



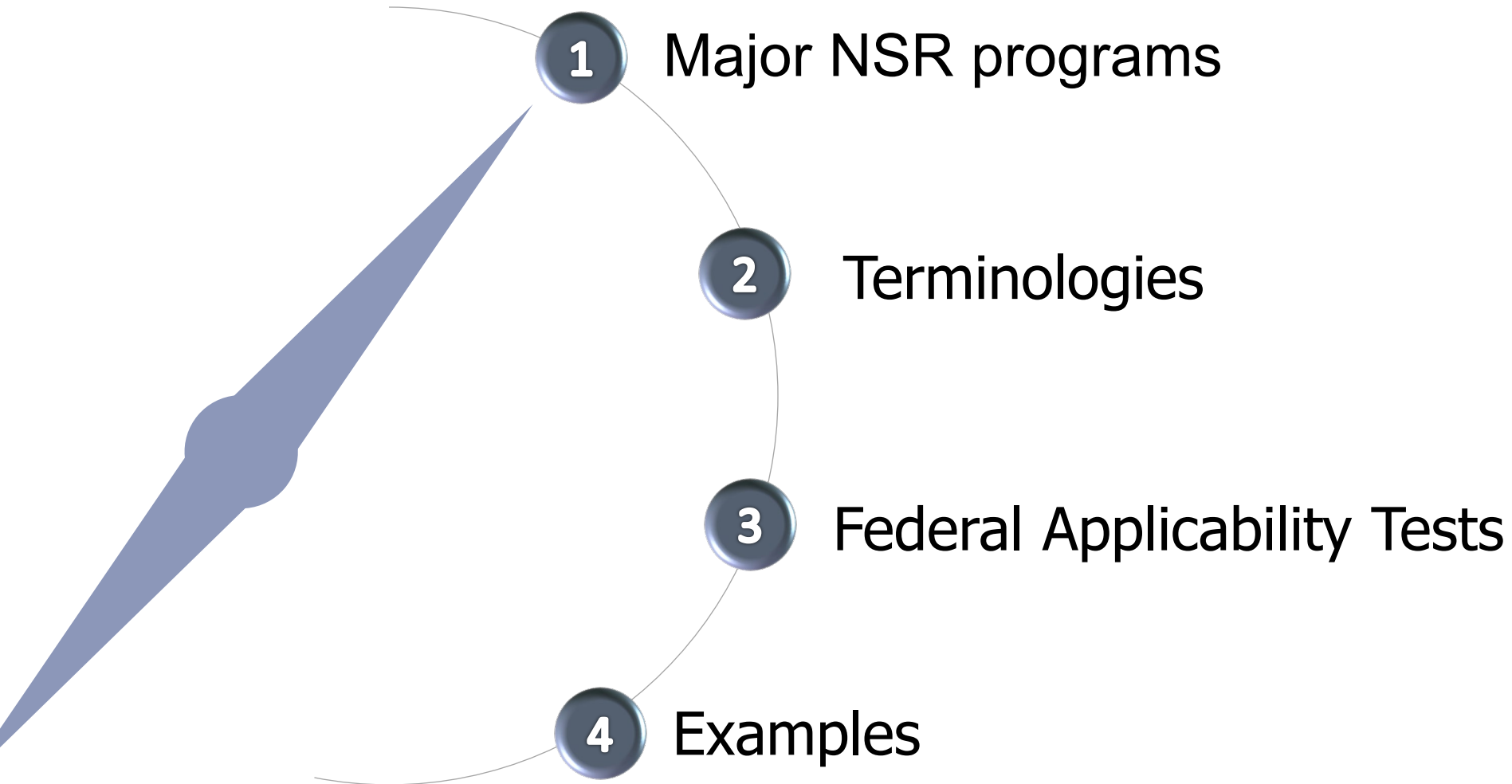
Prevention of Significant Deterioration (PSD)/Nonattainment (NA) Review/Netting

Sandya Rani Bhaskara, P.E., Technical Specialist

Air Permits Division

Environmental Trade Fair 2022

Overview



Regulatory Structure

Program	Legislative	Regulatory
Federal	Clean Air Act: Title 1 Part C: (PSD) Part D: (NNSR)	Code of Federal Regulations 40 CFR §52.21 (PSD) 40 CFR §51.165 (NNSR)
State	Texas Health and Safety Code Chapter 382 Texas Clean Air Act	Texas Administrative Code 30 TAC §§116.150, 151 (NNSR) 30 TAC §§116.160-163 (PSD) 30 TAC §116.164 (PSD-GHG)

Clean Air Act (CAA)

Title I

Part A

Section 110

Minor Source Review

Part C

Section 165

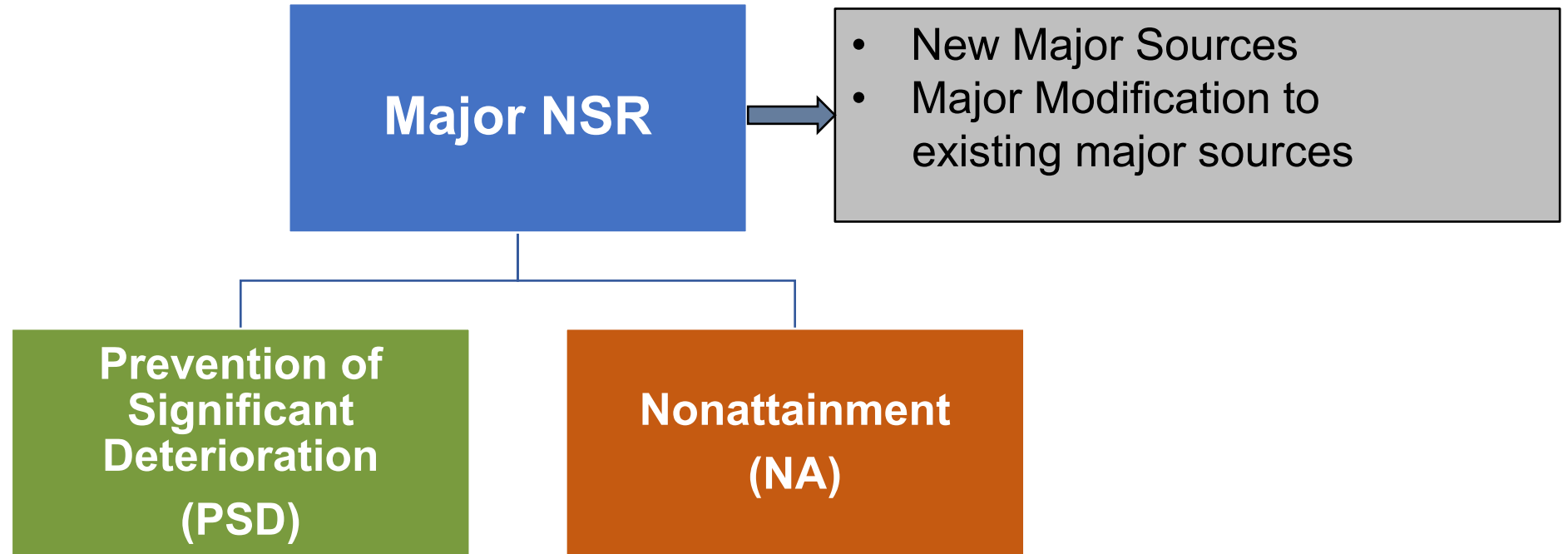
Prevention of
Significant
Deterioration
(PSD)

Part D

Section 173

Nonattainment Area
(NA)

Major NSR PSD / NA



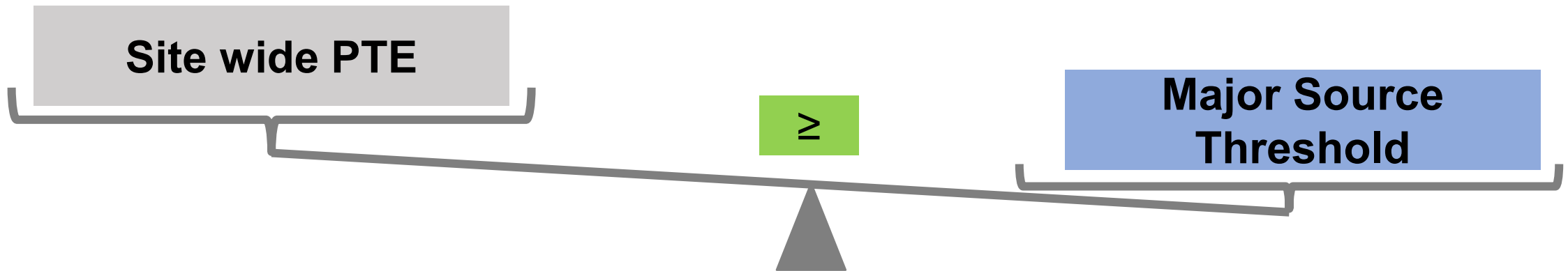
Major NSR Programs

Major NSR	Pollutant	Area	Major Source / Modification Threshold
PSD	Regulated pollutants: Criteria & Non-Criteria	Attainment / Unclassifiable	Named sources Unnamed sources
NA	Criteria Pollutants	Nonattainment	NA classification for area

Major Source

Major Source:

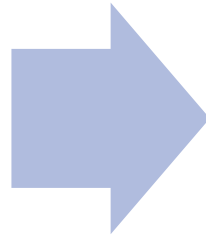
Any stationary source that emits or has the potential to emit at or above a certain threshold quantity of emissions.



Major Modification

A Major Modification is a

Physical Change (or)
Change in method of
operation
...at an existing major source



Significant Emissions Increase
(Project)

Significant Net Emissions Increase
(Project + Contemporaneous)

Exceptions in 30 TAC §116.12(20)(B).

Affected Facility

- Increases in actual emissions which are caused by a change or modification elsewhere.
- No allowable emission increases.
- Included in project increase and netting.

PSD: Major Source Thresholds

Source Category*	Regulated Pollutant	Major Source (TPY)
Named	All	100
Un-Named	All	250

*40 CFR §52.21(b)(1)(i) Named and unnamed sources.

PSD: Major Modification Thresholds

Regulated Pollutant	Major Modification (TPY)
CO	100
VOC / NO _x / SO ₂	40
PM / PM ₁₀ / PM _{2.5}	25 / 15 / 10 respectively.
Pb	0.6
TRS (includes H ₂ S)	10
H ₂ SO ₄	7
Fluoride (excludes HF)	3
Greenhouse Gases *	GHG > 0 and CO ₂ e ≥ 75,000

*GHGs only trigger PSD review if at least one other federally regulated pollutant triggers PSD review anyway.

NNSR: Ozone Thresholds

Classification	Major Source (TPY)	Major Modification (TPY)	Netting Threshold (TPY)	Texas Area
Extreme	10	10	--	N/A
Severe	25	25	5	N/A
Serious	50	25	5	HGB / DFW
Moderate	100	40	40	N/A
Marginal	100	40	40	Bexar & El Paso

Ozone regulated through precursors (VOC & NOx)

NNSR

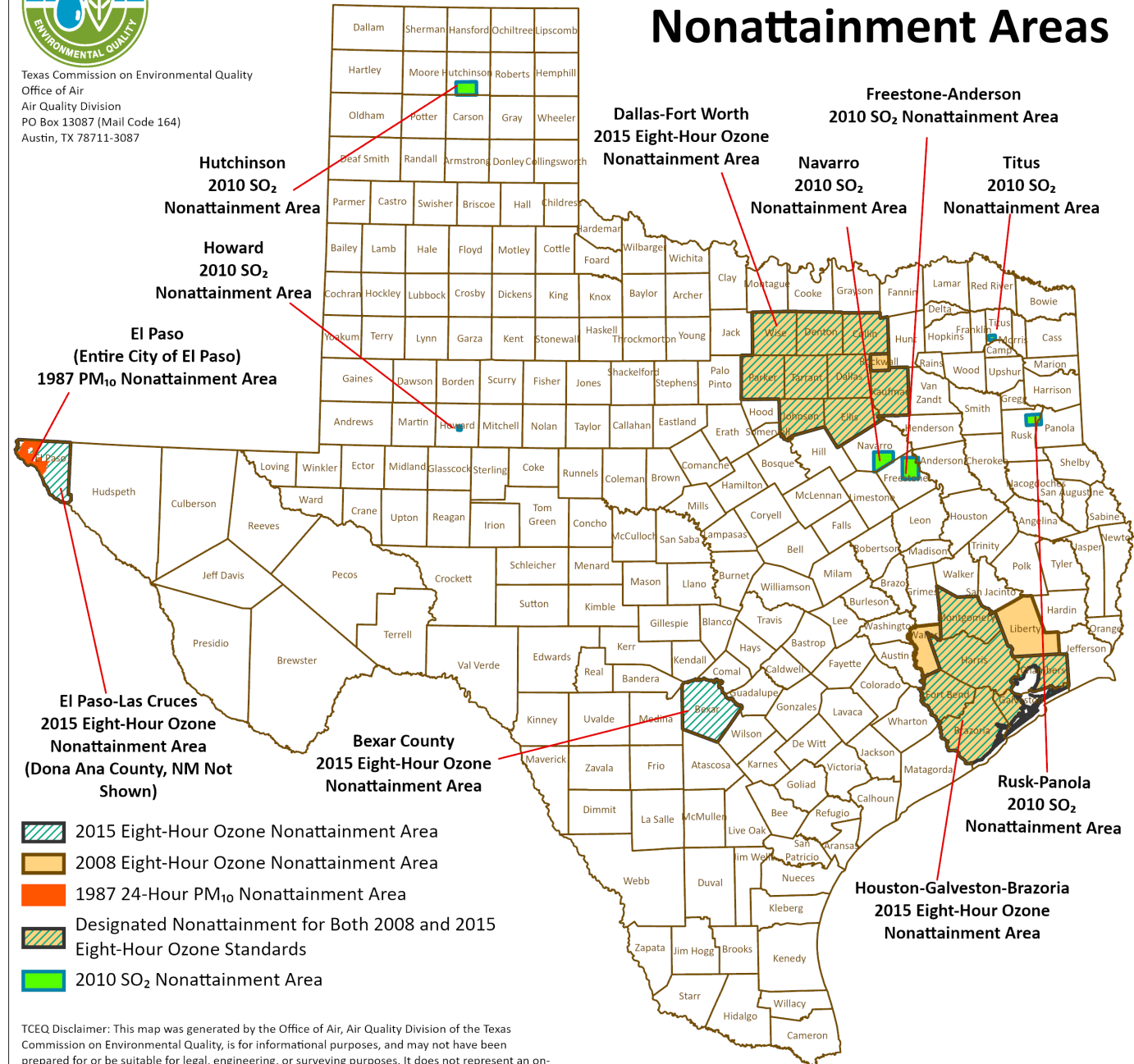
Thresholds For Other Pollutants

Pollutant	Classification	Major Source (TPY)	Major Modification (TPY)	Netting Threshold (TPY)	Texas Area
PM ₁₀	Moderate	100	15	15	City of El Paso
Collin County, Attainment (2008 lead standard, 9/27/2017)					
SO ₂	Nonattainment	100	40	40	Portions of Titus, Panola, Rusk, Anderson, Freestone, Howard, Hutchinson & Navarro



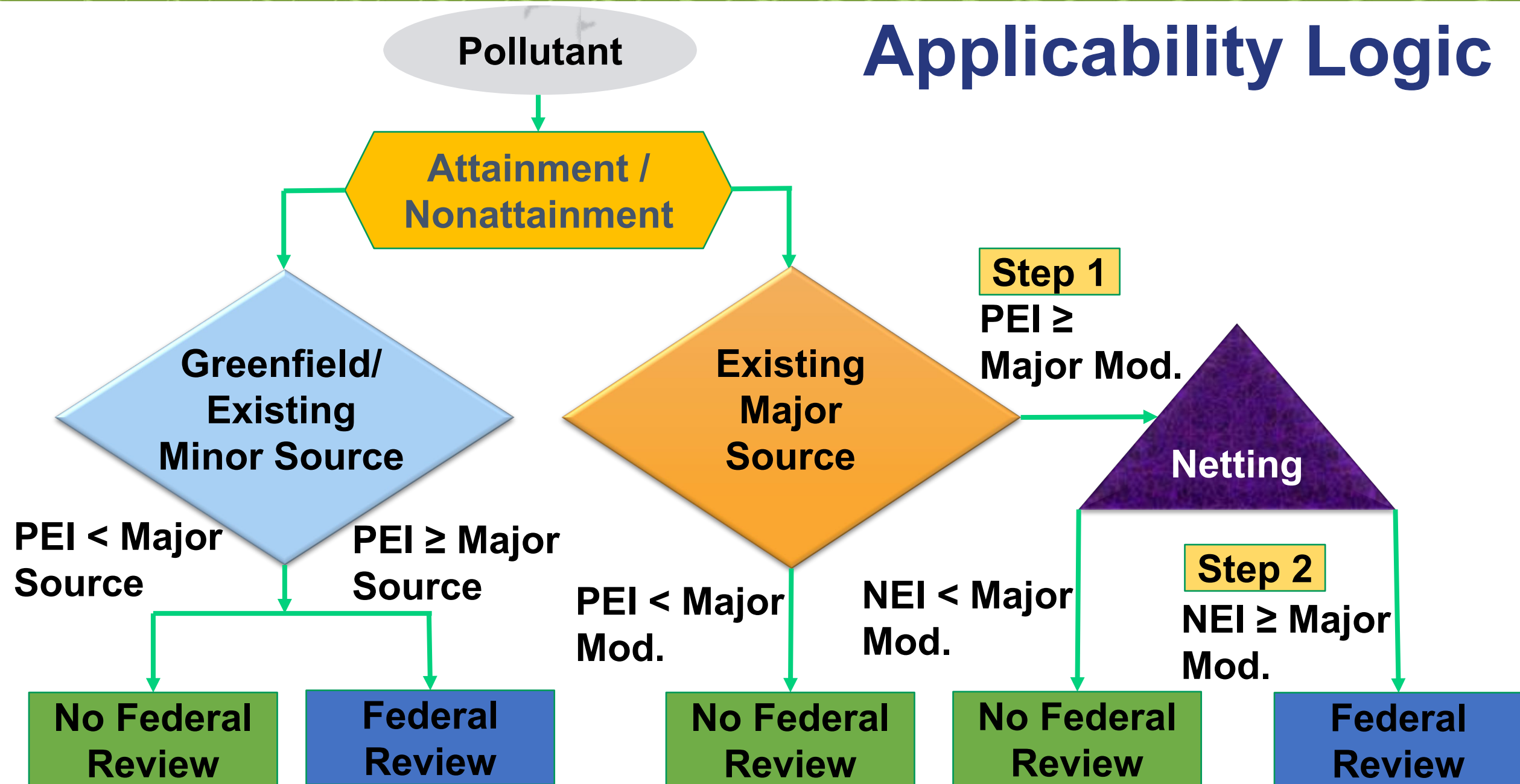
Texas Commission on Environmental Quality
Office of Air
Air Quality Division
PO Box 13087 (Mail Code 164)
Austin, TX 78711-3087

Texas Air Quality Nonattainment Areas



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Applicability Logic



Major Modification Two Step Applicability Test

Step 1

Significant Project Emissions Increase (PEI)

New / Existing units:

$$\text{PEI} = \text{PTE} - \text{BAE}$$

Existing units:

$$\text{PEI} = \text{PAE} - \text{BAE}$$

$$\text{PEI} = \text{PAE} - \text{BAE} - \text{CHA}$$

Step 2

Significant Net Emissions Increase (NEI) in contemporaneous netting window

PEI = Project Emissions Increase; PTE = Potential To Emit; BAE = Baseline Actual Emissions; PAE = Projected Actual Emissions only for current project; CHA = Could Have Accommodated increment.

Step 1: PEI

New Facility

- $PEI = PTE$
For units that have not begun operation as the $BAE = 0$
- $PEI = (\text{Proposed} - \text{Current}) PTE$
For units with $SOO < 2$ years
 $BAE = \text{Current PTE}$

Existing Facility

- $PEI = PTE - BAE$
- $PEI = PAE - BAE$
- $PEI = PAE - BAE - CHA$

PEI = Project Emissions Increase; PTE = Potential To Emit; BAE = Baseline Actual Emissions; PAE = Projected Actual Emissions only for current project; CHA = Could Have Accommodated increment.

Step 1 - PEI

- Includes emissions from all new, modified, and affected facilities associated with the project.
- Table 2F: Represent PEI for each pollutant.
- Table 1F: Summarize results.
- **Update:** Include both increases and decreases in emissions.

Step 1

Project Emissions Accounting (PEA)

- Historically, emission increases only can be considered in the Step 1 of estimating project related emission increases.
- Project Emissions Accounting (PEA) previously termed as “Project netting”.
- Adopted by EPA in the FR Notice and effective on December 24, 2020.
- Adopted by TCEQ in 30 TAC §116.12 (32) (D) and effective on July 1, 2021.
- EPA clarified Step 1 of Project Emissions Increase in major NSR applicability process can now **include both increases and decreases** in emissions.

PEA

- Not Yet State Implementation Plan (SIP) approved
 - Subject to subsequent EPA approval of SIP.
- Applicant has choice of using PEA in Step 1 or not.

PEA: Reductions

- Units must be constructed and in operation.
- All units must be part of a single project.
- Units must be “substantially related” to other units in the project.
- Decreases do not have to totally offset increases. Decreases may not be real or enforceable.
- Emission reduction example: Shutdown of existing units or add on control.

PEA: Alternative

- “Netting within a project” or “Net to Zero”: Sources located in nonattainment areas classified as serious or severe (nonattainment pollutants only).
 - For projects limited to project increases (without considering decreases) ≤ 25 TPY. Project Net = Project Increases – Project actual emission decreases ≤ 0 . Project increase is not significant, and netting is not required.
 - For projects with project increases (without considering decreases) > 25 TPY, or if “Netting within a project” results in positive number, project is significant, and netting is required.

Example 1

Step 1

Project: An existing major source is in a serious nonattainment area for ozone. Applicant proposed the following changes:

- Add (+) one new storage tanks (EPN Tank 1).
- Control existing tank emission (EPN Tank 2) (-) and route it to Flare (EPN Flare) (+).
- Replace existing coal-fired boiler (EPN: Boiler 1) (-) with a new natural gas-fired boiler (EPN: Boiler 2) (+).

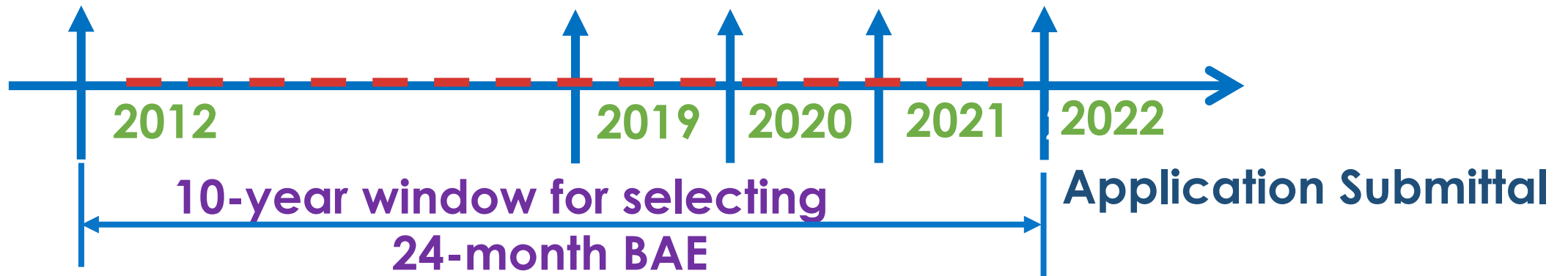
Example 1

Pollutant: VOC

EPN	Baseline emissions (TPY)	Proposed allowable emissions (TPY)	Project Emissions Increase (PEI) (TPY)
Tank 1 (New)	0.00	18.00	(+) 18.00
Tank 2 (Routed to control)	15.00	0.00	(-) 15.00
Flare (New)	0.00	0.50	(+) 0.50
Boiler 1 (Remove)	16.00	0.00	(-) 16.00
Boiler 2 (New)	0.00	13.00	(+) 13.00
	Step 1: PEI (Net Increase)		0.50 TPY

Baseline Actual Emissions (BAE)

Emissions, in tons/year, emitted during a **consecutive 24-month period out of the previous 10 years** (previous 5 years for electric utilities) from the date immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete permit application is received for a permit.



BAE

- Typically, highest actual (TPY) average is used for lowest PEI.
- All sources of single pollutant have same 24-month period for a given project.
- Different pollutants may have a different 24-month period.
- Baseline period can extend back 10 years.

Pollutant : VOC		
Year	Unit A (TPY)	Average (BAE)
2021	190	
2020	175	182.5
2019	180	177.5
2018	200	190
2017	200	200
2016	190	195
2015	185	192.5
2014	175	180
2013	166	170.5
2012	176	171

Example 2

BAE

Pollutant: VOC

EPN	2017	2018	2019	2020	2021
Tank1 Vent	14.70	12.70	13.30	12.30	14.60
Tank2 Vent	16.30	14.20	10.30	14.90	15.00
Heater Vent	9.80	7.10	6.50	9.20	8.30
Totals	40.80	34.00	30.10	36.40	37.90
Average		37.40			
			32.05		
				33.25	
					37.15

Projected Actual Emissions (PAE)

- The projected actual emissions are the maximum annual rate, in tons per year, at which an existing facility is projected to emit a federally regulated pollutant in any rolling 12-month period (30 TAC 116.12(31)).
- Relevant information used in determining the projected rate should be provided.
- Keep records.
- A projected actual is not an enforceable limit.
- Cannot be used to define contemporaneous increases and decreases.

Could Have Accommodated (CHA) Considerations

- In the estimation of a project's emission increase, the source owner can exclude emissions that could have been accommodated during the selected baseline period, and that are also unrelated to the particular project.
- The rule only allows CHA exclusion to be used in conjunction with the PAE to BAE test and not with PTE to BAE.
- Provide data to support accommodation.

Could Have Accommodated Criteria

- The facility was legally and physically capable of sustaining the operating conditions associated with the accommodated emission rate during the baseline period.
- Excluded emissions must be unrelated to the project.

Step 2

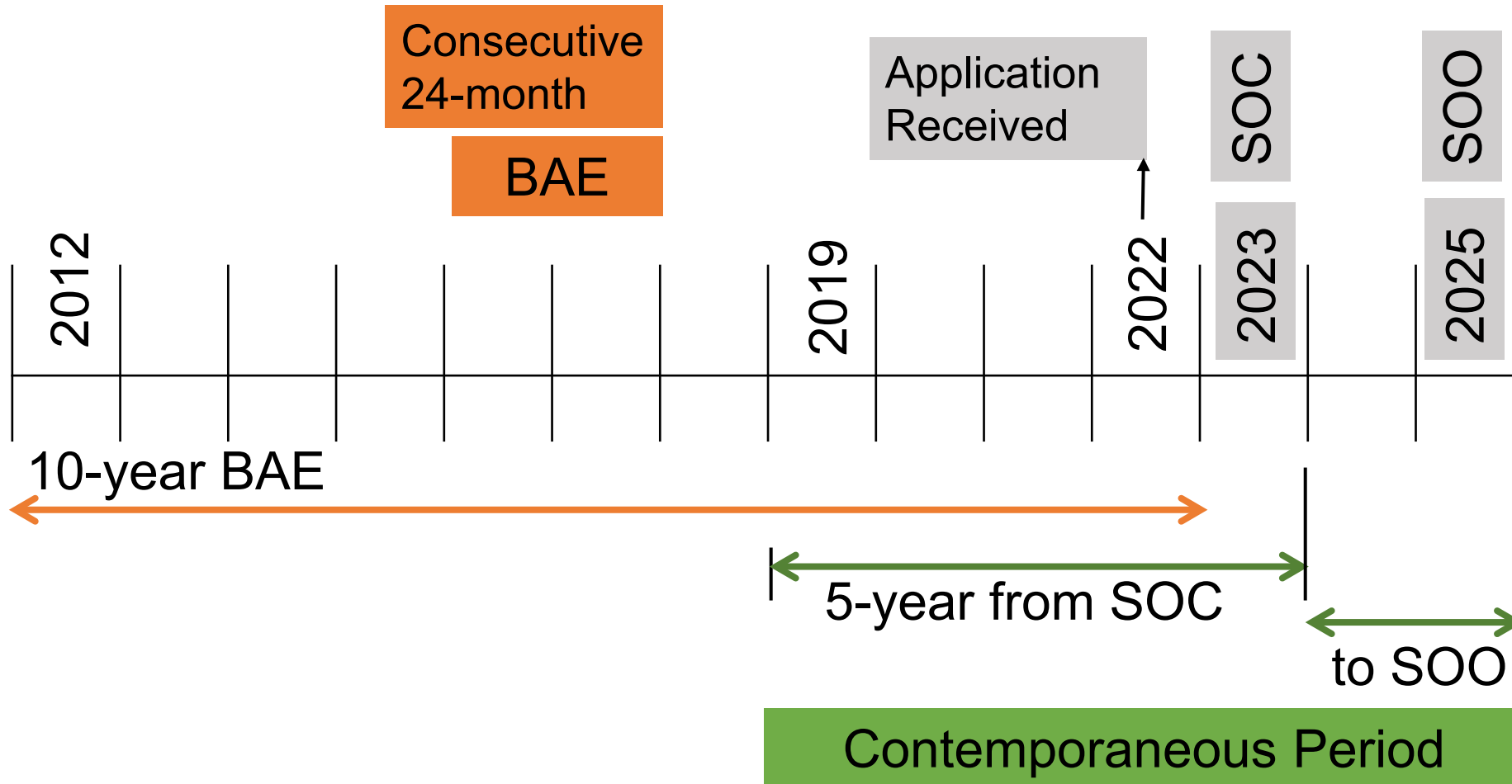
Net Emission Increase

- Evaluate net emissions increases in project's **contemporaneous period**.
- Applies to only Existing Major Sources.
- Conducted per pollutant.

Contemporaneous Period

- Contemporaneous Window:
= [5 years prior to Start of Construction (SOC) to Start of Operation (SOO)].
- \sum Creditable emissions (increases + decreases) in the contemporaneous window (Table 3F).
- $NEI \geq \text{Major Modification}$ ► Federal permitting applies.

Contemporaneous & BAE



Creditable Increases and Decreases



During contemporaneous period (Table 3F).

Taken from Emissions Inventory / Permit Compliance Recordkeeping.

Include planned projects prior to SOO.

Not previously relied upon in issuing major NSR permit.



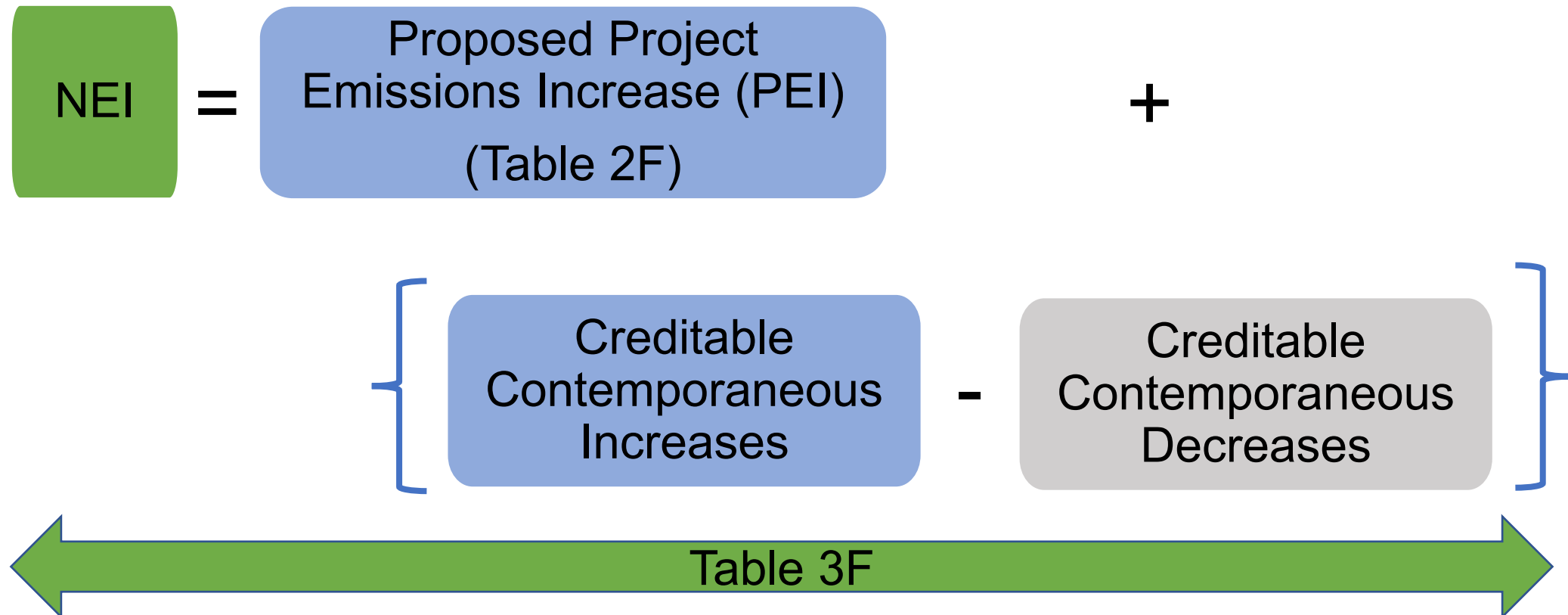
During contemporaneous period (Table 3F & 4F).

Must be real and enforceable prior to SOO.

Not creditable if it is required to meet permit limit / SIP.

Not previously relied upon in issuing major NSR permit or used as an offset.

Step 2 - Net Emissions Increase (NEI)



Example 3: PEI & NEI

Step 1

Pollutant	PEI (TPY)	PSD Major Mod.	Netting	NEI	PSD review required?
NO _x	70	40	Yes	76	Yes
CO	110	100	Yes	73	No
VOC	52	40	Yes	67	Yes
SO ₂	45	40	Yes	32	No

Step 2

Major NSR programs

Major NSR	Pollutant	Area	Major Source / Modification Threshold	Control requirements	Additional analysis
Prevention of Significant Deterioration (PSD)	Criteria and Non-Criteria pollutants Major for one pollutant, Major for all pollutants	Attainment / Unclassifiable Compliance with NAAQS	Source type: Named Sources Unnamed sources	BACT	Increments Additional Impacts analysis
Nonattainment (NA)	Criteria Pollutants Major source determination is made for each pollutant individually	Federal Applicability Nonattainment - Out of compliance with NAAQS		LAER	Federal Review Statewide compliance Emission Offsets Net Air Quality Improvement

PSD

Control Technology

- BACT
- EPA's top-down method

Air Quality analysis

- NAAQS analysis
- Increment analysis
- Additional impacts analysis
- Class I area analysis

Public Involvement

- Public notice:
Public Comment -
EPA, Mayor,
Council of Gov



NA

Control Technology

- LAER

Air Quality analysis

- Emission offsets
- Alternative site analysis
- Statewide facility compliance with air regulations

Public Involvement

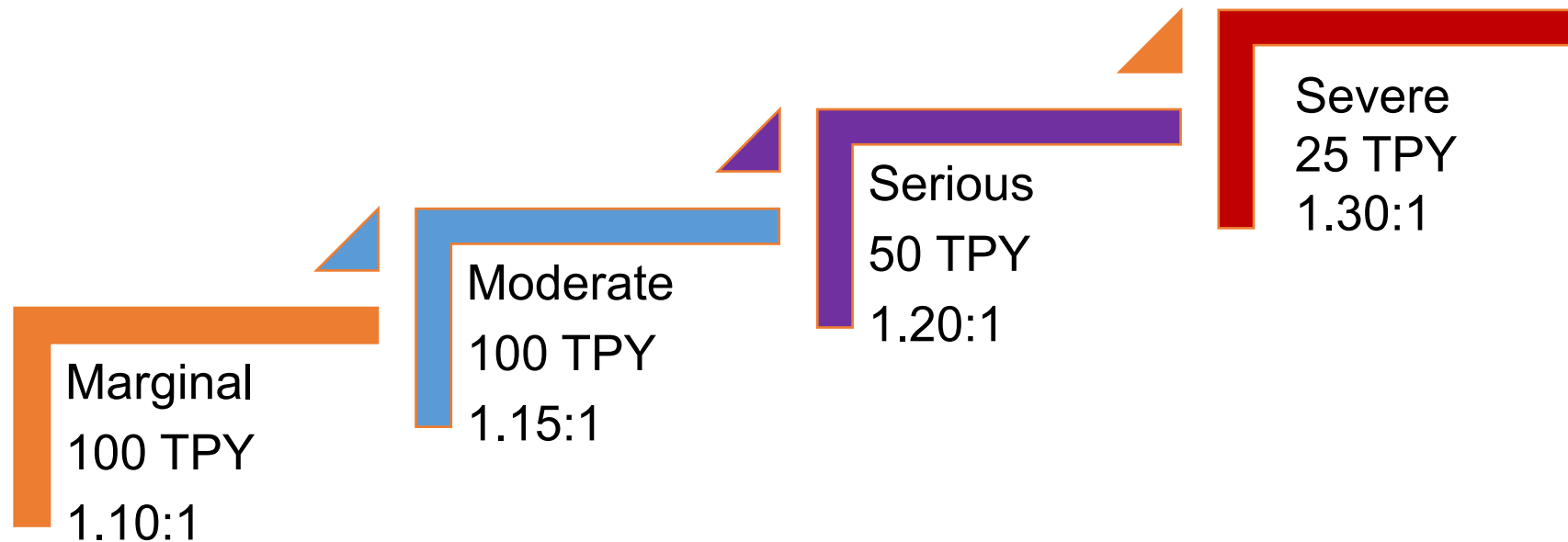
- Public notice:
Public Comment -
EPA, Mayor,
Council of Gov



Offset

- Offsets are an actual emission reduction \geq project's emissions increase.
- Amount depends on the nonattainment classification.
- Offsets must be purchased before operation.
- Emissions Banking and Trading Team review and approval required.
- Offsets = (Creditable Project Increases) x Offset Ratio.

Offset Ozone Precursors (VOC & NOx)



Offsets for other pollutants (CO, SO₂, PM₁₀, NO₂, Lead) listed in Table 1: 30 TAC §116.12(20)(A).

Example 4

Project: Site C is a major unnamed source of VOC in serious nonattainment area for ozone. Sought authorization of new facilities and modified facilities. Will Site C need a federal NSR permit?

Project details	
Pollutant	VOC
New / Existing	Existing (Major)
Source Category	Unnamed
Classification	Nonattainment (Serious)

Example 4

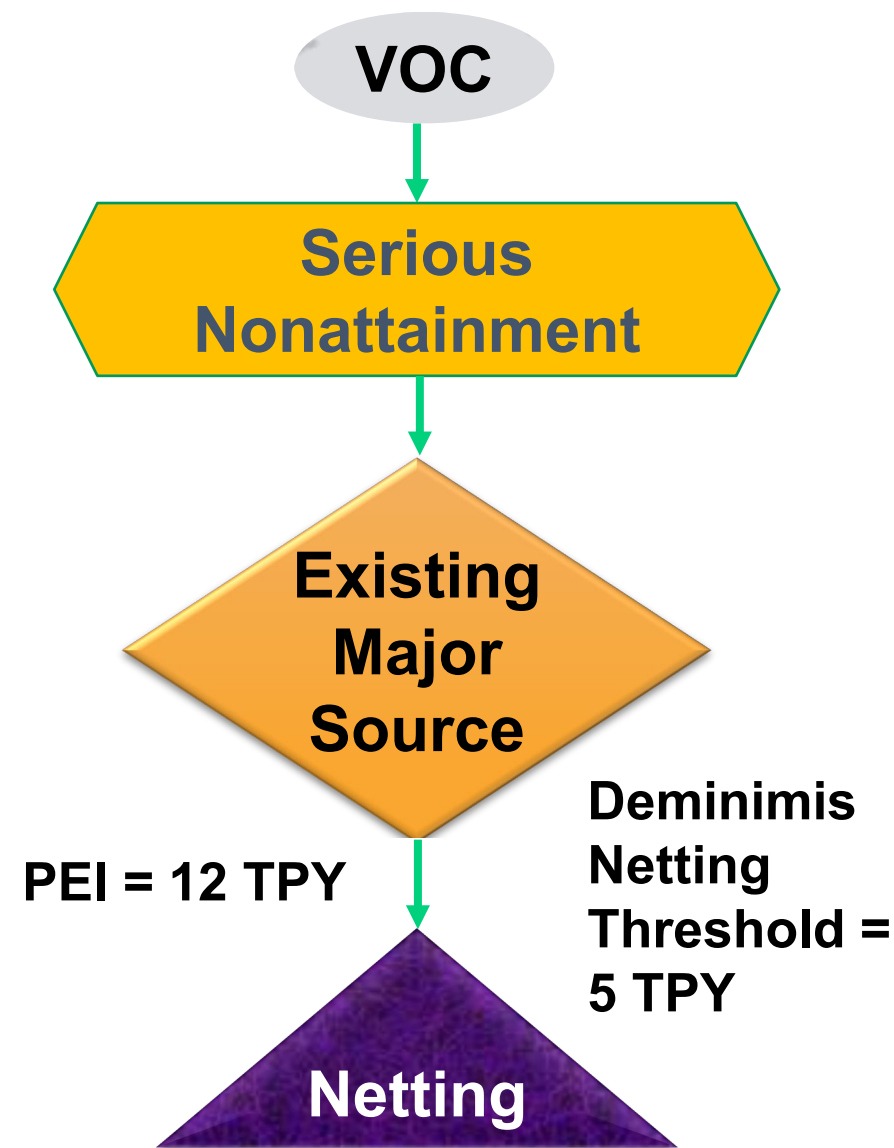
Step 1 - PEI

EPN	Facility	Proposed PTE (B) (TPY)	Baseline (A) (TPY)	Difference (B-A) (TPY)
Tank 1	New	10	0	10
Tank 2	New	10	0	10
Tank 3	Remove	-	10	-10
Boiler 1	Remove	-	15	-15
Boiler 2	New	10	0	10
Flare	Modified	17	10	7

Example 4

Step 1

Step 1 Check	
PEI (TPY)	12
Major Modification Threshold (TPY)	25
Netting Threshold (TPY)	5
Major Source for PSD	No
Major Source for NNSR	Yes



Example 4

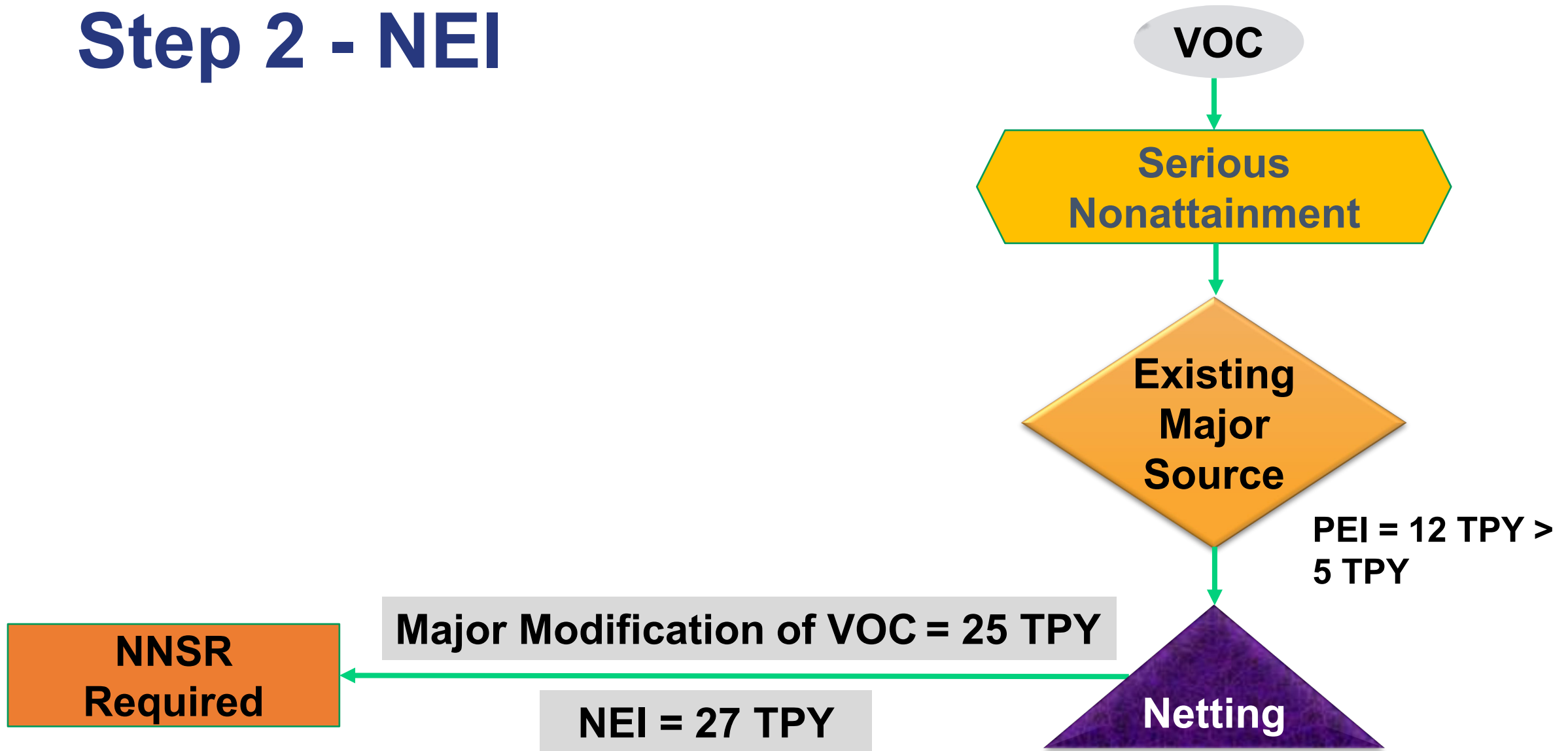
Step 2: NEI

Contemporaneous Window	Creditable Increase (TPY)	Creditable Decrease (TPY)	Net Emissions Increase (NEI)
Mar-22 (Current Project = PEI)	(+) 12		(+) 12
Jan-22	(+) 18		(+) 18
May-21	(+) 7		(+) 7
Dec-20	-	(-) 10	(-) 10
Nov-16*	-	(-) 35	

*Note: The contemporaneous period goes back in time five years from the proposed start of construction.

Example 4

Step 2 - NEI



Example 4

Offset

Pollutant	Classification	Offset Ratio *
VOC	Serious	1.2 to 1

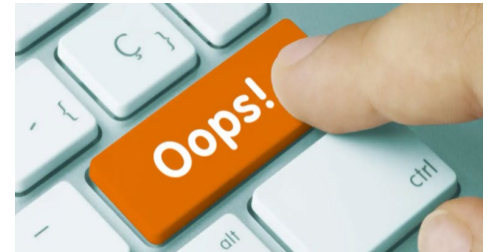
Classification	Offset Ratio
Extreme	1.50 to 1
Severe	1.30 to 1
Serious	1.20 to 1
Moderate	1.15 to 1
Marginal	1.10 to 1

*Based on the county classification and pollutant

Common Deficiencies

Common deficiencies seen in applications by Air Permits Division (APD).

- Missing Tables 1F/2F/3F.
- Incorrect “Named Source” classification.
- Treating retrospective reviews as new proposed projects.
- NO_x and VOC ozone precursors not treated independently of each other in ozone nonattainment areas.



Common Deficiencies (Cont'd)

Step 1 & 2

- Use of CHA with PTE and lack of documentation of CHA basis.
- For non-fugitive BAE calculation: Using “Allowable Emissions” instead of using “Actual Emissions”.
- Use of correlation equations for fugitives BAE.
- Not evaluating Step 1 increases for sources with no allowable increases but have actual increases. Example: Omission of affected sources in Step 1.

Common Deficiencies (Cont'd)

Step 1 & 2

- Administratively incorporated PBRs or Standard Permits treated as a Step 1 modification.
- Netting performed at existing minor sources.

Tables related to Major NSR

Table	Description
<u>Table 1F</u>	Air Quality Application Supplement
<u>Table 2F</u>	Project Emission Increase
<u>Table 3F</u>	Project Contemporaneous Change
<u>Table 4F</u>	Description of Creditable Reductions
<u>Table 4N</u>	Initial Lowest Achievable Emission Rate Determination
<u>Table 6N</u>	Alternate Site Analysis for Texas NNSR
<u>Table 9N</u>	Signature Verification

Contacts

Sandya Bhaskara, P.E.

Sandya.bhaskara@tceq.texas.gov

512-239-4740

Christopher Loughran, P.E.

Chris.loughran@tceq.texas.gov

512-239-0838

Richard Goertz, P.E.

Richard.goertz@tceq.texas.gov

512-239-1294

