

AIR FORCE

**AIR QUALITY ENVIRONMENTAL IMPACT
ANALYSIS PROCESS (EIAP) GUIDE**

VOLUME II - ADVANCED ASSESSMENTS



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**AIR FORCE
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ENVIRONMENTAL
IMPACT ANALYSIS
PROCESS (EIAP)
GUIDE VOLUME II -
ADVANCED
ASSESSMENTS**

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PREFACE

This guide provides comprehensive instructions for performing a Level III, Advanced Air Quality Assessment (see chapter 5 for step-by-step procedures). Air quality assessments for proposed Federal actions are required for compliance with the *National Environmental Policy Act (NEPA)*, the *Clean Air Act (CAA)*, the *General Conformity Rule* (for areas in nonattainment or maintenance for any National Ambient Air Quality Standard (NAAQS)) and other environment-related regulations and directives. The *Environmental Impact Analysis Process (EIAP)*, is the United States Air Force's (USAF) implementing tool for NEPA and provides the USAF with a framework on how to comply with NEPA and the President's Council on Environmental Quality (CEQ) Regulations. Additionally, for air quality, all EIAP documents must address the CAA Conformity Rules requirements. The USAF has expanded on the EIAP process with this guide to address specific air quality concerns. This guide breaks down the air quality EIAP process into three levels of assessment:

- Level I, Exempt Actions (a determination if a formal Air Quality Assessment is required);
- Level II, Quantitative Air Quality Assessment (a formal assessment of air impacts); and
- Level III, Advanced Air Quality Assessment (an expanded assessment that is part science and part art, both quantitative and qualitative assessments).

This guide provides comprehensive instructions for performing Levels III air quality EIAP assessments, and is intended to assist Air Quality Program Managers and/or Environmental Specialists in assessing advanced air quality impacts, if needed, of the USAF proposed actions. Furthermore, it provides guidance, procedures, and methodologies for use in carrying out an advanced quantitative and qualitative air quality EIAP assessment (which includes General Conformity Determinations) when a Level II, *Quantitative Air Quality Assessment*, indicates a Level III, *Advanced Air Quality Assessment*, is warranted. Transportation Conformity assessments are generally not applicable to the USAF; therefore, Transportation Conformity assessments are outside the scope of this guidance.

See *Air Force Air Quality EIAP Guide Volume I* for detailed guidance and procedures for air quality EIAP Level I and/or Level II assessment.

1 INTRODUCTION

This guide provides guidance in assessing the air quality impact of proposed United States Air Force (USAF) projects (i.e., action). The procedures in this guide are consistent with all current Federal air quality laws and regulations affecting the USAF mission including the *National Environmental Policy Act* (NEPA); Council on Environmental Quality (CEQ) regulations; *Clean Air Act*, (CAA) as amended; and other related statutes, regulations, directives and orders.

The *Environmental Impact Analysis Process* [EIAP, 32 Code of Federal Regulations (CFR) 989] is the USAF's implementation tool for NEPA. EIAP provides the USAF with a framework on how to comply with NEPA and CEQ's *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508, referred to as the CEQ Regulations). Additionally, for air quality (according to 32 CFR 989.30), all EIAP documents must address the *CAA Conformity Rules* (CRs) requirements when applicable.

This guide only addresses USAF actions within the United States (U.S.), its territories, and possessions. Although this guide does not cover actions abroad, many of the calculation methodologies and resources are still applicable. In addition, many of the references identified address actions abroad and can be consulted for further information.

1.1 Regulatory Context

Air quality assessments for proposed Federal actions may be necessary for compliance with the requirements of EIAP, NEPA, CAA CRs, and other environment-related regulations and directives. There are Federal regulations and orders that establish air quality requirements applicable to air bases, as well as U.S. Department of Defense (DoD)/USAF-specific regulations and orders that cover aspects of air quality. In addition to Federal requirements, many states and/or local areas have air quality requirements that may address requirements relevant to air bases. Pertinent general DoD/USAF-specific Federal requirements and documents are summarized below, along with a brief discussion of possible state and/or local requirements (see *Air Force Air Quality EIAP Guide Volume I* for greater details).

1.2 Federal Requirements and Documents - General

1.2.1 National Environmental Policy Act of 1969 (NEPA)

NEPA and its amendments establish a broad national policy to protect the quality of the human environment and provide for the establishment of a CEQ. The act provides polices and goals to ensure that environmental considerations are given careful attention and appropriate weight in all decisions of the Federal Government. The NEPA environmental review process requires Federal agencies to assess and disclose the potential environmental impacts of proposed Federal actions.

1.2.2 Council on Environmental Quality (CEQ) - Regulations for Implementing the Procedural Provisions of the NEPA

The CEQ regulations implement the procedural provisions of NEPA which requires Federal agencies to evaluate the potential environmental effects of a major action prior to its implementation and notify and involve the public in the agency's decision-making process. The

regulations also identify and describe the appropriate environmental documents (i.e., Environmental Assessment (EA), Finding of No Significant Impact (FONSI), or Environmental Impact Statement (EIS)) that serve to document compliance with NEPA requirements (40 CFR 1500).

1.2.3 Executive Orders

There are several Executive Orders (EOs) relating to NEPA that are general in nature, but should be consulted as they may affect an action's impact analysis. The following are examples of these orders:

- *Executive Order 12114: Environmental Effects Abroad of Major Federal Actions (EO 12114),*
- *Executive Order 11514: Protection and Enhancement of Environmental Quality (EO 11514),*
- *Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), and*
- *Executive Order 11593: Protection and Enhancement of the Cultural Environment (EO 11593).*

1.2.4 Clean Air Act (CAA)

Principal features of the CAA and CAA Amendments of 1990 (CAAA) include a comprehensive strategy to achieve and maintain National Ambient Air Quality Standards [NAAQS, see Table 1-1, *National Ambient Air Quality Standards (NAAQS)*] for specified criteria pollutants (i.e., ozone, carbon monoxide, particulates, sulfur oxides, nitrogen oxides, and lead, which are discussed in more detail below); further reductions in mobile source emissions; and, regulation of air toxics [e.g., Hazardous Air Pollutants (HAPs)]. The CAA and CAAA also provide methods for establishment of a new acid rain control scheme; the phase-out of production and sale of ozone-depleting chemicals (e.g., chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs); and new enforcement sanctions. (Congress 1970) (EPA 2014a)

Ambient air quality standards represent a critical element in the national environmental regulatory structure, and many of the most conspicuous environmental issues in the public arena relate to efforts on the part of regulators and the regulated community to attain these standards. Ground-level ozone, for example, poses a significant concern in many locations. Extensive regulations govern air emissions of so-called "ozone precursors," including nitrogen oxides and volatile organic compounds, in these regions. Each state with any ozone nonattainment region is required to develop a State Implementation Plan (SIP) containing regulations that range from limiting industrial emissions of specific pollutants to regulations governing emission sources from manufacturing, transportation, and other sectors. Typically, a SIP addresses other nonattainment pollutants in a manner similar to that described for ozone.

Table 1-1, National Ambient Air Quality Standards (NAAQS)

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO) [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead (Pb) [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 $\mu\text{g}/\text{m}^3$ ⁽¹⁾	Not to be exceeded
Nitrogen Dioxide (NO₂) [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual	53 ppb ⁽²⁾	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution (PM) Dec 14, 2012	PM_{2.5}	primary	Annual	12 $\mu\text{g}/\text{m}^3$	Annual mean, averaged over 3 years
		secondary	Annual	15 $\mu\text{g}/\text{m}^3$	Annual mean, averaged over 3 years
		primary and secondary	24-hour	35 $\mu\text{g}/\text{m}^3$	98th percentile, averaged over 3 years
	PM₁₀	primary and secondary	24-hour	150 $\mu\text{g}/\text{m}^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO₂) [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb ⁽⁴⁾	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 $\mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is \leq to 1. The ozone standard was revised by rule making to 70 ppb on 26 Oct 15 (80 FR 65292). Effective date of new standard is 28 Dec 15.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Source: EPA (2015) <http://www3.epa.gov/ttn/naaqs/criteria.html>

The CAAA and its associated regulations are largely implemented by the States. Many states, as well as local jurisdictions, have additional State requirements pertaining to air pollution. As a result, air pollution control regulations can be quite complex and site- or area-specific.

The CAA and its associated regulations address air pollution control in two ways: an air quality-based approach and a technology-based approach, with the former being the most important for the purpose of this discussion. EPA has implemented the air quality approach by establishing a set of NAAQS for six “criteria pollutants”:

- Ozone (O₃),
- Carbon Monoxide (CO),
- Particulate Matter (PM₁₀ & PM_{2.5}),
- Sulfur Oxide (SO_x) measured in the ambient air as Sulfur Dioxide (SO₂),
- Nitrogen Oxide (NO_x) with Nitrogen Dioxide (NO₂) as the indicator, and
- Lead (Pb).

States must identify geographic areas, termed “nonattainment” areas, which do not meet these NAAQS.

For nonattainment areas, the affected state must develop a SIP that include a variety of emission control measures that the state deems necessary to ensure attainment of the NAAQS in the future. Although developed initially by the state and local air pollution control officials, SIPs must be adopted by municipal and state governments and then approved by EPA. Once a SIP is fully approved, it (and any emissions control measures) is legally binding under both State and Federal law, and may be enforced by either government. Many states have designated nonattainment areas and, subsequently, have adopted a SIP. If a SIP already exists, it must be revised as necessary to include and address emission control measures necessary to ensure attainment. An area previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment is termed a “maintenance” area. A maintenance area has a “maintenance” plan, or revision to the applicable SIP, to ensure sustainment of the air quality standards. (Congress 1970)

1.2.5 Conformity Rules

A key component of the CAAA strategy to achieve and maintain the NAAQS is the concept of “conformity,” required in Section 176(c)(1) of the CAAA. Conformity Rules (40 CFR 51 Subpart W and 40 CFR 93 Subpart A & B) apply only to air quality and only in areas that are designated by the EPA as nonattainment or maintenance areas. Conformity is intended to ensure that the Federal government does not take, approve, or support actions that are in any way inconsistent with a State’s plan to attain and maintain the NAAQS for criteria pollutants. The CAAA defines conformity to a SIP as demonstrating consistency with the SIP’s “purpose of eliminating or reducing the severity and number of violations of the national ambient air quality

standards and achieving expeditious attainment of such standards.” For example, from a practical standpoint this means that emission increases that result from an USAF project should not exceed the emission forecast or budget included in a SIP for that base.

The *Conformity Rules* require an air quality assessment to ensure Federal actions do not interfere with a state’s plans to meet NAAQSs (i.e., SIPs). Under 40 CFR 51.850-51.860 (Subpart W), States or eligible Tribes may create conformity provisions that can contain criteria and procedures more stringent than the requirements described in 40 CFR 93 Subpart B. There are two separate *Conformity Rules*:

1. *Transportation Conformity* (40 CFR 93 Subpart A): Applies to federal highway and transit actions only and sets policy, criteria, and procedures for demonstrating and assuring conformity of federal highway and transit activities to applicable implementation plans (i.e., SIPs). Generally, USAF actions do not impact federal highway and transit.
2. *General Conformity* (40 CFR 93 Subpart B): Applies to all other (i.e., non-federal highway and non-transit actions) Federal actions.

1.3 Federal Requirements and Documents - DoD/USAF Specific

1.3.1 DoD Directive 6050.1: *Environmental Effects in the U.S. of DoD Actions*

This directive implements the CEQ regulations on decision-making process on DoD actions within the U.S. The directive includes policy, responsibilities, how to determine if an EA or EIS is needed, EA content and format, and categorical exclusions. (DoD 6050.1)

1.3.2 U.S. Air Force Policy Directive (AFPD) 32-70: *Environmental Quality*

This directive establishes the USAFs policy in achieving and maintaining environmental quality and compliance with NEPA and EO 12114. It addresses development and implementation of a USAF Environmental Quality Program, establishes environmental authorities and responsibilities, and lists directives and laws implemented by this policy. (AFPD 32-70)

1.3.3 U.S. Air Force Instruction (AFI) 32-7040: *Air Quality Compliance & Resource Management*

This instruction implements AFPD 32-70, *Environmental Quality*; provides details of the Air Force Air Quality Compliance and Resource Management Program; and explains how to assess, attain, and sustain compliance with the CAA; other federal, state, and local environmental regulations. (AFI 32-7040)

1.3.4 *Environmental Impact Analysis Process (EIAP; 32 CFR 989)*

32 CFR 989, EIAP (formally AFI 32-7061), implements AFPD 32-70 and describes specific tasks and procedures for the EIAP both within the U.S. and abroad. This regulation also identifies directives and instructions with further environmental requirements.

1.3.5 EO 12114: *Environmental Effects Abroad of Major Federal Actions*

EO 12114 requires overseas Federal agencies to consider the environmental impacts of proposed actions and effectively implements EIAP assessments for Federal actions outside the jurisdiction of the EPA. Proposed actions under EO 12114 include, actions that significantly affecting the environment.

1.3.6 State and/or Local Requirements

In addition to Federal requirements, often there are state and/or local air quality requirements applicable to USAF activities. These requirements vary widely from location to location, and are more appropriate to address on a project-by-project basis. Examples of state and/or local air quality requirements applicable to USAF projects are state indirect source thresholds, state-level environmental assessments, approved state general conformity rules, and state and local ambient air quality standards. The analyst/specialist is directed to review state and local regulations at various points throughout the guide and as early in the assessment process as possible.

Some states and local air districts maintain their own General Conformity rules, which predate the 2010 amendments to 40 CFR Part 93, Subpart B and 40 CFR 51.851(g). These state/local conformity rules which remain in a State Implementation Plan (SIP) must be followed in determining general conformity requirements.

1.4 Roles and Responsibilities

All roles and responsibilities for EIAP execution (including NEPA and Conformity) are prescribed in 40 CFR 989 (general roles and responsibilities) and AFI 32-7040 (air quality related roles and responsibilities).

2 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

32 CFR 989, EIAP, is the USAFs implementation and compliance tool for NEPA and provides the USAF with a framework on how to comply with the CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508, referred to as the CEQ Regulations). Additionally, for air quality (according to 32 CFR 989.30), EIAP documents addresses the *General Conformity Rule* requirements as applicable.

2.1 What is NEPA?

NEPA, enacted on January 1, 1970, requires federal agencies to give appropriate consideration to all potential environmental impacts, to all affected resources, due to any proposed action and/or alternatives. NEPA applies to all federal agencies and the activities they manage, regulate, or fund. In addition, it mandates use of public involvement to promote full disclosure of potential impacts and as a means of helping the decision maker to reach an informed decision. (Congress 1969)

2.2 What are the Conformity Rules (CRs)?

Conformity Rules (40 CFR 51 Subpart W and 40 CFR 93 Subpart A & B) apply only to air quality and only in areas that are designated by the EPA as nonattainment or maintenance for meeting the NAAQS. The Conformity Rules require an air quality assessment to ensure Federal actions do not interfere with a SIPs to meet NAAQSs. Under 40 CFR 51.851 (Subpart W), States or eligible Tribes may create conformity provisions that may contain criteria and procedures more stringent than the requirements described in 40 CFR 93 Subpart B. Conformity Applicability Analyses and Determinations are developed in parallel with EIAP documents, but are separate and distinct requirements and should be either documented separately or addressed independently in a single document. To increase the utility of a conformity determination in performing the EIAP, the conformity determination should be completed prior to the completion of the EIAP so as to allow incorporation of the information from the conformity evaluation/s into the EIAP document. There are two separate Conformity Rules, the *Transportation Conformity Rule* and the *General Conformity Rule*.

2.2.1 Transportation Conformity Rule (40 CFR 93 Subpart A)

Transportation Conformity applies to federal highway and transit actions only. Generally, USAF actions do not impact federal highway and transit; therefore, Transportation Conformity is not addressed in this guide.

2.2.2 General Conformity Rule (GCR, 40 CFR 93 Subpart B)

Applies to all non-federal highway and non-transit actions being proposed/taken by a federal agency. For USAF actions that do not impact federal highways and transit, only the General Conformity Rule applies.

2.3 What Triggers NEPA/GCR?

For NEPA, any major federal action that may significantly affect the quality of the human and natural environment requires NEPA analysis. For the USAF, a major change may include changes of aircraft, reconfiguration of airspace, construction and/or renovation of facilities, range

activities, exercises, or real estate actions. For GCR, any proposed action potentially impacting air quality AND to be located within an area designated by the EPA as nonattainment or maintenance for any NAAQS requires a GCR assessment known as a Conformity Evaluation.

2.4 When Does EIAP/NEPA/GCR Begin?

EIAP is the USAFs implementing tool for both NEPA and GCR requirements. Generally, actions that trigger NEPA will also require a Conformity Evaluation if the action is located in a nonattainment or maintenance area. Therefore, conformity evaluations should be performed in tandem with NEPA evaluations and be incorporated into the EIAP process/document. EIAP begins early in the planning process for a proposed action. USAF EIAP responsibilities start when adequate information is known about a proposed action to allow an estimate of its effects on the environment. The earlier the potential impacts are identified, the easier it is to refine the proposed action and alternatives to avoid or lessen the adverse environmental and regulatory effects.

2.5 What are The Different Levels of NEPA Documentation?

Three levels of NEPA documents exist: categorical exclusion, environmental assessment (ERA), and environmental impact statement (EIS). When the action requires EIAP/NEPA the USAF evaluates the proposal in one of three ways:

- Is it a continuation of normal or routine activities?
- If not routine, could the action present any potential affects to the environment?
- Could the action present any significant impacts or be controversial in nature?

2.6 What are the Different Levels of GCR Documentation?

Two levels of GCR documentation exist under a Conformity Evaluation: *Applicability Analysis* and *Conformity Determination*. GCR evaluations should be performed in tandem with NEPA evaluations and can be incorporated into the EIAP process/document at any level.

2.6.1 Applicability Analysis

Applicability Analysis is the process of determining if a Federal action must be supported by a Conformity Determination. This is accomplished through the use of the USAFs automated Air Conformity Applicability Analysis Model (ACAM) or other AFCEC approved automated tool. ACAM performs a quantitative analysis of a proposed action's projected emission against regulatory thresholds (Conformity Thresholds) which trigger a Conformity Determination. If the ACAM evaluation indicates the action would exceed a Conformity Threshold, a Conformity Determination is required.

2.6.2 Conformity Determination

Conformity Determination is the evaluation made after an Applicability Analysis is completed and identifies if a Conformity Determination is required. The Conformity Determination is a complex assessment of air quality impacts and, if necessary, contains mitigation measures to

ensure that a Federal action conforms to the applicable implementation plan and meets the requirements of the GCR.

2.7 NEPA Env. Assessment (EA) and Finding of No Significant Impact (FONSI)

If a Categorical Exclusion (CATEX) cannot be applied and it is unknown whether an EIS is required, the USAF prepares an EA. An EA is a concise, public document that determines if an action would result in significant impacts. An EA results in one of the following outcomes: FONSI, preparation of an EIS, or no action is taken.

When an EA results in no significant impact and Conformity Evaluation (if required) is complete, a FONSI (32 CFR 989.15) summarizes the findings and describes the Conformity Evaluation and why an action would not require preparation of an EIS. The FONSI is signed before the action is implemented.

2.8 Environmental Impact Statement (EIS) and Record of Decision (ROD)

For actions having a potential for significant environmental impacts, an EIS is prepared. An EIS is the most intensive level of EIAP analysis. The decision to prepare an EIS can be made early in the planning process or following preparation of an EA where the analysis shows the potential for significant impacts. Actions such as new weapon systems beddowns, major aircraft realignments, large land withdrawals, establishment of training ranges, and creation of supersonic airspace typically require preparation of an EIS. In general, an EIS contains:

- Detailed explanation of the purpose and need for the action;
- Thorough description of the proposed action, no action and reasonable alternatives;
- Identification of the resources affected by the proposal;
- A full description of the affected environment;
- Rigorous analysis of the potential impacts on affected resources;
- Cumulative impact analysis for past, present, and reasonably foreseeable actions;
- Permitting requirements;
- Agency consultation information;
- Public involvement overview;
- Defined mitigation and management actions not already included in the proposed action or alternatives; and
- If required, a discussion and conclusions of GCR Conformity Evaluations.

An EIS is focused and issue-driven rather than encyclopedic. It provides the public and the decision maker an adequate level of information about the potential impacts of the action prior to making a decision.

A ROD serves as a public record documenting the USAF decision relating to a proposed action. The ROD provides:

- An explanation of the decision;
- A description of alternatives considered;
- Identification of both the preferred and environmentally preferred alternatives;
- The factors considered in making the decision;
- A statement on whether practicable means to avoid or minimize environmental harm from the selected alternative have been adopted;
- A summary of any applicable monitoring and enforcement program for mitigation;
and
- If required, a discussion and conclusions of GCR Conformity Evaluations.

Overall, the ROD summarizes the major factors weighed in making the decision, including essential considerations of national policy.

3 AIR QUALITY EIAP OVERVIEW

The NEPA established a national policy with goals for the protection, maintenance, and enhancement of the environment, and provides a process for implementing these goals within federal agencies. Under NEPA, the CEQ was established, which is charged with the development of implementing regulations and ensuring federal agency compliance with NEPA. The CEQ regulations mandate that all federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that may affect the environment. 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*, outlines the USAFs systematic procedures for the analysis of environmental impacts on installations to ensure USAF compliance with NEPA and the CEQ regulations.

The EIAP provides the USAF with a methodical interdisciplinary approach to environmental planning and the evaluation of proposed actions that may affect the environment. The EIAP regulation outlines a detailed process for preparing EISs and discusses the use of EAs. This process is intended to assist USAF officials in decision-making based on an understanding of the potential environmental consequences and to take actions that protect, restore, and enhance the environment. The level of analysis required to meet NEPA requirements will depend on the scope and severity of the environmental impacts threatened by the proposed action.

The USAF expanded the EIAP process to address specific air quality concerns through AFI 32-7040, *Air Quality Compliance and Resource Management*. The *Air Quality EIAP Guide Volume I & II* implements the air quality requirements of AFI 32-7040 and outlines the steps for the analysis of air quality related environmental impacts on installations in the U.S. and abroad. The policies and procedures set forth in the guidance are designed to ensure USAF compliance with NEPA and the CEQ regulations as they relate to air quality. See the *Air Quality EIAP Guide Volume I* for a more detailed discussion.

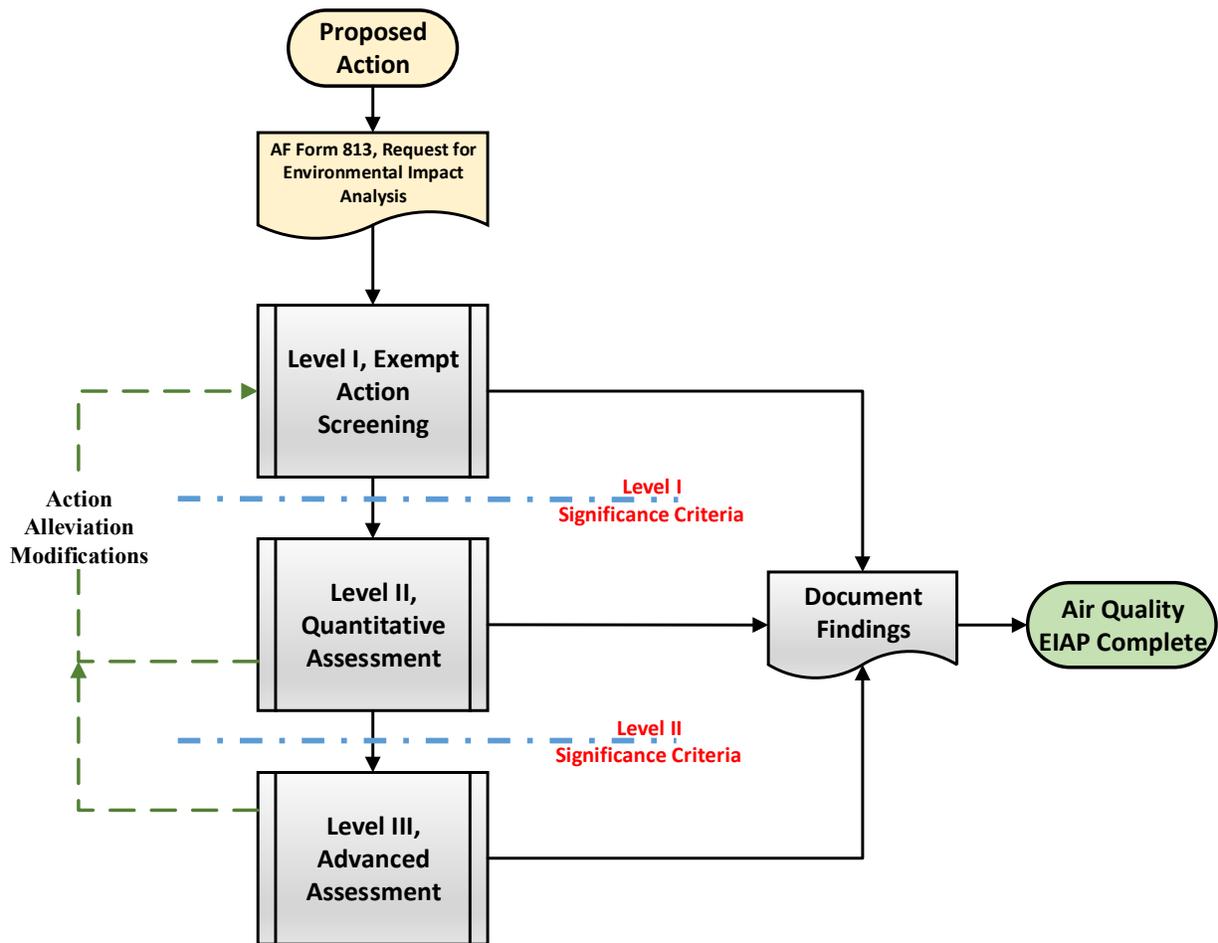
3.1 Air Quality EIAP Levels

Generally speaking, actions that trigger an assessment under NEPA will also require a conformity evaluation if the project or program is located in a nonattainment or maintenance area. As such, the USAF conducts NEPA and GCR assessments in tandem within the EIAP process. The EIAP process starts with the office formally initiating a proposed action (the “proponent”) by submitting an AF Form 813, *Request for Environmental Impact Analysis*, to begin the environmental impact analysis process. The air quality EIAP process then proceeds through up to three progressive levels of assessment (see Figure 3-1, *Air Quality EIAP Process*) based on significance thresholds. The goal is to exit the air quality EIAP process at the lowest possible level.

3.2 Level I, Exempt Action Screening

Under this level, the proposed action is assessed to determine if a formal Air Quality Assessment is required. If no air emissions will occur or the proposed action is exempt from NEPA and the GCR, no further action is required. Level I screenings are address in the *AF Air Quality EIAP Guide Volume I*.

Figure 3-1, Air Quality EIAP Process



3.3 Level II, Air Quality Quantitative Assessment

Level II requires a formal assessment of air impacts be performed. A quantitative estimate of the annual net total direct and indirect emissions of pollutants of concern associated with a proposed action must be calculated. Only estimating methodologies, algorithms, and emission factors from the current *AF General Conformity Guide*, the *AF Mobile Source Guide* and the *AF Stationary Source Guide* are to be used. Currently the Air Conformity Applicability Model (ACAM) must be used throughout the USAF to perform this estimate. ACAM provides a simplified emission modeling that is adequate for a General Conformity Applicability Assessment and cursory NEPA Assessment for air quality. If the findings of the assessment indicate no significant impact to air quality, the findings are documented through the ACAM automated reports for inclusion in the overall EIAP document. Level II assessments are addressed in the *AF Air Quality EIAP Guide Volume I*.

3.4 Level III, Advance Air Quality Assessment

At this level, the assessment is part science and part art; both quantitative and qualitative assessments are utilized to evaluate the potential air quality impact associated with a proposed action. The results and findings of the assessment are documented and usually integrated into an overall formal EA or EIS. Level III advanced assessments are addressed in this document, *AF Air Quality EIAP Guide Volume II*.

3.4.1 Quantitative Analysis

In a quantitative analysis of air quality impact, the proposed action is assessed based on a firm quantity or measured value as compared to a defined limit (i.e., a threshold or an indicator). The action's worst-case year of quantified annual emissions for each pollutant of concern are compared against defined EPA thresholds or indicators:

- Thresholds are annual emission levels that, if exceeded, would trigger a regulatory requirement.
- Indicators are EPA thresholds that are partially applied or applied out of context to their intended use; however, they provide an indication of potential impacts.
- Therefore, indicators do not trigger a regulatory requirement; however, they provide a warning that the action is potentially approaching a threshold which would trigger regulatory requirement. It is important to note that while thresholds provide a definitive impact determination, indicators only provide a clue to the potential impacts to air quality.

NOTE: *Under EIAP, the air pollutant/s of concern include all criteria pollutant, greenhouse gases, and total hazardous air pollutants (HAPs); while under General Conformity the air pollutant/s of concern only include those criteria pollutants and their precursors for which the area is designated nonattainment or maintenance. Additionally, any pollutant emissions from permitted sources are not included as pollutant/s of concern for General Conformity analysis.*

3.4.2 Qualitative Analysis

In a qualitative analysis of air quality impacts, the proposed action is assessed based on quality or characteristic/s, rather than on a firm quantity or measured value. Inferences are drawn from professional judgment on potential impacts from the available quantified data and other scientifically related data. Air quality impact inferences should be derived from comparing the NAAQS against an amalgamation of the action's worst-case year of quantified annual emissions for each pollutant of concern and the current ambient air quality data.

3.5 Air Quality EIAP Summary

EIAP outlines the USAFs systematic procedures for the analysis of environmental impacts on installations to ensure USAF compliance with NEPA and the CEQ regulations. The EIAP provides methodical interdisciplinary approach to environmental planning and the evaluation of proposed actions that may affect the environment. Additionally, the EIAP regulation outlines a detailed process for preparing EISs and EAs. This process assists USAF officials in decision-making based on an understanding of the potential environmental consequences and to take

actions that protect, restore, and enhance the environment. The USAF has expanded on the EIAP process to address specific air quality concerns. The Air Quality EIAP guidance outlines the steps for the analysis of air quality related environmental impacts on installations in the U.S. and abroad. The policies and procedures set forth in the guidance are designed to ensure USAF compliance with NEPA and the CEQ regulations as they relate to air quality.

4 SIGNIFICANCE CRITERIA

Significance criteria are quantifiable gauges (i.e., thresholds or indicators) of the severity of adverse impacts and are used to determine whether further assessment or some other level of documentation is required. If, after proper analysis, the proposed action's air quality impacts are found to be below the significance criteria, then the air quality impacts may be considered less than significant for the level of assessment. If not, the USAF should redefine the proposed action through alleviation modifications (Section 5.1) or implement appropriate mitigation measures to reduce associated air quality impacts. *It is important to note that significance criteria gauge potential adverse impacts to the environment (i.e., impacted air quality) and not the potential adverse impacts to the USAF (e.g., need for a permit).*

Significance criteria are quantifiable air quality impact severity gauges that are either thresholds or indicators. **Thresholds** are EPA-established emission related limits that, if exceeded, would trigger a regulatory requirement. **Indicators** are EPA-established thresholds that are partially applied or applied out of context to their intended use; however, can provide a direct gauge of potential impact. Therefore, indicators do not trigger a regulatory requirement; however, they provide an indication or a warning that the action is potentially approaching a threshold which would trigger regulatory requirement.

The USAF Air Quality EIAP is deliberately structured as a progressive phased process with potential exists at each phase based on significance criteria with the goal to exit the process at the lowest possible level. If an action's EIAP level assessment concludes the action falls below the significance criteria for that level of assessment, then the Air Quality EIAP assessment is complete. Inversely, if an EIAP level assessment concludes the action results in an exceedance of the significance criteria for that level of assessment, then the Air Quality EIAP is ratcheted up to the next level of assessment.

In Level I analysis, the proposed action is screened against exemptions with the significance threshold being no exemption available. In a Level II analysis of air quality impact, the proposed action's worst-year annual emissions are screened against the applicable General Conformity threshold values (de minimis values) as a second phase significance thresholds or indicators. In Level III analysis, there are two major primary significance thresholds/indicators based on the 40 CFR 93 determination criteria; the first is an expansion of General Conformity annual de minimis values to hourly thresholds/indicators and the second is using the NAAQS as thresholds/indicators.

4.1 Significance Thresholds Versus Indicators

Thresholds are EPA-established trigger levels that, if exceeded, would prompt a regulatory requirement and a definitive significant impact determination. Indicators are EPA-established thresholds that are partially applied or applied out of context to their intended use; however, they can provide a direct gauge of potential impact. Therefore, indicators do not trigger a regulatory requirement; however, they provide an indication or a warning that the action is potentially approaching a threshold which would trigger regulatory requirement. *It is important to note that while thresholds provide a definitive impact determination, indicators only provide relevant evidence to the potential impacts to air quality.*

For example, the General Conformity thresholds are intended to be used to perform an Applicability Analysis; however, they can also be used as a general indicator for air quality NEPA assessments.

4.2 Significance Criteria Usage

In Air Quality EIAP there are three progressive levels triggered by exceeding significance criteria (thresholds/indicators) that are generally based on the General Conformity criteria in 40 CFR 93.158(a). The specific significance criteria (thresholds/indicators) used for air quality EIAP are discussed below and are shown in Table 4-1, *Significance Criteria (Thresholds/Indicators)*.

Level I, Exempt Action Screening: In Level I assessments there are three significance criteria used: NAAQS, CATEXs, and General Conformity Exemptions.

- The NAAQS are used to determine the attainment status of the location of the proposed action. Areas where ambient air quality exceeds the NAAQS are designated by the EPA as *nonattainment areas* and areas where ambient air quality recently achieved the NAAQS thresholds are designated as *maintenance areas*. *To be conservative, it is recommended that any area within 10 percent of any NAAQS be treated as maintenance area for assessing air quality impacts.* If a proposed action will occur within an attainment area for all criteria pollutants, General Conformity does not apply and air quality impacts for NEPA are not as consequential as would be in a nonattainment area.
- CATEXs are used to eliminate any proposed actions from further NEPA assessment for actions that have already been demonstrated to not have a significant effect on the human environment. If the proposed action is on the official CATEX list and also falls within an attainment area for all criteria pollutants, document the applicable CATEX and no further air quality assessment is required. If the proposed action is not on the official CATEX list, a Level II assessment is required. If the proposed action is on the official CATEX list and also falls within a nonattainment or maintenance area for any criteria pollutants, General Conformity applicability must be assessed.
- General Conformity Exemptions are list in 40 CFR 93.153 or applicable SIP (40 CFR 51.851) and are generally routine and recurring in nature. Any action that will occur within an attainment area is automatically exempt from General Conformity. If a proposed action is NOT exempt and will occur within a nonattainment/ maintenance area (or within 10 percent of any NAAQS), a Level II, Air Quality Quantitative Assessment, is be required.

Level II, Air Quality Quantitative Assessment: In Level I assessments the General Conformity thresholds are compared directly to the estimated net total direct and indirect emissions from the proposed action (or alternatives) they can provide a definitive significance determination for General Conformity and an indicator of significance for NEPA as described below:

- **Applicability Analysis (Use as a Threshold):** In an Applicability Analysis (for nonattainment and maintenance areas only), General Conformity thresholds are de minimis values used to compare against the action's worst-case estimated annual emissions for each pollutant of concern. If the Level II worst-case annual emissions estimate for any of the pollutants of concern is above the corresponding de minimis threshold values, a Conformity Determination is required and Level III assessment is required.
- **NEPA Assessment (Use as an Indicator):** Given the General Conformity de minimis threshold values are the maximum net change an action can acceptably emit in nonattainment and maintenance areas, these threshold values would also be a conservative indicator that an action's emissions within an attainment area would also be acceptable. In other words, if the threshold is acceptable in nonattainment areas, it must be more than acceptable in an attainment area. If the Level II worst-case annual emissions estimate for any pollutant of concern is above the corresponding de minimis threshold values, this indicates further evaluation is needed and a Level III assessment is required.

Level III, Advance Air Quality Assessment: The Level I assessment is part science and part art; both quantitative and qualitative assessments are utilized to evaluate the significance of potential air quality impact associated with a proposed action.

- **Quantitative Analysis:** In a quantitative analysis of air quality impact, the proposed action is assessed based on comparing the action's worst-case quantified annual emissions for each pollutant of concern against defined EPA thresholds or indicators (i.e., de minimis levels or daily significance thresholds). If the refined Level III worst-case annual emissions estimate for any pollutant of concern is above the corresponding de minimis or daily significance thresholds, this indicates that mitigation is likely needed.
- **Qualitative Analysis:** In a qualitative analysis of air quality impacts, the proposed action is further assessed based on quality or characteristics, rather than on a firm quantity or measured value. An inference on the significance is drawn from professional judgment based on the available quantified data and other scientifically related data. When appropriate, an air quality impact significance inference can be derived from comparing the NAAQS against an amalgamation of the quantified data and modeling of the worst-case annual emissions for each pollutant of concern superimposed on the current ambient air quality data.
- **Daily Significance Thresholds/Indicators:** These thresholds/indicators are an extrapolation of General Conformity annual de minimis values to daily thresholds/indicators to compare against daily estimated emissions. If the daily emissions estimate for any pollutant of concern is above the corresponding Daily Significance Thresholds/Indicator, this indicates a likely significant impact and a comprehensive EIAP Level III assessment is required.

- **NAAQS:** The NAAQS as thresholds/indicators only applies to nonattainment areas and is used only when applying fate/transport modeling (e.g., dispersion modeling) as a strategy for General Conformity Determination. The NAAQS as thresholds/indicators are compared against episodes of exceedance demonstrated through fate/transport modeling. If the fate/transport modeling indicates potential for the proposed action to increase the frequency or severity of any existing violation of any NAAQS standard in any area, this indicates a **significant impact** and a comprehensive EIAP Level III assessment which includes a Conformity Determination through modeling.

The Level III assessment requires a formal evaluation of estimated air impacts (from Level II) based potential emissions offsets and/or air quality modeling analysis of the quantitative net change (emission inventory of the annual net total direct and indirect emissions) of pollutants of concern. In Level III, the estimates of each annual net change (i.e., total direct and indirect emissions associated with a proposed action), as estimated in Level II, is compared against regulatory thresholds/indicators for offsets and/or the NAAQS for modeling analysis.

4.3 Daily Significance Thresholds

The California Environmental Quality Act (CEQA 2014) establishes daily significance thresholds for VOCs and NO_x by expanding the annual General Conformity thresholds. Daily General Conformity threshold were derived by simply dividing the annual threshold by 365 days. This guide expands on this concept for all criteria pollutants and precursors to establish firm significance thresholds/indicators (see Table 4-1, *Significance Criteria (Thresholds/Indicators)*, for values by pollutant). *If the annual thresholds or the daily thresholds for any given day during the time period of the action are exceeded, the action may be significant.*

Table 4-1, Significance Criteria (Thresholds/Indicators)

Criteria Pollutant	Area Classification	Pollutant of Interest	Ozone Transport Region ^(a)	De Minimis Level ^(b) (tons/yr)	Daily Significance Threshold ^(c)		NAAQS		
					(tons/day)	(lbs/day)	(ppm)	(ug/m ³)	Polutant
Ozone	Extreme nonattainment	VOC or oxides of nitrogen (NOx)	NA	10	0.027	54	0.08	---	8 hr O3
	Severe nonattainment	VOC or NOx	NA	25	0.068	136			
	Serious nonattainment	VOC or NOx	NA	50	0.137	273			
	Other nonattainment	VOC or NOx	Outside	100	0.274	547			
	Other nonattainment	VOC	Inside	50	0.137	273			
	Other nonattainment	NOx	Inside	100	0.274	547			
	Maintenance or within 10% of nonattainment	NOx	NA	100	0.274	547			
	Maintenance or within 10% of nonattainment	VOC	Inside	50	0.137	273			
	Maintenance or within 10% of nonattainment	VOC	Outside	100	0.274	547			
CO, SO₂, NO₂							9.0	10,000	8 hr CO
							35.0	40,000	1 hr CO
	Nonattainment	CO, SO ₂ , NO ₂	NA	100	0.274	547	0.053	100	Annual NO ₂
	Maintenance or within 10% of nonattainment	CO, SO ₂ , NO ₂	NA	100	0.274	547	0.03	80	Annual SO ₂
							0.14	---	24 hr SO ₂
PM₁₀	Serious nonattainment	PM ₁₀	NA	70	0.192	383	---	50	Annual PM ₁₀
	Moderate nonattainment	PM ₁₀	NA	100	0.274	547	---	150	24 hr PM ₁₀
	Maintenance or within 10% of nonattainment	PM ₁₀	NA	100	0.274	547			
PM_{2.5}	Nonattainment or maintenance or within 10% of nonattainment	PM _{2.5} Direct emissions	NA	100	0.274	547			
	Nonattainment or maintenance or within 10% of nonattainment	SO ₂	NA	100	0.274	547	---	15	Annual PM _{2.5}
	Nonattainment or maintenance or within 10% of nonattainment	NO _x ^(c)	NA	100	0.274	547	---	35	24 hr PM _{2.5}
	Nonattainment or maintenance or within 10% of nonattainment	VOC or Ammonia (NH ₃) ^(d)	NA	100	0.274	547			
Pb	Nonattainment	Pb	NA	25	0.068	136	---	2	qtr
	Maintenance or within 10% of nonattainment	Pb	NA	25	0.068	136			

Source: 40 CFR 93.153(b)(1) and (2).

^(a) NA = not applicable. Section 184 of the CAA defines a single ozone transport region consisting of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area around the District of Columbia.

^(b) Values are de minimis thresholds for nonattainment/maintenance areas or an indicator value for attainment areas.

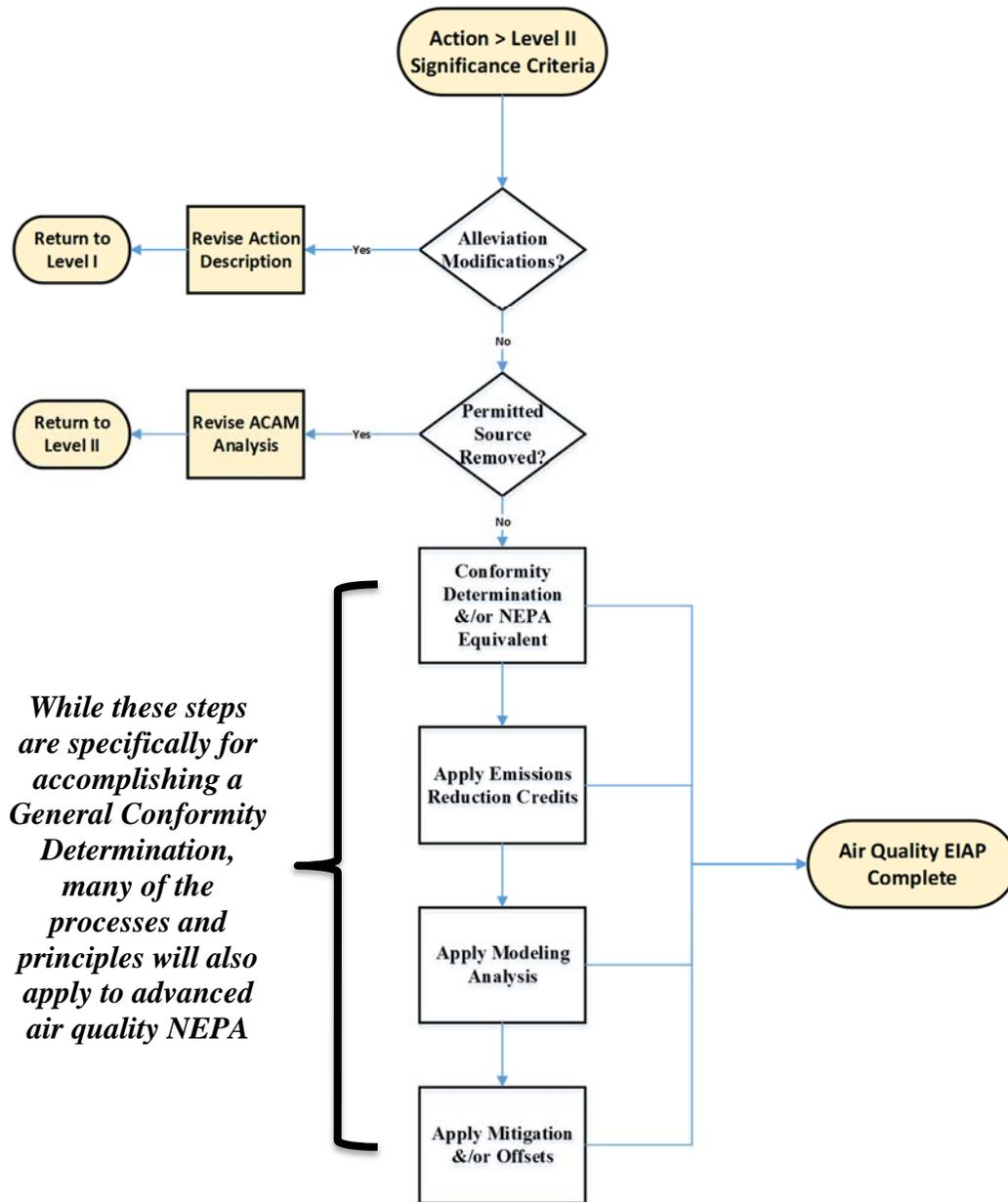
^(c) Unless it is determined that NO_x is not a significant precursor.

^(d) If either a VOC or ammonia is determined to be a significant precursor.

5 LEVEL III, ADVANCE AIR QUALITY ASSESSMENT

The Level III assessment is a continuation of the Level II, Air Quality Quantitative Assessment, and are complex evaluations that are part science and part art, and require both a quantitative and a qualitative assessment of the potential air quality impact associated with a proposed action. Generally speaking, the results and findings of the Level III assessment are usually associated with the requirement for a General Conformity Determination or a very large/complex action and are often integrated into an overall formal EA or EIS.

Figure 5-1, Level III Process Diagram



5.1 Step #1, Alleviation Modifications

The first step in a Level III assessment is to back up to the last step of the Level III assessment and review the proposed act for potential “alleviation modifications.” Alleviation modifications are amendments and revised adaptations of the original proposed action which would result in lessening air emissions or adverse impacts of air emissions (e.g., relocation of action, reduce size/time of action, low-emission construction materials/activities, etc.).

Alleviation modifications are simply documented clarifications to the action’s description in terms of air quality impact which illuminate measures that are part of the action that result in lessening air emissions. They are actual proactive refinements and changes to the action’s scope/definition that actually clarify and replace the original proposed action, and are developed early on in the EIAP process with the intent of being environmentally friendly.

Because alleviation modifications replace the original scope/definition of the proposed action, the new defined action must be reevaluated starting at a Level I assessment. Therefore, alleviation modifications should be developed as early on (no later than the first step of a Level III assessment) in the EIAP process as possible with the objective of minimizing adverse impacts on the environment. Should any alleviation modifications be developed beyond a Level I assessment, a new Level I assessment must be made based on the revised scope/definition of the action.

Alleviation modifications differ from “emission offsets” and “mitigation measures” in that alleviation modifications are proactively applied scope/definition changes to the action, while emission offsets and mitigation are reactive reduction measures applied after an action is fully defined and are applied solely as a measure to reduce or offset air emissions to conform with the applicable SIP.

If alleviation modifications can be applied and the proposed action is therefore modified, a new or reassessment of the Air Quality EIAP Level I assessment is required. However, if alleviation modifications cannot be applied to modify the proposed action, a Level III, Advanced Air Quality Assessment must be performed. The Level III assessment must include both quantitative and qualitative analysis to evaluate the potential air quality impact associated with a proposed action.

5.2 Set #2, Permitting

The next step is to evaluate for any portions (i.e., sources) of the proposed action that will be covered under a permit. Permitting requirements are not officially part of the NEPA assessment because a NEPA assessment is about evaluating the impact of a proposed action on the environment, and not an assessment of the potential regulatory impacts on the proponent of the action. However, for General Conformity Evaluations permitting may play an important role and it is good planning practice to evaluate air permitting requirements during an EIAP assessment.

For General Conformity, 40 CFR 93.153 (c-d) provides a regulatory exemption for portions of an action that are or will be permitted. Generally, the permitting requirements will address any adverse impacts for all sources covered under a permit; therefore, further evaluation generally

isn't required under General Conformity and permitted emission sources shall not be included in a General Conformity analysis. However, the specific permitting and affected sources should be documented as part of the air quality EIAP assessment. Upon evaluating all portions of an action for permit requirements and sources are removed from the air quality EIAP assessment for General Conformity, the proposed action must be reassessed with ACAM removing all permitted (or will be permitted) sources from the analysis. *If the ACAM reevaluation shows the applicable significance criteria, no further assessment is needed.*

5.2.1 Preconstruction New Source Review (NSR)

Congress established the NSR permitting program as part of the 1977 Clean Air Act Amendments. NSR is a preconstruction permitting program that serves two important purposes.

- First, it ensures that air quality is not significantly degraded from the addition of new and modified factories, industrial boilers and power plants. In areas with unhealthy air, NSR assures that new emissions do not slow progress toward cleaner air. In areas with clean air, especially pristine areas like national parks, NSR assures that new emissions do not significantly worsen air quality.
- Second, the NSR program assures people that any large new or modified industrial source in their neighborhoods will be as clean as possible, and that advances in pollution control occur concurrently with industrial expansion.

NSR permits are legal documents that the facility owners/operators must abide by. The permit specifies what construction is allowed, what emission limits must be met, and often how the emissions source must be operated.

Permitting concerns under an air quality EIAP assessment includes any major or minor, new or modified stationary sources requiring a permit under the CAA NSR or Prevention of Significant Deterioration (PSD) programs. In accordance with 40 CFR 51 Subpart I, any new major stationary sources of air pollution and/or major modifications to existing major stationary sources are required to obtain a permit before commencing construction.

In the planning phase for any construction (i.e., construction, renovation, or major equipment addition/modification) project, the proponent of a proposed action shall consult with the Installation/Base Civil Engineer Environmental Function on any NSR requirements. The Installation/Base Civil Engineer Environmental Function will evaluate the proposed action based on the potential to emit (PTE) in accordance with the requirements of 40 CFR 51 Subpart I, Review of New Sources and Modifications. There are three types of permits that can be issued under NSR for either new or modified sources:

5.2.2 Prevention of Significant Deterioration (PSD) Permits

PSD applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the NAAQS. PSD requires the following:

- Installation of the "Best Available Control Technology (BACT)";
- An air quality analysis;
- An additional impacts analysis; and
- Public involvement.

BACT is an emissions limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental, and economic impact. BACT can include add-on control equipment or modification of the production processes or methods. This includes fuel cleaning or treatment and innovative fuel combustion techniques. BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.

5.2.3 Nonattainment Area NSR Permits

Nonattainment NSR applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is not in attainment with the NAAQS. Nonattainment NSR requirements are customized for the nonattainment area. All nonattainment NSR programs have to require:

- The installation of the Lowest Achievable Emission Rate (LAER),
- Emission offsets, and
- Opportunity for public involvement.

LAER is the most stringent emission limitation derived from either of the following the most stringent emission limitation contained in the implementation plan 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.

Offsets are emission reductions, generally obtained from existing sources located in the vicinity of a proposed source which must: (1) offset the emissions increase from the new source or modification, and (2) provide a net air quality benefit. The obvious purpose for requiring offsetting emissions decreases is to allow an area to move towards attainment of the NAAQS while still allowing some industrial growth.

5.2.4 Minor NSR Permits

Minor NSR is for pollutants from stationary sources that do not require PSD or nonattainment NSR permits. The purpose of minor NSR permits is to prevent the construction of sources that would interfere with attainment or maintenance of NAAQS or violate the control strategy in nonattainment areas. Also, minor NSR permits often contain permit conditions to limit the sources emissions to avoid PSD or nonattainment NSR.

States are able to customize the requirements of the minor NSR program as long as their program meets minimum requirements. The permit agency's minor NSR program is part of the SIP.

5.3 Set #3, Conformity Determination or NEPA Equivalent

This step is specifically written for accomplishing a General Conformity Determination; however, many of the processes and principles outlined in this step are also applicable to advanced air quality NEPA assessments for location within attainment areas.

In nonattainment and maintenance areas, if the ACAM run determines that the emissions from an action are above the de minimis levels and the action is not otherwise exempt, then the USAF must demonstrate that the action will conform with the applicable SIP. The USAF must demonstrate that the action will meet (conform with) SIP requirements and milestones including reasonable further emission reduction requirements. Such a demonstration can be made by comparing the net emissions from the action to the inventory of emissions in the SIP, and by working with the state or local agency responsible for air quality control in the area. There are six basic methods for demonstrating conformity:

- 1) Document that the emissions from the action are identified and accounted for in the SIP;
- 2) Obtain a statement from the applicable state, tribal, or local air quality agency that the emissions from the action along with all other emissions in the area do not exceed the budget for those emissions in the SIP;
- 3) Have the local Metropolitan Planning Organization (MPO) provide a statement that the emissions are included in transportation plan modeling;
- 4) Have the State or Tribe agree to include the emissions in the SIP;
- 5) Conduct air quality fate/transport modeling to demonstrate that the emissions will not cause or contribute to a violation of the NAAQS; *this modeling option is not available for O₃, NO₂ and PM_{2.5} areas*; or
- 6) Mitigate or offset the increase in emissions.

In addition, EPA has developed two alternative approaches for demonstrating conformity:

- 1) The emission reduction credits approach; and
- 2) The facility emission budget approach.

An action required to have a Conformity Determination for a specific pollutant will be determined to conform to the applicable SIP if, for each pollutant that exceeds the de minimis thresholds (or otherwise requires a Conformity Determination), the action meets the applicable requirements of 40 CFR 93.158(a).

5.3.1 Overview of Statutory Conformity Requirements

Section 176(c)(1) of the CAA states that “[n]o department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan” for achieving and maintaining ambient air quality standards. This Section goes on to state that the "assurance of conformity to such an implementation plan shall be an affirmative responsibility of the head of such department, agency, or instrumentality."

As defined by Section 176(c)(1) of the CAA, conformity [of a Federal action] to an implementation plan means:

(A) Conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and

(B) That such activities will not:

- Cause or contribute to any new violation of any standard in any area;
- Increase the frequency or severity of any existing violation of any standard in any area; or
- Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Section 176(c)(4) of the CAA directed the EPA to issue criteria and procedures for determining conformity. This Section is the statutory basis for the general conformity regulations at 40 CFR 93 Subpart B.

5.3.2 USAF Strategy for Conformity Determination

The USAFs strategy for approaching General Conformity Determinations is based on the concept of data quality objectives to reach defensible decisions or to make credible estimates with the least impact on scarce resources. Under data quality objectives, the goal is efficiency in achieving the objective at the simplest level and minimal work effort and cost. The objective drives and limits the effort and data needs; and inversely, the available data constrains the objective alternatives. In other words, only generate the minimal effort/data needed to meet the objective and the available data should restrict the objective alternatives. Most importantly, new data or extra work efforts should only be sought if the objective cannot be met with the available data.

In this case, the objective is to make a General Conformity Determination in accordance with 40 CFR 93.158(a). ***The strategy is to make defensible and credible Conformity Determination (i.e., the objective) with the least impact on scarce USAF resources (i.e., work effort and cost).***

Clearly, the simplest way of demonstrating conformity is for the project emissions to be included in the SIP demonstration or the emissions budget. However, these may not be options in the nonattainment area where the Federal action is occurring. In such situations, it is incumbent on the USAF to determine other means of demonstrating conformity. It is advised that the USAF consult with the State and local air officials early in the conformity decision-making process to determine the appropriate criteria to use.

The following section summarizes the applicable conformity determination alternatives of 40 CFR 93.158(a) and provides the USAFs recommended strategy (in order of alternative priority and efficiency) for each criteria pollutant. The sequence of the strategy alternatives are derived to optimize the data quality objectives (i.e., reach credible and defensible General Conformity Determination with the least impact on the USAFs scarce resources); therefore, **the alternatives should be followed and implemented in the priority sequence as shown**.

5.3.3 Determination Criteria form 40 CFR 93.158

The applicable requirements of 40 CFR 93.158(a) are summarized below for each criteria pollutant:

§93.158(a)(1) For any criteria pollutant or precursor, the total of direct and indirect emissions from the action are specifically identified and accounted for in the applicable SIP's attainment or maintenance demonstration or reasonable further progress milestone or in a facility-wide emission budget included in a SIP in accordance with §93.161;

NOTE: 40 CFR 93.158(a)(1) applies to criteria pollutant actually emitted by a source and precursors. Particulate matter (PM) precursors apply to all PM_{2.5} nonattainment/maintenance areas; however, PM precursors **ONLY** apply to PM₁₀ nonattainment areas (not maintenance areas), and only if, and for specific PM precursors explicitly identified in an applicable SIP as a significant contributor/s to the PM₁₀ levels.

§93.158(a)(2) For precursors of ozone, nitrogen dioxide, or particulate matter, the total of direct and indirect emissions from the action are fully offset within the same nonattainment or maintenance area (or nearby area of equal or higher classification provided the emissions from that area contribute to the violations, or have contributed to violations in the past, in the area with the Federal action) through a revision to the applicable SIP or a similarly enforceable measure that effects emissions reductions so that there is no net increase in emissions of that pollutant;

NOTE: §93.158(a)(2) applies to precursors only. According to the definition of “precursors of a criteria pollutant” in 40 CFR 93.152, precursors of PM (i.e., sulfur dioxide (SO₂), NO_x, VOCs, and ammonia (NH₃)) are implied to be considered as particulate matter with an aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}). Specific precursors of PM (i.e., SO₂, NO_x, VOCs, or NH₃) are only to be consider as part of PM₁₀ (particulate matter with an aerodynamic diameter equal to or less than 10 microns) for PM₁₀ nonattainment areas only (not maintenance areas) and ONLY for specific PM precursors explicitly identified in an applicable SIP as a significant contributor/s to the PM₁₀ levels.

§93.158(a)(3) For any directly-emitted (i.e., emissions wholly released as criteria pollutant and are not indirectly created through precursors) criteria pollutant, the total of direct and indirect emissions from the action meets the requirements:

(i) Specified in paragraph (b) of this section, based on area-wide air quality fate/transport modeling analysis and local air quality fate/transport modeling analysis; or

(ii) Meet the requirements of paragraph (a)(5) of this section and, for local air quality fate/transport modeling analysis, the requirement of paragraph (b) of this section;

NOTE: §93.158(a)(3) applies to criteria pollutant actually emitted by a source (does not include precursors). The CFR is poorly written in that it does not define “directly-emitted criteria pollutant” and is easily confused with “direct emissions.” However, the Preamble (March 2010), §93.158(a)(3) was specifically revised to address the “directly emitted” PM only and does not include precursors which are addressed in 93.158(a)(2). Therefore, “directly-emitted criteria pollutant” is interpreted to mean only criteria pollutant actually emitted by a source (not secondary precursors).

§93.158(a)(4) For CO or directly emitted PM (i.e., PM emissions wholly released as PM and are not indirectly created through precursors):

(i) Where the State agency primarily responsible for the applicable SIP determines that an area-wide air quality fate/transport modeling analysis is not needed, the total of direct and indirect emissions from the action meet the requirements specified in paragraph (b) of this section, based on local air quality fate/transport modeling analysis; or

(ii) Where the State agency primarily responsible for the applicable SIP determines that an area-wide air quality fate/transport modeling analysis is appropriate and that a local air quality fate/transport modeling analysis is not needed, the total of direct and indirect emissions from the action meet the requirements specified in paragraph (b) of this section, based on area-wide fate/transport modeling, or meet the requirements of paragraph (a)(5) of this section; or

NOTE: §93.158(a)(4) applies to CO and PM actually emitted by a source (does not include PM precursors). The CFR does not define “directly-emitted PM.” However, based on the Preamble (March 2010), §93.158(a)(4) was specifically revised to address the “directly emitted PM” only and not include precursors (which are addressed in 93.158(a)(2)). Therefore, “directly-emitted PM” is interpreted to mean only PM that is actually emitted by a source and does not include secondary precursors.

§93.158(a)(5) For ozone or nitrogen dioxide, and for purposes of paragraphs (a)(3)(ii) and (a)(4)(ii) of this section, each portion of the action or the action as a whole meets any of the following requirements:

(i) Where EPA has approved a revision to the applicable implementation plan after the area was designated as nonattainment and the State or Tribe makes a determination as provided in

paragraph (a)(5)(i)(A) of this section or where the State or Tribe makes a commitment as provided in paragraph (a)(5)(i)(B) of this section:

(A) The total of direct and indirect emissions from the action (or portion thereof) is determined and documented by the State agency primarily responsible for the applicable SIP to result in a level of emissions which, together with all other emissions in the nonattainment (or maintenance) area, would not exceed the emissions budgets specified in the applicable SIP;

(B) The total of direct and indirect emissions from the action (or portion thereof) is determined by the State agency responsible for the applicable SIP to result in a level of emissions which, together with all other emissions in the nonattainment (or maintenance) area, would exceed an emissions budget specified in the applicable SIP and the State Governor or the Governor's designee for SIP actions makes a written commitment to EPA which includes the following:

(1) A specific schedule for adoption and submittal of a revision to the SIP which would achieve the needed emission reductions prior to the time emissions from the Federal action would occur;

(2) Identification of specific measures for incorporation into the SIP which would result in a level of emissions which, together with all other emissions in the nonattainment or maintenance area, would not exceed any emissions budget specified in the applicable SIP;

(3) A demonstration that all existing applicable SIP requirements are being implemented in the area for the pollutants affected by the Federal action, and that local authority to implement additional requirements has been fully pursued;

(4) A determination that the responsible Federal agencies have required all reasonable mitigation measures associated with their action; and

(5) Written documentation including all air quality analyses supporting the conformity determination;

(C) Where a Federal agency made a conformity determination based on a State's or Tribe's commitment under paragraph (a)(5)(i)(B) of this section and the State has submitted a SIP or a Tribal Implementation Plan (TIP) to EPA covering the time period during which the emissions will occur or is scheduled to submit such a SIP or TIP within 18 months of the conformity determination, the State commitment is automatically deemed a call for a SIP or TIP revision by EPA under section 110(k)(5) of the Act, effective on the date of the Federal conformity determination and requiring response within 18 months or any shorter time within which the State or Tribe commits to revise the applicable SIP;

(D) Where a Federal agency made a conformity determination based on a State or Tribal commitment under paragraph (a)(5)(i)(B) of this section and the State or Tribe has

not submitted a SIP covering the time period when the emissions will occur or is not scheduled to submit such a SIP within 18 months of the conformity determination, the State or Tribe must, within 18 months, submit to EPA a revision to the existing SIP committing to include the emissions in the future SIP revision.

(ii) The action (or portion thereof), as determined by the MPO, is specifically included in a current transportation plan and transportation improvement program which have been found to conform to the applicable SIP under 40 CFR Part 51 Subpart T, or 40 CFR Part 93 Subpart A;

(iii) The action (or portion thereof) fully offsets its emissions within the same nonattainment or maintenance area (or nearby area of equal or higher classification provided the emissions from that area contribute to the violations, or have contributed to violation in the past, in the area with the Federal action) through a revision to the applicable SIP or an equally enforceable measure that effects emissions reductions equal to or greater than the total of direct and indirect emissions from the action so that there is no net increase in emissions of that pollutant;

(iv) Where EPA has not approved a revision to the relevant SIP since the area was designated or reclassified, the total of direct and indirect emissions from the action for the future years (described in §93.159(d)) do not increase emissions with respect to the baseline emissions:

(A) The baseline emissions reflect the historical activity levels that occurred in the geographic area affected by the proposed Federal action during:

(1) The most current calendar year with a complete emission inventory available before an area is designated unless EPA sets another year; or

(2) The emission budget in the applicable SIP;

(3) The year of the baseline inventory in the PM10 applicable SIP;

(B) The baseline emissions are the total of direct and indirect emissions calculated for the future years (described in §93.159(d)) using the historic activity levels (described in paragraph (a)(5)(iv)(A) of this section) and appropriate emission factors for the future years; or

(v) Where the action involves regional water and/or wastewater projects, such projects are sized to meet only the needs of population projections that are in the applicable SIP.

NOTE: §93.158(a)(5) applies to ozone precursors, nitrogen dioxide, or any other criteria pollutant actually directly emitted by a source (does not include precursors) under §93.158(a)(3)(ii) or §93.158(a)(3)(ii).

Table 5-1, General Conformity Determination Criteria Applicability Summary

General Conformity Determination Criteria	Applicability to Criteria Pollutant or Precursors						
	Ozone (O ₃)	Nitrogen Dioxide (NO ₂)	Particulate Matter (PM)		Carbon Monoxide (CO)	Sulfur Dioxide (SO ₂)	Lead (Pb)
			Direct PM10/2.5	PM Precursors*			
§93.158(a)(1) For any criteria pollutant or precursor, the total of direct and indirect emissions from the action are <u>specifically identified and accounted for in the applicable SIP's attainment or maintenance demonstration or reasonable further progress milestone or in a facility-wide emission budget included in a SIP in accordance with §93.161.</u>	O ₃ precursors	Directly-emitted NO ₂ & precursor	Directly-emitted PM	PM precursors	CO	SO ₂	Pb
§93.158(a)(2) For precursors of ozone, nitrogen dioxide, or PM, the total of direct and indirect emissions from the action are <u>fully offset</u> within the same nonattainment or maintenance area (or nearby area of equal or higher classification provided the emissions from that area contribute to the violations, or have contributed to violations in the past, in the area with the Federal action) <u>through a revision to the applicable SIP or a similarly enforceable measure</u> that effects emissions reductions so that there is no net increase in emissions of that pollutant.	O ₃ precursors	NO ₂ precursors	N/A	PM precursors	N/A	N/A	N/A
§93.158(a)(3) For any directly-emitted criteria pollutant, the total of direct and indirect emissions from the action meets the requirements:	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of O ₃	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of NO ₂	Directly-emitted PM	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of PM precursors	CO	SO ₂	Pb
(i) Specified in paragraph (b) of this section, <u>based on area-wide air quality modeling analysis and local air quality modeling analysis</u> ; or							
(ii) Meet the requirements of <u>paragraph (a)(5) of this section and, for local air quality modeling analysis, the requirement of paragraph (b) of this section</u>							
§93.158(a)(4) For CO or directly emitted PM:	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of O ₃	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of NO ₂	Directly-emitted PM	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of PM precursors	CO	N/A	N/A
(i) Where the State agency primarily responsible for the applicable SIP determines that an <u>area-wide air quality modeling analysis is NOT needed</u> , the total of direct and indirect emissions from the action <u>meet the requirements</u> specified in paragraph (b) of this section, <u>based on local air quality modeling analysis</u> ; or							
(ii) Where the State agency primarily responsible for the applicable SIP determines that an <u>area-wide air quality modeling analysis IS appropriate and that a local air quality modeling analysis is NOT needed</u> , the total of direct and indirect emissions from the action <u>meet the requirements</u> specified in paragraph (b) of this section, <u>based on area-wide modeling</u> , OR meet the requirements of <u>paragraph (a)(5) of this section</u>							

Table 5-1, General Conformity Determination Criteria Applicability Summary (continued)

General Conformity Determination Criteria	Applicability to Criteria Pollutant or Precursors						
	Ozone (O ₃)	Nitrogen Dioxide (NO ₂)	Particulate Matter (PM)		Carbon Monoxide (CO)	Sulfur Dioxide (SO ₂)	Lead (Pb)
			Direct PM10/2.5	PM Precursors*			
<p>§93.158(a)(5) For ozone or nitrogen dioxide, and for purposes of paragraphs (a)(3)(ii) and (a)(4)(ii) of this section, each portion of the action or the action as a whole meets any of the following requirements:</p> <p>(i) Where EPA has approved a revision to the applicable implementation plan after the area was designated as nonattainment and the State or Tribe makes a determination as provided in paragraph (a)(5)(i)(A) of this section or where the State or Tribe makes a commitment as provided in paragraph (a)(5)(i)(B) of this section;</p> <p>(ii) The action (or portion thereof), as determined by the MPO, is specifically included in a current transportation plan and transportation improvement program which have been found to conform to the applicable SIP under 40 CFR part 51, subpart T, or 40 CFR part 93, subpart A;</p> <p>(iii) The action (or portion thereof) fully offsets its emissions within the same nonattainment or maintenance area (or nearby area of equal or higher classification provided the emissions from that area contribute to the violations, or have contributed to violation in the past, in the area with the Federal action) through a revision to the applicable SIP or an equally enforceable measure that effects emissions reductions equal to or greater than the total of direct and indirect emissions from the action so that there is no net increase in emissions of that pollutant;</p> <p>(iv) Where EPA has not approved a revision to the relevant SIP since the area was designated or reclassified, the total of direct and indirect emissions from the action for the future years (described in §93.159(d)) do not increase emissions with respect to the baseline emissions; or</p> <p>(v) Where the action involves regional water and/or wastewater projects, such projects are sized to meet only the needs of population projections that are in the applicable SIP.</p>	O ₃ precursors	Directly-emitted NO ₂	Directly-emitted PM for purposes of paragraphs (a)(3)(ii) and (a)(4)(ii)	N/A Per 58 FR 13845 (Preamble), it is not appropriate to use modelling to determine the impact on/of PM precursors	CO for purposes of paragraphs (a)(3)(ii) and (a)(4)(ii)	SO ₂ for purposes of paragraphs (a)(3)(ii)	Pb for purposes of paragraphs (a)(3)(ii)

* For PM-10 nonattainment areas only (does not apply to maintenance areas) and only for specific PM precursors explicitly identified in an applicable SIP as a significant contributor/s to the PM-10 levels

5.4 Step #4, Emissions Reduction Credits (ERCs)

This step is specifically written for accomplishing a General Conformity Determination and does NOT apply to advanced air quality NEPA assessments for location within attainment areas.

If the emissions budget and the SIP attainment demonstration options do not account for the project emissions, then any available emission reduction credits should be used. ERCs created in accordance with 40 CFR 93.165 can be used, subject to the following limitations, to reduce the emissions increase from a Federal action at the facility for the conformity evaluation.

- If the technique used to create the ERCs is implemented at the same facility as the proposed action and could have occurred in conjunction with the action, then the ERCs can be ***used to reduce the total direct and indirect emissions used to determine the General Conformity Applicability and as offsets or mitigation measures.***
- If the technique used to create the ERCs is not implemented at the same facility as the proposed action or could not have occurred in conjunction with the action, then the credits ***CANNOT be used to reduce the total direct and indirect emissions to determine the General Conformity Applicability, but CAN be used to offset or mitigate the emissions.***
- ***ERCs must be used in the same year in which they are generated.***
- The USAF must notify the State or Tribal air quality agency responsible for the implementation of the SIP or TIP and EPA Regional Office when ERCs are being used.

5.5 Step #5, Air Quality Modeling Analysis (Directly-Emitted Pollutants Only)

This step is specifically written for accomplishing a General Conformity Determination; however, many of the processes and principles outlined in this step are also applicable to advanced air quality NEPA assessments for location within attainment areas.

If the emissions budget and the SIP attainment demonstration options do not account for the project emissions and no ERCs are available, then next consider using air quality fate/transport modeling to demonstrate air impacts or conformity for CO, PM-10, SO₂ and Pb. ***Fate/transport modeling is currently ONLY applicable to directly-emitted emissions (emissions wholly released as criteria pollutant and are not indirectly created through precursors).*** The appropriate model will depend on the type of pollutant and specific situation. The local and State air agencies should be consulted when selecting applicable air quality models. See section 6.1, *Fate/Transport Model Limitations and Usability*, for details on appropriateness of air quality fate/transport modeling.

In general terms, dispersion modeling is the process through which the dispersal of atmospheric pollutants is simulated and assessed under the effects of meteorological, terrain, and other influencing factors. Computer models such as the American Meteorological Society/EPA Regulatory Model (AERMOD) have been developed and are used for this purpose. The results of

this modeling allow for the prediction of pollutant concentrations at or near an emission source(s) and enable the comparison of these results to the NAAQS.

The EPA's principal guidance of conducting dispersion modeling and assessing the air quality impacts is in 40 CFR 51 Appendix W, Guideline on Air Quality Models. This guidance contains recommendations and supporting information on the selection and applications of air quality models, determining background concentrations and the use of meteorological data. This guidance also specifies dispersion models required to be used for SIPs revisions and for NSR and PSD programs.

Atmospheric fate/transport and dispersion is a complex nonlinear physical and chemical process with numerous uncertainties in model parameters, inputs, source parameters, initial and boundary conditions. The propagation (iteratively increasing) of these uncertainties through the dispersion models can be (and often are) substantial, and therefore modeling often does not provide a reliable prediction of the probability distribution of emissions and assessment of risk. Therefore, the following guidelines are provided:

1. ***Modeling of non-direct emitted pollutants (i.e., O₃ NO_x, and precursors of PM) is NOT allowed.***
2. Modeling is ***only appropriate for direct emissions*** of CO, Pb, and PM₁₀ emissions.
3. Due to inherent uncertainties and error propagation, ***atmospheric transport and dispersion models should be a last resort and must be discussed and approved by the USAF Air Quality Subject Matter Expert (AFCEC/CZTQ).***
4. When using emission rates derived with the AP-42 empirical model using emission factors, only use the following (in order of preference) sources:
 - a. Actual source sampling results;
 - b. Manufacturer certified emission rates; or
 - c. "A" Rated AP-42 emission factors (***Note: potential error of +/-100 percent***)

NOTE: ***While there are recent efforts to improve air quality modeling for non-direct emitted pollutants, modeling of these non-direct emitted pollutants (i.e., O₃ NO_x, and precursors of PM) is NOT currently allowed for General Conformity Determinations or PSD/NSR assessments.***

5.6 Step #6, Mitigation and Offsets

This step is specifically written for accomplishing a General Conformity Determination; however, many of the processes and principles outlined in this step are also applicable to advanced air quality NEPA assessments for location within attainment areas.

Mitigation and/or offset measures should only be considered as a last resort to demonstrate General Conformity and/or reduction of environmental impacts to acceptable levels. Unlike alleviation modifications which are proactive (preemptively applied definition clarification/amendments), emissions reducing efforts, emission offsets and mitigation are reactive reduction measures. These measures are applied after an action is fully defined and are applied solely as a measure to reduce or offset air emissions to conform with the applicable SIP or to bring the action into acceptable environmental impacts. Additionally, mitigation and/or offset measures are generally not a one-for-one tradeoff.

5.6.1 Mitigation Measures

Mitigation is any method of reducing emissions (of the pollutant or its precursor) directly associated with an action to reduce air emissions to conform wholly or partly with the applicable SIP. Mitigation measures are employed after a final assessment or conformity determination is made and taken at the location of the Federal action. The mitigation measures are then used to reduce the impact of the emissions of that pollutant caused by the action. Mitigation measures must be enforceable at both the State and Federal levels; normally this is through the applicable SIP or a permit.

Mitigation measures, as defined in 40 CFR 1508.20, includes: (1) avoiding the impact altogether by not taking a certain action or parts of an action or finding a new site; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (5) compensating for the impact by replacing or providing substitute resources or environments.

Mitigation differs from “emissions offsets” in that emissions offsets are emissions tradeoffs (swapping emission reduction from other efforts/measure) not associated with the action, while mitigation are measures taken to reduce the actual air emissions associated with an action.

In accordance with 40 CFR 93 Subpart B, mitigation of air quality impacts must:

- Any measures that are intended to mitigate air quality impacts must be identified and the process for implementation and enforcement of such measures must be described, including an implementation schedule containing explicit timelines for implementation.
- Prior to determining that an action is in conformity, the USAF must obtain written commitments from the appropriate persons or agencies to implement any mitigation measures which are identified as conditions for making conformity determinations.
- Persons or agencies voluntarily committing to mitigation measures to facilitate positive conformity determinations must comply with the obligations of such commitments.
- In instances where the USAF is licensing, permitting, or otherwise approving the action of another governmental or private entity, approval by the USAF must be conditioned on

the other entity meeting the mitigation measures set forth in the conformity determination.

- When necessary because of changed circumstances, mitigation measures may be modified so long as the new mitigation measures continue to support the conformity determination. Any proposed change in the mitigation measures is subject to the reporting requirements and the public participation requirements.
- Written commitments to mitigation measures must be obtained prior to a positive conformity determination and such commitments must be fulfilled.
- After a State revises its SIP and EPA approves that SIP revision, any agreements, including mitigation measures, necessary for a conformity determination will be both State or Tribal and federally enforceable. Enforceability through the applicable SIP will apply to all persons who agree to mitigate direct and indirect emissions associated with an action for a conformity determination.

5.6.2 Emissions Offsets

Offsets are emissions reductions efforts/measures NOT associated with the action under evaluation, but employed to compensate (reimburse so that there is no net increase in emissions of that pollutant) for the action's emissions to conform with the applicable SIP. Emission offsets are quantifiable, consistent with the applicable SIP attainment and reasonable further progress demonstrations, surplus to reductions required by, and credited to, other applicable SIP provisions, enforceable at both the State and Federal levels, and permanent within the timeframe specified by the program.

Utilizing emission offsets requires a revision to the applicable SIP or a similarly enforceable measure (e.g., permit). Some States (e.g., Texas) require offsets to be monitored and enforced in a manner equivalent to that under the EPA's NSR requirements.

Emissions offsets quantities are always emissions reductions equal to (occurring within the same year as action) or greater than (occurring in years after the action at a ratio of 1:1 to 1:5 dependent on severity of nonattainment status) the total direct and indirect emissions of the action. Emissions offsets can only be used within the same nonattainment or maintenance area or a nearby area of equal or higher classification (provided the emissions from that area contribute to the violations, or have contributed to violations in the past, in the area with the Federal action).

Emissions offsets differ from "Alleviation Modifications". Emissions offsets are legally enforceable indirect emissions tradeoffs (not associated with the action) reactively applied (i.e., after an action is fully defined and a final assessment or conformity determination is made) solely as a compensation measure to more than offset the air emissions associated with an action. While "Alleviation Modifications" are proactive (i.e., occurring prior to a final assessment or conformity determination) refinement/s that actually replaces the original action, with the intent of being environmentally friendly.

5.6.3 Timing of Offsets and Mitigation Measures

Generally, the emissions reductions from an offset or mitigation measure used to demonstrate conformity must occur during the same calendar year as the emission increases from the action. However, the State may approve emissions reductions in other years provided:

- The reductions are greater than the emission increases by the following ratios: 1.5:1 for extreme nonattainment areas, 1.3:1 for severe nonattainment areas, 1.2:1 for serious nonattainment areas, 1.15:1 for moderate nonattainment area, and 1.1:1 for all other nonattainment areas.
- The time period for completing the emissions reductions must not exceed twice the period of the emissions.

The applicability and use of an offset or mitigation measures are summarized in Table 5-2, *Summary of Emission Reducing Measures*. The table also compares offset or mitigation measure against Action Alleviation Modification to demonstrate the simplicity and avoidance that can be gained through simply clarifying/modifying the action’s definition to integrally include measure that reduce emissions.

Table 5-2, Summary of Emission Reducing Measures

Measure	Description	When Applied (AQ EIAP Level)	Enforceability Requirement	Reductions Ratio Requirement
Action Alleviation Modifications	Action definition clarifications/modifications	Level I or II	N/A	1:1
Mitigations	Measures directly associated with the action to reduce emissions	Level III, before offsets	SIP or equally enforceable measure (e.g., permit)	Year as action: 1:1
Offsets	Measures NOT associated with the action used to compensate for action emissions	Level III, after mitigations		Other years: 1.5:1 for extreme nonattainment 1.3:1 for severe nonattainment 1.2:1 for serious nonattainment 1.15:1 for moderate nonattainment 1.1:1 for all other nonattainment

6 SPECIAL ISSUES

This section covers special concerns related to advanced air quality EIAP, NEPA and General Conformity assessments.

6.1 Fate/Transport Model Limitations and Usability

Atmospheric fate/transport and dispersion is a complex nonlinear physical and chemical process with numerous uncertainties in model parameters, inputs, source parameters, initial and boundary conditions. The propagation (iteratively increasing) of these uncertainties through the dispersion models can be (and often are) substantial and therefore modeling often does not provide a reliable prediction of the probability distribution of emissions and assessment of risk.

While there have been recent fate/transport simulation improvements in dispersion models, they still **can only be used for modeling directly-emitted (i.e., emissions wholly released as criteria pollutant and are not indirectly created through precursors) criteria pollutant**. While these recent model improvements greatly improve fate/transport simulation algorithms for the complex nonlinear physical and chemical process, they still are not considered adequate representations by the EPA. Additionally, these model improvements do nothing to account for the inherent inaccuracies, uncertainties, and error propagation associated with input parameters.

Modeling of these non-direct emitted pollutants (i.e., O₃, NO_x, and precursors of PM) is NOT allowed for General Conformity Determinations and PSD/NSR.

Modeling is only appropriate for direct emissions of CO, Pb, and direct PM₁₀ emissions.

6.1.1 Uncertainties and Error Propagation in Modeling

Atmospheric transport and dispersion models are mathematical illustrations relating emission of pollutants from sources or actions into atmosphere to downwind ambient concentration of the pollutant. The main aim of the modeling process is to estimate the concentration of a pollutant at a particular down-wind location by mathematical calculation from the basic information about the source of pollutant and meteorological conditions. The predicted concentration of an air pollutant at a given location is a function of a number of variables, such as rate of emission, distance of the receptor from the source, and atmospheric conditions. The accuracy (correctness) and precision (number of significant figures) of transport and dispersion models are always limited by the accuracy (correctness) and precision (resolution defined by the number of significant figures) of input variable/parameters. Inherent uncertainty of these input parameters is one of the main causes of uncertainty in atmospheric transport and dispersion model output.

6.1.1.1 Accuracy (Correctness)

No measurement made is ever exact. The accuracy (correctness) of a measurement used as input parameters (e.g., emission factors and atmospheric conditions) are always limited by the degree of refinement of the measuring apparatus used, by the skill of the observer, by the basic physics in the measuring methodology, and by the statistical representativeness of the data set.

Uncertainty is a measure of the range of measurements from the average (also called *deviation* or *error*) and is usually defined by the absolute error ($\Delta x = \text{range of deviation from average } x$).

Uncertainties can also be defined by the relative error ($\Delta x/x$), which is usually written as a percentage. In statistics, propagation of uncertainty (or propagation of error) is the effect of variable uncertainties (or errors) on the uncertainty of a function based on them. When the variables are the values of experimental measurements (e.g., emission factors), they have uncertainties due to measurement limitations (e.g., instrument precision) which propagate to the combination of variables in the function.

The very basis of all atmospheric transport and dispersion modeling start with emission rates which are often established with the AP-42 empirical model which uses emission factors. Average emissions for a specific source differ significantly from test source to test source used to establish emission factors and; therefore, emission factors frequently may not provide adequate estimates of the average emissions for a specific source. The extent of between-source variability that exists, even among similar individual sources, can be large depending on process, control system, and pollutant. Although the causes of this variability are considered in emission factor development, this type of information is seldom included in emission test reports used to develop AP-42 factors. As a result, some emission factors are derived from tests that may vary (i.e., uncertainty) ***by an order of magnitude or more*** (AP-42 Fifth Edition). Even when the major process variables are accounted for, the emission factors developed may be the result of averaging source tests that differ by factors of five or more.

Given an emission factor can differ by one order of magnitude, by definition of a “magnitude” it may vary by as much as plus or minus ten times in quantity of the recorded emission factor (absolute error +/- 1,000 percent). If the very origin or the starting basis of atmospheric transport and dispersion modeling is emission factors that can differ by one order of magnitude, then no matter how accurate the rest of the parameters in the model are, the results of the modeling will also potentially differ by one order of magnitude. While not all emission factors will vary by plus or minus ten times in quantity, most emission factors are not of excellent quality and will vary greatly (in the range of hundreds of percent). Therefore, even using the best of models with the most accurate input parameters possible, all atmospheric transport and dispersion modeling (with emission factors for establishing emission rates), propagate (iteratively increase) error and inaccuracy of the emissions factors which results in highly inaccurate results.

6.1.1.2 Precision (Number of Significant Figures)

As stated earlier, no measurement made is ever exact. Precision is the measure of the agreement of experimental measurements with each other and the resolution the agreement of the measurements is defined by the number of significant figures. Therefore, the precision of a measurement is always limited by the degree of refinement of the measuring apparatus used and by the skill of the observer. To capture the precision of a measurement, any measurement should record all digits of the measurement that are certain plus one estimated uncertain digit. These certain plus one digits used to capture the precision of the measurement are known as *significant figures*. Significant figures are used to remove the propagation of error due to lack of precision when performing mathematical operations (e.g., addition, subtraction, multiplication, division, etc.). ***Unfortunately, significant figures are ignored (not defined) in most emission factors and most input variables/parameters in atmospheric transport and dispersion models.*** Therefore, atmospheric transport and dispersion models inherently and repeatedly propagate significant precision error.

When doing calculations, the following rules of significant numbers (Table 6-1) must be followed to minimize the propagation of errors associated with precision:

Table 6-1, Significant Number Rules

Rule	Example	# of Significant Figures
All digits other than zeros are significant	25 g	2
	5.471g	4
Zeros between nonzero digits are significant	309 g	3
	40.06 g	4
Final zeros to the right of the decimal point are significant	6.00 mL	3
	2.350 mL	4
In multiplication and division, a product or quotient has the same number of significant figures of the smallest quantity in the variables	4.29 cm x 3.2 cm = 14 cm	2
	4.29 cm x 3.24 cm = 13.9cm	3
In addition, and subtraction, the sum or difference has to be rounded to the same number of significant figures of the smallest quantity in the variables	3.56 g + 2.6 g + 6.12g = 12.3 g	3

Example of Propagation of Error Associated with Precision: Below is an example of why precision (number of significant figures) is an issue in modeling: CO emissions from an F-15D under intermediate power setting [two F100-PW-220 engines, Fuel Flow Rate = 5,770 lb/hr, Time-In-Mode (TIM) = 0.8 min, Emission Factor (EF) = 0.86 CO lb/1,000 lb fuel].

Without accounting for significant figures:

$$2 \text{ eng.} \times 5.770 \times 10^3 \frac{\text{lb fuel}}{\text{hr}} \times 0.8 \frac{\text{min}}{\text{LTO}} \times \frac{\text{hr}}{60 \text{ min}} \times 0.86 \frac{\text{lb CO}}{10^3 \text{ lb fuel}}$$

$$= 0.13232533 \dots \frac{\text{lb CO}}{\text{LTO}}$$

Accounting for significant figures:

$$2 \text{ eng.} \times 5.770 \times 10^3 \frac{\text{lb fuel}}{\text{hr}} \times 0.8 \frac{\text{min}}{\text{LTO}} \times \frac{\text{hr}}{60 \text{ min}} \times 0.86 \frac{\text{lb CO}}{10^3 \text{ lb fuel}} = 0.1 \frac{\text{lb CO}}{\text{LTO}}$$

$$\text{Relative Error} = \frac{\Delta x}{x} = \frac{(0.1323533 - 0.10)}{0.1} = 0.323 \text{ or } 32.3\%$$

Given that the 0.1 lb CO/LTO result which accounts for significant figures is the more precise value; not accounting for significant figures created a relative error of 32.3 percent. Therefore, most atmospheric transport and dispersion models results for F-15D emission under intermediate power setting are starting at an error of 32 percent over estimating which is further propagated (iteratively increased) through the iterative processes inherent in these models.

6.1.2 General Fate/Transport Model Guidelines

To minimize the costly and unwarranted use of fate/transport and dispersion models and to reduce the inherent errors associate with these models, the following guidelines should be followed:

- Modeling of **non-direct emitted pollutants** (i.e., O₃, NO_x, and precursors of PM) **is NOT allowed**.
- Modeling is *only appropriate for direct emissions* of CO, Pb, and direct PM₁₀ emissions.
- Due to inherent uncertainties and error propagation, atmospheric transport and dispersion models should be a last resort and must be discussed and approved by AFCEC/CZTQ.
- When using emission rates derived with the AP-42 empirical model using emission factors, only use the following (in order of preference) sources:
 - a. Actual source sampling results;
 - b. manufacturer certified emission rates; or
 - c. “A” Rated AP-42 emission factors (*Note: potential error of +/-100 percent*)

6.2 Restricted or Confidential Information

The draft and final air quality EIAP documents and Conformity Determination shall exclude any restricted or confidential information. The disclosure of restricted information and confidential information shall be controlled by the applicable laws, regulations, security manuals, or EOs concerning the use, access, and release of such materials. Subject to applicable procedures to protect restricted information from public disclosure, any information or materials excluded may be made available in a restricted information annex to the EIAP documents and Conformity Determination for review by Federal and State representatives who have received appropriate clearances to review the information.

6.3 Reporting Requirements

If a Conformity Determination is not required for the action at the time NEPA analysis is completed, the date of the FONSI for an EA, a ROD for an EIS, or a categorical exclusion determination can be used for documentation/reporting.

Generally, air quality EIAP documents are incorporated into the overall EIAP document (i.e., EIS or EA) and therefore have no other special reporting other than those addressed under

NEPA. However, if the General Conformity Applicability Analysis identifies the action must be supported by a Conformity Determination there are specific General Conformity reporting requirements that must be met in addition to the NEPA requirements.

The draft and final Conformity Determination must provide to the appropriate regulatory authorities. These regulatory authorities may include appropriate EPA Regional Office(s), State and local air quality agencies, any federally-recognized Indian Tribal Government in the nonattainment or maintenance area, and, where applicable, affected Federal land managers, the agency designated under section 174 of the CAA and the MPO.

In accordance with 40 CFR 93.155, Federal agency making a Conformity Determination must provide to the appropriate regulatory authorities a 30-day notice which describes the proposed action and the Federal agency's draft conformity determination on the action and must notify the appropriate regulatory authorities within 30 days after making a final Conformity Determination.

6.4 Public Participation

Except for the requirements for public notification and consideration and response to public comments, public participation is not required during the conformity evaluation. However, during the conformity determination process, USAF policy seeks to involve the public as a partner rather than as an adversary, in addition to meeting the regulatory requirements. Thus, the Public Affairs Office and the Office of the Staff Judge Advocate should be brought into the conformity determination process as early as possible to help ensure that the partnering relationship is fostered and established.

Planning is crucial to the success of any community relations effort. Installations must keep complete and up-to-date administrative records of the determination process. All written and verbal comments from the public and official reviewers and the associated responses should be documented as required by the regulations. Failure to document comments and responses properly may result in an installation being unable to sustain a legal defense of its determination.

Planning should include scheduling of the required public participation and time for comment acceptance and comment response. Installation and contractor personnel involved in public meetings should be able to communicate effectively about technical and legal issues. If a contractor is required for community relations activities, its Statement of Work needs to address these requirements.

Maintenance of open communications and good public relations cannot be overemphasized. It is important to establish an atmosphere of partnership that enables installation personnel to discover and remedy public misconceptions.

Specific public participation requirements for General Conformity are stipulated in 40 CFR 93.156:

- Upon request by any person regarding a specific action, the USAF must make available for review its draft conformity determination with supporting materials which describe

the analytical methods and conclusions relied upon in making an Applicability Analysis and draft Conformity Determination.

- The USAF must make public its draft conformity determination by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action and by providing 30 days for written public comment prior to taking any formal action on the draft determination. The comment period may be concurrent with any other public involvement; such as occurs in the NEPA process.
- The USAF must document its response to all the comments received on draft Conformity Determinations and make the comments and responses available upon request by any person within 30 days of the final Conformity Determination.
- The USAF must make public its final Conformity Determinations by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action within 30 days of the final Conformity Determination.

6.5 Reevaluation of EIAP/Conformity

EIAP, Conformity Applicability Analysis, or Conformity Determinations for a specific action are valid for a period of five (5) years provided the circumstance, timing, and/or conditions of the action have not changed.

Once an EIAP, Conformity Applicability Analysis, or Conformity Determination is completed by the USAF, that assessment/analysis is not required to be re-evaluated if the agency has maintained a continuous program to implement the action; the assessment/analysis documentation has not lapsed past five (5) years since the assessment/analysis was made; or any modification to the action does not result in an increase in emissions above the General Conformity de minimis levels.

NOTE: If a Conformity Applicability Analysis indicate a Conformity Determination is not required for the action at the time of an EIAP/NEPA analysis is completed, the date of the FONSI for an EA, a ROD for an EIS, or a categorical exclusion determination can be used as the Applicability Analysis completion date.

The conformity status and the air quality EIAP assessment/analysis of an action automatically lapses 5 years from the final date, unless the action has been completed or a continuous program to implement the action has commenced. Ongoing activities at a given site showing continuous progress are not new actions and do not require periodic reanalysis or redeterminations so long as such activities are within the scope of the final EIAP, Conformity Applicability, or Conformity Determination reported.

NOTE: If the USAF originally determined through an Applicability Analysis that a Conformity Determination was not necessary because the emissions for the action were below the de minimis levels and changes to the action would result in the total emissions from the action being above the de minimis levels, then the USAF must make a Conformity Determination.

6.6 Creation of Emission Reduction Credits

USAF facilities and installations subject to Federal oversight can, with the approval of the State agency responsible for the SIP in that area, create an early Emission Reduction Credit (ERC) program. The USAF can create ERCs in accordance with the following requirement:

- Emissions reductions must be quantifiable through the use of standard emission factors or measurement techniques. If non-standard factors or techniques to quantify the emissions reductions are used, the USAF must receive approval from the State agency responsible for the implementation of the SIP and from EPA's Regional Office. The ERCs do not have to be quantified before the reduction strategy is implemented, but must be quantified before the credits are used in the General Conformity evaluation.
- The emission reduction methods must be consistent with the applicable SIP attainment and reasonable further progress demonstrations.
- The emissions reductions cannot be required by or credited to other applicable SIP provisions.
- Both the State and Federal air quality agencies must be able to take legal action to ensure continued implementation of the emission reduction strategy. In addition, private citizens must also be able to initiate action to ensure compliance with the control requirement.
- The emissions reductions must be permanent or the timeframe for the reductions must be specified.
- The USAF must document the emissions reductions and provide a copy of the document to the State air quality agency and the EPA regional office for review. The documentation must include a detailed description of the emission reduction strategy and a discussion of how it meets the above.

6.6.1 Air Emission Reduction Credits

The CAA allows the EPA and the states to develop economic incentive programs to control and reduce air emissions. Such programs allow sources to “generate”, “buy”, “sell”, “bank”, or “trade” ERCs. ERCs are authorized and created by appropriate state or local authorities, and will vary from location to location pursuant to applicable EPA rules. ERC programs need to be approved by EPA in a SIP to become effective. Credits earned by any source that permanently reduces emissions beyond its reduction requirements can be traded to another source that could use such credits, in lieu of on-site reductions, to meet its reduction obligations. ERCs may also be banked for future use as offsets for nonattainment area NSR or General Conformity determinations. ERCs are treated as federal personal property and disposed of according to the appropriate federal property disposal regulations. Flying operations shall not be reduced for the sole purpose of obtaining ERCs; however, installations should ensure that emissions from aircraft flying operations are accounted for in comprehensive emissions inventories and memorialized in any applicable SIP emissions budget for the installation.

6.6.2 Emission Reduction Credit Identification

ERCs can be created as a result of operational changes or installation closure. They can be obtained by removing pollutant-emitting equipment from service or reducing emissions from equipment, if the applicable air quality district allows. Planning for ERC utilization should include a determination of the applicable requirements for generation as soon as possible to avoid inadvertent loss of ERCs due to missed requirements. For example, some local rules require submission of an application for ERCs along with supporting documentation prior to any shutdown of the emissions source. While other local rules require submission of the application within 90 days of permanent shutdown. In addition, some states may have laws that expressly apply to various aspects of ERC generation and disposition involving military base closures and realignments, such as the Cannella Bill in California, AB 3204 (1994), codified at Health and Safety Code Section 40709.7.

6.6.3 Emission Reduction Credit Inventory and Classification

Within one year, or as early as possible, prior to the departure of the active mission from a currently announced installation closure or realignment (immediately at installations where the active mission has departed or equipment emitting air emissions are discontinued, or within six months of an installation closure announcement for future closures), the base environmental function will complete an inventory of all existing/potential sources of ERCs. Additionally, associated emissions and a legal review must be prepared summarizing the applicable air quality district regulations on ERCs. Copies of the applicable ERC regulation will be included when facility ERCs are identified and any limitations on the disposition of the ERCs will be noted in the legal review. Such limitations may include prohibitions on the use of ERCs at closing facilities and if there are any restrictions on the leasing of ERCs. Forward the inventory, legal review, and appropriate regulations governing the use of these ERCs to the appropriate AFCEC Regulatory/Legislative Support Branch. The ERCs will be initially classified as “related personal property ERCs”, “operational needs requirement ERCs”, or “personal property ERCs” on the inventory. AFCEC/CZ will circulate the inventory to other MAJCOMs and installations in the same air quality district that will identify ERCs they might need. AFCEC/CZ will then validate the list and forward it with comments back to the appropriate MAJCOM and AFCEC/CZ. AFCEC/CZ, in concert with the appropriate MAJCOM, will review/validate the ERCs/categories, coordinate with HQ USAF/A4C, and submit to SAF/IEE for final approval.

6.6.4 Emission Reduction Credit Application

The CAA allows sources in nonattainment areas with EPA-approved ERC programs to “trade” ERCs. Installations must follow regulatory agency procedures to apply for and obtain ERCs if interested in obtaining ERCs and if they have adequate funds for the associated fees. Installation realignment and closure funds may be used to conduct the emission reduction credit inventory and to pay for application fees for installations slated for closure. MAJCOMs must submit their requirements to the AFCEC Installations Directorate (AFCEC/CI) IAW AFCEC programming procedures. MAJCOMs receiving ERCs from closure installations will reimburse the installation realignment and closure account for its proportionate share of the costs of the inventory and application fees. Reimbursement is not required if the receiving installation is an installation realignment and closure site.

6.6.5 Emission Reduction Credit Disposition

Once an air quality district issues ERCs, and SAF/IEE has approved their use, ERCs can be disposed in the following manner.

- “Operational needs requirement ERCs” can be banked for the requirements of the originating installation or can be transferred to another USAF organization that would need to buy the credits.
- “Related personal property ERCs” will be disposed of in the same manner as the real property on the inventory to which they are “related.”
- “Personal property ERCs” will be screened with other DoD and other federal agencies. Thereafter, the installation will transfer any remaining ERCs as surplus property to the General Services Administration (GSA) for disposal under GSA regulations.
- SAF/IEE will resolve any disputes over disposition of ERCs.

6.6.6 Emission Reduction Credit Use

ERCs can only be used in the same air quality control district/region in which they are generated, except where state or local laws and regulations provide otherwise. For example, the Discrete Emission Reduction Credit (DERC) regulations in Texas allow stationary and mobile DERCs generated within the state, with certain limitations, to be used anywhere within the state. In addition, and under certain circumstances, DERCs created outside the state may also be used within the state. In California, Section 40709.6 of the Health and Safety Code permits the inter-basin transfer of emission offsets or ERCs from upwind to downwind sources, even though they may be in different air quality control areas.

7 REFERENCES

This section provides a list of documents, models, and sources referenced in the guide. The reference list also identifies how to obtain or contact the reference (e.g., a publication number). Following the reference list is an annotated reference list, which includes a brief summary of each reference.

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40 CFR 51, “Code of Federal Regulations, Title 40-Protection of Environment, Part 51, Appendix W, Guideline on Air Quality Models (Revised),” U.S. Environmental Protection Agency, EPA Publication No. EPA-450/2-78-027R

40 CFR 52, “Code of Federal Regulations, Title 40-Protection of Environment, Chapter I-Environmental Protection Agency, Subchapter C- Air Programs, Part 52, Approval and Promulgation of Implementation Plans,” U.S. Environmental Protection Agency

40 CFR 93, “Code of Federal Regulations, Title 40-Protection of 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 1500, “Code of Federal Regulations, Title 40-Protection of Environment, Chapter V—Council on Environmental Quality, Part 1500—Purpose, Policy, and Mandate,” U.S. Environmental Protection Agency

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Appendix A - GLOSSARY

This section discusses basic terms and definitions used in assessing the air quality impacts from United States Air Force (USAF) actions. It also includes some key conversion factors, which are used in analyzing aviation data.

Affected Environment

The section of an environmental document (e.g. Environmental Impact Statement (EIS) or Environmental Assessment (EA)) which describes the resource categories (e.g. air, water, flora, fauna, historic sites, etc.) that are affected or potentially affected by the proposed action and any alternative.

Air Quality

Ambient pollutant concentrations and their temporal and spatial distribution.

Air Quality Control Region (AQCR)

An EPA designated interstate or intrastate geographic region that has significant air pollution or the potential for significant air pollution and, due to topography, meteorology, etc., needs a common air quality control strategy. The region includes all the counties that are affected by or have sources that contribute directly to the air quality of that region.

Air Quality Model

An algorithmic relationship between pollutant emissions and pollutant concentrations used in the prediction of a project's pollutant impact.

Air Quality Standard

A legal requirement for air quality, usually expressed in terms of maximum allowable pollutant concentration, averaged over a specified interval.

Alleviation Modifications

The first step in a Level III assessment is to review the proposed act for potential Alleviation Modifications. Alleviation modifications are amendments and revised adaptations of the original proposed action which would result in lessening air emissions or adverse impacts or air emissions (e.g., relocation of action, reduce size/time of action, low-emission construction materials/activities, etc.). Alleviation modifications differ from "emission offsets" and "mitigation measures" in that alleviation modifications are proactively applied changes to the action, while emission offsets and mitigation measures are reactive actions applied after an action is fully defined and directly applied solely as a measure to reduce air emissions. Alleviation modifications are actual proactive refinements and changes that actually replace the original proposed action and are developed early on (no later than the first steps a Level III assessment) in the EIAP process with the intent of being environmentally friendly. Alleviation Modifications are proactive adjustments to an action that minimize adverse air impacts and occurring prior to a final assessment or determination; while emission offsets and mitigation measures are reactive actions applied as an afterthought to alleviate adverse air impacts after a final assessment or determination is made.

Ambient Concentrations

Initial concentration sensed/measured at a monitoring/sampling site.

Applicability Analysis

The process of determining if your Federal action must be supported by a General Conformity Determination. This is generally performed in an Air Quality EIAP Level II, Air Quality Quantitative Assessment, using the Air Conformity Applicability Model (ACAM) to determine if the actions/reasonably foreseeable direct and indirect emission will exceed the General Conformity threshold values.

Applicable Implementation Plan or Applicable SIP

The portion (or portions) of the State Implementation Plan (SIP) or most recent revision thereof, which has been approved under section 110(k) of the Act, a Federal implementation plan promulgated under section 110(c) of the Act, or a plan promulgated or approved pursuant to section 301 (d) of the Act (Tribal implementation plan (TIP)) and which implements the relevant requirements of the Act.

Area of Potential Effects

Under Section 106 of the National Historic Preservation Act, area in which undertaking may affect any historic or cultural resources.

Area Source

The agglomeration of many sources that have low emission rates spread over a large area that are too numerous to treat individually. An example of this type of source would be a parking lot.

Area-Wide Air Quality Modeling Analysis

Means an assessment on a scale that includes the entire nonattainment or maintenance area using an air quality dispersion model or photochemical grid model to determine the effects of emissions on air quality, for example, an assessment using EPA's community multi-scale air quality (CMAQ) modeling system. Currently no allowed for directly-emitted emissions (emissions not indirect created through precursors).

Attainment Area

An area that meets NAAQS for a particular pollutant.

Carbon Monoxide (CO)

A colorless, odorless, toxic gas produced by the incomplete combustion of organic materials used as fuels. CO is emitted as a byproduct of essentially all combustion. Idling and low speed mobile source operations, such as aircraft taxiing are the most prevalent CO emission sources commonly found at airports.

Categorical Exclusion (CATEX)

A category of actions that do not individually or cumulatively have a significant effect on human environment based on agency experience. CATEX's have been found to have no such effect in procedures adopted by a Federal agency in implementation of these regulations (40 CFR 1507.3) and do not require preparation of an environmental assessment (EA), a FONSI, or an EIS.

Cause or Contribute to a New Violation

Means a Federal action that causes or contributes to a new violation of a NAAQS:

- (1) Causes a new violation of a NAAQS at a location in a nonattainment or maintenance area which would otherwise not be in violation of the standard during the future period in question if the Federal action were not taken; or
- (2) Contributes, in conjunction with other reasonably foreseeable actions, to a new violation of a NAAQS at a location in a nonattainment or maintenance area in a manner that would increase the frequency or severity of the new violation.

Caused By

As used in the terms “direct emissions” and “indirect emissions,” means emissions that would not otherwise occur in the absence of the Federal action.

CFRs

Code of Federal Regulations.

Clean Air Act (CAA)

The Federal law regulating air quality. The first Clean Air Act (CAA), passed in 1967, required that air quality criteria necessary to protect the public health and welfare be developed. Since 1967, there have been several revisions to the CAA. The Clean Air Act Amendments of 1990 represent the fifth major effort to address clean air legislation.

Clean Air Act Amendments of 1990 (CAAA)

The Clean Air Act Amendments of 1990 (CAAA) represent the fifth major effort to address clean air legislation. Revisions include significant strengthening of the Clean Air Act, especially by adding detailed requirements for Federal actions to conform to State Implementation Plans (SIP), expanding the list of hazardous air pollutants from eight to 189, and strengthening the operating permit program.

Confidential Information

Information that has been determined by a Federal agency, in accordance with its applicable regulations, to be a trade secret, or commercial or financial information obtained from a person and privileged or confidential and is exempt from required disclosure under the Freedom of Information Act (5 U.S.C. 552(b)(4)).

Conformity

The act of meeting Section 176(c)(1) of the CAAA that requires Federal actions to conform to the SIP for air quality. The action may not increase the severity of an existing violation nor can it delay attainment of any standards.

Conformity Determination

An evaluation made, if a General Conformity Applicability Analysis concludes a determination is required, to demonstrate that a Federal action conforms to the applicable implementation plan and meets the requirements of this subpart.

Conformity Evaluation

Is the entire General Conformity Rule process from the Applicability Analysis through the Conformity Determination that is used to demonstrate that the Federal action conforms to the requirements of this subpart.

Connected Actions

Actions that are closely related and therefore should be discussed in the same environmental document. Actions are connected if they automatically trigger other actions which may require an EIS; if they cannot or will not proceed unless other actions are taken previously or simultaneously; and if they are interdependent parts of a larger action and depend on the larger action for their justification.

Continuing Program Responsibility

Means a Federal agency has responsibility for emissions caused by:

- (1) Actions it takes itself; or
- (2) Actions of non-Federal entities that the Federal agency, in exercising its normal programs and authorities, approves, funds, licenses or permits, provided the agency can impose conditions on any portion of the action that could affect the emissions.

Continuous Program to Implement

Means that the Federal agency has started the action identified in the plan and does not stop the actions for more than an 18-month period, unless it can demonstrate that such a stoppage was included in the original plan.

Control

The ability to regulate, in some way, the emissions from a Federal action. The ability to regulate can be demonstrated directly through the use of emissions control equipment on a boiler or indirectly through the implementation of regulation or conditions in the nature of activity that must be established in permits of approvals or by design of the action. An example of indirect control is limiting vehicle emissions by controlling the size of a parking facility.

Cooperating Agency

A cooperating agency may be any Federal agency that has jurisdiction by law or special expertise with respect to any potential environment impact involved in a proposal for legislation or Federal action that significantly affects the quality of the human environment. A cooperating agency may also be a state or local agency of similar qualifications or, when the effects influence a reservation, an Indian Tribe. By agreement with the lead agency, an Indian Tribe may become a cooperating agency.

Criteria Pollutants

The six pollutants listed in the CAA that are regulated by the EPA through the NAAQS because of their health and/or environmental effects (i.e., any pollutant for which there is established a NAAQS at 40 CFR part 50). They are: nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), particulate matter (PM-10 & PM2.5), and lead (Pb).

Cumulative Impact

Impacts on the environment which result from the incremental impact of the action when added to other past, present and reasonable foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

De Minimis

So small as to be negligible or insignificant. If an action has de minimis emissions (Conformity Rule, 40 CFR Part 93.153c), then a conformity determination pursuant to the CAA of 1990 is not required.

Description of the Proposed Action and Alternatives (DOPAA)

The first USAF document required by the proponent of an action to initiate the EIAP. The DOPAA is documented with AF Form 813 and is the basis for all follow-on environmental analyses.

Direct Effect

An effect that is caused by the implementation and/or operation of an action that occurs at the same time and place. These type of effects are also often referred to as primary effects.

Direct Emissions

Emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and originate in a nonattainment or maintenance area and occur at the same time and place as the action and are reasonably foreseeable. NOTE: Direct emission are not the same as directly-emitted emission which are emissions wholly released as criteria pollutant and are not indirectly created through precursors.

Directly-Emitted

Emissions wholly released as criteria pollutant and are not indirectly created through precursors.

DoD

Department of Defense.

Emergency

A situation where extremely quick action on the part of the Federal agencies involved is needed and where the timing of such Federal activities makes it impractical to meet the requirements of this subpart, such as natural disasters like hurricanes or earthquakes, civil disturbances such as terrorist acts and military mobilizations.

Emissions Budgets

Are those portions of the applicable SIP's projected emission inventories that describe the levels of emissions (mobile, stationary, area, etc.) that provide for meeting reasonable further progress milestones, attainment, and/or maintenance for any criteria pollutant or its precursors.

Emission Factor

The rate at which pollutants are emitted into the atmosphere by one source or a combination of sources.

Emission Inventory

A complete list of sources and rates of pollutant emissions within a specific area and time interval.

Emissions Offsets (for purposes of §93.158)

Are emissions reductions which are quantifiable, consistent with the applicable SIP attainment and reasonable further progress demonstrations, surplus to reductions required by, and credited to, other applicable SIP provisions, enforceable at both the State and Federal levels, and permanent within the timeframe specified by the program.

Environmental Assessment (EA)

A concise public document that provides sufficient data, evidence, and analysis to determine if Federal agency should prepare an EIS for an action or issue a FONSI. An EA is not necessary in cases where the Federal agency has decided to prepare an EIS. An EA can be prepared at any time to aid agency decision making.

Environmental Impact Analysis Process (EIAP)

The USAF process for complying with NEPA and CEQ regulations.

Environmental Impact Statement (EIS)

A detailed, concise public document required for major Federal actions likely to have significant effects on the human environment. The document may be directly prepared, without first doing an EA, if the action will have significant environmental impacts. An EIS provides the public and decision makers with clear, written documentation of potential significant environmental effects of the proposed action, and reasonable alternatives including the no action alternative.

Environmental Planning Function (EPF)

The Air Force organization at the base, major command or field operating agency that manages the EIAP including evaluation and completion of Air Force environmental forms, identifies environmental quality standards that relate to the action being evaluated, and prepares environmental documents and related logistical information.

EPA

U.S. Environmental Protection Agency.

Federal Action

Federal action means any activity engaged in by a department, agency, or instrumentality of the Federal government, or any activity that a department, agency or instrumentality of the Federal government supports in any way, provides financial assistance for, licenses, permits, or approves, other than activities related to transportation plans, programs, and projects developed, funded, or approved under title 23 U.S.C. or the Federal Transit Act (49 U.S.C. 1601 *et seq.*). Where the Federal action is a permit, license, or other approval for some aspect of a non-Federal

undertaking, the relevant activity is the part, portion, or phase of the non-Federal undertaking that requires the Federal permit, license, or approval.

Finding of No Significant Impact (FONSI)

A document which briefly presents evidence of why a Federal agency has determined that a proposed action, not otherwise categorically excluded, will not have a significant impact on the environment. The FONSI justifies why the preparation of an EIS is unnecessary. The FONSI must include the EA or be attached to the EA, or a summary of it, and reference any other associated environmental documents. The FONSI should state all mitigation that will be undertaken, if any.

Hydrocarbons (HC)

Total hydrocarbons excluding methane and ethane. These gases represent unburned and wasted fuel. They come from incomplete combustion of gasoline and from evaporation of petroleum fuels.

Increase the Frequency or Severity of any Existing Violation of Any Standard in Any Area

Means to cause a nonattainment area to exceed a standard more often or to cause a violation at a greater concentration than previously existed and/or would otherwise exist during the future period in question, if the project were not implemented.

Indirect Control

Control of air quality by altering activities that influence the rate and distribution of emissions (e.g., traffic patterns, land use). Indirect control contrasts with direct control at the source of emissions (e.g. devices on automobiles or smoke stack).

Indirect Effect

Effects that are caused by the implementation and/or operation of an action, that occur later in time or are further removed by distance from the action, but which are still reasonable foreseeable. Often referred to as secondary effects

Indirect Emissions

Indirect emissions are those caused by the implementation and/or operation of an action, are reasonably foreseeable, but which occur later in time and/or are farther removed in distance from the action itself. Under General Conformity, indirect emissions are further limited to those indirect emissions that the responsible Federal agency can “practicably control and will maintain control over due to a continuing program responsibility of the Federal agency.” Indirect emissions mean those emissions of a criteria pollutant or its precursors:

- (1) That are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action;
- (2) That are reasonably foreseeable;
- (3) That the agency can practically control; and
- (4) For which the agency has continuing program responsibility.

Indirect Source

Any structure or installation which attracts an activity which creates emission of pollutants; for example, a shopping center, an airport, or a stadium.

Lead (Pb)

A heavy metal that, when ingested or inhaled, affects the blood forming organs, kidneys and the nervous system. The chief source of this pollutant at airports is the combustion of leaded aviation gasoline in piston-engine aircraft.

Lead Agency

The agency preparing or having taken primary responsibility for preparing the EIS.

Local Air Quality Modeling Analysis

Means an assessment of localized impacts on a scale smaller than the entire nonattainment or maintenance area, including, for example, congested roadways on a Federal facility, which uses an air quality dispersion model (e.g., Industrial Source Complex Model or Emission and Dispersion Model System) to determine the effects of emissions on air quality.

LTO

An aircraft's landing and takeoff (LTO) cycle. One aircraft LTO is equivalent to two aircraft operations (one landing and one takeoff). The standard LTO cycle begins when the aircraft crosses into the mixing zone as it approaches the airport on its descent from cruising altitude, lands and taxis to the gate. The cycle continues as the aircraft taxis back out to the runway for takeoff and climbout as it heads out of the mixing zone and back up to cruising altitude. The five specific operating modes in a standard LTO are: approach, taxi/idle-in, taxi/idle-out, takeoff, and climbout. Most aircraft go through this sequence during a complete standard operating cycle.

Maintenance Area (MA)

Any geographic area of the United States and territories previously designated nonattainment pursuant the CAA Amendments of 1990 and subsequently re-designated in 40 CFR Part 81 to attainment, meeting the provisions of section 107(d)(3)(E) of the Act and has a maintenance plan approved under section 175A of the Act.

Maintenance Plan

A revision to the applicable SIP, meeting the requirements of section 175A of the Act.

Metropolitan Planning Organization (MPO)

The policy board of an organization created as a result of the designation process in 23 U.S.C. 134(d).

Mitigation

Any method of reducing emissions of the pollutant or its precursor taken after a final assessment or conformity determination is made at the location of the Federal action and used to reduce the impact of the emissions of that pollutant caused by the action. Mitigation Measures differ from "Alleviation Modifications" in that a mitigation measure are reactively applied (i.e., after an action is fully defined and a final assessment or conformity determination is made) plied solely

as a measure to reduce air emissions, while “Alleviation Modifications” are proactive (i.e., occurring prior to a final assessment or conformity determination) refinement/s that actually replaces the original action, with the intent of being environmentally friendly. This term is defined in 40 CFR 1508.20. It includes: (1) avoiding the impact altogether by not taking a certain action or parts of an action or finding a new site; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (5) compensating for the impact by replacing or providing substitute resources or environments.

Mobile Source

A moving vehicle that emits pollutants. Such sources include airplanes, automobiles, trucks, and ground support equipment.

Modal Emissions Factors

Vehicular emissions factors for individual modes of operation. For aircraft, these modes are takeoff, climbout, approach, and taxi.

Model

A quantitative or mathematical representation or simulation which attempts to describe the characteristics or relationships of physical events.

National Ambient Air Quality Standard (NAAQS)

Air Quality standards established by the EPA to protect human health (primary standards) and to protect property and aesthetics (secondary standards).

National Environmental Policy Act (NEPA)

An Act established to declare a national policy that will encourage productive and enjoyable harmony between society and the environment; to promote efforts that will prevent or eliminate damage to the environment and the biosphere, and stimulate the health and welfare of man; and to enrich the understanding of the ecological systems and natural resources important to the nation

Nitrogen Oxides (NO_x)

A poisonous and highly reactive gas produced when fuel is burned at high temperatures causing some of the abundant nitrogen in the air to burn also. At air bases this pollutant is emitted by automobiles, aircraft engines, electric power plants, and other combustion equipment. Takeoff and climbout are the significant NO_x producing modes of aircraft operation.

Nonattainment Area (NAA)

Any geographic area of the United States or its territories that is in violation of any NAAQS and therefore has been designated as nonattainment under the CAA (i.e., an area designated as nonattainment under section 107 of the Act and described in 40 CFR part 81).

Notice of Availability (NOA)

A notice printed in the *Federal Register* announcing that an EIS is available for public comment.

Notice of Intent (NOI)

A brief notice placed in the *Federal Register* by the Federal agency noting that the agency will prepare an EIS. The NOI describes the proposed action and possible alternatives, details the proposed scoping process (i.e., location and time of meetings), and provides the name and address of a point of contact within the Federal agency to answer questions about the proposed action and the EIS.

Ozone (O₃)

A colorless, toxic gas formed by the photochemical reactions in the atmosphere of VOCs with the oxides of nitrogen. Ozone commonly is referred as “Smog”. Ozone is not emitted directly by any base source.

Point Source

A pollutant source that is fixed to the ground and that releases pollutants through a relatively small area. Common stationary sources at air bases include boilers, heaters, incinerators, and fuel storage tanks.

Pollutant/s of Concern

Under EIAP, the air pollutant/s of concern include all criteria pollutant, greenhouse gases, and total hazardous air pollutants (HAPs). Under General Conformity the air pollutant/s of concern include only those criteria pollutants and their precursors for which the area is designated nonattainment or maintenance.

PM₁₀

A criteria pollutant, are fine particles less than 10 micrometers in diameter. PM₁₀ includes solid and liquid material suspended in the atmosphere formed as a result of incomplete combustion. Aircraft are the primary source of PM₁₀ emissions at air bases.

PPM

Parts per million (10⁶) by volume.

Precursor

A chemical compound that leads to the formation of a pollutant. HC and NO_x are precursors of photochemical oxidants.

- (1) For ozone, nitrogen oxides (NO_x), unless an area is exempted from NO_x requirements under section 182(f) of the Act, and volatile organic compounds (VOC)
- (2) For PM₁₀, those pollutants described in the PM₁₀ nonattainment area applicable SIP as significant contributors to the PM₁₀ levels.
- (3) For PM_{2.5}:
 - (i) Sulfur dioxide (SO₂) in all PM_{2.5} nonattainment and maintenance areas,

(ii) Nitrogen oxides in all PM_{2.5} nonattainment and maintenance areas unless both the State and EPA determine that it is not a significant precursor, and

(iii) Volatile organic compounds (VOC) and ammonia (NH₃) only in PM_{2.5} nonattainment or maintenance areas where either the State or EPA determines that they are significant precursors.

Preferred Model

A refined model that is recommended for a specific type of regulatory application.

Prevention of Significant Deterioration (PSD) Area

A geographic area that contains air which is relatively clean and not in violation of NAAQS. The emissions in these areas are regulated to prevent degradation of its air quality.

Primary Pollutant

Chemical contaminants which are released directly to the atmosphere by a source.

Primary Standard

A NAAQS set to protect human health.

Reasonably Foreseeable Emissions

Projected future direct and indirect emissions that are identified at the time the conformity determination is made; the location of such emissions is known and the emissions are quantifiable as described and documented by the Federal agency based on its own information and after reviewing any information presented to the Federal agency.

Record of Decision (ROD)

The decision document, prepared after the EIS, that states what the decision is, identifies all alternative considered by the lead agency in reaching its decision, and states whether all practicable means to avoid or minimize environmental harm have been adopted, and if not, why not.

Regionally Significant

Previously defined under General Conformity Rule, as when a Federal action's direct and indirect emissions exceed 10 percent of the total emissions inventory for a particular criteria pollutant in a nonattainment or maintenance area. Now is subjective and open for interpretation based on the specific circumstances of the action.

Scoping

An early and open process (that invites the participation of affected Federal, state and local agencies, any affected Indian tribe, the proponent of the action and other interested persons) that determines the issues to be addressed in an environmental document and identifies relevant and/or significant issues related to a proposed action.

Screening Technique

A relatively simple analysis technique to determine if a given source is likely to pose a threat to air quality. Concentration estimates from screening techniques are conservative.

Secondary Pollutant

Atmospheric contaminants formed in the atmosphere as a result of such chemical reactions, as hydrolysis, oxidation, and photochemistry.

Secondary Standard

A NAAQS set to protect human welfare.

Significance Criteria

Quantifiable air quality impact severity gauges that are either thresholds or indicators. Thresholds are EPA-established emission related limits that, if exceeded, would trigger a regulatory requirement. Indicators are EPA-established thresholds that are partially applied or applied out of context to their intended use; however, can provide a direct gauge of potential impact.

Similar Actions

Actions, when viewed with other reasonably foreseeable or proposed actions, that have similarities that provide a basis for evaluating their environmental consequences altogether (in one document), such as common timing or geography.

State Implementation Plan (SIP)

The strategy to be used by a state to control air pollution in order that the NAAQS will be met. EPA regulations require that each state devise such a plan or the EPA will impose its own plan for that state.

Stationary Source

A source of pollutants which is immobile. Such sources include power plants, individual heater, incinerators, fuel tanks, facilities, and solvent degreasers, among others.

Sulfur Dioxide (SO₂)

This is a corrosive and poisonous gas produced mainly from the burning of sulfur containing fuel. Very little SO₂ is emitted from any aviation sources.

Take or Start the Federal Action

Means the date that the Federal agency signs or approves the permit, license, grant or contract or otherwise physically begins the Federal action that requires a conformity evaluation under this subpart.

Tiering

Already published environmental analyses (EAs and EISs) of broader scope that are incorporated by reference in support of a specific project assessment or statement as a method of reducing paperwork to the best advantage of the NEPA and EIAP process.

Total of Direct and Indirect Emissions

The sum of direct and indirect emissions increases and decreases caused by the Federal action; i.e., the “net” emissions considering all direct and indirect emissions. The portion of emissions which are exempt or presumed to conform under §93.153 (c), (d), (e), or (f) are not included in

the “total of direct and indirect emissions.” The “total of direct and indirect emissions” includes emissions of criteria pollutants and emissions of precursors of criteria pollutants.

Total Organic Gases (TOG)

This term includes all hydrocarbon compounds in an emission sample. See also HC and VOC. These terms are not interchangeable.

Total Suspended Particulate (TSP)

These are solid or liquid particles small enough to remain suspended in air. They range widely in size from particles visible as soot or smoke to those too small to detect except with an electron microscope.

Transportation Control Plan (TCP)

A plan specifying measures to regulate the emission of pollutants from mobile sources.

Vehicle Miles Traveled (VMT)

The sum of distances traveled by all motor vehicles in a specified region. VMT is equal to the total number of vehicle trips multiplied by the trip distance (measured in miles). This sum is used in computing an emission inventory for motor vehicles.

Volatile Organic Compounds (VOCs)

VOCs are created when fuels or organic waste materials are burned. Most hydrocarbons are presumed to be VOCs in the regulatory context, unless otherwise specified by the EPA.

Appendix B - ACRONYMS/BREVITY CODES

ACAM	Air Conformity Applicability Model
AERMOD	American Meteorological Society/EPA Regulatory Model
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	CAA Amendments of 1990
CATEX	Categorical Exclusion
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DoD	Department of Defense
DOPAA	Description of the Proposed Action and Alternatives
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
EPF	Environmental Planning Function
FONSI	Finding of No Significant Impact
FR	Federal Register
GCR	General Conformity Rule
HAP	Hazardous Air Pollutant
HC	Hydrocarbons
HCFC	Hydrochlorofluorocarbons
LAER	Lowest Achievable Emission Rate
LTO	Landing and Takeoff
MA	Maintenance Area
MPO	Metropolitan Planning Organization
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO ₂	Nitrogen Dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO _x	Nitrogen Oxides
NSR	New Source Review
O ₃	Ozone
Pb	Lead
PM	Particulate Matter
PPM	parts per million
PSD	Prevention of Significant Deterioration
ROD	Record of Decision
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide

SO _x	Sulfur Oxide
TCP	Transportation Control Plan
TIP	Tribal Implementation Plan
TOG	Total Organic Gases
TSP	Total Suspended Particulate
USAF	United States Air Force
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound