Major New Source Review (NSR) Rule Webinar

Tribal Environmental Professionals

US Environmental Protection Agency

Office of Air Quality Planning and Standards (OAQPS)

July 20, 2011

Briefing Purpose

- Summary of Prevention of Significant Deterioration (PSD) Program Provisions
- Summary of Tribal Nonattainment NSR Program Provisions

Prevention of Significant Deterioration (PSD) Program Requirements

US Environmental Protection Agency

Office of Air Quality Planning and Standards (OAQPS)

Air Quality Policy Division (AQPD)/New Source Review Group (NSRG)

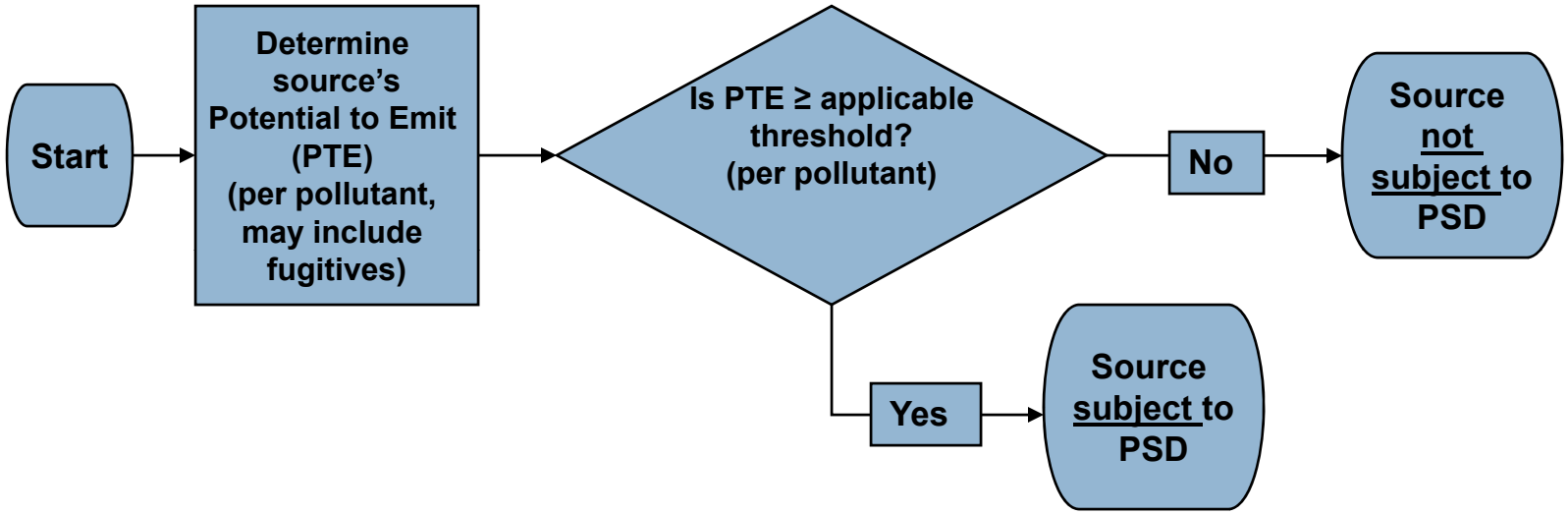
Presentation Outline

- Brief Description of the PSD Program
- Provisions Explanation
- Main Requirements Summary

Applicability: New and Modified Sources

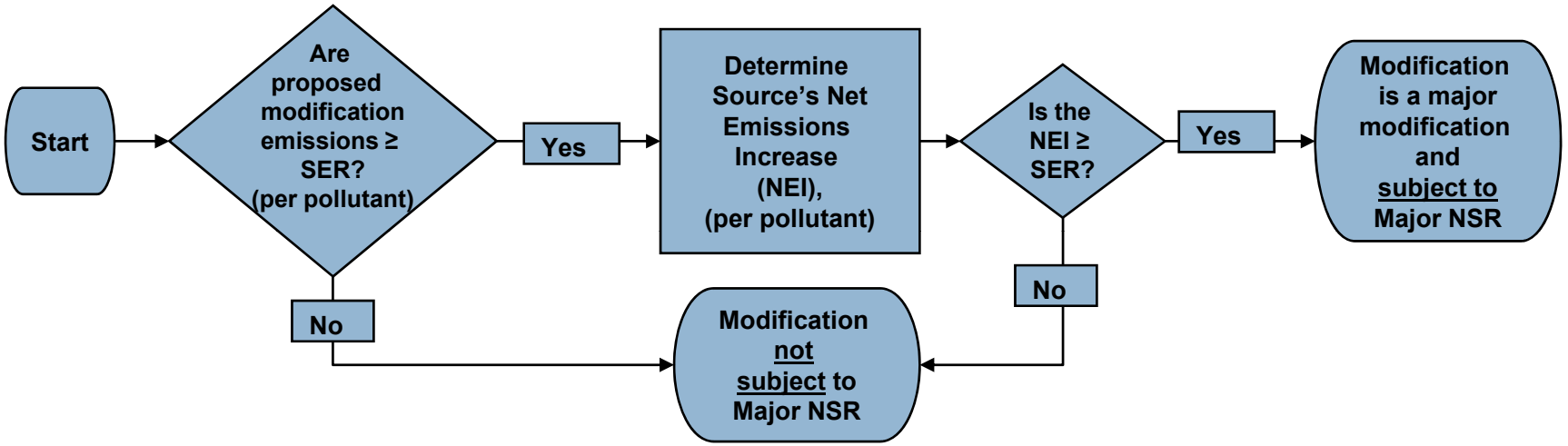
- New sources locating in an attainment area with air emissions equal to or higher than 100 or 250 tons per year (tpy)
- Modifications to existing sources in attainment areas with a net emissions increase higher than the Significant Emissions Rate
- Regulated pollutants: NAAQS, GHGs and other pollutants
  - NAAQS: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO_2), Ozone, Particulate Matter (PM), and Sulfur Dioxide (SO_2)
  - Greenhouse Gases: Carbon dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulfur Hexafluoride (SF_6)
  - Other Pollutants Include: Sulfuric Acid Mist (H_2SO_4), Hydrogen Sulfide (H_2S)
  - Excludes Air Toxics: Mercury (Hg), Cadmium (Cd), Benzene (C_6H_6), etc.

Applicability: New Source



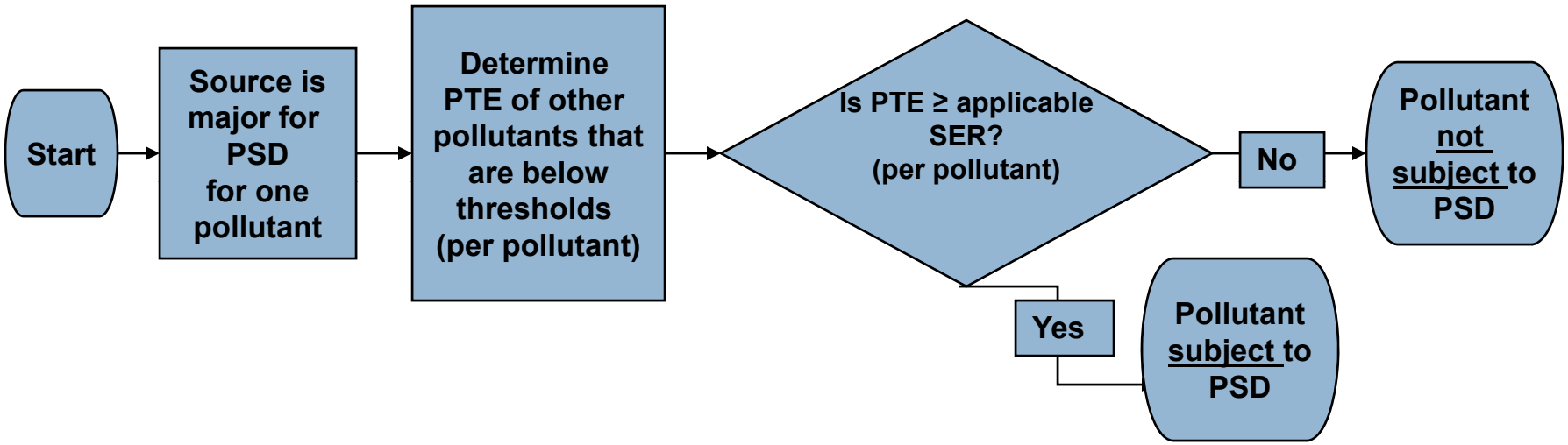
- PTE – maximum capacity of source to emit a pollutant under its physical and operational design
- Thresholds:
  - 250 tpy for most source categories
  - 100 tpy for 28 listed source categories (See Presentation Appendix)

Applicability: Modified Source



- Significant Emission Rate (SER) – emissions rate limit in tpy, varies by pollutant
- NEI – the emissions increase from the project itself **AND** the sum of the emissions increases and decreases of all projects implemented usually over the last five years that were not otherwise considered in a PSD permit action

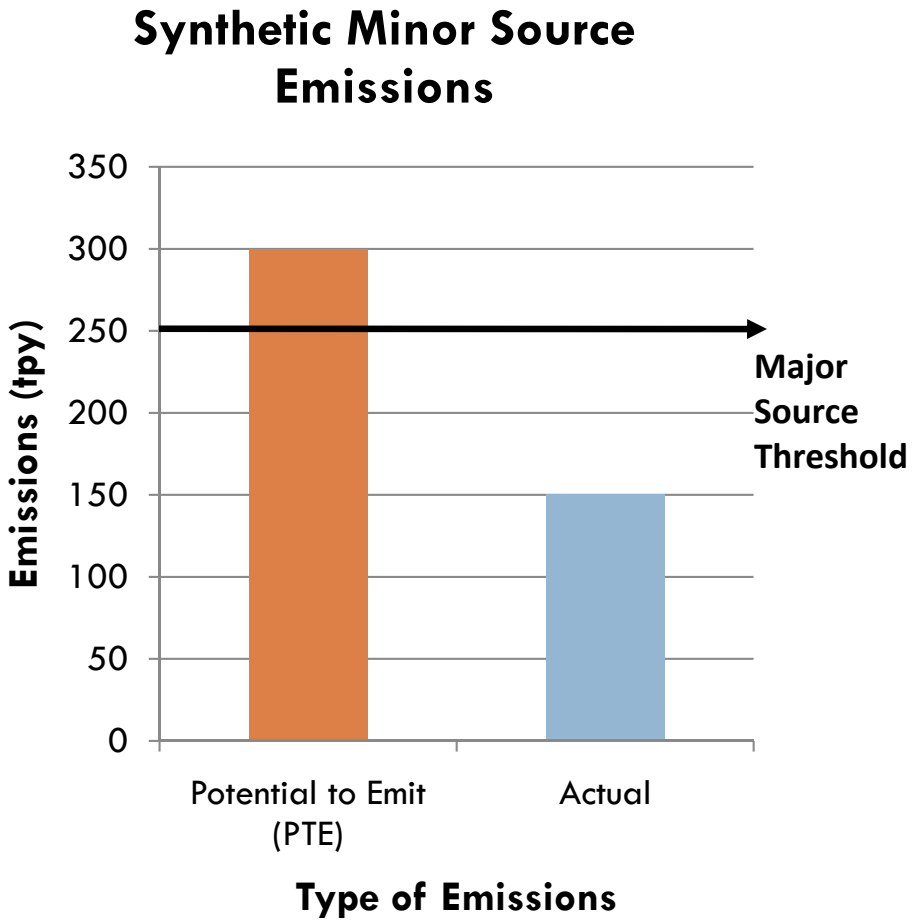
Applicability: Other Circumstances New Source or Modified Source Might be Subject to PSD



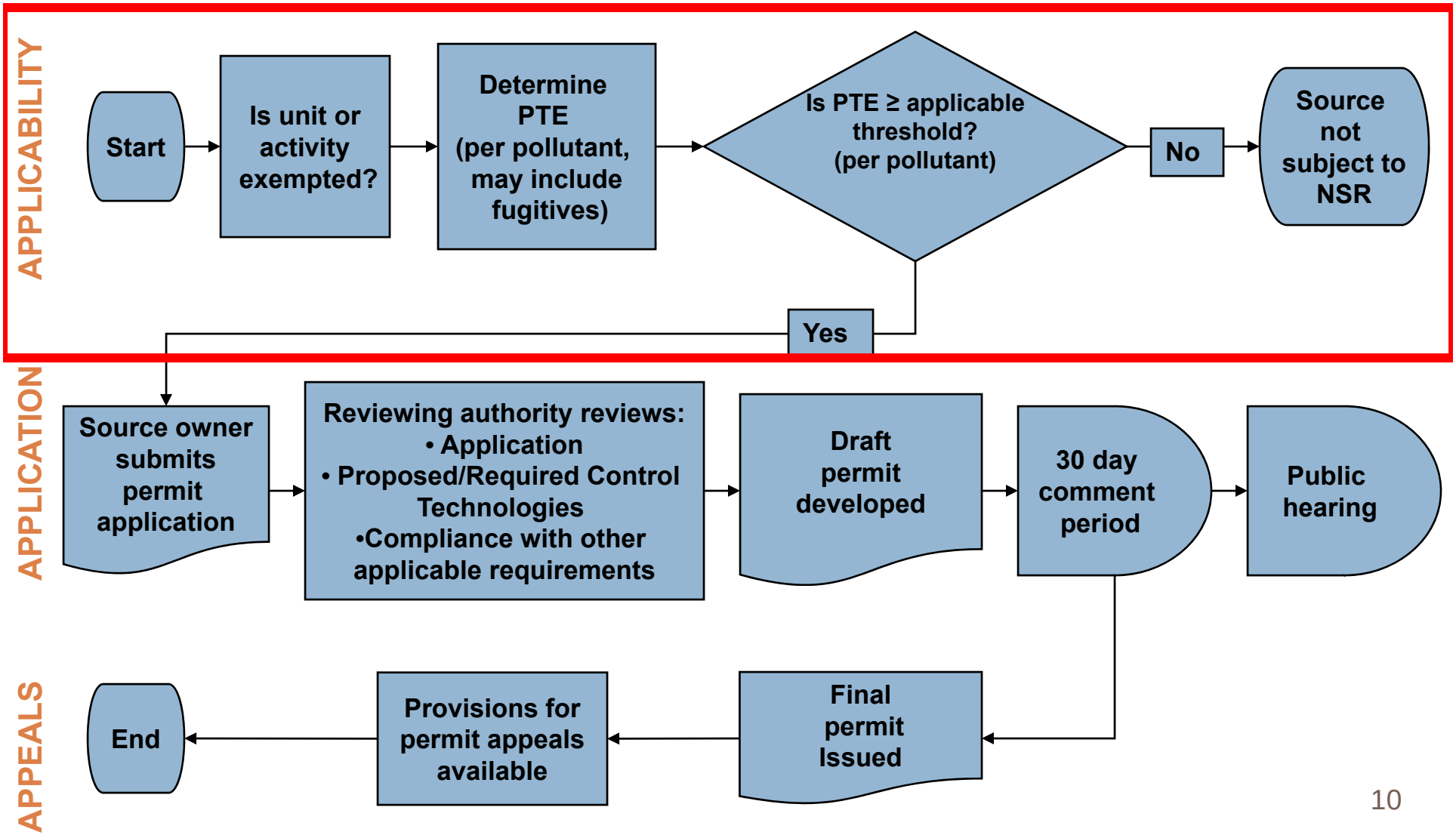
- Concept known as "Major for One Major for All"
- Mainly Applicable to New Sources

Applicability: New or Modified Source not Subject to PSD

- PTE less than thresholds
- Source is "grandfathered"
- Source opted for "synthetic minor" permit



Permitting Process (Simplified)



Application:
PSD Program Requirements

- Main requirements:
  1. Install **Best Available Control Technology (BACT)**
  2. Perform **air quality analysis** to assess impacts on air quality
  3. Perform **class I area analysis** to **assess impacts on** national parks and wilderness areas
  4. Perform **additional impacts analysis**
  5. Allow for opportunities for **public involvement**

Application: Best Achievable Control Technology (BACT)

- Pollutant specific emissions limit, case-by-case
  - Takes into account energy, environmental, or economic impacts
- Limit must be at least as stringent as applicable:
  - New Source Performance Standard (NSPS) and/or
  - National Emission Standard for Hazardous Air Pollutants (NESHAP)
- Selected by "Top Down" BACT analysis
  1. Identify all available control technologies
  2. Eliminate technically infeasible control options
  3. Rank remaining control technologies by its effectiveness (considers economic, energy and environmental impacts)
  4. Evaluate most effective controls and document results
  5. Select BACT

Application:
Air Quality Impact Analysis (AQIA)

- Pollutant specific analysis that involves:
  - An assessment of existing air quality and
  - Modeling estimate of ambient concentrations from proposed project and future growth associated with project

- Purpose is to determine if **new plus existing** emissions will cause or contribute to a violation of a:
  - NAAQS and/or
  - PSD increment
    - Increment - amount of pollution an area is allowed to increase
    - Prevents the air quality in clean areas from deteriorating up to the level set by the NAAQS
    - Increments exist for 3 pollutants: NO_2, PM, and SO_2

Application: Class I Area Impact Analysis

- Evaluation of NAAQS, PSD increments and Air Quality Related Values (AQRVs) when a major source's emissions may affect a Class I area
  - Class I Area – areas reserved for special air quality protection, usually national parks and wilderness areas
  - AQRVs – feature or property of a Class I Area that may be affected by a change in air quality; differ for each Class I area
- Generally for sources within 100 km of Class I area, not always
- Federal Land Manager (FLM) must be notified of potential impacts
  - Determines data and analyses needed

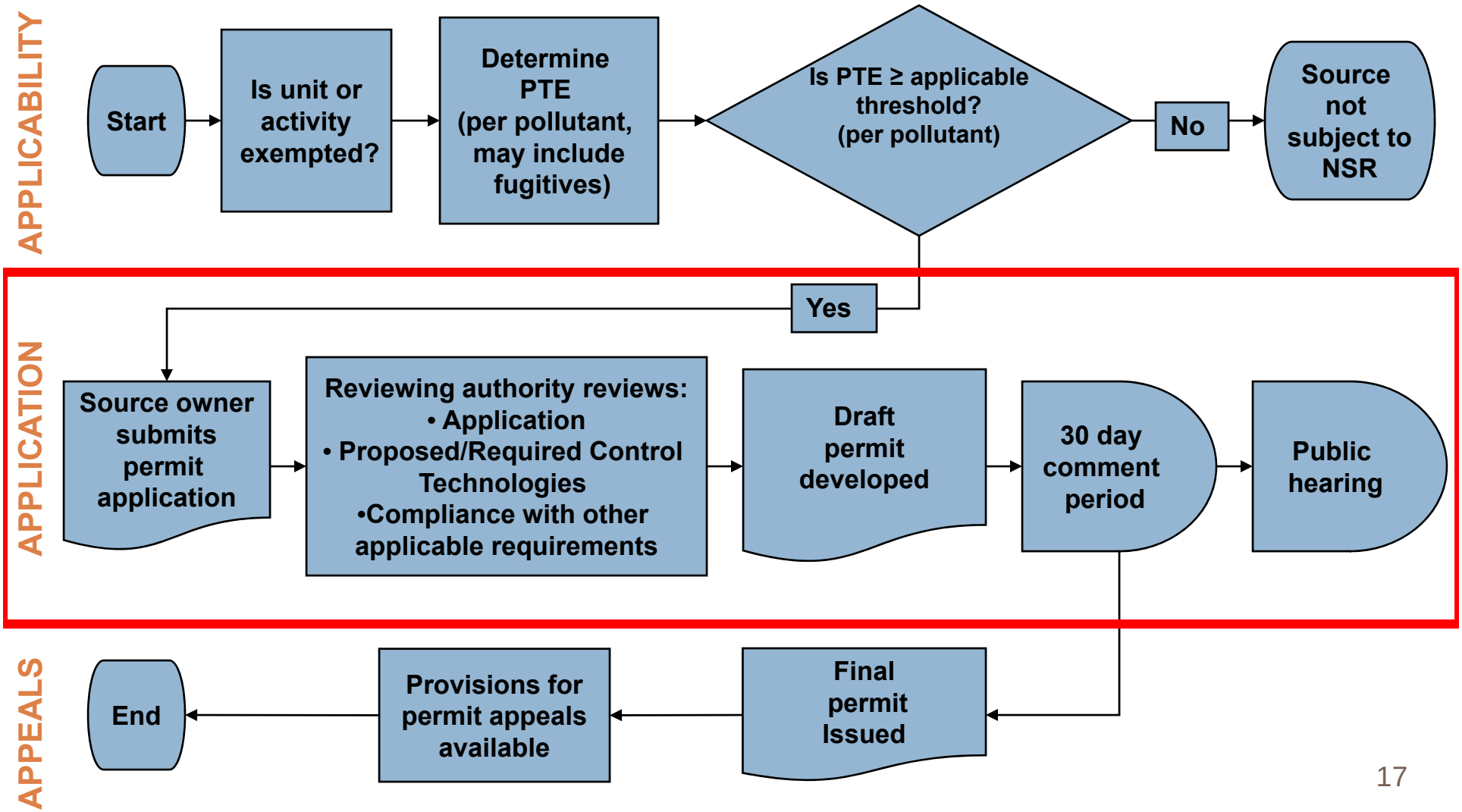
Application: Additional Impact Analysis

- Assesses potential effects of increased air, ground and water pollution from proposed source and associated growth on:
  - Soils and Vegetation
  - Visibility
- Pollutant specific
- Performed within the impact area of the proposed source

Application: Public Involvement

- Reviewing authority is required to provide:
  - Public notice to the affected community and the general public on the draft permit
  - At least a 30 day public comment period on the draft permit
  - Opportunity for public hearing on draft permit, if requested by public
- All public comments must be considered before a final permit is developed
- A Technical Support Document (TSD), generally including responses to comments, may also be available with the final permit

Permitting Process (Simplified)



Appeals

- Provisions for permit appeals available under the program
- Appeals are conducted through the EPA's Environmental Appeals Board (EAB)
- If all remedies for permit appeal through the EAB are exhausted, person may appeal to Federal Court

Key Points to Remember: PSD

- Program for major sources located in attainment areas (generally for emissions at or higher than 100 or 250 tpy)
- Pollutants regulated: NAAQS, GHGs, other pollutants
- Main requirement: Best Available Control Technology (BACT)
- Permits are usually issued no later than 1 year after the date the permit application is deemed complete

Nonattainment NSR Program (NA NSR) Requirements

US Environmental Protection Agency

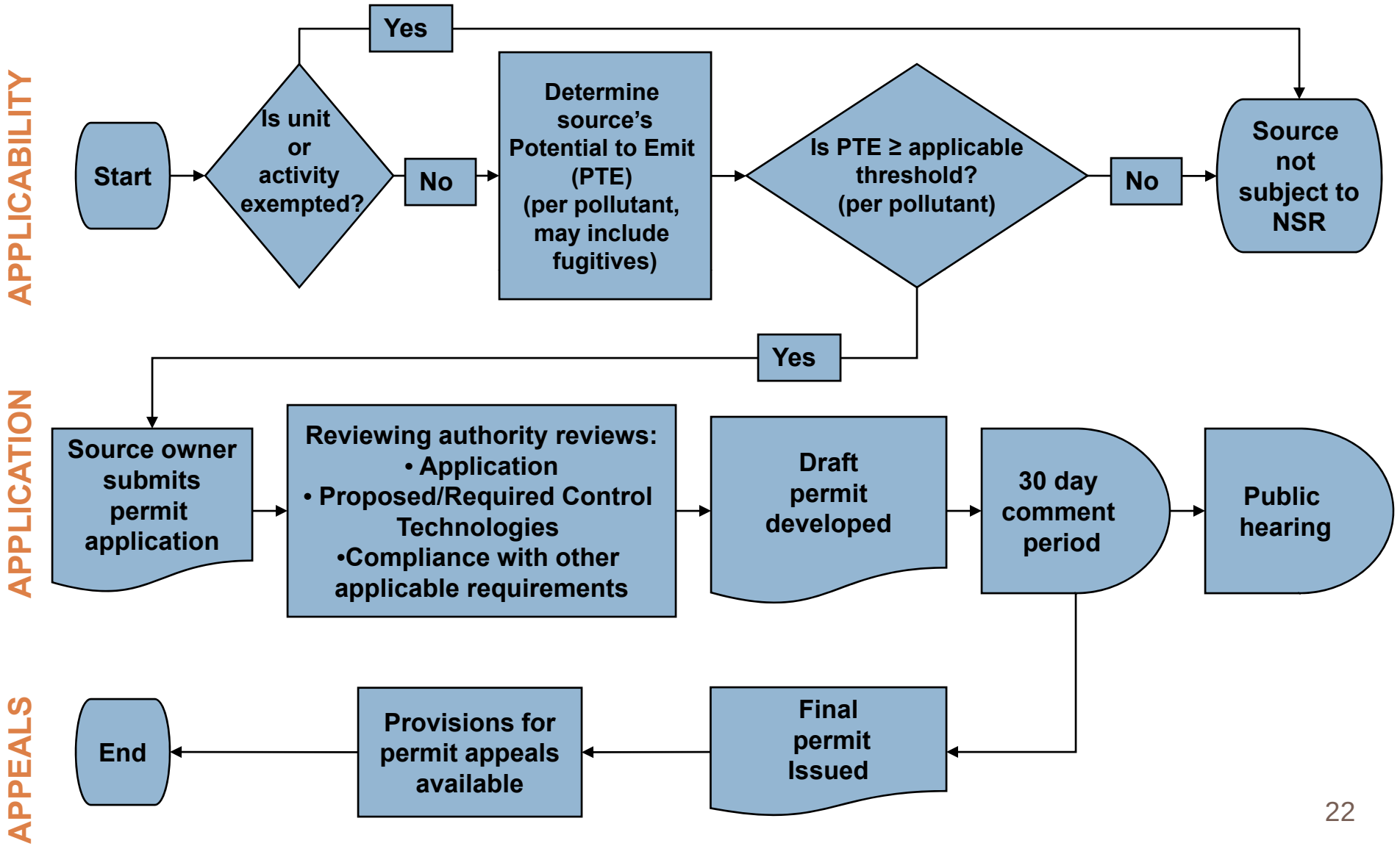
Office of Air Quality Planning and Standards (OAQPS)

Air Quality Policy Division (AQPD)/New Source Review Group (NSRG)

Presentation Outline

- Re-cap of Permitting process
- Brief Description of NA NSR Program
- Explanation of Proposed and Final Provisions
- Main Requirements Summary

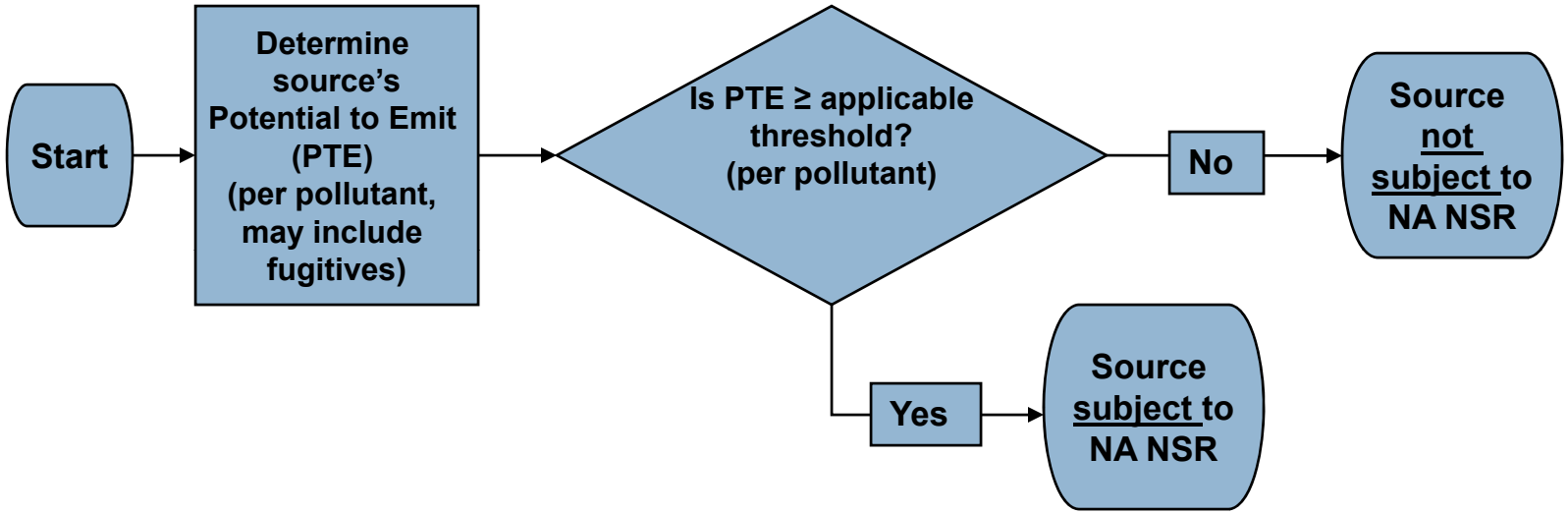
Permitting Process (Simplified)



Applicability: New and Modified Sources

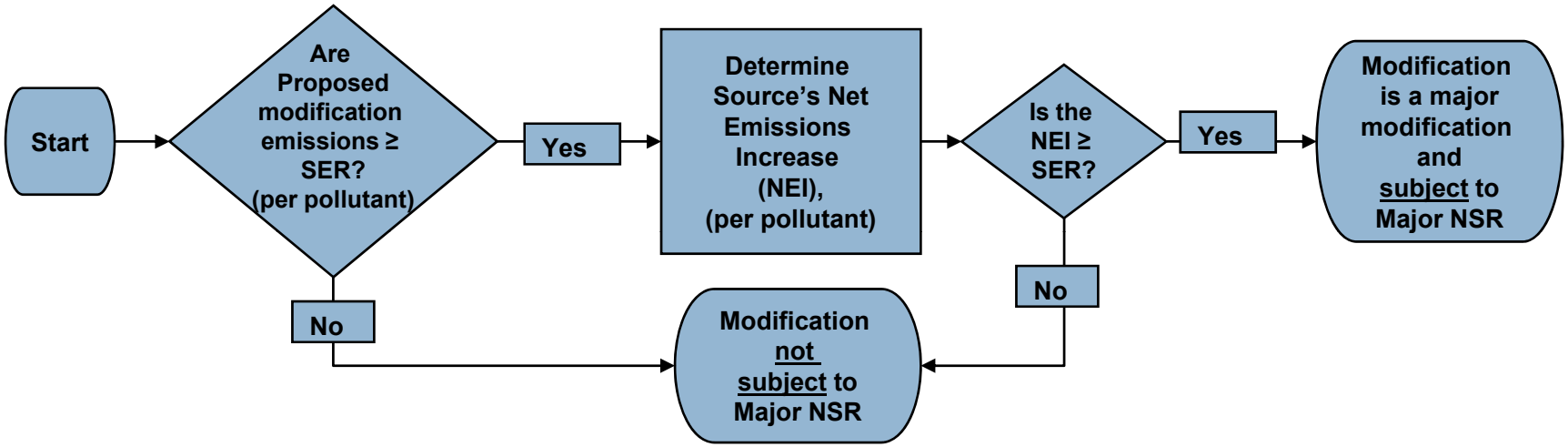
- New sources locating in nonattainment areas with air emissions of 100 tpy or more
  - Lower thresholds apply depending on nonattainment severity
- Modified sources located in nonattainment areas with a net emissions increase higher than the significant emissions rate
- Regulated pollutants: NAAQS only

Applicability: New Source



- Thresholds:
  - 100 tpy or lower depending on nonattainment severity (See Presentation Appendix)

Applicability: Modified Source



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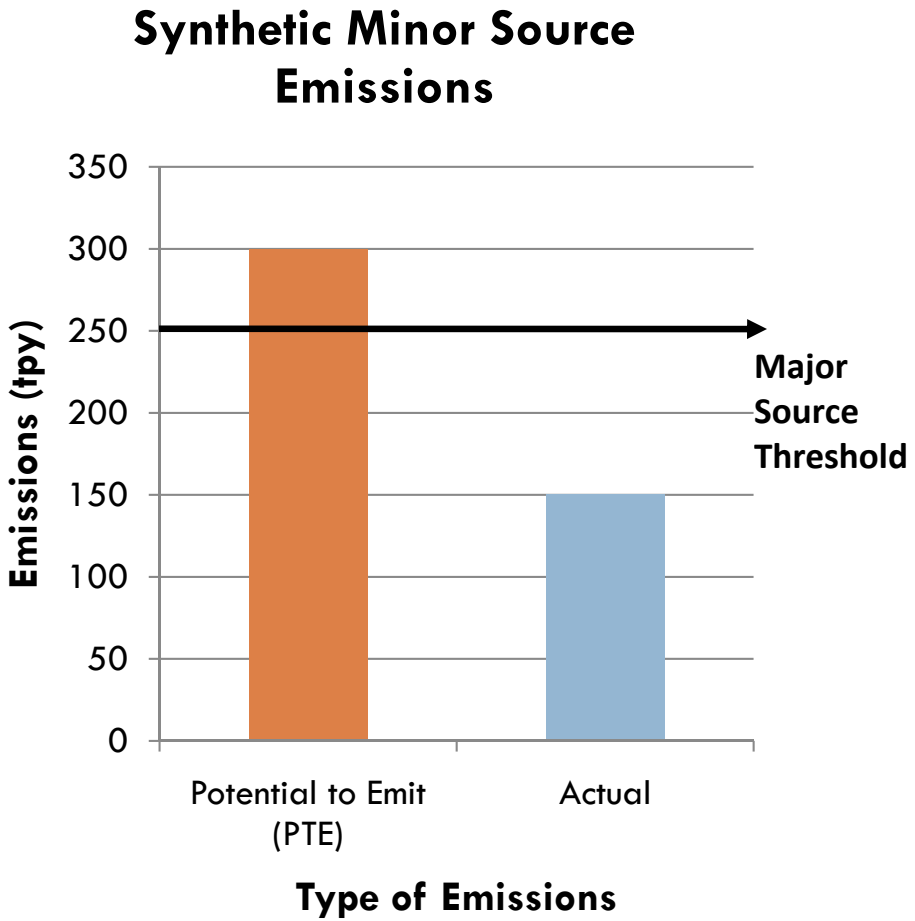

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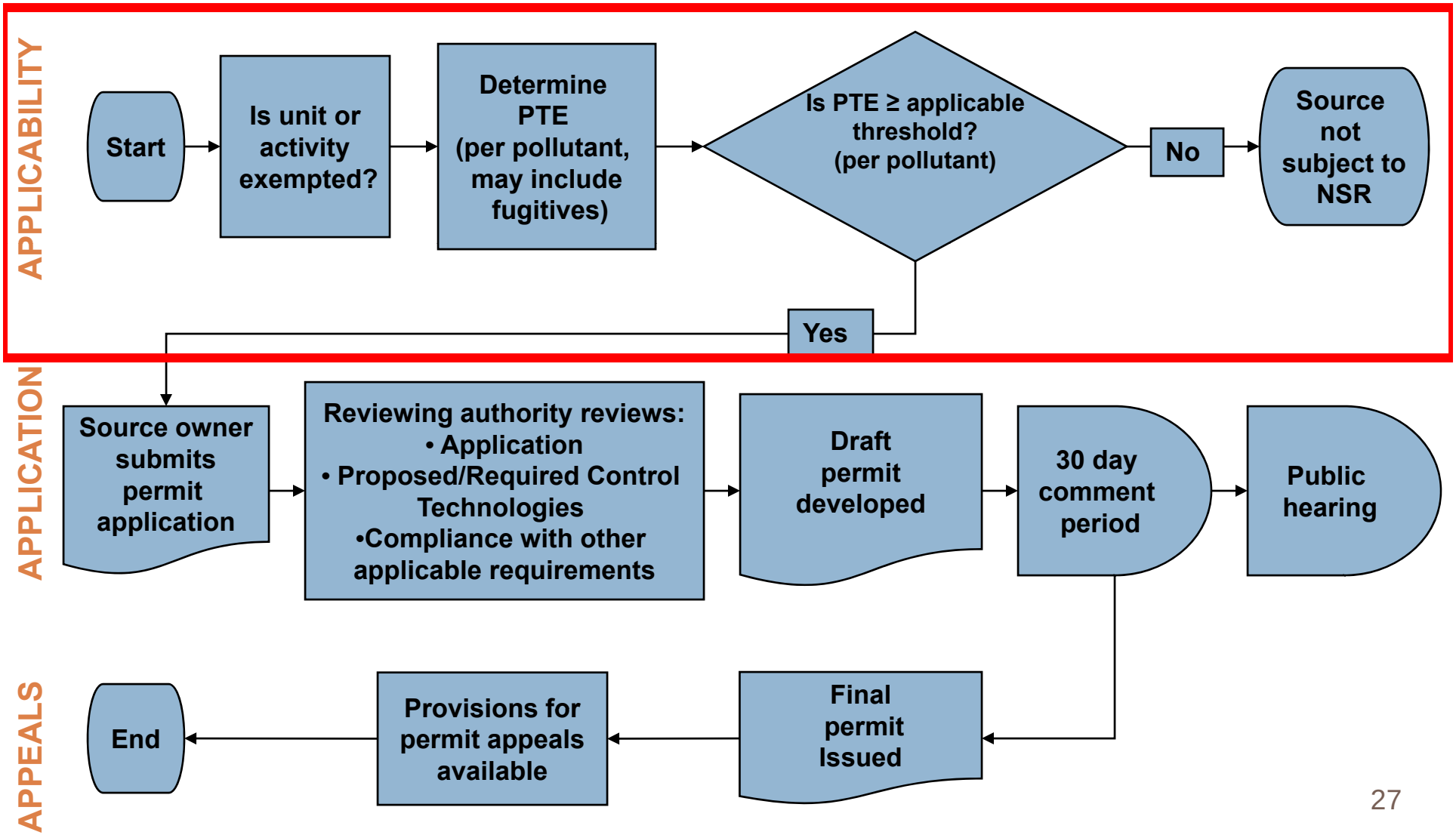

Application:
NA NSR Permit Requirements

- Main requirements:
  1. Install **Lowest Achievable Emission Rate (LAER)** technologies
  2. Obtain **emission offsets**
  3. Perform **alternative sites analysis**
  4. Show **statewide facility compliance** w/air regulations
  5. Allow for opportunities for **public involvement**

- For Indian Country: same requirements as current NA Major NSR rules for areas lacking an implementation plan – 40 CFR Part 51, Appendix S

Application: Lowest Achievable Emission Rate

- Rate that has been achieved or is achievable for a defined source
- Rate may be in a permit or regulation
- Requirement does not consider the following:
  - Economic
  - Energy
  - Environmental
  - Other factors
- No comments received about this requirement

Application: Emission Offsets

- Emissions reductions from existing sources to balance emissions from proposed new or modified sources
  - Offset must be at least 1:1 (See Appendix)
- Emissions offsets reductions must be Quantifiable, Enforceable, Permanent and Surplus (QEPS)
  - From Actual Emissions – Real, No "paper" Reductions
  - Federally enforceable at the time of permit issuance
  - In effect before the new source can commence operation
- We proposed two options for the lack of availability of offsets in Indian country

Application: Emission Offsets (Cont.)

- Economic Development Zone (EDZ)
  - Zone targeted for economic development.
  - Usually participating communities demonstrate:
    - pervasive poverty
    - high unemployment
    - general distress throughout the designated area

- Criteria for this waiver. Source emissions:
  - Consistent with the achievement of reasonable further progress
  - Will not interfere with attainment of the applicable NAAQS by the attainment date

Application: Emission Offsets (Cont.)

- Appendix S, Paragraph VI Option
  - Source exempt from offset requirement until attainment date for NAAQS passes (temporary)

- Criteria for this waiver. Source:
  - Complies with applicable implementation plan emission limitations
  - Will not interfere with the attainment date for regulated NSR pollutant
  - EPA determines these criteria are satisfied and publishes finding in Federal Register

Application: Emission Offsets (Cont.)

- We do not have the legal authority to waive the offset requirement under section 173 of the Act or under the Tribal Air Rule (TAR)
- Only finalizing EDZ option for sources that satisfy qualifying criteria. Generally, tribes who develop TIPs and request EDZ designation
- We encourage states and tribes to work together in the creation and use of offset banks
  - E.g. Memorandums of Understanding (MOU)

Application: Emission Offsets (Cont.)

- EPA can assist tribes interested in developing offset banks
- EPA addressing general lack of offset availability
  - e.g., Finalized rule that allows for the inter-pollutant and inter-precursor trading of offsets between direct PM-2.5 emissions and its precursors ("Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers" (73 FR 28340))
- We continue to explore non-traditional sources of offsets such as offsets from mobile sources and minor sources

Application: Alternative Sites Analysis

- An analysis by the source owner of:
  - Alternative sites
  - Sizes
  - Production processes
  - Environmental control techniques

- Analysis for such proposed source must demonstrate that benefits significantly outweigh:
  - the environmental impacts
  - social costs imposed as a result of source location, construction, or modification

Application: Alternative Sites Analysis (Cont.)

- Section 173 alternate site analysis provision was inadvertently missing from 40 CFR Part 51, Appendix S regulations

- Added requirement to Appendix S to codify section 173 requirement in these implementing regulations

Application: Compliance Certification

- A certification by proposed source owner

- Must certify that all sources owned or operated by this source owner in the same state as the proposed source are:
  - In compliance or
  - On an approved schedule for compliance with all applicable requirements

Application: Compliance Certification (Cont.)

- Asked for comments as to whether that certification, for purposes of the Tribal NA major NSR rule, should be State-wide, Indian country-wide or per tribe

- Finalizing state-wide facility compliance
  - Provides a broad enough look at the compliance history of the company, without overburden
  - Reflects a geographic approach to the certification rather than an approach based on the entity that is sovereign.

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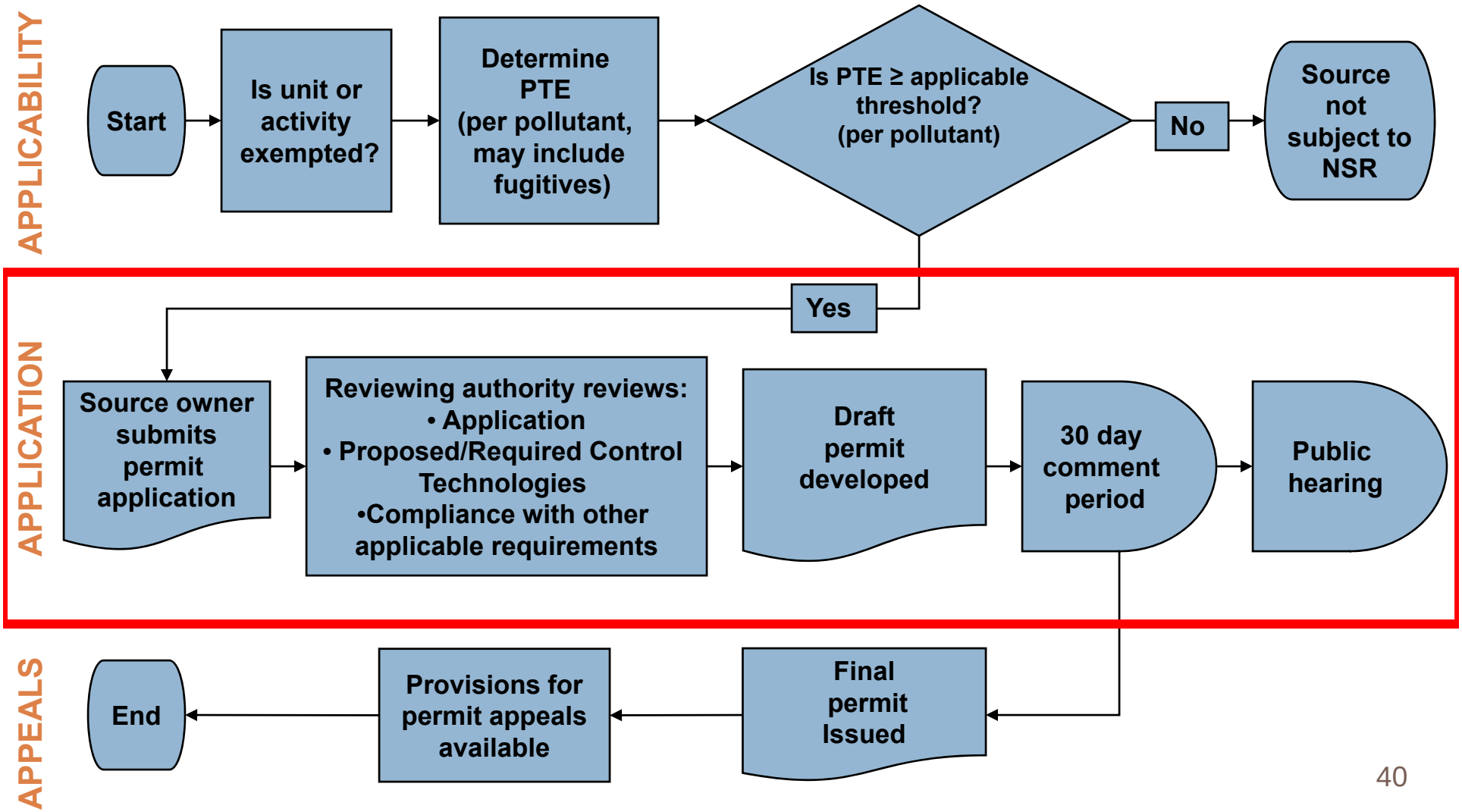

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Contacts

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Appendix

NSR Program Regulations

- NSR regulations based on Clean Air Act (CAA), http://www.epa.gov/air/caa/. Requirements for:
  - PSD in Title I Part C, Sections 160 to169
  - NA NSR in Title I Part D, Sections 171 to 193
  - Minor NSR in Title I Part A, Section 110(a)(2)(C)

- NSR regulations established at Federal, State and Tribal level
  - Regulations can be found in the Code of Federal Regulations (CFR) at: http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR
  - PSD in 40 CFR Sections 51.166 (States/Tribes) and 52.21 (Federal)
  - NA NSR in 40 CFR 49.166 to 49.175 (Tribal) and 51.165 (States)
  - Minor NSR in 49.151 to 49.165 (Tribal) and 51.160 to 51.164 (Federal)

28 Source Categories List

1. Coal cleaning plants (with thermal dryers)
2. Kraft pulp mills
3. Portland cement plants
4. Primary zinc smelters
5. Iron and steel mills
6. Primary aluminum ore reduction plants
7. Primary copper smelters
8. Municipal incinerators capable of charging more than 250 tons of refuse per day
9. Hydrofluoric acid plants
10. Sulfuric acid plants
11. Nitric acid plants
12. Petroleum refineries
13. Lime plants
14. Phosphate rock processing plants
15. Coke oven batteries
16. Sulfur recovery plants
17. Carbon black plants (furnace process)
18. Primary lead smelters
19. Fuel conversion plants
20. Sintering plants
21. Secondary metal production plants
22. Chemical process plants
23. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels
24. Taconite ore processing plants
25. Glass fiber processing plants
26. Charcoal production plants
27. Fossil fuel-fired steam electric plants of more than 250 million British thermal units (BTU) per hour heat input
28. Fossil-fuel boilers (or combination thereof) totaling more than 250 million BTU/ hour heat input

Significant Emission Rates (SERs)

SER – a rate of emissions that would equal or exceed any of the following rates:

Pollutant	SER (tpy)	Pollutant	SER (tpy)
Carbon Monoxide	100	Sulfuric Acid Mist	7
Nitrogen Oxides	40	Hydrogen Sulfide (H_2S)	10
Sulfur Dioxide	40	Total Reduced Sulfur (Includes H_2S)	10
Particulate Matter (PM10)	15	Reduced Sulfur Compounds (Includes H_2S)	10
Particulate Matter (PM2.5)	10; 40 for VOCs, NOx or SO_2	Municipal Waste Combustor Organics	$3.5*10^{-6}$
Ozone	40 VOCs or NOx	Municipal Waste Combustor Metals	15
Lead	0.6	Municipal Waste Combustor for Acid Gases	40
Fluorides	3	Municipal Solid Waste Landfills Emissions	50

Notwithstanding the above, any emissions rate or any net emissions increase associated with a major stationary source or major modification, which could construct within 10 km of a Class I area, and have an impact on such area equal to or greater than 1 $\mu g/m^3$ (24-hour average)

NA NSR Major Source Thresholds

Nonattainment Areas			
Pollutant	**Nonattainment Classification**	**Major Source Threshold**	**Offset Ratio**
Ozone	Marginal (≥ 0.085 < 0.092 ppm)	100 tpy of VOC or NOx	1.1 to 1
	Moderate (≥ 0.092 < 0.107 ppm)	100 tpy of VOC or NOx	1.15 to 1
	Serious (≥ 0.107 < 0.120 ppm)	50 tpy of VOC or NOx	1.2 to 1
	Severe (≥ 0.120 < 0.187 ppm)	25 tpy of VOC or NOx	1.3 to 1
	Extreme (= 0.187 ppm and up)	10 tpy of VOC or NOx	1.5 to 1
Particulate Matter	Moderate	100 tpy	-
	Serious	70 tpy	-
Carbon Monoxide	Moderate (9.1 – 16.4 ppm)	100 tpy	-
	Serious (16.5 ppm and up	50 tpy	-
Sulfur Dioxide, Nitrogen Oxides, and Lead	Only one nonattainment classification	100 tpy	-