which are not within the definition of "PSD Pollutants." The mechanics of determining whether the new source or modification will result in a "significant net increase" are analogous, however.

[57] The NAAQS Protection Requirement in Section 2-2-308 is pollutant-specific in the sense that it applies only to pollutants for which there is a significant net increase of that pollutant. But for any pollutant for which the requirement applies, it applies to all NAAQS that have been adopted for that pollutant (*e.g.,* 24-hour-average and annual-average standards).

[58] BAAQMD Reg. 2-2-308, second sentence.

[59] The requirement is to demonstrate that the project will not "cause or contribute" to a NAAQS violation, using EPA's approach for PSD permitting. Under EPA's regulations, a source does not "cause or contribute" if any contribution to a NAAQS exceedance is *de minimis,* which is normally defined as less than the SIL value. (*Prairie State, supra* note 50, 13 E.A.D. at 105 ("[A] source will not be viewed as causing or contributing to a violation if the source's impact is lower than the SILs at the location and time of the violation.") (citation omitted); *see generally* Chapter 5, Section III.V.C.3.a.)

[60] BAAQMD Reg. 2-2-308, last sentence.

[61] Fugitive emissions are included in calculating the facility's PTE only if the facility is in one of the 28 listed NSR source categories. In addition, if a change being implemented at a facility that is below the 100 tpy threshold would constitute a "major" facility by itself (*i.e.,* the increase resulting from the change would exceed the 100 tpy threshold), then the change constitutes a new "major facility" under Section 2-2-217.

[62] BAAQMD Reg. 2-2-309.

[63] Note, however, that nothing in Section 2-2-310 excuses any non-compliance during the startup period before a permit to operate is issued. Violations during the startup period, like all violations, are subject to appropriate enforcement action under Health and Safety Code Sections 42400 *et seq.* and other legal authorities.

Appendix: Correlation Tables

The following tables list (i) the provisions of the Air District's New Source Review (NSR) regulations in Regulation 2, Rule 2, in the version of the Rule that was in effect up until August 31, 2016, and (ii) the corresponding provisions of the revised version of the Rule that took effect on August 31, 2016. The purpose of these tables is to provide a side-by-side comparison of the numbering system used in the "old" (pre-2016) version and the "new" (post-2016) version.

The ***first table*** lists all of the provisions in the old version, in numerical order, along with the corresponding provision number in the new version (and with a brief explanatory note, where applicable). This table should be used where one knows the provision number used in the old version and wants to find the number of the corresponding provision in the new version.

The ***second table*** lists all of the provisions in the new version, in numerical order, along with the corresponding provision number that was used under the old version (and again, with a brief explanatory note where applicable). This table should be used where one knows the provision number used in the new version and wants to find the number of the corresponding provision in the old version.

List of Provisions In "Old" Version of Reg. 2-2 NSR Rule In Effect Until August 31, 2016, With Corresponding Provisions In "New" Version of Reg. 2-2 NSR Rule Effective August 31, 2016 (For Converting "Old" Citations to "New" Citations)

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-100	**GENERAL**			
2-2-101	Description	2-2-101	Description	Non-substantive language clarifications only
2-2-110	Deleted October 7, 1998	*N/A*		
2-2-111	Exemption, PSD Monitoring	2-2-305.1	Pre-application Air Quality Analysis	This provision set forth the "Significant Monitoring Concentrations" (SMCs) below which pre-application monitoring is not required for PSD permitting. The SMCs are now incorporated by reference to 40 C.F.R. §§ 52.21(m) and 52.21(i). (*See* text for important caveats regarding the use of SMCs.)
2-2-112	Exemption, Secondary Emissions From Abatement	2-2-102	Exemption, Emissions From Operation of Abatement Devices and Techniques	Non-substantive language clarifications only.
2-2-113	Deleted June 15,1994	*N/A*		
2-2-114	Exemption, MACT Requirement	2-6-315	Case-by-Case MACT Requirement	Old 2-2-114 was essentially the applicability test for the case-by-case MACT requirement. That requirement has been moved to Reg. 2-6.
2-2-200	**DEFINITIONS**			
2-2-202	Baseline Area, PSD	2-2-305.2; 2-2-103; 40 C.F.R. § 52.21(b)	PSD Source Impact Analysis; Incorporation by Reference of Federal PSD Provisions	These terms are used in the PSD increment consumption analysis. The increment consumption analysis requirement is now set forth in § 2-2-305.2, and it incorporates by reference the federal definitions in 40 C.F.R. 52.21(b).
2-2-203	Baseline Concentration, PSD			
2-2-204	Baseline Date, PSD			
2-2-205	Baseline Period, PSD			

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-206	Best Available Control Technology (BACT)	2-2-202	Best Available Control Technology (BACT)	Primarily non-substantive language revisions. BACT 1 now encompasses emissions limitations, not just control technologies.
2-2-207	California Coastal Waters	2-2-204	California Coastal Waters	
2-2-208	CEQA	*N/A*		Deleted.
2-2-209	Class I Areas, PSD	2-2-205	Class I Area	
2-2-210	Deleted May 17, 2000	*N/A*		
2-2-211	Contiguous Properties	*N/A*		Deleted.
2-2-212	Cumulative Increase	2-2-208	Cumulative Increase	
2-2-213	EIR	*N/A*		Deleted.
2-2-214	Emission Offsets	2-2-221	Offsets	
2-2-215	Facility	2-1-213	Facility	Specific definition in Reg. 2-2 removed; Definition in 2-1-213 will apply for all purposes under all rules of Reg. 2.
2-2-216	Feasible	*N/A*		Deleted. Refer to dictionary definition.
2-2-217	Federal Land Manager	2-2-212	Federal Land Manager	
2-2-218	Federally Enforceable	2-1-214	Federally Enforceable	Specific definition in Reg. 2-2 removed; Definition in 2-1-214 will apply for all purposes under all rules of Reg. 2.
2-2-219	Impact Area	2-2-305; 2-2-103; EPA NSR Workshop Manual & related guidance	PSD Source Impact Analysis Requirement; Incorporation by Reference of Federal PSD Provisions	"Impact area" is a concept used in the PSD source impact analysis. EPA guidance on the definition and use of this term is incorporated by reference into Section 2-2-305.
2-2-220	Major Facility	2-2-217	Major Facility	

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-221	Major Modification of a Major Facility	2-2-218	Major Modification	
2-2-222	Modeling, PSD	2-2-305.3	Air Quality Models	This "definition" was really a provision referencing EPA guidance on PSD modeling. New section 2-2-305.3 now states explicitly what rules apply to PSD modeling.
2-2-223	Deleted May 17, 2000	*N/A*		
2-2-224	Net Air Quality Benefit	2-2-219	Net Air Quality Benefit	
2-2-225	Deleted May 17, 2000	*N/A*		
2-2-226	Deleted October 7, 1998	*N/A*		
2-2-227	Deleted October 7, 1998	*N/A*		
2-2-228	Deleted October 7, 1998	*N/A*		
2-2-229	Deleted October 7, 1998	*N/A*		
2-2-230	Deleted October 7, 1998	*N/A*		
2-2-231	Point of Maximum Ground Level Impact	*N/A*		Deleted. This term was used in the old PSD modeling requirements; the new requirements incorporate by reference the federal requirements.
2-2-232	Prevention of Significant Deterioration (PSD) Increments	2-2-305.2; 2-2-103; 40 C.F.R. § 52.21(c)	PSD Source Impact Analysis; Ambient air increments	Section 2-2-305.2 requires an analysis to ensure no exceedance of a PSD increment, and it incorporates by reference the federal increments set forth in 40 C.F.R. § 52.21(c).
2-2-233	Significant Air Quality Impacts, PSD	2-2-305; 2-2-103; 40 C.F.R. § 51.165(b)(2)	PSD Source Impact Analysis Requirement;	This definition set forth the Significant Impact Levels (SILs) for use in the PSD analysis. The PSD analysis requirement is now in Section 2-2-305, and it incorporates the federal rules by reference, which define the SILs at 40 C.F.R. § 51.165(b) ▶

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
▶				(2), applicable to PSD permitting under longstanding EPA policy. (*See* text for important caveats regarding the use of SILs.)
2-2-234	Source	*N/A*		Specific definition in Reg. 2-2 removed; Definition in 1-227 will continue to be generally applicable, as will the dictionary definition.
2-2-235	Year, Month, and Day	*N/A*		Deleted.
2-2-236	Hazardous Air Pollutant (HAP)	2-2-215	Hazardous Air Pollutant	
2-2-237	Major Facility Review (MFR)	2-6-213	Major Facility Review	Definition in old 2-2-237 deleted as redundant; definition in Reg. 2-6 remains in place for purposes of Title V permitting.
2-2-238	Deleted May 17, 2000	*N/A*		
2-2-239	Deleted May 17, 2000	*N/A*		
2-2-240	Best Available Retrofit Control Technology (BARCT)	2-2-203	Best Available Retrofit Control Technology (BARCT)	
2-2-241	Deleted May 17, 2000	*N/A*		
2-2-242	Contemporaneous	2-2-206	Contemporaneous	
2-2-243	Reasonably Available Control Technology (RACT)	2-2-225	Reasonably Available Control Technology (RACT)	
2-2-244	Best Available Control Technology for Toxics (TBACT)	2-5-205	Best Available Control Technology for Toxics, or TBACT	
2-2-245	Fully Offset	2-2-213	Fully Offset Source	
2-2-246	Adjustment to Emission Reductions for Federal Purposes	2-2-201	Adjustment to Emission Reductions for Federal Purposes	

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-300	**STANDARDS**			
2-2-301	Best Available Control Technology Requirement	2-2-301	Best Available Control Technology Requirement	Now applies to $PM_{2.5}$; pollutants subject to BACT defined as "District BACT Pollutants."
2-2-302	Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides, NSR	2-2-302	Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides	
2-2-303	Offset Requirement, PM_{10} and Sulfur Dioxide, NSR	2-2-303	Offset Requirement, $PM_{2.5}$, PM_{10}, and Sulfur Dioxide	Now applies to $PM_{2.5}$.
2-2-304	PSD Requirement	2-2-305; 2-2-103; 40 C.F.R. § 52.21(k)-(m).	PSD Source Impact Analysis Requirement	This provision was the PSD source impact requirement, which is now set forth in new Section 2-2-305 and incorporates the federal rules in 40 C.F.R. § 52.21(k)-(m).
2-2-305	Carbon Monoxide Modeling Requirement, PSD	2-2-305; 2-2-103; 40 C.F.R. § 52.21(k)-(m).	PSD Source Impact Analysis Requirement	*See* 2-2-304 PSD Requirement above; this was a special additional provision for CO, and it is subsumed within the general PSD Source Impact Analysis requirement.
2-2-306	Non-Criteria Pollutant Analysis, PSD	2-2-305; 2-2-103; 40 C.F.R. § 52.21(k)-(m).	PSD Source Impact Analysis Requirement	This was the PSD analysis requirement for non-criteria pollutants; it is subsumed within the general PSD Source Impact Analysis requirement.
2-2-307	Denial, Failure of all Facilities to be in Compliance	2-2-309	Compliance Certification	
2-2-308	Class I Area Requirements, PSD	2-2-227.1.2	Definition of "Significant"	Old 2-2-308 addressed the third prong of the federal PSD "significant" test for PSD applicability in 40 C.F.R. § 52.21(b)(23)(iii). That prong is now covered by the definition of significant in 2-2-227.1.2.

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-309	Denial for Air Quality Related Values, PSD	2-2-307	Consideration of Class I Area Impacts	
2-2-310	Denial, Failure to Use BACT	2-2-301; 2-1-304	BACT Requirement; Denial, failure to meet emission limitations.	Old 2-2-310 stated that the APCO would deny a permit if the project did not satisfy the BACT requirement. This is implicit in Section 2-2-301, and also made explicit by 2-1-304.
2-2-311	Denial, Failure to Provide Offsets	2-2-302 & 2-2-303; 2-1-304	Offsets Requirement; Denial, failure to meet emission limitations.	Old 2-2-311 stated that the APCO would deny a permit if the project did not satisfy the offsets requirements. This is implicit in Sections 2-2-302 & 2-2-303, and also made explicit by 2-1-304.
2-2-312	Denial, Failure to Meet Permit Conditions	2-2-310	Denial, Failure to Meet Permit Conditions	
2-2-313	Deleted May 17, 2000	*N/A*		
2-2-314	Federal New Source Review Applicability	*N/A*		Deleted.
2-2-315	Federal Prevention of Significant Deterioration Applicability	*N/A*		Deleted.
2-2-316	No Net Increase Status Report	2-2-413	No Net Increase Status Report	
2-2-317	Maximum Achievable Control Technology (MACT) Requirement	2-6-315	Maximum Achievable Control Technology (MACT) Requirement	Case-by-case MACT requirement moved to Reg. 2-6.
2-2-400	**ADMINISTRATIVE REQUIREMENTS**			
2-2-401	Application	2-2-401	Application	
2-2-402	Deleted December 21, 2004	*N/A*		
2-2-403	Authority to Construct – Deleted October 7, 1998	*N/A*		
2-2-404	Authority to Construct, Preliminary Decision	2-2-403	Authority to Construct, Preliminary Decision	
2-2-405	Publication and Public Comment	2-2-404	Publication of Notice and Opportunity for Public Comment	
2-2-406	Public Inspection	2-2-405	Public Inspection	

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-407	Authority to Construct, Final Action	2-2-406	Authority to Construct, Final Action	
2-2-408	Deleted May 17, 2000	*N/A*		
2-2-409	Requirements, Permit to Operate	2-2-410	Permit Conditions	Old sections 2-2-409 (which dealt with conditions for sources used to provide contemporaneous emission reduction credits) and 2-2-419 (which addressed sources used to provide ERCs and also any other necessary conditions) have been consolidated into new Section 2-2-410.
2-2-410	Issuance, Permit to Operate	2-2-407	Issuance, Permit to Operate	
2-2-411	Permit to Operate, Final Action	2-2-408	Permit to Operate, Final Action	
2-2-412	Source Obligation, Relaxation of Enforceable Conditions	2-2-409	Source Obligation, Relaxation of Enforceable Conditions	
2-2-413	Deleted May 17, 2000	*N/A*		
2-2-414	PSD Air Quality Analysis	2-2-305	PSD Source Impact Analysis Requirement	Old Section 2-2-214 provided that the applicant had to prepare and submit PSD analysis and conduct ambient air quality monitoring where required. Those requirements are now specified in new Section 2-2-305.1 and 2-2-305.2.
2-2-415	Notice to EPA and Federal Land Managers	2-2-402	Notice to EPA and Federal Land Manager of Receipt of Permit Applications	
2-2-416	Report, PSD Increment Consumption	*N/A*		Deleted.
2-2-417	Visibility, Soils, and Vegetation Analysis	2-2-306	PSD Additional Impacts Analysis Requirements	
2-2-418	PSD Analysis Stack Heights	2-2-602	Good Engineering Practice (GEP) Stack Height	

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
2-2-419	Permit Conditions	2-2-410	Permit Conditions	Old sections 2-2-409 (which dealt with conditions for sources used to provide contemporaneous emission reduction credits) and 2-2-419 (which addressed sources used to provide ERCs and also any other necessary conditions) have been consolidated into new Section 2-2-410.
2-2-420	Deleted March 1, 2000	*N/A*		
2-2-421	Offset Deferral, Annual Permit Renewal	*N/A*		Deleted. The offset deferral provision was removed from the rule.
2-2-422	Offset Refunds	2-2-411	Offset Refunds	
2-2-423	Demonstration of Offset Program Equivalence	2-2-412	Demonstration of NOx and POC Offset Program Equivalence	
2-2-500	**MONITORING AND RECORDS**			
2-2-501	PSD Pre-Construction Ambient Air Monitoring	2-2-305.1; 2-2-103; 40 C.F.R. § 52.21(m).	Pre-Application Air Quality Analysis	
2-2-502	PSD Post-Construction Monitoring	2-2-501	Post-Construction Monitoring	
2-2-600	**MANUAL OF PROCEDURES**			
2-2-601	Ambient Air Quality Monitoring	2-2-601	Ambient Air Quality Monitoring	
2-2-602	Good Engineering Practice (GEP) Stack Height	2-2-602	Good Engineering Practice (GEP) Stack Height	
2-2-603	PSD Air Quality Evaluation Procedure	*N/A*		Deleted. This was a suggestion that an applicant should review an EPA guidance document on preparing a PSD air quality impact analysis. The requirements for that analysis are set forth in ▶

Pre-2016 ("Old") NSR Provision	Title/Subject	Corresponding 2016 ("New") NSR Provision	Title/Subject	Comments
▶				Section 2-2-305, which incorporates by reference relevant EPA rules on doing the analysis.
2-2-604	Emission Increase Calculation Procedures, New or Modified Sources	2-2-604	Emissions Increase/ Decrease Calculation Procedures, New Sources and Changes at Existing Source	*See also* 2-2-603, Baseline Emissions Calculation Procedures.
2-2-605	Emission Calculation Procedures, Emission Reduction Credits	2-2-605	Emission Reduction Credit Calculation Procedures	*See also* 2-2-603, Baseline Emissions Calculation Procedures.
2-2-606	Emission Calculation Procedures, Offsets	2-2-608	Facility Un-Offset Cumulative Increase Calculation Procedures	*See also* 2-2-603 through 2-2-607.
2-2-607	Emission Calculation Procedures, Emission Reduction Credits for Mobile Sources	*N/A*		Deleted.
2-2-608	Deleted May 17, 2000	*N/A*		

List of Provisions In "New" Version of Reg. 2-2 NSR Rule Effective August 31, 2016, With Corresponding Provisions In "Old" Version of Reg. 2-2 NSR Rule In Effect Until August 31, 2016 (For Converting "New" Citations to "Old" Citations)

2016 ("New") NSR Provision	Title/Subject	Corresponding Pre-2016 ("Old") NSR Provision	Title/Subject	Comments
2-2-100	**GENERAL**			
2-2-101	Description	2-2-101	Description	
2-2-102	Exemption, Emissions From Operation of Abatement Devices and Techniques	2-2-112	Exemption, Secondary Emissions From Abatement	
2-2-103	Incorporation by Reference of Federal PSD Provisions	*N/A*		New.
2-2-200	**DEFINITIONS**			
2-2-201	Adjustment to Emission Reductions for Federal Purposes	2-2-246	Adjustment to Emission Reductions for Federal Purposes	
2-2-202	Best Available Control Technology (BACT)	2-2-206	Best Available Control Technology (BACT)	
2-2-203	Best Available Retrofit Control Technology (BARCT)	2-2-240	Best Available Retrofit Control Technology (BARCT)	
2-2-204	California Coastal Waters	2-2-207	California Coastal Waters	
2-2-205	Class I Area	2-2-209	Class I Areas, PSD	
2-2-206	Contemporaneous	2-2-242	Contemporaneous	
2-2-207	Creditable	*N/A*		New.
2-2-208	Cumulative Increase	2-2-212	Cumulative Increase	
2-2-209	Cumulative Increase Baseline Date	*N/A*		New.
2-2-210	District BACT Pollutant	*N/A*		New.
2-2-211	Emission Reduction Credit	2-2-201	Emission Reduction Credit	
2-2-212	Federal Land Manager	2-2-217	Federal Land Manager	
2-2-213	Fully Offset Source	2-2-245	Fully Offset	
2-2-214	Greenhouse Gases (GHGs)	*N/A*		New.
2-2-215	Hazardous Air Pollutant (HAP)	2-2-236	Hazardous Air Pollutant (HAP)	
2-2-216	Indian Governing Body	*N/A*		New.
2-2-217	Major Facility	2-1-204.1	Major Facility	

2016 ("New") NSR Provision	Title/Subject	Corresponding Pre-2016 ("Old") NSR Provision	Title/Subject	Comments
2-2-218	Major Modification	2-2-221	Major Modification of a Major Facility	
2-2-219	Net Air Quality Benefit	2-2-224	Net Air Quality Benefit	
2-2-220	Net Emissions Increase	*N/A*		New.
2-2-221	Offsets	2-2-214	Emission Offsets	
2-2-222	Pollutant-Specific Basis	*N/A*		New.
2-2-223	PSD Pollutant	*N/A*		New.
2-2-224	PSD Project	*N/A*		New.
2-2-225	Reasonably Available Control Technology (RACT)	2-2-243	Reasonably Available Control Technology (RACT)	
2-2-226	Related Sources	2-2-215.1	Facility	"Related sources" was a sub-definition used (and defined) in the definition of "Facility" in Section 2-2-215.1.
2-2-227	Significant	*N/A*		New. Some provisions of the old rules incorporated some of the federal NSR "significant" emission rated (*e.g.,* old Reg. 2-2-221), but there was no definition of "significant" in this context.
2-2-300	**STANDARDS**			
2-2-301	Best Available Control Technology Requirement	2-2-301	Best Available Control Technology Requirement	
2-2-302	Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides	2-2-302	Offset Requirements, Precursor Organic Compounds and Nitrogen Oxides, NSR	
2-2-303	Offset Requirements, $PM_{2.5}$, PM_{10} and Sulfur Dioxide	2-2-303	Offset Requirements, PM_{10} and Sulfur Dioxide, NSR	
2-2-304	PSD BACT Requirement	*N/A*		PSD was previously implemented under EPA's federal PSD regulations in 40 C.F.R. § 52.21 (although the Air District often issued the permits on EPA's behalf under a delegation agreement).

2016 ("New") NSR Provision	Title/Subject	Corresponding Pre-2016 ("Old") NSR Provision	Title/Subject	Comments
2-2-305	PSD Source Impact Analysis Requirement	*N/A*		PSD was previously implemented under EPA's federal PSD regulations in 40 C.F.R. § 52.21 (although the Air District often issued the permits on EPA's behalf under a delegation agreement).
2-2-306	PSD Additional Impacts Analysis Requirements	*N/A*		PSD was previously implemented under EPA's federal PSD regulations in 40 C.F.R. § 52.21 (although the Air District often issued the permits on EPA's behalf under a delegation agreement).
2-2-307	Consideration of Class I Area Impacts	*N/A*		Class I Area impacts were previously evaluated in connection with issuing PSD permits under EPA's federal PSD regulations in 40 C.F.R. § 52.21.
2-2-308	NAAQS Protection Requirement	*N/A*		New requirement.
2-2-309	Compliance Certification	2-2-307	Denial, Failure of all Facilities to be in Compliance	
2-2-310	Denial, Failure to Meet Permit Conditions	2-2-312	Denial, Failure to Meet Permit Conditions	
2-2-400	**ADMINISTRATIVE REQUIREMENTS**			
2-2-401	Application	2-2-401	Application	
2-2-402	Notice to EPA and Federal Land Manager of PSD Applications	2-2-415	Notice to EPA and Federal Land Manager	
2-2-403	Authority to Construct, Preliminary Decision	2-2-404	Authority to Construct, Preliminary Decision	
2-2-404	Publication of Notice and Opportunity for Public Comment	2-2-405	Publication and Public Comment	
2-2-405	Public Inspection	2-2-406	Public Inspection	
2-2-406	Authority to Construct, Final Action	2-2-407	Authority to Construct, Final Action	

2016 ("New") NSR Provision	Title/Subject	Corresponding Pre-2016 ("Old") NSR Provision	Title/Subject	Comments
2-2-407	Issuance, Permit to Operate	2-2-410	Issuance, Permit to Operate	
2-2-408	Permit to Operate, Final Action	2-2-411	Permit to Operate, Final Action	
2-2-409	Source Obligation, Relaxation of Enforceable Conditions	2-2-412	Source Obligation, Relaxation of Enforceable Conditions	
2-2-410	Permit Conditions	2-2-419	Permit Conditions	
2-2-411	Offset Refunds	2-2-422	Offset Refunds	
2-2-412	Demonstration of NOx and POC Offset Program Equivalence	2-2-423	Demonstration of Offset Program Equivalence	
2-2-413	No Net Increase Status Report	2-2-316	No Net Increase Status Report	
2-2-414	BACT Workbook	2-2-206	Best Available Control Technology (BACT)	The old provision about maintaining a BACT Workbook was in the last two sentences of the BACT definition.
2-2-500	**MONITORING AND RECORDS**			
2-2-501	Post-Construction Monitoring	2-2-502	PSD Post-Construction Monitoring	
2-2-600	**MANUAL OF PROCEDURES**			
2-2-601	Ambient Air Quality Monitoring	2-2-601	Ambient Air Quality Monitoring	
2-2-602	Good Engineering Practice (GEP) Stack Height	2-2-602	Good Engineering Practice (GEP) Stack Height	
2-2-603	Baseline Emissions Calculation Procedures	2-2-605.1 through 2-2-605.5	Emission Calculation Procedures, Emission Reduction Credits	Baseline calculation procedures (for both increases and reductions) were moved into their own separate section.
2-2-604	Emission Increase/ Decrease Calculation Procedures, New Sources and Changes at Existing Sources	2-2-604, 2-2-605	Emission Increase Calculation Procedures, New or Modified Sources; Emission Calculation Procedures, Emission Reduction Credits	

2016 ("New") NSR Provision	Title/Subject	Corresponding Pre-2016 ("Old") NSR Provision	Title/Subject	Comments
2-2-605	Emission Reduction Credit Calculation Procedures	2-2-605		
2-2-606	Potential to Emit (PTE) Increase Calculation Procedures for Purposes of Determining Cumulative Increase	*N/A*		New.
2-2-607	Cumulative Increase Calculation Procedures	*N/A*		New.
2-2-608	Facility Un-Offset Cumulative Increase Calculation Procedures	*N/A*		New.
2-2-609	Official Record of Cumulative Increases and Offsets	N/A		New.
2-2-610	Facility Emissions Calculation Procedures, Cargo Carriers	2-2-215	Facility	The provision governing inclusion of cargo carrier emissions was in the definition of "Facility."
2-2-611	Emission Calculation Procedures, Fugitive Emissions	2-1-204.1 2-1-308	Major Facility; Fugitive Emissions	

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