

NOACA Air Quality Public Advisory Task Force

Mobile Source Work Group Second Preliminary Report October 27, 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 (Ohio EPA) 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 Mobile Source Work Group met on August 10, 2005, August 22, 2005, September 13, 2005, and October 13, 2005, each time from 1:30 – 3:30 PM at NOACA's offices. The Work Group will meet next on November 7, 2005.

Scope of Work

The Mobile Source Work Group is exploring potential emission reduction strategies for sources of air pollution associated with cars, trucks, buses, and other on-road vehicles, as well as construction equipment and other non-road vehicles.

Their studies include the range of topics that cover fuels, including gasoline, diesel, and alternative fuels, plus transportation control measures, engine design changes, and regional highway planning efforts.

Emission Reduction Strategies / Modeling Efforts

Fuels

The Work Group reviewed modeled emission reductions associated with the distribution of a lower RVP fuel during the summertime for the 8 county nonattainment area and for three additional "collar" counties (Stark, Mahoning, and Trumbull). A reduction of 5.25 Tons Per Day (TPD) of VOCs plus 0.32 TPD of NOx is projected for the 8 county nonattainment area. The projected VOC reduction for the 3 "collar" counties is 1.43 TPD, with a NOx reduction of 0.09 TPD. Together, the benefit to the 11 counties would be 6.68 TPD reduction for NOx and 0.41 TPD of NOx. However, the reductions in the "collar" counties do **not** directly benefit the nonattainment area. See the attached spreadsheet for more information.

The “collar” counties were studied both because the air over those counties may transport into the nonattainment area and because drivers in those counties enter and leave the nonattainment area. Nonattainment area drivers might also be buying gasoline in the “collar” counties. A comprehensive approach was desired.

The Work Group agreed that a summertime fuel of low-RVP 7.8 psi gasoline was a beneficial alternative for the nonattainment area and for the “collar” counties and should be considered in future models runs regarding attainment strategies. The fuel was the lowest priced of the alternatives considered, having the least economic impact on consumers and businesses in the area.

Alternative Fuels

The Work Group also discussed alternative fuels including biodiesel and ethanol.

Biodiesel is a biofuel produced through transesterification, a process in which organically-derived oils are combined with alcohol (ethanol or methanol) in the presence of a catalyst to form ethyl or methyl ester. The biomass-derived ethyl or methyl esters can be blended with conventional diesel fuel or used as a neat fuel (100% biodiesel). Biodiesel can be made from soybean or rapeseed oils, animal fats, waste vegetable oils, or microalgae oils.

Ethanol is the intoxicating agent in fermented and distilled liquors; used pure or denatured as a solvent or in medicines and colognes and cleaning solutions and rocket fuel. In some areas, it has been proposed as a renewable clean-burning additive to gasoline [syn: ethyl alcohol, fermentation alcohol, grain alcohol].

The Work Group agreed that neither biodiesel nor ethanol offered any concrete (USEPA certified) benefits for reducing VOCs or NO_x (precursors to ozone). There was conflicting data on whether the two fuels actually had some adverse impacts on ozone formation. The Work Group found it would not be able to recommend either biodiesel or ethanol as a possible control measure for the ozone SIP.

The Work Group agreed that both biofuels would be reviewed again during the discussions on PM_{2.5} where they might reveal both an economic benefit and a particulate matter benefit.

Alternatively Powered Vehicles

The Work Group began review of tow motors, forklifts, and ground support equipment that might be powered by electricity, by hybrid engines, or by other fuel sources such as hydrogen. The topic will be continued.

Next Steps

The Work Group will continue its review of fuels, I/M programs, and transportation control measures, quantifying the costs and benefits of each.

Appendices

Meeting Summary – October 13, 2005
TCM Evaluation Matrix