Level II, Air Quality Quantitative Assessment, Insignificance Indicators

HQ AFCEC/CZTQ; Air Quality
Compliance Technical Support Branch

Prepared by: Solutio Environmental Inc.

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1 Executive Summary

For air quality impact assessments, significance is defined by the degree to which the effects of the proposed action potentially could affect public health or safety. The U.S. Air Force (USAF) conducts *National Environmental Policy Act (NEPA)* and *General Conformity Rule* air quality impact assessments in tandem within the *Environmental Impact Analysis Process* (EIAP). The air quality EIAP process is broken into three progressive levels of assessment: *Level I, Exempt Action Screening* (determine if a formal Air Quality Assessment is required); *Level II, Quantitative Air Quality Assessment* (a formal emissions quantifying assessment to eliminate insignificant air impacts from further assessment); and *Level III, Advanced Air Quality Assessment* (part science and part art, both quantitative and qualitative assessments of air impact). These levels are designed to ensure completion of an air quality assessment at the lowest level possible; with each level of assessment having a specific significance threshold or indicator that, if not exceeded, allows exiting the assessment.

If and action is not exempt for Air Quality EIAP, it must proceed to a *Level II, Quantitative Assessment*. A Level II assessment is a quantification of annual net change in emissions that are compared against levels of annual emissions (i.e., thresholds or indicator) that are known to have de minimis (insignificant) effects on public health or safety. De minimis values were established in the *General Conformity Rule* (40 CFR 93 Subpart B) as definitive insignificance thresholds for actions occurring within areas designated as nonattainment or maintenance for one or more National Ambient Air Quality Standard (NAAQS). However, for Level II NEPA air impact assessments, the USAF had to establish legally defensible insignificance values (indicators) for actions occurring within attainment areas.

In 2019, the USAF Cross-Media Technical Review Team formally established air quality impact insignificance thresholds and indicators for use within an Air Quality EIAP *Level II, Quantitative Assessment*. The insignificance indicators were updated in 2020 to distinguish between actions occurring in areas that were near nonattainment (within 15% of any NAAQS). Under this documented reevaluation and update, the distinction between near nonattainment and nonattainment are removed and an insignificance indicator is established for greenhouse gases (GHGs). The latest insignificance thresholds and indicators for Levell II Air Quality EIAP assessments are depicted in ***Table 1, Air Quality EIAP Insignificance Thresholds and Indicators***.

It is important to note that a level II assessment can only determine if an action poses an insignificant impact on air quality and only a Level III, *Advanced Assessment*, can define significant impacts. Therefore, Level II insignificance thresholds or indicators only identify clearly insignificant impacts (i.e., annual net change emissions are less than the threshold or indicator) or flag potentially significant impacts (i.e., annual net change emissions are greater than or equal to the threshold or indicator) that must be addressed with a further and more advanced assessment.

Table 1, Air Quality EIAP Insignificance Thresholds and Indicators

Regulated Pollutant	Pollutant of Concern	Area Classification (attainment Status)		Indicator * (ton/yr)
O_3	O_3 precursors (VOC or NOx)	Nonattainment	Extreme	10
			Severe-17 or Severe-15	25
			Serious	50
			Moderate or Marginal Outside ozone transport zone	100
			Moderate or Marginal Inside ozone transport zone	50 for VOC & 100 for NOx
		Maintenance	Outside ozone transport zone	100
			Inside ozone transport zone	50 for VOC & 100 for NOx
		Attainment		250
CO, SO_2, or NOx	CO, SO_2, or NO_2	Nonattainment		100
		Maintenance		100
		Attainment		250
PM10	PM10	Nonattainment	Serious	70
			Moderate	100
		Maintenance		100
		Attainment		250
PM2.5	PM2.5 and potentially its precursors (SO_2, NOx, VOC, NH_3)	Nonattainment	Serious	70
			Moderate	100
		Maintenance		100
		Attainment		250
Pb	Pb	Nonattainment		25
		Maintenance		25
		Attainment		25
GHG	CO_2e	All Locations		75,000

NOTE: O3 = ozone, VOC = volatile organic compounds, CO = carbon monoxide, SO_2 = sulfur dioxide, NOx = nitrogen oxides, NO_2 = nitrogen dioxide, PM10 = particulate matter $\leq$ 10 micrometers, PM2.5 = particulate matter $\leq$ 2.5 micrometers, NH_3 = ammonia, Pb = lead, GHG = greenhouse gas, and CO_2e = CO_2 equivalent.

* Indicator for nonattainment and maintenance areas are actual General Conformity threshold value.

2 BACKGROUND

Air quality assessments for proposed Federal actions are required for compliance with the *National Environmental Policy Act (NEPA)*, the *Clean Air Act (CAA)*, 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 when applicable. The USAF expanded on the EIAP process with this Guide to address specific air quality concerns with the objective to make defensible and credible air quality EIAP Assessments, in accordance with 32 Code of Federal Regulations (CFR) 989 and 40 CFR 93, with the least impact on scarce USAF resources (i.e., work effort and cost).

Air Quality EIAP = Air Quality NEPA + CAA Conformity

2.1 Air Quality EIAP

The air quality EIAP process is broken into three progressive levels of assessment: *Level I, Exempt Action Screening* (determine 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* (part science and part art, both quantitative and qualitative assessments). These levels are designed to ensure completion of an air quality assessment at the lowest level possible; with each level of assessment having a specific significance threshold or indicator that, if not exceeded, allows exiting the assessment.

Generally speaking, where General Conformity is an issue, actions that trigger an assessment under NEPA will also require a General Conformity evaluation. As such, the USAF conducts NEPA and General Conformity assessments in tandem within the EIAP process. The EIAP process starts with the Proponent (the office, unit, single manager, or activity at any level that initiates an Air Force action) formally initiating a proposed action by submitting an *AF Form 813, Request for Environmental Impact Analysis*. The air quality EIAP process then proceeds through up to three progressive levels of assessment (see ***Figure 1, Air Quality EIAP***) based on exceeding escalation criteria. The goal is to exit at the lowest possible level of assessment.

2.1.1 Level I, Exempt Action Screening

Under this level, the proposed action is assessed to determine if a formal Air Quality EIAP Assessment is required. If no air emissions will occur or the proposed action is exempt (i.e., a Categorical Exclusion from NEPA and an already Presumed to Conform for General Conformity), no further action is required.

2.1.2 Level II, Quantitative Assessment

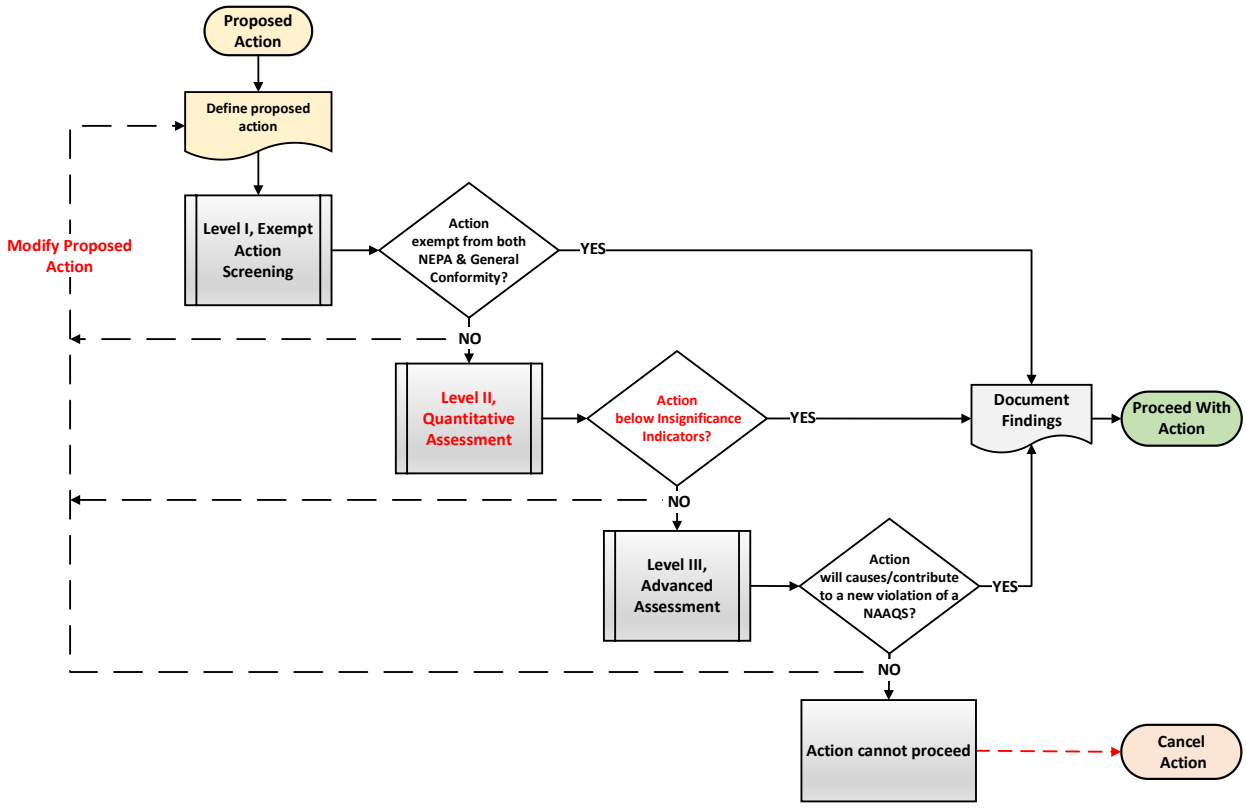
Level II requires a formal assessment of air impacts be performed. A quantitative estimate of the annual net total direct and indirect emissions of pollutants of concern must be calculated. Currently, the Air Conformity Applicability Model (ACAM) must be used throughout the Air

Force to perform this estimate. ACAM provides a simplified emission modeling that is adequate for a General Conformity Applicability Assessment and a 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.

2.1.3 Level III, Advanced 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 in an overall formal Environmental Assessment (EA) or Environmental Impact Statement (EIS). Level III assessments are addressed in Volume 2 of the *Air Quality EIAP Guide*.

Figure 1, Air Quality EIAP



2.2 Air Quality EIAP Objective

The USAF's air quality EIAP approach is based on CEQ's regulations and guidance for assessing impact using the ***"rule of reason"*** and the ***"concept of proportionality"***, which are inherent in NEPA and the CEQ Regulations.

Rule of Reason: Under the rule of reason, agencies evaluate the positive features of an action against its negative effects in order to decide whether the action should continue as proposed.

The rule of reason allows agencies to determine, based on their expertise and experience, how to consider an environmental effect and prepare an analysis based on the available information.

Concept of Proportionality: Under the concept of proportionality, agencies are guided by the principle that the extent of the analysis should commensurate with the quantity of projected emissions. In other words, if there are little to no emissions associated with an action, then there should be little to no analysis associated with the action.

Rule of Reason + Concept of Proportionality = Keep it Simple

Low Emissions = Short Analysis

The data quality objectives for air quality EIAP are to reach defensible decisions and to make credible estimates with the least impact on scarce resources. The goal is efficiency in achieving the objective at the simplest level with 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.

Air Quality EIAP (NEPA and Conformity) analysis is an impact assessment based on a hypothetical best guess estimate of air pollutant emissions. Often, concepts that are not fully defined actions are evaluated; therefore, it is necessary to make a best-guess rough estimate. USAF actions under evaluation are proposed and not actual actions. Consequently, there is an inherent uncertainty of potential emission sources associated with sub-activities that may be directly and indirectly connected to the proposed action. Additionally, the best result of the acceptable emission estimating methodologies is a rough order of magnitude estimate, so it is important to not over analyze.

In this case, the objective is to make defensible and credible air quality EIAP Assessments, in accordance with 32 CFR 989 and 40 CFR 93 (for proposed actions that will occur in nonattainment and/or maintenance areas), with the least impact on scarce USAF resources (i.e., work effort and cost).

2.3 Pollutants of Concern

There are a variety of air pollutants associated with USAF actions that can potentially have an impact on the environment. The air pollutants of potential concern under an Air Quality EIAP include Criteria Pollutants, Hazardous Air Pollutants (HAPs), and Greenhouse Gases (GHGs).

2.3.1 Criteria Pollutants

Criteria pollutants are the primary pollutants of concern relating to USAF actions. All USAF actions must be evaluated in a net-change inventory assessment for the potential impacts for each criteria pollutant. Based on health concerns, the EPA set Primary NAAQSs for six principal

pollutants (known as criteria pollutants): carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), sulfur dioxide (SO_2), and lead (Pb).

- **Carbon Monoxide (CO):** CO is a colorless, odorless, tasteless gas that is a product of incomplete combustion of organic materials. In the ambient environment, it may temporarily accumulate into localized "hot-spots", especially in calm weather conditions and in the wintertime when CO forms easily and is chemically most stable. In humans, CO can be absorbed by the lungs and react with hemoglobin to reduce the oxygen-carrying capacity of the blood. At elevated concentrations CO can have cardiovascular and central nervous system effects.

- **Lead (Pb):** Pb is a heavy metal that occurs in the atmosphere as lead oxide aerosol or lead dust. Lead is most commonly associated with emissions from industrial sources including incineration, steel production, smelting, and battery manufacturing. Lead is a highly stable compound that accumulates in the environment and in living organisms. In humans, Pb exposures can interfere with the maturation and development of red blood cells, affect liver and kidney functions, and cause nervous system damage.

- **Ozone (O3):** O_3 occurs both in the earth's upper atmosphere and at ground level. Tropospheric, or ground level O_3, is not emitted directly into the air, but is a result of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) reacting in the presence of sunlight in the atmosphere. VOCs and NOx are termed "ozone precursors" and their emissions are regulated in order to control the creation of O_3. VOCs, which are a subset of hydrocarbons (HC), are released in industrial processes, mobile sources and from the evaporation of gasoline, solvents, and other hydrocarbon-based compounds. In humans, O_3 is a pulmonary irritant that affects the respiratory mucous membranes, other lung tissues, and respiratory functions. Exposure to O_3 at high concentrations can result in symptoms such as tightness in the chest, coughing, and wheezing, and can trigger an attack or exacerbate the symptoms of asthma, bronchitis, and emphysema.

- **Nitrogen Oxides (NOx):** NO_2 is a reddish-brown to dark brown gas with an irritating odor. NO2, nitric oxide (NO), and the nitrate radical (NO_3) are collectively called oxides of nitrogen (NOx). These three compounds are interrelated, often changing from one form to another in chemical reactions. The principal man-made source of NOx is fuel combustion in motor vehicles and power plants with aircraft also contributing. NO_2 emissions from these sources are highest during high-temperature combustion conditions. Reactions of NOx with other chemicals (such as VOCs) can lead to O_3 formation and acidic precipitation. Additionally, secondary PM can be formed within the atmosphere from precursor gases, such as NOx, through gas-phase photochemical reactions or through liquid phase reactions in clouds and fog droplets. In humans, NO_2 can be a lung irritant capable of producing pulmonary edema at high concentrations and can lead to other respiratory illnesses such as bronchitis and pneumonia.

- **Particulate Matter (PM):** PM is small solid particles and liquid droplets suspended or settling out of the atmosphere. PM consists of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. PM

can be formed from both natural and man-made sources including forest fires and wind erosion over exposed soils (i.e., fugitive dust); the incineration of solid wastes; and as an exhaust product from the internal combustion engine. Of growing concerns are the effects of PM on visibility and the potential impairment to human health by small PM. The regulatory standards for PM are segregated by sizes: less than or equal to 10 micrometers (denoted PM10) and less than or equal to 2.5 micrometers (denoted PM2.5). PM10 and PM2.5 are considered a health risk in humans because of their ability to penetrate into the human respiratory system.

- **Sulfur Dioxide (SO_2):** SO_2 is a colorless gas also with a strong characteristic odor. SO_2 is emitted into the atmosphere by both natural processes and by man-made sources such as the combustion of sulfur-containing fuels and sulfuric acid manufacturing. When combined with other substances in the air, SO_2 can precipitate out as "acid rain". Sulfate particles are a major cause of reduced visibility in many areas of the U.S. In humans, the inhalation of elevated concentrations of SO_2 can cause irritation of the mucous membranes, bronchial damage, and can exacerbate pre-existing respiratory diseases such as asthma, bronchitis, and emphysema.

2.3.2 Greenhouse Gases (GHGs)

GHGs are only secondary Pollutants of Concern (POCs) relating to USAF actions. Secondary POCs relating to USAF actions currently have no Federal regulations specifically pertaining to HAPs emissions from aircraft engines or USAF bases.

GHGs are emitted principally from the combustion of fossil fuels and decomposition of waste materials and are linked to the "greenhouse effect" which is attributed to the gradual increase in the earth's average temperature. The six main GHGs whose emissions are related to human are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF6), which are reported as carbon dioxide equivalents (CO_2e).

GHG emissions associated with USAF actions are principally in the form of CO_2 and are generated by aircraft, APUs, GSE, motor vehicles, boilers, and an assortment of stationary sources. Most of the CO_2 emissions from these sources result from the combustion of fossil fuels and are emitted as by-products contained in the engine or stack exhausts.

2.3.3 Hazardous Air Pollutants (HAPs)

HAPs are also only secondary POCs relating to USAF actions with no Federal regulations specifically pertaining to HAPs emissions from aircraft engines or USAF bases. While a net-change inventory assessment may be useful for disclosure, reporting, and comparative purposes, it does not provide results that are directly comparable to any regulatory or enforceable ambient air quality standards or emission thresholds. Generally, a HAPs net-change inventory assessment is only required when specifically required by the state.

HAPs, also known as "air toxics", are pollutants for which there are no NAAQS, but are still regulated under the federal CAA because of their potentially adverse effects on human health and the environment. HAPs are comprised of a wide range of organic and inorganic compounds. HAP emissions are present in the exhaust of aircraft, APUs, GSE, motor vehicle engines, stationary engines, boilers, fuel facilities, and other stationary sources.

2.4 Insignificance Thresholds or Indicators

If an action is not exempt for Air Quality EIAP, it must proceed to a *Level II, Quantitative* Assessment. A Level II assessment is a quantification of annual net change in emissions that are compared against defined levels of annual emissions (i.e., thresholds or indicator) that are known to have de minimis (insignificant) effects on public health or safety. The action's reasonably-foreseeable worst-case quantified annual net change in emissions for each pollutant of concern are compared against defined insignificance thresholds or indicators. Insignificance thresholds are EPA-established annual emission rates that, if exceeded, would trigger a regulatory requirement. Insignificance indicators are EPA-established rate thresholds that are partially applied or applied out of context to their intended use; however, can provide a direct gauge of potential impact. Although indicators do not trigger a regulatory requirement, they do provide an indication or a warning that the action is potentially approaching a threshold which would trigger a significant 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.

2.4.1 Insignificance Thresholds (General Conformity Only)

There are two General Conformity thresholds: Applicability Analysis Thresholds and Facility-Wide SIP Budget Thresholds. Both thresholds directly apply only to a proposed action that will occur within a nonattainment and/or maintenance area (i.e., where the General Conformity Rule is pertinent).

General Conformity thresholds are intended to be used in performing an Applicability Analysis; however, they can also be used as a general indicator for air quality NEPA assessments. For air quality NEPA assessments, the General Conformity thresholds (*see* ***Table 3, General Conformity De Minimis Values)*** can also be applied to evaluate the potential insignificance when directly compared to the estimated annual net change in total direct and indirect emissions from the proposed action (or alternatives).

- **General Conformity Applicability Analysis Threshold:** In an Applicability Analysis (for nonattainment and maintenance areas only), General Conformity thresholds are de minimis values are used to compare against the action's the worst-case estimated annual net-change emissions for each pollutant of concern. De minimis values are annual emission rates that are too trivial or minor to merit further consideration. The General Conformity de minimis thresholds are compared directly to the estimated net total change in direct and indirect emissions associated with a proposed action (or alternatives). ***If the reasonably-foreseeable worst-case annual emissions estimate for each pollutant of***

concern associated with the action are below the corresponding de minimis threshold values:

- ***General Conformity is NOT applicable,***
- ***A Conformity Determination is not required, and***
- ***The General Conformity Evaluation is complete upon completing a Record of Conformity Applicability (ROCA) to document the conclusion.***

- **Facility-Wide SIP Budget Threshold:** This threshold only applies if the proposed action is occurring at a facility that is in a nonattainment or maintenance area in which the facility actually negotiated its own Facility-Wide SIP Budget (a budgeted level of air emissions specifically assigned to the facility for future actions). In this case, the Facility-Wide SIP Budget limits specific to the facility are effectively thresholds that cannot be exceeded. The worst-case estimated annual net-change emissions for each pollutant of concern are added to the current baseline emissions and compared against the facility's specific Facility-Wide SIP Budget Thresholds (emissions maximum allowable values stated in the approved SIP). If the net-change emissions combined with the current baseline emissions DO NOT exceed the facility's specific Facility-Wide SIP Budget Thresholds, then:
  - ***General Conformity is Presumed-To-Conform PTC,***
  - ***A Conformity Determination is not required, and***
  - ***The General Conformity Evaluation is complete upon completing a Record of Conformity Applicability (ROCA) to document the conclusion.***

2.4.2 Insignificance Indicators (NEPA Only)

While the General Conformity thresholds are intended to be used to perform an Applicability Analysis, they can also be used as a general insignificance indicator for air quality NEPA assessments. Given the General Conformity de minimis threshold values (see **Table 3, General Conformity De Minimis Values**) are the maximum net change an action can acceptably emit in nonattainment and maintenance areas to still be considered de minimis (insignificant). Applying the Rule of Reason and Concept of Proportionality, these threshold values would also be a conservative indicator that an action's emissions within an attainment area would also be insignificant and acceptable. In other words, if the threshold is acceptable in nonattainment areas, it must be more than acceptable in an attainment area. ***If the worst-case annual emissions estimate for each pollutant of concern is below the corresponding de minimis threshold values, this indicates that further assessment is unwarranted. Evaluation is complete upon completing a Record of Air Analysis (ROAA) to document the conclusion.***

3 ASSESSMENT OF CRITERIA POLLUTANT INSIGNIFICANCE

The USAF Cross-Media Technical Review Team, led by the USAF's Air Quality Subject Matter Expert, convened on 12 December 2019 to formally establish technically sound air quality impact insignificance criteria for an Air Quality EIAP Level II, Quantitative Assessment. The Cross-Media Technical Review Team consisted of air quality technical and legal experts which included representatives from: the AQ SME (AFCEC/CZTQ), HQ Civil Engineers (HAF/A4C), Environmental Law and Litigation Division (AFLOA/JACE), HQ AFRC (AQAF/A4CA), AFIT (AETC AFIT/CEV), REOs (AFCEC/CZPW and AFCEC/CZPE), all ISSs (AFCEC/CZO), and the NEPA Cell (AFCEC/CZN). The team established scientifically sound insignificance criteria based on the CEQ's inherent concepts of the Rule of Reason and the Concept of Proportionality. Under the Rule of Reason, the positive features of an action are compared against its negative effects in order to decide whether or not the action should be prohibited. Under the Concept of Proportionality, the extent of the analysis should be proportional with the quantity of projected impact (e.g., amount of air or noise emissions).

The team's established insignificance criteria were presented to the EPA's Office of Air Quality Planning and Standards on 16 December 2019 whom verified and validated the established insignificance criteria were technically sound. This section provides the USAF's definitive significance criteria and an overview of the basis establishing these significance criteria.

3.1 Criteria Pollutant Significance

For air quality impact assessments, significance for criteria pollutants is defined by the degree to which the effects of proposed action potentially could affect public health or safety. The EPA developed Primary National Ambient Air Quality Standards (NAAQSs) to provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Specifically, the EPA set Primary NAAQSs for six principal pollutants (known as criteria pollutants): carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), sulfur dioxide (SO_2), and lead (Pb). As a result, Air quality impact significance is defined by an action's potential to cause or contribute to a new violation of one or more of these NAAQSs. In other words:

- ***Insignificant*** *= Action does not cause or contribute to exceeding one or more NAAQSs*
- ***Significant*** *= Action does cause or contribute to exceeding one or more NAAQSs*

3.1.1 Context and Intensity

Under NEPA, establishing significance (or insignificance) requires consideration of both <u>context</u> and <u>intensity</u> (40 CFR 1508.27)**;** therefore, air quality impact significance must be established by considering both context and intensity.

- **Context** is the surroundings, circumstances, environment, and background of an action which provides the setting for evaluating the intensity of the impact significance. The

context of an action is the local area's ambient air quality relative to meeting the NAAQSs as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). See 3.1.2 below for an in-depth overview and discussion of the context of an action's significance.

- **Intensity** is the quantified magnitude of impact severity. Air quality impact intensity is the calculated magnitude of impact severity to which the long- and short-term effects of a proposed action could potentially affect public health or safety. The degree of impact severity is measured by quantifying the projected annual net change in criteria pollutant emission against established significance criteria. See 3.1.3 below for an in-depth overview and discussion of the intensity of an action's significance.

As discussed above, the USAF Cross-Media Technical Review Team, led by the USAF's Air Quality Subject Matter Expert, formally established technically sound air quality impact insignificance criteria. The framework (i.e., context) for selecting and utilizing the proper insignificance criteria is based on the current attainment status. The attainment status (attainment, nonattainment, or maintenance) provides the context for properly using the established air quality impact insignificance criteria in an Air Quality EIAP Level II, Quantitative Assessment.

3.1.2 Criteria Pollutant Significance Context Discussion

Air quality, in the context of the current ambient air quality, is defined relative to established health standards. Under the Clean Air Act (CAA), the EPA set primary NAAQSs (40 CFR 50) for six criteria pollutants (CO, NO_2, O_3, PM, SO_2, and Pb) considered harmful to public health and the environment. The primary NAAQSs, as a health standard, set the baseline context for assessing which air quality impacts pose a potential significant impact.

Table 2, Current NAAQSs

(EPA 2023)

Criteria Pollutant		Averaging Time	Primary NAAQS
Carbon Monoxide (CO)		8 hours	9 ppm
		1 hour	35 ppm
Lead (Pb)		Rolling 3 month average	0.15 µg/m3
Nitrogen Dioxide (NO_2)		1 hour	100 ppb
		1 year	53 ppb
Ozone (O_3)		8 hours	0.070 ppm
Particle Pollution (PM)*	$PM_{2.5}$	1 year	12.0 µg/m3
		24 hours	35 µg/m3
	PM_{10}	24 hours	150 µg/m3
Sulfur Dioxide (SO_2)		1 hour	75 ppb

* PM_{10} = particles $\leq$ 10 micrometers, $PM_{2.5}$ = particles $\leq$ 2.5 micrometers

Periodically, the NAAQSs are reviewed by the EPA and may be revised if deemed inadequate to protect human health and the environment. The current NAAQSs are listed in ***Table 2, Current NAAQSs***. Units of measure for the NAAQSs are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air ($\mu g/m^3$). Any ambient (i.e., local outdoors) air concentration at or above any of these NAAQSs is considered harmful to public health and the environment.

Ambient air quality is monitored by the EPA in terms of criteria pollutant concentrations and their temporal and spatial distribution. Based on the monitoring data for these criteria pollutants, the local area's ambient air quality is classified in the context with meeting the NAAQSs as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). These area classifications define the baseline context of a localized area:

- **Attainment:** Localized areas where the ambient air quality meets all NAAQSs are classified as attainment areas.

- **Nonattainment:** Localized areas where the ambient air quality does not meet one or more NAAQSs are classified as nonattainment areas. Nonattainment areas are further classified based on their severity or the degree of exceeding a NAAQS.

- **Maintenance:** Localized areas that have recently achieved attainment for one or more NAAQS and have an approved maintenance plan are classified as maintenance areas. These areas are subject to their maintenance plan for at least twenty years (two consecutive ten-year plans).

Therefore, for EIAP assessment, **air quality impact is evaluated in the context of the local area's current ambient air quality as defined by the area's attainment status**:

- **Attainment** (in attainment with all NAAQS).

- **Nonattainment, including severity** (does not meet one or more NAAQSs).

- **Maintenance** (recently met NAAQSs; therefore, are treated as nonattainment).

3.1.3 Criteria Pollutant Significance Intensity Discussion

Air quality impact intensity is the quantified magnitude of impact severity or the degree to which the long- and short-term effects of proposed action potentially could affect public health or safety.

3.1.3.1 Nonattainment or Maintenance Area Context

All actions that will occur within a nonattainment or maintenance area must meet the requirements of the General Conformity Rule before the action can take place. The General Conformity Rule was established to ensure that federal actions conform to the State's air quality

plans for an area to attain and maintain the NAAQSs. A General Conformity Assessment is a progressive two phased assessment:

- **Applicability Analysis:** A quantified net-change in emissions analysis (i.e., measure of intensity) to determine if an action is insignificant or potentially significant.

- **Determination:** An in-depth assessment (only performed if identified as potentially significant in the Applicability Analysis) to definitively verify a significant impact.

3.1.3.1.1 Applicability Analysis

An Applicability Analysis is performed in an Air Quality EIAP Level II, Quantitative Assessment. An Applicability Analysis is a quantified net-change in emissions analysis (i.e., measure of intensity) to determine if an action is insignificant or potentially significant.

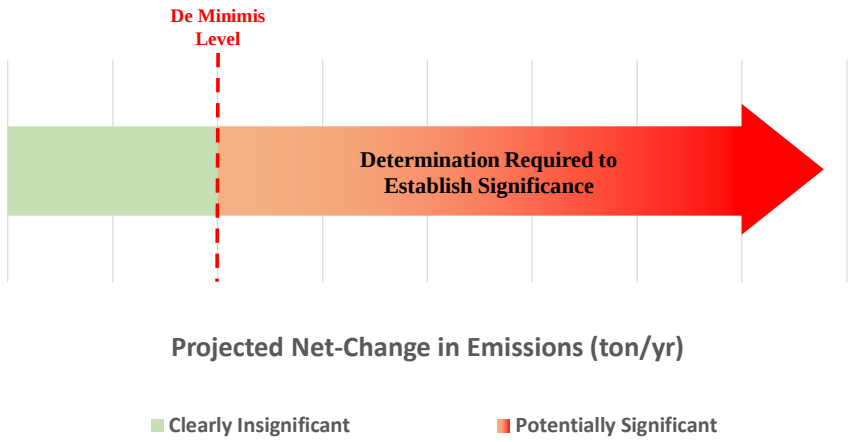
Table 3, General Conformity De Minimis Values

Criteria Pollutant	Pollutant of Concern	Area Classification (attainment Status)		De Minimis Value (ton/yr)
O_3	O_3 precursors (VOC or NOx)	Nonattainment	Extreme	10
			Severe-17 or Severe-15	25
			Serious	50
			Moderate or Marginal Outside ozone transport zone	100
			Moderate or Marginal Inside ozone transport zone	50 for VOC & 100 for NOx
		Maintenance	Outside ozone transport zone	100
			Inside ozone transport zone	50 for VOC & 100 for NOx
CO, SO_2, or NOx	CO, SO_2, or NO_2	Nonattainment		100
		Maintenance		100
PM10	PM10	Nonattainment	Serious	70
			Moderate	100
		Maintenance		100
PM2.5	PM2.5 and potentially its precursors (SO_2, NOx, VOC, NH_3)	Nonattainment	Serious	70
			Moderate	100
		Maintenance		100
Pb	Pb	Nonattainment		25
		Maintenance		25

40 CFR 93.152 (b)

In promulgating the General Conformity Rule, the EPA recognized that the many Federal agencies take thousands of actions every day, most of which do not result in significant increases in emissions. Therefore, EPA promulgated de minimis emissions levels for each of the NAAQS pollutants for which increases net emissions are too insignificant to affect public health or safety. If the total annual net change direct and indirect emissions from an action are below the de minimis levels, the action is considered insignificant (too trivial or minor) to merit consideration of adverse impacts to health or safety. Therefore, by EPA's definition, the General Conformity de minimis values (see ***Table 3, General Conformity De Minimis Values***) are definitive insignificance indicators or thresholds of an action based on the annual net-change in emissions (see ***Figure 2, General Conformity Applicability Analyses Impact Significance***).

Figure 2, General Conformity Applicability Analyses Impact Significance



The General Conformity de minimis values provide a definitive go/no-go first-level criterion for air quality impact significance for General Conformity Applicability Analyses:

- Below De Minimis = Clearly (Definitively) Insignificant Impact and
- At or Above De Minimis = Potentially Significant Impact (enough to warrant a Determination).

For example: A Carbon monoxide (CO) maintenance area has a CO de minimis value of 100 ton/yr. Therefore, any action with an annual net change in CO less than 100 ton/yr would be considered clearly insignificant for the specified pollutant. However, any action with an annual net change in CO greater than or equal to 100 ton/yr would be considered potentially significant and would require a General Conformity Determination to establish the action's actual significance.

3.1.3.1.2 Determination

A Determination is performed in an Air Quality EIAP Level III, Advanced Assessment. A Determination is an in-depth assessment to definitively verify a significant impact that will affect

public health or safety. A Determination is only performed if an action has been identified as "potentially significant" in an Applicability Analysis.

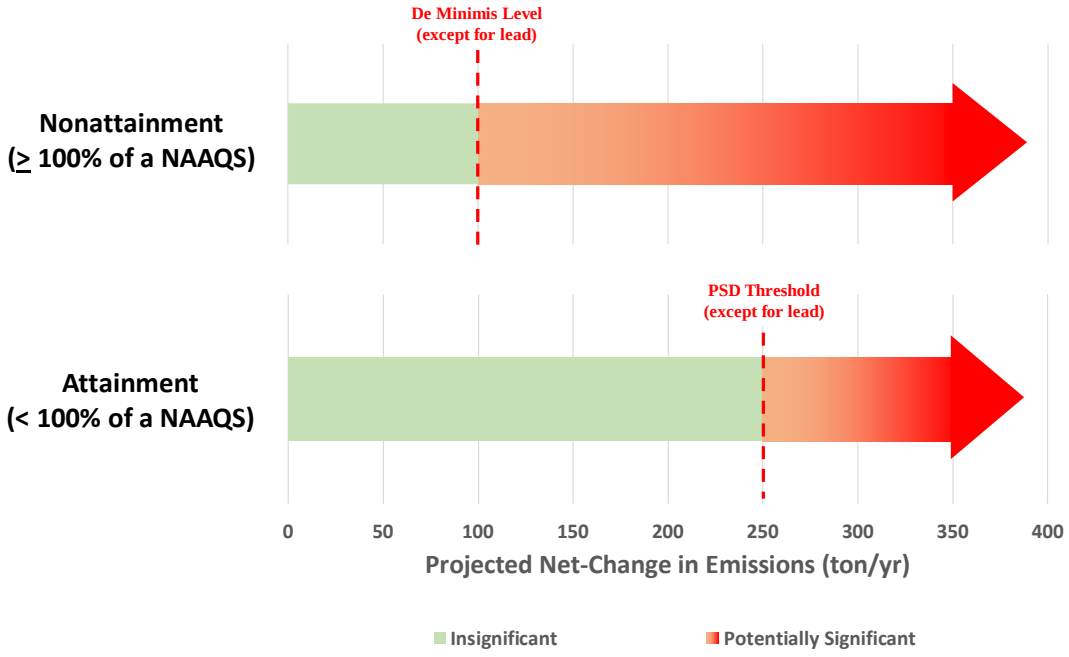
In promulgating the General Conformity Rule, the EPA defined significant as an action that does not conform to the applicable State or tribal plan to meet and sustain NAAQSs (i.e., SIP or TIP). By not conforming with the applicable SIP or TIP, the action may cause or contribute to new violations of a NAAQS.

3.1.3.2 Attainment Area Context

While there are established insignificance thresholds for use in General Conformity (i.e., for nonattainment and maintenance areas), there are no established significance thresholds for attainment areas. However, according to the preamble to the original General Conformity Regulations (58 FR 1384, 12/30/1993), "the de minimis levels for conformity analyses in the final rule are based on the Act's (Clean Air Act or CAA) major stationary source definitions" except for lead. Given the Prevention of Significant Deterioration (PSD) 250 ton/yr threshold (directly emits or has the potential to emit) is one of the CAA's major stationary source definitions (triggers) for a new major source or a source making a major modification in an attainment area, the 250 ton/yr PSD attainment area threshold would be an indicator of potentially significant air quality impacts for NEPA (i.e., within areas in attainment with all NAAQS).

Actions that exceed the PSD 250 ton/yr threshold would potentially be significant; therefore, the PSD 250 ton/yr threshold provides an indicator for actions that are potentially significant (see ***Figure 3, Criteria Pollutants Insignificance Indicators***.).

Figure 3, Criteria Pollutants Insignificance Indicators



The 250 ton/yr PSD threshold values provide a definitive go/no-go first-level criterion for air quality impact significance for attainment are analyses:

- Below the 250 ton/yr PSD threshold = Insignificant Impact and
- At or above the 250 ton/yr PSD threshold = Potentially Significant Impact (enough to warrant a Determination).

3.1.4 Special Case Criteria Pollutant, Lead

Due to the toxicity of lead, the use of the PSD 250 ton/yr attainment area lead threshold as an indicator of potential air quality impact insignificance in NEPA assessments is not protective of human health or the environment. In fact, lead is not only a criteria pollutant, but is also a listed and regulated Hazardous Air Pollutant (HAP) because of its toxicity. Therefore, the PSD 250 ton/yr attainment area threshold for lead is not scientifically sound and contrary to the professional/scientific integrity requirements of NEPA.

The General Conformity de minimis values for most criteria pollutants were based on major source definitions; therefore, the PSD 250 ton/yr attainment area threshold would logically be a good insignificance indicator for these criteria pollutants in areas in attainment with NAAQSs. However, due to lead's toxicity, the de minimis level for lead (25 ton/yr) was not established based on the definition of major stationary source for lead because relatively small increases in lead emissions (compared to other criteria pollutants) may threaten the lead standard (General Conformity Preamble, 58 FR 1384, 12/30/1993). Therefore, the rational for applying the PSD attainment area threshold as an insignificance level in attainment areas for other criteria pollutants is not logically or technically sound for lead.

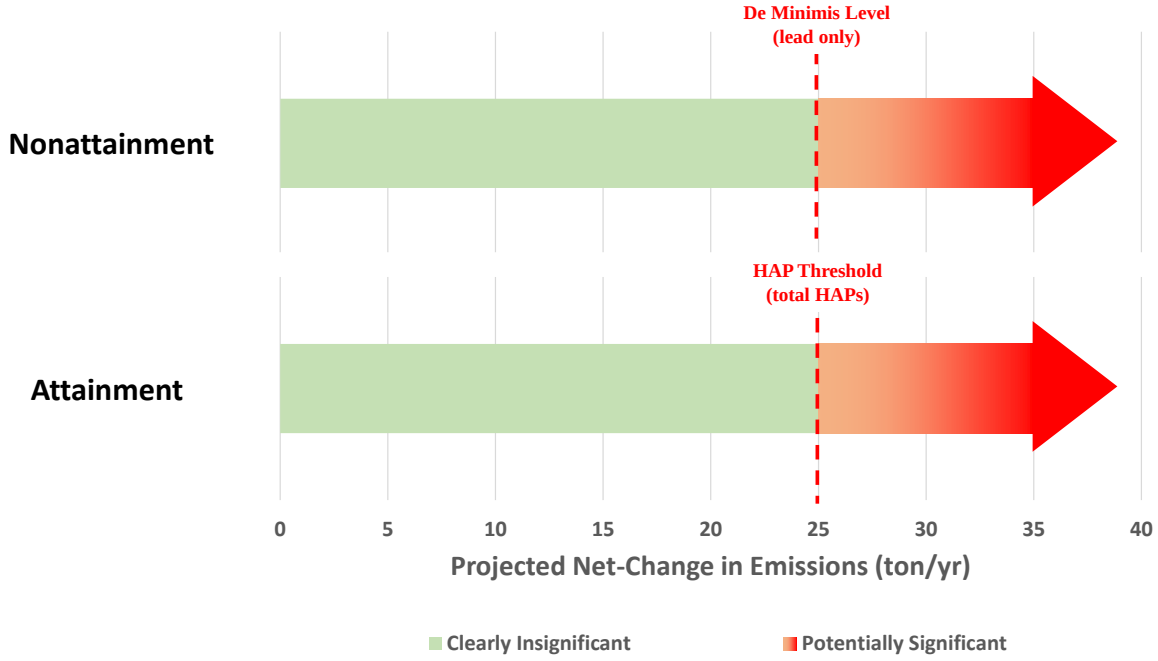
Lead is not only a criteria pollutant but is also a listed HAP. HAPs are air pollutants that, because they are known to cause cancer and other serious health impacts, the Clean Air Act (CAA) requires the EPA to list them as toxic pollutant and regulate them. The fact that lead is a listed HAP, when all other criteria pollutants are not, shows lead is a greater threat (compared to other criteria pollutants) to human health and the environment. According to Section 112(g) of the CAA and 40 CFR 63, Major sources of HAP are stationary emission sources that have the potential to emit greater than 10 ton/yr of any one HAP or 25 ton/yr of any combination of HAPs. Given nearly every USAF action is comprised primarily of non-stationary emission sources (i.e., mobile and transitory sources), applying the 10 ton/yr level for any one HAP would be too conservative. However, the General Conformity de minimis value for maintenance and nonattainment area actions is 25 ton/yr; therefore, using the 25 ton/yr level would appear more appropriate.

Additionally, lead is generally emitted in extremely low quantities. To put this in perspective, the entire USAF generates less than one ton of lead per year (APIMS data pull). If the PSD 250 ton/yr attainment area threshold is used (ignoring health or the environment impacts for argument purposes), this would allow the action to emit about 500 times the USAF-wide lead

emissions for an entire year! Such an extreme level would certainly be of concern to the general public.

Therefore, lead only has one insignificance indicator (25 ton/yr de minimis value and HAP threshold value) given that the PSD 250 ton/yr attainment area threshold cannot be used (not protective of human health or the environment), the extreme toxicity of lead, and the extremely low quantities generally emitted. See ***Figure 4, Lead Insignificance Indicators***, for a representation of how the lead insignificance indicator is applied.

Figure 4, Lead Insignificance Indicators



4 ASSESSMENT OF GREENHOUSE GAS INIGNIFICANCE

For air quality impact assessments, significance for greenhouse gas (GHG) pollutants is defined by the degree to which the effects of proposed action potentially could affect climate change. In other words:

- ***Insignificant*** *= Action does not significantly cause or contribute to increase adverse climate change*

- ***Significant*** *= Action does significantly cause or contribute to increase adverse climate change*

4.1 GHG Context and Intensity

Under NEPA, establishing significance (or insignificance) requires consideration of both context and intensity (40 CFR 1508.27)**;** therefore, air quality impact significance must be established by considering both context and intensity.

- **Context** is the surroundings, circumstances, environment, and background of an action which provides the setting for evaluating the intensity of the impact significance. Climate change results from an increase in atmospheric GHG concentrations from the incremental addition of GHG emissions from a vast multitude of individual sources. The totality of climate change impacts is not attributable to any single action but is exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, it is crucial for the Federal Government to analyze and consider the potential climate change effects of its proposed actions. (CEQ 2023)

- **Intensity** is the quantified magnitude of impact severity. Air quality impact intensity is the calculated magnitude of impact severity to which the long- and short-term effects of a proposed action could potentially affect climate change. While the degree of impact severity on climate change due to a single action cannot currently be measured, the incremental addition of GHG emissions from a vast multitude of individual actions has resulted in climate changes. Therefore, the potential intensity (impact severity) of an individual action on climate change cannot be directly measured through the quantification of GHG emissions. However, to consider the incremental contribution of an action on climate change, the reasonably foreseeable direct and indirect GHG emissions of the proposed actions and reasonable alternatives can provide a comparative (relative) intensity amongst the alternatives. The relative severity is measured by quantifying the projected annual net change in GHG emission against an established insignificance criteria and through a comparative analysis amongst alternatives.

4.2 Regulatory Background

4.2.1 GHG Tailoring Rule

The EPA has established thresholds to evaluate or regulate GHG emissions from an analysis of the emissions from regulated sources. In 2012, EPA issued the Tailoring Rule to regulate GHG emissions from stationary sources of air pollution under the Prevention of Significant Deterioration (PSD) and Title V permitting programs and proposed to phase in the regulation of GHG emissions in two steps.

- Under Step 1, sources already subject to the PSD permitting program for at least one non-GHG pollutant ("anyway" sources) were required to utilize best available control technology (BACT) for GHG emissions if they increased net GHG emissions by at least 75,000 short ton/yr of carbon dioxide equivalent (CO_2e) GHG emissions.

- Under Step 2, EPA expanded the Tailoring Rule by requiring a new source or a major modification to an existing source to obtain PSD and/or Title V permits based on GHG emissions alone. Sources that had the potential to emit at least 100,000 short tons per year of CO2e would become newly subject to the PSD and/or Title V requirements, even if they did not exceed the statutory threshold for any other pollutant. Additionally, modifications to an existing source already subject to PSD and/or Title V that increased net GHG emissions by at least 75,000 short ton/yr of CO2e would be subject to PSD requirements regardless of whether there was an increase in the emissions of any other pollutant.

In setting the 75,000 short ton/yr and 100,000 short ton/yr GHG thresholds, EPA considered the administrative burden of permitting the estimated number of additional facilities under each threshold and the percentage of total national stationary source GHG emissions that would be covered under the threshold. (EPA 2010)

In 2014, the Supreme Court invalidated portions of the Tailoring Rule, holding that EPA may not use GHG emissions as the sole basis for determining whether a source is subject to a PSD or Title V permitting requirements. While the Supreme Court's ruling struck down Step 2 of the Tailoring Rule, it upheld Step 1 and allowed EPA to continue to regulate GHG emissions from "anyway" sources. Therefore, the Supreme Court only left the 75,000 short ton/yr of CO2e threshold intact.

4.2.2 Consideration of GHG in Natural Gas Infrastructure Project Reviews

The Federal Energy Regulatory Commission (FERC) issued its own "*Interim Policy Statement on Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews*" in February 2022 stating that projects with the potential to emit more than 100,000 metric ton/yr GHG emissions are significant and require staff to conduct an Environmental Impact Statement. The FERC policy set a significance threshold of 100,000 metric ton/yr CO_2e emissions or more based upon a "full burn" analysis (i.e., at 100 percent utilization). With respect to NEPA, the Interim GHG Policy Statement explains that FERC staff will prepare an Environmental Impact Statement for any proposed Liquid Natural Gas facility or pipeline project that may result in 100,000 metric ton/yr CO_2e or more of emissions when such project is fully utilized or operated

at "full burn" rate. The Interim GHG Policy Statement is also still subject to comment and further revision. (FERC 2022)

FERC established their significance threshold of 100,000 metric tons or more per year of CO_2e. FERC's rationale for choosing 100,000 metric tons is (i) that number will "cover the vast majority of potential GHG emissions from natural gas projects authorized by [FERC]" (FERC notes that 99% of pipeline project emissions will be picked up by this threshold); and (ii) Step 2 of the EPA's Tailoring Rule subjected sources with potential to emit 100,000 short ton/yr of CO_2e to its PSD and Title V permitting programs.

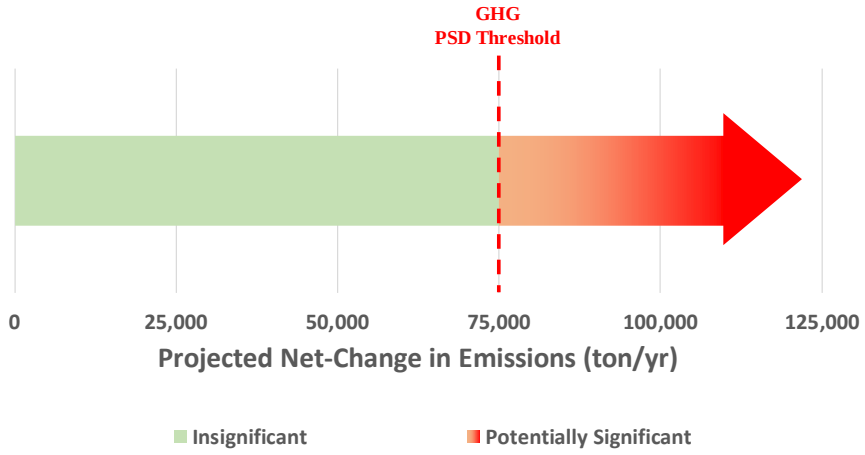
4.3 GHG Insignificance Indicator

While there are established insignificance thresholds for use in General Conformity (nonattainment and maintenance areas) for criteria pollutant, there are no established insignificance thresholds for GHG. However, according to the preamble to the original General Conformity Regulations (58 FR 1384, 12/30/1993), "the de minimis levels for conformity analyses in the final rule are based on the Act's (Clean Air Act or CAA) major stationary source definitions." A source would only trigger major source PSD permitting requirements for GHGs based on another regulated PSD pollutant (known as "anyway" sources) and it's GHG emissions exceed 75,000 tons per year. Following the EPA's logic, the 75,000 short tons per year PSD threshold would also be an appropriate indicator of potentially significant for NEPA air quality impacts.

Additionally, the FERC has already set the precedence for establishing a significance level based on EPA's Tailoring Rule. The FERC established a significance threshold of 100,000 metric tons (or 110,231 short tons) per year of CO_2e GHG emissions or more based upon a "full burn" analysis (i.e., at 100 percent utilization). This threshold was established by the FERC partially based on the Tailoring Rule's 100,000 short tons per year of CO_2e PSD threshold. However, the Supreme Court invalidated portions of the Tailoring Rule which resulted in the 100,000 short tons per year being ejected and leaving only the 75,000 short tons per year PSD threshold intact.

Therefore, following the EPA's logic for establishing General Conformity de minimis values and the precedence for established by the FERC, the USAF has adopted the 75,000 short ton/yr PSD threshold as an indicator of insignificance for NEPA air quality impacts in all areas (see ***Figure 5, GHG Insignificance Indictor***).

Figure 5, GHG Insignificance Indictor



5 Other Regulated Emissions Insignificance Criteria

In addition to the criteria pollutants, Section 112 of the CAA authorizes the EPA to regulate emissions of HAPs, also known as toxic air pollutants or air toxics. HAPs are pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects. No NAAQS have been established for HAPs (except for lead, which is regulated as a criteria pollutant and as a HAP). At present, the EPA is required to control about 190 HAPs. A complete list of the regulated HAPs can be found on EPA's Air Toxics website at: http://www.epa.gov/ttn/atw/orig189.html.

While a net-change inventory assessment may be useful for disclosure, reporting, and comparative purposes, it does not provide results that are directly comparable to any regulatory or enforceable ambient air quality standards or emission thresholds. Generally, a HAPs net-change inventory assessment is only required when specifically required by the state.

Currently the impacts associated with HAPs are not generally evaluated in Air Quality EIAP assessment, therefore, there currently is no need to establish an indignance indicator for HAPs.

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40 CFR 93 "Code of Federal Regulations, Title 40: Protection of the Environment, Chapter 1: Environmental Protection Agency, Subpart B: Air Programs, Part 93: Determining Conformity of Federal Actions to State or Federal Implementation Plans, Subpart B: Determining Conformity of General Federal Actions to State or Federal Implementation Plans," U.S. Environmental Protection Agency

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