

NOACA Air Quality Public Advisory Task Force

Area Source Work Group Third Preliminary Report December 6, 2005

Introduction

The NOACA Air Quality Public Advisory Task Force established Work Groups for Mobile Sources, Point Sources, Area Sources, Long-Term Planning Strategies, and a Public Health Forum on air pollution. Together, these Work Groups will assist the Task Force in creating recommendations to the Ohio Environmental Protection Agency (OEPA) for inclusion in the State Implementation Plans (SIPs) for both ozone and fine particulates (PM_{2.5}), thus helping Northeast Ohio to come into attainment for these criteria air pollutants.

The Task Force and the Work Groups together will enable NOACA to assist the region to plan for future growth, to protect the public health, and to comply with federal law.

Meetings

The Area Source Work Group met on September 19, 2005, October 11, 2005, and November 28, 2005, each time from 1:30 – 4:00 PM at NOACA's offices.

Scope of Work

The Area Source Work Group is exploring potential emission reduction strategies for sources of air pollution associated with airplanes, airports, their ground support vehicles and their passenger traffic, railroads, their traffic, their switchyards and their loading equipment, commercial marine vessels, their truck traffic and their loading equipment, plus recreational boats, jet skis, snowmobiles, and other recreational vehicles. Lawnmowers and landscaping equipment will also be studied, as will trees and vegetation.

Sources of air pollution that belong to small industrial sources, although commonly referred to as "area sources" will be covered by the Point Source Work Group, as will miscellaneous sources of air pollution resulting from residences and consumer activity.

Emissions Inventory - Shipping

The Work Group reviewed the preliminary findings of the Lake Carriers' Association, which has been working on creating an accurate emissions inventory for the Northeast Ohio nonattainment area. It was found that the emissions associated with lake carriers, which use a Category 2 locomotive engine, have been over-estimated by USEPA's 2002 National Emissions Inventory

by a large percentage. Final figures will be available in another month, after international vessels have been added to the totals. The Work Group noted that neither USEPA nor Environ, a subcontractor to the Lake Michigan Air Directors' Consortium (LADCO), had used Category 2 engines for their estimates. Instead, Category 3 engines, which power ships large enough to carry containers, had been used.

The preliminary figures derived by the Lake Carriers' Association also demonstrated that railroad emissions may have been under-estimated, as they are identical locomotive engines, presumably using identical emission factors. Only the hours of usage would vary. The Work Group proposed looking further into the railroad emissions inventory.

Potential Control Measures – Railroads

The Work Group heard a presentation by Railpower Technologies Inc., which provides hybrid electric locomotive engines for switchyards and short haul rail lines. The switchers are priced at approximately \$900,000 each, and they show significant reductions in both NO_x and PM_{2.5}.

The Work Group learned that “short haul” and “short line” for these particular products could include pulling trains as far as 50 miles. Consequently, the appropriate market for the hybrid electric switchers appears to be switching yards for the nonattainment area's two larger railroads, CSX and Norfolk Southern, plus the four or five short lines, some of which had already been approached by Railpower Technologies Inc. The Cuyahoga Valley National Recreation Area line is also a potential customer.

The Work Group learned that, to date, the switchers have only been sold in California and Texas because both of those states provided grant money through state budgets for purchases. Without grant funding, railroads have expressed a preference to stay with used, older locomotive engines, which can be bought at auction for as little as \$20,000. The question of the use of Congestion Mitigation and Air Quality (CMAQ) dollars for use by private railroads was raised.

Potential Control Measures – Airports

The Work Group heard a presentation by Green Energy Technologies Inc., which will be placing a demonstration “Smart Energy Tower” at Cleveland-Hopkins Airport. This new wind turbine technology can create electricity from winds blowing as lightly as 5 m.p.h. The turbine will also create hydrogen at its base, which will be used to power one hydrogen shuttle bus for use at the airport. An implementation date is unknown.

Other hydrogen vehicles for the airport are possible, perhaps in 2008, after the infrastructure has been put installed. It is not yet known whether the private airlines that lease space at Cleveland-Hopkins have an interest in changing their ground support vehicles to either electric or hydrogen. The question of what type of infrastructure to encourage for air quality purposes will be pursued at the next Work Group meeting.

Potential Control Measures - Recreational Boating

The Work Group did not have time to review the number of recreational boats and jet skis in the nonattainment area, but it requested that emission figures be provided, along with any VOC reduction that might occur if recreational boaters were using a low-RVP gasoline of either 7.0 psi or 7.8 psi.

In addition, the Work Group requested that more information be provided on “Clean Marina” programs fostered by the State of Ohio to see whether mandating such practices could create reductions that were SIP creditable.

Finally, the Work Group noted that “Stage II Vapor Recovery Nozzles” were not required on gasoline pumps at marinas because boat gas tanks are vented, thus eliminating the seal necessary to actually trap vapors with the nozzles. Consequently, requiring such nozzles would not create any VOC reductions.

Potential Control Measures – Trees and Vegetation

The Work Group considered the various reports on trees and their biogenic contribution to VOC emissions. It was reported that planting more trees often reduces ozone formation in urban areas by reducing the total heat of the city. Ozone formation in rural areas was increased.

Staff provided a list of the species of trees that foster ozone reduction rather than ozone formation. The Work Group will discuss at its next meeting how to mandate such plantings in a way that would produce SIP credits for VOCs.

Next Steps

The Area Source Work Group will continue to study the possible controls and will continue to study and refine the emissions inventory data for both marine vessels and railroads.

The Work Group will also study other topics including lawnmowers and landscaping equipment, plus agriculture including megafarms and manure lagoons.

Appendix

November 28, 2005, Meeting Summary