

**FAA-AEE-00-01
DTS-34**

**Consideration of Air Quality Impacts
By Airplane Operations at or
Above 3000 feet AGL**

Office of Environment
and Energy
Washington, DC 20591

Roger L. Wayson
Gregg G. Fleming

John A. Volpe National Transportations Systems Center
Safety and Environmental Technology Division
Cambridge, MA 02142-1093

September 2000

Final Report



U.S. Department of Transportation
Federal Aviation Administration

Introduction. The purpose of this report is to provide background with regard to Categorical Exclusions as defined by the U.S. Environmental Protection Agency (EPA), and to explain why airplane operations at or above 3000 feet AGL (above ground level) should be considered a Categorical Exclusion for modeling of local air quality impacts. Categorical Exclusions are defined by the EPA in 40 CFR Part 6; Subpart A. Section 6.107 of this EPA document, which includes the complete definition of a Categorical Exclusion, and has been included at the end of this document as Attachment A. Of concern here is the general definition:

“Categories of actions which do not individually, cumulatively over time, or in conjunction with other Federal, State, local, or private actions have a significant effect on the quality of the human environment and which have been identified as having no such effect based on the requirements in 6.505, may be exempted from the substantive environmental review requirements of this part. Environmental information documents and environmental assessments or environmental impact statements will not be required for excluded actions.”

Historically, the officials responsible for a particular action have made the determination as to whether the action or particular elements of the action are eligible for a Categorical Exclusion. With regard to determining if airplane operations at or above 3000 feet AGL can be considered a Categorical Exclusion for the purpose of assessing local air quality impacts, the Federal Aviation Administration (FAA), with concurrence from the Council on Environmental Quality (CEQ), is the appropriate organization for making such a determination.

Paragraph f of 40 CFR Part 6 addresses the procedure required of the responsible official or organization for determining eligibility of new Categorical Exclusions. Specifically, in subparagraph 2 of paragraph f, it is stated that any action that is consistent with the proposed category and has not required the preparation of an EIS is eligible to be included as a Categorical Exclusion. With regard to airplane operations at or above 3000 feet AGL, the EIS requirement is met since the preparation of an EIS is not required for assessing such airplane operations in a particular airport action.

The remainder of this report demonstrates that airplane operations at or above 3000 feet AGL are consistent with the Categorical Exclusion classification since local air quality impacts do not result from such airplane operations, even with worst-case assumptions. It is possible that regional or long range impacts, such as the formation of ozone, could result from these operations but only microscale impacts that are required to be analyzed for a specific airport action are discussed in this report.

Consistency With the Definition of Categorical Exclusion. Significant local air quality impacts are defined to occur if local concentrations exceed the National Ambient Air Quality Standards (NAAQS) for any of the six criteria pollutants. During the evaluation of airport actions, potential impacts on local air quality are evaluated by predicting local concentrations and reporting the total mass emitted for a particular pollutant. The predicted concentrations are compared to the NAAQS. Three NAAQS pollutants of particular concern from airplanes are carbon monoxide, hydrocarbons, and nitrogen dioxide.

When determining local air quality impacts the location of the source is of primary importance. For the airplane operations being evaluated in this report, the airplanes are at considerable altitude. Airplanes at or above 3000 feet are either leaving, approaching or flying over an airport. Most major U.S. airports are within Class B airspace, where safety dictates that overflights be at least 7000 feet above field elevation (AFE). However, for small general aviation (GA) airports and U.S. airspace in general, overflights may be as low as 3000 feet. The 3000 feet minimum altitude is used by most pilots of GA airplane because of federal regulations defining air space requirements. These federal requirements essentially establish general aviation's minimum cruise condition altitude to be 3000 feet. Therefore for the purpose of this discussion, it can be conservatively assumed that the minimum airport overflight altitude in the U.S. is 3000 feet AGL, and then only for the small airports.

Of primary importance is the relationship between the minimum airplane altitude being evaluated (assumed to be 3000 feet) and the mixing height. In general, mixing height is defined as the vertical region of the atmosphere where pollutant mixing occurs. Above this height, pollutants that are released generally do not mix with ground level emissions and do not have an effect on ground level concentrations in the local area. Accordingly, if airplane operations occur above the mixing height, they will have negligible effect on ground level concentrations. Typically, mixing heights can range from a few hundred feet to a few thousand feet depending on the area, season, weather and time of day.

In the mobile source emission inventory procedure established by EPA¹ it is stated in section 5.2.2 that:

“The height of the mixing zone influences only the time-in-mode for approach and climbout. This factor is significant primarily when calculating NOx emissions rather than HC or CO. If NOx emissions are an important component of the inventory, specific data must be gathered on mixing heights. If NOx emissions are unimportant, mixing height will have little effect on the results and the default value of 3000 feet can be used for more generalized results.”

The 3000 foot value is cited in the above excerpt because it is close to the annual average mixing height in the contiguous United States. Generally, in the morning hours the mixing height is lower than 3000 feet except in southern Florida in the summer.² In the winter, the morning mixing heights are even lower and in general are below 3000 feet in the contiguous United States. In the afternoons, the mixing heights tend to increase. The implications are that for a large part of the typical day and year, mixing heights are less than the minimum altitude of airplane operations being evaluated, even at the smaller GA airports.³

¹ U.S. Environmental Protection Agency, Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources, EPA 420-R-92-009, Washington, D.C., 1992.

² U.S. Environmental Protection Agency, Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States, PB 207103, Research Triangle Park, N.C., 1972.

³ If we further investigate the quote from the EPA emission inventory procedure, it is apparent that NOx emissions must be considered in greater detail with height. It is a secondary pollutant that must be considered on a regional basis. Hydrocarbons are also prime precursor gases for ozone formation, but emitted in much smaller quantities.

The next step is to consider whether the local concentrations would be affected if the airplane were at 3000 feet and the mixing height was at a greater altitude. It is thought, based on experience, that local ground level concentrations from airplanes above 3000 feet are extremely small, even when mixing heights are greater than 3000 feet. This can be proven using emission factors published by the International Civil Aviation Organization (ICAO) and dispersion modeling.⁴

A key part of this analysis was to insure that the emission factors used were very conservative. This was done by selecting a Boeing 747SP which emits greater amounts of pollutants than other commercial airplanes⁵. The Boeing 747SP can be equipped with different engine types, and as stated earlier, could be in one of three modes at 3000 feet. The three possible modes are: cruise, climbout, or approach. For completeness, all three modes have been considered in this analysis by using one assumption. The ICAO emission data base does not include the cruise mode. But cruise and climbout have very similar throttle settings. Because the throttle settings are similar and altitude effects are small at 3000 feet AGL, the emissions from the cruise and climbout mode are considered to be the same in this analysis. The available emission factors for climbout and approach were then extracted from the ICAO data base for all possible Boeing 747SP engines to allow a comparison of emissions for the various modes. Table 1 shows the extracted ICAO data and the derived emission factors accounting for all engines. It should be noted that to make the analysis even more conservative, the greatest emission factors that occurred for any mode and any engine were selected and used in the analysis. Only hydrocarbons, carbon monoxide and nitrogen oxides were evaluated.

Next, the standard point source Gaussian equation was used to predict the maximum downwind concentrations from the airplane at varying elevations. Again, extremely conservative assumptions were made in the analysis. To ensure the maximum concentration was predicted, the airplane was assumed to be a continual release point source with no plume rise considered.⁶ Worst case meteorology was also assumed.⁷

The quote also states that if NOx components are an important part of the inventory, specific data must be gathered on mixing heights. This would tend to imply that in areas that are non-attainment for ozone, NOx components are important. Again, this would only relate to regional modeling, not done during evaluation of a specific local action at an airport. An important point of practicality must also be considered here. If airplane operations at or above 3000 feet AGL are used in regional modeling, they must be quantified in time and space. This may be extremely difficult to do.

⁴ The Gaussian modeling approach is the basis of most EPA models for local air quality considerations and has been used in this analysis.

⁵ The Boeing 747SP is an older airplane that does not represent currently available technology. However, it was selected because it is a very large airplane, with four engines, and the total emissions are greater than for other commercial airplanes. As such, use of the 747SP represents a worst case scenario.

⁶ Continual emissions would require the airplane to be at a constant position and is only used here as a worst case approximation. The actual movement of the airplane would reduce the time actually in the airplane plume for any stationary ground level receptor location. This would further reduce ground level concentrations in a real world situation.

⁷ The wind was assumed to be 1 meter per second with the receptor location directly downwind. A stability class of A was used to allow the plume to reach the surface quickly and allow estimation of the maximum ground level concentration that could occur.

Table 1. ICAO Emission Data and Derived Emission Factors

ICAO Data, Released 31 December 1999

Engine	Fuel Flow (Kg/s)		HC Indice (g/Kg)		CO Indice (g/Kg)		NO _x Indice (g/Kg)	
	CO	AP	CO	AP	CO	AP	CO	AP
JT9D-7A	1.789	0.619	0.1	1.3	0	7.6	28.5	7.6
JT9D-7F (MOD V)	1.764	0.6237	0.3	0.5	0.4	2.9	34.4	7.8
JT9D-7J	1.902	0.679	0	0.5	0.9	5.5	34.9	9.4
JT9D-20J	1.902	0.679	0	0.5	0.9	5.5	34.9	9.4
RB211-524B2	1.939	0.643	0.4	4.98	2.82	20	33	9.75
RB211-524C2	2.02	0.74	0.22	4.42	1.63	18.9	32.3	10.4
RB211-524D4	2.01	0.74	0.42	4.8	1.18	16.9	41	9.65

Derived Emission Factors (g/s), Per Engine (4 engines on aircraft)

Engine	HC		CO		NO _x	
	CO	AP	CO	AP	CO	AP
JT9D-7A	0.1789	0.8047	0	4.7044	50.9865	4.7044
JT9D-7F (MOD V)	0.5292	0.31185	0.7056	1.80873	60.6816	4.86486
JT9D-7J	0	0.3395	1.7118	3.7345	66.3798	6.3826
JT9D-20J	0	0.3395	1.7118	3.7345	66.3798	6.3826
RB211-524B2	0.7756	3.20214	5.46798	12.86	63.987	6.26925
RB211-524C2	0.4444	3.2708	3.2926	13.986	65.246	7.696
RB211-524D4	0.8442	3.552	2.3718	12.506	82.41	7.141
Maximum	0.8442	3.552	5.46798	13.986	82.41	7.696
EF, all 4 engines		14.208		55.944	329.64	

Note: CO = Climbout mode, also corresponding to cruise mode
 AP = Approach mode

*Derived emission factor per engine multiplied by the number of engines on a 747SP airplane (4).

Figures 1, 2 and 3 show the maximum predicted down-wind, ground level concentrations at any distance compared to airplane elevation for hydrocarbons, carbon monoxide, and nitrogen oxides, respectively. It can be seen that the ground level concentrations decrease rapidly with increased airplane elevation, even for very large commercial jet airplanes such as the Boeing 747SP.

Even with all of these conservative assumptions, effects on ground level concentrations for carbon monoxide and hydrocarbons are extremely small when the airplane is only at 1500 feet. Figures 1,2 and 3 show the general trends described up to only an airplane elevation of 1500 feet because of clarity in reading the plots. As the changes in concentrations become smaller and smaller, the slopes appear to be flat. The more exact maximum ground level concentrations for this conservative situation with the airplane at 3000 feet are provided in text boxes for each figure and are predicted to be 0.002, 0.033, and .119 ppm for HC, CO, and NO_x, respectively. Only the

nitrogen oxides predicted concentrations would be significant for an airplane elevation above 3000 feet when compared to the NAAQS and then only in this extremely conservative analysis. Even in this conservative analysis, it can be concluded the downwind impact of the airplane plume does not represent significant contributions for CO or HC. Each predicted concentration is far below the NAAQS. As such, it is apparent that ground level concentrations for CO and HC will not be significant from airplane operations above 3000 feet AGL. However, more analysis is required to gain a better understanding of the true impact on ground level NO_x concentrations from the airplane plume.

Figure 1. Hydrocarbon Concentration Compared to Airplane Elevation Above Ground

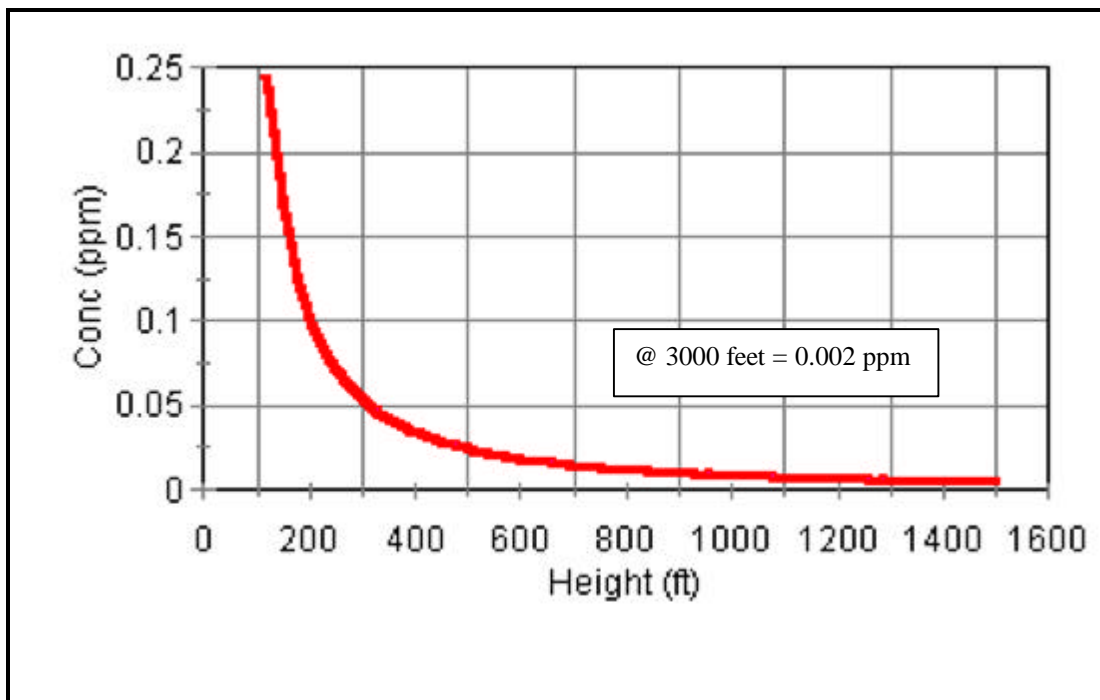


Figure 2. Carbon Monoxide Concentration Compared to Airplane Elevation Above Ground

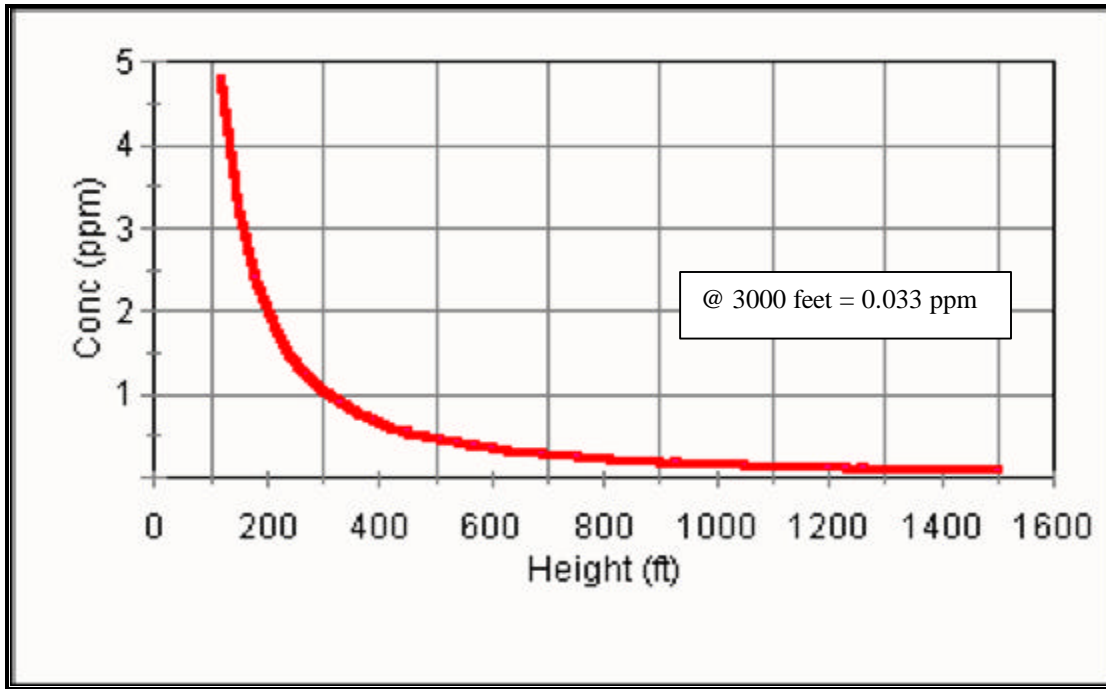
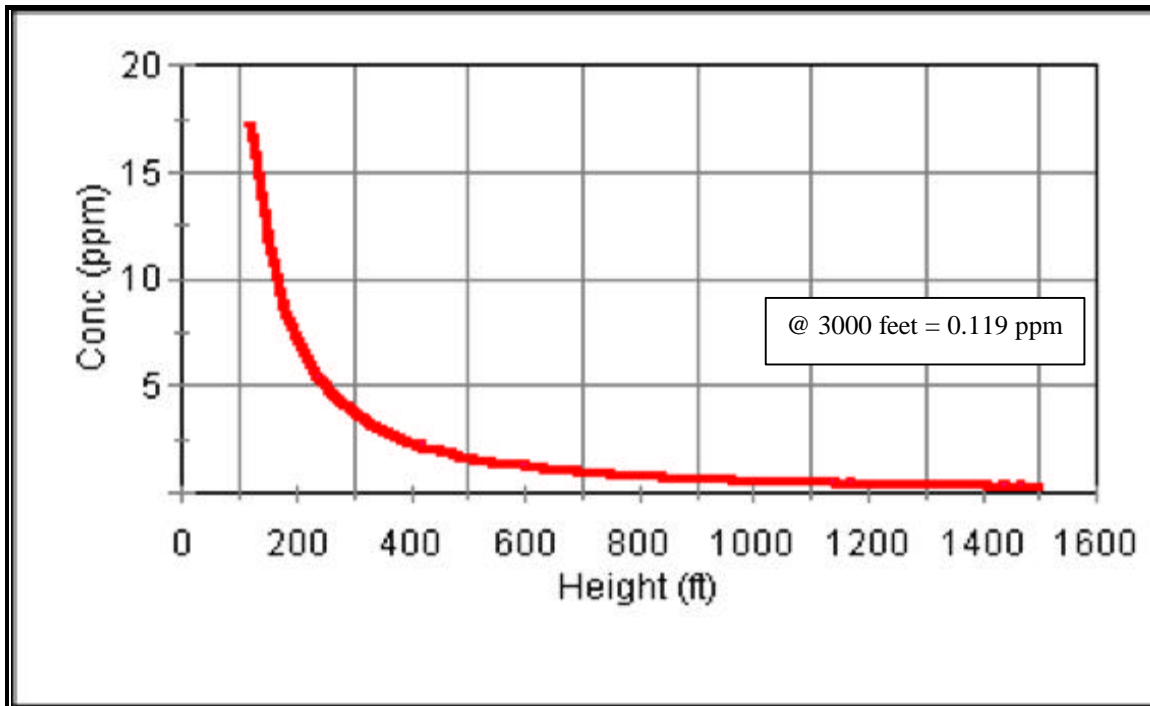


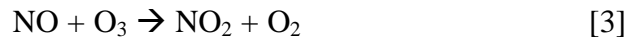
Figure 3. Nitrogen Oxide Concentration Compared to Airplane Elevation Above Ground



Until this point in the analysis, all NO_x (NO + NO₂) has been considered to be NO₂ and the analysis has been done assuming the airplane as a stationary, continually emitting source. To analyze the expected concentrations in a more realistic way, chemistry and the time that the airplane plume could add to the ground level concentration at a defined ground level receptor location also need to be considered.

Carbon monoxide is a relatively non-reacting pollutant. On the other hand, hydrocarbons and nitrogen oxides are extremely reactive, which could drastically reduce the concentrations from those predicted, further reducing the impact. Also, the assumption of continual airplane emissions significantly increases the predicted ground level concentrations. For NO_x, the NAAQS is only 0.053 ppm, as NO₂ on an annual average basis. The key part of this sentence is ``as NO₂ on an annual average basis``.

In order to more realistically analyze the expected annual average concentration and perform a comparison with the NO₂ NAAQS, the chemical reactions of NO_x must be considered. The chemical reactions of nitrogen oxides are quite complex, involving hundreds of reactions. However, in a simplistic fashion, three important reactions can be considered. These are:



Reaction 1 shows that in the presence of ionizing radiation such as sunlight ($h\nu$) the nitrogen dioxide dissociates to nitric oxide and an oxygen radical. Reaction 2 shows that the free radical of oxygen produced can then combine with oxygen resulting in ozone (O₃) formation. Reaction 3 shows that the ozone may react with the nitric oxide, forming nitrogen dioxide and the cycle repeats. Reaction 2 occurs so quickly that it can be neglected in rate of reaction considerations. Then what becomes important is the chemical reaction rate constants for Reactions 1 and 3. Or more simply stated, whichever reaction is favored which will change the ratio of NO to NO₂. Adding to the complexity of the chemistry, the actual NO/NO₂ ratio not only depends on local ozone concentrations, as shown in Reaction 3, but also depends on many other atmospheric chemical species, particularly hydrocarbons and hydroxyl ions. Even carbon monoxide plays a role as an energy sink for reactions. So while the ratio of NO to NO₂ could theoretically change from zero to infinity, the true ratio is within about one order of magnitude.⁸ A worst case condition would occur when high levels of ozone were present, allowing the conversion of NO to NO₂ to occur without a limiting reactant. But this simplistic approach does not consider all reactions and even in areas of high ozone concentrations, average NO concentrations are often greater than NO₂.

⁸ Derwent, R.G., Middleton, D.R., An Empirical Function for the Ratio of NO₂ : NO_x, Atmospheric Processes Research, Meteorological Office, Clean Air Vol 26, No. 3/4.

Consider the Los Angeles basin, where ozone levels are typically greater than in other areas in the United States on a yearly average. In the basin, the average measured NO_x to NO₂ ratio is 2.38.⁹ Since NO and NO₂ make up the majority of the general category of gases called NO_x, it can be seen that the NO₂ concentration is less than that of NO and is only about 42 percent of the total NO_x. Other research data from the UK⁸, where NO₂ and NO_x concentrations were measured concurrently, show that for concentrations similar to those considered in this analysis, an approximate value of 5 resulted for the NO_x to NO₂ ratio, which would tend to indicate that only 20 percent of the total NO_x is NO₂. The differences in these ratios can be attributed to the fact that the actual ratio depends on the concentrations of other atmospheric gases and on atmospheric characteristics such as incoming solar radiation. It can be concluded that the Los Angeles Basin case is more conservative. The basin is also important in that this is the only area of the country where NO₂ concentrations have even approached the standard.¹⁰ Accordingly, for purposes of this analysis, it was concluded that a value of 2.38 for the NO_x to NO₂ ratio is a conservative factor and was used in the prediction of average NO₂ concentrations from predicted maximum NO_x concentrations.

The importance of sunlight and mixing height must be considered as well. Studies show that NO₂ concentrations peak in the afternoon and are very low at night. This also matches the mixing height consideration that is typically only greater than 3000 feet AGL in the afternoons in the summer. It then can be conservatively stated that the impact from airplane operations above 3000 feet AGL on maximum NO₂ concentrations could only be expected for only one half of the year. It can then be concluded that if chemistry is considered, using the annual average for the ratio of NO_x to NO₂ (2.38) and that the impact on maximum NO₂ concentrations could occur during only one-half of the year, a more realistic annual average concentration for NO₂ would be calculated by dividing the NO_x concentrations by 4.76 (2.38 / 0.5) ¹¹.

But the total number of airplanes and the amount of time that the airplane emissions would affect ground level concentrations at any point must also be considered. By regulations¹², airplanes must be separated by 1000 feet vertically. If we consider the airplanes (again all 747SP) to be separated by 1000 feet in the vertical, another airplane could be at 4000 feet AGL, above the airplane at 3000 feet and could contribute to ground level concentrations. Other airplanes above 5000 feet AGL need not be considered because of the mixing height constraint and the dispersion that would occur. The airplane at 4000 feet AGL could contribute up to 0.08 ppm of total NO_x to the ground level concentration based on Gaussian dispersion modeling. The movement of the airplanes in the horizontal plane above the ground surface must also be considered. Airplanes must always be horizontally separated by at least 3 nautical miles and then, only in very special situations. Most often a 5 nautical mile separation is required.¹² If it is

⁹ South Coast Air Quality Management District Measurements, 1994-1996, as reported in Chico, T., H. Wong, and A. Schuler, Successes and Failures in Using the Ambient Ratio Method to Estimate Annual NO₂ impacts, Paper No. 98-TAB, 91st Annual Air & Waste Management Association Meeting, San Diego, CA, June, 1998.

¹⁰ EPA, National Air Quality and Emissions Trend Report, 1997. At present, no area in the United States is in non-attainment for NO₂.

¹¹ It is emphasized that the value of one-half time for the maximum NO₂ concentration was based on mixing height occurrence, solar radiation, and seasons. This permits a conservative assumption that the maximum concentration could not occur more than one-half of the total time in a year. Since this assumption is so conservative, it could also be assumed that the annual average concentration is one-half of the maximum concentration that would occur and this value is used in this analysis.

¹² FAA Order 7110.65M, August 10, 2000.

assumed that the airplanes are traveling at an average speed of 220 nautical miles per hour¹³ (knots), an airplane would travel more than 4.3 standard deviations of the horizontal plume¹⁴ spread in 11 seconds. During these 11 seconds, the airplane plume concentration would start at 10 % of the maximum as the airplane approaches, reach the maximum as the airplane passed directly upwind, and then fall to 10 % of the maximum as the airplane continues past the receptor location. In addition, since each airplane would be separated by at least 81.8 seconds before passing the same point, the significant contribution due to airplane operations for a defined location on the surface would only occur 13.4 % of the time. It should be noted that the maximum concentration from the airplane plume would actually occur less than 1 % of the time for any ground level receptor because the airplane is only directly upwind for a fraction of a second.

If we then consider all points together, total NO_x concentrations predicted, chemistry, and time of significant impact of the airplane plume, the impact on the annual average ground concentrations would only be less than 0.0056 ppm as NO₂, far below the NO₂ NAAQS of 0.053 ppm.¹⁵

It should also be noted that NO_x emissions from a new Boeing 747-400 are about 22 percent greater than that of the older 747SP airplane. However, performance characteristics of the 747-400 show that it would also be traveling about 18 percent faster at 3000 feet AGL. As such, even though emissions are higher, the ground level concentrations would only be about 4 percent greater, or approximately 0.055 ppm, essentially the same.

Conclusions. While airplane emissions from operations at or above 3000 feet AGL do occur, there is a large percent of time that these emissions occur above the mixing height and would not mix with the air near the ground. Most overflights occurring as low as 3000 feet would only be at smaller general aviation airports. At large commercial airports, airplane at 3000 feet would most likely either be landing or taking off. In this analysis, a worst case methodology was used and conservative assumptions made for airplane, release height, mixing height, and other key variables. But even with these conservative assumptions, the increase in ground level concentrations of CO and HC are negligible due to mixing. If the time that the airplane plume is actually impacting the ground level receptor location and chemistry are also considered, the

¹³ According to the published flight manual, the 747SP can travel at 0.92 Mach. However, at 3000 feet the airplane would either be descending or climbing. The approximate speeds for descent and climb are listed as 250 and 300 knots, respectively. But a review of the Integrated Noise Model (INM6.0) profiles indicate the airplane would be at 220 knots at 3000 feet during climbout. Accordingly, staying with the conservative nature of this analysis, the speed from INM6.0 was used.

¹⁴ A value of 4.3 standard deviations is used because outside of this range the airplane could not contribute more than 10 percent of the maximum concentration value.

¹⁵ Based on literature as described in the text and the time of significant impact from airplane operations, the annual average NO₂ concentration may be assumed to be 1/4.76 of the maximum, total NO_x concentration. In addition, the significant time of the airplane plume contribution is 13.4 percent of the time. Using this very conservative logic, and accounting for the maximum predicted concentration of NO_x from airplanes at 3000 and 4000 feet using Gaussian dispersion modeling, the annual average NO₂ concentration would be:

$$\text{Average Concentration of NO}_2 = (1/4.76)(0.134)(0.119 + 0.08) = 0.0056 \text{ ppm}$$

impact on NO₂ ground level concentrations is also very small, even in a very conservative analysis.

A Categorical Exclusion is an action which does not have a “significant effect on the quality of the human environment.” Near airports the impact on local air quality is judged by the concentration of the pollutants as determined by the NAAQS. This report shows that airplane operations at or above 3000 feet AGL have a very small effect on ground level concentrations and could not directly result in a violation of the NAAQS in the local area. Consequently, the emissions from airplane operations at or above 3000 feet AGL should not be included in microscale air quality modeling performed at airports but should be considered a Categorical Exclusion.

Attachment A. Excerpt from 40 CFR Part 6; Subpart A.

6.107 Categorical exclusions.

(a) General. Categories of actions which do not individually, cumulatively over time, or in conjunction with other Federal, State, local, or private actions have a significant effect on the quality of the human environment and which have been identified as having no such effect based on the requirements in 6.505, may be exempted from the substantive environmental review requirements of this part. Environmental information documents and environmental assessments or environmental impact statements will not be required for excluded actions.

(b) Determination. The responsible official shall determine whether an action is eligible for a categorical exclusion as established by general criteria in 6.107 (d) and (e) and any applicable criteria in program specific subparts of part 6 of this title. A determination shall be made as early as possible following the receipt of an application. The responsible official shall document the decision to issue or deny an exclusion as soon as practicable following review in accordance with 6.400(f). For qualified actions, the documentation shall include the application, a brief description of the proposed action, and a brief statement of how the action meets the criteria for a categorical exclusion without violating criteria for not granting an exclusion.

(c) Revocation. The responsible official shall revoke a categorical exclusion and shall require a full environmental review if, subsequent to the granting of an exclusion, the responsible official determines that: (1) The proposed action no longer meets the requirements for a categorical exclusion due to changes in the proposed action; or (2) determines from new evidence that serious local or environmental issues exist; or (3) that Federal, State, local, or tribal laws are being or may be violated.

(d) General categories of actions eligible for exclusion. Actions consistent with any of the following categories are eligible for a categorical exclusion:

- (1) Actions which are solely directed toward minor rehabilitation of existing facilities, functional replacement of equipment, or towards the construction of new ancillary facilities adjacent or appurtenant to existing facilities;
- (2) Other actions specifically allowed in program specific subparts of this regulation; or
- (3) Other actions developed in accordance with paragraph (f) of this section.

(e) General criteria for not granting a categorical exclusion. (1) The full environmental review procedures of this part must be followed if undertaking an action consistent with allowable categories in paragraph (d) of this section may involve serious local or environmental issues, or meets any of the criteria listed below:

(i) The action is known or expected to have a significant effect on the quality of the human environment, either individually, cumulatively over time, or in conjunction with other federal, State, local, tribal or private actions;

(ii) The action is known or expected to directly or indirectly affect:

(A) Cultural resource areas such as archaeological and historic sites in accordance with 6.301,

(B) Endangered or threatened species and their critical habitats in accordance with 6.302 or State lists,

(C) Environmentally important natural resource areas such as floodplains, wetlands, important farmlands, aquifer recharge zones in accordance with 6.302, or

(D) Other resource areas identified in supplemental guidance issued by the OEA;

(iii) The action is known or expected not to be cost-effective or to cause significant public controversy; or

(iv) Appropriate specialized program specific criteria for not granting an exclusion found in other subparts of this regulation are applicable to the action.

(2) Notwithstanding the provisions of paragraph (d) of this section, if any of the conditions cited in paragraph (e)(1) of this section exist, the responsible official shall ensure:

(i) That a categorical exclusion is not granted or, if previously granted, that it is revoked according to paragraph (c) of this section;

(ii) That an adequate EID is prepared; and

(iii) That either an environmental assessment and FNSI or a notice of intent for an EIS and ROD is prepared and issued.

(f) Developing new categories of excluded actions. The responsible official, or other interested parties, may request that a new general or specialized program specific category of excluded actions be created, or that an existing category be amended or deleted. The request shall be in writing to the Assistant Administrator, OEA, and shall contain adequate information to support the request. Proposed new categories shall be developed by OEA and published in the Federal Register as a proposed rule, amending paragraph (d) of this section when the proposed new category applies to all eligible programs or, amending appropriate paragraphs in other subparts of this part when the proposed new category applies to one specific program. The publication shall include a thirty (30) day public comment period. In addition to criteria for specific programs listed in other subparts of this part, the following general criteria shall be considered in evaluating proposals for new categories:

(1) Any action taken seldom results in the effects identified in general or specialized program specific criteria identified through the application of criteria for not granting a categorical exclusion;

(2) Based upon previous environmental reviews, actions consistent with the proposed category have not required the preparation of an EIS; and

(3) Whether information adequate to determine if a potential action is consistent with the proposed category will normally be available when needed.

[50 FR 26315, June 25, 1985, as amended at 51 FR 32610, Sept. 12, 1986]