AIR FORCE NEW SOURCE REVIEW PERMITTING GUIDE

GUIDE FOR PREVENTION OF SIGNIFICANT DETERIORATION AND NONATTAINMNET NEW SOURCE REVIEW FOR UNITED STATES AIR FORCE INSTALLATIONS

Air Force Civil Engineer Center
Compliance Technical Support Branch
250 Donald Goodrich Drive; Building #1650
San Antonio, TX 78226

June 2021

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Prepared for:

FRANK CASTANEDA, III, P.E., GS-14, DAF
Air Quality Subject Matter Expert
Air Force Civil Engineer Center,
Compliance Technical Support Branch
(AFCEC/CZTQ)
250 Donald Goodrich Drive, Building #1650
San Antonio, TX 78226

Prepared By:

Solutio Environmental, Inc.
407 8th Street
San Antonio, TX 78215
http://www.solutioenv.com

Based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signed: [SIGNED]

James E. McClain
Texas Licensed Professional Engineer, Lic. #97036
Solutio Environmental, Inc., Texas Registered Engineering Firm F-20144

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ACRONYMS AND ABBREVIATIONS

AQIA	Air Quality Impact Analysis
AQPD	Air Quality Policy Division
AQRV	Air Quality Related Value
BACT	Best Available Control Technology
BTU	British Thermal Unit
C6H6	Benzene
CAA	Clean Air Act
Cd	Cadmium
CEMS	Continuing Emissions Monitoring System
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CPMS	Continuous Parameter Monitoring Systems
EPA	United States Environmental Protection Agency
EAB	Environmental Appeals Board
FIP	Federal Implementation Plan
FR	Federal Register
GHG	Greenhouse Gas
GP	General Permit
H2S	Hydrogen Sulfide
H2SO4	Sulfuric Acid Mist
HAP	Hazardous Air Pollutant
HFC	Hydro Fluorocarbon
Hg	Mercury
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MOU	Memorandum of Understanding
N2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO2	Nitrogen Dioxide
NAICS	North American Industry Classification System
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
OCONUS	Outside Continental United States
PEMS	Predictive Emission Monitoring System
PTE	Potential-to-Emit

RCRA	Resource Conservation and Recovery Act
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SME	Subject Matter Expert
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
tpy	Tons-per-Year
USAF	United States Air Force
VOC	Volatile Organic Compound

1 INTRODUCTION

1.1 Purpose

This document has been prepared by the Air Force Civil Engineer Center (AFCEC) Compliance Technical Support Branch (CZTQ) to provide certain USAF personnel (air program managers, technicians, etc.) with a basic understanding of key requirements for complying with the Federal New Source Review (NSR) process.

This Guide is intended to be used solely as general guidance for navigating the complexities of NSR and highlights important provisions regarding the subject matter. Due to the intricacy of the NSR rules and related regulations, the guidance cannot be expected to encompass every type of compliance situation. Furthermore, the information provided in this Guide, while current as of the date on the front cover, is subject to change as regulatory authorities revise regulations, policies, and forms, and as legal challenges to the rule(s) are adjudicated. Consequently, the Code of Federal Regulations (CFRs), the Federal Register (FR), and/or the relevant air permitting authority (e.g., EPA, State Environmental Agency) should be consulted regularly for changes affecting the NSR regulations.

Citations to the regulatory text in the CFRs are used throughout this Guide for reference and to assist the user in finding the appropriate regulatory sections. This guidance is not a law or regulation, nor is it intended to replace or revise any underlying regulatory requirements, including Federal, State, or local regulations. The information presented here is not legal advice and the Guide must not be used as a legal resource. Although all reasonable efforts were made to ensure that information provided is accurate at the time written, no representations or warranties, implied or otherwise, can be made that this Guide is completely free from errors or omissions.

THIS GUIDE REPLACES AND SUPERSEDES PREVIOUS VERSIONS.

Any questions concerning this document, and/or requests for additional information pertaining to New Source Review, should be directed to the Air Quality Subject Matter Expert; AFCEC Compliance Technical Support Branch (AFCEC/CZTQ); 250 Donald Goodrich Drive; Building #1650; Lackland AFB, TX 78226.

1.2 How to use this Guide

This Guide is structured to provide a step-by-step approach for NSR permitting. To facilitate ease of use, the Guide is organized into five main sections:

- **Chapter 1 (Introduction)** - Includes the purpose and instructions for the Guide, a fundamental summary of New Source Review, and essential information to assist with compliance.
- **Chapter 2 (Prevention of Significant Deterioration Permitting)** - Covers the applicability criteria and permitting process for major new or modified Stationary Sources located in an attainment area.
- **Chapter 3 (Nonattainment New Source Review Permitting)** - Covers the applicability criteria and permitting process for major new or modified Stationary Sources located in a nonattainment area.
- **Chapter 4 (Alternative and Minor Source Air Permits)** - Provides a generalized discussion of the air permit options that may be applicable to new or modified Stationary Sources that are not major sources of air emissions. This chapter also includes a discussion of alternatives to major source NSR permitting.

1.3 National Ambient Air Quality Standards (NAAQS)

The New Source Review (NSR) program is one of many Clean Air Act (CAA) tools designed to ensure that the air quality is better than the National Ambient Air Quality Standards (NAAQS). Title I of the CAA requires states to develop State Implementation Plans (SIPs) to address attainment and maintenance of the NAAQS. Additionally, Title I also requires a preconstruction permitting program (NSR) for both major and minor sources.

Basically, a NAAQS is a threshold of pollutant concentration in the ambient (outdoor) air that should not be exceeded and acts as an indicator of air quality in a geographic area. Understanding the NAAQS is important for NSR because the type of analysis and permitting required depends on the air quality for the area where the proposed project will take place:

- **Prevention of Significant Deterioration (PSD)** applies to the proposed construction or modification of any "major emitting facility" taking place in an "attainment area" (an area whose air quality meets the NAAQS or is unclassifiable). PSD is intended to allow construction of new or modified sources of air pollution while not degrading air quality in attainment areas. PSD permits are under Title I, Part C of the Clean Air Act (CAA), Part D. [CAA §165(a), 42 USC §7465(a)]

- **Nonattainment New Source Review (NNSR)** applies to the proposed construction or modification of "major Stationary Sources" (somewhat different from "major emitting facilities") taking place in "nonattainment areas" (an area whose air quality does not meet the NAAQS). NNSR is intended to allow construction of new or modified sources of air pollution in nonattainment areas while still making progress toward meeting the NAAQS. NNSR permits are under CAA Title I, Part D. [CAA §172(b)(5), 42 USC §7502 (b)(5)]

NOTE: It is important to recognize that an area is designated as nonattainment or attainment for each NAAQS. For example, an area may be designated as nonattainment for Ozone, but attainment for all of the other criteria pollutants. No area violates all the NAAQS; therefore, a single project can trigger both PSD and NNSR. The PSD process applies to the "attainment" air pollutants and NNSR process applies to the "nonattainment" air pollutants.

1.3.1 Criteria Pollutants

The driving force behind most CAA regulations, including NSR, is the enforcement and maintenance of the NAAQS. NAAQS are health-based air quality standards set by the EPA based on a review of available scientific information. There are two types of NAAQS, primary and secondary:

- **Primary NAAQS -** Criteria pollutant standards are set at a level deemed necessary to protect the public health with an adequate margin of safety.
- **Secondary NAAQS -** Criterial pollutant standards are established at levels found necessary to protect the environment and public welfare. The secondary standard carries no deadline for attainment and states have never been penalized for failing to meet the standard.

A NAAQS has been established for each of the following six criteria pollutants (pollutants that have been found by the EPA to be harmful to human health and the environment):

- **Ground Level Ozone (O_3) -** Ground level Ozone (frequently referred to simply as "Ozone") is one of the most far-reaching criteria pollutants; therefore, the Ozone nonattainment and maintenance areas can be large and encompass multiple counties and states. Most sources of air pollution are contributors to ozone pollution. Ozone is formed by a complex chemical reaction involving a combination of solar radiation (sunlight) and primarily the following "precursors":
  - Volatile Organic Compounds (VOCs).
  - Nitrogen Oxides (NO_x).

- **Particulate Matter (PM)** – Also referred to as particle pollution. Generally, PM are inhalable particles formed from a mixture of liquid droplets (e.g., mist, vapor) and small solids (e.g., dust, soot, pollen) in the ambient (outdoor) air. Some particles are large enough to be seen with the naked eye, while others are so tiny, they can only be seen with a microscope. PM is subdivided into two categories:
    - **PM_{10} -** PM that are 10 micrometers in aerodynamic diameter, and smaller.
    - **$PM_{2.5}$ -** Also referred to as fine inhalable particles or fine PM. These are PM that are 2.5 micrometers and smaller in aerodynamic diameter.
- **Oxides of Nitrogen** – Also referred to as Nitrogen Oxides (NOx). NOx are a group of highly reactive gases that result from fuel combustion processes (e.g., power plants, generators, boilers, cars). NOx also contributes to the formation of PM, Ozone, and acid rain. Nitrogen Dioxide (NO_2) is the component of NOx that is of the most concern and is the easiest to measure, so it is used as the indicator for NOx.
- **Sulfur Oxides (SOx)** – SOx are typically emitted from sources that burn fossil fuels (e.g., coal, oil). The area of direct health impact for SOx is in the immediate vicinity of the emission source; therefore, the nonattainment and maintenance areas for this pollutant are typically small and centered around a power production station, chemical manufacturer, petroleum refinery, and mineral ore processing plant. Sulfur Dioxide (SO_2) is used as the indicator for SOx because it has a major presence in the ambient air and is the easiest to measure.
- **Carbon Monoxide (CO)** – CO usually results from the incomplete combustion of fuels in sources such as cars. The highest potential for CO pollution is in urban areas with heavy, congested motor vehicle traffic. Most CO nonattainment and maintenance areas are small and centered around an emission source, such as a busy intersection with a traffic light surrounded by tall buildings.
- **Lead (Pb)** – The typical sources of Pb are coal plants, battery manufacturing plants, incineration of garbage containing lead, and transportation sources using leaded fuels (rare now due to removal of lead from gas).

1.3.2 Area Designations and Classifications

The EPA designates a geographic area as nonattainment if the amount of air pollution in the area, as measured by ambient air quality monitors and certified to be correct, exceeds the NAAQS. The designation pertains to that particular NAAQS only. For example, an area can be designated nonattainment for ozone and attainment for the remaining criteria pollutants. The

states recommend area designation and boundaries to the EPA, but the EPA makes the final decision. Besides "nonattainment", other air quality designations include:

- **Attainment** - An area that meets the national primary or secondary ambient air quality standard for the pollutant.

- **Unclassifiable** - An area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

- **Maintenance** - A nonattainment area that attains the NAAQS. An EPA approved SIP revision that provides measures to prevent future exceedances of the NAAQS is required. Maintenance plans in a SIP encompass a twenty-year time frame divided into two consecutive ten-year plans.

The EPA and air quality agencies work with each other to identify the boundaries of the nonattainment areas. The nonattainment area's boundaries may involve multiple counties (and/or partial counties) and cross over state lines. The boundaries for partial counties designated as nonattainment are more complex compared to whole counties. The emissions for some criteria pollutants area (e.g., sulfur dioxide, lead) are localized around the source; therefore, those nonattainment area boundaries are typically small and centered around a processing facility or plant.

NOTE: Using area descriptions and mapping software, AFCEC/CZTQ can assist with determining whether a proposed USAF action is within the boundaries of one or more nonattainment and/or maintenance areas.

1.4 Stationary Source, Emissions Unit, and Project Definitions

Although this topic will be discussed again elsewhere in this document, it is important to clearly distinguish the difference between the terms "Stationary Source" and "emissions unit" as they will be used in this Guide. There has been a considerable amount of confusion in determining what constitutes a Stationary Source or an emissions unit. This confusion exists because various air programs and regulations define the terms differently and will often use the terms interchangeably (a "Stationary Source" can be a single emissions unit or a facility with multiple emissions units). For clarity, the meaning of these terms used in this Guide will be consistent with the definitions found in 40 CFR §52.21 - *Prevention of Significant Deterioration of Air Quality*:

- **Stationary Source** [40 CFR 52.21(b)(5)]**:** Any building, structure, facility, or installation which emits or may emit any air pollutant subject to regulation under the Act.

- **Building, Structure, Facility, or Installation** [40 CFR 52.21(b)(6)(i)]: All of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant emitting activities shall be considered as part of the same industrial grouping if they belong to the same Major Group (i.e., which have the same first two-digit code) as described in the Standard Industrial Classification Manual.

- **Emissions Unit [**40 CPR 52.21(b)(7)]**:** Any part of a Stationary Source that emits or would have the potential-to-emit any regulated NSR pollutant (includes an electric utility steam generating unit).

    - **A new emissions unit** [40 CPR 52.21(b)(7)(i)]**:** Any emissions unit that is (or will be) newly constructed and that has existed for less than two years from the date such emissions unit first operated.

    - **An existing emissions unit** [40 CPR 52.21(b)(7)(ii)]**:** Any emissions unit that is not new. A replacement unit is existing.

- **Project** [40 CPR 52.21(b)(52)]: A physical change in, or change in the method of operation of, an existing major Stationary Source.

To paraphrase the above definitions:

A Stationary Source (can be used interchangeably with "facility" or "installation") is the collection of all units, processes, operations, and/or activities that contribute to air pollution and are contiguous (or adjacent), under common control, and belong to the same industrial grouping. However, an emissions unit is a piece of equipment, process, or activity that emits pollutants into the air. Examples of an emissions unit include a boiler, generator, paint booth, or cooling tower. A project may include one or more emissions units. Each affected emissions unit must be included in the NSR applicability determination for the project.

The following graphic illustrates how the terms are used in a generalized structure of a project to install a paint booth:

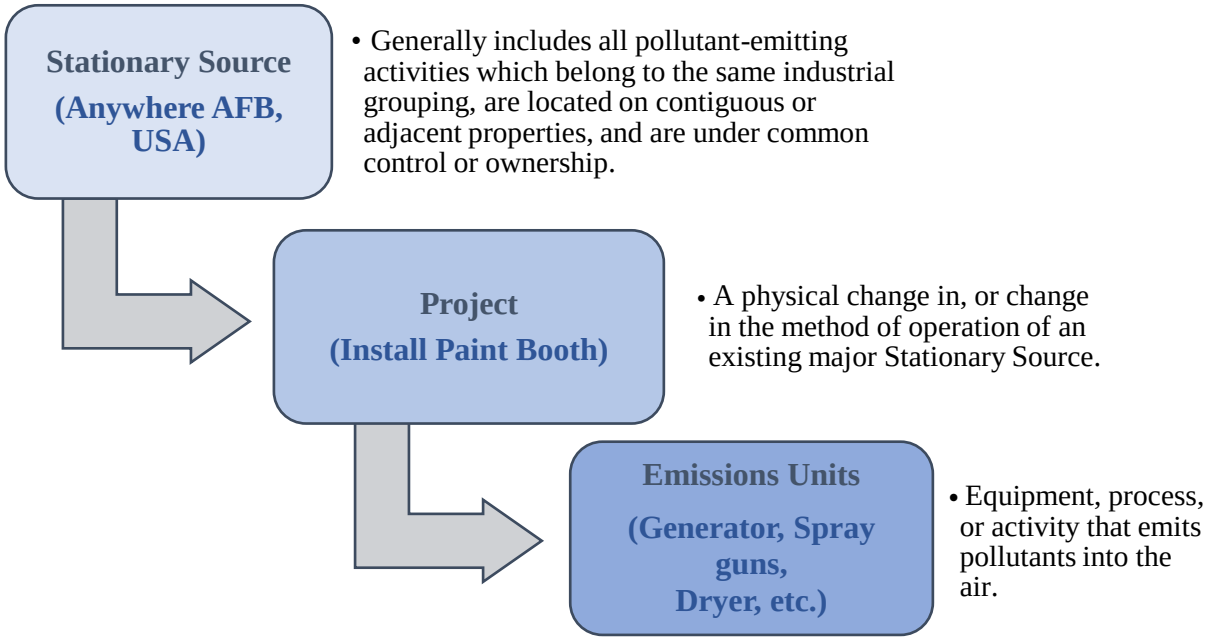

Figure 1-1. General Project Structure

1.5 Stationary Source Determination at Military Installations

The very first step in NSR is to determine exactly what is the Stationary Source involved in the project. For NSR, 40 CFR 51.166(b)(5) and 40 CFR 52.21(b)(5) defines "Stationary Source" as "any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant." 40 CFR 51.166(b)(6) further defines "building, structure, facility, or installation" to mean all the pollutant-emitting activities which:

1) belong to the same industrial grouping (i.e., have the same two-digit code as described in the Standard Industrial Classification Manual),

2) are located on one or more contiguous or adjacent properties, and

3) are under the control of the same person (or persons under common control).

A facility is not necessarily a single Stationary Source unless ALL three of the criteria are met. For NSR, if even one of these three criteria is not satisfied, that emissions unit must be separated out and considered a separate source for regulatory purposes. Military installations

have a wide range of functions and differing control arrangements that can make the Stationary Source determination complicated. For example:

- **Criteria One: Belong to the same industrial grouping (i.e., have the same two-digit code as described in the Standard Industrial Classification Manual).** The Standard Industrial Classification (SIC) Code is based on the source's primary activity or product. Each unique two-digit code represents a major group. The SIC Code Manual has different divisions for activities such as real estate, manufacturing, wholesale trade, etc.
    - Historically, most military installations have been aggregated under SIC Code 97, *National Security and International Affairs*, for major source determinations. The military has unique air emissions units that are not found in civilian facilities, such as military tactical and combat vehicles, mobile utility support equipment, military turbine engine test stands, open burning and detonation sites, military unique coating operations, and ordnance firing and bombing activities. However, this grouping may not be appropriate for the entire military installation because some activities on a military installation have non-military equivalents (e.g., grocery store, gas stations) which could possibly fall under different SIC Codes.

- **Criteria Two: Located on one or more contiguous or adjacent properties.** The concepts of "contiguous" and "adjacent" are distinctly different from each other. Contiguous means to be touching or to be connected throughout in an unbroken sequence. Adjacent means nearby.
    - Quite a few military installations meet the contiguous or adjacent property definitions, but do not have common control. For example, a training range may have a different command than a contiguous or adjacent military base.

- **Criteria Three: Under common control.** EPA has considered other factors, such as support/dependency relationships, contract for service relationships, etc. when making common control determinations.
    - Pollutant-emitting emissions units and sources found on a military installation may be owned by different entities (under different control), such as other DoD services, non-DoD federal agencies, contractors, or leased commercial activities.

1.5.1 EPA Guidance for Military Installation Stationary Source Determination

Given the complexity of applying the three-factor Stationary Source criteria to a military installation, the DoD requested the EPA's opinion. Consequently, EPA issued guidance, in the form of a memorandum, to ensure equitable treatment for the regulation of military Stationary

Sources, "*Major Source Determinations for Military Installations under the Air Toxics, New Source Review, and Title V Operating Permit Programs of the CAA*." (2 August 1996, EPA Office of Air Quality Planning and Standards).

Per the EPA's guidance, the term "military installation" refers to a Stationary Source, or group of Stationary Sources, located on one or more contiguous or adjacent properties that are owned, operated, supervised, or controlled by one or more Department of Defense (DoD) components which include the military services, the defense agencies, and the National Guard.
To briefly summarize the EPA's Guidance:

- **Criteria One: Belong to the same industrial grouping.** Similar to nonmilitary facilities, "industrial groupings" at a military installation can be assigned appropriate SIC codes and classified into "primary" and "support" activities. The support activities would then be aggregated with their associated primary military activity (even if they have different SIC codes). An example of this is a military training school (primary military activity) and cafeteria services for the trainees (support activity). However, personnel-related activities such as those for active-duty service members, their dependents, and retired service members located on military installations (e.g., shopping centers, day care centers, dry cleaners) may be considered not to be support facilities to the primary military activities. Though these emissions units may be located on military installations and used by active-duty service members, they often are not essential to the primary military activity of the installation. These activities could be disaggregated from the primary military activities and considered separate sources. For example, some USAF installations have been successful in "disaggregating" their AAFES gasoline stations as a separate Stationary Source (sometimes resulting in a change to their major source status).

- **Criteria Two: Located on one or more contiguous or adjacent properties.** Generally, all activities on an installation that are under the control of each military service (e.g., Army, Navy, Air Force, Marines, National Guard) or defense agency are considered the same "source" based on being located on the same property or on contiguous or adjacent properties. This is regardless of the actual proximity of the pollutant-emitting activities at the military installation.

- **Criteria Three: Under common control.** When making major source determinations at a military installation, the EPA considers pollutant-emitting activities that are under the control of different military services not to be under common control. In other words, the pollutant-emitting activities under the control of the USAF at a military installation may be considered under separate control of the USAF and the pollutant-

emitting activities under the control of the Army at that same military installation may be considered under the separate control of the Army.

Reminder: ALL three of the criteria are required to be met to be considered a Stationary Source.

1.5.2 Example of Military Installation Stationary Source Disaggregation

Military installations interested in disaggregating or aggregating pollutant-emitting sources for air permitting purposes will need to consult and coordinate with their air pollution control agency or permitting authority. Source determinations for military installations require careful evaluation of the activities, interactions, and circumstances specific to that installation. The pros and cons of disaggregating or aggregating the military installation for permitting purposes should be carefully weighed. The air pollution control agency or the permitting authority could determine that the military installation is a single Stationary Source. The EPA clearly states in this guidance that an agency or permitting authority is not precluded from such a determination. Most air emissions units on an USAF installation can be (and are) grouped under the SIC code for National Security (SIC Code 97). However, the following is an example of how a USAF installation could be disaggregated (all major groupings are located on the same installation and are under control of the USAF base commander):

Table 1-1. USAF Disaggregated Permit Example

AIR PERMITS FOR ANYWHERE AFB, USA		
Permit Number	**Stationary Source**	**SIC Code**
#3001	Major Group – National Security	97
#3002	Major Group – Real Estate	65
#3003	Major Group – Health Services	80
#3004	Major Group – Special Warehousing and Storage	42

NOTE: States are not required to follow EPA guidance documents (such as memorandums). However, some air permitting agencies do not have EPA-approved major source NSR permitting programs and issue NSR permits under a delegation of authority from EPA [40 CFR 52.2l(u)]. Typically, as a condition of such delegation, the air permitting agency agrees to follow EPA permitting guidance. Thus, EPA expects these delegated air agencies to apply the interpretation described in their memorandums.

1.6 New Source Review Summary

New Source Review (NSR) is an air permitting process that requires a proposed new or modified Stationary Source of air emissions to undergo a pre-construction analysis to determine the appropriate air pollution controls.

1.6.1 What is New Source Review?

NOTE: For purposes of this Guide, major source NSR means the Federal permitting programs found in 40 CFR 51.165, 40 CFR 51.166, 40 CFR 51 Appendix S, 40 CFR 52.21, or 40 CFR 52.24, and NOT the State specific NSR permitting programs (except in a very generalized manner). However, many States' duplicate the Federal NSR program and this Guide is designed to provide some assistance in those situations. *If a State does not have a PSD and/or NNSR permitting program as an approved part of its State Implementation Plan (SIP), that State may be delegated the authority to implement and enforce the Federal program(s).*

The basic goals of the NSR permitting programs are to:

- Ensure that economic growth will occur in harmony with the improvement (nonattainment areas) or preservation (attainment areas) of air quality.

- Protect the public health and welfare from any adverse effects that might occur from adding another source of air pollution (or modifying an existing source), even if the air pollution levels in the area are better than the NAAQS.

- Protect air quality in Class I Areas (national parks and wilderness areas).

Prior to commencing construction of any project that triggers NSR, a permit must be obtained from the appropriate air permitting authority. NSR includes three permitting programs:

- **Prevention of Significant Deterioration (PSD)** - PSD applies in attainment areas where the air quality meets the National Ambient Air Quality Standards (NAAQS). PSD review and permitting is intended to allow construction of new or modified sources of air pollution in these areas while protecting existing air quality. The Federal regulations, 40 CFR 51.166, contain the minimum requirements for the PSD program.

- **Nonattainment NSR (NNSR)** - NNSR applies in nonattainment areas where the air quality does not meet the NAAQS for one or more criteria air pollutants. The program is intended to allow construction of new or modified sources of air pollution in nonattainment areas while still making progress toward improving air quality. The

Federal regulations, 40 CFR 51.165, contain the minimum requirements for the NNSR program.

- **State Minor Source NSR/Permit** - If neither of the EPA's Major NSR permitting programs are required, the State's "minor" source permitting program may still be applicable. State and/or local regulations define the permit requirements for small sources. States can customize the requirements for minor source permits, but their program must meet minimum CAA requirements. Minor source permits are frequently used to establish federally enforceable limits on potential-to-emit to avoid NSR permitting (referred to as a "synthetic minor source" which is discussed in greater detail elsewhere in this Guide). These air permitting programs vary widely in their scope, structure, and requirements. ***Due to the wide variability in State and/or local permitting programs, minor source permitting will only be discussed in general terms within this document.***

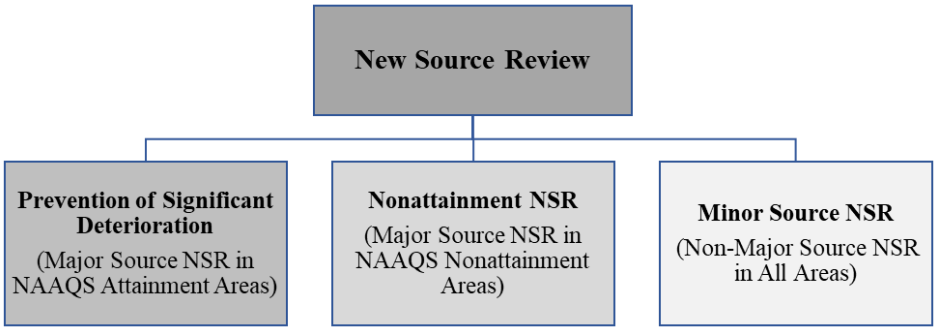

Figure 1-2. Flow Chart for New Source Review

NOTE: A SINGLE PROJECT CAN TRIGGER BOTH PSD AND NNSR REVIEWS! NSR is pollutant-specific which means that a permit application may require both NNSR and PSD reviews.

1.6.2 New Source Review Applicability

Three key criteria are considered to determine which permitting program applies to a proposed new or modified source:

1) Whether the source is or will be located within a nonattainment area for a National Ambient Air Quality Standard (NAAQS).

2) Whether the air emissions will cause the source to be considered a major Stationary Source (i.e., exceeds one or more major source thresholds).

3) Whether significant amounts of specific air pollutants will be emitted (i.e., exceeds significant emission rate thresholds).

NOTE: Many States adopted the EPA's NSR program and obtained approval to act as the permitting authority. As the PSD permitting authority, States have the right to implement the NSR program differently from federal regulations, so long as the program is consistent (or more stringent) with the Federal regulations and has been approved by the EPA.

The primary criterion for PSD or NNSR applicability is whether the proposed project meets the definition of a major Stationary Source or major modification to an existing Stationary Source. Although the PSD and NNSR permit reviews are comparatively different, the steps involved in the process are fundamentally similar. The general steps involved in assessing for PSD and NNSR applicability and permitting requirements (if applicable) are briefly outlined below. Each step will be discussed in much greater detail later in this document.

STEP ONE – **Identify Air Emission Sources**. Identify the Stationary Source and the air emissions unit(s) included in the project.

STEP TWO – **Assess NAAQS Designation**. The second step is to determine the attainment status of the area in which the project will take place.

STEP THREE - Calculate Air Emissions. NSR permitting applicability is based on the project's "Potential-to-Emit" (PTE) or projected increase in air emissions. The procedure for calculating air emissions increases depends on the emissions unit being modified and whether the project involves new units or a modification to a minor or major existing source (or a combination).

- **Construction/Installation of a New Emissions Unit (Does NOT include replacement units) -** The emissions increase at a new unit is equal to the PTE of the unit.

  - **"Potential-to-Emit" (PTE)** – PTE is the maximum capacity of a Stationary Source to emit a pollutant under its physical and operational design. Any 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 if the limitation or the effect it

would have on emissions is enforceable as a practical matter. Secondary emissions do not count in determining the PTE of a Stationary Source.

- **Modification at an Existing Major Source** – Existing sources, even if they are major, are not subject to PSD permitting unless they make a major modification to the source. The emissions increase for a modification of an existing unit is determined by calculating the difference between the projected actual emissions (post change emissions) and the baseline actual emissions (pre-change emissions) for that unit. This comparison is referred to as the "actual-to-projected-actual applicability test." The option to use PTE in place of projected actual emissions is also available (possibly reduces future recordkeeping requirements).

- **Modification at an Existing Minor Source -** The emissions increase from a proposed modification at an existing minor Stationary Source, requires the calculation of the PTE for the modified emissions unit(s). The calculations for projected actual emissions and baseline actual emissions do not apply.

- **Projects that Include a Combination of New and Existing Emissions Units -** If a project involves both the addition of a new emissions unit and a modification to an existing emissions unit, each unit needs to be analyzed separately and the increases added together to determine the total emissions increase from the project. For example, that means for each new unit the emissions increase would be calculated as the PTE of the new unit (unless the new unit is a replacement unit). For each existing emissions unit involved in the project, calculate the air emissions increase using the actual-to-projected-actual applicability test.

- **Replacing Existing Emissions Units with -** Replacement of existing units with equivalent units. When replacing an existing unit with an equivalent unit, the increase is calculated in the same manner as for modification of an existing unit, provided the replaced unit is removed from the premises or rendered permanently inoperable. If this is the case, then the emissions increase is the difference between the projected actual emissions of the replacement unit and the baseline actual emissions of the replaced unit. There is also the option of using potential emissions in place of projected actual emissions.

STEP FOUR – Major Source Determination. Compare air emissions of all applicable pollutants to the PSD or NNSR thresholds of "regulated NSR pollutants" (the thresholds are discussed in greater detail within this Guide). A source is considered a major

Stationary Source if its PTE is greater than the established major source thresholds for any regulated NSR pollutant.

- **PSD Permitting Program** – Regulated PSD pollutants are criteria pollutants in areas that are attainment with the NAAQS for that pollutant. The PSD permitting program is also applicable for certain pollutants that are NOT criteria pollutants (pollutants regulated by the EPA, but do not have a NAAQS).

- **NNSR Permitting Program** – Regulated NNSR pollutants are criteria pollutants in areas which are nonattainment with the NAAQS for that pollutant.

NOTE: If the project at an existing minor source increases the source's PTE to above major source levels, but the air emission increase attributable to the project will not exceed the major source threshold on its own, a PSD or NNSR permit is not required. However, the source will be considered a major Stationary Source in future permitting actions (e.g., may require a Title V, *Federal Operating Permit*).

Step Five – Schedule Preliminary Meeting with Air Permitting Authority. If it appears the project is a major source of air emissions, schedule a preliminary (i.e., pre-application) meeting with the air permitting authority.

Step Six – **Air Pollution Control Technology Selection**. Select appropriate air pollution control technologies. The selection should be causally (directly) related to the process/unit and the air emissions of the pollutant being regulated.

Step Seven – **Complete Air Permit Application**. The contents of the air permit application typically include the application form and a detailed Technical Support Document. Most air permitting authorities will provide a checklist to ensure the application is complete.

Step Eight – Submit Air Permit Application. The air permit application form and the Technical Support Document are provided to the air permitting authority.

Step Nine – Comply with Air Permit. Review permit provisions carefully and ensure that personnel responsible for compliance are aware of the requirements.

1.6.3 Selection of Air Pollution Control Technology

If major source NSR is applicable to the project, the selection of appropriate air pollution control will be required to reduce air emissions. Typically, air pollution control refers to "end-of-stack" techniques for capturing air pollutants that are formed during an upstream process

(usually involving the combustion of a fossil-fuel such as diesel or coal). However, the air emission reductions can be achieved not only through installation of state-of-the-art air pollution control equipment (e.g., filters), but also through adjusting work processes and implementing work practice standards. Although the stringency of the air pollution controls differs between PSD and NNSR, the general steps in the selection process are essentially the same:

- **Step 1** - Identify control technologies appropriate for the specific unit and pollutant.
- **Step 2** - Eliminate technically infeasible options.
- **Step 3** - Rank remaining technically feasible options.
- **Step 4** - Evaluate remaining control technologies.
- **Step 5** - Make final selection.

The level of air pollution control required depends on whether PSD or NNSR is applicable (permit requirements are specific for each pollutant and for each unit):

- **Best Available Control Technology (BACT) for PSD** - The Federal NSR program requires that BACT be used in major new sources and major modifications for attainment air pollutants. BACT is a "top-down" analysis used to determine the best air pollution control technology or technique available. "Top-down" means that the control technology or technique with the highest degree of air pollutant reduction is considered first. The BACT analysis contains both technical (e.g., control can be physically installed) and economical (dollars per ton of air pollutant removed) considerations. Feasible options are ranked from most to least effective for reducing emissions. If the most effective control does not meet the criteria, it is eliminated and the next effective control technology on the list is evaluated. The BACT analysis continues until the most effective control option is not eliminated. The BACT selected must at least meet the emission limitations of the new source performance standards.

- **Lowest Achievable Emission Rates (LAER) for NNSR** - The Federal NSR program requires that LAER be used in major new sources and major modifications for nonattainment air pollutants. LAER is an analysis that leads to the selection of the most stringent air pollution controls to reduce nonattainment air pollutants. Unlike BACT, a LAER analysis does not consider costs.

BACT/LAER Resources: Selecting suitable BACT and/or LAER takes considerable effort. Research should include, at the very least, EPA's BACT/ LAER Clearinghouse (www.epa.gov/ttn/catc). Vendors for air pollution control technology and design engineers frequently have detailed information available that can assist with the selection of the

appropriate technology and can also be included with the permit application to assist the permitting authority with their review. Technical journals and reports are also common sources of information for selecting appropriate air pollution controls. *Proposed BACT/LAER is presented with the air permit application; however, the ultimate decision is made on a case-by-case basis by the air permitting authority*.

1.6.4 Major New Source Review Permit Alternatives

There are options available for Stationary Sources to limit air emissions so that the NSR major source permit process will not apply. There are many reasons why a Stationary Source may want to prevent triggering a major source NSR permit. The reasons include, but are not limited to, avoiding expensive add on air pollution control equipment and permitting burden/fees associated with a major NSR air permit.

1.6.4.1 Synthetic Minor Air Permit

Many Stationary Sources elect to accept permit limits to avoid becoming subject to NSR. The limits (e.g., work practices, design standards, throughput, operating time) proposed to the permitting authority restricts the amount of an air contaminant emitted over time (e.g., pounds per hour/day, tons per year). There will be monitoring, recordkeeping, and reporting required to demonstrate compliance with the limit or restriction. Note there is more than one type of synthetic minor source/permit (e.g., construction permit, operating permit, project-specific, emissions unit specific):

- Projects that have an enforceable limit to keep the potential-to-emit below the NSR applicability thresholds or significant thresholds are referred to as "synthetic minor." A minor NSR permit (e.g., Permit to Construct or Install) is used to establish the enforceable limits to reduce the potential-to-emit for a project or a specific emissions unit(s).

- A synthetic minor source is a Stationary Source which voluntarily agreed to an enforceable limit in a permit so that the potential-to-emit for the entire source remains below major source thresholds. This is usually done to "opt out" of Title V air permitting requirements.

1.6.4.2 Plantwide Applicability Limit Permit

Stationary Sources willing to operate within strict source-wide air emission caps can consider a Plantwide Applicability Limit (PAL) permit. The PAL permit allows the Stationary Source to add or modify emissions units without undergoing traditional NSR requirements as long as the PAL is not exceeded. PALs are pollutant specific, but multiple PALs can be incorporated into

one permit, which is valid for ten years. However, extensive monitoring, recordkeeping, and reporting is required to ensure that the PAL is not exceeded. Also, State permits may still be required in some circumstances.

1.6.5 Air Permitting Process

After it is determined that major source NSR permitting is required, the owner or operator of the source must submit a permit application addressing the regulatory requirements that will apply to the source (consider all applicable Federal, state, and local requirements).

Federal regulations describe the air permit application requirements for new major Stationary Sources. *It is strongly recommended to schedule a project planning meeting and/or a pre-application meeting with the air permitting agency early in the process to facilitate a smooth permit application and approval (many air permitting authorities require one or more meetings during the permitting process).* Generally, an air permit application will require at least the following information:

- ✓ Facility information (clearly identify the responsible official and representatives).
- ✓ Detailed description of facility, processes, and emission points (include flow-charts, maps, and diagrams).
- ✓ Applicability determination.
- ✓ Estimated quantities of each air pollutant (include calculations and citations).
- ✓ Description of proposed BACT/LAER and credible justification for selection.
- ✓ Discussion of other impacts (e.g., soils, vegetation, visibility).
- ✓ Monitoring, recordkeeping, and reporting needed to verify compliance.
- ✓ Permit Application Fee.

The air permitting agency will review the application package for completeness and accuracy:

- If the application is deemed incomplete, it will likely be returned to the applicant for additional information.
- If the application receives preliminary approval, the air permitting authority will then draft an air permit for the applicant's review and comments.

Public Review: After the applicant's comments are addressed, a draft permit will be published for a 30-day public comment period. After addressing any public comments (and holding a public hearing if requested), the air permitting authority will make a final decision on the application.

1.6.6 Compliance with New Source Review Permit

Carefully review the provisions of the permit and ensure all responsible personnel are aware of the requirements. The issued permit includes the Permit itself, the Technical Support Document, and the Comment/Response Document.

1.6.7 Permitting after Project's Completion (Operating Permit)

Federal regulations require major source of air pollutant emissions to obtain an "operating permit" that consolidates all regulatory requirements into a comprehensive document (i.e., Title V, *Federal Operating Permits*). Large facilities may accumulate numerous construction and/or installation related air permits during a short period of time. Generally, after the project(s) are completed, these permits are incorporated by either reference or consolidation into the Stationary Source's Title V permit when the permit is amended or renewed.

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2 PREVENTION OF SIGNIFICANT DETERIORATION

Regulatory Reference: 40 CFR §52.21 - *Prevention of significant deterioration of air quality*.

A permit usually is required before building or installing a new emissions unit or modifying an existing emissions unit. The permit must be obtained before construction begins (or the equipment is modified) and can only be obtained after the air permitting authority has determined that the permit applicant will be complying with all applicable air quality regulations. Prevention of Significant Deterioration (PSD) is an air permitting program that applies to "Major" Stationary Sources located in areas formally designated by the EPA as "attainment" or "unclassifiable" for any pollutant for which a NAAQS exists. Unless the new or modified Stationary Source is exempt or excluded, it is "Major" if the emissions increase for any regulated PSD pollutant is greater than the PSD threshold for that regulated pollutant. A PSD air permit is required prior to:

1) The construction of new major Stationary Sources.

2) Any project at an existing major source if the modification is major.

3) Any project at an existing minor source if the modification itself would constitute a major source.

NOTE: Some limited construction activities prior to permit issuance may be allowed. However, these activities are usually taken at risk and do not guarantee permit issuance.

The following key definitions relate to PSD construction activities (40 CFR §52.21):

- **Construction:** "Any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) that would result in a change in emissions"

- **Begin Actual Construction:** "Initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying underground pipework and construction of permanent storage structures. With respect to a change in method of operations, this term refers to those on-site activities other than preparatory activities which mark the initiation of the change."

2.1 Purpose of Prevention of Significant Deterioration

The objective of the PSD program is to prevent air emissions in an attainment area from worsening due to a proposed new major source or major modification at an existing source by limiting allowable degradation of air quality to below levels that would be considered "significant." The goals of the PSD regulations are:

- To ensure that economic growth will occur in harmony with the preservation of existing clean air resources.
- To protect the public health and welfare from any adverse effect which might occur even at air pollution levels better than the national ambient air quality standards (NAAQS).
- To preserve, protect, and enhance the air quality in areas of special natural recreational, scenic, or historic value, such as national parks and wilderness areas.

2.2 PSD Applicability

Reminder: Because NSR (which includes both PSD and NNSR) is pollutant-specific, it is important to note that a permit application may require both PSD and NNSR in an area that is nonattainment for any NAAQS. A source may be required to get one (or more) of three permit types under the NSR program: a PSD permit, an NNSR permit, and/or a minor source permit.

PSD is a preconstruction review and permitting program. An essential step in ascertaining applicability is determining whether the source and/or proposed project is "Major" or "Minor." PSD permitting process is usually more complex and time-consuming than Minor Source permitting. To perform a PSD applicability determination, several pieces of information must be collected and considered. This can be a complex and sometimes confusing procedure. The following is a step-by-step approach to help simplify the process.

2.2.1 STEP ONE – Identify Air Emission Sources and Emissions Units

- **Stationary Source** - Before applicability can be determined, the Stationary Source must be defined. A discussion of what constitutes a Stationary Source for the military is discussed in more detail in Chapter One of this Guide. A Stationary Source generally includes all pollutant-emitting activities which belong to the same industrial classification, are located on contiguous or adjacent properties, and are under common control. In some cases, the entire USAF installation is the Stationary Source and sometimes the USAF installation is disaggregated into multiple Stationary Sources.

- **Emissions Unit/Project** – One of the first steps required for determining whether PSD permitting will apply is to identify all equipment and activities that is included in the project. From this list, ascertain the equipment that can potentially emit air pollution. The project could simply be the installation or construction of a single piece of air pollutant-emitting equipment, such as a generator, or an activity that contains numerous air pollutant-emitting equipment and activities. Identifying the emissions unit(s) involved in the project also requires identifying which air pollutants are emitted and in what quantities. Consult with the proponent or contractor, the equipment manufacturer, and the raw material supplier to determine if (and what) air pollutants can potentially be released. Review the Material Safety Data Sheet (MSDS) and other technical data associated with any of the equipment and/or activities involved in the project. setting of a project schedule. Some examples of the more common air pollutant-emitting emissions units (i.e., emissions unit) found on a USAF installation include:

  - Boilers and steam generators.
  - Generators.
  - The process of mixing, blending, or processing solvents, adhesives, or coatings (e.g., surface coating facilities or paint booths).
  - Operations creating dust or smoke or involving incineration.

REVIEW THE PERMIT EXEMPTION/EXCLUSIONS: At this point, conduct a preliminary review of exemptions to determine if the emissions unit(s) or activity is exempt or excluded from permitting. A permit is not usually required for repair and maintenance or identical replacement. Conducting the exemption/exclusion review during various points in the applicability/permitting process will save time and effort.

2.2.2 STEP TWO – Assess Area's National Ambient Air Quality Standards Status

The second step is, for each National Ambient Air Quality Standard (NAAQS), determine the attainment status of the area in which the project will take place. This status is important because the type of analysis and permitting required depends on the air quality for the area where the proposed project will take place. PSD will only apply to the attainment pollutants. The proposed project could be located in an attainment area for all NAAQS in which case, if a major Stationary Source, only PSD would apply. NAAQS are discussed in greater detail in the Introduction chapter of this Guide.

2.2.3 STEP THREE - Calculate Air Emissions and Compare to Thresholds

NSR permitting applicability is based on the project's PTE or projected increase in air emissions. The procedure for calculating air emission increases depends on whether the project involves a new source or a modification to an existing minor or major existing source (or a combination). There is the very real possibility that it is already known if the USAF installation is a Major Source or not.

Accurately assessing the air emissions connected to the source and/or the project is essential to determining PSD applicability (whether the project is a new major source or a major modification at an existing source). The following will trigger PSD applicability:

- A new major source for a regulated PSD pollutant.
- Modifications at an existing major source, if the net emissions increase equals or exceeds the pollutant-specific significant emission rates (SER).
- Modifications at an existing minor source, if the project increase meets either the named or the unnamed major source threshold by itself.

2.2.3.1 New and Existing Source Definitions

The distinction between new and existing sources is important for PSD applicability, particularly when determining baseline emissions. For purposes of PSD:

- **New Source** - Proposed, under construction, or has not been operational for 24 months since the date of initial operation.
- **Existing Source** - Has been operating for more than 24 consecutive months since the date of initial operation.

Regulatory Reference: 40 CFR §52.21(b)(7)(i) and (ii)

2.2.3.2 PSD Major Source

NOTE: The major source definition for the Federal Operating Permit Program (i.e., Title V) is different from that in the NSR regulations.

The PSD regulations define a "major Stationary Source" as one that has the potential-to-emit (PTE) any regulated air pollutant equal to or higher than 100 or 250 tpy, depending on the type of source. The following table, *PSD "Named Sources*", lists the sources that are subject to the 100 tpy major source threshold. All other new sources are subject to the 250 tpy major source threshold.

Table 2-1. PSD "Named Sources"

PREVENTION OF SIGNIFICANT DETERIORATION FOR MAJOR SOURCE APPLICABILITY Sources Subject to the 100 tons-per-year Threshold	
1. Coal cleaning plants (with thermal	15. Coke oven batteries
2. Kraft pulp mills	16. Sulfur recovery plants
3. Portland cement plants	17. Carbon black plants (furnace process)
4. Primary zinc smelters	18. Primary lead smelters
5. Iron and steel mills	19. Fuel conversion plants
6. Primary aluminum ore reduction plants	20. Sintering plants
7. Primary copper smelters	21. Secondary metal production plants
8. Municipal incinerators capable of discharging more than 250 tons of refuse per day	22. Chemical process plants
9. Hydrofluoric acid plants	23. Petroleum storage and transfer units with a total storage capacity exceeding 300,000
10. Sulfuric acid plants	24. Taconite ore processing plants
11. Nitric acid plants	25. Glass fiber processing plants
12. Petroleum refineries	26. Charcoal production plants
13. Lime plants	27. Fossil fuel-fired steam electric plants of more than 250 million British thermal units (BTU) per hour heat input
14. Phosphate rock processing plants	28. Fossil-fuel boilers (or combination thereof) totaling more than 250 million BTU per hour heat input

2.2.3.3 PSD Regulated Pollutants and Significant Emission Rates

The regulated pollutants for PSD are the pollutants for which there is a NAAQS (criteria pollutants), Greenhouse Gases (GHGs) in some cases, and other pollutants regulated under the CAA, except for Hazardous Air Pollutants (HAPs). Regulated air pollutants are listed below, with the Significant Emission Rate (SER) for each pollutant.

Table 2-2. PSD Regulated Pollutants

PSD REGULATED POLLUTANTS Major Source Modification Significant Emission Rates (SER) 40 CFR § 51.166(b)(23)	
Criteria Pollutant	**SER (tpy)**
Ozone (as Volatile Organic Compounds)	40
Ozone (as Nitrogen Oxides)	40
Carbon Monoxide (CO)	100
Nitrogen Oxides (NOx)	40
Sulfur Dioxide (SO_2)	40
Particulate Matter (PM)	25
PM_{10} (includes condensable emissions)	15
$PM_{2.5}$ (includes condensable emissions)	10
Lead (Pb)	0.6
Non-Criteria Pollutant	**SER (tpy)**
Fluorides	3
Sulfuric acid mist	7
Hydrogen sulfide (H_2S)	10
Total reduced sulfur (including H_2S)	10
Reduced sulfur compounds (including H_2S)	10
Source Specific	**SER (tpy)**
Municipal waste combustor organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)	3.2×10-–6 megagrams per year ($3.5 \times 10{-}6$ tons per year)
Municipal waste combustor metals (measured as particulate matter)	14 megagrams per year (15 tons per year)
Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride)	36 megagrams per year (40 tons per year)
Municipal solid waste landfill emissions (measured as nonmethane organic compounds)	45 megagrams per year (50 tons per year)

NOTE: GHGs are "Subject to Regulation" only if air permitting is required due to another pollutant ("anyway" sources) and if the new source/modification increases GHGs by 75,000 tons-per-year (tpy) of Carbon Dioxide Equivalents (CO_2e).

2.2.3.4 PSD Applicability for New Major Stationary Sources

- **Construction of a New Stationary Source (also known as Greenfield):** The emissions increase at a new source (e.g., USAF installation) is equal to the PTE. The baseline actual emission rate, for purposes of determining the emissions increase that will result from the initial construction and operation of the facility, shall equal zero. If an existing source has less than two years of operating history (from the date of initial operation of the facility), the baseline actual emission rate may be taken as the allowable emission rate, or the PTE, of the facility.

The following flowchart demonstrates how to determine whether PSD permitting requirements apply to a new Stationary Source:

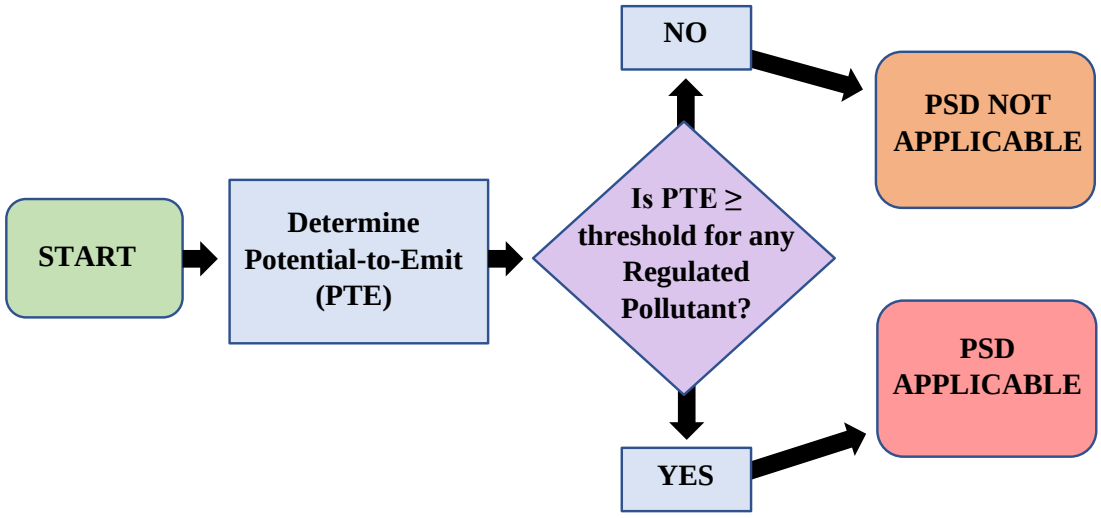

Figure 2-1. Flow Chart for New Source PSD

Regulatory Reference: 40 CFR 51.165(a)(1)(iv), 40 CFR 51.166(b)(1)(i), and 40 CFR 52.21(b)(1)(i).

2.2.3.5 PSD Applicability for Existing Major Stationary Sources

EPA defines a major modification in 40 CPR 52.2l(b)(2) (i)-(ii) as:

> (i)... any physical change in or change in the method of operation of a major Stationary Source that would result in: a significant emissions increase (as defined in paragraph (b)(40) of this section) of a regulated NSR pollutant (as defined in paragraph (b)(50) of this section); and a significant net emission increase of that pollutant from the major Stationary Source.

(ii) Any significant emissions increase (as defined at paragraph (b)(40) of this section) from any emissions units or net emissions increase (as defined in paragraph (b)(3) of this section) at a major Stationary Source that is significant for volatile organic compounds or NO, shall be considered significant for ozone.

In other words, an existing major Stationary Source triggers PSD permitting when it undergoes a "major modification," which occurs when a source undertakes a physical change or change in method of operation (i.e., a "project") that would result in:

1) **Step One:** A significant net emissions increase from the project by itself (i.e., a project-wide analysis that considers both creditable emission increases and decreases, also known as Project Emissions Accounting, which is discussed in greater detail elsewhere in this Guide), **and (optionally)**

2) **Step Two:** A significant net emissions increase from the source (i.e., a source-wide "netting" analysis that considers creditable emission increases and decreases occurring at the source as a result of another project).

"STEP TWO" IS OPTIONAL

It is important to point out that Step Two is an optional, additional step to avoid further PSD review if a project is a major modification based on potential-to-emit or projected actual emission calculations. Many times, the option to proceed with PSD air permitting is taken instead of continuing with the complexity of Step Two.

The following flowchart demonstrates how to determine whether PSD permitting requirements apply to an existing Stationary Source (if implementing Step Two of the process):

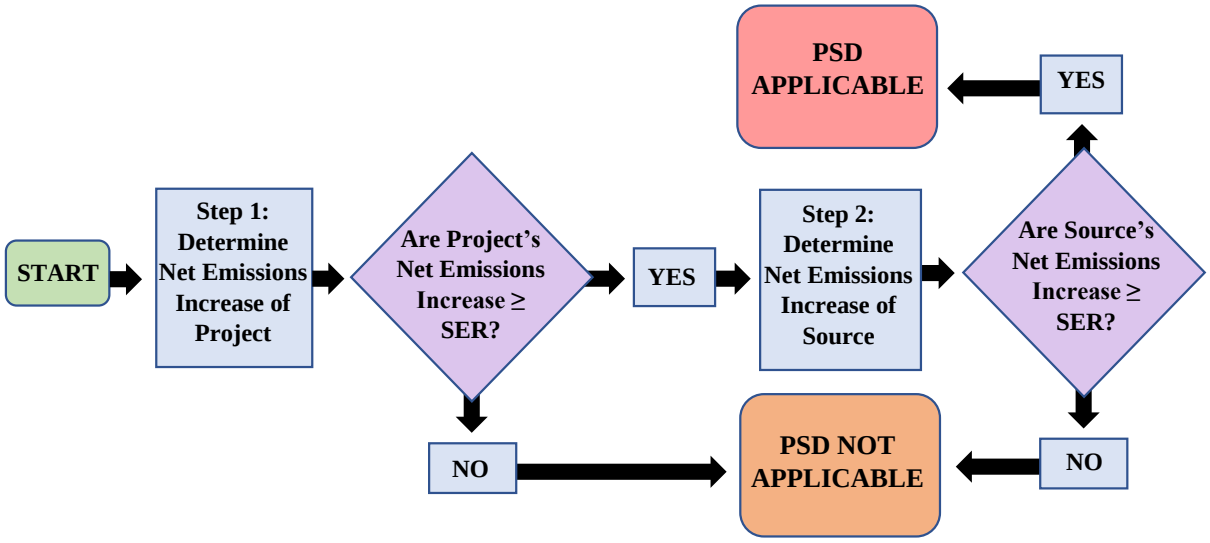

Figure 2-2. Flow Chart for Existing Source PSD

Regulatory Reference; 40 CFR 52.21(b)(2)(i) and 40 CFR 52.21(b).

2.2.3.6 Project Emissions Accounting ("Project Netting")

NOTE: The EPA made recent changes to Project Emissions Accounting (previously known as "project netting") for determining if major modifications will trigger NSR permitting. This change is highly controversial and is prone to litigation, reversal, and/or revision.

On 22 October 2020, EPA signed the rule, *Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR): Project Emissions Accounting* (85 FR 7489085; 24 November 2020), to clarify the process for evaluating whether the NSR permitting program would apply to proposed modifications at existing air pollution sources. The objective of the rule was to codify EPA's interpretation of the two-step process for Project Emissions Accounting to determine if a "major modification" is subject to NSR. EPA revised Step 1 of the NSR analysis process to allow consideration of the "sum of the difference" in emissions stemming from the project instead of the "sum of the emissions increases." In effect, this meant that "emissions increases and decreases can be considered in Step One of the NSR major modification applicability test." Previously, only increases could be considered in Step One.

- **Previous NSR Two-Step Analysis Process** - The original two-step process to determine whether a modification (i.e., project) at an existing major Stationary Source will constitute a major modification subject to the major NSR permitting requirements:
    - **Step One** - Requires a determination of whether the proposed project, by itself, is expected to result in a significant emissions increase. Only the air emission increases from the project could be considered during this Step. Any air emission decreases resulting from the project could not be considered.

        Example: The installation wants to replace four old boilers with more efficient boilers and finds the increase in emissions causes the installation to emit more air pollution than the applicable NSR threshold; therefore, Step Two may be warranted (remember, Step Two is optional) or major NSR permitting is required. At this stage, the air emission decreases resulting from the removal of the old boilers were excluded from the analysis.

    - **Step Two (optional) -** Requires an evaluation of whether the project will result in a significant net emissions increase, considering any other increases and decreases in actual emissions at the Stationary Source that are contemporaneous with the proposed project. If the net result is a decrease in air emissions, major modification NSR permitting is avoided. If the net result is an increase in air emissions, major modification NSR permitting is required. For many Stationary Sources, this is an overwhelming undertaking; therefore, the Step Two option is seldom selected.

Example: Continuing with the boiler example from above, if the air emission increases and decreases resulting from the boiler replacement project (along with all the other air emission increases and decreases occurring at the Stationary Source during the same contemporaneous period) are considered, the net result could be a decrease in air emissions. At this stage, the air emission decreases from the removal of the old boilers can be counted, but all of the other air emission increases and decreases at the Stationary Source would also need to be included in the analysis.

- **Current (New) NSR Two-Step Analysis Process** - The new two-step process to determine whether a modification (i.e., project) at an existing major Stationary Source will constitute a major modification subject to the major NSR permitting requirements:
  - **Step One** - Requires a determination of whether the net air emissions resulting from the proposed project is expected to result in a significant emissions increase. Both air emission increases and decreases are considered in the analysis. The EPA refers to the consideration of emissions increases and decreases in Step One as Project Emissions Accounting (as opposed to "project netting").

    Example: The installation wants to replace four old boilers with more efficient boilers and finds the net increase in emissions causes the installation to emit less air pollution than the applicable NSR threshold; therefore, major NSR permitting is NOT required. At this stage, both the air emission increases and decreases resulting from the replacement of the old boilers was considered in the analysis.
  - **Step Two (optional)** – No changes from the previous Step Two method.

2.2.3.7 Netting ("Stationary Source Netting")

Netting is an optional applicability step (i.e., Step Two) that is used to determine if a project is a major modification of an existing major source. If a project is a major modification of an existing major source, then PSD (and/or NNSR) is applicable to the pollutant(s) under review.

Netting is summing the emission increases from the proposed project with all creditable emission changes (both increases and decreases) within the contemporaneous period (also called netting window) that occurred at the Stationary Source (e.g., USAF installation).

The procedure for performing a netting analysis is as follows:

1. Identify the contemporaneous period. To be included in a netting analysis, the increases and decreases (i.e., change) must have occurred within five years of the beginning of

construction on the proposed project or after the beginning of construction and before the initial operation of the proposed project (contemporaneous period).

2. List each physical change or change in the method of operation that occurred (or will occur) during the contemporaneous period with a corresponding increase or decrease in actual emissions. Make sure the date of each change is verified and noted.

3. Review each change to identify only those changes that are creditable. To be creditable, a contemporaneous emissions decrease must be federally enforceable on and after the date that construction begins on the proposed project. The emissions decrease must take place prior to the emissions increase with which it is being netted. The PTE for each creditable, contemporaneous change is used. The PTE can be determined by applicable requirements, permit limits, or by operation at the maximum design capacity.

   Clean Units - Emission increases and decreases that occur at a Clean Unit are not creditable unless the reduction occurs prior to, or after expiration of, the effective date of the Clean Unit designation. There is an exception, however. Reductions at Clean Units, or from implementation of a Pollution Control Project (PCP), may be creditable to the extent that the reductions exceed the level of reduction on which the Clean Unit designation, or PCP exclusion, was granted and the reductions are surplus, quantifiable, permanent, and enforceable.

4. List each creditable, contemporaneous change.

5. Calculate the Baseline Actual Emissions (BAE) for each creditable, contemporaneous change.

6. Identify the post-change potential emissions for each emissions unit affected by each creditable, contemporaneous change.

7. Calculate the emissions increase or decrease for each emissions unit. The degree of a creditable change is determined based on the difference between the post-change potential emissions and the pre-change BAE.

8. A netting analysis CANNOT be based on the decreases alone. ALL creditable contemporaneous emission increases and decreases for the specific pollutant must be used when conducting a netting analysis,

9. Sum all emission increases and decreases with the significant emissions increase from the proposed project.

2.2.3.8 Other Considerations for PSD

"Major for One, Major for All" Applicability for a New Source or Modified Source: Once a source is major for one pollutant, the other regulated pollutants must also be considered in the PSD determination regardless of whether that pollutant exceeds the major source threshold. This is sometimes known as "Major for One, Major for All."

"Grandfathered" New or Modified Sources: There are new or modified sources to which PSD does not apply. These sources may have been constructed before the PSD program was in effect and have not been modified since. Due to the age of these sources, very few exist.

2.2.3.9 Resources for Air Emission Calculations

There are many resources available for emissions calculations. USAF AFCEC/CZTQ provides guidance for calculating emissions for most air emission sources commonly found on USAF installations. These guidance documents can be found in the Documents Repository page at AQhelp.com:

- **USAF Potential-to-emit (PTE) Guide** - The PTE Guide provides standardized guidance and methodologies for establishing base-level PTE estimates for major source determinations. The guide evaluates USAF sources for physical and/or operational limitations to establish USAF-specific PTEs for individual source categories based on the Environmental Protection Agency's historic guidance and methodologies.

- **Air Emissions Guide for USAF Stationary Sources** - The Air Emissions Guide to USAF Stationary Sources (Stationary Source Guide) provides guidance for estimating emissions for Stationary Sources of pollutant emissions commonly found at USAF installations. This guide provides updated emission factors and recommended calculation methodologies for these common sources associated with processes frequently occurring at USAF installations. The pollutants of concern addressed within this guide include criteria pollutants, Hazardous Air Pollutants (HAPs), Volatile Organic Compounds (VOCs), and greenhouse gases (GHGs).

- **Air Emissions Guide for USAF Mobile Sources** - The Air Emissions Guide to USAF Mobile Sources (Mobile Source Guide) provides guidance for estimating emissions for mobile sources of pollutant emissions commonly found at USAF installations. This guide provides updated emission factors and recommended calculation methodologies for processes and sources such as flight operations, Aerospace Ground Equipment (AGE) use, and both non-road vehicles/equipment and on-road vehicle operation. The pollutants of concern addressed within this guide include criteria pollutants, Hazardous Air Pollutants (HAPs), Volatile Organic Compounds (VOCs), and greenhouse gases (GHGs).

- **Air Emissions Guide for USAF Transitory Sources** - The Air Emissions Guide to USAF Transitory Sources (Transitory Source Guide) provides guidance for estimating emissions for transitory sources of pollutant emissions found at USAF installations. Transitory sources of emissions are those that are non-routine and/or seasonal sources (which may be stationary, mobile, or neither) that are short-term in nature. The sources included in this guide include bulk storage tank cleaning, seasonal equipment, fuel spills, hot mix asphalt plants, prescribed burns, wildfires, construction, site restoration/remediation, and land use changes. Transitory sources have historically been erroneously included in stationary or mobile source air emission inventories, though these sources should only be accounted for in evaluating potential air quality impacts of proposed actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); National Environmental Policy Act (NEPA); General Conformity; etc. The pollutants addressed within this guide include criteria pollutants, Hazardous Air Pollutants (HAPs), Volatile Organic Compounds (VOCs), and greenhouse gases (GHGs).

Many State and local agencies have air emission calculation tools and manufacturers may also be able to provide emissions data. Just be certain that the methodologies are consistent with USAF policies and procedures. Depending on the complexity of air permitting requirements, it may be necessary to engage the assistance of the USAF's AFCEC Air Quality Subject Matter Expert

2.2.3.10 Air Emission Calculations

The procedure for calculating air emissions increases depends on the emissions unit being modified and whether the project involves new units or a modification to a minor or major existing source (or a combination).

- **Construction/Installation of a New Emissions Unit or Source (Does NOT include replacement units)** - The emissions increase at a new emissions unit is equal to the PTE of the unit.

    - **Actual to Potential Applicability Test** - For modifications that involve only the installation of new emissions units, the emissions increase is determined as the difference between the proposed potential emissions (after the modification) and the average annual actual emissions (before the modification). This must include all emissions units affected by a proposed modification

- "**Potential-to-Emit" (PTE)** – PTE is the maximum capacity of a Stationary Source to emit a pollutant under its physical and operational design. Any 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 if the limitation or the effect it would have on emissions is enforceable as a practical matter. Secondary emissions do not count in determining the PTE of a Stationary Source.

- **Modification at an Existing Major Source** – Existing sources, even if they are major, are not subject to PSD permitting unless they make a major modification to the source. The emissions increase for a modification of an existing unit is determined by calculating the difference between the projected actual emissions (post change emissions) and the baseline actual emissions (pre-change emissions) for that unit. This comparison is referred to as the "actual-to-projected-actual applicability test." The option to use PTE in place of projected actual emissions is also available (possibly reduces future recordkeeping requirements).

- **Modification at an Existing Minor Source -** The emissions increase from a proposed modification at an existing minor Stationary Source, requires the calculation of the PTE for the modified emissions unit(s). The calculations for projected actual emissions and baseline actual emissions do not apply.

- **Projects that Include a Combination of New and Existing Emissions Units -** If a project involves both the addition of a new emissions unit and a modification to an existing emissions unit, each unit needs to be analyzed separately and the increases added together to determine the total emissions increase from the project. For example, that means for each new unit the emissions increase would be calculated as the PTE of the new unit (unless the new unit is a replacement unit). For each existing emissions unit involved in the project, calculate the air emissions increase using the actual-to-projected-actual applicability test.

    - **Replacing Existing Emissions Units with -** Replacement of existing units with equivalent units. When replacing an existing unit with an equivalent unit, the increase is calculated in the same manner as for modification of an existing unit, provided the replaced unit is removed from the premises or rendered permanently inoperable. If this is the case, then the emissions increase is the difference between the projected actual emissions of the replacement unit and the baseline actual emissions of the replaced unit. There is also the option of using potential emissions in place of projected actual emissions.

2.2.3.11 Emission Increase/Decrease Calculation Methodologies

There are four different methods that may be used to determine the extent of an emissions increase from a proposed modification. The procedure for calculating emissions increases depends on the emissions unit being modified and whether or not the existing source is major:

1) **Actual to Potential Applicability Test** - For modifications that involve only the installation of new emissions units, the emissions increase is determined as the difference between the proposed potential emissions (after the modification) and the average annual actual emissions (before the modification). This must include all emissions units affected by a proposed modification.

2) **Actual to Projected Actual Applicability Test** - For modifications that involve only existing emissions units, the emissions increase is determined as the difference between the projected future actual emissions (after the modification) and the average annual actual emissions (before the modification). This method must include all emissions units affected by a proposed modification. For modified existing emissions units, the Actual to Potential Applicability Test may be used as an alternative. The full definition of "projected actual emissions" can be found at 40 CFR 52.21(b)(41).

3) **Hybrid Test** - The PSD regulations at 40 CFR 52.21(a)(2)(iv)(f) require use of a hybrid test for projects which involve both the addition of new emissions units and the modification of existing emissions units. The Hybrid Test involves using the appropriate applicability test as described above for each type of emissions unit and then adding together the emissions increases.

4) **Clean Unit Test** - For modifications that involve only Clean Units. For a proposed modification to a Clean Unit that will not cause it to lose its Clean Unit status, the emissions change is zero. The Clean Unit provision reduces NSR review requirements for changes to units that use the latest technology.

2.2.3.12 PSD Exemptions and Exclusions

A physical change or a change in the method of operation is not explicitly defined in the PSD regulations. Instead, the regulations specifically exclude certain changes (physical and operational) from being considered modifications. Therefore, except for the following specified exclusions, any physical change in, or change in the method of operation is considered a modification:

- Routine maintenance, repair, and replacement.

- Use of alternative fuels by reason of an order or rule of 42 United States Code §7425.
- An increase in the hours of operation or in the production rate (unless the change is prohibited under any federally enforceable permit condition that was established after 21 December 1976).
- Any change in ownership.
- Certain qualifying clean coal projects (subject to certain criteria and conditions).

2.2.3.12.1 Routine Maintenance, Repair, and Replacement

As mentioned above, PSD permitting does not apply for projects that are "routine maintenance, repair and replacement" ("RMRR"). Make note that the term "routine" in this exemption applies across all three activities. Basically, the maintenance, repair, or replacement must be routine. Typically, maintenance and repair are more likely to be deemed routine than replacements. Evaluated on a case-by-case basis, RMRR includes, but is not limited to, the replacement of any component of a process unit:

1) With an identical or functionally equivalent component(s), and

2) Maintenance and repair activities that are part of the replacement activity, provided that the following conditions are met.

   a) Does not exceed the capital cost threshold for equipment replacement.

   b) The replacement does not change the basic design parameter(s) of the process unit to which the activity pertains.

   c) The replacement activity does not cause the process unit to exceed any emission limitation, or operational limitation that has the effect of constraining emissions, that applies to the process unit and that is legally enforceable.

Regulatory Reference: 40 CFR 52.21(b)(2)(iii)(a through k)

2.2.4 STEP FOUR – Major Source Determination

Compare air emissions of all applicable pollutants to the PSD or NNSR thresholds of "regulated NSR pollutants". A source is considered a major Stationary Source if its PTE is greater than the established major source thresholds for any regulated NSR pollutant.

2.2.5 STEP FIVE – Schedule Preliminary Meeting with Air Permitting Authority

If it appears the project is a Major Source of air emissions, schedule a preliminary (i.e., pre-application) meeting with the air permitting authority. For some air permitting authorities, this meeting is mandatory. The meeting is a vital step in the air permitting process and can help permit applicants to:

- Fully explain proposed projects and discuss timeframes in detail.
- Submit accurate and complete applications.
- Evaluate compliance options and understand the air permitting authority's expectations.
- Provide an opportunity to discuss permit requirements (e.g., BACT determinations, public noticing).
- Understand the permitting schedule and how it will line up with the project's timeline.
- Review a preliminary permit application and identify/correct any gaps.
- Facilitate a smooth and uneventful permitting process with no or few surprises. A complete and well-prepared permit application will minimalize the air permitting authority's review time

Some air permitting authorities prefer to schedule the meeting at the earliest stages of the permitting process. While others will require a mostly completed application (e.g., 80% complete) at the first meeting. The ultimate goal for the meeting is the preparation of an accurate, relevant, and complete application to expedite the approval of a suitable pre-construction permit. Most air permitting authorities developed a permitting checklist which can provide guidance in determining the specific permitting and notification requirements for the project.

2.2.6 STEP SIX – Air Pollution Control Technology Selection

Each new source or modified emissions unit subject to PSD is required to undergo a Best Available Control Technology (BACT) review. The selection should be causally (directly) related to the process/unit and the air emissions of the pollutant being regulated.

2.2.6.1 Best Available Control Technology (BACT)

The BACT limit that will be incorporated in the permit is NOT a specified pollution control technology.

The limit is the emission rate and averaging times that is projected from implementing the selected control option. For example, a BACT for Carbon Monoxide (based on good combustion practices) may look like this in the actual permit:

BACT for Carbon Monoxide is 0.17 lb/MMBtu, thirty day rolling average, including periods of startup and shutdown.

Proposed BACT is presented with the air permit application; however, the ultimate decision is made on a case-by-case basis by the air permitting authority.

BACT is a pollutant specific emissions limit, set for each source on a case-by-case basis:

- The determination of BACT considers energy, environmental, or economic impacts.
- The emissions limit must be at least as stringent as other applicable standards such as New Source Performance Standards (NSPS) and/or National Emission Standard for Hazardous Air Pollutants (NESHAP).

BACT Analysis: The appropriate BACT is selected by a "Top Down" BACT analysis in which all available control technologies are identified and then technically infeasible control options are eliminated. The remaining control technologies are ranked by their effectiveness then, the most effective controls are evaluated and the results documented. The key concepts for the BACT analysis include the following:

- A BACT analysis is performed for each regulated PSD pollutant. The BACT analysis will result in the selection of the emissions control option which results in the maximum degree of reduction achievable for each pollutant under PSD review.
- BACT analyses must be performed for each emissions unit in the project emitting the PSD pollutant under review.
- A BACT analysis for opacity is required for any pollutant that could result in visible emissions.
- Work practices are acceptable in lieu of a numerical emission limit if it is technically impractical to establish or ensure compliance with a numerical limit.

The five-steps of the BACT analysis are:

Step 1: Identify all available control technologies (this usually involves researching control methods used for similar emissions units/sources) including, but not limited to:

- Processes and designs that lower emissions (not required to include options that "fundamentally redefine the nature of the source").
- Clean fuels unless they redefine the source. EPA noted in the PSD and Title V Permitting Guidance for Greenhouse Gases that certain types of biomass fuel can be considered BACT as determined on a case-by-case basis.
- Innovative control technology. EPA will consider granting waivers if needed [See 40 CFR 52.21(b)(19)].

Available control options are control technologies or techniques that are practical and that will reduce the regulated PSD pollutant under review. Be careful not to redefine the equipment, activity, or process for which the permit is being sought (e.g., significantly change raw materials).

Step 2: Eliminate technically infeasible options (need to show the technology is infeasible based on physical, chemical, or engineering principles). Each option that has been successfully installed and operated on a comparable emissions unit or source is considered feasible. Additionally, the control is not technically infeasible just because the emissions unit/source needs to be modified to make the control compatible. EPA guidance also states that lack of vendor guarantees is not sufficient to eliminate an option.

Step 3: Evaluate and rank remaining control technologies based on environmental effectiveness. The remaining control options are ranked from the most to the least effective based on emission reduction potential. EPA suggests using efficiency-based control effectiveness to ensure that the best controls are, in fact, listed first.

Step 4: Evaluate cost effectiveness of controls and energy and other environmental impacts. If there is proper justification that adverse energy, environmental or economic impacts exist, then the control option may be eliminated and the next option evaluated. This continues until a control option can no longer be

eliminated. Historically, economic considerations were the primary focus, but EPA guidance suggests other impacts are more significant for BACT.

- Economics: evaluate direct impacts in dollars per ton.
- Energy: evaluate direct energy consumption.
- Environmental: evaluate indirect or collateral impacts.

Step 5: Select the BACT (The most effective control option not eliminated is proposed as BACT in the permit application). All assumptions and data used in making the BACT determination must be properly documented in the permit application. Furthermore, compliance with the emission limit (or work practice) resulting from the selected BACT must be verifiable at all times the emissions unit is operating.

BACT Resources: Selecting suitable BACT takes considerable effort. Research should include, at the very least, EPA's BACT Clearinghouse (www.epa.gov/ttn/catc). Vendors for air pollution control technology and design engineers frequently have detailed information available that can assist with the selection of the appropriate technology and can also be included with the permit application to assist the permitting authority with their review. Technical journals and reports are also common sources of information for selecting appropriate air pollution controls.

2.2.7 STEP SEVEN – Complete PSD Permit Application

PSD Air Permits are legal documents that contain a description of the project and specifies the standards and limits that apply to each air emissions unit. Once it has been determined that a PSD air permit is required, it is important to acquire the proper application form(s) from the air permitting authority. Ideally, the application form will lead the permit applicant to provide all required information. Permit applications must be submitted to obtain the necessary permits and must contain all information necessary for the air permitting authority to determine compliance with the requirements of all applicable air quality related regulations.

2.2.7.1 PSD Permit Application Contents

The contents of the PSD permit application typically include the application form, supporting material, and a detailed Technical Support Document. At the very minimum, a PSD permit application package will likely include the following items:

1. All permit application forms.
2. A detailed description of the proposed project including site diagrams, process and/or equipment descriptions, and technical specifications.

3. A written section addressing PSD applicability, including documentation supporting emission calculations.
4. Technical Support Document.
5. A summary of state and Federal rule applicability including a listing of any New Source Performance Standards (NSPS, see 40 CFR 60) and National Emission Standards for Hazardous Air Pollutants (NESHAP, see 40 CFR 63) subparts that apply.
6. BACT analysis.
7. A statement addressing any required modeling analysis with a complete method description.
8. The permit filing fee.

2.2.7.2 Technical Support Document

Nearly all PSD permit applications include a Technical Support Document (TSD). The document typically includes detailed calculations, tables, and technical information to support the application. The elements required to be covered include:

- **Air Quality Analysis** - PSD permit applications require an air quality analysis to demonstrate that emissions of subject pollutants from a project will not cause or contribute to a violation of a NAAQS or applicable PSD increments. Increments are limits on degradation of air quality for certain pollutants set by the PSD program and may, in practice, be more restrictive than the NAAQS.

- **Discussion of Selected BACT** – The BACT analysis and a detailed discussion of the selection are considered on a case-by-case basis, by the permitting authority. A defensible discussion of the BACT selected will facilitate the approval.

- **Class I Area Impact Analysis -** Class I Areas are areas reserved for special air quality protection, usually national parks and wilderness areas.

- **Other Impacts Analysis -** Examination of impacts the project will have on visibility, soils, vegetation, and growth.

2.2.7.3 Air Quality Impact Analysis (AQIA)

If the proposed project will emit any pollutant above the PSD SER thresholds, the permit application must include an Air Quality Impact Analysis (AQIA). The analysis will use ambient air monitoring data and air quality dispersion modeling results to assess the existing air quality and predict ambient concentration levels that would result from the proposed project and future growth associated with the project. Largely, the purpose of the analysis is to determine if new emissions from the project (plus existing emissions) will cause or contribute

to a violation of a NAAQS and/or the PSD increment for a pollutant. The AQIA is a pollutant specific analysis that includes:

- A modeled estimate of ambient concentrations from the proposed project and future growth associated with the project, and
- An assessment of existing air quality.

To determine if a full impact model analysis and/or ambient air monitoring is necessary, a preliminary modeling analysis is required. The preliminary analysis includes only the proposed source or modification so it can be established if a significant modeled impact will take place. For each pollutant that the model predicts the concentration to be below the significant impact level (SIL) threshold, no further analysis is necessary for that pollutant. Prior to commencing a refined modeling or PSD modeling analysis, it is usually required to submit the modeling protocol to the air permitting authority for approval.

Computer modeling for the PSD Source Impact Analysis is rarely necessary for USAF Installation projects. Furthermore, it is difficult and requires specialized skills as well as a strong familiarity with the process. The procedures for modeling are included in EPA's *Guideline on Air Quality Models*. Appendix W to 40 CFR, Part 51 governs the choice of computer modeling program for the PSD Source Impact Analysis. The models that EPA has approved are listed in Appendix A of EPA's *Guideline on Air Quality Models*. Generally, EPA's approved models include American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) for near-field (less than 50 kilometers or approximately 31 miles from the source) dispersion modeling and California Puff Model (CALPUFF) for long-range transport (beyond 50 kilometers or approximately 31 miles from the source). AERMOD, in particular, can be used in a wide range of situations and is often the primary model used for refined modeling.

2.2.7.4 Class I Area Impact Analysis

The CAA gives special air quality and visibility protection to national parks larger than 6,000 acres and national wilderness areas larger than 5,000 acres that were in existence when it was amended in 1977. These are called "Class I" areas. The Class I Area Impact Analysis is an evaluation of the impact a major source's emissions may have on a Class I area NAAQS, PSD increments, and Air Quality Related Values (AQRVs). AQRVs are the feature or property of a Class I Area that may be affected by a change in air quality. These are different for each Class I area. For example, for some Class I areas, the AQRV is visibility. The ability to see the Class I area (e.g., Big Bend National Park, Grand Canyon) is an AQRV that may be affected by the fine particles emitting from an emissions source. The assessment of AQRVs is generally performed

for proposed projects located within 100 km (approximately 62 miles) of a Class I area, but this also varies.

2.2.7.5 Additional Impact Analysis

For Air Quality, the Additional Impacts Analysis assesses the impacts of the project on visibility, vegetation, and soils caused by any increase in emissions from the source or modification under review, and associated growth that is expected to occur in the area due to the source. This analysis is pollutant specific and must be performed within the impact area of the proposed project. The PSD air quality application should address each area and assure the public that the project's impacts to the environment are minimal.

2.2.7.5.1 Visibility Impacts

This visibility analysis is distinctly different from the Class I area analysis. The suggested elements of a good visibility impairment analysis are a determination of the visual quality of the area, and then an initial screening of emission sources to assess the possibility of visibility impairment. All local areas of scenic importance will need to be evaluated (e.g., parks, scenic overlooks).

The visibility analysis should be performed using the methodology described in EPA's "Workbook for Plume Visual Screening and Analysis (Revised)" October 1992 (EPA-454/R-92-023). The VISCREEN model is recommended for the first level (Level 1) screening. If calculated values from the VISCREEN model are greater than the standardized screening values, the emissions potentially affect visibility. If the screening model indicates it is needed, a more in-depth analysis may be done.

2.2.7.5.2 Soils and Vegetation impacts

The Soils and Vegetation impact analysis is based on an inventory of soil and vegetation types found in the area of impact. The analysis requires that sensitive crops and soils be identified for each pollutant the project emits. This inventory must include all vegetation with any commercial or recreational value.

2.2.7.5.3 Secondary Growth Analysis

The Secondary Growth Analysis (sometimes simply stated as "Growth Analysis") involves evaluating what industrial, commercial, and residential growth may occur due to the project. The analysis includes an estimate of air emissions from this growth. The associated growth

emissions do not count towards the project's total pollutant emissions unless it is determined that an associated source qualifies as a supporting facility.

2.2.8 STEP EIGHT – Submit Permit Application

The completed air permit application package, including all forms, supporting material, and the Technical Support Document are provided to the air permitting authority in the form requested (e.g., electronic, mailed). More than one copy may be required to be submitted.

The permitting process can be extraordinarily complex and time consuming; especially considering the time needed for public participation and air dispersion modeling. The process can take from three months to one year to obtain. Therefore, plan to submit the application well before the proposed installation and projected start-up date.

The air permitting authority will review the application package to determine completeness. This is done on a case-by-case basis. If needed, the air permitting authority may require additional information, even if the application package contained all the required components. If the application is incomplete, the applicant will be notified of the deficiencies. If the application is deemed incomplete, the applicant normally has 90 days to submit the requested additional information (additional time can usually be requested if needed). Once the application is deemed complete, the technical review will begin.

After the technical review, the air permitting authority will submit the draft permit for a 30-day public comment period or deny the permit. The air permitting authorities generally publish a notice to inform the public of the public comment period and the deadline for requesting a public hearing on the draft permit. Some air permitting authorities will provide the public notice package to the permit applicant with detailed instructions. The public notice packet usually includes the newspaper publication example, sign posting example (if applicable), checklist, instructions and additional forms if needed. The notice can be published in a newspaper of general circulation in the area where the source is located or in a State publication, like a State register. Many air permitting agencies also post the public notice and draft permit on their web site.

After the public comment period is over, decide whether to revise the draft permit based on the comments received. If the draft permit is substantially revised due to public comments, the permitting authority will issue a revised draft permit and require another public notice.

If the draft permit is not substantially revised and no hearing is requested, the final permit decision is issued promptly following close of the public comment period. If the permit is approved and there are no complications, the final permit is issued soon afterwards.

2.2.9 STEP NINE – Comply with Air Permit

Construction or installation may begin after the final permit is issued. Be proactive in assuring compliance with the permit. Review permit provisions carefully and ensure that personnel responsible for compliance are aware of the requirements. The permit will often require testing, monitoring, maintenance logs, recordkeeping, and reporting to prove compliance. Be careful, these requirements may be directly listed in the permit or within the regulations that are referenced.

NOTE: PSD permits usually become invalid if construction is not commenced within 18 months of the permit's issuance. The air permitting authority may extend the 18-month period upon a reasonable explanation that an extension is justified.

Reminder: Because NSR (which includes both PSD and NNSR) is pollutant-specific, it is important to note that a permit application may require both PSD and NNSR in an area that is nonattainment for any NAAQS. A source may be required to get one (or more) of three permit types under the NSR program: a PSD permit, an NNSR permit, and/or a minor source permit.

2.3 Measurements in Air Permits

Measurements for air permitting are typically expressed by the averaging time in accordance with requirements of the applicable emission limit or standard (e.g., New Source Performance Standards). However, most importantly, they must be stated in terms that enable the limitation and/or permit requirement to be effectively monitored and practically enforced. Also, the measurements need to be understandable to the operator(s) of the emissions units, the air quality personnel at the installation, and the regulatory inspectors (e.g., EPA, State Department of Environmental Quality). Measurements in an air permit may take a variety of forms, including the following:

- Pounds per hour.
- Tons per year (tons per year is calculated as the sum of each consecutive 12-month period).
- Grains per dry standard cubic foot.
- Usage or throughput rates (e.g., gallons of hour, gallons per square foot).

For example, in a permit, the emission calculations for a boiler might use pounds (lbs) per one million British Thermal Units (MMBtu) of heat input, lb per gallons of fuel, or lb per ton of fuel.

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3 NONATTAINMENT NEW SOURCE REVIEW

Regulatory Reference: 40 CFR 51.100, 40 CFR 51.165, and 40 CFR 52.24.

NOTE: Many of the elements for Nonattainment New Source Review (NNSR) are identical or similar to those of PSD. Additionally, there are no areas in the United States that are nonattainment for every NAAQS; therefore, PSD will also be applicable. For that reason, it is important to become familiar with the PSD regulations in Chapter Two of this Guide. Regardless, there are key differences between NNSR and PSD such as:

- The pollutants that must be evaluated (i.e., regulated pollutants).
- Different applicability thresholds.
- NNSR requires the Lowest Achievable Emission Rate (LAER) which is more stringent than the Best Available Control Technology (BACT) required in attainment areas.
- Offsets are available in nonattainment areas to counter the emissions increase from the new source or modification.

NNSR applies in areas formally designated by the EPA as "nonattainment" for any pollutant for which a NAAQS exists. Nonattainment areas indicate where the air is deemed unhealthy. Unless the new or modified Stationary Source is exempt, it is major if the emissions increase is greater than the threshold for NNSR regulated pollutants. An NNSR air permit is required prior to:

- The construction of new major Stationary Sources.
- Any project at an existing major source if the modification is major.
- Any project at an existing minor source if the modification itself would constitute a major source.

3.1 Purpose of Nonattainment New Source Review

The objective of the NNSR program is to allow construction of a new or modified source of air emissions while allowing the area to make progress towards meeting the NAAQS. The goals of the NNSR regulations are to:

- Ensure that sources will not contribute more pollution in areas that are already not meeting the NAAQS.
- Allow construction of new or modified sources of air pollution in nonattainment areas while not interfering with the area's progress towards attaining the NAAQS.

- To preserve, protect, and enhance the air quality in areas of special natural recreational, scenic, or historic value, such as national parks and wilderness areas.

3.2 NNSR Applicability

Reminder: Because NSR (which includes both PSD and NNSR) is pollutant-specific, it is important to note that a permit application may require both PSD and NNSR in an area that is nonattainment for any NAAQS. A source may be required to get one (or more) of three permit types under the NSR program: a PSD permit, an NNSR permit, and/or a minor source permit.

Regulatory Reference: *The provisions of 40 CFR 51.165(a)(2)(ii)(A) through (F) are used to determine if a proposed project will result in a new major Stationary Source or a major modification to an existing Stationary Source.*

NNSR only applies in areas designated as nonattainment and only to major sources. Additionally, NNSR applicability only applies to the extent that the proposed source's air emissions would contribute to nonattainment of a NAAQS. For instance, if the proposed source is expected to emit three pollutants and the area violates the NAAQS for only one, NNSR applies only for the nonattainment pollutant and PSD applies to the others.

3.2.1 STEP ONE – Identify Air Emission Sources

Identify the Stationary Source and the air emissions units included in the project. The process for identifying the Stationary Source and emissions units for the project are identical to PSD. Refer to Step One in Chapter Two for instructions.

3.2.2 STEP TWO – Assess NAAQS Designation

The process for assessing the area's attainment status for the NAAQS are identical to those in PSD. Refer to Step Two in Chapter Two for instructions. Additional information regarding the NAAQS is also in Chapter One.

3.2.3 STEP THREE – Calculate Air Emissions and Compare to Thresholds

Although the process to calculate air emissions for NNSR are essentially the same as for PSD, the thresholds for determining if a new source or a modification is existing are different. There are no "named sources" for NNSR.

3.2.3.1 Major Source Applicability Thresholds for NNSR

Regulatory Reference: 40 CFR §§ 51.165 (a)(1)(iv)(A), 51.165 (a)(1)(x)(A), 51.165(a)(9), 51.165(a)(10).

In general, a source is "Major" under NNSR if it has PTE 100 tpy or greater of a criteria pollutant (applies for only the nonattainment pollutant and precursor emissions). Lower thresholds may apply depending on the nonattainment severity classification of an area.

A new source/modification is Major and will be subject to NNSR if:

1) Will actually emit or have the PTE 100 tpy (or lower, depending on classification) of any criteria pollutant (or precursor) for which the area is designated as nonattainment (Table 3.1 below).

OR

2) A modification (physical or operational change) results in a significant increase in emissions of a pollutant for which the source is major and the area is designated nonattainment (Table 3.2 below).

Table 3-1. NNSR Major Source Thresholds

NONATTAINMENT NEW SOURCE REVIEW MAJOR SOURCE THRESHOLDS FOR NEW SOURCES OR MODIFICATIONS AT EXISTING MINOR SOURCES*						
Criteria Pollutant	**Classification**					
	None/Basic	**Marginal**	**Moderate**	**Serious**	**Severe**	**Extreme**
Ozone (NOx and VOCs are precursors)	---	100	100	50	25	10
Carbon Monoxide	100	---	---	---	---	---
Nitrogen Dioxide	100	---	---	---	---	---
Sulfur Dioxide	100	---	---	---	---	---
Lead	25	---	---	---	---	---
Particulate Matter 10	---	---	100	70	---	---
Particulate Matter 2.5 (NOx and SO2 are precursors)	---	---	100	100	---	---
*Tons-per-year. Note that when two standards apply in a nonattainment area, the most stringent is used.						

Table 3-2. NNSR Significance Levels

NONATTAINMENT NEW SOURCE REVIEW SIGNIFICANCE LEVELS FOR MODIFICATIONS AT EXISTING MAJOR SOURCES*						
Criteria Pollutant	**Classification**					
	None/Basic	**Marginal**	**Moderate**	**Serious**	**Severe**	**Extreme**
Ozone (NO_x and VOCs are precursors)	---	40	40	25	25	ANY
Carbon Monoxide	100	---	---	---	---	---
Nitrogen Dioxide	40	---	---	---	---	---
Sulfur Dioxide	40	---	---	---	---	---
Lead	.60	---	---	---	---	---
Particulate Matter 10	---	---	15	15	---	---
Particulate Matter 2.5 (NOx and SO2 are precursors)	---	---	10	10	---	---
*Tons-per-year. Note that when two standards apply in a nonattainment area, the most stringent is used.						

3.2.3.2 Air Emission Calculations for NNSR

Refer to Chapter Two. The emission calculation methods for PSD in Chapter Two are also used for calculating emissions for NNSR. The most significant difference between the two permitting programs are the major source thresholds and the availability of "offsets."

3.2.3.3 Offsets for NNSR

If the facility's PTE is over one or more of the major source thresholds, then it will be subject to offset requirements for any new source or modification that will increase emissions of the pollutant(s) for which the threshold is exceeded. The offset requirement applies to each pollutant that caused NNSR applicability. For example, a permit for a proposed project located

in a nonattainment area for sulfur dioxide that will emit more than 100 tpy of sulfur dioxide is required to obtain offsetting emissions reductions of sulfur dioxide.

An emissions offset is a reduction in pollution from an existing source of air pollution within the same area. When emissions are offset, the total allowable emissions from the proposed source and the existing sources will be less than the total emissions. So, essentially, the offsets produce a net air quality benefit for the area impacted by the new or modified source of air emissions.

The offsets must be creditable, quantifiable, practically enforceable, and permanent. Emission reductions validly "banked" under an approved State Implementation Plan may be used as offsets. However, emissions reductions already used for major modification "netting" cannot be used as offsets (“double counting”).

Generally, the offsets are not a one-to-one trade. Offset ratios for most criteria pollutants (and precursors) are 1.1:1. However, for Ozone, the offset ratio depends on the nonattainment classification:

Table 3-3. NNSR Ozone Offset Ratios

Nonattainment New Source Review Ozone Offset Ratios	
Ozone nonattainment area classification	**Offset Ratios**
Marginal	1.1:1
Moderate	1.15:1
Serious	1.2:1
Severe	1.3:1
Extreme	1.5:1
Ozone transport region	1.15:1*
*Unless subject to serious, severe, or extreme ratios	

3.2.4 STEP FOUR – Major Source Determination

Compare air emissions of all applicable pollutants to the PSD or NNSR thresholds of “regulated NSR pollutants”. A source is considered a major Stationary Source if its PTE is greater than the established major source thresholds for any regulated NSR pollutant.

3.2.5 STEP FIVE – Schedule Preliminary Meeting with Air Permitting Authority

Refer to Chapter Two. For NNSR, the preliminary (pre-application) meeting with the air permitting authority may be even more important considering the air quality problems in the area. However, the meeting process and expectations hold true for NNSR as PSD.

3.2.6 STEP SIX – Air Pollution Control Technology Selection

Lowest Achievable Emissions Rate (LAER) is the most stringent emission limitation in a state's implementation plan or that can be possibly achieved in practice.

The LAER limit that will be incorporated in the permit is NOT a specified pollution control technology.

The limit is the emission rate and averaging times that is projected from implementing the selected control option. For example, a LAER for Nitrogen Oxides (based on compliance with the NSPS) may look like the one in Table 3.3 in the actual permit. Even though the LAER technique/controls are mentioned, the LAER is actually the limit.

Table 3-4. LAER Example

LOWEST ACHIEVABLE EMISSION RATE EXAMPLE			
Emissions Unit	**Control Technology**	**Proposed NO_x LAER Limit (Averaging Period)**	**Compliance Method**
Emergency Firewater Pump Diesel Engine	Compliance with NSPS Subpart IIII; Limits on hours of operation to less than 100 hours per year (excluding emergencies)	3.0 g/bhp-hr. including NO_x and non-methane hydrocarbons (NMHC) by design	Diesel Engine certification

The permitting authority will review and approve the proposed LAER on a case-by-case basis. Each new source or modified emissions unit subject to NNSR is required to undergo a LAER analysis. The selection of LAER should be causally (directly) related to the process/unit and the air emissions of the pollutant being regulated.

For any emissions unit, the LAER is the more stringent rate of emissions (that is technologically feasible) based on:

- The most stringent emissions limitation which is contained in the implementation plan of any state for the class or category of Stationary Source, unless the owner or operator of the proposed Stationary Source demonstrates that these limitations are not achievable; or

- The most stringent emissions limitation which is achieved in practice by the class or category of Stationary Sources, with this limitation, when applied to a modification, meaning the lowest achievable emissions rate for the new or modified emissions units within the Stationary Source.

Technically Feasible - A specific control technology may not be required as LAER if it can be demonstrated that the control is not technically feasible to install and operate to meet an explicit LAER emission limitation in a specific permitting situation.

Equipment Modifications – Sometimes it is difficult to retrofit existing equipment (subject to NNSR due to the modification) with LAER when compared to a new emissions unit/source. For example, there may be space restrictions that prevent installation of some add-on control technology. The equipment being modified may not be comparable with past LAER determinations that specify a particular process type. Allowances may be made in this situation.

Consideration for Cost of Control - EPA guidelines state that LAER is not considered achievable if the cost of control is so great that a new source could not be built or operated with a particular control technology. However, if a facility in the same or comparable industry already uses the control technology, then such use is evidence that the cost to the industry is not prohibitive.

Monitoring and Testing - To ensure that the LAER selection continues to meet the initial emission and efficiency standards, periodic or continuous parameter monitoring and testing requirements may be required during the permitting process.

LAER Selection Resources - Selecting suitable LAER takes considerable effort. Research should include, at the very least, EPA's LAER Clearinghouse (www.epa.gov/ttn/catc). Vendors for air pollution control technology and design engineers frequently have detailed information available that can assist with the selection of the appropriate technology and can also be included with the permit application to assist the permitting authority with their review. Technical journals and reports are also common sources of information for selecting appropriate air pollution controls.

3.2.7 STEP SEVEN – Complete NNSR Permit Application

Although more detailed and complicated considering the air quality problems in the area, the process for completing an NNSR permit application is basically the same as for a PSD permit. Refer to Chapter Two for more details.

3.2.8 STEP EIGHT – Submit Air Permit Application

Submitting an air permit application for NNSR is the same process as for a PSD permit. Refer to Chapter Two for details.

3.2.9 STEP NINE – Comply with Air Permit

To ensure compliance, review permit provisions carefully and ensure that personnel responsible for compliance are aware of the requirements. Although there may be more requirements, complying with the NNSR permit is the same as for PSD. Refer to Chapter Two for details.

4 ALTERNATIVE AND MINOR SOURCE NSR PERMITS

Although the focus of this guide is on traditional NSR permitting for major sources of air emissions, a general discussion of major source NSR permit alternatives and minor source NSR permitting is warranted. There are many motives behind a Stationary Source avoiding the necessity for a major source NSR permit. The reasons include, but are not limited to, avoiding expensive add on air pollution control equipment and the permitting burden/fees associated with a major NSR air permit.

4.1 New Source Review Permit Alternatives

Alternatives are available for Stationary Sources that are willing, and able to comply with, limiting air emissions so that the NSR major source permit process will not apply. *Before applying for any permit with limits, carefully consider whether the limits are achievable and if they would cause an undue hardship for operations*. Noncompliance could result in one or any combination of the following: enforcement action (e.g., notification, fines, imprisonment), permit termination or revocation, and permit renewal denial.

4.1.1 Synthetic Minor Source Permits

Synthetic minor sources have the potential-to-emit regulated NSR pollutants at or above the major source thresholds, but have voluntary agreed on enforceable limits to restrict their potential-to-emit below the thresholds. The limits (e.g., work practices, design standards, throughput, operating time) restrict the amount of a regulated air pollutant emitted over time (e.g., pounds per hour/day, tons per year). Consequently, the major source classification (and major source permitting requirements) is avoided by creating a synthetic minor source. Generally, the limits are made enforceable by incorporating them into a minor source permit.

For instance, if the project is planned to take place at a major NSR facility, consider restricting the emissions from the modification to a level below what constitutes a major modification under the NSR regulations. As an example, Anywhere AFB is located in a moderate ozone nonattainment area and is a major source for NOx. The base wants to install an oil-fired boiler with potential-to-emit emissions of 115 tons per year of NOx, which would cause the project to be subject to NSR review as a major source. However, if the source accepts limits to reduce the uncontrolled emissions below the significance thresholds, then the project would not be subject to major source NSR.

The minor NSR program is used to establish the enforceable limits. A vague statement in the permit, such as "do not exceed 100 tons per year" is too ill-defined to be enforceable. The limits

must apply to some aspect that can be readily measured. The limits to become a synthetic minor source may include restrictions on operating hours, limits on fuel throughput, or a combination of methods. There also needs to be a time period associated with the limit (e.g., no more than 50 hours of operation per calendar year). Testing, monitoring, recordkeeping, and reporting requirements are typically used to demonstrate and assure compliance.

Be aware that there have been many court challenges regarding "enforceable" permit conditions/limits. EPA has stated in guidance documents that "federally enforceable" in the regulations should be interpreted to mean "federally enforceable or legally and practicably enforceable by a state or local pollution control agency" (*Release of Interim Policy on Federal Enforceability of Limitations on Potential-to-emit*; 22 January 1996, John S. Seitz). The definition is pending future rulemaking by EPA. Accordingly, some States have eliminated the requirement that a synthetic minor limit be "federally enforceable" and allows such limits to be "legally and practically enforceable."

A synthetic minor is subject to all applicable Federal, State, and local rules, regulations, and other requirements.

NOTE: Do not attempt to circumvent major source NSR by artificially or improperly separating projects or project activities (unreasonable for the source to consider them to be separate) to obtain multiple minor source NSR permits.

4.1.2 Plantwide Applicability Limit Permits

A product of the EPA's 2002 New Source Review Reform (67 FR 80186), a Plantwide Applicability Limit (PAL) permit provides an alternative to traditional air permitting. Essentially, a PAL is a facility-wide annual emission limit that serves as a "safe-harbor" for designated regulated NSR pollutants. Without a PAL, each non-exempt project at a major stationary source must undergo an applicability review for major NSR permitting.

PALs are pollutant-specific (i.e., a facility may accept a PAL for a single NSR regulated pollutant or for multiple NSR regulated pollutants). Generally, each PAL is established based on the average annual (e.g., baseline) emission rate for a 24-month consecutive period during the prior ten years of facility operation. The NSR (PSD or NNSR) significant increase threshold for the regulated NSR pollutant is then added to the baseline actual emission rate to set the PAL. Provided that the facility complies with the PAL, it has the flexibility to make changes in operations or equipment without triggering a project-by-project NSR applicability analysis. However, in contrast, traditional air permitting imposes emission limits and requirements on individual emissions units.

While a PAL is beneficial in concept, extensive unit-specific emissions monitoring, testing, recordkeeping, and reporting are required to ensure compliance with the limit. Additionally, there are several disadvantages to a PAL permit that discourages sources from considering the program (there are fewer than 75 PAL permits nationwide as of February 2019), including:

- A facility that commits to a PAL permit cannot return to "pre-PAL" conditions (e.g., minor source limits). States can decide to remove previous synthetic minor limits. However, previous limits may need to remain in order to make the PAL enforceable.
- State construction or installation permits may still be required.
- The requirement for a ten-year commitment to historical emission rates.
- Extensive requirements to monitor and calculate emissions for every unit that emits a PAL regulated pollutant.
- Emissions unit specific requirements (e.g., New Source Performance Standards) remain applicable under a PAL permit.
- There are provisions that allow a PAL to be increased if needed, but the rule is written to discourage PAL increases.
- Obtaining a PAL requires a permit action, including with a public notice and EPA review period.
- Where applicable, it is required to demonstrate that the PAL will not cause or contribute to an exceedance of a PSD increment or adversely impact visibility or an Air Quality Related Value in a Class I area
- PAL renewals or termination are often complicated.

To address ongoing concerns with PAL permits, the EPA finalized the memorandum, *Guidance on Plantwide Applicability Limitation Provisions Under the New Source Review Regulations* (Anne L. Austin; 4 August 2020), to emphasize the benefits of PAL permits and to clarify some aspects of a PAL. The following are some key aspects of the memorandum:

- The PAL rules do not include provisions for terminating PAL permits. EPA upheld previous guidance that PAL termination be handled on a case-by-case basis.
- If a facility with a PAL decides not to renew the PAL, the PAL level is to be allocated among existing emissions units at the facility. The EPA clarified that there is some flexibility for the PAL distribution.

- The PAL regulations require the permit authority to "consider lowering" the PAL at renewal if the baseline actual emissions plus the significant emission rate are lower than 80 percent of the PAL. The EPA confirmed that the facility is required to propose a new PAL level in the renewal application, but this "provision does not preclude renewing the PAL at the current level or at a level higher than baseline actuals plus the significant level." EPA also stressed that permit authorities should exercise restraint in lowering PALs to avoid penalizing sources for reducing emissions.

- The PAL regulations require monitoring of each PAL pollutant. Each PAL level is based on a 12-month rolling total, expressed in tons of pollutant per year. When monitoring data is missing, the PAL regulations require that maximum allowable emissions be used unless the PAL permit provides missing data procedures. The EPA provided examples of missing data procedures that could be included in a PAL application or renewal application.

- The definition of a "replacement unit" in NSR is meant to ensure it is similar in design and operation to the unit being replaced. If an emissions unit meets the replacement unit definition, it is treated as "existing" in determining NSR applicability (i.e., it has baseline actual emissions that could be included in the PAL). EPA clarified that the treatment of replacement units for NSR applicability is also applicable to establishing or renewing PALs.

Provisions for PALs are codified in the Federal regulations at 40 CFR §52.21(aa), §51.165(f), and Appendix S to Part 51 – *Emission Offset Interpretative Ruling*. Each State can have their own PAL program based on the Federal program, or the State can be delegated to issue PAL permits under the Federal PAL program. Most State NSR programs include PAL provisions. Furthermore, many States have air permitting programs that incorporate PALs or are very similar to PALs (e.g., Flexible Permit offered in Texas).

In summary, there are advantages in obtaining a PAL permit if it is a good fit. PAL permits are a formidable, but legitimate, strategy to avoid the requirements of major source NSR. Nevertheless, if a USAF installation is interested in a PAL permit, the potential benefits and ramifications for committing to a PAL must be carefully evaluated. Any modifications resulting in air emissions exceeding the PAL will need to undergo the appropriate NSR review and the PAL may need to be increased to reflect any newly authorized emission rates

4.2 Minor NSR Permits

Projects that do not trigger major source NSR permitting may be subject to minor NSR permitting. Air permits may not be required at all for an emissions unit or a project that emits

tiny amounts of regulated air pollutants. However, registrations or some type of State or local permit may be required for an emissions unit or a project that emit below major source thresholds, but above a certain threshold of regulated pollutants (thresholds vary per permitting program). There is a large array of minor NSR permit options available depending on factors such as the type and location of the emissions unit or project, air quality in the area, operational flexibility required, and whether additional voluntary restrictions need to be included in the permit. The majority of minor NSR permits are fragmented; they cover one or more emissions units or affected facilities at a source but do not cover the entire source. Many USAF installations have numerous air permits open at any given time.

The Minor NSR permitting program applies to non-major sources and minor modifications to major sources. Minor NSR is for pollutants from stationary air emission sources that do not require PSD or nonattainment NSR permits. One of the purposes of Minor NSR permits is to prevent the construction of sources that would interfere with attainment or maintenance of a NAAQS or violate the control strategy in nonattainment areas. Also, Minor NSR permits often contain permit conditions to limit the sources emissions to avoid PSD or nonattainment NSR.

States can customize the requirements of the Minor NSR program as long as their program meets minimum CAA requirements. State and local air permitting programs are generally structured differently from each other and offer various types of minor source construction permits. There are several different types of air quality permits depending on the type of activity and emission rates of air pollutants. For example, Minor and De Minimis permits, General Permits, Portable Relocation Permits, Installation Permit, Construction Permit, Authorization to Construct, Temporary Permits, and Permits-by-Rule.

Although the names and criteria can vary from State to State, the following is a generalized discussion of the types of pre-construction permits that may be available for minor sources:

- **Minor New Source Review (NSR) Permit** – These permits authorize the construction or modification of any minor Stationary Source (i e., PTE less than the applicable PSD/NNSR major source thresholds). Minor NSR Permits are evaluated on a case-by-case basis and often include controls and substantive requirements. May include modeling, source testing, and/or monitoring.

- **Site-Specific Permits** - A site-specific permit is a case-by-case determination of the source emissions limits and control technology requirements.

- **General Permits** - A general permit is a pre-approved permit that covers a specific source or a class of sources. A general permit differs from an individual permit in that it can often be applied to more than one source. After a general permit has been developed

by the air permitting authority and approved (which usually requires public review and comment), sources may apply for the general permit instead of obtaining individual permits. Applicants covered by the general permit will not be required to go through a public notice and public hearing because the air permitting authority has already gone through that process. The permit may have a dual purpose (authority to construct/install and then to operate).

- **Permit-by-Rule (PBR)** - A PBR is similar to a general permit. The permit is a standardized document that applies to multiple Stationary Sources with similar emission related requirements. The process for a PBR is more streamlined than for a General Permit. Usually, the applicant notifies the air permitting authority that it meets the eligibility criteria for the permit without having to submit a completed application for review and approval.

- **Registration Permit** - Registration Permits are a single permit (the construction and operating permits are combined) issued for air pollutant-emitting equipment and activities where equipment similarities eliminate the need for a review. The permit conditions are standardized for that source category.