PERMITTING NEW AND EXISTING STATIONARY SOURCES GUIDE

PERMITTING NEW AND EXISTING STATIONARY EMISSIONS SOURCES
ON DEPARTMENT OF THE AIR FORCE INSTALLATIONS

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ACRONYMS

(Words formed from the initial letters of a name or parts of a series of words.)

AAFES	Army & Air Force Exchange Service
AFCEC	Air Force Civil Engineer Center
AFMAN	Air Force Manual
APIMS	Air Program Information Management System
AQM	Air Quality Manager
BACT	Best Available Control Technology
bhp	brake horsepower
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CO	Carbon Monoxide
DAF	Department of the Air Force
DeCA	Defense Commissary Agency
DHA	Defense Health Administration
DISA	Defense Information Systems Agency
EAID	Equipment Authorized Inventory Data
ECOM	External Combustion
FESOP	Federally Enforceable State Operating Permit
GSU	Geographically Separated Unit
HAP	Hazardous Air Pollutant
ICOM	Internal Combustion
ISO	International Organization for Standardization
ISS	Installation Support Section
LAER	Lowest Achievable Emissions Rate
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NNSR	Nonattainment New Source Review
NO_2	Nitrogen Dioxide
NOV	Notice of Violation
O_3	Ozone
Pb	Lead
PBR	Permit-by-Rule
RPIE	Real Property Installed Equipment
SE	Standard Exemption
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SME	Subject Matter Expert
SO_2	Sulfur Dioxide
tpy	tons-per-year
USC	United States Code

BREVITY CODES

(Shortened form of a frequently used group of words, phrases, or sentences consisting of entirely upper-case letters. Each letter is spoken individually.)

AEI	Air Emissions Inventory
AFB	Air Force Base
AFI	Air Force Instruction
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CE	Civil Engineering
CEV	Civil Engineering Environmental
CFR	Code of Federal Regulations
CP	Criteria Pollutant
DoD	Department of Defense
EF	Emission Factor
EPA	Environmental Protection Agency
GHG	Greenhouse Gases
GWP	Global Warming Potential
NSPS	New Source Performance Standards
NSR	New Source Review
PM	Particulate Matter – Aerodynamic diameter unspecified
PM_{10}	Particulate Matter – Aerodynamic diameter < 10 micrometers
$PM_{2.5}$	Particulate Matter – Aerodynamic diameter < 2.5 micrometers
PSD	Prevention of Significant Deterioration
PTE	Potential-to-Emit
US	United States
USSF	United States Space Force
VOC	Volatile Organic Compound

ABBREVIATIONS

(Shortened form of a word or phrase)

CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
hr	Hour(s)
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_3	Ozone
Pb	Lead
Ppm	Parts per Million
PM	Particulate Matter
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
tpy	Tons-per-Year

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1 GUIDE INTRODUCTION

The Clean Air Act (CAA) establishes several permitting programs devised to protect air quality. Permits include pollution control requirements from Federal and/or State regulations that apply to an emissions unit or source. Permits foster environmental compliance and provide a basis for legal enforcement if permit conditions are violated. Permits are structured to clearly identify which regulations are applicable and what the permittee must do in order to demonstrate compliance; this way, the permittee, the regulators, the inspectors, and the public all know what is required. There are two main types of air permitting programs: construction permits which apply to projects (new emission units and/or modification of existing emission units) and operating permits which apply to the entire facility.

The air permitting process can be complicated and perplexing. This document, *Permitting of New and Existing Sources Guide*; *Permitting New and Existing Stationary Sources on Department of the Air Force Installations*, is designed to provide the fundamentals of applying for an air quality permit and is intended to simplify the process. Practical explanations and examples are included for tailoring air permits to accommodate the complex, unique, and varied air emission sources located on United States Department of the Air Force (DAF) installations*. The objective of this Guide is to assist DAF air quality personnel and support contractors with structuring an air permit that minimizes non-compliance and allows for operational flexibility.

It is important to recognize that regulations governing air permitting have been adopted at both the Federal and State/local levels. Air quality agencies often have regulations and procedures that differ from one another to varying degrees. Some States, such as California, have regulations that are more stringent than the Federal requirements. For this reason, this guide will focus on the Federal air permitting requirements and will not attempt to address all potential permitting requirements or processes. Because this guide is unable to address the requirements and procedures of every regulatory agency or air permitting situation, it is highly recommended that installation environmental management flight personnel coordinate with their AFCEC Installation Support Section (ISS) counterpart or the AFCEC Air Quality Subject Matter Expert (SME) for assistance, if needed.

Additionally, this document is intended for guidance only and may be impacted by changes in legislation, rules, and regulations adopted after the date of issuance. This guide is not a substitute for a rule or regulation. Where a rule or regulation conflicts with this guide, the rule or regulation will prevail.

NOTE: This guide supersedes all previous versions. AFCEC Air Quality guides are updated and revised regularly, and users should verify that they are referencing the most recent edition.

*For clarity, the terms “Air Force”, “USAF”, or “DAF” are used interchangeably throughout this Guide and includes the United States Space Force (USSF).

1.1 Organization of this Guide

This guide has been strategically organized in a progressive manner to facilitate understanding of the subject matter. The basic concepts are positioned early in the guide with the more complicated concepts occurring in the later chapters. Moreover, most of the concepts presented do not exist in isolation and must be considered within the context of those addressed in other chapters and sections. For this reason, it is important to start at the beginning of the guide and develop a basic understanding of the concepts before moving on to more advanced chapters. Furthermore, this guide is written to complement existing guides developed and maintained by the **Air Force Civil Engineer Center (AFCEC)**. A thorough understanding of the material contained within the following guides is necessary to successfully develop a new, or update and revise an existing, air quality operating permit. A solid foundation in these topics is of the utmost importance and cannot be stressed enough.

- *Air Emissions Guide for DAF Stationary Sources*
- *DAF Potential to Emit (PTE) Guide*.

1.2 Common Air Permitting Terms

The following are terms frequently encountered during the air permitting process (a more complete glossary is included at the end of this Guide):

Air Permit (also known as Air Quality Permit): A legally binding document that contains applicable Federal, State, and local requirements to control air pollution and support environmental compliance. Unless exempt or excluded, Air Permits are required prior to the construction, installation, modification, or operation of a regulated facility, source, activity, or equipment that emits air pollution. Generally, the permit establishes limits on the types and amounts of air emissions allowed, operating requirements for pollution control devices, as well as monitoring, recordkeeping, and reporting requirements.

Area Source: A minor source of Hazardous Air Pollutants (HAPs). See the definition of major source for the thresholds.

Attainment Area: A geographic area with air quality equal to, or better than, the National Ambient Air Quality Standards (NAAQS) established by the Environmental Protection Agency (EPA).

Emissions Source: A group of emissions units aggregated for the purpose of air quality permitting.

Emissions Unit: Any part or activity of a stationary source which emits, or is capable of emitting, any air contaminant.

Major Source (for Title V): A stationary source with the Potential-to-Emit (PTE) one or more of the following thresholds is a major source (make note that major source thresholds vary in nonattainment areas, depending on the pollutant and the severity of nonattainment; the major source definition for New Source Review does not include HAPs; and a major source for New Source Review is a major source for a Title V operating Permit, but the reverse is not necessarily true):

Table 1-1; Major Source Thresholds

Major Source Thresholds		
Potential-to-Emit	**New Source Review**	**Title V Operating Permit**
≥ 100 but < 250 tpy in Attainment Area*	Minor	Major
≥ 250 tpy in Attainment Area	Major	Major
≥ Applicable Threshold in Nonattainment Area**	Major	Major
≥ 10 tpy of a Single HAP	N/A	Major
≥ 25 tpy of all HAPs Combined	N/A	Major
* Major if over 100 tpy and in one of 28 source categories found in 40 CFR 52.21. **Threshold varies in nonattainment areas. Thresholds are listed under the definition of "Major Stationary Source" in 40 CFR 51.165 (for NSR) and under the definition of "Major Source" in 40 CFR 70.2 (for Title V).		

Minor Source: Air emission sources whose PTE is less than the major source emission thresholds for criteria pollutants are considered minor sources. A true minor source is one whose PTE, even operating at maximum design capacity, does not exceed the major source thresholds. A synthetic minor source is a source with emissions restricted to below the major source thresholds. This is usually accomplished through operating limits spelled out in a Federally Enforceable State Operation Permit (FESOP). See the definition of major source for the permitting thresholds.

National Ambient Air Quality Standards (NAAQS): NAAQS are the allowable concentrations of certain pollutants in the ambient (outdoor) air. EPA established NAAQS for six air pollutants that were found to be harmful to human health (also referred to as criteria pollutants):

- Nitrogen Dioxide (NO_2)
- Ozone (O_3)
- Sulfur Dioxide (SO_2)
- Particulate Matter (PM)
- Carbon Monoxide (CO)
- Lead (Pb)

Nonattainment Area: A geographic area, such as a county or metropolitan area, which has been designated by the EPA as exceeding one or more NAAQS.

Potential-to-Emit: 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 only if the limitation or its effect on emissions is State and Federally enforceable.

Stationary Source: For the purposes of this guide and for permitting purposes, stationary source means any building, structure, facility, or installation that emits or may emit any air pollutant. This characterization is distinctly different than the definition within some regulations that define the term "stationary" to mean any emissions unit or activity that is located at a single location or site and not intended to be relocated to another location or site. Air pollution emissions from mobile sources, such as non-road and on-road vehicle/equipment engines, are not subject to air permitting.

Title V Operating Permit: Federal operating permits required for major sources under Title V of the Clean Air Act (CAA) are often referred to as "Title V" permits or "Part 70" permits (from Part 70 of the Code of Federal Regulations). Other sources, including area sources, may also be required to obtain Title V Operating Permits if they are subject to federal requirements associated with National Emission Standards for HAPs, New Source Performance Standards, or Acid Rain Control.

Tons-per-Year (tpy): This is the conventional unit of measurement used to quantify air emissions.

2 AIR PERMITTING BACKGROUND

2.1 Clean Air Act (CAA)

Most air emission sources cannot be constructed, installed, expanded, or operated without a permit. The main objective of the CAA is to reduce the amount of pollution in the air by setting rules and regulations that limit air emissions. The original CAA, signed into law by President Lyndon B. Johnson in 1963, was the first environmental law enacted by the United States Congress and formed the foundation of the current air permitting programs. The CAA was amended in 1970 and again in 1975, 1977, and 1990. The 1977 CAA Amendments (CAAA) established the New Source Review (NSR) permitting program which requires a construction air permit for major sources. Title V permitting, which is the operating air permit for major sources, was created by the 1990 CAAA. Some smaller emitting sources (e.g., "area" sources or "minor" sources) are also required to obtain a construction and/or operating permit.

2.2 National Ambient Air Quality Standards

The 1970 CAAA directed the EPA to establish National Ambient Air Quality Standards (NAAQS) for pollutants that harm health, the environment, and property (criteria pollutants). The 1970 CAAA also contained provisions to regulate HAPs. Basically, a NAAQS acts as an indicator of air quality in a geographic area and establishes a concentration of a pollutant in the ambient (outdoor) air that cannot be exceeded and acts as an indicator of air quality in a geographic area. A NAAQS has been promulgated for each of the following six criteria pollutants:

- Ozone (O_3) - Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs) are regulated as precursors.
- Sulfur Oxides (SO_x) - Regulated as Sulfur Dioxide (SO_2).
- Nitrogen Oxides (NO**x**) - Regulated as Nitrogen Dioxide (NO_2).
- Carbon Monoxide (CO).
- Lead (Pb).
- Particulate Matter (PM):
  - PM_{10} (particulate matter 10 micrometers or less in diameter).
  - $PM_{2.5}$ (particulate matter 2.5 micrometers or less in diameter).

For each NAAQS, every area of the United States is designated as one of the following:

- **Attainment -** Air quality is equal to or better than the NAAQS level/threshold; these areas are required to maintain clean air.

- **Unclassifiable** - There are no data or insufficient data on air quality for the area; the area is treated the same as if in attainment of the NAAQS.

- **Nonattainment** - Air quality exceeds the NAAQS level/threshold; these areas must take actions to improve air quality and attain the NAAQS within a specified period of time.

- **Maintenance (former nonattainment area)** - After a nonattainment area attains the NAAQS and the EPA approves the States plan to maintain the air quality in that area, the area is designated "maintenance" for twenty years. The State must submit two consecutive ten-year maintenance plans for the area. Although the area is officially designated as "attainment" in the Code of Federal Regulations after the maintenance plan is approved by the EPA, the area is referred to as a maintenance area by the EPA and regulators.

2.3 State Implementation Plans (SIPs)

A SIP is a cumulative document containing the State's air pollution control strategies, rules, and local ordinances. SIPs are the primary regulatory tool for control of criteria pollutant emissions from new and existing stationary sources. Permitting requirements are included in the contents of the SIP. Each time the SIP is updated, the change is referred to as a SIP revision. After the SIP revision is approved by the EPA and published in the Federal Register, the provision becomes enforceable by Federal and State agencies. SIPs serve two essential purposes:

(1) To demonstrate that the State has the air quality management program mechanisms in place to enforce a new or revised NAAQS; and

(2) To identify and establish the air emissions control requirements the State will implement to attain and/or maintain the NAAQS.

In some States, local agencies complete SIP revisions for their respective areas and the State submits the revisions to the EPA for approval.

States are the primary authority for regulating the air pollution within their borders and many States have authority delegated by the EPA. To have this authority delegated, States were required to develop and obtain EPA's approval of their permitting programs for both the Title V and NSR permitting programs. In cases where the State has not been delegated authority or chooses not to develop a SIP for the permitting program, the EPA implements the programs and issues the permits.

2.4 Air Permitting Programs

A variety of air quality permits are issued to ensure that air emissions from new or existing stationary emission units or sources of air pollution do not degrade air quality. Permits are

enforceable legal documents that place restrictions on what air emission limits and conditions must be met during construction and operation. Largely, air permits include information on which pollutants are being emitted, how much of each air pollutant may be emitted (emission limits), and what measures the owner or operator are required to take to minimize or reduce emissions. To confirm that sources comply with the terms of a permit, a permit almost always includes monitoring, recordkeeping, and reporting requirements.

Air contaminant emission units and/or sources are typically classified and permitted as major or minor sources depending on their PTE pollutants. Generally, major sources have potential total facility emissions greater than 250 tpy for any criteria pollutant which they are in attainment. The major source thresholds vary in nonattainment areas, depending on the pollutant and the severity of nonattainment. Minor sources are not major and are not exempt.

The two primary categories of air permits, construction permits and operating permits, are briefly summarized below. Generally, construction permits are project specific and operating permits apply to the entire facility.

- **Construction Air Permits:** When stationary sources or emission units are built or modified, there are three types of permitting programs that potentially apply (these are pollutant specific, so more than one could be applicable to a project).
  - **Prevention of Significant Deterioration (PSD) Permits -** Required for new major sources or major sources making a major modification in areas that meet the National Ambient Air Quality Standards (NAAQS).
  - **Nonattainment NSR (NNSR) Permits -** Required for new major stationary sources or major stationary sources making a major modification in areas that are nonattainment for one or more NAAQS.
  - **Minor Permits** - For emission units or sources that are not exempt or excluded from air permitting (such as a residential water heater) and don't require PSD or NNSR permits.

- **Operating Permits:** Operating permits consolidate the air pollution control requirements into a single, comprehensive document covering all aspects of the source's air emission units. There are two Title V operating permit programs that apply to major sources (these permits are often called Part 70/71 because the regulations are found in the Code of Federal Regulations at 40 CFR Parts 70 and 71). States can develop their own Title V permitting program to include the provisions specified in 40 CFR Part 70 or could defer to the Federal program as specified in 40 CFR Part 71.
  - **Part 70 Permitting Programs** - State and local permitting authorities are responsible for running Title V permitting programs for major sources, including reviewing permit applications and issuing permits.

- **Part 71 Permitting Programs** - The EPA is the permitting authority, including reviewing permit applications and issuing permits.

2.5 State and Local Minor/Area Source Permits

State or local construction and operating permits are required for some air emission units or sources that emit at greater than insignificant or "de minimis" levels, but less than major source levels. These permits are the result of State specific permitting programs approved by the EPA to regulate small emitters of air pollution and to attain compliance with broader air quality Federal laws and regulations. The names and structures of these permits can vary from State to State and depend on the type of emission unit or source being constructed or operated and the quantify of emissions emitted. Commonly, these types of permits are referred to as General Permit, Source-Specific Permit, Permit by Rule, Registration Permit, Permit to Install/Construct, Standard Permit, or Minor New Source Review. Some emission units or sources have such a low potential to emit that they are exempt from permit regulations. Nevertheless, exempt emission units or sources are subject to other applicable Federal, State, or local air pollution control regulations. Detailed information on air permit types is provided further in this guide.

3 AIR POLLUTANTS

Air pollutants are natural or manmade substances that are airborne and can harm human health, the environment, and property. Any emission unit or source that emits air pollutants above a specified level is required to have an air quality permit unless specifically exempted. Generally, air quality regulators divide air pollutants in three main categories: criteria pollutants, air toxics (i.e., HAPs), and greenhouse gases (GHGs).

3.1 Criteria Pollutants

Criteria pollutants (from here on abbreviated as "CP" in this guide) are those air pollutants which have a NAAQS as described in the previous chapter (i.e., O_3, NO_x, SO_x, CO, Pb, and PM). EPA further categorized PM emissions into "coarse" (PM_{10}) and "fine" ($PM_{2.5}$) particles. These categories indicate the size of the particles that have an aerodynamic diameter of less than or equal to 10 micrometers or 2.5 micrometers respectively. As such, emissions of PM must be calculated to account for both PM_{10} and $PM_{2.5}$.

3.2 Hazardous Air Pollutants

HAPs, also known as air toxics, are chemical or physical contaminants that are known or have the potential to cause serious harm to human health (e.g., cancer, birth defects, genetic mutations). The risk of health problems caused by HAPs varies depending on the pollutant and length of exposure. An example of an HAP is benzene which was commonly found in gasoline. Currently, there are 188 substances (originally 189) listed as HAPs. Due to the serious risk to human health, emissions of HAPs are more tightly regulated compared to CPs. There are air pollutants that may be regulated under more than one standard. For example, lead is regulated as both a CP and a HAP.

Important update: On 5 January 2022, EPA issued a final rule to add 1-bromopropane (1-BP) to the CAA's list of HAPs (87 FR 393). This is the first time a HAP has been added to the list since 1990. 1-BP is an organic and colorless solvent commonly used in dry cleaning and stain removers. vapor and immersion degreasers/cleaners, applied cleaning solvent (e.g., wipe cleaning), and adhesives and sealants. The addition of 1-BP to the HAPs list means that facilities, including DAF installations, must include 1-BP emissions in its PTE calculations and the emissions will count toward the calculation of HAP emissions for the purposes of reporting, major source determination, air permitting, and other regulatory requirements as mandated.

3.3 Greenhouse Gases (GHGs)

GHGs allow sunlight to enter the Earth's atmosphere while preventing radiant energy from leaving the atmosphere (i.e., greenhouse effect). GHG emissions are altering the balance

between incoming solar radiation and heat released back into space resulting in climate change. Examples of GHGs include carbon dioxide, methane, nitrous oxide, and halogenated gases. GHGs may be introduced into the atmosphere through natural processes; however, many GHGs are emitted into the atmosphere as a direct result of anthropogenic (human) activities. Common anthropogenic sources of GHGs involve combustion of fossil fuels (coal, natural gas, and oil) and wood.

GHGs are quantified according to their global-warming potential (GWP). Specifically, GWP is a measure of how much energy the emissions of one ton of a gas will absorb over 100 years, relative to the emissions of one ton of CO_2. The carbon dioxide equivalent (CO_2e) for a gas is derived by multiplying the tons of the gas by its GWP. A few examples of GWPs are provided in the following table:

Greenhouse Gas	Global Warming Potential*
Carbon Dioxide	1
Methane	25
Nitrogen Oxide	298
*As of the date of this of this guide (refer to 40 CFR Part 98, Subpart A, Table A-1).	

GHGs only need to be addressed in permits when air permitting is required for another regulated pollutant AND the source has a GHG PTE ≥ 75,000 tons per year (tpy) CO_2e. Generally, only very large sources reach these thresholds.

NOTE: On 23 June 2014, air permitting of GHG emissions for "non-anyway" sources were overturned by the Supreme Court in Utility Air Regulatory Group versus EPA (134 S. Ct. 2427; 2014)]. The court determined that a source cannot be considered major for permitting based solely on emissions of GHGs. For example, a source is subject to New Source Review permitting for its GHG emissions only when emissions of non-GHGs are above major source thresholds. These are frequently referred to as anyway sources because a major source permit will be required "anyway."

4 COMMON DAF EMISSION UNITS

There is a considerable amount of uncertainty among the regulated community in regard to identifying an emission unit. The term is frequently encountered when preparing applications for permits as well as interpreting the applicability of various permit exemptions. The confusion exists because the term "emission unit" is defined differently, depending on the air quality regulations. Emission unit is often referred to and frequently considered to be one and the same with terms such as source, activity, action, project, facility, source, plant, building, structure, installation, process equipment, process group, and emission group.

Per the definition in the Title V regulations "Emissions unit means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act. This term is not meant to alter or affect the definition of the term "unit" for purposes of Title IV of the Act or any related regulations" (40 CFR §70.2, *Definitions*). Therefore, an emission unit should be the smallest part of a stationary source for which there exists an air pollution emission standard (e.g., generator, boiler). However, this could include a grouping of emission points that are functionally related in their operation (e.g., paint booth) or have a common air pollution control device (e.g., (scrubber, filter, baghouse, electrostatic precipitator, cyclone, scrubber, condenser). Common emission units that emit CPs and HAPs found on DAF installations are included in Table 4-1 below. These examples are not all-inclusive.

Table 4-1; Pollutants and Common Emissions Units

Pollutant	Common Emission Units
Ozone	Primarily forms in the atmosphere from reaction of NOx and VOC in the presence of sunlight
Carbon Monoxide	Byproduct of combustion; boilers, engines, etc.
Nitrogen Dioxide	Byproduct of combustion; boilers, engines, etc.
Sulfur Dioxide	Byproduct of combustion of fuel containing sulfur; boilers, engines, etc.
Particulate Matter	Abrasive cleaning, painting, cooling towers, combustion byproduct; boilers, engines, etc.
Lead	Abrasive cleaning, munitions
Volatile Organic Compounds	Fuel storage, transfers and dispensing, painting, degreasing, solvent usage, combustion byproduct; boilers, engines, etc.
Hazardous Air Pollutants	Fuel storage, transfers and dispensing, painting, degreasing, solvent usage, combustion byproduct; boilers, engines, etc.

It is also critical to recognize that the term "stationary" also means any emissions unit or activity that is located at a single location or site and not intended to be relocated to another location or

site. Air pollution emissions from mobile sources, such as engines within non-road and on-road vehicles and equipment, are not subject to air permitting.

4.1 Fugitive Emissions

Some emission units or activities may also emit dust or VOCs that are not emitted from a definable emission point. A key concept to air emissions is understanding the difference between "fugitive" and "point" emissions. 40 CFR 70.2 defines fugitive emissions as follows:

> "Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening."

The difference between fugitive and non-fugitive (point) emissions is simply that point emissions pass through a smokestack or other similar type of ducting while fugitive emissions do not. For example, emissions from painting operations in a booth would be considered a point source as the emissions exit through a stack, while painting outside of a booth would be considered to be fugitive.

The following are examples of fugitive emissions:

- Fine particles (e.g., dust blowing from rock piles or dirt roads).
- Aerosols.
- Leaks from valves, pumps, connectors, compressors, flanges.

Methods of controlling fugitive particulate emissions include:

- Water spray and/or chemical suppressants to keep the dust settled.
- Enclosures, windscreens, covers, and barriers.
- Reducing speed and traffic on unpaved roads.
- Paving gravel or dirt roads
- Leak prevention, detection, and leak repair program.

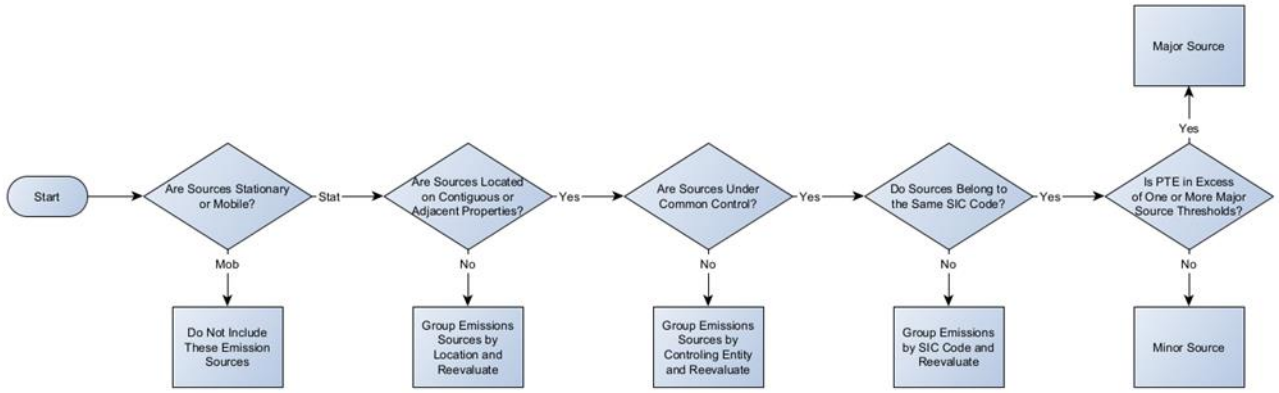
The distinction between fugitive and point emissions is important for permitting purposes as explained further in this guide.

5 SOURCE CLASSIFICATION

5.1 Major Source Definition

The following chapters of this guide will discuss and provide a path to evaluate each of the criteria identified in 40 CFR 70.2. To assist with visualizing the process, a generalized flow diagram is included below.

Figure 5-1; General Emission Source Classification



The first step in understanding air operating permits is to become familiar with the EPA's definition of a Major Air Emissions source; simply known as a Major Source in this context. The definition of the term Major Source is contained in 40 CFR 70.2, which States the following (emphasis added):

> "Major source means any stationary source (or any group of stationary sources that are located on one or more continuous or adjacent properties, and are under common control of the same person (or persons under common control)) belonging to a single major industrial grouping and that are described in paragraph (1), (2), or (3) of this definition. For the purposes of defining "major source", a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same Major Group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987…."

The CFR continues to provide emissions limits based on the type of pollutant; paragraphs (1)(i) and (ii) for HAPs and radionuclides and (2) for CPs. (emphasis added).

> (1) A major source under section 112 of the Act, which is defined as:
> (i) For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the

potential to emit, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutant which has been listed pursuant to section 112(b) of the Act, 25 tpy or more of any combination of such hazardous air pollutants, or such lesser quantity as the Administrator may establish by rule.

(2) A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant subject to regulation (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:

(The referenced list of sources was not included here as these are not activities performed on Air Force installations.)

5.2 Major Source Evaluation Criteria

Based on the definition above, the EPA has provided a set of criteria for determining a Major Source. These are:

1. Stationary Source.
2. Located on one or more continuous or adjacent properties.
3. Under common control of the same person or persons under common control.
4. Belong to a single major industrial group (SIC Code).

And

5. Emits or has the potential to emit 100 tpy or more of any regulated air pollutant (for CPs and precursors).

Or

6. Emits or has the potential to emit 10 tpy of a single HAP, or 25 tpy of all HAPs.

It is important to note that under this definition, an emissions source can be a major source for CPs and/or HAPs independent of the other. More specifically, a major source for CPs is not necessarily also a major source for HAPs. Separate applicability determinations must be performed for both categories of pollutant to properly classify a facility.

Generally, Air Force installations are significantly more likely to be a major source for CPs than they are for HAPs. Additionally, being classified as a major source for HAPs results in significantly more regulations becoming applicable to the facility. As such, environmental flight personnel who believe that they have become a major source for HAPs should seek technical

support from their AFCEC ISS counterpart or Air Quality SME prior to undertaking any relevant permitting actions.

5.3 Minor Source Definition

Although a major source is well defined in 40 CFR 70.2, a minor source is not. As such, any source that is not a major source is therefore a minor source. This assertion is supported by 42 United States Code (USC) sections 7602 for CPs and 7412 for HAPs, which states the following: (emphasis added)

> 7602 (x) Small Source. The term "small source" means a source that emits less than 100 tons of regulated pollutants per year, or any class of persons that the Administrator determines, through regulation, generally lack technical ability or knowledge regarding control of air pollution.
>
> 7412 (2) The term "area source" means any stationary source of hazardous air pollutants that is not a major source. For purposes of this section, the term "area source" shall not include motor vehicles or nonroad vehicles subject to regulation under subchapter II of this chapter.

5.4 Minor Source Evaluation Criteria

Identifying minor sources of air pollution is the same as determining what is a major source. If a source does not meet the definition of major source, it is therefore a minor source. For CPs, we will simply refer to them as a minor source, while for HAPs, a source that is not a major source is also referred to as an "area source."

5.5 Synthetic Minor Source

A third category of emissions source is the synthetic minor source, which is defined as a major source which has opted to limit its operations and therefore PTE to less than that of a major source. These operating limits are developed so as to be "Federally enforceable"; operating limits which are Federally enforceable are those for which firm, quantifiable boundaries for operation can be put into place. For example, a base may wish to limit the number of gallons of diesel fuel that its emergency generators are allowed to consume in a year. This non-subjective metric is one that can easily be quantified and shown to limit emissions so that the installations PTE remains below major source thresholds. Conversely, attempting to establish a simple limit on emissions of a criteria pollutant without that firm, measurable limit would not be adequate to establish a source as a synthetic minor instead of a major source. The resulting air permit for a synthetic minor source are often titled "Federally Enforceable State Operating Permit (FESOP)."

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6 STATIONARY SOURCES

This document applies to permitting stationary sources and emission units; mobile sources are regulated under other parts of the Clean Air Act. It is critical to clearly identify the stationary source and/or emission units that are subject to air permitting. Confusion between terms primarily exists because various regulations define "stationary source" and "emission unit" differently and will often use the terms interchangeably (a stationary source can be a single emissions unit, a group of emission units, or a facility with multiple emissions units). For consistency and clarity, the meaning of these terms used in this document will rely on the definitions found in 40 CFR §70.2 (State Operating Permit Programs) and 40 CFR §71.2 (Federal State Operating Permit Programs):

> **Stationary source** means any building, structure, facility, or installation that emits or may emit any regulated air pollutant, or any pollutant listed under section 112(b) of the Act.
>
> **Emissions unit** means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant, or any pollutant listed under section 112(b) of the Act….

To avoid confusion, it is advisable to not use these terms interchangeably and reference pieces of equipment or processes as emissions units and groups of emissions units as emissions sources. In most cases, an emissions source is a group of emissions units which are aggregated under the same permit.

6.1 Stationary Source Definition

As mentioned above, EPA permitting regulations define "stationary source" as "any building, structure, facility, or installation which emits or may emit any regulated pollutant…" Those regulations further define the term "building, structure, facility, or installation" to mean "all of the pollutant-emitting activities which [1] belong to the same industrial grouping, [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). "Same industrial grouping" refers to the same Major Group, two-digit Standard Industrial Classification (SIC) code. Many State and local permitting regulations contain similar definitions. There will be a more detailed discussion of these terms later in this Guide.

Although this definition of a stationary source is seemingly straight forward, the CAA generally defines the term "stationary source" as "any source of an air pollutant" except those emissions resulting directly from certain mobile sources or engines. This characterization can be confusing because it is distinctly different from the stationary source definitions in the air permitting

regulations. In this context, a "stationary source" is any emissions unit or activity that is located at a single location or site and not intended to be relocated to another location or site. This concept is important because many DAF installations operate combustion equipment such as diesel or gasoline powered welders, compressors, and generators that do not meet the definition of "stationary." These emission units may qualify as mobile, portable, or nonroad and their air emissions are not included in a facility's calculation of air emissions when determining applicability during the Federal air permitting process. Inversely, portable emission units (e.g., generators) can become categorized as stationary and thereby subject to air permitting and other requirements.

As an example, per 40 CFR §1068.30, nonroad engine means:

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:

(i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).

(ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).

(iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:

(ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)). Note that this criterion does not apply for engines meeting any of the criteria of paragraph (1) of this definition that are voluntarily certified under 40 CFR part 60.

(iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. For any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced, include the time period of both engines in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least

two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

As extrapolated from the nonroad definition above, an engine in self-propelled equipment can never become a stationary source, while an engine in portable (not self-propelled) equipment can become stationary. This type of equipment is common on DAF installations and consists of Equipment Authorized Inventory Data (EAID) generators, light carts, and other similar equipment and represents a threat to maintaining compliance with Federal, State, and local air quality regulations. Portable units have caused violations to be levied against facilities for failure to permit them after being deemed to have become stationary sources upon being left in place for 12 months or more. Note that maintaining generators and other equipment in storage areas does not constitute use and is not at risk for being classified as a stationary source. It is only when a unit is placed into service and it, or another functionally equivalent piece of equipment remains at the location.

6.2 Stationary Source Criteria

To recap, based on the Federal air permitting definitions, a stationary source is a building, structure, facility, or installation which emits or may emit any air pollutant and all of the pollutant-emitting activities:

1) belong to the same industrial grouping, and
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).

NOTE: The EPA issued multiple memorandum and guidance interpreting the criteria for being considered a stationary or major source. While the EPA's guidance documents does not carry the force of law, it can significantly modify EPA's application of the criteria. It is important to consult the latest EPA publications when utilizing the three-part criteria for determining a source (same industrial grouping, location on contiguous or adjacent properties, and under common control).

6.3 Facility; Contiguous and Adjacent

DAF installations are a conglomeration of a multitude of organizations, missions and activities and because of this diversity are analogous to a small city. With the size of many DoD facilities and multitude of Geographically Separated Units (GSU), determining how to group or not group those properties based on their respective locations to one another for the purposes of air permitting is an important step.

6.3.1 Definition of Contiguous and Adjacent

The CAA does not specifically define contiguous or adjacent as it relates to air permitting; however, guidance was provided to the DoD to assist with making major source determinations. In 1996, the EPA published a memorandum titled, "*Major Source Determinations for Military Installations under the Air Toxics, New Source Review, and Title V Operating Permit Programs of the Clean Air Act (Act)*." Known as, "The Seitz Memo", this guidance provides the basis for air permitting at DAF installations and assists with determining the appropriate aggregation or disaggregation of emissions sources for the purpose of obtaining an air operating permit. The EPA provides a summary of their intent and interpretation of the CAAA in the memo and states as follows:

> "The EPA believes it is appropriate to think of military installations as combinations of functionally distinct groupings of pollutant-emitting activities that may be identified and distinguished the same way that industrial and commercial sources are distinguished, that is, on the basis of a "common sense notion of a plant."

The EPA provided further guidance in a letter to Regional Administrators on 26 Nov 2019 titled, "Interpreting 'Adjacent' for New Source Review and Title V Source Determinations in All Industries Other Than Oil and Gas." In this letter the EPA states the following: (emphasis added)

> "Therefore, in sum, for purposes of making source determinations for NSR and Title V, EPA interprets the term 'adjacent' to entail physical proximity between properties. From this point forward, EPA will consider properties that do not share a common boundary or border, or are otherwise not physically touching each other, to be 'adjacent' only if the properties are nevertheless nearby, side-by-side, or neighboring (with allowance being made for some limited separation by, for example, a right of way). This is inherently a case-specific inquiry where determining the appropriate distance at which two properties are proximate enough to reasonably be considered 'adjacent' may vary depending on the nature of the industry involved. Therefore, EPA is not here establishing or recommending a 'bright line,' or specifying a fixed distance, within which two or more properties will be deemed (or presumed) by EPA to be in close enough physical proximity to be considered 'adjacent.' In each case, this determination should ultimately approximate the 'common sense notion of a plant.' Moreover, importantly, for those properties not in physical proximity to each other, EPA will not invoke the existence of some functional interrelationship to establish 'adjacency.'"

6.3.2 Determination of Contiguous or Adjacent

Being contiguous or adjacent limits the scope of what constitutes a facility generally to a single continuous piece of land, pieces of land which are directly next to each other, or are within a

short distance of one another. An example of contiguous facilities would be two Department of Defense (DoD) installations which share a fence line.

Although the term "contiguous" is straight forward, "adjacent" is more subjective, leaves room for interpretation and requires further clarification. In its 2019 guidance letter, the EPA states, "…allowance being made for some limited separation by, for example, a right of way." As such, it is safe to assume that being simply divided by a road, railway or other similarly short distance would not justify segregation into separate facilities.

In cases where multiple facilities are under control of the same Air Force organization but separated by only a very short distance, coordination with the applicable regulatory agency should be considered to ensure legal sufficiency for any determinations made which would result in disaggregation into multiple facilities. Greater distances increase the likelihood of being classified as separate sources; however, it should be noted that the interpretation of adjacency must be carefully considered as different regulatory agencies may not interpret this in the same way.

6.4 Common Control

The next factor when determining what constitutes a facility for the purpose of air quality permitting is Common Control. In the simplest terms, common control can be thought of as an organizational chart and summarized by asking, "who has the power to direct emissions producing activities?"

6.4.1 Definition of Common Control

Common control is not formally defined within the CAA; however, multiple guidance memos and letters have been published by the EPA on this subject. The Seitz memo states: (emphasis added)

> "There are four separate military services within the DOD: the Army, the Navy, the Air Force, and the Marine Corps. The administrative functions of these services, including management control over facility operations, are the province of the separate military services. Effectively, there is no 'control' relationship among these services regarding facility operation below the Secretary of Defense. In addition, there are a number of defense agencies and defense field activities established by the Secretary of Defense as necessary to perform a supply or service activity common to more than one military department. Overall supervision of each agency or field activity is assigned to the Office of the Secretary of Defense or to the Chairman of the Joint Chiefs of Staff."

> "When different military services control separate groups of pollutant-emitting activities at a single military installation, the Agency believes it is appropriate to consider these activities not to be under common control when making major source determinations."

At this high level, the EPA states that the individual DoD agencies are not under common control with each other and should be considered as separate sources. Additionally, due to the organizational structure of the National Guard and its position as a State agency under control of each governor, it is also considered to not be under common control with its active-duty counterpart organizations.

The Seitz memo includes the following caveat regarding common control: (emphasis added)

> "Nevertheless, while separate military controlling entities may be treated as under separate control, determinations for military installations should be made only after examining the specific operations and interactions at those sites. Consequently, there may be situations in which the air pollution control agency or the permitting authority determines that it is appropriate to consider a military installation a single 'source,' notwithstanding the presence of multiple controlling entities at that military installation. Nothing in this guidance precludes such a finding by an agency or permitting authority."

Figures 1 and 2 of the Seitz memorandum include a list of DoD entities which are not considered under common control and those which are under common control with each other, respectively. These lists are included below for reference.

Table 6-1; Military Controlling Entities That May Be Considered Under Separate Control

Air Force
Army
Defense Agencies (See Table 6-2)
Marine Corps
National Guard
Navy

Table 6-2; Defense Agencies That Are Considered Under Common Control*

Advanced Research Projects Agency	Defense Legal Services Agency
Ballistic Missile Defense Organization	Defense Logistics Agency
Central Imagery Office	Defense Mapping Agency
Defense Commissary Agency	Defense Security Assistance Agency
Defense Finance & Accounting Service	Defense Nuclear Agency
Defense Information Systems Agency	General Defense Intelligence Program Support Staff
Defense Intelligence Agency	National Security Agency Central Security Service
Defense Investigative Service	On-Site Inspection Agency

* As reorganization of DoD agencies occur, the names in this table may be obsolete.

6.4.2 Common Control Determinations

Within each DAF installation, the delineation of who has control over an organization is simple, as is the case with DoD agencies such as the Army and Air Force Exchange Service (AAFES), the Defense Commissary Agency (DeCA), the Defense Information Systems Agency (DISA) and the Defense Health Administration (DHA). Those organizations and others like them report to a different chain of command which does not include the installation Commander. Similarly, DAF installations often host other tenants which are not part of or affiliated with the DoD and should also not be included as part of an installations air permit. An example of some of these organizations includes, but is not limited to, Bureau of Prisons, State or Federal environmental protection agencies and local utility providers.

In all cases, installation environmental management flight personnel should be familiar with the host-tenant arrangements that are in place as they may dictate a certain level of environmental compliance support from the base to the tenant and vice versa. Similarly, situations exist where although a tenant (for example AAFES) may operate a group of sources (fuel dispensers) the host installation may own some of the equipment (underground fuel tanks). Those cases must be carefully analyzed to determine if the tenant provides support to the installations primary mission to determine if a "support facility" relationship exists. In the case of AAFES or DeCA, it is easy to show that their function does not support the national security mission at an DAF installation; and therefore, are not support facilities.

In other cases, common control must be scrutinized; as in when tenant DAF organizations are present on an installation, however, do not fall within the chain of command of the DAF installation Commander. A similar situation occurs in joint base environments where one agency provides civil engineering support to another DoD agency which is co-located. In these instances, although the tenant organization is separated into its own group of emissions sources,

their actual or potential emissions may require that they be permitted as their own source. Again, since regulators have discretion over how to interpret and implement portions of the CAA, careful analysis, decision making, regulatory coordination and recordkeeping must be performed to ensure technical and legal sufficiency for any air permitting decisions made. If questions arise, installation environmental management flight personnel should contact their ISS counterpart to obtain technical support and assistance.

6.5 Support Facilities

Another concept to consider when analyzing common control is that of "support facilities." In general, a support facility is a unit or organization which provides a service to a DAF installation, or an organization located on the installation which supports their primary mission. On 30 April 2018, the EPA published a letter to Meadowbrook Energy LLC which further discusses the notion of common control with specific reference to support facilities. In this letter, known as the Meadowbrook Letter, the EPA expanded on the 1996 Seitz memo regarding support facilities, their function and appropriate permitting of them. An example of this could be a series of generators owned by the DAF, however operated by a contractor where the DAF is the sole recipient of the electricity generated by those engines.

Although potentially not under common control of the installation commander, support facilities must be considered part of the facility for permitting due to the interrelationship of the DAF installation's primary mission on emissions from the support facility. Conversely, if a DAF installation is providing support to a non-DAF entity which influences the bases operation and therefore air emissions, they may too be considered jointly to be a single source. As such, support facility considerations can have a significant impact on the permitting status of an installation and therefore those relationships must be carefully considered when evaluating a bases PTE.

In instances where an emissions source provides support to multiple primary activities under different SIC codes, the support facility must be evaluated to determine where the majority of its output goes. This determination will dictate which primary function the support facility will be grouped with when making a major source determination. Conversely, in cases where there is no functional and therefore emissions interrelationship between the organizations, there may be an opportunity to disaggregate them for the purpose of air quality permitting.

Similarly, when a DAF installation hires a support contractor to provide a service to the installation, these activities also meet the definition of support facility. Therefore, contract for service activities must be considered as part of the installation because their emissions are a direct result of the support provided to the installation. As such, these contracted services must be included in the installations major source determination or air operating permit(s).

The Meadowbrook Letter provides additional guidance and clarity on this topic:

> "In practice, evaluating common control will necessarily be a fact-specific inquiry. However, EPA believes the most relevant considerations should be whether entities have the power to direct the actions of other entities to the extent that they affect the applicability of and compliance with permitting requirements: e.g., the power to direct the construction or modification of equipment that will result in emissions of air pollution; the manner in which such emission units operate; the installation or operation of pollution control equipment; and monitoring, testing, recordkeeping, and reporting obligations. On the other hand, common control considerations should not focus on the power to direct aspects of an entity's operations that are wholly unrelated to air pollution permitting requirements. If one entity has power or authority over some aspect of another entity's operations that would have no impact on pollutant-emitting activities of the stationary source subject to permitting requirements, EPA does not consider that fact to be relevant to determining whether the two entities should be considered a single source for air quality permitting purposes (e.g., one entity providing security for both its facility and for an adjacent facility belonging to another entity)."

6.6 Support Facility Determination

When evaluating whether a support facility arrangement exists and whether those emissions must be included as part of an installations permitting efforts the primary question is, "does the activity of the DAF installation impact the emissions of the emissions source in question?" As stated in the Meadowbrook letter, "…the agency believes clarity and consistency can be restored to source determinations if the assessment of 'control' for Title V and NSR permitting purposes focuses on the power or authority of one entity to dictate decisions of the other that could affect the applicability of, or compliance with, relevant air pollution regulatory requirements."

When questions arise regarding common control and proper disaggregation of Air Force installations, it is recommended that installation personnel contact their ISS counterpart or AFCEC Air Quality SME for technical support and coordinate with their regulatory agency prior to initiating any permitting actions utilizing this strategy.

6.7 Industrial Grouping

The final consideration of what constitutes a facility for the purpose of air quality permitting is Industrial Grouping. The 1996 Seitz memo states the following:

> "The EPA believes it is appropriate to think of military installations as combinations of functionally distinct groupings of pollutant-emitting activities that may be identified and distinguished the same way that industrial and commercial sources are distinguished, that is, on the basis of a 'common sense notion of a plant.' Thus, the 'industrial groupings' at a

> military installation would be assigned appropriate 2-digit SIC codes (as if they were nonmilitary facilities) and classified into "primary" and "support" activities. As is now done for nonmilitary sources, support activities at military bases would be aggregated with their associated primary activity regardless of dissimilar 2-digit SIC codes. Consequently, emissions from support facilities would be added to the emissions from the primary activity when determining the major source status of the 'source'."

The Standard Industrial Classification (SIC) system is a method of grouping industrial activities together by their function. As stated in the Seitz memo, activities on military installations should be classified by their major, two-digit SIC code and grouped into primary and support functions. The North American Industry Classification System (NAICS) officially replaced the SIC code system in 1997 (after the Seitz memo was written); however, SIC codes are still in use for non-statistical purposes, including by many air permitting agencies (e.g., Indiana, Texas). Make note that some agencies rely on NAICS codes for air permitting purposes.

Both SIC and NAICS codes identify the primary business function for a source, but the numeric codes differ between the two systems. For example, many military installations are aggregated under SIC Code 97 or 9711, National Security, while their NAICS code is 928110 (National Security) or 928110-09 (Military Bases). This list is maintained by the US Department of Labor (DoL) and includes two-digit major industrial classification and four-digit specific classification codes.

An installation's support functions may not be in the same SIC or NAICS grouping as the primary mission that they support; therefore, they could be grouped together with those primary missions when determining what constitutes a facility for the purpose of air quality permitting. In general, most activities on DAF installations would be classified under the SIC or NAICS for National Security; however, military bases include other organizations which are better classified under other SIC or NAICS codes. An example of this would be a large military hospital which would be assigned a two-digit SIC code of 80 for Health Services or classifying a bases flying mission under the two-digit SIC code of 45 for Transportation by Air.

Permitting actions on Air Force installations should evaluate the operations and functions on the facility as if it was an industrial plant. Utilizing this "commonsense notion of a plant" may enable permitting actions to be grouped into functionally distinct groupings. For example, on larger installations, the result can be a single Title V permit governing the industrial portion of the base while non-industrial areas are subject to less stringent minor source permits. Although breaking the installation into functional groups may not alter the results of the major source determination or permit applicability, it can result in more concise and easier to manage permits with fewer recordkeeping requirements.

It is important to note, however, that simply because they are not part of the same facility for air permitting, it does not mean that they are exempt from permitting. Segregating an installation into multiple facilities is referred to as "disaggregation" and is discussed later in this guide.

Coordination with regulatory agencies is key when evaluating whether this permitting strategy is viable and/or beneficial to the installation. The benefits and risks of this approach must be carefully weighed to ensure that permits are structured to the benefit of the DAF installation and that the effort to develop permits under this structure provides value.

6.8 Excluded Activities

In addition to the considerations given to geographic location, common control and industrial grouping, a portion of the activities on military installations should be excluded from permitting since they are not part of the installations primary military mission. Regarding this subject, the 1996 Seitz memo states the following:

> "The EPA also believes that certain personnel-related activities at military installations may appropriately be considered *not* to be support facilities to the primary military activities of a base and, therefore, they can be considered separate sources. Examples of these types of activities include residential housing, schools, day care centers, churches, recreational parks, theaters, shopping centers, grocery stores, gas stations, and dry cleaners. These activities may be treated as separate sources for all purposes for which an industrial grouping distinction is allowed, but they should be separately evaluated for common control, SIC code, and support facility linkages to determine if a major source is present."

As stated above, the EPA believes that these functions on DAF installations should be excluded from permitting with the main portion of the installation activities (SIC 97). That said, however, those activities must still be evaluated to determine if any should be grouped together and whether a major source exists. Depending on the results of this analysis and the regulatory climate, these secondary functions may require separate permitting actions.

Examples of emissions sources which should be excluded from permitting as part of an DAF installation's main air permit would include but are not limited to; furnaces and water heaters in on-base housing, AAFES fuel dispensing, and emergency generators supporting a commissary. Careful consideration must be given to applicable regulations for those emissions sources, however.

6.9 Summary: Aggregation / Disaggregation

When evaluating how a DAF installation and how emissions sources should be permitted, proper grouping (aggregation) and separation (disaggregation) of sources is key. As discussed, the primary methods used to aggregate or disaggregate emissions sources are:

- **Geographic Location:** are sources contiguous or adjacent?
- **Common control:** are the operation of emissions sources able to be directed by a single person?
- **SIC Code:** do the emissions units support a common primary function?
    - Support facilities: are there emissions units that are not part of the primary function, however provide direct support to it?
- **Excluded Activities:** are there emissions sources which do not support the military function of the installation?

Once a complete list of emissions sources has been developed, the next step is to evaluate and group each emissions source. As part of this effort installation environmental flight personnel should carefully evaluate the ramifications of aggregating or disaggregating emissions sources. One of the primary concerns when evaluating a strategy for emissions source aggregation/disaggregation is to ensure that the logic used is legally and technically sound. Additionally, consideration must be given to the fact that multiple permits may be necessary if emissions sources are disaggregated and not included in the main installations operating permit. Managing and maintaining multiple operating permits may increase or decrease the level of effort required to track sources and demonstrate regulatory compliance. As such, disaggregation and its impacts on the installations air program must be carefully weighed against the benefits to assure program success.

Failure to ensure adherence to EPA guidance and sound logic could result in regulatory penalties being levied by regulators for circumventing Title V of the CAAA. If in doubt of the proper approach, technical support from the ISS should be requested and/or coordination with the appropriate regulatory agency should be performed to gain concurrence regarding emissions source aggregation/disaggregation.

7 POTENTIAL TO EMIT

Once a facility has been evaluated and placed into one or more groups of emissions sources, the next step is to evaluate the PTE for each group. Although this Guide includes a discussion on PTE, the DAF's PTE Guide contains more details and should be consulted when calculating PTE.

7.1 PTE Definition

A PTE quantifies the maximum theoretical amount of air pollution that a facility could generate under its current operational configuration and is defined in 40 CFR 70.2 as follows: (emphasis added)

> "Potential to emit means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air 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 is enforceable by the Administrator…"

In many instances this has been incorrectly interpreted to mean that the PTE for a source is as if it were to operate 24 hours per day, seven days per week, 365 days per year (8,760 hours). Per the definition in 40 CFR 70.2, this is not the case and certain constraints on PTE have been allowed so that these emission estimates reasonably represent the upper bounds of possible releases.

Additionally, the EPA addressed inclusion of control equipment in PTE calculations in the definition. In summary, the definition states that control equipment shall be included as part of the PTE so long as its operation is "enforceable by the Administrator." As previously discussed, when considering what does/does not qualify as being enforceable, the operation of the equipment and subsequent decrease in emissions must be quantifiable and tangible (limit on hours or throughput, not just emissions). Due to inclusion of this statement, emissions control equipment is only to be considered in PTE when it is inherent in the design of the equipment. For example, a boiler equipped with a low NOx burner or a generator with a lean burn engine may include emissions reduction from those controls when calculating PTE. Conversely, a dust collector used to collect saw dust from wood working operations which is not physically required to operate while using the associated wood working equipment must not be included. The emissions reductions due to this control equipment is not allowed to be included as part of the PTE because its operation is not inherent to the operation of the wood working equipment. Stated more simply, the wood working equipment can be operated regardless of whether the dust collector is turned on or connected.

The EPA has published general guidance for calculating PTEs; however, many of their assumptions result in excessively conservative emissions estimates and possible improper categorization as major sources when this would otherwise not be warranted. A well published example of this is the EPA's use of 500 hours per year for emergency generators and fire pumps. Statistical analysis by the AFCEC of emergency generator and fire pump operation shows that >98% confidence in PTE limits of 160 hours and 40 hours respectively for those sources. This is a significant reduction in potential emissions and can have a large impact on PTE estimates and subsequent major source determinations.

7.2 Types of PTE

Potential emissions are not only calculated to estimate maximum theoretical emissions; in some cases, the actual anticipated emissions from the source(s) must be calculated as well. This type of potential to emit reflects the quantity of emissions that the source owner/operator believes will be representative of typical operations once the source is placed into service. In addition to the maximum PTE estimates, these "actual potential" emissions are utilized when developing some emissions source permit applications. The need for both kinds of potential emissions estimates vary between regulatory agencies and permit types and personnel developing permit applications must understand the regulatory requirements and expectations of their permitting authority regarding the emissions estimates to be included. As with other steps in the permitting process, regulatory coordination is key to ensure an efficient, timely approval of permit applications.

7.3 DAF Standard PTE Methodology

The AFCEC has developed a series of standard methods for calculating PTEs. These include, but are not limited to, statistical analysis of typical Air Force operations, site-specific meteorological data as well as ways to estimate maximum emissions based on current mission profile. This information is provided in the *DAF Potential to Emit Guide*. The methods outlined in that guide can accommodate the majority of cases in the DAF; however, in more challenging cases evaluating additional considerations and constraints may be necessary.

7.4 Additional PTE Constraints

As previously mentioned, the PTE for a piece of equipment, in most cases, is not 8,760 hours per year. The definition makes two critical statements to consider; in the first sentence it states, "under its physical and operational design", while the following sentence states, "Any physical or operational limitation on the capacity of a source to emit an air pollutant…shall be treated as part of its design…"

These two statements provide critical questions which must be asked when calculating PTE:

- Are there any equipment or design parameters to consider?
- How long is the emissions source intended to operate per year?

Although military installations operate 24/7, most individual units do not function continuously. For example, a normal work week is 40 hours over five weekdays. Although personnel working in security forces and flight operations may be on duty at all times, most maintenance shops (excluding depots) are limited to a normal work week. As such, with typical manning, most shops would be limited to 40 hours per week, 52 weeks per year of operation (2,080 hours). Conversely, consider a base which performs depot level maintenance on aircraft. Due to the significant workload and production schedule requirements, these facilities may operate two, three or even four work shifts in a day. In those cases, the PTE for emissions sources operated by those shops would be greater in order to reflect that work schedule.

This kind of operational limit should also be considered with evaluating workload. A common example would be an aircraft painting operation; assume that it takes three days to de-paint an aircraft, three days to prepare it for painting, two days to paint and another day to complete the job for a total of nine days from start to finish. Assuming a single shift, five day per week shop, the maximum number of aircraft that could be painted is just under 29. Since aircraft maintenance is well defined, the quantity of paint and primer needed for each aircraft is likely known and could be multiplied by the theoretical number of aircraft that could be painted. Without changing the operational parameters of the shop (number of personnel, shifts, workdays/week, etc.) the PTE would be limited by those factors.

Similar to the operational limits due to manpower, equipment limits must also be considered. When specifying equipment such as boilers or generators, engineering studies and calculations are performed and compared against facility design criteria to determine appropriate equipment sizing. In this way, equipment is properly sized for the job it will be performing so that it will be both efficient and provide an appropriate equipment lifespan. An example of this would be determining the "heat load" required to maintain a building at a comfortable temperature for the personnel working there. The calculations to determine the proper size for the furnace take building size, age, design and geographic location (weather) into account. As such, two identical buildings; one in Florida and one in Alaska would have significantly different design parameters with a larger furnace designed to operate more days per year being needed in Alaska and a smaller one which is expected to operate fewer days per year in Florida.

One additional example of design constraints are those placed on equipment from the manufacturer. In some cases, standards are developed for certain categories of equipment, for instance emergency generators. Generator manufacturers design their units to function in different use cases (emergency backup vs. primary power) with built in safety factors appropriate for the task to ensure that their equipment is reliable. The International Organization for Standardization (ISO) has developed a standard for engine driven generators, ISO 8528, *Standard for reciprocating internal combustion engine driven alternating current generator sets*,

which most manufacturers adhere to. This standard defines applications, ratings and performance of generators, of which the Emergency Standby Power (ESP) parameters are of the most interest to the Air Force, since most generators are designed/rated for this use. Per the ISO ESP standard, a generator designed to that specification is limited to 200 hours per year of operation with a maximum average load factor of 70%. Again, relative to the EPA's 500 hour per year PTE, this is a significant reduction in potential emissions and may impact the classification of a DAF installation as a major source.

Prior to considering use of more advanced PTE constraints, coordination with regulatory agencies is necessary as some have published their own guidance and placed restrictions on what is/isn't allowed in permit applications.

7.5 Operating Limits as PTE

In addition to use of EPA, Air Force or other design or operational parameters when calculating PTEs there exists another option, utilizing operational limits. In cases where a facility would otherwise be classified as a major source, environmental management flight personnel may opt to coordinate with the DAF installation's leadership to impose operational limits in order to reduce their PTE and avoid a Title V permit. This is what is known as a synthetic minor source because the requested operating limits "artificially" cause them to be a minor source as opposed to a true minor source, which would not require incorporation of such limits to reduce PTE.

Use of operating limits is a valid way to limit an installation's PTE to below the major source threshold; however, this strategy must be used with caution. When incorporating operating limits into a PTE, their use does not end there as those values/parameters will subsequently be incorporated into the final permit and dictate the maximum quantity of operation allowed. These limits must meet two criteria, first, as mentioned before, they must be Federally enforceable. Second, any limits adopted in the operating permit must allow the installation to accomplish its mission without exceeding them. For example, assume that a base typically uses 500 gallons of paint per year in their aircraft corrosion control shop, so wishing to limit their emissions to 400 gallons per year is incorporated into the permit. The installation has now "painted itself into a corner" in that it cannot meet its mission requirements for painting aircraft without exceeding their permit limit.

Use of permit limits should be carefully evaluated prior to proceeding; coordination with installation leadership and operations personnel must be accomplished to ensure that realistic limits are implemented and that the ramifications of exceeding them are well understood. Support from regulatory agencies may also be necessary to ensure that proposed limits are acceptable, and permit is structured so that demonstrating compliance with them is not overly complicated.

7.6 Calculating PTE

PTE calculation methodology only differs slightly from how actual emissions estimates are generated. Instead of using actual throughput and operational parameters as with actual emissions estimates, PTE calculations rely instead on assumptions for those parameters; number of hours, equipment load, maximum quantity of material that could be processed/used, etc. As with actual calculations, the correct Emissions Factors (EF) must be selected and used. For example, selecting the proper engine family/tier for generators, or the correct low NOx factor for boilers and heaters.

Since the establishment of the various New Source Performance Standards (NSPS), use of engines and boilers that are not equipped with pollution controls has decreased over time as sales of new equipment having emissions controls has been phased in over the last twenty years. Because of this, use of AP-42 emissions factors is not appropriate in many cases as some of the most commonly used factors only address "uncontrolled" equipment and do not take the modern requirements and emissions limit certifications into account. For example, the NOx emissions factor for boilers can be as high as a factor of three or more greater for an uncontrolled source vs. a newer unit equipped with a low NOx burner. The AFCEC air emissions guides should be referenced when selecting emissions factors to ensure use of the most current and appropriate values. The AFCEC guides provide the most current versions of Air Force approved emissions factor sets.

Use of Air Program Information Management System (APIMS) for both AEIs and PTEs is required by AFMAN 32-7002, so long as installations maintain this data and keep it current, performing PTE estimates is a simple process in the system. The installation Air Quality Manager (AQM) needs to only update the operating limits and assumptions in the APIMS PTE setup and estimates will be calculated using the same emissions factors as were used in the most recent AEI or as currently configured if updates have been made. Using a series of standard and/or custom reports all calculation parameters can be displayed and exported as necessary to be provided to regulatory agencies or others.

Again, as with many of the topics discussed in the guide, many regulatory agencies have different standards, policies and procedures that must be followed. If questions arise, coordination with regulators may be necessary to develop a technically acceptable PTE.

7.7 Common PTE Errors

Common errors in PTE calculations include, but are not limited to:

- Excessively conservative equipment operating limits.
- Inclusion of control devices which are not "inherent" to the operation of the equipment.

- Incomplete or outdated equipment inventory.
- Use of incorrect or overly conservative (uncontrolled) emissions factors (AP-42 vs. NSPS).
- Inclusion of exempt or other sources which should not have been included.

PTE calculations can be extremely important, especially for installations which may be near or just over the major source threshold. Simple errors, lazy data management, or poor assumptions can mean the difference between a less restrictive minor source and a more burdensome Title V permit.

7.8 Additional Resources for Calculating PTE

Sometimes, calculating PTE is not straight forward and additional assistance is required. Sometimes it may be necessary to engage the assistance of the DAF's AFCEC Air Quality Subject Matter Expert. If needed, manufacturers or equipment vendors may be able to provide specific emissions data. Just be aware that equipment is frequently designed to unique DAF specifications and may differ significantly from the standard version.

Additionally, DAF AFCEC/CZTQ provides guidance for calculating emissions for most air emission sources commonly found on DAF installations. These guidance documents can be found in the Documents Repository page at AQhelp.com:

- **DAF Potential-to-emit (PTE) Guide** - The PTE Guide provides standardized guidance and methodologies for establishing DAF installation-level PTE estimates for major source determinations. The guide evaluates DAF sources for physical and/or operational limitations to establish DAF-specific PTEs for individual source categories based on the Environmental Protection Agency's historic guidance and methodologies.
- **Air Emissions Guide for DAF Stationary Sources** - The Air Emissions Guide to DAF Stationary Sources (Stationary Source Guide) provides guidance for estimating emissions for Stationary Sources of pollutant emissions commonly found at DAF installations. This guide provides updated emission factors and recommended calculation methodologies for these common sources associated with processes frequently occurring at DAF 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 DAF Mobile Sources** - The Air Emissions Guide to DAF Mobile Sources (Mobile Source Guide) provides guidance for estimating emissions for mobile sources of pollutant emissions commonly found at DAF 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 DAF Transitory Sources** - The Air Emissions Guide to DAF Transitory Sources (Transitory Source Guide) provides guidance for estimating emissions for transitory sources of pollutant emissions found at DAF 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).

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8 MAJOR SOURCE DETERMINATION

The steps outlined in this guide up to this point are an integral part of performing a major source determination. Once emission units have been grouped and identified as a stationary source (by location, common control, and SIC) and PTEs calculated, only a single question remains, "do any of the emissions estimates exceed the applicable major source threshold?" If the answer is, "Yes", then a major source has been identified and must be permitted appropriately.

The definition of a major source is one that PTE exceeds the applicable major source thresholds. This definition has been made more restrictive in areas which are nonattainment for certain NAAQS. In those cases, when the attainment status has been designated as "serious" or greater, the major source thresholds have been lowered significantly as detailed in the following tables.

Table 8-1; Major Source Thresholds

Major Source Thresholds		
Potential-to-Emit	**New Source Review**	**Title V Operating Permit**
≥ 100 but < 250 tpy in Attainment Area*	Minor	Major
≥ 250 tpy in Attainment Area	Major	Major
≥ Applicable Threshold in Nonattainment Area*	Major	Major
≥ 10 tpy of a Single HAP	N/A	Major
≥ 25 tpy of all HAPs Combined	N/A	Major
* Major if over 100 tpy and in one of 28 source categories found in 40 CFR 52.21. **Threshold varies in nonattainment areas. Thresholds are listed under the definition of "Major Stationary Source" in 40 CFR 51.165 (for NSR) and under the definition of "Major Source" in 40 CFR 70.2 (for Title V).		

Table 8-2; Major Source Thresholds by NAAQS Nonattainment Classification

Major Source Thresholds for Criteria Pollutants				
Area Designation	**Ozone (VOC or NO_x)**	**CO**	**NO_2 or SO_2**	**$PM_{2.5}$ or PM_{10}**
Marginal	100	N/A	100	N/A
Moderate	100	100	100	100
Serious	50	50	N/A	70
Ozone Transport Region (other than severe/extreme)	50 (VOC only)	N/A	N/A	N/A
Severe	25	N/A	N/A	N/A
Extreme	10	N/A	N/A	N/A

SOURCE: 40 CFR 70.2 Definition of a "Major Source"

Once an existing minor source installation has been identified as now being a major source, the installation must develop and submit a Title V permit application to their regulatory authority and/or develop and implement a series of operational limits which limits potential emissions to

less than major source and obtain a synthetic minor permit. The timeline for permit application submittal varies between regulatory agencies, therefore, review of applicable regulations and processes is necessary to ensure compliance.

8.1 Criteria Pollutants

Major source determinations are most often thought of in terms of criteria pollutant emissions as those chemicals make up the majority of emissions of regulated air pollutants on DAF installations. As stated in 40 CFR 70.2 (Section 2.1 of this guide), fugitive emissions sources should NOT be included when performing a major source determination for criteria pollutants. Additionally, although an installation can be classified as a major source for CPs, it is unlikely that it will also be a major source for HAPs. The determination for each type of pollutant is made utilizing a different set of guidelines and requirements.

Upon completing evaluation of an installation, it will then fall into one of three categories: Major Source, Minor Source or Synthetic Minor source. Although permits by other names exist, each fall into one of these groups. For example, a standard exemption or permit by rule is a type of minor source permit, while a Federally Enforceable State Operating Permit (FESOP) is a synthetic minor.

8.2 Hazardous Air Pollutants

While installations classified as major sources for CPs are not necessarily uncommon in the DAF, currently fewer than ten DAF installations are classified as a major source of HAPs. Being classified as a major source of HAPs results in becoming subject to one or more very stringent NESHAPs. Any time an installation has questions regarding their status and believes that they are now a major source of HAPS, they should contact their ISS Counterpart or the AFCEC Air Quality SME for guidance prior to performing any permitting action.

Although CPs comprise the majority of regulated pollutants, HAP emissions can equal and/or exceed the number of regulatory requirements placed on CPs. A significant and important distinction between the major source determination process for these two groups of pollutants is the requirement to include fugitive emissions when evaluating HAPs. As such, the level of effort to calculate PTE for HAPs requires significantly more detail than is required for CPs. For example, calculating the emissions from a fuel storage tank would only require evaluating total VOCs emitted when evaluating CPs, however, the same source requires speciation of those VOCs into their constituent chemicals when estimating HAP emissions. Additionally, other fugitive sources of VOCs, such as degreasers and general solvent and adhesive use must be tracked when making a HAP major source determination. This will require significant effort to identify HAP containing materials and estimate their potential emissions; see the AFCEC Potential to Emit Guide for additional information.

In addition to requiring inclusion of fugitive emissions, the major source threshold for HAPs is also evaluated differently. The major source threshold as defined 40 CFR 70.2 (Section 2.2 of this guide) is a source which, "emits or has the potential to emit 10 tpy of a single HAP, or 25 tpy of all HAPs." Instead of evaluating each pollutant separately as with CPs, total HAP emissions must also be calculated. This is further complicated by the fact that unlike the short list of six CPs, the list of HAPs currently 187 chemicals and chemical categories. These 188 are comprised of 170 distinct chemicals (including isomers) and 17 chemical compounds. The 17 chemical compounds included in the HAP list are chemicals which include one or more of a listed set of elements or functional groups. This list is included in Attachment 1 of this document; however, it should be noted that chemicals have both been added and removed from the list of HAPs and it is therefore subject to change as new chemical hazards are identified. One further distinction between CP and HAPs is the terminology used to identify the classification of emissions sources. HAP emissions sources are classified as "major" or "area" sources, with area sources being analogous to a minor source.

8.3 Greenhouse Gases (GHGs)

As discussed in the permitting background chapter and elsewhere in this guide, GHGs are a group of compounds that are believed to interfere with the balance between incoming solar radiation and heat released back into space resulting in climate change (i.e., the greenhouse effect). Anthropogenic (from human activity) emissions of GHGs typically involve combustion of fossil fuels (coal, natural gas, and oil) and wood. Examples of GHGs include carbon dioxide, methane, nitrous oxide, and halogenated gases.

If a major source permit is required "anyway" due to other regulated pollutants, the permit must also address GHG emissions increases of 75,000 tpy CO2e or more. A source cannot be major or subject to permitting based solely on GHG emissions. GHGs are quantified according to their GWP. The CO_2e for a gas is derived by multiplying the tons of the gas by its GWP. A few examples of GWPs are provided in the following table:

Greenhouse Gas	Global Warming Potential*
Carbon Dioxide	1
Methane	25
Nitrogen Oxide	298
*As of the date of this of this guide (refer to 40 CFR Part 98, Subpart A, Table A-1).	

Generally. only very large sources reach applicability thresholds and are required to address GHGs in a permit. Refer to the AFCEC's *DAF Guide to the Mandatory Greenhouse Gas Reporting Rule and Greenhouse Gas Tailoring Rule* for additional information regarding calculating GHGs.

8.4 Documentation

Major source determinations are an integral part of managing the Air Quality Program at every AF installation, especially at minor source DAF installations. Simply stating that an DAF installation (group of emissions units) is a Major, Minor, or Synthetic Minor source without having supporting documentation of how that determination was made leaves installations vulnerable to enforcement actions. This is even more important at minor source DAF installations where the status is more likely to come into question, particularly in cases where permits are not required. If the documentation is inadequate, the determination will likely need to be repeated.

Maintaining detailed and thorough records clearly demonstrating how a major or minor source determination was accomplished is vital. Examples of documentation include detailed Air Emission Inventories, common control determinations, SIC evaluations, as well as supporting calculations, emission factors, and assumptions used for calculating PTE.

9 PERMIT TYPES

Air permitting can be broken down into two main categories, construction and operating permits. Construction permits (also includes permits to install) are required prior to beginning construction of an emissions unit or source. Operating permits are required after construction is completed. For each of those categories, permits can be further broken into major source and minor source permitting. The minor permitting programs can then be further divided based on State-specific permitting programs.

9.1 Operating Permits

The term operating permit is used broadly to mean any air permit which allows a source which emits pollutants into the air to operate. As such, simply stating that a DAF installation has an operating permit does not provide enough detail to understand the installation's classification. A discussion of the various operating permit types is included below. This discussion is focused on the terminology used at the Federal level, however, keep in mind that State and local regulatory agencies may use the same, similar, or even completely different terms. It is important to understand how the terms used by regulatory agencies correlate to the Federal definitions and requirements.

Operating permits serve multiple purposes including, but not limited to establishing and documenting operational limits for individual emissions units and sources, outlining compliance requirements (testing, tracking, monitoring, recordkeeping, etc.), and as a reference for regulatory citations applicable to the emissions source.

For several reasons, a single DAF installation can hold more than one air operating permit; this can be in the form of any combination of multiple Title V, synthetic minor and minor permits. Careful and thoughtful grouping of emissions units into emissions sources, as discussed in previous chapters in this guide, can result in more streamlined and less onerous permitting requirements. In some cases, however, issuance of multiple permits cannot be avoided due to the geographic layout of the installation where the area that it occupies spans multiple counties, municipalities and/or regulatory agencies/permitting authorities.

Use of the concepts discussed above can significantly reduce environmental liability and the level of effort required to manage an installations air quality program. For example, segregation of an installation by SIC would result in emissions units such as hospital boilers and aircraft paint booths being on separate permits which are more tailored to those specific emissions units. Because this approach can result in more permits to manage, careful analysis of the risks and rewards of each path must be considered. Regardless, installations must not abuse the practice of disaggregation and attempt to circumvent CAAA permitting requirements in the process.

9.1.1 Major Source / Title V

Installations deemed to be a major source of CPs or HAPs must obtain a Title V operating permit. The process to develop an application and be issued this kind of permit can be very difficult and take a long time to complete. In some cases, the length of time between application submittal and permit issuance can be years. As such, it is of the utmost importance to coordinate with regulatory agencies to ensure that the process goes as smoothly as possible.

Title V permits are intended to be a compilation of all emissions units and applicable requirements at an emissions source. The kind of information included in a Title V varies between regulatory agencies with many having a standardized format. Information included in the permit documents includes but is not limited to; a list of both regulated and exempt emissions units with limits for operation and emissions, monitoring, reporting, testing and documentation requirements, regulatory citations as well as permit issuance and expiration dates. In the case of Title V permits, they are issued for a period of five years, after which they must be renewed.

In addition to the more frequent renewal cycle for Title V permits, these permits also have more stringent data requirements which require that three to five or more years of records be maintained at all times. Keeping these records is not only a time-consuming task, but also one which introduces additional regulatory risk due to the potential for records to go missing or otherwise be incomplete. Missing operating logs is a common source of non-compliance issues which is compounded by personnel turnover at both the shop and environmental management level. Being unable to meet requests for compliance demonstrations is a key reason to ensure that all emissions unit details and operating logs are maintained in APIMS.

Major source permits also bring with them additional data collection, emissions calculation and reporting requirements. In most cases, emissions must be reported as a rolling 12-month total which must be completed each month. As such, operating logs must be collected monthly so that the required emissions estimates can be calculated and reported. This greatly compounds the level of effort required to collect operating logs when compared to synthetic minor and minor installations which may be able to get away with a single, annual log for each emissions unit (12 data points vs. one).

Semi-annual compliance reports are required and must be coordinated with the installation's responsible official (typically the installation's commander). These semi-annual reports include a compliance statement where the responsible official attests under penalty of law that the installation is and has maintained compliance with all permit provisions over the time period covered by that reporting cycle. Non-compliance events must typically be reported within 24 hours to the regulatory agency and included in these reports as well.

Being a major source and holding a Title V permit increases the level of scrutiny on an installation. Facilities having a Title V permit may have to deal with recurring as well as no-notice regulatory inspections from a State or local regulatory agency, as well as the Federal EPA. Additionally, Title V permits include "self-incrimination" clauses which require that the facility report any and all incidences of non-compliance, no matter how minor they may seem. This self-incrimination is one of the biggest reasons to reduce emissions to a level where a synthetic minor, or minor permit is appropriate. In many cases, when an installation reports a non-compliance, a regulatory inspection will be triggered by this reporting since all non-compliance events reported to state or local regulatory agencies are also provided to the Regional EPA office as well. Although it may be unpleasant, failure to self-report typically carries heavier penalties than those that would be garnered from the initial non-compliance itself.

9.1.2 Synthetic Minor

Synthetic minor permits, often referred to as a Federally Enforceable State Operating Permit (FESOP), are a highly flexible permitting tool and similar to other kinds of permits in that they will contain much of the same information. The key difference is that the operating and subsequent emissions limits included in them are intended to restrict potential emissions from and installation to less than that of a major source. As such, care must be taken to ensure the accuracy of the list of emissions units and assumptions used to estimate emissions so that compliance with those limits can be maintained and demonstrated to regulators.

Like Title V permits, synthetic minor permits require periodic renewal, however at a reduced frequency and level of effort required. In most cases, synthetic minor permits are issued for periods of ten or more years and may only require simple periodic updates when a significant number of emissions units have been changed. Renewal efforts are also typically simpler, take less time to complete and do not require public notice like Title V permits do.

As discussed in previously, operating limits established in synthetic minor permits must be "Federally enforceable", that is, they must be quantifiable, objective measurements of emissions unit operation or process throughput which ensure compliance with the emissions limits established in the permit. Examples of these kinds of limits include, but are not limited to; engine operating hours, quantity of fuel consumed, mass of paint or solvent used.

Record retention for synthetic minor permits can vary, as does data collection frequency. In some cases, operating logs must be collected monthly, while in others a single annual value will suffice. Similarly, emissions calculations may likely only be required to be performed and submitted on an annual basis without the need to perform 12-month rolling averages. These requirements vary between permits and regulatory agencies and must be reviewed to ensure that site-specific permit requirements for emissions calculations and reporting are understood.

In addition to potentially being subject to fewer regulations, synthetic minor permits do not require the inclusion of the self-incrimination clauses that are mandatory in Title V permits. Although they are not required, synthetic minor permits held at some DAF installations still include these self-incrimination provisions. When developing new, or revising a minor source permit of any kind, environmental management flight personnel should work to have these provisions removed whenever possible. Removal of these requirements does not alleviate an installation from ensuring compliance with their air permit, however it can make addressing minor non-compliance issues easier to manage as they can often be handled in-house without the need to include regulators. Permits and regulations vary and should be reviewed to ensure that environmental management personnel are aware of all reporting requirements.

Before considering a synthetic minor permit, ensure that the emission limits and operating conditions are practical, realistic, and achievable. If a facility does not strictly adhere to its permit limits and conditions, the permitting agency or the EPA may take administrative, civil, or criminal enforcement actions. This includes issuing a Notice of Violation, which is an order for the facility to come into compliance, or a fine. Blatant or persistent violations may lead to criminal proceedings. Additionally, citizens may also file a civil action suit against a facility for permit violations.

9.1.3 True Minor

Where synthetic minor source permits are a step down from Title V, minor source permits are yet a further step down from synthetic minor. Although they can seem quite simple, minor source permits can become cumbersome due to the number of permits that may be issued to an installation. Additionally, even though being a minor source is desirable for several reasons, minor source installations must carry the burden of continually being able of demonstrating that they are not a major source. Where installations which have Title V or synthetic minor permits may be able to exclude tracking of trivial or insignificant sources, minor source DAF installations may not have that option.

Minor source permits can come in a variety of forms that range from something that appears similar to a Title V or synthetic minor permit to a short series of compliance requirements for an individual emissions unit. In some cases, it can be just a letter from the regulatory agency stating the installations status with directions to provide notification if their PTE changes such that their major source status would change. Often the coordination with regulators is significantly less for minor source facilities with some minor source permits being self-executing and not requiring any regulatory coordination.

The most basic of minor source permits governs what is known as a “true minor” emissions source; this is one where the unrestricted emissions of a source (typically an entire DAF installation) are such that they are below the major source threshold. A common misconception

is that to be classified as a true minor source, the PTE must be calculated against 8,760 hours of operation per year. The correct interpretation of the definition of major source indicates that the PTE be calculated against the maximum design and operational capacity of the emissions unit/source as discussed previously in this guide. In other words, the installations PTE should be calculated against its current manning and operational design limits and not arbitrarily against theoretical year-round operation. Further, use of these operational and design limits should not be misinterpreted to constitute operational limits where the source would thereby be classified as a synthetic minor.

Conversely, a minor source may not necessarily constitute the entirety of an installation, but only represent a single emissions unit, or small group of emissions units at an DAF installation where other portions of the installation may be classified as a major, or synthetic minor source. In these cases, the minor source is not typically referred to as a true minor due to the fact that the facility as a whole itself does not meet the minor source definition. Minor source permits therefore can cover a broad range of emissions units, quantities, sizes, types, etc.

As with most other parts of minor source permitting, collection of operating logs and calculation of emissions is a less complicated task as well. In most cases, minor source installations are able to collect operating logs which span a year as where Title V and synthetic minor sources may be required to collect data monthly. Similarly, emissions estimates are generally calculated on an annual basis and may not require regulatory reporting. Regardless, as with other permit types, environmental management flight personnel must be familiar with their recordkeeping and reporting requirements as they can vary between permits and regulatory agencies. An example of a minor source permit which requires significant recordkeeping is a permit by rule utilized in one state which requires multiple hourly rolling totals for painting operations. This kind of "minor detail" slips by many new air quality personnel but can have significant compliance ramifications for failure to properly maintain records and calculate emissions within the timeframe required.

9.1.4 Standard Exemptions (Permit-by-Rule)

A Standard Exemption (SE) is not a typical "exemption" from permitting per se. For those emission units or activities that have been deemed insignificant, the State may create a Permit-by-Rule (PBR). Basically, if specific criteria are met, the emissions unit or activity is exempt from the formal permitting process. PBRs simply require the owner or operator to maintain records to demonstrate continuous compliance with the applicable regulations. Modifications to the emission unit or activity can be made as long as the conditions of the PBR are still met. Keep in mind, the exact criteria must be met for the PBR to be valid.

PBRs are developed by regulatory agencies with standard text and forms published for public use. Typically, they are comprised of a series of thresholds where if an emissions unit falls below

or between them, the permit can be used. An example of the kind of thresholds included in PBRs include, but is not limited to, quantity of paint sprayed, or material processed over a period of time. These are usually simple, easily quantifiable metrics where both the operation and emissions from the emissions unit can be captured.

A PBR can vary in their usage and how they are implemented by regulatory agencies. Some PBRs are "self-executing" and do not require any regulatory notification, while others require that a form be completed which contains information about the emissions unit operator, its specifications, anticipated operating parameters and quantity and type of emissions anticipated. Regardless of whether the PBR is self-executing, or must be registered, it is recommended that a copy of the PBR is maintained at or near the emissions unit(s).

It is common for DAF installations to hold multiple permits of varying types. In the case of PBRs, when a facility holds a "larger" facility-wide permit, basic information about the emissions unit with references to the compliance requirements contained within the PBR are incorporated into the permit.

Recordkeeping and reporting under PBRs usually require only minimal data collection; however, some PBRs do require very detailed operating logs and emissions calculations. For this reason, compare traditional air permit requirements with those of a PBR when considering the use of a PBR for an emissions unit or activity.

9.1.5 Exempt, Insignificant, and De-minimis Emission Units

The terms "exempt", "insignificant" and "de-minimis" when used to describe emissions units are at times related, while other times not. Confusion can arise with the use of these terms due to the fact that in some cases an emissions unit may be deemed to be so small as to be insignificant or de-minimis and therefore exempt from permitting. Although this may at first appear to be a different way of saying the same thing, for the purposes of air permitting, it is not.

Examination of air quality regulations at the State level reveals that in some area's exemptions have been created which remove the requirement to obtain air operating permits for certain sizes or equipment or other minor processes because the emissions from them are so small that they do not have a significant negative impact on air quality. An example of this is where a state has exempted emergency generators with a brake horsepower (bhp) rating of less than 50 bhp from the requirement to obtain an operating permit.

Alternatively, a major source installation may have its diesel fuel tanks classified as insignificant due to the extremely low emissions from them. Although these tanks were considered to be insignificant, they were not exempt from permitting and were therefore included in the installations permit and classified as such. Although still included in an installations permit,

these insignificant typically require less tracking and have fewer compliance requirements compared to their non-insignificant counterparts.

Applicable air regulations should be carefully reviewed with developing new or modifying existing operating permit applications to evaluate sources that could be exempt, insignificant or both to ensure proper permitting. Incorrect classification of these small, low impact emissions sources can result in inclusion of unnecessary compliance requirements. When questions arise, regulatory coordination is valuable when making these determinations.

9.1.6 Greenhouse Gases

As mentioned previously, sources do not become major sources and/or need an air permit solely because of GHG emissions. However, GHGs are addressed in a NSR or Title V permit if the source is major for another pollutant and they also have emissions above 75,000 tons of CO_2e. This GHG threshold is rarely exceeded. That said, however there may be more stringent GHG regulations at the State and local levels; therefore, installation environmental management flight personnel should be aware of any State or local GHG regulations applicable to their facility.

9.1.7 Best Practice – Permit Flexibility

One concept which is applicable to all permit types is to work towards operating limits and emissions unit configurations within the document itself which allow the most flexibility possible. A common challenge faced at DAF installations is ensuring that changes to emissions units are tracked and permits are updated accordingly. Multiple Notices of Violation (NOV) and Enforcement Actions (EA) have been issued to DAF installations for failure to maintain current inventories of emissions units. It is all too common to have multiple organizations on a DAF installation execute their own contracts or purchasing, which results in new generators, boilers or other kinds of emissions units being brought onto the installation without the knowledge of the environmental management flight.

On the surface, this appears to be a simple concept, just track and report emissions unit changes to the regulatory agency as necessary. In practice this is significantly more difficult due to the number of avenues that equipment can be brought onto a DAF installation by host and tenant organizations. A method to combat this challenge relative to air operating permits is to work with regulatory agencies to include language within permits that allows for in-kind emissions unit replacement and/or installation-wide production limits for the various categories of pollution emitting activities. An example of this is to limit the installation wide heat input rating for all boilers, or similarly the installation-wide power production capability for emergency generators instead of the restrictive equipment level tracking which is included in most permits. So long as the installation maintains records of the total capacity for those emissions units, it is in

compliance with the requirements of the permits and need only update the emissions unit listing on an annual basis, or when the permit requires renewal.

One of the challenges of this approach is to adequately estimate potential emissions for the various emissions units when equipment spans a wide range of ages and sizes and therefore requires significantly different emissions factors. Many facilities have implemented this kind of permit configuration by utilizing emissions unit groups which are based on equipment type, size, age and operation. For example, a base might have multiple emissions unit groups covering emergency and non-emergency generators broken out by size (horsepower) and age (EPA emissions tier / NSPS applicability). As equipment ages and is replaced it obviously will be replaced by newer, more efficient and less polluting equipment, as is the case with NSPS boilers and engines.

Incorporating this kind of common-sense flexibility into operating permits can allow installations to replace aging and worn-out equipment without the need for regulatory coordination prior to commencing construction. Having a well-formulated plan which is supported by Federally enforceable operating limits is necessary for this approach to be successful. Installation environmental management flight personnel must be able to clearly explain to regulators why this kind of permit flexibility is advantageous to the DAF, the regulatory agency and still protective of the environment at the same time. An easy way to summarize this is to show that as older equipment is replaced, newer units are subject to more restrictive emissions standards (e.g., Tier 0 vs. Tier 3 engines) and although the production capacity will stay the same or slightly increase, both the actual and potential emissions for the installation will decrease. In this way, facilitating a more streamlined and therefore faster equipment replacement process is beneficial to all parties.

9.2 Construction Permits

When any new or modified emission source is constructed on DAF installation, that source must be evaluated and permitted under Federal guidelines known as New Source Review (NSR). The NSR program is a pre-construction emission source permitting program established by the EPA as part of the 1977 CAA Amendments. This program was designed to protect air quality in designated areas defined by the NAAQS by requiring owners or operators to obtain a preconstruction NSR permit to limit air emissions. Depending on the area and its NAAQS designation, each new or modified source will need one (or more) NSR permits:

- Prevention of Significant Deterioration (PSD) Permit.
- Nonattainment NSR Permit.
- Minor NSR Source Permit.

9.2.1 NSR / PSD Overview

As with other programs established by the CAAA, state and local regulatory agencies have implemented their own set of regulations and requirements under NSR/PSD. Not all regulatory agencies have been granted approval of their proposed programs. Due to the number of EPA approved state and local programs in existence, there can be significant variety in the regulations and requirements between regulatory agencies. Environmental management flight personnel must be aware of the status of the NSR/PSD program applicable to their facility and whether submittal to the Federal EPA is required as well.

Each of these permits addresses a different NAAQS attainment or nonattainment status and applies to new major and minor sources as well as modification of an existing major source. A thorough understanding of NAAQS area definitions, NSR terminology, and major and minor sources under NSR will help ensure proper new source permitting across all applicable Air Force installations.

As discussed previously, the CAA established a series of NAAQS which limit the maximum permissible ambient air concentrations for the six CPs. The CAA requires the EPA to evaluate every area (state, county, metropolitan statistical area, etc.) against the primary and secondary NAAQS and designate each of them as:

- Attainment: area meets the applicable standard.
- Nonattainment: area does not meet the applicable standard. Former nonattainment areas that have an EPA approved plan to prevent "backsliding" into nonattainment are referred to as "maintenance."
- Unclassifiable: indicates insufficient monitoring data for area designation, presumed to be in attainment.

NSR permitting requires knowledge of the NAAQS and area designations to determine the appropriate type of permit required for any new or modified emissions source. Area designations can change as frequently as annually, and it is therefore necessary to be aware of local area designations and when changes are made to them. It is necessary to be aware of local NAAQS area designations, which can change annually. To ensure that the most current designations are known, local air quality regulators should be consulted for the most up-to-date area designations.

9.2.2 NSR / PSD Permitting Process

Any planned new facility or modification to an existing facility must undergo an NSR evaluation and permitting process. Most NSR permits are issued at the state or local level by their respective regulatory agencies, which can develop their own permitting program so long as they meet the

minimum requirements established by the EPA. As such, program policies and procedures can vary greatly between regulatory agencies with some being more stringent than the Federal standards. It is important that installation AQPMs are aware of local regulations and seek out guidance when questions arise.

NSR permits specify what construction is allowed, source emission limitations, and how the source must be operated and monitored. If a source resides in a NAAQS designation area, that source is required to get one (or more) of three permit types under the NSR program: a minor source permit, a nonattainment major source permit, or a PSD major source review. The applicable permit type is initially determined by whether the source PTE emissions are in excess of the applicable major source threshold. The PTE calculation process is the first example of state-to-state variation within the NSR permitting process. Care should be taken to determine the appropriate calculation methodology and application format required by the state in which the application will be submitted.

9.2.3 Major Source NSR Applicability

To determine if a stationary source is considered "major", under NSR, the first step is to calculate the emission source's baseline actual emissions. Under NSR permitting, the term "source" can have multiple meanings. For the purposes of Major Source NSR permitting, the term "source" is defined by the EPA as "any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant" (40 CFR 51.166(b)(5)). Additionally, "any building, structure, facility, or installation" is defined as "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, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-006 and 003-005-00176-0, respectively) (40 CFR 51.166(b)(6)). In most cases, the term refers to the entire plant site.

Determining which NSR permit is applicable for a given source first requires that source's baseline actual emissions to be above or below the major source threshold for nonattainment NSR or PSD NSR. Note that "major source" thresholds are different between nonattainment NSR and PSD NSR. For major source designations, an emission source would have to emit beyond the established threshold as summarized in Table 1 below. If a source's baseline actual emissions exceed any of the thresholds listed in Table 1, it is a major source and requires either a nonattainment or PSD permit as applicable, otherwise a minor source permit is appropriate.

Table 9-1; NSR Major Source Thresholds (Nonattainment)

Nonattainment Areas		
Pollutant	**Nonattainment Classification**	**Threshold (tpy)**
Ozone	Marginal (≥ 0.085 < 0.092 ppm)	100 of VOC or NO_X
	Moderate (≥ 0.092 < 0.107 ppm)	100 of VOC or NO_X
	Serious (≥ 0.107 < 0.120 ppm)	50 of VOC or NO_X
	Severe (≥ 0.120 < 0.187 ppm)	25 of VOC or NO_X
	Extreme (≥ 0.187 ppm)	10 of VOC or NO_X
Particulate Matter (10 um)	Moderate	100
	Severe	70
Carbon Monoxide	Moderate (9.1 – 16.4 ppm)	100
	Serious (≥ 16.5 ppm)	50
Sulfur Dioxide, Nitrogen Oxides, $PM_{2.5}$, and Lead	Only one nonattainment classification	100

Table 9-2; PSD Major Source Thresholds (Attainment, Unclassified)

PSD Areas (attainment, unclassified)		
Pollutant	**Condition**	**Threshold (tpy)**
Any pollutant regulated under CAA	If source is one of 28 source categories listed in Section 169 of CAA	100
	Any other source	250

To be considered a modified source under NSR, the source must already be defined as an existing major source. Additionally, a source must also undergo a physical change or a change in the method of operation that results in a significant emissions increase (of a regulated NSR pollutant) and a significant net emission increase of that pollutant. The significance threshold differs by pollutant and, for any unlisted (i.e., unregulated) pollutant such as CO_2, is defined as "any emissions rate greater than zero."

9.2.4 Minor Source New Source Review (NSR)

State minor source NSR programs regulate smaller sources of air pollution. Minor NSR Permits are for sources that are not emitting as much pollution as a major source but are not exempt.

Even though the source emits a smaller amount of pollution than a major source, the requirement not to interfere with an area's ability to attain or maintain the NAAQS still applies.

Minor source NSR provides a provision to become a "synthetic minor" source under NSR. These sources have the PTE for air pollutants which would subject them to NSR requirements as a major source but have agreed to enforceable permit limit and/or conditions to reduce their PTE below the applicable thresholds. Sources covered under this program must maintain records with calculations demonstrating that their actual emissions remain below the major source thresholds.

Minor Source NSR permitting programs are customized by the State; therefore, there can be a significant variance between State programs. It is especially important to be aware that the definition of "source" used in Major NSR applicability may not have the same definition as "source" in a State's minor NSR program. For Major NSR applicability, a "source" in most cases is the entire facility or site. Some State Minor NSR programs narrow the definition of a source to mean a single emissions unit. Generally speaking, in calculating the emissions increase from a proposed change or modification at an existing minor stationary source, the PTE of the new or modified unit(s) is calculated. At an existing minor source, the projected actual emissions and baseline actual emissions do not usually apply. It is also worth noting that "netting" is only conducted at existing major sources. There is no netting for minor sources.

9.2.5 Nonattainment NSR

Nonattainment NSR permits are specifically for major sources located in NAAQS areas designated as nonattainment for not meeting the NAAQS requirements for the applicable pollutant(s) in the area. Requirements for nonattainment NSR are generally customized to the nonattainment area and its requirements, however, all nonattainment NSR programs are required to address three points:

- The installation of the lowest achievable emission rate (LAER)
- Emissions offsets.
- Opportunity for public involvement.

9.2.5.1 Lowest Achievable Emissions Rate

The lowest achievable emissions rate (LAER) refers to additional means of achieving the lowest possible emissions rate by implementation of emissions-limiting measures. The LAER can be derived from either of the following means:

- The most stringent emission limitation contained in the state implementation plan (SIP) of any state for such class or category of source; or

- The most stringent emission limitation achieved in practice by such class or category of source.

These emissions limitations can be achieved through emission source process modification, additional emission controls, or a change in the raw material processed by the source.

9.2.5.2 Emissions Offsets

Emissions offsets are reductions in actual emissions derived from existing sources in the vicinity of the proposed emission source within the nonattainment area. These offsets are intended to allow for industrial growth in the local economy while enabling the area to continue moving towards attainment status for NAAQS purposes. Offsets can be generated by the source owner via emissions reductions at existing sources (netting) or purchased in form of emissions credits for that pollutant (or precursor). Emissions credits are issued to source owners who have reduced actual emissions in the nonattainment area and can be either "banked" (saved for future use) or sold to other source owners who need them. Typically, offsets must decrease total emissions of the pollutant in the nonattainment area by a ratio of not less than 1:1, but in some cases as high as 1.2:1 or greater. Emission offsets must result in a net decrease in the total emissions of the pollutant in question. When offsets are not available, regulatory coordination is necessary to evaluate viable alternatives prior to project approval.

9.2.6 Prevention of Significant Deterioration Permits

New and modified major PSD sources are required to undergo major NSR and obtain a permit before commencing construction of a project. The purpose of this requirement is threefold:

- 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 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.

PSD requirements are pollutant-specific and only apply in NAAQS attainment and unclassified areas. To be considered a major PSD source, a source must be either a new source or an existing source undergoing a major modification that would significantly increase emissions beyond the major source threshold. The "major source" designation under PSD is defined as any source type that belongs to the list of 28 source categories defined in 40 CFR § 51.166 and 40 CFR § 52.21 that emits or has a PTE in excess of 100 tpy or more of any NSR pollutant, or any other source type which emits or has PTE of such pollutants in amounts equal to or greater than 250 tpy.

These source categories are industry-specific and not presently found on DAF installations; as such, this is not a consideration to be taken into account unless present conditions change.

9.2.7 PSD Applicability

When determining PSD applicability for major new or modified sources, there are emissions calculations and comparisons that must be performed. Before defining these calculations, it is necessary to establish the distinction between a "new emissions source" and an "existing emissions source." A new emissions source is one that has existed for less than two years since the date of first operation, whereas an existing emissions source is defined as a source that is not a new emissions source (has been in operation more than two years). The distinction between new and existing sources is important since a major modification can only apply to an existing emissions source and has specific applicability steps that do not apply to new emissions sources. For new emissions sources, a comparison of that source's PTE to any applicable NSR pollutant's major source threshold (as listed in Tables 9-1 and 9-2) is required to PSD applicability. If that source's PTE for any regulated NSR pollutant is determined to be significant, then the source qualifies as a new major source under PSD NSR.

For modified sources, a source qualifies as a major modification source under NSR if that source meets all the following criteria:

1. It is an existing major source.
2. The modification causes a significant emissions increase (as described in 9.2.8).
3. The modification causes a significant net emissions increase (as described in 9.2.8).

If all three criteria are met, then the source qualifies as a major modification source under PSD NSR.

9.2.8 Significant Emissions Thresholds

When determining PSD and/or NSR applicability for major new or modified sources, "significant" emissions are frequently mentioned. For PSD NSR major new and modified source applicability, the term "significant emissions" refers specifically to defined thresholds for each NSR pollutant. A "significant emissions increase" for a project or source means that the emissions of the specific NSR pollutant in question have exceeded the established increment for that pollutant. These significance thresholds are usually cited in state regulations so check with state or local air quality agencies to verify these thresholds.

Table 9-3; Significant Emission Rates

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 (NO_x)	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 Sulfuric acid mist: 7 tpy Hydrogen sulfide (H_2S): 10 tpy Total reduced sulfur (including H_2S): 10 tpy Reduced sulfur compounds (including H_2S): 10 tpy	3
Sulfuric acid mist	7
Hydrogen sulfide (H_2S)	10
Total reduced sulfur (including H_2S)	10
Reduced sulfur compounds (including H_2S) tpy	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 × 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)

9.2.9 Best Available Control Technology

Best Available Control Technology (BACT) is a stipulation of NSR specifically regarding PSD pollutants. The BACT requirement applies to both new and modified PSD major sources, although in slightly different ways. For new major sources, BACT applies to each pollutant for which the PTE of the entire source is significant. For major modification sources, BACT applies to each pollutant for which the net emissions increase from the entire project is significant. A net emissions increase takes into account all new/additional emissions as well as emissions decreases included as part of the project.

9.2.10 Netting

Once a proposed project has been determined to result in a significant emission increase of an NSR pollutant, a netting analysis may be performed. Netting generally applies only to major modifications and is used to determine whether a modification to a source constitutes a "major modification" under PSD/NSR. This process is used for determining Major Modification NSR applicability for both PSD and Nonattainment NAAQS areas, is pollutant-specific, and is used to evaluate all non-project related emissions increases and decreases that have or will occur at the facility at the same time ("contemporaneously") with the proposed project. This is only required if there are other emissions increases or decreases within the proposed project's time period.

The netting process can also be used to "net out" of PSD and NSR major modification applicability. If the netting analysis results in the net emissions increase being less than the significant level for the specific NSR pollutant in question, the project is not a major modification for that pollutant and will not require PSD or NSR for that specific pollutant. Keep in mind however, that the source or project may still be subject to PSD review for other NSR pollutants.

9.2.11 Air Quality Modeling and PSD Increments

It is important to note that air quality monitoring and modeling is required for any NSR project having emissions in excess of one or more of the significance thresholds. Determining whether the impact from a net emission increase of an NSR pollutant is significant (greater than any regulated pollutant's significant emissions threshold) is a requirement for PSD applicability and should be used to support any air modeling data. Modeling data should cover the period of 1 year prior to any project beginning.

A PSD increment refers to the maximum amount of pollution concentration an area is allowed to increase. These help to prevent the deterioration of air quality below NAAQS levels in otherwise clean areas. These levels are set by regulators and therefore differ by area. It is important to consult local regulators to determine these levels in the area under question. Results of air quality

monitoring data collection should also be used to verify that no incremental exceedances occurred in the PSD applicability area being analyzed.

9.2.12 Begin Actual Construction

As discussed in previous chapters, all new major stationary sources and major modifications to existing major stationary sources are required to obtain a NSR permit prior to beginning actual construction. The term "begin actual construction" is an important concept within the NSR permitting program. The key is knowing what pre-permitting activities are allowed before the project meets the "begin actual construction" definition in the applicable Federal, State, or local permitting rules. The definition of "begin actual construction" per the NSR regulations and adopted by many States and/or local permitting authorities is:

> "…in general, 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 of underground pipework, and construction of permanent storage structures. With respect to a change in method of operating this term refers to those on-site activities other than preparatory activities which mark the initiation of the change."
>
> Reference 40 CFR 51.165(a)(1)(xv); 40 CFR 51.166(b)(11); and 40 CFR 52.21(b)(11).

The existing NSR regulations is not explicit regarding what on-site construction activities can or cannot be undertaken prior to receiving an approved air permit. Since 1986, the EPA and most State and local agencies have interpreted the definition of "begin actual construction" to include nearly every physical on-site construction activity that is of a permanent nature, even if that activity does not involve construction on an emissions unit. However, there are some preparatory activities that can be undertaken prior to obtaining a final permit that are commonly excluded from the definition of begin actual construction, such as:

- Planning the project.
- Clearing the site of existing vegetation.
- Grading the land.
- Stockpiling topsoil.
- On-site temporary storage facilities for equipment and supplies.

States with approved NSR programs in their SIPs may have some flexibility in what activities are allowed before obtaining a construction permit; however, these programs are under EPA oversight and cannot be less stringent than the Federal regulations. Some states allow additional pre-permit activities under explicit conditions and restrictions for minor source permitting (e.g., completed permit application has been submitted, project is not a major modification or

occurring at a major stationary source). Use extreme caution that all conditions are clearly understood and work closely with the air permitting authority.

Regardless, beginning construction prior to obtaining a permit is not advised and is considered "at-risk":

- There is no guarantee that a permit will be issued.
- Can result in a Notice of Violation or other enforcement action if pre-permit activities are deemed prohibited.

For additional information, refer to EPA's 18 December 1978 Memorandum, *Interpretation of "Constructed" as it Applies to Activities Undertaken Prior to Issuance of a PSD Permit*, and EPA's 28 March 1986 Memorandum, *Construction Activities Prior to Issuance of a PSD Permit with Respect to "Begin Actual Construction*."

Additionally, the EPA has issued various letters and memorandums regarding the types of construction activities that are allowed before obtaining a permit. These documents are available through EPA's website "Begin Actual Construction" at https://www.epa.gov/nsr/begin-actual-construction-0. The most significant of these documents are listed below for reference:

- *Interpretation of "Constructed" as it Applies to Activities Undertaken Prior to Issuance of a PSD Permit* (18 December 1978).
- *Construction Activities Prior to Issuance of a PSD Permit with Respect to "Begin Actual Construction"* (28 March 1986).
- *Construction Activities at Georgia Pacific* (13 May 1993).

9.2.13 PSD / NSR Additional Reading

AFCEC's, *DAF New Source Review Permitting Guide.* provides a structured step-by-step approach for navigating through the applicability analysis and permitting complexities of NSR that are unique to DAF installations.

10 PERMITTING PROCESS

The process to obtain an air quality permit varies with the type of permit being sought, emissions units included, emissions sources being permitted as well as the processes put in place by the various regulatory agencies. As such, the path to obtaining a permit can vary significantly in both complexity and level of effort between seemingly similar installations. Because of the wide variety of permitting programs covered by AF installations, this guide will only provide a cursory overview of the major types of permitting actions and what is typically involved in each of them. An understanding of the requirements applicable to an installation as well as the process to obtain a permit is necessary. If questions arise, regulatory coordination and/or request for additional support from the AFCEC ISS should be requested to ensure compliance with applicable regulations.

10.1 Standard Exemptions (Permit-by-Rule)

A PBR is a "Standard Exemption" because emission units or activities that satisfy the requirements are not required to obtain an air permit. One of the advantages of qualifying for a PBR is that there is no expiration date (unless stated in the regulatory conditions). PBRs are good for as long as the emissions unit or activity is in operation and all of the criteria for qualifying for the PBR continue to be valid. Some States require a one-time notification or registration for all emission units or activities that are claiming the PBR.

10.2 Minor Source Permits

The process to obtain a minor source permit is in most cases quite simple but does vary depending on the way that a regulatory agency handles minor sources. In some cases, a minor source is its own stand-alone facility encompassing an entire DAF installation or GSU and referred to as a true minor. In other cases, a minor source permit may only include a small portion of an installation's activities or emissions units.

To be classified as a true minor source, the process usually includes development of an AEI including the installations PTE detailing all assumptions made which supports this assertion. In other cases, a permit application may be required, however the resulting classification is the same. Some regulatory agencies do not issue a conventional permit to true minor sources and only provide notification of their status as a true minor and that a permit is not required.

For other minor sources, a permit application is typically required for construction of new emissions units. As with SEs, some regulatory agencies provide a boiler plate application to be completed by the installation which is then provided to the regulatory agency for their approval and issuance of the permit. Other areas may accept a report style permit request where a "permit writer" working at the regulatory agency develops the permit which is subsequently provided to the installation for review, comment, correction and final issuance.

These minor source permits can be a construction permit, operating permit or both. Depending on the situation, some regulators require that a minor source permit be obtained prior to commencing construction or operation of the source. Regardless of the type of minor source permit required, planning must take into account the processes in place to obtain minor permits in that area to ensure that the source is properly permitted and in compliance with applicable air regulations. Failure to obtain minor source permits has resulted in NOVs being issued to the DAF which negatively impacted the ability of that organization to accomplish their designated mission.

10.3 Synthetic Minor

Increasing in complexity, the process to obtain a synthetic minor operating permit is more complicated than that of a minor source; however, the process is still less involved than obtaining a Title V. When working to obtain a synthetic minor permit, the goal of this permitting option is to limit emissions of regulated pollutants to less than that of a major source must always be kept in mind.

As discussed previously, to limit emissions from an installation so that they are less than the applicable major source thresholds, federally enforceable operating limits must be utilized. Because of this, synthetic minor permit applications include a significant amount of information relating to equipment inventory and specifications, operating limits, emission factors and the facilities PTE.

As with the other permit types, the process to obtain a synthetic minor permit varies between installations and regulatory agencies. Like a minor permit application, a synthetic minor application can take more than one form. In some cases, a report style request is submitted to the regulatory agency which provides details regarding equipment specification, operational details and most importantly assumption and operating limits utilized to reduce the PTE of the installation. The information in this document is subsequently developed into a draft permit document by a permit writer within the regulatory agency. A draft of this document is then provided to the installation for review and corrections, comments and other concerns are documented and provided back to the agency for revision and negotiation as necessary.

Once complete, the permit application is signed by a government official at the installation and submitted back to the regulator. Synthetic minor permits can be signed by the installation's commander, deputy commander, base civil engineer or other government employee who has been delegated authority.

Similar to a Title V permit, synthetic minor permits also go through a public review and comment period. Once issued, the permit typically goes into effect for a period of five to ten years (sometimes more) and will direct the majority of air quality compliance tasks.

10.4 Major Source / Title V

Once an installation has made the determination that they are in fact a major source of air pollution, a permit for a Title V, major source permit must be developed and submitted to the appropriate permitting authority. The timeline under which this must be accomplished can vary depending on whether the installation is a new, or existing source. As such, environmental management flight personnel should coordinate with their AFCEC ISS as soon as possible after making this determination so that it can be reviewed and coordinated with the AFCEC prior to initiating any permitting activities.

As with the other permit types, a Title V permit application will look different depending on the requirements of the regulatory agency. In most cases, however, Title V permit applications require completion of a series of standardized forms developed by the regulator. These permit application packages can become hundreds of pages long and require a significant level of effort, and therefore cost to develop. These efforts are not to be taken lightly and more often than not are the product of a team effort over the course of months or years.

A significant amount of coordination between the installation and regulator is necessary when developing a Title V permit application. Permit development and the subsequent negotiations regarding operating limits, terms and conditions included can span not just months, but years. There are cases of Title V permits taking five, ten or even more years to be completed and issued to an installation. Upon completion of the final permit application a copy is coordinated with the DAF installation's commander for signature as the "Responsible Official" (RO) and then submitted to the permitting agency. For DAF installations, the RO is the installation's commander.

In addition to coordination with the regulatory agency, issuance of Title V permits requires a public comment period where the local community and other interested parties are given the opportunity to review the draft permit and provide comments and objections to the permit. So long as no significant concerns are raised during the public comment period, a copy of the final application is provided to the EPA for review. Once this process is complete, the permit is issued to the installation at which time it goes into effect and governs compliance and operation of the facility with respect to environmental air quality.

10.5 Permit Shields

Due to the length of time sometime required for a Title V or other permit to be issued, a common question is, "how can an installation continue to operate without a valid permit?" In short, a

permit shield is a provision which allows continued operation of a source permitted under a Part 70 program based on the assumption that the previous/existing permit contains all necessary regulatory requirements and that the permitted facility will continue to abide by those requirements until such time as the final permit is issued. These provisions are outlined in 40 CFR 70.6 and require that a permit application be submitted in a timely manner to the regulatory agency and the permit shield be requested in order for the permit shield to go into effect.

Although an updated permit application may include new or revised compliance requirements, a permit shield does not implement or require compliance with any new permit provisions. Additionally, although a facility is considered to be in compliance and not in violation of operating without a permit, the permit shield does not protect them from violations of current permit requirements.

In summary, a permit shield is simply a stop-gap measure to allow continued operation without fear of non-compliance due to operating without a permit. It does not reduce the compliance burden on a facility or alleviate the owner/operator of their duty to comply with all applicable regulations.

10.6 Permit Fees

Fees associated with air operating permits are the result of application fees and annual emissions fees levied against emissions sources. Application fees can be as low as a few hundred dollars which is due at the time of permit application submittal or be several thousand dollars in some cases. In cases where regulatory agencies are the ones who write all permits, the fees are higher since regulators are attempting to defray the cost of the additional personnel necessary to manage all of the permits issued through their office.

Annual emissions fees are typically based on the mass of pollutants emitted from the facility over the course of the year. Fees set under Part 71 programs by the Federal EPA are currently approximately $55 per ton and are adjusted annually for inflation but can vary at the State and local level. Installation environmental management flight personnel must ensure that the necessary funds are planned and programmed annually to cover any anticipated permit application or emissions fees which must be paid to their regulatory agency.

11 PERMIT RENEWALS

Once issued, some construction and operating permits expire after a set amount of time. For construction permits they may only be good for a couple of years after which they must be incorporated into an existing operating permit or converted into an operating permit upon completion of the project. In some cases, construction permits can be extended if necessary, however regulations vary, but typically require that permits be cancelled or rescinded if construction did not take place or resubmitted if not completed within the specified timeframe.

In the case of operating permits, depending on the regulatory agency, minor source permits may be issued without an expiration date, however synthetic minor permits require renewal every ten year and Title V, major source permits needing to be renewed every five years. The process can differ significantly between regulatory agencies, however in most cases renewal applications for synthetic minor and Title V permits must be submitted within three, six or 12 months prior to expiration. In the case of Title V permits, most renewals are due six to 12 months prior to expiration.

Due to the number of different regulatory agencies and processes within each one, the permit renewal process can vary widely between them. In some cases, permit renewals are completed by a dedicated team of permit writers who develop the application, provide it to the facility for review, comments, and signature. Regulators with this kind of permit process typically have significantly higher permit application fees to cover the cost of those personnel. More commonly regulatory agencies will use a series of documents to be completed by the facility which outline all of the emissions sources, activities, and assumptions used to calculate the PTE. Obtaining copies of the forms with all instructions and guidance from the regulator is necessary to ensure adherence to required standards and procedures set forth there.

Depending on the type and structure of the operating permit, regulatory agencies will have different requirements for renewals and any necessary changes in the interim. If the permit was structured with flexible limits for equipment; for example, limiting total boiler capacity, an update may not be required every time an emissions unit is added, removed or replaced. In those cases, source changes should be tracked and subsequently incorporated during the next permit renewal. Other regulatory agencies may require that minor permits be issued when emissions sources are added or changed. These minor source permits may be issued in addition to or as addendums of comprehensive Title V or synthetic minor permits already held by the facility. Similarly, these permits are tracked until the next renewal period at which time they are incorporated into the “main” permit.

As part of the permit issuance and renewal process, once an application has been completed and submitted to the regulatory agency, the facility will either operate under the provisions of the previously issued permit, or the new permit application until the final permit is issued. Under 40

CFR 70.7(b), source operators are protected from enforcement actions due to continuing to operate emissions sources without having an air operating permit. This "permit application shield" is effective so long as the completed application was submitted in a timely manner and all applicable compliance obligations are met. This application shield can be an important factor during both the initial application and renewal phases as some facilities have been waiting for their regulatory agency to issue a final permit for as long as five to 10 years or more.

Due to the number of regulatory agencies and their policies and procedures, it would be impossible to detail the requirements for each of them here. Regardless of the regulator or permit type, coordination with regulatory agencies to ensure that permit renewals are completed correctly and on time is of the utmost importance. In addition to meeting regulatory deadlines, AQMs must consider the need to coordinate permit applications for signature internally with the Commander (Title V) or other appropriate responsible official (synthetic minor and minor permits) and plan ahead for delays. In some cases, it may take as many as 30-60 days to accomplish internal coordination for signature and this must be factored into the timeline when developing permit applications, renewals or other time sensitive submittal to regulatory agencies.

12 ADDING EMISSIONS UNITS TO EXISTING PERMITS/FACILITIES

It is common for DAF installations to add, remove or revise multiple emissions units every year. As equipment ages, fails, or otherwise needs to be removed or replaced, air operating permits must be updated to address these changes. Depending on the installations permit, the need to update permits and the process to do so can vary significantly between DAF installations. As mentioned previously, one of the most advantageous ways to manage equipment inventory changes is to work the regulators to configure operating permits so that in-kind or other minor equipment additions or changes can be covered under existing operating limits and not require permit revisions for every equipment change.

In some cases, regulators have provided guidance stating something to the effect of, "provide list of revised emissions units if and when inventory changes by 10% or more." In other cases, installations provide notification to their regulator when equipment is added or removed and so long as the change does not impact their status or result in an exceedance of a permit limit, the changes are not incorporated into the installations main permit document until it is renewed.

Updates to most permits simply follow the same logical process that a major source determination and permitting effort does.

- Evaluate the new or changed source.
- Quantify the increase or decrease in emissions.
- Notify regulatory agency as necessary.
- Develop permit application or modification for submittal to regulator.

This process usually is not a significant effort, except in cases where equipment changes are frequent or when new emissions sources trigger a NSR, NEPA, or General Conformity evaluation. If questions arise regarding the need to update emissions sources in a permit, or other more advanced question regarding installation of new emissions sources, installation environmental management flight personnel should contact their AFCEC ISS for support.

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. Also, construction 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.

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13 REGULATORY CHANGES FOR AIR PERMITTING

This chapter focuses on the importance of proactively staying current on the status of new and pending air quality related regulatory requirements. Air permitting is considered to be the Clean Air Act's most complex and volatile set of regulations. Adding to the dilemma, the EPA's regulations and guidance under one administration are often revised or rescinded by the subsequent administration. Furthermore, Court decisions also affect EPA's air permitting policy, guidance, and regulations. These challenges will have an ongoing impact on Federal, State, and local air permitting programs for the foreseeable future. Therefore, it is vital to stay current with new and pending regulations and prepare to comply with the evolving regulatory environment (which often requires compliance with more stingent standards) that, inevitably, are forthcoming.

The following is a rundown of recent events that may affect the NSR and/or operating permit programs. This list should not be construed as definitive or exhaustive; it is simply a summary of recent or pending air permitting related developments that necessitate awareness and/or tracking, particularly if an air permit could be affected by any of these changes. Furthermore, some States and local regulatory agencies for Air Quality go further and set more stringent and/or additional requirements than those imposed by the EPA.

- **Fugitive Emissions:** EPA published *The Reconsideration of the Fugitive Emissions Rule* on 14 October 2022 (87 FR 62322). The comment period for this proposed rule ended on 14 February 2023 and EPA is expected to finalize the rule during 2024.

  Per the definition in 40 CFR 52.21(b)(20), "Fugitive Emissions" are emissions that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Examples of Fugitive Emissions include dust from unpaved roads, storage piles, and construction sites. Historically, these emissions are counted toward initial major source threshold determinations for only 28 specific source categories listed in the regulations (such as petroleum refineries, portland cement plants, and iron/steel mills). For NSR, the proposed Fugitive Emissions Rule would clarify that fugitive emissions increases will be counted toward significance thresholds in major modification determinations for all source categories. The Fugitive Emissions Rule would also remove a longstanding exemption for circumstances in which NSR would be triggered "only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit…" [refer to 40 CFR 52.21(i)(1)(vii)].

  If the Rule is finalized as proposed, all existing major stationary sources will be required to include Fugitive Emissions when determining whether a project qualifies as a major modification. Typically, Fugitive Emissions are more difficult to quantify and they are often overestimated. Additionally, the BACT review for Fugitive Emissions is often a challenge because capture and control technologies are difficult to implement due to the character of these emissions.

- **Applicable Requirements:** On 9 January 2024, the EPA published a proposed rule Clarifying the Scope of "Applicable Requirements" under State Operating Permit Programs and the Federal Operating Permit Program (89 FR 1150). The proposed rule

intends to clarify the extent to which NSR requirements fall within the definition of "applicable requirement" within the Title V operating permit program. Title V operating permits consolidate all Federal, State, and local requirements that apply to a Major Stationary Source into one permit, including conditions in underlying NSR permits. This proposed rule addresses the extent to which requirements, including NSR requirements, may be reviewable, implemented, and/or modified through the Title V permitting and petition process. This proposed rule clarifies that EPA will not revisit NSR permitting decisions in the context of its Title V review authority or in response to Petitions to Object filed by third parties under the Title V permitting review process The rule is expected to be finalized during the summer of 2024.

- **Potential-to-Emit (PTE):** PTE is crucial to the definition of major and area sources. PTE is a speculative calculation used to determine if a source is major (usually higher than the source's actual emissions).

  Per EPA's 1996 guidance the terms "federally enforceable" or "enforceable" as used in general definitions of PTE and related terms should be read to mean "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency (John Seitz and Robert Van Heuvelen, "*Release of Interim Policy on Federal Enforceability of Limitations on Potential to Emit*"; 22 January 1996). Nevertheless, historically, the EPA's interpretation and use of the terms "federally enforceable," "enforceable as a practical matter," and "legally and practicably enforceable" can vary considerably.

  On 19 November 19, 2020, the EPA issue a Final Rule titled "*Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act*," in which the EPA removed the word "federally" from the phrase "federally enforceable" that was in the 40 CFR 63.2 definition of "potential to emit" (85 FR 73854). The EPA noted at the time, the revisions did not represent a final decision by the EPA or signal any direction that the EPA is intending to take in a future final action. The Rule became effective on 19 January 2021.

  On 27 September 2023, the EPA published a review of the 2020 Reclassification Rule. Amongst other items, the EPA specifically proposed to require PTE limits for reclassified Stationary Sources (i.e., a major source that becomes an area source by accepting limits) to be federally enforceable as a condition of the reclassification. The EPA proposed to add this condition as a separate paragraph and make no changes to the general definition of PTE under 40 CFR 63.2. However, in the EPA's review of the 2020 Reclassification Rule, the EPA clearly stated that they plan to address the definition of PTE for other permitting and air quality related regulations in separate rulemakings or guidance.

- **Project Emission Accounting Rule:** On 22 February 2024, the EPA signed a Proposed Rule to make significant revisions to regulations related to Project Emissions Accounting in the NSR permitting process. The proposed rule specifically targets the "netting"

process for evaluating whether NSR permitting applies to a proposed project (i.e., modification) at an existing major source. The EPA intends to:

- Clarify the definition of the term "project" to include criteria for determining the scope of a project that may be subject to the major NSR regulations.

  The EPA is proposing to change the definition of the term "project" from "a physical change in, or change in the method of operation of, an existing major stationary source" to "Project means a discrete physical change in, or change in the method of operation of, an existing major stationary source, or a discrete group of such changes (occurring contemporaneously at the same major stationary source) that are substantially related to each other. Such changes are substantially related if they are dependent on each other to be economically or technically viable." The definition of a project is included 40 CFR 51.165(a)(1)(xxxix); 40 CFR 51.166(b)(51); 40 CFR 51, Appendix S, Section II.A.33; and 40 CFR 52.21(b)(52).

- Strengthen the monitoring, recordkeeping and reporting provisions in the NSR regulations to improve compliance with, and enforcement of, the NSR applicability process.

  The EPA is proposing to significantly strengthen the monitoring, recordkeeping and reporting requirements in the NSR regulations if Project Emissions Accounting is used to evaluate a project for NSR applicability. To achieve this, the EPA wants to expand the applicability of the "Reasonable Possibility" provisions under 40 CFR 51.166(r)(6) or 40 CFR 52.21(r)(6) to projects if the applicant uses project emissions accounting to take credit for a decrease in emissions in Step 1. These provisions would requires monitoring, recordkeeping, and reporting of actual emissions for at least five years after a project is completed (ten years if the change increases the design capacity or PTE of the emissions unit).

- Require that emissions decreases included in the Step 1 of the Project Emissions Accounting process (i.e., "netting") to determine if NSR applies to a project be enforceable.

  EPA is proposing that emissions decreases included in Step 1 of the Project Emissions Accounting process must be legally and practicably enforceable prior to the commencement of construction to ensure that the emission reductions are realized and maintained.

The EPA also solicited comments on revising Project Emission Accounting provisions so that ONLY emissions increases can be considered under Step 1 (essentially prohibiting netting of the emission increases and decreases).

- **Interpollutant Trading:** EPA's provisions allowing interpollutant trading of offsets for Ozone precursors were vacated due to a 2021 court decision (S*ierra Club* v. *EPA*, 21 F.4th 815, D.C. Circuit). As a result, owners/operators of new or modified major sources of Ozone precursors will have limited options when pursuing emission offsets.

  The Clean Air Act requires major sources of Ozone precursors, Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NOx), in Ozone nonattainment areas to obtain offsets for those emissions from the same or other sources in the same nonattainment area prior to construction or modification. The Implementation Rules for the 2008 and 2015 Ozone NAAQS allowed the use of interpollutant trading of precursors to be used for offsets (83 FR 62998). The EPA had inferred that the language in the CAA allowed owners and operators of Stationary Sources located in Ozone nonattainment areas to trade offsets for NOx emissions through reductions in VOCs (and vice versa). However, the Court found that the EPA's interpretation was erroneous, and the Clean Air Act's instructions were clear; precursor offsets are not interchangeable.

- **Environmental Justice (EJ) in Air Permitting:** EJ has been a hot topic for air permitting at the Federal, State, and local levels. EPA defines EJ as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

  The EPA has isssued multiple guidance documents and memorandums placing emphasis on integrating EJ concerns within air permitting processes. As a result, several States finalized or initiated rulemaking and policies for considering EJ in their permitting programs. These rules target air permitting (both initial permitting and renwals) for facilities and/or proposed projects located in disproportionately impacted EJ communities or low income neighborhoods. Examples of requirements that address EJ concerns in air permitting include air dispersion modeling, cumulative impact analyses, fence line monitoring, additional pollution controls, and enhanced public outreach and participation.

  EJ initiatives are most likely to have the most significant effect on NSR permitting and minor source permitting and a lesser effect on Title V permitting. Title V operating permits does not authorize the direct imposition of additional and substantive emission control requirements. Regardless, EJ may come into play when renewing an operating permit, even a Title V permit.

  Many questions remain as to the future of EJ in air permitting, but it is certain that EJ will continue to be a major concern, especially in States and local jurisdictions that are most active in progressing their own EJ rules and policy. Due to the instability of EJ in air permitting and ongoing litigation, compliance with addressing EJ in air permits is not addressed in this DAF Guide, but may be included in future versions as the regulations mature. However, it is imperative that Federal, State, and local regulations and guidance be carefully monitored for regulatory EJ developments that impact the installation's air permit.

14 REFERENCES

32 CFR 187, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Subchapter L-Environment, Part 187-Environmental Effects Abroad of Major Department of Defense Actions", U.S. Environmental Protection Agency

40 CFR 51, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 51-Requirements for Preparation, Adoption, and Submittal of Implementation Plans", U.S. Environmental Protection Agency

40 CFR 68, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 68-Chemical Accident Prevention Provisions", U.S. Environmental Protection Agency

40 CFR 70.2, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 70.2-State Operating Permit Programs: Definitions", U.S. Environmental Protection Agency

40 CFR 82, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 82-Protection of Stratospheric Ozone", U.S. Environmental Protection Agency

40 CFR 93, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 93-Determining Conformity of Federal Actions to State or Federal Implementation Plans", U.S. Environmental Protection Agency

40 CFR 98, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 98-Mandatory Greenhouse Gas Reporting", U.S. Environmental Protection Agency

40 CFR Chapter V, "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency Chapter 5-Council on Environmental Quality – part 1500 through 1508", U. S. Environmental Protection Agency

AFMAN 2020, "Air Force Manaul (AFMAN) 32-7002", Environmental Compliance and Pollution Prevention, February 4, 2020

CEPA 1987, "California's Air Toxics "Hot Spots" Information and Assessment Act" Assembly Bill 2588, 1987

E.O. 1979, "Environmental Effects Abroad of Major Federal Actions", Executive Order 12114, 4 January 1979

FR 1996, “Deletion of Caprolactam From the List of Hazardous Air Pollutants: Final Rule”, 61 FR 30816, June 1996

FR 2004, “List of Hazardous Air Pollutants, Petition Process, Lesser Quantity Designations, Source Category List; Petition To Delist of Ethylene Glycol Monobutyl Ether: Final Rule”, 69 FR 69320, November 2004

FR 2005, “List of Hazardous Air Pollutants, Petition Process, Lesser Quantity Designations, Source Category List-methyl ethyl ketone: Final Rule”, 70 FR 75047, December 2005

Seitz 1996, Seitz J. S., Memorandum titled “Major Source Determinations for Military Installations Under the Air Toxics, New Source Review, and Title V Operating Permit Programs of the Clean Air Act (Act)”, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, August 2, 1996

Seitz 2000, Seitz J. S., Memorandum titled “Guidance on the Major Source Determination for Certain Hazardous Air Pollutants”, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, August 14, 2000

Environmental Protection Agency, “Memorandum Major Source Determination for Military Installation Under Air Toxics, New Source Review, and Title V Operating Permit Programs of the Clean Air Act”, August 2,1996.

ATTACHMENT 1 – CURRENT LIST OF HAPS AND HAP COMPOUNDS

CAS Number	Chemical Name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate (DEHP)
542881	Bis(chloromethyl)ether
75252	Bromoform
106990	1,3-Butadiene
106945	1-Bromopropane
156627	Calcium cyanamide
105602	Caprolactam (See Modification)
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene

CAS Number	Chemical Name
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Dimethylaniline
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3'-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (l-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate

CAS Number	Chemical Name
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
7783064	Hydrogen sulfide (See Modification)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
78933	Methyl ethyl ketone (2-Butanone) (See Modification)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether

CAS Number	Chemical Name
101144	4,4-Methylene bis(2-chloroaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4'-Methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (Aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine

CAS Number	Chemical Name
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
0	Beryllium Compounds
0	Cadmium Compounds
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
0	Cyanide Compounds 1
0	Glycol ethers 2 (See Modification)
0	Lead Compounds
0	Manganese Compounds
0	Mercury Compounds
0	Fine mineral fibers 3
0	Nickel Compounds
0	Polycyclic Organic Matter 4
0	Radionuclides (including radon) 5
0	Selenium Compounds

NOTE: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique

chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

1 - X'CN where X = H' or any other group where a formal dissociation may occur. For example, KCN or Ca(CN)2

2 - Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH2CH2)n -OR' where

n = 1, 2, or 3

R = alkyl or aryl groups

R' = R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH2CH)n-OH. Polymers are excluded from the glycol category. (See Modification)

3 - Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

4 - Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC.

5 - A type of atom which spontaneously undergoes radioactive decay.