BAY AREA AIR QUALITY MANAGEMENT DISTRICT

NEW SOURCE REVIEW PERMITTING UNDER REGULATION 2, RULE 2: INTRODUCTION TO RECENT REGULATORY CHANGES

Technical Workshop and Training Session
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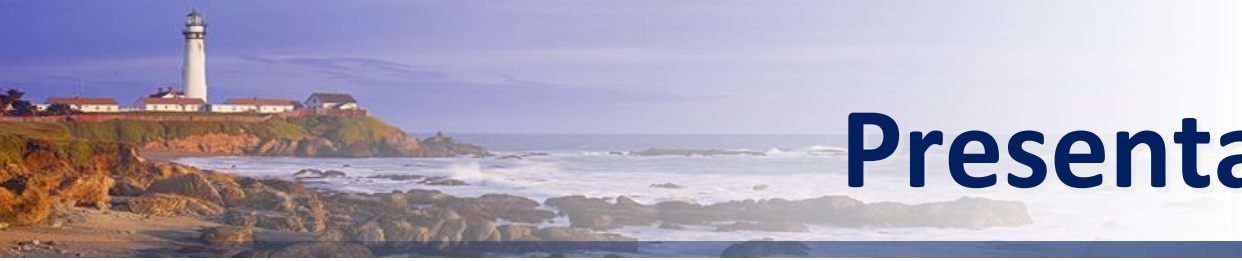


Presentation Outline

I. Introductions & Agenda

II. Background – How Did We Get Here?

III. Foundational Concepts

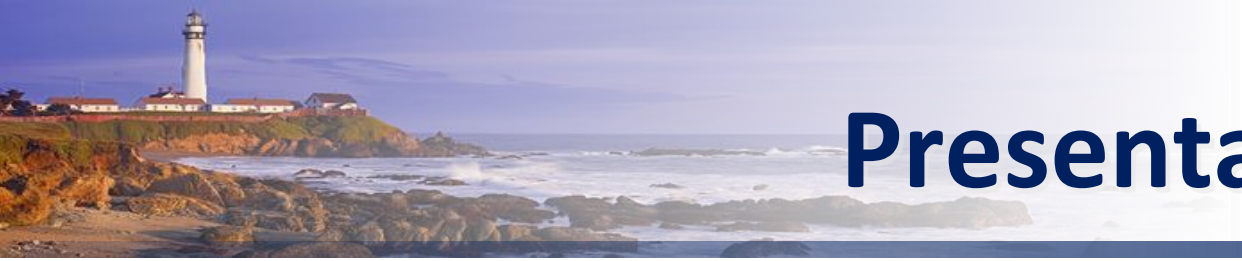
IV. NSR Applicability – "New" and "Modified" Sources

V. Best Available Control Technology (2-2-301)

VI. Emissions Offsets (2-2-302 & 2-2-303)

VII. Prevention of Significant Deterioration (PSD)

- *Federal PSD BACT (2-2-304)*
- *PSD Source Impact Analysis (2-2-305)*
- *PSD Additional Impact Analysis (2-2-306)*



Presentation Outline

VIII. Additional Substantive NSR Requirements

- *Class I Area Protection (2-2-307)*
- *NAAQS Protection Requirement (2-2-308)*
- *Major Facility Compliance Certification (2-2-309)*
- *P/O Denial, Failure to Meet A/C Conditions (2-2-310)*

IX. Additional Miscellaneous Revisions

X. Closing Thoughts/Questions

How Did We Get Here?

Part II:

What Happened with the 2012 Amendments, and Why?

How Did We Get Here?

Regulatory Framework

- EPA establishes NAAQS
- Clean Air Act Requires SIPs to attain & maintain NAAQS
  - Planning requirements
  - ***NSR permitting requirements***
- NSR has 2 elements, depending on attainment status
  - Non-Attainment NSR
  - Prevention of Significant Deterioration (PSD)
- California imposes additional, related requirements
- Air District implements NSR through Reg. 2

How Did We Get Here?

District NSR Program Needed Updating

- EPA 2009 **$PM_{2.5}$ Non-Attainment Designation**
  - We added N/A NSR provisions for $PM_{2.5}$ (BACT, offsets …)
- EPA requirement to include **condensable PM**
  - We added provision addressing condensables
- Problems with "Delegated" **PSD permitting**
  - We created a District PSD Program for SIP approval
- **New Air District initiatives** we had been contemplating
  - We lowered the thresholds for Public Notice and Comment
  - We created a New "NAAQS Protection Requirement"
  - We made a few other minor miscellaneous revisions

How Did We Get Here?

District NSR Program Needed Updating (cont'd)

- Need to **make certain language more clear**
  - We significantly revised regulatory language
  - We reorganized Reg. 2-2
- **EPA identified deficiencies** during rule development
  - We added "Federal Backstop" applicability test
- **Title V Applicability to GHGs**
  - We made a few revisions to Reg. 2-6

How Did We Get Here?

Amendments Took Effect August 31, 2016

- EPA's Approval of Revised Regs into SIP made Regs "effective"
  - Not effective immediately in 2012 to avoid "SIP Gap"
- New Regs apply to applications *complete* on or after 8/31/2016
- Applications complete before 8/31/2016 use old Rules
  - *See Reg. 2-1-409 (Regulations in Force Govern)*
- Revisions to Reg. 2-6 (Title V permits) not yet approved
- EPA identified further changes to be made w/in next 18 mos.

Foundational Concepts

Part III:
A Few Foundational Concepts:

Regulating Condensable PM

Regulating GHGs

Emissions Increase/Decrease Calculation Methodologies

Regulating Fugitive Emissions

Condensable PM

PM is now defined to include condensable ("back half") PM emissions in all cases:

- New definition of **$PM_{2.5}$** (2-1-241)
- Revised definition of **PM_{10}** (2-1-229)
- New provision on **PM test methods** (2-1-603)
  - EPA Method 201A/202 (PM emission rates)
  - 40 CFR pts. 50, 53, 58 (ambient concentrations)
  - Or alternative methods, with approval

Condensable PM

Transition Issues:

- Ensure "Apples-to-Apples" Comparisons
- Do No Revisit Settled History
  - For ***limits established based on filterable only***, compliance will continue to be based on filterable only (2-1-604)
  - ***Past applicability determinations*** not reopened (2-1-605)
    - E.g., offsets provide for past PM_{10} emissions increases
    - But all future determinations do include condensable (e.g. Title V)
- Conversion of banked PM_{10} ERCs
  - Application for re-evaluation (2-4-416)
  - Calculation procedure for conversion (2-4-603)

GHGs "Subject to Regulation"

- Federal NSR applies to ***"Regulated NSR Pollutants"***
- Regulated NSR Pollutant defined to include pollutants that are ***"Subject to Regulation"***
- GHGs are "Subject to Regulation" only if:
  - Facility exceeds 100/250 tpy federal ***"major"*** facility threshold for ***some regulated pollutant <u>other than GHGs</u>***; and
  - Change at facility will ***increase GHG emissions*** by ***75,000+ tpy CO_2e***

Emission Increase/Decrease Calculation Methodologies

Different Ways to Measure Increase/Decrease:

- Actual-to-Potential
  - ***Default methodology*** under District's NSR Program
  - ***Old*** Sections 2-2-604 (increase), 2-2-605 (decrease (ERCs))
  - ***New*** Sections 2-2-603 (baseline), 2-2-604 (Δ from baseline)
- Actual-to-Projected-Future-Actual
  - Federal Approach under 2002 "***NSR Reform***" Initiative
  - Used in "***Federal Backstop***" applicability test (2-1-234.2)
- Potential-to-Potential
  - District historical applicability test (2-1-234.1)
  - Some offsets situations (*e.g.*, "fully offset" sources)

Emission Increase/Decrease Calculation Methodologies

Actual-to-Potential Methodology:

1. Establish Actual Emissions Baseline
   - Determine Baseline Period
   - Evaluate Actual Emissions during Baseline Period
2. Apply "Surplus" Adjustment
   - a/k/a/ "RACT Adjustment"
3. Compare Adjusted Actual Baseline to Future PTE

Emission Increase/Decrease Calculation Methodologies

Baseline Calculation Provisions:

2-2-603 **Baseline Emissions Calculation Procedures:** The following methodology shall be used to determine a source's baseline emissions for purposes of calculating an emissions increase or decrease from a source under Sections 2-2-604.2, 2-2-605.1, and 2-2-606.3:

603.1 Determine Baseline Period Ending Date:

603.2 Determine Baseline Period:

603.3 Determine Baseline Throughput:

603.4 Determine Baseline Emissions:

603.5 Determine Baseline Emissions Rate:

603.6 Determine Adjusted Baseline Emissions Rate:

603.7 Determine Adjusted Baseline Emissions:

Emission Increase/Decrease Calculation Methodologies

Establishing the Baseline Period:

- Baseline Period Ending Date:
  - Increase from ***new project*** being permitted:
    - Date of ***Complete Application***
  - ***Contemporaneous Increase/Decrease***:
    - Date increase/decrease ***implemented*** (*i.e.* ***enforceable***)
  - ***Emissions Banking***:
    - Date of ***Complete Banking Application***
- Baseline Period:
  - General Rule – ***3 Years*** Preceding Ending Date
  - (Special Rule for GHG emissions for PSD)

Emission Increase/Decrease Calculation Methodologies

Establishing Baseline & "Surplus" Adjustment:

- Baseline Emissions ***Rate***

$$\text{B.E.R.} = \frac{\text{Baseline Emissions}}{\text{Baseline Throughput}}$$

- Adjusted Baseline Emissions ***Rate***
  - Adjust Baseline Emissions Rate to reflect:
    - RACT
    - BARCT
    - Other District & Federal Regulations
    - Provisions in Clean Air Plan

- Adjusted Baseline ***Emissions*** (tons/year)

Adjusted Baseline Emissions = [Adjusted B.E.R.] × [Baseline Throughput]

Emission Increase/Decrease Calculation Methodologies

The Actual-to-Potential Calculation:

- Section 2-2-604: Calculation Procedures
- New Sources:
  - Increase is full PTE of the new source
- Modifications to Existing Sources:
  - Increase or decrease is ***difference*** of:
    - Source's ***new PTE*** after modification implemented, and
    - Source's ***Adjusted Baseline Emissions*** before modification

Counting Fugitive Emissions

General Rule for Fugitives:

- Fugitive emissions ***generally included***
  - 2-1-308 (General provision for fugitives)
  - 2-2-611 (NSR provision for fugitives)
- **Exceptions** – where federal approach used
  - 2-2-217 (Major NSR facility definition)
  - 2-2-224.1 (PSD major facility definition)
  - Incorporation of federal rules

Part IV:

Applicability of the New Source Review Program

NSR Applicability

NSR Applies to "New" and "Modified" Sources

- ***New Source*** – Reg. 2-1-232
  - Minor language clarifications only
- ***Modified Source*** – Reg. 2-1-234
  - Language changes to existing District modification test
  - Added new "Federal Backstop" test
- *[Altered Source – Reg. 2-1-233]*
  - Minor language clarifications only

NSR Applicability – New Sources

New Source – Reg. 2-1-232

- Any source that has not been in existence before
- Special Cases:
  - Existing non-exempt sources built w/out a permit (post 3/7/79)
  - Sources idled for a year or more w/out a permit (post 3/7/79)
  - Non-portable sources moved to a different, non-contiguous property
  - Replacement of existing sources
  - Individual sources that are part of a larger source group
  - “Rebricking” of a glass furnace

NSR Applicability – Modified Sources

"Modify"– Reg. 2-1-234

- Some Kind of ***Change*** at the Source;
- That ***Increases Emissions*** Over Either of Two Thresholds:
  - Increase in ***Potential to Emit***
    - *This is the **District's historical definition** of "modified source"*
  - Increase That is a ***Federal "Major Modification"***
    - *This is the "**Federal Backstop**"*
    - *Uses NSR Reform "Actual-to-Projected-Actual" Emissions Increase*

NSR Applicability – Modified Sources

2-1-234 **Modify:** To make any physical change, change in method of operation, change in throughput or production, or other similar change at an existing source, that results in an increase in emissions that is either of the following:

234.1 Increase in Potential To Emit: An increase in the source's daily or annual potential to emit, determined according to the definition in Section 2-1-217 and the following requirements.

. . .

234.2 Increase Over Actual Emissions Baseline: An increase that is a "major modification" under either of the following definitions:

2.1 Non-Attainment NSR Pollutants: For NOx, VOC, $PM_{2.5}$, and SO_2, a "major modification" as defined in 40 C.F.R. section 51.165(a)(1)(v);

2.2 Other Federal NSR Pollutants: For other pollutants, a "major modification" as defined in 40 C.F.R. section 51.166(b)(2).

Modified Sources – District PTE Test

District Historical Modification Test

Simple Test – *Increase in daily or annual PTE**

234.1 Increase in Potential To Emit: An increase in the source's daily or annual potential to emit, determined according to the definition in Section 2-1-217 and the following requirements.

Plus – *Lots of language clarifying how to apply the test in specific situations*

**special wrinkle for toxics*

Modified Sources – District PTE Test

Applying District Historical PTE Test In Specific Situations

- Parametric Limits as Surrogates for Emission Limits
- Using short-term limits to establish longer-term PTE
- When Can Group (or “Bubble”) Limits establish PTE?
- PTE for Grandfathered Sources w/ no Permit Limits
- Use best information available to determine PTE
- PTE for “Bottlenecked” Sources
- Fugitives included in calculating PTE

[Subsections 2-1-234.1.1 & 2-1-234.1.2]

Modified Sources – District PTE Test

District Historical PTE Test For Toxics

- Increase in Potential to Emit TACs/HAPs can trigger "modification" test
- But must increase ***risk*** above listed thresholds:
  - Carcinogenic risk: ***one in one million (10^{-6})***
  - Chronic non-cancer risk: ***Hazard Index of 0.2***
- Increases in emissions below Reg. 2-5 screening thresholds are presumptively not "modifications"; otherwise, risk assessment needed to apply thresholds.

[Subsection 2-1-234.1.3]

Modified Sources – Federal Backstop

"Federal Backstop" Test

- Simple Test: If it would be a "major modification" under EPA's federal NSR regulations, it is a "modification" under 2-1-234

234.2 Increase Over Actual Emissions Baseline: An increase that is a "major modification" under either of the following definitions:

2.1 Non-Attainment NSR Pollutants: For NOx, VOC, $PM_{2.5}$, and SO_2, a "major modification" as defined in 40 C.F.R. section 51.165(a)(1)(v);

2.2 Other Federal NSR Pollutants: For other pollutants, a "major modification" as defined in 40 C.F.R. section 51.166(b)(2).

- Incorporates all of EPA's NSR Applicability procedures wholesale – including "NSR Reform" emissions increase calculations.

Modified Sources – Federal Backstop

Three Basic Elements

1. Facility Over the 100/250 tpy federal ***"major"*** threshold
2. Change at the facility will result in ***"significant"*** emission increase
3. Change will result in ***"significant <u>net</u> increase"*** in light of other increases and decreases at facility

Regulatory basis for the Federal Backstop test:

- For ***non-attainment pollutants*** (NOx, VOC, $PM_{2.5}$, SO_2), source is federal non-attainment NSR rules in ***40 CFR 51.165***
- For all ***Other Regulated NSR Pollutants***, source is federal PSD rules in ***40 CFR 51.166***
- General approach is the same for both, but there are important differences.

Modified Sources – Federal Backstop

First Element – "Major" Facility

- For ***Non-Attainment Pollutants*** (NOx, VOC, $PM_{2.5}$, SO_2): Facility PTE **100+ tpy**
- For ***Other Regulated NSR Pollutants***:
  - Facilities in any of 28 NSR-listed categories: Facility PTE **100+ tpy**
  - Facilities not in any NSR-listed category: Facility PTE **250+ tpy**
- Measure PTE ***before*** project implemented
  - *Exception:* If project increase by itself will exceed 100/250 tpy threshold
- ***Fugitives:***
  - ***Include*** fugitives if facilities in an NSR-listed category
  - ***Do not*** include fugitives if facility not in any NSR-listed category
- ***GHGs: Not included*** in this first element

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

- Determine emissions increase from project using NSR Reform calculation methodologies
- Compare calculated emissions increase to NSR "significance" thresholds

Federal "Significant" Emission Rates (SERs) (tpy)	
CO	100
NOx	40
VOC	40
SO_2	40
PM_{10}	15
$PM_{2.5}$	10
Lead	0.6
No SER Specified	0 tpy
GHGs*	0 (mass)
	75,000 (CO_2e)

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

Calculating Emissions Increase Using NSR Reform:

- Category 1: Sources ***<24 months*** old ("new" source)
  - ***Use PTE-to-PTE Methodology***
- Category 2: Sources ***≥24 months*** old
  - ***Use Actual-to-Projected Actual Methodology***
- Category 3: ***Hybrid projects*** involving both types
  - ***Apply Appropriate Methodology for Each Source***

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

<u>Applying the Actual-to-Projected Actual Methodology</u>:

- Determine ***"Baseline Actual Emissions"***
- Determine ***"Projected Actual Emissions"***
- Emissions Increase is the difference between the two

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

Determine "Baseline Actual Emissions":

General Rule (non-EUSGU Sources): Actual emissions during any 24-month period in past ***10 years***

- 10-year "lookback" runs from date of permit application (or commencement of construction, if earlier);
- Must use same 24-month period for all sources involved in project for each pollutant (but can use different 24-month periods for different pollutants)
- Include fugitives and startup/shutdown/malfunction emissions
- Don't count emissions in violation of permit or regulatory limits
- Apply a "surplus" adjustment (adjust downward to meet current regulations)

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

Determine "Baseline Actual Emissions":

Electric Utility Steam Generating Units (EUSGUs): Actual emissions during any 24-month period in past ***5 years*** – or different period if more representative

- 5-year "lookback" runs from commencement of construction in all cases (***not date of permit application***);
- Must use same 24-month period for all sources involved in project for each pollutant (but can use different 24-month periods for different pollutants)
- Include fugitives and startup/shutdown/malfunction emissions
- Don't count emissions in violation of permit or regulatory limits
- ***Do not need to apply a "surplus" adjustment***

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

Determine "Projected Actual Emissions":

Maximum projected emissions during any ***12-month period*** within next ***5 years*** after project is implemented

- *Alternative 10-year Projection:* If project will (i) increase source capacity/PTE and (ii) full utilization will exceed "significance" thresholds, use 10-year projection;
- *Demand Growth Exclusion:* Can exclude any increase that would have occurred anyway, without project (if source could have accommodated that level of production during baseline period)
- *Look at All Relevant Data and Information!*

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

<u>Administrative Requirements if Increase *Not* Significant</u>:

- If increase 50% or more of significance level *without taking Demand Growth Exclusion into account*, must ***document basis for non-applicability determination***
- If increase still 50% or more of significance level *even after applying Demand Growth Exclusion into account*, must ***monitor post-project emissions*** *(and may have to report them)*
- Applicant can avoid these administrative requirements by using pre-NSR Reform actual-to-potential test instead

Modified Sources – Federal Backstop

Second Element – "Significant" Increase

Summary

- Projects involving sources less than 24 months old:

  Emission Increase = [New PTE] - [Old PTE]

- Projects involving sources 24+ months old:

  Emission Increase = [PAE] - [BAE]

- Hybrid projects involving both:

  Combine both types of calculation

$64,000 Question: Does the Emission Increase exceed any of the NSR "significance" thresholds?

Modified Sources – Federal Backstop

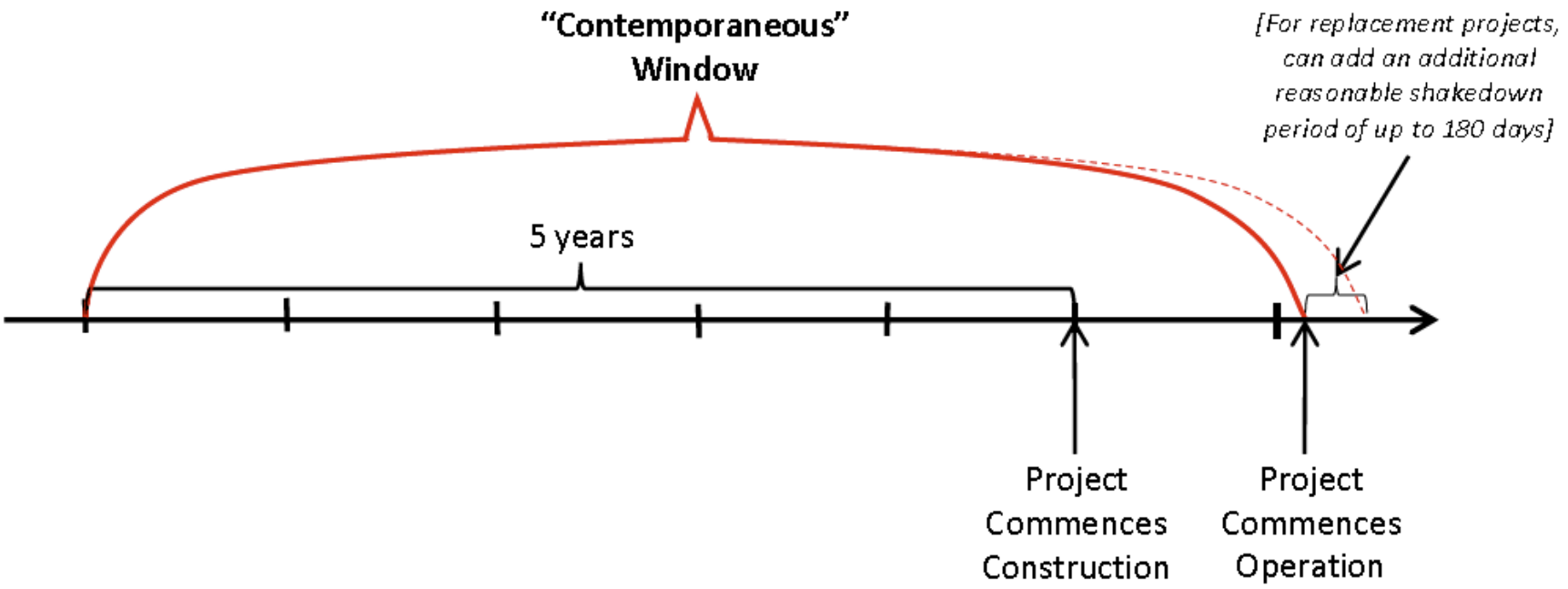
Third Element – Significant "Net" Increase

- A project with a significant emission increase can ***net out*** of being a "major modification" if the ***net emission increase*** is less than the NSR significance thresholds.
- "Net emission increase" is:
  - Project's emission increase; *plus*
  - Other ***contemporaneous***, ***creditable*** emissions increases at facility; ***minus***
  - Other ***contemporaneous***, ***creditable*** emissions decreases at facility
- Key concepts for netting: "***contemporaneous***" and "***creditable***"

Modified Sources – Federal Backstop

Third Element – Significant "Net" Increase

"Contemporaneous" Increases and Decreases



Modified Sources – Federal Backstop

Third Element – Significant "Net" Increase

"Creditable" Increases and Decreases

- Must not have been relied on in:
  - An air quality analysis in a previous NSR permit analysis;
  - A "Reasonable Further Progress" demonstration (for N/A pollutants)
- Decrease must be enforceable by date construction commences
- Increase must involve some amount of actual increase
- Must involve "approximately the same quantitative significance for public health and welfare" as project emission increase

Modified Sources – Federal Backstop

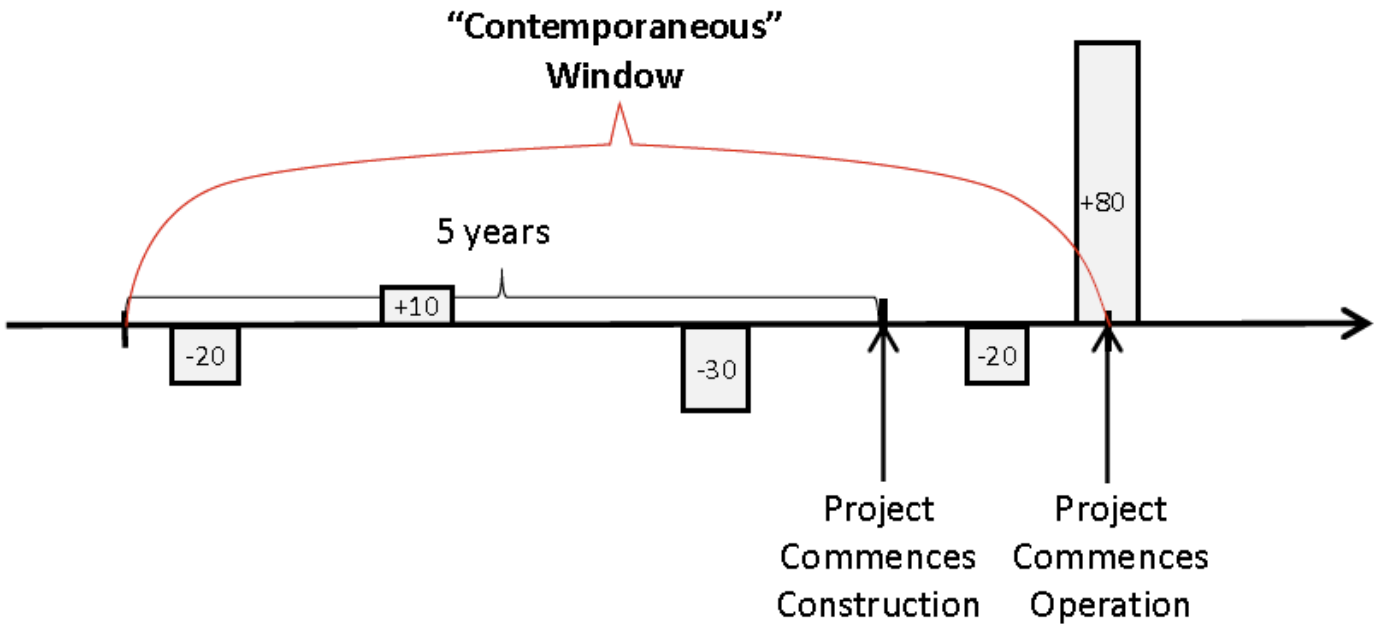
Third Element – Significant "Net" Increase

Calculating Contemporaneous, Creditable Increases/Decreases

- **Sources 24+ months old: "Actual-to-Potential"**
  - [Amount of Increase/Decrease] = [New ***PTE***] – [Baseline ***Actual*** Emissions]
  - Baseline Actual Emissions: same rules discussed before
    - ***General Rule:*** Any 24-mos. w/in 10 years before earlier of permit app. or construction
    - ***EUSGUs:*** Any 24-mos. w/in 5 years before construction (or more representative baseline)
- **Sources <24 months old: "Potential to Potential"**
  - [Amount of Increase/Decrease] = [New PTE] – [Old PTE]

Modified Sources – Federal Backstop

Third Element – Significant "Net" Increase



- Project Emissions Increase is "significant" (80 tpy)
- "Net Emissions Increase" is ***not*** "significant" (20 tpy) – project can "net out" of federal NSR

Modified Sources – Federal Backstop

Summary of Federal Backstop

- **Remember the 3-part Test for "Major Modification"**
  - Facility over the 100/250 tpy ***"major" facility*** threshold;
  - ***Significant emissions increase*** from project;
  - ***Significant net emissions increase*** from other increases/decreases

- **Keeping it all in perspective . . .**
  - The Federal Backstop will primarily be a just paperwork exercise applicable to projects that are ***not*** "modifications" subject to NSR
  - In most (nearly all?) cases, will not substantively expand NSR

NSR Applicability: "Altered" Sources

"Alter"– Reg. 2-1-233

- "Alteration" – a change at a source that:
  - "***May affect emissions***"; <u>but</u>
  - Is ***not*** a "***modification***" under 2-2-224
    - No PTE increase
    - Does not trigger "Federal Backstop"
- Alteration needs District permit, but is ***not*** subject to NSR
- Specific situations no longer addressed in reg.
  - Touchstone is whether change is a "modification"

Part V:

Best Available Control Technology (BACT)

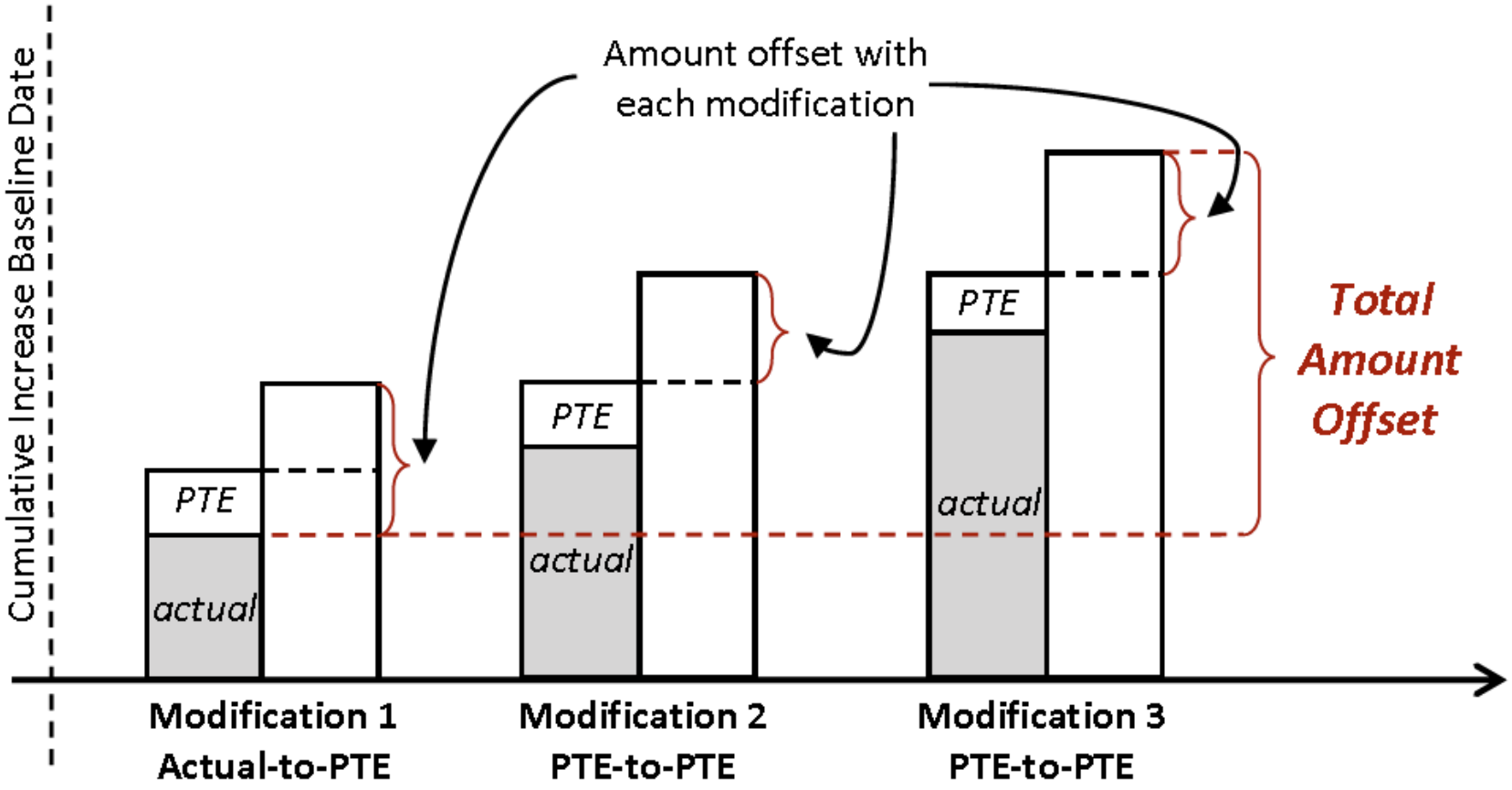
Best Available Control Technology

- Added $PM_{2.5}$ to BACT requirement
  - New def. of "District BACT Pollutant" (2-2-210)
  - Covers POC, NPOC, NOx, SO_2, PM_{10}, ***$PM_{2.5}$***, CO
- Clarified that tech. feasible/cost effective BACT (BACT 1) can be *emission limitation*
- Language revisions:
  - Specified 10 lb/day threshold in terms of PTE
  - Clarifies how 10 lb/day threshold applies for modifications:
    - ***Source*** PTE over 10 lb/day
    - ***Modification*** results in ***any*** emissions increase (actual-to-potential)

Part VI:
Emission Offsets

Emission Offsets

Offsets Concept: Offsets Facility's Entire Cumulative Increase Back to Baseline Date



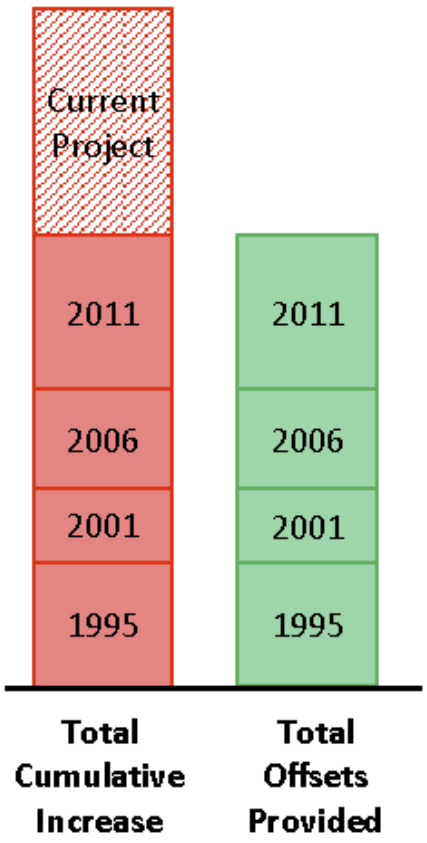
Emission Offsets

Putting the Concept Into Practice

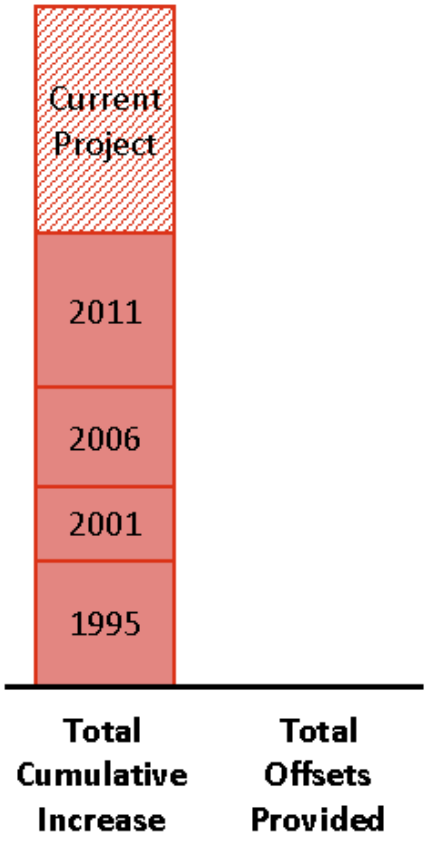
- Calculate Facility's Entire Cumulative Increase
  - Cumulative Increase from Project Being Permitted
  - Cumulative Increase from All Permits since Baseline Date
- Ensure that Offsets Provided for Entire Cum. Increase
  - ***Easier Case:*** Facility has already been subject to offsets
    - Prior C.I. already offset
    - Only need to provide offsets for new C.I. from current project
  - ***More Difficult Case:*** First time facility subject to offsets
    - Need to provide offsets for current project, ***and***
    - Need to provide offsets for C.I. from all projects since baseline date

Emission Offsets

Putting the Concept Into Practice



Easier Case



More Complicated Case

Emission Offsets

Applicability of Offsets Requirements

- **NOx and POC:**
  - Facility PTE ***10-35 tpy*** (2-2-302.1)
    - Offsets at **1:1 ratio**
    - Can get credit from District Small Facility Banking Acct.
  - Facility PTE ***35+ tpy*** (2-2-302.2)
    - Offsets at **1.15:1 ratio**
    - Cannot get credit from Small Facility Banking Acct.
- **PM_{10}, $PM_{2.5}$ and SO_2:**
  - Facility PTE 100+ tpy (2-2-303)

Emission Offsets

Applicability of Offsets Requirements

Facility PTE Includes:

- "Support facility" emissions (2-1-213)
  - Support facility "significantly" assists main facility
  - Rule of thumb: 50% of output goes to main facility
- Cargo carrier emissions (2-2-610)
  - Excludes motor vehicles
  - Emissions w/in Dist. boundaries, ships to 11 n.m. from GGB
- Fugitive emissions (2-2-611)

Emission Offsets

Calculating Amount of Offsets Required

Cumulative Increase Definition (2-2-208):

- Increase in Potential to Emit

  minus

- Contemporaneous Onsite Emission Reduction Credits

Facility Un-offset Cumulative Increase (2-2-608):

- Cumulative Increase from ***Project Under Review***

  plus

- Un-offset Cumulative Increase from ***Prior Projects***

Emission Offsets

Calculating Amount of Offsets Required

<u>Step 1</u>: Calculate ***Emissions Increase from Project***

- Increase in Potential to Emit (2-2-606)
  - New Source (606.1):
    - Source's ***full PTE***
  - Modified Source – ***Offsets Previously Provided*** (606.2):
    - Source's ***new PTE*** after modification, *minus*
    - Source's "surplus" adjusted ***old PTE*** before modification
  - Modified Source – ***Offsets Not Yet Provided*** (606.3)
    - Source's ***new PTE*** after modification, *minus*
    - Source's "surplus" adjusted ***actual baseline emissions*** before mod.

Emission Offsets

Calculating Amount of Offsets Required

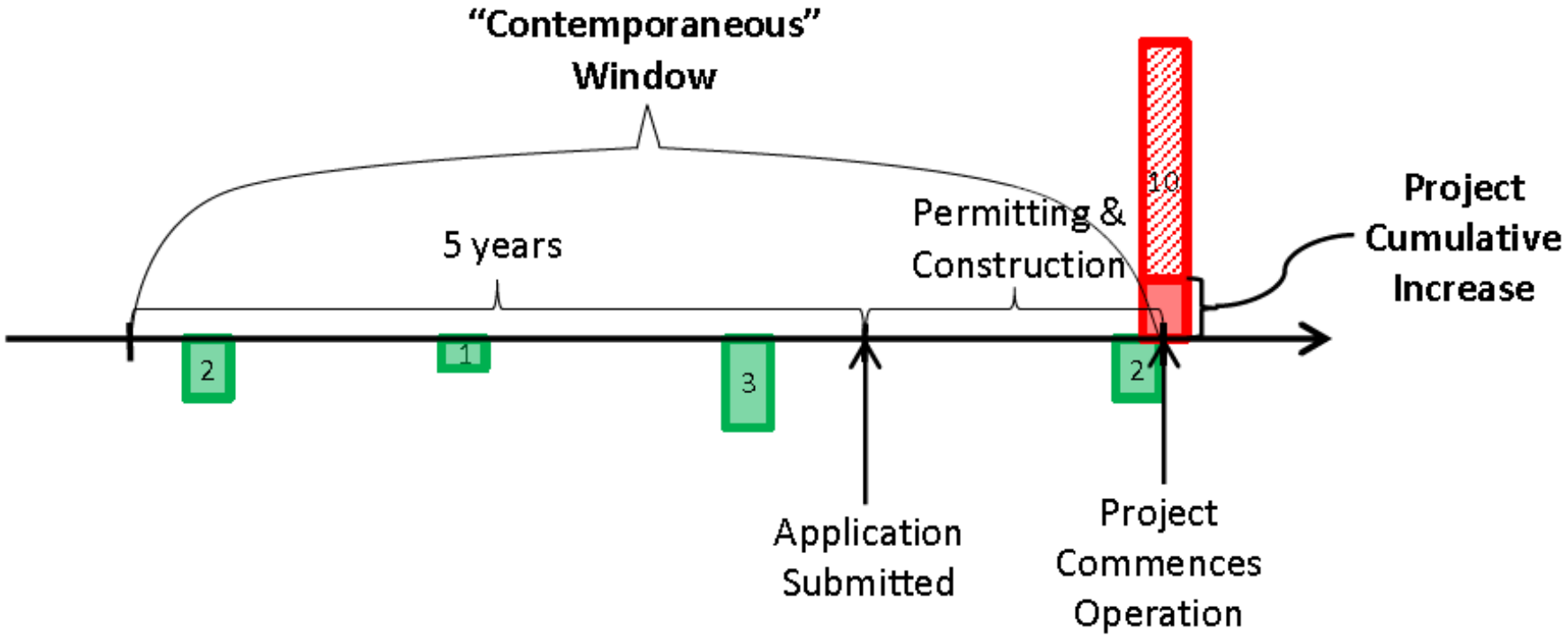
<u>Step 2</u>: Calculate ***Contemporaneous Onsite ERCs***

- "Contemporaneous" reductions (2-2-206):
  - W/in 5 years before complete application
  - After application, before project begins operation
    - [Or 90 days after initial operation, for replacement projects]
- Amount of credit available (2-2-605):
  - ***Fully-Offset Source***: potential-to-potential
    - "Surplus" adjusted ***old PTE*** before reduction, *minus*
    - ***New PTE*** after reduction implemented
  - ***Non-Fully-Offset Source***: actual-to-potential
    - "Surplus" adjusted ***actual emissions*** before reduction, *minus*
    - Source's ***new PTE*** after reduction

Emission Offsets

Calculating Amount of Offsets Required

<u>Step 3</u>: Calculate ***Project Cumulative Increase***:
([Project Emissions Increase] - [Contemp. Onsite ERCs])



Emission Offsets

Calculating Amount of Offsets Required

<u>Step 4</u>: Calculate ***Prior Un-Offset Cumulative Increases***

- All permits since Cumulative Increase Baseline Date:
  - NOx, VOC, PM_{10}, SO_2: April 5, 1991
  - $PM_{2.5}$: August 31, 2016
- For each permit, calculate un-offset cum. increase:
  - Cumulative Increase associated with the project
    - Increase in PTE from project, *minus*
    - Contemporaneous Onsite Emission Reduction Credits
  - Minus amount that was offset at time of permitting
- Includes permits issued for "Support Facilities"

Emission Offsets

Calculating Amount of Offsets Required

<u>Step 5</u>: Calculate ***Total Facility Un-Offset Cum. Increase***

- Cumulative Increase from current project

  plus

- Any Un-Offset Cumulative Increase from prior projects

The *Facility Un-Offset Cumulative Increase*
is the amount that needs to be offset
in connection with current permitting action

Emission Offsets

Calculating Amount of Offsets Required

Step 6: Apply Applicable ***Offset Ratio***

- NOx and VOC over 35 tpy: ***1.15 to 1***
- Everything else: ***1 to 1***

This is the amount of offsets (banked credits) that needs to be provided in connection with current permitting action

Emission Offsets

Mechanics of Applying Offsets Requirements

- Cumulative Increase & Offsets database
  - Use to determine prior un-offset cum. Inc. (2-2-609)
- Inter-pollutant trading:
  - Trading POC for NOx no longer allowed
  - Only trading allowed is trading NOx or SO_2 for PM_{10}
- Offsets Deferral Provisions
  - No more deferral until annual permit renewal (old 2-2-421)
  - Can still defer small PM_{10}/$PM_{2.5}$/SO_2 increases up to 1 tpy
- Small Facility Banking Account
  - Clarifications about how SFBA is reimbursed
  - Cannot use SFBA credit for artificially high permit limits

Emission Offsets

Re-Evaluating Existing PM Banked ERCs:

- ***Process*** for converting existing banked ERCs (2-4-416)
  - Converting PM_{10} ERC to $PM_{2.5}$
  - Converting filterable PM_{10} ERC to filterable + condensable
- ***Calculation methods*** for conversion
  - 2-4-602: Converting PM_{10} ERC to $PM_{2.5}$
  - 2-4-603: Converting filterable to filterable + condensable
- ***Notice & Comment*** if credit increases by 40+ tpy

Part VII:

Prevention of Significant Deterioration (PSD)

Prevention of Significant Deterioration (PSD)

PSD is element of NSR for ***attainment*** pollutants:

- ***PSD BACT***
- ***Air Quality Impact Analysis*** to demonstrate:
  - No violation of ***NAAQS***
  - No violation of any ***PSD "Increment"***
- ***"Additional Impacts" Analysis***
  - Visibility
  - Soils & Vegetation
- ***Class I Area Impact Analysis***

Prevention of Significant Deterioration (PSD)

District approach ***incorporates federal PSD program requirements by reference***:

- Defines "PSD Pollutant" (Reg. 2-2-223)
- Defines "PSD Project" (Reg. 2-2-224)
- Requires "PSD Projects" to implement PSD reqs. for their "PSD" Pollutants according to EPA's PSD regs.
  - 2-2-304: Apply ***PSD BACT*** per 40 CFR 52.21(j)
  - 2-2-305: Do ***Source Impact Analysis*** per 40 CFR 52.21(k)-(m)
  - 2-2-306: Do ***Additional Impact Analysis*** per 40 CFR 52.21(o)
  - 2-2-307: ***Class I Area process*** follows 40 CFR 52.21(p)

Prevention of Significant Deterioration (PSD)

PSD Applicability:

"PSD Pollutant" (Reg. 2-2-233)

- Any "Regulated NSR Pollutant" under federal PSD regs:
  - Includes ***GHGs*** only if:
    - Facility is over "major" PSD threshold for some other pollutant
    - Project involves an increase in GHG emissions of 75,000+ tpy CO_2e
  - Excludes ***HAPs*** regulated under CAA § 112(b)
- Except pollutants for which Bay Area is Nonattainment
- Covers both NAAQS and California standards

Prevention of Significant Deterioration (PSD)

PSD Applicability:

"PSD Project" (Reg. 2-2-234)

Project involving new/modified source(s) that:

1. Is located at facility that is ***"major"*** PSD facility
2. Involves ***"significant" increase*** in PSD Pollutants
3. Involved ***significant net increase*** in PSD Pollutants

Similar to federal "major modification" test – but with several important differences!

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

First element: Major Facility

- Facilities in 28 NSR-listed categories:
  - ***PTE of 100+ tpy*** of a PSD Pollutant (pre-project)
  - Fugitives included
- Facilities *not* in 28 NSR-listed categories:
  - ***PTE of 250+ tpy*** of a PSD Pollutant (pre-project)
  - Fugitives *not* included
- Project "major" if *project itself* over 100/250 threshold
- GHGs not included at this step

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Second element: Significant Increase

- Calculated using District "actual-to-potential" methodology in Regs. 2-2-603, 2-2-604
- Use District's "significance" thresholds in Reg. 2-2-227
  - Specified thresholds for most PSD Pollutants
  - Threshold is zero if no threshold specified
  - Special additional rule w/in 10 km of Class I Area
- GHGs *are* included at this step
  - "Significant" GHG increase can make project "PSD Project"

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Second element: Significant Increase

Baseline periods:(run from *complete application* date):

- **General Rule** (all pollutants other than GHGs):
  - ***3 year*** baseline period
- **Special Rule for GHGs:**
  - Sources <24 months old: Baseline is pre-project PTE
  - Sources 24+ months old:
    - General Rule: Any 24 mos. w/in past 10 yrs.
    - EUSGUs: Any 24 mos. w/in past 5 yrs. (or more representative)

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Second element: Significant Increase

Process:

- Calculate baseline emissions
- Apply "surplus" adjustment
- Amount of increase =

  [***Post-Project PTE***] – [***Adjusted Baseline Emissions***]
- Compare increase to Reg. 2-2-227 "significance" levels

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Third element: Significant Net Increase

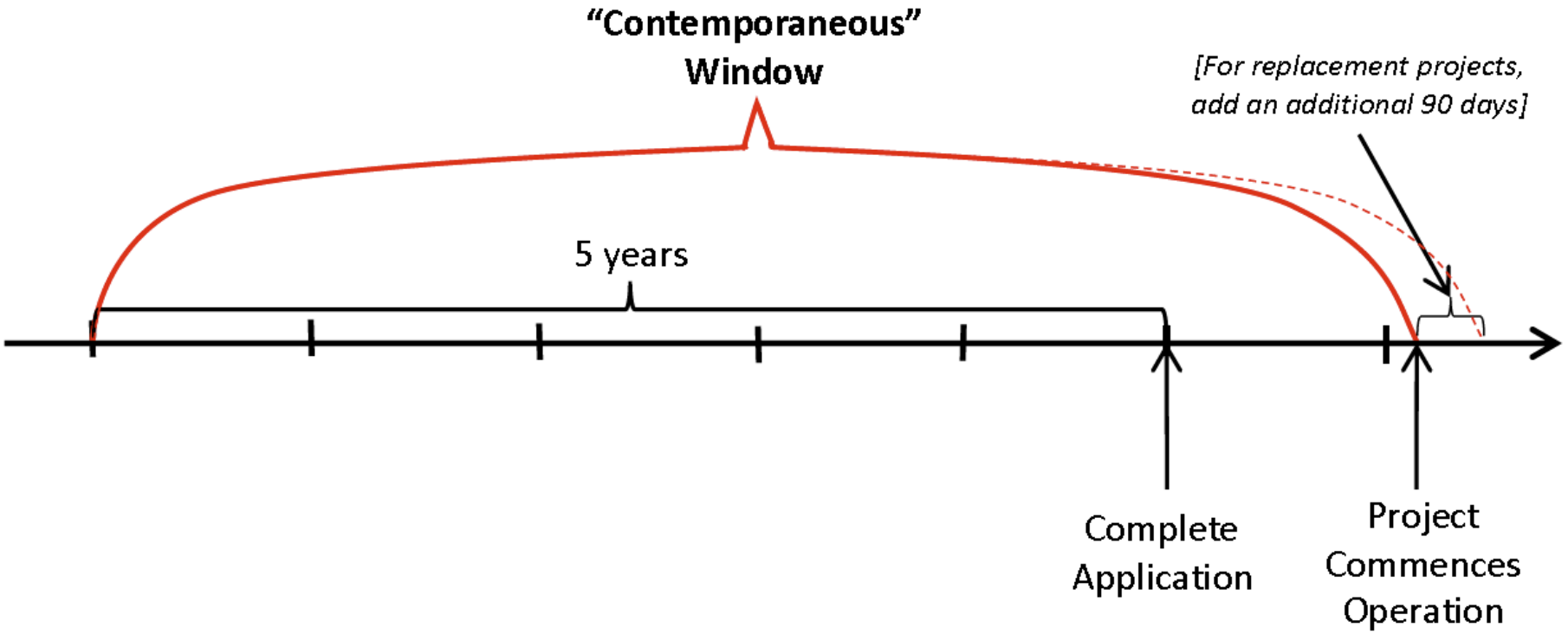
- "Net Emissions Increase" – Reg. 2-2-220
  - Project emissions increase; *plus*
  - ***Contemporaneous***, ***creditable*** increases; *minus*
  - ***Contemporaneous***, ***creditable*** decreases
- "Contemporaneous" – Reg. 2-2-206
- "Creditable" – Reg. 2-2-207

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Third element: Significant Net Increase



Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Third element: Significant Net Increase

"Creditable" – Reg. 2-2-207:

- Not previously relied on in a PSD air quality analysis
  - By District under Reg. 2-2; or
  - By EPA (or by District under Delegation Agreement)

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Third element: Significant Net Increase

Calculating ***Amount*** of Increase/Decrease:

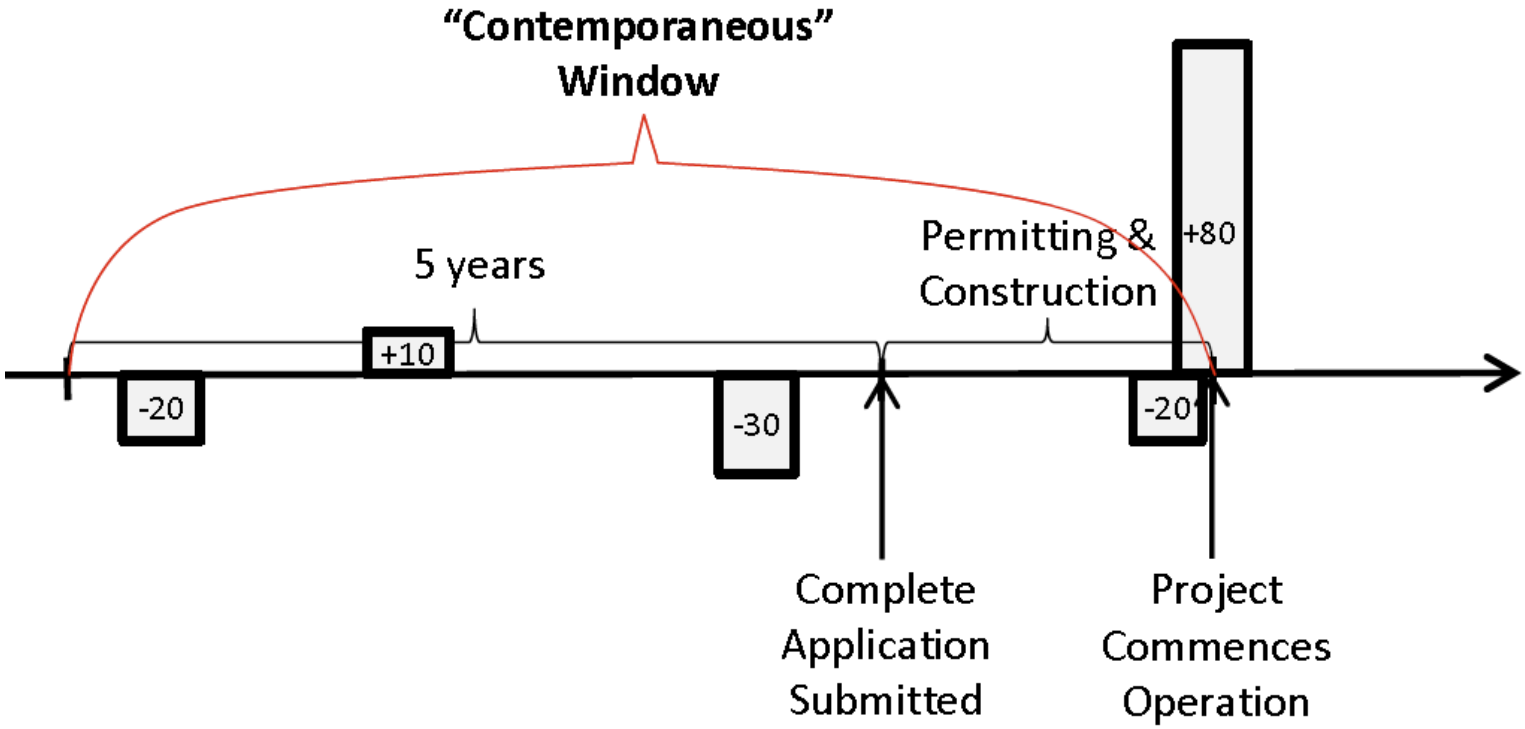
- Use normal District rules under Reg. 2-2-603, 2-2-604
- Baseline period:
  - General Rule: 3 yrs preceding application or implementation
  - Special rule for GHGs: follows federal model
- Use District "actual-to-potential" methodology

Prevention of Significant Deterioration (PSD)

PSD Applicability:

PSD Projects (Reg. 2-2-234)

Third element: Significant Net Increase



Prevention of Significant Deterioration (PSD)

Substantive PSD Requirements:

A "PSD Project" is subject to:

- 2-2-304: PSD BACT
- 2-2-305: Source Impact Analysis
- 2-2-306: Additional Impact Analysis
- 2-2-307: Class I Area Impact evaluation process

All of these provisions are implemented according to EPA's PSD regulations in 40 CFR § 52.21

Prevention of Significant Deterioration (PSD)

Substantive PSD Requirements:

Where EPA's substantive PSD rules come from:

- 40 CFR § 52.21
- Appendix W Modeling Guideline
  (40 CFR pt 50, App. W)
- NSR Workshop Manual
- Environmental Appeals Board decisions
- EPA Guidance Documents

Prevention of Significant Deterioration (PSD)

PSD BACT – Reg. 2-2-304

- Sources that must apply PSD BACT:
  - Pollutants for which project has *significant net increase*;
  - For those pollutants, all sources with *any* increase
- BACT defined in CAA § 169(3), 40 CFR 52.21(b)(12)
- Similar to District BACT, but:
  - "take[s] into account energy, environmental, and economic impacts and other costs"
  - Thus, no BACT 2 "achieved-in-practice" element
- Cost-effectiveness analysis required in *all* cases

Prevention of Significant Deterioration (PSD)

PSD BACT – Reg. 2-2-304

EPA's 5-step "Top-Down" BACT process:

Step 1: Identify all "available" control technologies
- "Redesigning the source" not required

Step 2: Eliminate any "technically infeasible" options

Step 3: Rank remaining technologies

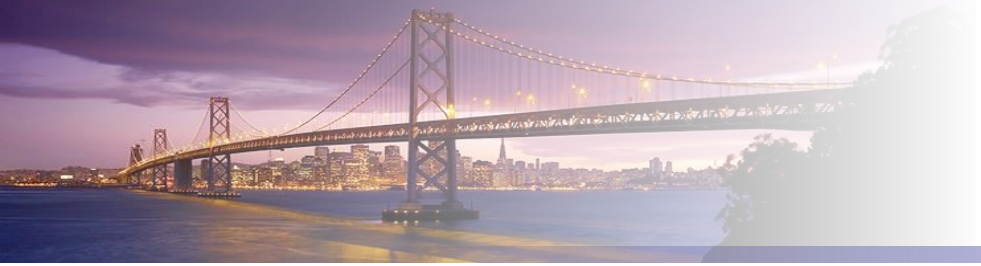
Step 4: Evaluate cost-effectiveness (and other impacts)
- Average (or total) cost-effectiveness
- Incremental cost-effectiveness

Step 5: Select top control technology remaining
- EPA generally requires a numerical limit to be specified

PSD BACT – Reg. 2-2-304

Special considerations for GHGs:

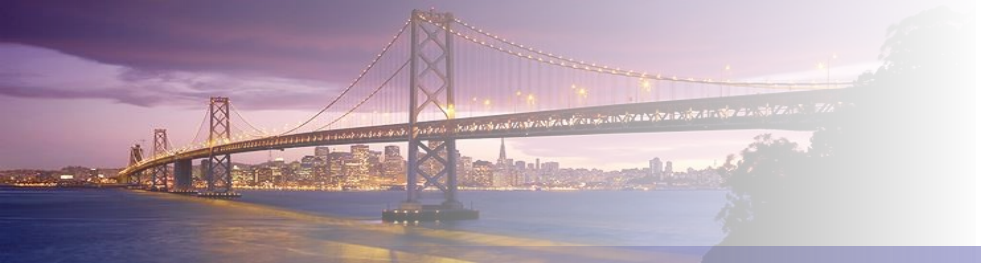
- Carbon Capture & Storage (CCS)
  - EPA considers it an "available" technology (Step 1)
  - But will be usually be eliminated in top-down analysis:
    - May be "technically infeasible" (Step 2)
    - May not be cost-effective (Step 4)
- Consider energy efficiency as BACT instead
- Detailed March 2011 EPA Guidance on NSR & GHGs



PSD Source Impact Analysis – Reg. 2-2-305

Source Impact Analysis Overview:

- Required for pollutants w/ significant net increase
- Modeling analysis to demonstrate that project:
  - Will not violate any ***NAAQS*** or ***California standard***
  - Will not violate any ***PSD Increment*** (PM_{10}, SO_2, NO_2)



PSD Source Impact Analysis – Reg. 2-2-305

Source Impact Analysis Overview (cont'd):

- The Analysis Has Two Elements:
  - ***Pre-Application Analysis*** (background air quality data)
  - ***Air Quality Impact Analysis***
    - ***Preliminary Analysis:*** screening analysis, looks at project alone
    - ***Full Impact Analysis:*** multi-source modelling analysis
- Few hard & fast rules – use judgement & discretion
- *Sierra Club v. EPA* (DC Cir. 2013) created several uncertainties that are not fully resolved

Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Pre-Application Analysis – Potential for Exemption

- EPA has historically exempted projects using "***Significant Monitoring Concentrations***" (SMCs):
  - Project impact <SMC; *or*
  - Existing background concentrations <SMC
- *Sierra Club v. EPA* invalidated $PM_{2.5}$ SMC
  - Technically, decision considered only $PM_{2.5}$ SMC
  - But used very broad language applicable to other SMCs
  - EPA is nevertheless treating other SMCs valid
- ***Takeaway:*** Can still use SMCs, but why bother?
  - Background information needed anyway later on

Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Pre-Application Analysis – Information Required

- Can use ***existing monitoring data***, if representative:
  - Must be representative at:
    - Location of maximum project impact
    - Location of maximum background concentration
    - Location of maximum combined impact (project + background)
  - Representativeness of data based on:
    - Location of monitor used to collect it
    - Quality of the data
    - How current it is
- If no existing data, ***applicant must do monitoring:***
  - One calendar year normally required
  - Can be as little as 4 months on a case-by-case basis

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Preliminary Analysis***

- Model ***project's emissions only***, for screening
- Project ***screens out*** if impacts below *de minimis* SILs
  - SIL = "Significant Impact Level"
  - EPA has adopted SILs (primarily) by longstanding policy
  - EPA bases SIL approach on "cause or contribute" language
  - EPA recognizes permitting agencies broad discretion here
  - Many open questions about SILs after *Sierra Club v. EPA*
- If impacts over SIL, proceed to Full Impact Analysis

Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

- Multi-source modeling analysis
  [Also called "cumulative analysis"]
- Must make two compliance demonstrations:
  - Project will not "cause or contribute" to violation of ***Ambient Air Quality Standards*** (NAAQS or CA standards)
  - Project will not "cause or contribute" to violation of PSD "***Increment***"

Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

Ambient Air Quality Standard Demonstration:

Step 1: Establish "***Impact Area***" for analysis

- Circle w/radius out to farthest point w/ impact above SIL

Step 2: Identify ***other nearby sources*** for modeling

- Look 50km past Impact Area
- Include sources w/ "significant concentration gradient"

Step 3: Run ***multi-source modeling***

Step 4: ***Add*** modeled impact to existing ***background***

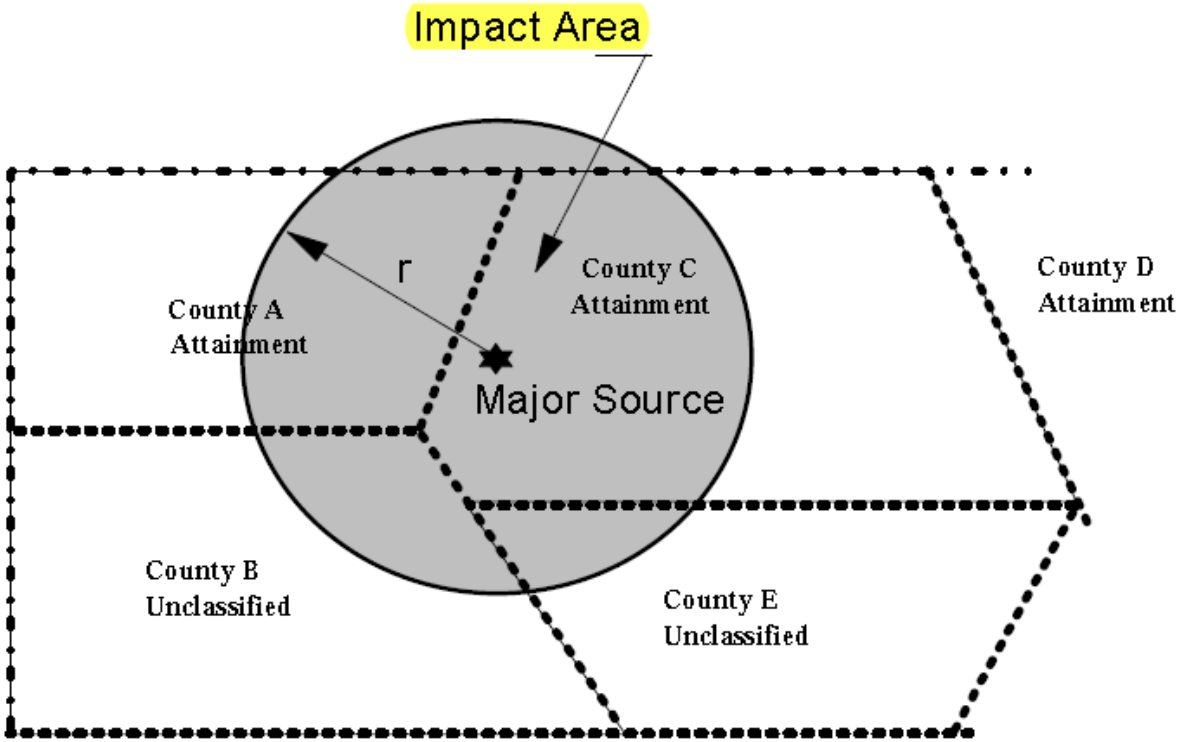
Step 5: Compare results to ***NAAQS*** and ***CA standards***

Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

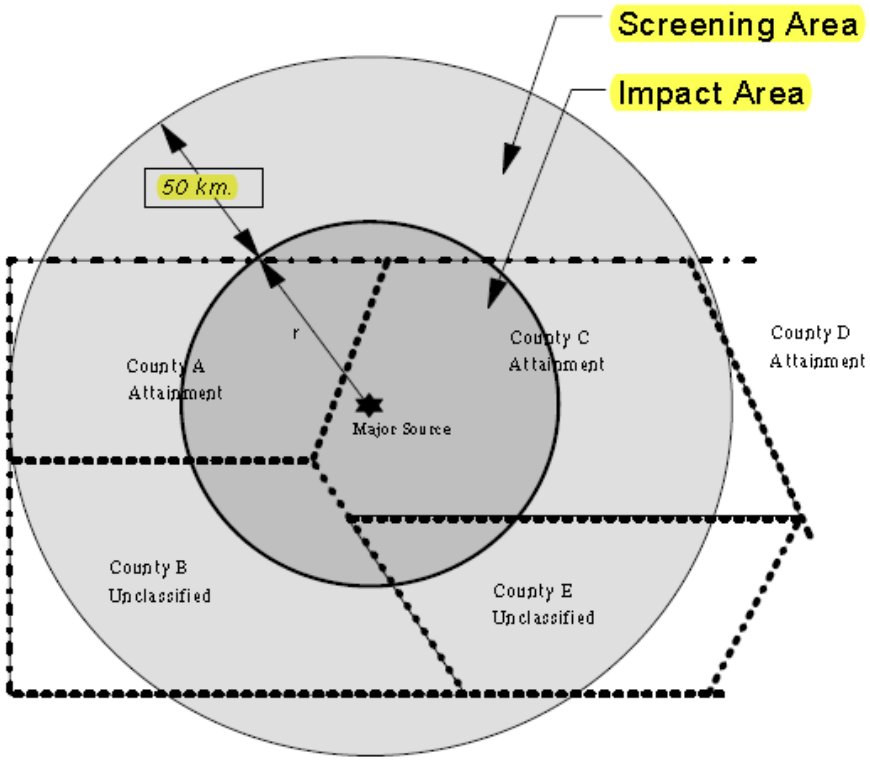
Ambient Air Quality Standard Demonstration:



PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

Ambient Air Quality Standard Demonstration:

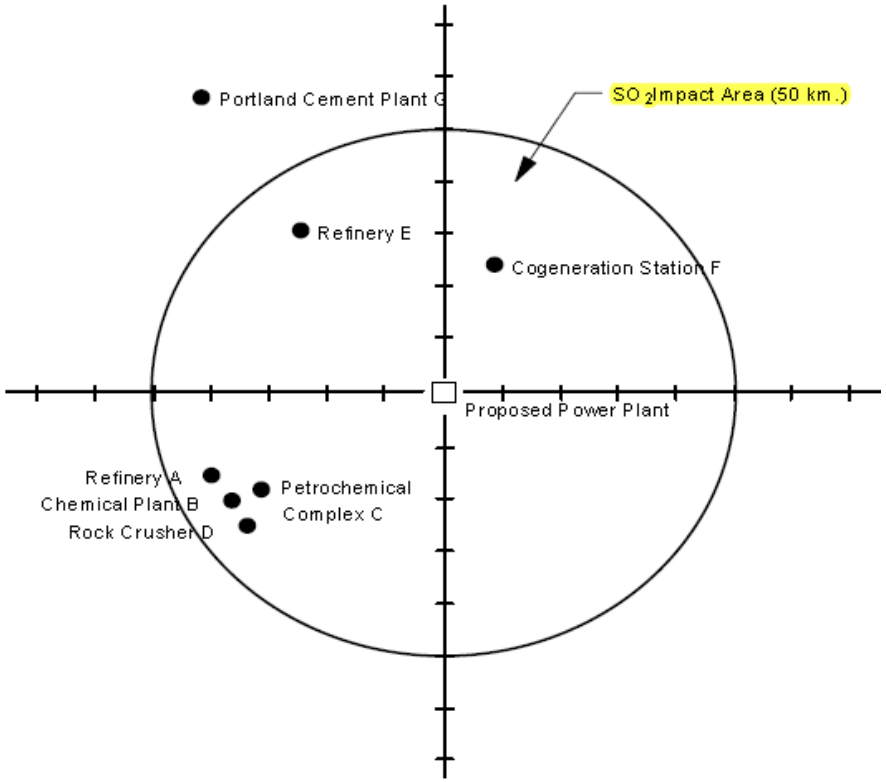


Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

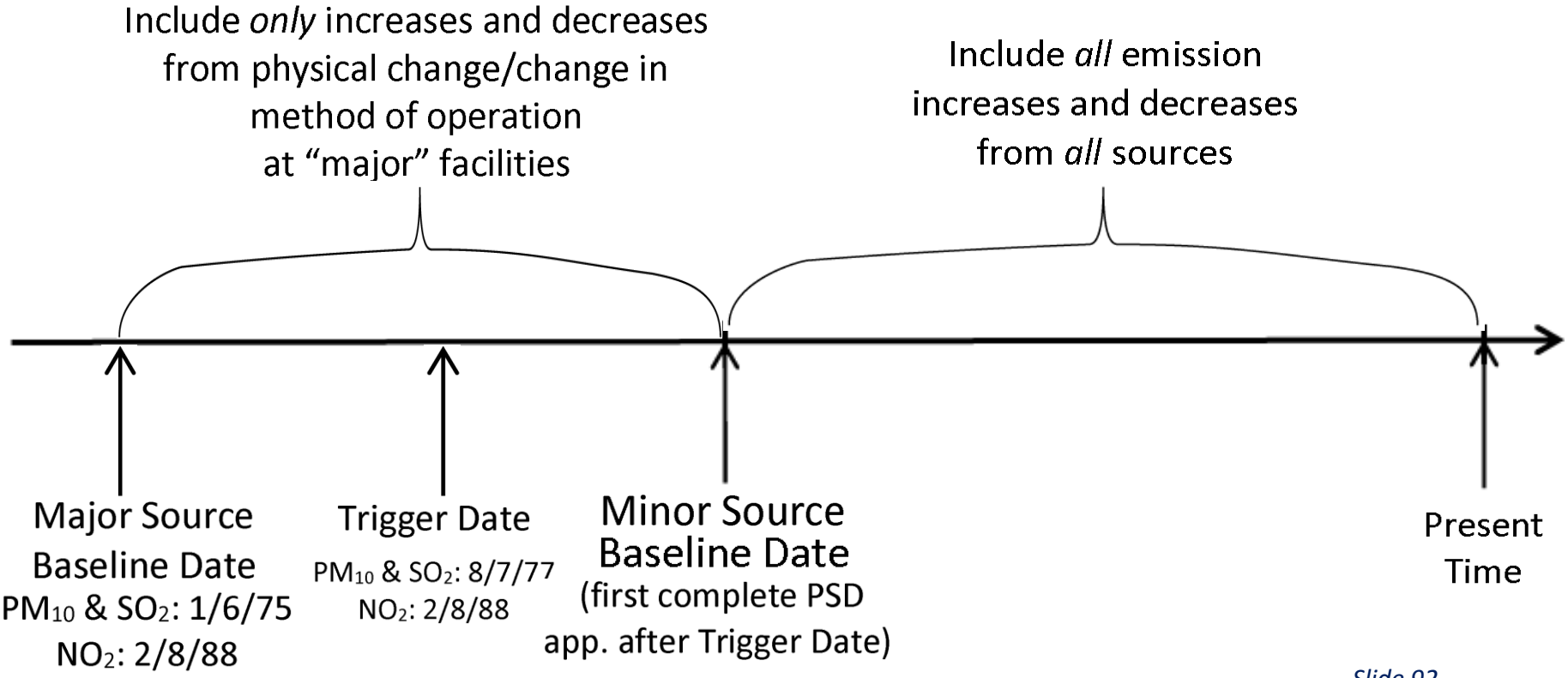
Ambient Air Quality Standard Demonstration:



PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

Increment Compliance Demonstration:



Prevention of Significant Deterioration (PSD)

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

Increment Compliance Demonstration:

Step 1: Establish "***Impact Area***" for analysis

Step 2: Identify ***other nearby sources*** for modeling

- Look 50km past Impact Area
- Sources w/ increase/decrease that may affect increment

Step 3: Run ***multi-source modeling***

Step 4: Compare results to ***PSD Increments***

- Increments established for PM_{10}, SO_2, NO_2
- Increments established for Class II Areas and Class I Area

PSD Source Impact Analysis – Reg. 2-2-305

Air Quality Impact Analysis – ***Full Impact Analysis***

AAQS & Increment Compliance Demonstration:

- What model data points to compare with standard?
  - Many standards allow one or more exceedances per year
  - Maximum modeled impact may not be determinative
- If a violation, does project "cause or contribute"
  - Project contribution over SIL at time & place of violation?
  - EPA calls this the "culpability" analysis
- Variances in event of Class I Increment violation:
  - Project OK if Class I Area FLM concurs no adverse impact
  - But must be no violation of Class II Increment in any case

PSD Source Impact Analysis – Reg. 2-2-305

Closing thoughts on Use of SILs after Sierra Club v. EPA:

- SIL concept most likely still viable:
  - Need some way to define geographic scope of analysis
  - "Cause or contribute" standard contemplates excusing *de minimis* impacts at some level
- Exercise caution in what SIL value to use, however
  - Especially where background close to standard

Prevention of Significant Deterioration (PSD)

Additional Impacts Analysis – Reg. 2-2-306

All PSD Projects must include:

- ***"Associated Growth"*** Analysis
- ***Soils & Vegetation*** Analysis
  - Inventory soils & vegetation in project area
    - Only soils & veg. w/ ***significant commercial or recreational value***
  - Evaluate thresholds at which adverse impact may occur
  - Compare to modeled project impacts
- ***Visibility*** Impairment Analysis
  - EPA has detailed guidance

No standards to be met – just undertake the analysis

Part VIII:

Additional Substantive NSR Requirements

Additional Substantive NSR Requirements

Class I Area Protection

- Special Class I Area provisions applicable to:
  - "PSD Projects" (2-2-224)
  - "Major Facilities" (2-2-217) & "Major Modifications" (2-2-217)
    - ***Major Facility:*** PTE of 100+ tpy of POC, NOx, SO_2, PM_{10}, $PM_{2.5}$, or CO
    - ***Major Modification:*** Increase over significance thresholds
  - Located w/in 100km (62.2 mi) of a Class I Area
    - Point Reyes, Pinnacles, Ventana Wilderness
- Must evaluate impacts to "Air Quality Related Values"
- Federal Land Manager makes impact determination
- Air District makes final permitting decision
  - District can follow FLM determination
  - District can disagree and reach independent conclusion

Additional Substantive NSR Requirements

Class I Area Protection

Process for Class I Area Impacts Analysis:

- Section 2-2-401.4: Application must include analysis
- Section 2-2-404: District notifies Class I Area FLM
  - Upon advance notice that application will be submitted
  - W/in 30 days after submittal (& 60 days before pub. hearing)
- Section 2-2-307: FLM has 30 days to object
  - District must review & consider any FLM determination
  - District can also undertake its own review (but not required)

Additional Substantive NSR Requirements

Class I Area Protection

Contents of Class I Area Impacts Analysis:

- Primarily driven by FLMs – ***early consultation key!***
- Must evaluate ***"Air Quality Related Values"***
  - ***Visibility***
  - Other AQRVs identified by FLMs:
    - ***vegetation*** impacts (mottling & stippling of leaves, etc)
    - deposition onto ***soils*** and ***waterbodies***
- FLMs have published *FLAG Guidance* document
- Incorporates many PSD concepts (e.g., Impact Area)

Additional Substantive NSR Requirements

Class I Area Protection

<u>Good Advice</u>: Think carefully how Class I Area Analysis overlaps with PSD Analysis (e.g., PSD visibility analysis, soils & vegetation analysis) and plan compliance evaluation accordingly

Additional Substantive NSR Requirements

NAAQS Protection Requirement – 2-2-308

New Requirement to Demonstrate No NAAQS Violation:

- Applies to new/modified sources w/ ***significant*** increase
  - Apply District "actual-to-potential" test under 2-2-604
  - Applies to all facilities (not just "major")
- Applies to ***all NAAQS*** (except ozone)
  - Not just "attainment" NAAQS
- Use PSD Source Impact Analysis approach from 2-2-305
  - SIL approach (Preliminary Analysis, Full Impact Analysis, *etc.*)
  - No "cause or contribute" if source's contribution below SIL

Additional Substantive NSR Requirements

Major Facility Compliance Certification – 2-2-309

- Renumbered w/out substantive revision
  - Was in Section 2-2-307 in previous version
  - Now in Section 2-2-309 in new version

P/O Denial for Failure to Comply with A/C Conditions – 2-2-310

- Renumbered w/out substantive revision
  - Was in Section 2-2-312 in previous version
  - Now in Section 2-2-310 in new version

Other Miscellaneous Revisions

Part IX:

Other Miscellaneous Revisions

Other Miscellaneous Revisions

Revised Notice & Comment Provisions

- Lowered threshold for Public Notice (2-2-404)
  - ***Any*** project w/ "significant" emissions increase
  - Does ***not*** have to be at a "major" facility anymore
- Notice must be posted on ***website*** (2-2-404.3)
  - This has been practice; now it is mandatory
  - Newspaper notice also required for "major" facilities
    - Web only for non-major facilities
    - Web + newspaper for major facilities
    - [Plus specific written notice for anyone who requests it]

Other Miscellaneous Revisions

Accelerated Permitting Program – Temp. P/O

- Accelerated Permitting Program:
  - 2-1-302.2 – Temporary Permit to Operate
  - 2-1-106 – A/C exemption for temporary P/Os
- Revisions and Clarifications
  - Clarify District approval required – no “notice & go”
  - Procedures & requirements moved to 2-1-302.2

Other Miscellaneous Revisions

"Portable" Sources

- Different District Regs. referred to "portable"
  - PERP-Registered equipment (2-1-105)
    - For ***multiple air districts*** around the state
  - Multi-location District permits (2-1-413)
    - For ***multiple locations within BAAQMD***
  - "Portable Equipment" definition (2-1-220)
- Regs. Revised to use different terminology
  - 2-1-105 refers to PERP-registered equipment
  - 2-1-413 refers to operating at multiple locations
    - Incorporates substantive requirements from old 2-2-220

Other Miscellaneous Revisions

Exemptions

- ***Ag. Sources*** (2-1-113.1.2)
  - Ag. sources *can* qualify for exemption if they compost or process ag. biomass
  - Limit of 500 tpy of non-ag. material
- ***Space heaters*** (2-1-113.2.14)
  - Exemption removed as largely redundant
- Addition of ***fugitive components*** (2-1-128.21)
  - Only for adding/changing fugitive components
  - Fugitive emissions still subject to regulation
  - No circumvention allowed (e.g., debottlenecking)
  - Annual facility-wide limit of 10 lb/day

Other Miscellaneous Revisions

Exemptions (cont'd)

Other minor language revisions/clarifications

- 2-1-103 (sources not subject to District rules)
- 2-1-114.2 (equipment on mobile sources)
- 2-1-118.9 (wipe cleaning)
- 2-1-318 (exemption backstop)

Other Miscellaneous Revisions

Application Process

- Application Requirements
  - Requirements moved from 2-1-202 to 2-1-402
  - PSD-related requirements added
  - New catch-all provision for "other requested info"
- Permits w/ ongoing CEQA appeals (2-1-408)
  - ***Notwithstanding revision, District should issue permits even where appeal is still being litigated***
- P/O Issuance (2-1-413)
  - Start-up period can exceed 180 days if necessary

Other Miscellaneous Revisions

Clarification of Some Important Legal Principles

- Comply w/ Material Representations (2-1-320)
  - Relevant to so-called “implied conditions”
- Comply w/ All Applicable Regulations (2-1-321)
- General Reqs. apply to Specific Rules (2-1-102)
- Explanatory Notes are not Binding (2-1-130)

Other Miscellaneous Revisions

Reorganization of Regulatory Provisions

- Reg. 2-2 completely overhauled
- Some Definitions moved
  - General definitions moved to Reg. 2-1
  - Redundant definitions deleted
  - Reg. 2-2 definitions put back in alphabetical order
- ***Correlation Tables*** provided to track revisions
  - *See* Appendix in *NSR Permitting Handbook*
  - First table translates old provisions into new
  - Second table translates new provisions into old

Other Miscellaneous Revisions

Reg. 2-4 Revisions (Emissions Banking)

- Process for converting existing banked ERCs
- New provisions added:
  - 2-4-416 – owner can request conversion
  - 2-4-602 – procedure for converting PM_{10} to $PM_{2.5}$
  - 2-4-603 – procedure for including condensable PM
- Process:
  - Identify reduction that generated the credit
  - Applicant must justify & support conversion factors

Other Miscellaneous Revisions

Reg. 2-6 Revisions (Title V Program) NOT EFFECTIVE UNTIL EPA APPROVAL

- Case-by-case MACT requirement moved to 2-6
  - Old 2-2-317 and 2-2-104 deleted
  - New 2-6-315 - Title V Permit must impose MACT if:
    - Facility PTE over 10/25 tpy of HAPs
    - Facility in EPA-listed category
    - EPA has not promulgated NESHAP
- New GHG provisions
- Revisions to definitions (e.g., MACT, GHGs)

Closing Thoughts

Part X

Closing Thoughts

Questions

Thank You!!!