ATTACHMENT 2

Notice of Decision and Response to Significant Environmental Issues

ARB STAFF RESPONSES TO COMMENTS RAISING SIGNIFICANT ENVIRONMENTAL ISSUES REGARDING THE PROPOSED REGULATION FOR IN-USE ON-ROAD DIESEL VEHICLES

October 23, 2009

INTRODUCTION

This document is an attachment to Executive Order R-09-015, and written to compile responses to comments raising significant environmental impacts regarding the Proposed Regulation for In-Use On-Road Diesel Vehicles. The following comments and responses are copied from the Final Statement of Reasons for the proposed regulation.

COMMENTS AND RESPONSES

Chapter IV Summary of Public Comments and Agency Responses

Section B Summary of Public Comments Presented to or at the Hearing and Agency Responses

4. Technology
e) Safety of Retrofits Installations

1. **Comment:** We are concerned that the solution you have chosen, PM filters, could actually cause our engines to run less efficiently, possibly malfunction, and burn hotter and more dangerously for off-road agricultural use. Before the ARB finalizes this rule, we ask that more information be developed and made available about the fuel efficiency and safety of an engine retrofit with a PM filter. Such information should be compatible with your needs as well. (CCAA)

2. **Comment:** We encourage you to use a phased-in approach treating diesel engines the same way California treated cars. That is, only require vehicles to meet the standards in effect the year of manufacture. A phased-in approach will lead all Californians toward cleaner engines in just a few years more than with this proposed regulation. As it is now written, this proposed regulation will not reduce diesel fuel use; will not make our environment safer and cleaner; will jeopardize small businesses that depend on a few vehicles; will be unfriendly to independent operators; and will cost California jobs and money. (FCOAL) (CCAA)

Agency Response: Staff do not believe that diesel fuel consumption will change. The economic effect of the regulation in the highest cost year is small in the context of the California economy, see the Costs and Cost Methodology section. In California, among all diesel engines, trucks are the largest single source of emissions of smog forming pollutants and diesel particulate matter, which has been identified as a toxic air contaminant. Although emissions are expected to decrease over time with normal vehicle replacements, emissions do not decrease soon enough to meet the federal air

quality attainment standards and are needed to reduce the health impacts of air pollution caused by diesel engines, see responses to comments in the SIP section.

5. Regulatory Provisions
t) Alternative Fuels

3. Comment: The proposed regulations as currently written place an unfair burden on the use of clean fuel technology, particularly Natural Gas. Conversion of existing in-use diesel powered Buses and Trucks to run on Natural Gas is a widely adopted technology outside of the United States. Unfortunately, current certification for VDECS and BACT make no mention of Natural gas conversion as a viable option. This is due to CARBs definition of Diesel versus "Large Spark Ignition Engines." Essentially any diesel motor converted to run on Natural gas, that now has a spark ignition, is now considered a Large Spark Ignition motor, and must be certified as a BRAND NEW motor and meet 2010 on road emissions standards. This is not the same criteria used for certifying VDECS and BACT for existing older engines and, in addition, certification of these converted motors must be then done on a model year, make and engine designation basis, rather than just for engine families as for current VDECS and BACT.

The advantages of converting these exact motors/vehicles to Natural Gas from both an environmental and economic standpoint have been well documented in other countries. The current regulations, as written, eliminates any chance of California being in compliance with AB 32 and puts an economically insurmountable barrier to certification of Natural Gas conversion technology solidly in place. Adoption of this technology in California is the only possible way we can meet the AB 32 Global Warming Act deadlines. The emissions strategy as currently outlined in this proposed regulation will place an economic burden upon California business owners for which there will be no possibility of economic benefit. Conversion to Natural Gas for these fleets, where possible, will actually save these fleet owners in fuel and maintenance costs, with 100% conversion ROI usually realized with in the first year of operation. This cannot be said for any other emissions strategy. Before you adopt any further regulations for emissions of existing in-use engines, you must level the playing field for Natural Gas Conversion technology to compete against exhaust after treatment systems as an emissions strategy. (OENG)

Agency Response: This regulation does not apply to large spark ignition engines and does not modify existing requirements for engine certifications, engine conversions, nor for in-use large spark ignition engines. Thus, the regulation does not pertain to the issues raised regarding natural gas conversions with respect to meeting AB 32 goals and requirements.

The regulation gives fleets credit for replacing existing diesel fueled vehicles (or engines) with alternative fueled vehicles. The provision is optional, for fleets who choose to add alternative fueled vehicles to their fleet to demonstrate compliance. In

using this credit, the PM emission factor would be zero, and the NOx factor would be based on the emission factor corresponding to the engine standard for which the engine is certified. The fleet can also claim retirement credit if a diesel engine is retired from a conversion to an alternative fuel and do not wish to consider the alternative vehicle as part of the fleet for purposes of demonstrating compliance.

6. School Bus Requirements
d) School Bus Transportation Service Reduction

4. **Comment:** The Air Resources Board's proposed regulations will cause additional reductions and may force school districts to eliminate school transportation programs. This article is indicative of what is happening throughout the state. When programs are eliminated or reduced, it has a double impact of worsening air quality and reducing the safety of our schoolchildren because of the increased congestion caused by more cars and the longer walking distances. As bad as the cuts to school transportation and education have been and they will increase. The state's main focus needs to be on the California economy and the fiscal condition of the state. This is not the time to put the state at risk for $500 million.

Even if your regulations do not result in a state reimbursable mandate, although we are positive this is the case, the estimated cost of over $500 million is then the out-of-pocket cost the school districts will have to pay if your regulations are adopted. Our schools simply do not have the funds and will not have the funds in the near future.

It is in the best interest of air quality and student safety for the state to have a vibrant and up to date school transportation system. Instead, we have a system that is last in the nation and is slowly dying. School districts representing the more affluent communities of the state are actually eliminating their school transportation system. (STC) (SESE1)

5. **Comment:** The Small School Districts' Association (SSDA) is writing to request that the Air Resources Board (ARB) defer the ARB proposed regulations in Agenda Item 08-11-3. SSDA represents the more than 500 school districts that have 2,500 or fewer students. Most of these districts are in rural California with declining student enrollment, reduced employment and declining property values. Rural small school districts rely upon home-to-school transportation for students to attend school. Many of our districts are reducing their transportation services because of inadequate state funding for transportation costs. These districts have to choose between keeping teachers and textbooks or maintaining transportation services while they receive less state funding because of declining enrollment. Because there are few regional public transportation services in these rural areas, the result is less school transportation, more single-trip automobile transportation and greater pollution.

Enclosed is a computer run highlighting local school encroachment (paid by classroom funds) as a dollar amount per district and as a percent of the districts

total revenue limit (classroom discretionary) funds. (SSDA) [A sixteen page spreadsheet is attached that outlines each member districts and certain individual school's small reimbursement amount: http://www.arb.ca.gov/lists/truckbus08/964-david_l._walrath.pdf]. (SSDA)

Agency Response: Staff recognizes that school districts have difficult choices to make regarding the transportation service they provide to their students. The installation and maintenance of diesel particulate filters represents an additional cost. However, DPFs are standard equipment of all new school buses and their maintenance would have to be added to the school district's budgets if new school buses were added to the fleet either as a result of complying with the regulation or as a result of the natural fleet turnover. Additional costs to school districts would be the cost of DPF installation on existing buses and the cost of replacing buses where DPFs cannot be installed. Replacement can be done through purchase of newer used buses that have PM VDECS already installed or that can be retrofitted with VDECS after purchase, which effectively reduces the cost of the regulation below what many commenter's have suggested. Additionally, the cost of the regulation is spread out over four years, which should provide the time needed for school districts to add these costs to their budgets.

Staff acknowledges the potential for the unintended consequence of school transportation service reductions resulting from the effort to reduce emissions of diesel particulate matter from school buses. See Agency Response to Comment 52 through 58 for adverse impacts due to transportation service reduction. ARB acknowledges that there is a cost to complying with the Truck and Bus Regulation; however, the health benefits lost from not regulating far exceed the estimated cost of the regulation presented in on page 22 of *Appendix J: Cost and Economic Analysis Methodology* of the TSD. As with any regulation, ARB anticipates that costs for compliance will be born by the regulated community. ARB is fortunate to have some funding available to assist with compliance through the Lower-Emission School Bus Program, in addition to local funding assistance.

Student transportation has been declining steadily since 2002 as school districts across the state have reduced or eliminated school transportation services. Staff does not anticipate that the regulation will have an impact on this trend. Staff will continue to monitor, and if appropriate, consider alternatives to ensure the safety of the school children.

The Truck and Bus Regulation is not a reimbursable mandate and is further discussed in the responses to comments in section 2 (Legal Issues).

6. School Bus Requirements
e) Impact on Safety

6. Comment: The proposed regulation has the potential to scuttle school bus transportation in California. School buses provide the safest and most economical transportation to bring students to school. Without school buses, parents will be

driving their children or more children will be riding bicycles, both of which place students at greater risk. The increased trips by private automobiles will have an impact on air quality as well. (MPPSTA1) (MPPSTA2)

7. **Comment:** If I take one bus out of service, between 30 and 60 kids will be on the road in their parent's cars. And we haven't done anything for air quality and we certainly haven't helped them with safety. (ELKGROVE)

Agency Response: Staff agrees that safety of students is important. The safe keeping of our lives comes in multiple forms, including protection from disease. The health benefits of the regulation, are estimated at $48 billion to about $69 billion. This dollar amount represents cumulative emission reductions over the lifetime of the rule associated with approximately 9,400 fewer premature deaths, 1,100 fewer hospital admissions due to respiratory causes, 1,200 fewer hospital admissions due to cardiovascular causes, 150,000 fewer cases of asthma-related and other lower respiratory symptoms, 12,000 fewer cases of acute bronchitis, 950,000 fewer work loss days, and 5,500,000 fewer minor restricted activity days. See pg 164 of the TSD and page 9 of *Appendix D: Health Impacts from On-Road Diesel Vehicles* of the TSD. The Truck and Bus Regulation requires all pre-1977 model year school buses to the replaced. These high-polluting school buses that pre-date minimum federal motor vehicle safety standards will be replaced with safer, cleaner school buses. The ARB is fortunate to have some funding available to help offset some costs of the regulation and to replace all eligible pre-1977 model year school buses.

Staff recognizes that some districts may reduce their transportation services to some of their students. As a result, some students may have to find their own transportation to school which may include being driven to school by their parents, carpooling with other students, walking, bicycling, and using public transportation. Because cars have no diesel and have dramatically lower criteria pollutant emission than most diesel vehicles. The risk from exposure to diesel PM will be dramatically reduced and overall emission would be lower. Refer to response to comments 8 and 9 for the comparison between cars and school buses.

6. School Bus Requirements
f) Impact on Air Quality and Health

8. **Comment:** Forcing school districts to repower, retrofit or replace school buses without providing funding will ultimately leave local school trustees with little choice but to park buses, reduce or eliminate school transportation service. This will, on average, place an additional fifty cars on the road for each bus taken out of service, causing more congestion and emissions. (CASTO2)

9. **Comment:** What effect does this rule have when we take ten buses out of a rural school and replace it with 250 to 300 motorists? When the school bus comes in, it shuts down to prevent idling. These are going to sit in congestion and create more air quality problems. (MUSD2)

Agency Response: Because most existing school buses are older with mechanically controlled engines, and few, if any emissions controls, the NOx and PM2.5 emissions from one bus is significantly higher than the emissions from a fleet of cars carrying an equivalent number of children. In addition, due to the high toxicity of diesel particulates, a single diesel fueled bus has a greater impact on health than a fleet of gasoline fueled passenger cars. Student's exposure to diesel particulate while commuting on diesel school buses is significant and therefore the exposure should be reduced.

6. School Bus Requirements
p) Inside Air Quality in School Buses

10. Comment: The school bus regulations should be delayed until the following questions can be answered to the satisfaction of the board: Do the traps increase the air quality pollution inside the school bus? Has this been studied? (SESE1)

Agency Response: Indoor air quality is not covered by the regulation. The regulation will provide benefits to the ambient air quality by reducing people's exposure to toxic diesel PM. The following reports recommend installing retrofit devices to improve the indoor air quality on a school bus:

Solomon, G. M., Campbell, T. R., Ruderman Feuer, G., Masters, J., Samkian, A., Paul, K. A. 2001. No breathing in the aisles. Diesel Exhaust Inside School Buses. Natural Resources Defense Council. Coalition for Clean Air.

Fitz, D. R., Winer, A. M., Kozawa, K., Pandratz, D., Bumiller, K., Gemmill, D., Smith, M. 2003. Characterizing the range of children's pollutant exposure during school bus commutes. Final Report to California Air Resources Board, Research Division, Sacramento, CA.

Fitz, D. R., Winer, A. M., Kozawa, K., Behrentz, E., Pandratz, D., Gemmill, D. 2006. Evaluation of mechanisms of exhaust intrusion into school buses and feasible mitigation measures. Final Report to California Air Resources Board, Research Division, Sacramento, CA.