

Birmingham Diesel School Bus Retrofit Project

Alabama Department of Environmental Management

2005 SBO/SBAP National Conference

Biloxi, Mississippi

June 14, 2005

Ideas and Reasons for Project

- Mobile source workshops
- Heavy-duty diesel school bus particulate emissions studies
- Literature concerning similar projects in other states



Project Participants

- Alabama Dept. of Environmental Mgmt.
- U.S. EPA's Voluntary Retrofit Team & U.S. EPA Region 4
- Birmingham City School System
- Jefferson County Dept. of Health
- Engine & Retrofit Device Manufacturers
- Alabama Department of Education



Project Objectives

- Reduce emissions from heavy-duty diesel school buses in Birmingham NAA.
- Focus on emissions that are harmful to children's health as well as those that contribute to NAAQS violations.
- Retrofit as many buses as possible with money available.
- Target buses with highest emissions.



Expected Fleet



Statewide Fleet Information

- Average bus in State fleet is 2000 or newer.
- State has a very effective bus replacement program. Most buses are replaced after 10 years of service.



Statewide Fleet Information (Cont.)

- One of six states to be given an “ahead of the curve” ranking in February 2002 report, “Pollution Report Card: *Grading America’s School Bus Fleets*”.
- Study conducted by Union of Concerned Scientists
- Grades based on emissions of particulates, smog-forming pollution, and greenhouse gases

Birmingham City School System’s Fleet Information

- 102 buses ranging from 1991 models to 2001 models operated daily (87 are 1997 or newer)
- Buses transport 7,000 children daily
- Decided to focus project on 2001 models (25 buses), 2000 models (15 buses), 1999 models (15 buses), and 1998 (15 buses)
- Expect 100,000+ miles to be traveled by each retrofitted vehicle during remaining service life.

Control Devices Considered

- Diesel Particulate Filter
 - ~90% PM reduction
 - ~75% HC reduction
 - ~85% CO reduction
- Diesel Oxidation Catalyst
 - ~30% PM reduction
 - ~50% HC reduction
 - ~50% CO reduction



Problems Encountered

- Selection of retrofit device
 - Particulate filter’s need for low-sulfur diesel fuel
 - Lack of easy access to low-sulfur diesel fuel
 - Fleet selection delay
- Preparation & Distribution of RFP
 - Problems associated with governmental contracting

Solutions

- Decided to abandon particulate filter and change to diesel oxidation catalysts (DOCs)
- Worked our way through contracting issues
- Stayed in contact with our potential vendors to ensure that they received bid package

Suggestions

- Know the retrofit device and its limitations.
- Know your selected fleet and its limitations.
- Address fleet manager's concerns early in the project.
- Emphasize good P.R. to all involved.
- Stay personally involved in the RFP process from start to finish.



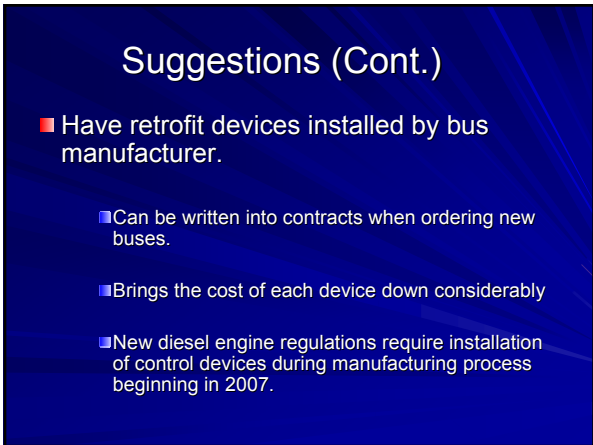
Suggestions (cont.)

- Stay in touch with all agencies involved in the project.
 - Set up a monthly conference call with agencies.
 - Set up face-to-face meetings when appropriate.
 - Make sure everyone involved is kept up-to-date on project status so that any issue or question can be dealt with efficiently and effectively.



Suggestions (Cont.)

- Have retrofit devices installed by bus manufacturer.
 - Can be written into contracts when ordering new buses.
 - Brings the cost of each device down considerably
 - New diesel engine regulations require installation of control devices during manufacturing process beginning in 2007.



Project Funding

- Project funded by a \$75,000 grant from EPA's Voluntary Diesel Retrofit Program. ADEM provided approx. \$4,000.
- Entire \$79,000 used for project (no administrative fees taken out)
- No direct cost to school system



Project Status

- Bids were received June 2002
- Contract awarded in July 2002
- Device installations began in October 2002 and were completed in November 2002.



Future Projects



EPA's Voluntary Diesel Retrofit Program

- Program Contacts
 - EPA retrofit program
 - Retrofit device manufacturers
 - Diesel engine manufacturers
 - Fuel companies
- Retrofit Device Information
 - EPA-verified devices
 - Cost survey
 - Estimated reductions

EPA's Voluntary Diesel Retrofit Program (Cont.)

- Information relating to SIP issues (SIP credit calculation, for example)
- Latest news
 - Workshop announcements
 - Project tally
 - Project map
- <http://www.epa.gov/otaq/retrofit>

Contact Information

- Dale Hurst
 - (334) 271-7882
 - adh@adem.state.al.us
- Ronnie Watkins
 - (334) 271-7876
 - rw@adem.state.al.us