

CHAPTER 3.N

AIR QUALITY

A. INTRODUCTION

Chapter 3.A, “Framework of Analysis,” addresses the potential dispersion of adulticide products in the air, while Chapter 3.C, “Public Health,” summarizes the potential public health impacts associated with the application of adulticides under this program. This section of the EIS presents an overview of the tailpipe exhaust pollutants associated with ground (e.g., all terrain or truck) and aerial (e.g., helicopters or fixed wing) equipment, which could be employed for adulticide operations.

B. AIR QUALITY STANDARDS

Ambient air quality is affected by air pollutants produced by both motor vehicles and fixed facilities. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Typically, levels of such pollutants as carbon monoxide, ozone, and lead are influenced by mobile source emissions. Nitrogen oxides come from both mobile and stationary source emissions. Emissions of particulate matter and sulfur dioxide are associated mainly with stationary sources, but diesel-powered vehicles—primarily heavy-duty trucks and buses—also contribute.

NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the Clean Air Act, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: carbon monoxide, nitrogen dioxide, ozone, respirable particulate matter, sulfur dioxide, and lead. USEPA recently promulgated additional respirable particulate matter standards. In addition to retaining the PM_{10} standards, USEPA adopted 24-hour and annual standards for respirable particulate matter with an aerodynamic equivalent diameter less than 2.5 μm ($PM_{2.5}$), which became effective September 16, 1997. Recently, the U.S. Supreme Court upheld the USEPA’s new $PM_{2.5}$ NAAQS. However, it is expected to be several years before the appropriate analysis methods are available to assess $PM_{2.5}$ concentrations on a microscale level. In the interim, USEPA recommends using an analysis of PM_{10} as a surrogate for a $PM_{2.5}$ analysis. Table 3.N-1 shows the standards for these pollutants. These standards have also been adopted as the ambient air quality standards for the State of New York. The primary standards protect the public health, and represent levels at which there are no known significant effects on human health. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. For CO, NO₂, ozone, and respirable particulates, the primary and secondary standards are the same.

Table 3N-1 National and New York State Ambient Air Quality Standards				
Pollutant	Primary		Secondary	
	PPM	Micrograms Per Cubic Meter	PPM	Micrograms Per Cubic Meter
Carbon Monoxide				
Maximum 8-Hour Concentration ¹	9		9	
Maximum 1-Hour Concentration ¹	35		35	
Lead				
Maximum Arithmetic Mean Averaged Over 3 Consecutive Months		1.5		
Nitrogen Dioxide				
Annual Arithmetic Average	0.05	100	0.05	100
Ozone²				
1-Hour Maximum	0.12	235	0.12	235
8-Hour Maximum	0.08	157	0.08	157
Respirable Particulates (PM₁₀)				
Annual Geometric Mean		50		50
Maximum 24-Hour Concentration ³		150		150
Fine Respirable Matter (PM_{2.5})				
Annual Arithmetic Mean		15		15
Maximum 24-Hour Concentration ¹		65		65
Sulfur Dioxide				
Annual Arithmetic Mean	0.03	80		
Maximum 24-Hour Concentration ¹	0.14	365		
Maximum 3-Hour Concentration ¹			0.50	1,300
Notes:				
1 Not to be exceeded more than once a year.				
2 The ozone 1-hour standard applies only to areas that were designated nonattainment when the ozone 8-hour standard was adopted in July 1997.				
3 Not to be exceeded by 99th percentile of 24-hour PM ₁₀ concentrations in a year (averaged over 3 years).				
Sources: 40 CFR Part 50—National Primary and Secondary Ambient Air Quality Standards 40 CFR 50.12 "National Primary and Secondary Standard for Lead," 43 CFR 46245.				

STATE IMPLEMENTATION PLAN (SIP)

The Clean Air Act Amendments of 1990 (CAAA) define non-attainment areas as geographic regions that have been designated as not meeting one or more of the NAAQS. New York County (Manhattan) has been designated non-attainment for carbon monoxide, ozone and PM₁₀. Recently, New York State has proposed a redesignation of its status to attainment, with respect to CO. The proposed redesignation request demonstrates that the CO NAAQS has been attained throughout the New York Metropolitan Area.

C. FUTURE WITHOUT THE PROPOSED ACTION

In the future without the proposed *Mosquito-Borne Disease Control Program*, the *Routine Program* elements of the *Comprehensive Arthropod Surveillance and Control Program* would continue. Growth is also expected in the City's population and employment. Recent improvements in air quality as a result of the decreased emissions in regional pollutants are expected to continue into the future. While there are some expected decreases in particulate levels from mandated programs that will become enforceable in future years, regional levels of total airborne particulate matter and particulate

matter less than 10 microns in diameter, are not expected to change significantly from the existing conditions in the foreseeable future.

D. PROBABLE IMPACTS OF THE PROPOSED ACTION

The proposed *Mosquito-Borne Disease Control Program* would not result in any significant induced vehicular traffic throughout the City. The program would include additional trips of trucks and police escorts, but these incremental trips would be short term and occur during off peak (i.e., less congested baseline traffic conditions). All-terrain vehicle (ATV) equipment would be restricted to limited uses at parks and other locations where access by truck or aircraft would be limited. Should the City employ aircraft, such as helicopters or fixed wing aircraft, flights would also be short term in nature, and would be at heights well above pedestrian level.

The analysis in Chapter 3.C, "Public Health," addresses the potential impacts from the active ingredients and inerts within the adulticides under consideration. With respect air quality standards, the maximum estimated 24-hour airborne concentration of any adulticide product was estimated to be 20.5 micrograms per cubic meter of air (a microgram is one/millionth of a gram and there are approximately 454 grams per pound), and less than 12 percent of the applied products are expected to be particles less than 10 microns in diameter (i.e., PM₁₀). An even smaller percentage of the adulticides (3 percent) are expected to be fine particulate matter of less than 2.5 microns in diameter (i.e., PM_{2.5}). For the calendar year 1999, background levels of PM₁₀ in the City ranged on the order of 25 to 50 micrograms per cubic meter for 24-hour averages (when the applicable standard is 150 micrograms per cubic meter) and 15 to 25 for annual averages (when the applicable standard is 50 micrograms per cubic meter). Even assuming that all the airborne particulate concentration from adulticides would be PM₁₀, and adding the maximum PM₁₀ levels from the Proposed Action to background levels, 24-hour PM₁₀ concentrations would be well below the applicable standard (i.e., 150 micrograms per cubic meter). While the adulticiding actions are estimated in this EIS to occur 10 times in the same location for analysis purposes, even adding the maximum 24-hour concentration of adulticides to the annual standard (i.e., assuming adulticide applications every day of the year) would result in maximum annual PM₁₀ concentrations that are well below the applicable standard (i.e., 50 micrograms per cubic meter).

Since the proposed action would neither result in a significant number of new ground or aircraft trips throughout the City nor result in any exceedances of PM₁₀ air quality standards, the *Mosquito-Borne Disease Control Program* would not result in exacerbations or new violations of any National or New York State Ambient Air Quality Standards, and thus, the program would be consistent with New York State Implementation Plans. 

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