FINAL STATEMENT OF REASONS

ADOPTION OF THE HEAVY-DUTY DIESEL ENGINES SOFTWARE UPGRADE REGULATION (CHIP REFLASH)

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ATTACHMENT A: U.S. EPA LETTERS TO ENGINE MANUFACTURERS

State of California
AIR RESOURCES BOARD

Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response

PUBLIC HEARING TO CONSIDER ADOPTION OF THE HEAVY-DUTY DIESEL ENGINES SOFTWARE UPGRADE REGULATION (CHIP REFLASH)

Public Hearing Dates: December 11, 2003
March 25, 2004
Public Meeting Dates: October 28, 2004
December 9, 2004

I. GENERAL

The Staff Report: Initial Statement of Reasons for Rulemaking ("staff report"), entitled "Public Hearing to Consider Adoption of the Heavy-Duty Diesel Engine Software Upgrade Regulation (Chip Reflash)**,"** released February 6, 2004, is incorporated by reference herein.

Description of Board Action

Following a public hearing on March 25, 2004, the Air Resources Board (the Board or ARB) by Resolution 04-14 approved a regulation requiring the installation of low NOx software into eligible heavy-duty diesel engines prior to normally scheduled engine rebuild. The Board approved the regulatory language as proposed, and in doing so added new section 2011 in new article 3.5, within chapter 1, division 3, title 13, California Code of Regulations (CCR), and amended sections 2180.1, 2181, 2184, 2185, 2186, 2192, and 2194 of article 1 within chapter 3.5, division 3, title 13, CCR. The Board further recognized that a Voluntary Program, developed through cooperation from the original engine manufacturers (OEMs), the California Trucking Association (CTA), the ARB staff, engine/truck dealers, and heavy-duty diesel vehicle owners, was a viable alternative to the rulemaking with the potential to be as effective as the approved regulation. Therefore, the Board further directed the Executive Officer to withhold filing of the approved regulatory sections with the Office of Administrative Law (OAL) until after the Board reviewed the staff's evaluation of the Voluntary Program to install low NOx software in eligible engines.

An earlier version of the staff's regulatory proposal was presented at a December 11, 2003, public hearing. However, due to the Governor's moratorium on new regulatory activity (Executive Order S-2-03), the Board members did not vote at the December 2003 hearing. On February 6, 2004, the staff's regulatory proposal was reissued for public comment in conjunction with a Notice Of Public Hearing, dated January 27, 2004, stating that the proposed regulation would be considered by the Board on March 25, 2004. Changes from the December 2003 version to the February 2004 version of the regulation are described in the February 6, 2004, Initial Statement of Reasons for Rulemaking. The February 6, 2004, Initial Statement of Reasons for Rulemaking incorporates by reference, and includes as Attachment A to the staff report, the September 5, 2003, Initial Statement of Reasons for Heavy-Duty Diesel Engine Software Upgrade (Chip Reflash) and its referenced and incorporated documents. Availability of these documents was announced in the Notice of Public Hearing to Consider Adoption of the Heavy-Duty Diesel Engine Software Upgrade Regulation (Chip Reflash), issued January 27, 2004, and released to the public on February 6, 2004. Copies of the staff report and the text of the proposed regulatory language were accessible on the ARB web site or from the Public Information Office, Air

Resources Board, 1001 I Street, Visitors and Environmental Services Center, 1st Floor, Sacramento, California, 95814, (916) 322-2990.

At the conclusion of the March 25, 2004, hearing, the Board adopted Resolution 04-14, in which it approved the new and amended regulatory sections in the staff's regulatory proposal. The Board also directed the Executive Officer to return to the Board in December 2004 to report back on the results of the Voluntary Program, described in staff's presentation and in Attachment B of Resolution 04-14, for Board review. The Board further directed the Executive Officer to withhold filing the adopted regulatory sections with the OAL until the Board had reviewed and evaluated the Voluntary Program.

At an October 28, 2004, public meeting, the staff apprised the Board of the interim results of the Voluntary Program. The October 2004 presentation to the Board was a nonregulatory action and, as such, the Board made no determination regarding the status of the Voluntary Program.

At a public meeting on December 9, 2004, the Board adopted Resolution 04-46, in which it concluded that, overall, the Voluntary Program did not meet the first target of a low NOx software upgrade installation rate of 35 percent of the California-registered reflashable engines and at least 35 percent of the emission benefits from California-registered reflashable engines. The Board also determined that Detroit Diesel Corporation (DDC) had met the first Voluntary Program target from installation of low NOx software on California-registered engines. Additionally, the Board directed the Executive Officer to incorporate modifications into the regulatory text approved at the March 25, 2004, hearing, with such other conforming modifications as may be appropriate, and to make the modified text available for a supplemental comment period.

The text of the ARB-approved modifications to section 2011, title 13, CCR, with the modifications clearly identified, was made available for a supplemental 15-day comment period by issuance of a "Notice of Public Availability of Modified Text" on December 23, 2004. No other regulatory sections affected by the Board's approval of the regulatory proposal on March 25, 2004, were proposed for modification therein. The Notice, incorporated by reference herein, contained the text of the modified regulation with additions shown in underline and deletions shown in ~~strikethrough.~~ A full description of the modifications is presented in Section III of this FSOR. Comments received in response to the Notice are summarized in Section IV of this FSOR and are addressed through Agency Responses.

Several written comments were received during the initial 15-day comment period specifically addressing the proposed modifications. In response to these comments, the staff made additional proposed modifications to the regulatory text, which are described in Section V of this FSOR. These modifications were made available for another supplemental 15-day comment period by issuance of a "Second Notice of Public Availability of Modified Text" on January 13, 2005. The second Notice, incorporated by reference herein, contained the text of the modified regulation with additions shown in double underline and deletions shown in ~~double strikethrough~~. Several written comments were received during the second 15-day comment period specifically addressing the proposed modifications, but staff determined that additional modifications in response to those comments were unnecessary. These comments are summarized and addressed through Agency Responses in Section VI of this FSOR

After considering the comments received during the two supplemental 15-day comment periods, the Executive Officer issued Executive Order G-05-004, adopting the regulation as modified, described in the "Notice of Public Availability of Modified Text" and the "Second

Notice of Public Availability of Modified Text" into new section 2011 in new article 3.5, within chapter 1, division 3, title 13, CCR, and into amended sections 2180.1, 2181, 2184, 2185, 2186, 2192, and 2194 of article 1 within chapter 3.5, division 3, title 13, CCR.

Non-substantive Changes

The following non-substantive modifications were made after the close of the second 15-day comment period. The changes do not materially alter any requirement, right responsibility, condition, prescription, or other regulatory element of any CCR provisions.

1. Corrected typographical error in Section 2011 (a). A semicolon at the end of Section 2011 (a) was replaced with a colon to read "Applicability. This section 2011 applies to Low NOx Rebuild Engines, as defined, operating in the State of California that are either:"

2. Corrected typographical errors in Section 2011 (b)(5). The listing of Cummins' Low NOx Rebuild Engines contained three errors which were corrected as indicated below:

   Cummins 1993 - 1998 N14 CPL 1573 original SC "1259" was changed to original SC "1569"

   Cummins 1993 - 1998 N14 CPL 1573 Low NOx SC "1047" was changed to Low NOx SC "10471"

   Cummins 1993 - 1998 N14 CPL 1844 Original SC "10100" was changed to Original SC "10110"

3. Clarified the list of Low NOx Rebuild Engines in Section 2011 (b)(5). The listing of Mack's Low NOx Rebuild Engines was modified to include additional information to more accurately identify eligible engines. The modifications are:

   A new column was added within the "Notes" column with the heading "EPA Family Name (FN) or V-MAC Data File Part No. (DF)" to more accurately identify eligible Mack Low NOx Rebuild Engines.

   "Mack 1994 - 1998" Engine Model EM7-275 ESN "4B through 8R" was changed to "Mack Trucks 1997 - 1998" Engine Model EM7-275 ESN "7A through 8R" FN or DF "FN: VMKX728EJDAW and WMKXH11.9E53"

   "Mack 1994 - 1998" Engine Model EM7-300 ESN 4B through 8R was changed to "Mack Trucks 1997 - 1998" Engine Model EM7-300 ESN 4B through 8R FN or DF "All"

   "Mack 1994 - 1998" Engine Model E7-300 ESN "4B through 8R" was changed to "Mack Trucks 1997" Engine Model E7 - 300 ESN "7A through 7Y" FN or DF "FN: VMK728EJDAZW"; "Mack Trucks 1998" Engine Model E7-300 ESN "8A through 8R" FN or DF "FN: WMKXH11.9E53"

   "Mack 1994 - 1998" Engine Model E7-310/330 ESN "4B through 8R" was changed to "Mack Trucks 1997" Engine Model E7-310/330 ESN "7A through 7Y" FN or DF "FN: VMK728EJDAZW"; "Mack Trucks 1998" Engine Model E7-310/330 ESN "8A through 8R" FN or DF "All"

"Mack 1994 - 1998" Engine Model E7-330/350 ESN "4B through 8R" was changed to "Mack Trucks 1996" Engine Model E7-330/350 ESN "6A through 6Y" FN or DF "DF: 1MS548P11, 1MS559P11"; "Mack Trucks 1997 - 1998" Engine Model E7-330/350 ESN "7A through 8R" FN or DF "All"

"Mack 1994 – 1998" Engine Model E7-350 ESN 4B through 8R was changed to "Mack Trucks 1994 - 1998" Engine Model E7-350 ESN 4B through 8R FN or DF "All"

"Mack 1994 - 1998" Engine Model E7-355/380 ESN "4B through 8R" was changed to "Mack Trucks 1996 - 1998" Engine Model E7-355/380 ESN "6A through 8R" FN or DF "All"

The line "Mack 1994 – 1998, Engine Model E7-375, ESN 4B through 8R" was deleted.

"Mack 1994 - 1998" Engine Model E7-400 ESN "4B through 8R" was changed to "Mack Trucks 1994 - 1995" Engine Model E7-400 ESN "4B through 5Y" FN or DF "DF: 1MS536P7, 1MS541P7, 1MS543P7"; "Mack Trucks 1996 - 1998" Engine Model E7-400 ESN "6A through 8R" FN or DF "All"

"Mack 1994 - 1998" Engine Model E7-427 ESN "4B through 8R" was changed to "Mack Trucks 1994" Engine Model E7-427 ESN "4B through 4Z" FN or DF "All"; "Mack Trucks 1995 - 1996" Engine Model E7-427 ESN "5A through 6Y" FN or DF "DF: 1MS536P8, 1MS543P8, 1MS548P8, 1MS549P8, 1MS559P8"; "Mack Trucks 1997 - 1998" Engine Model E7-427 ESN "7A through 8R" FN or DF "All"

"Mack 1994 - 1998" Engine Model E7-454 ESN "4B through 8R" was changed to "Mack Trucks 1994 - 1995" Engine Model E7-454 ESN "4B through 5Y" FN or DF "All"; "Mack Trucks 1996" Engine Model E7-454 ESN "6A through 6Y" FN or DF "DF: 1MS548P9, 1MS559P9"; "Mack Trucks 1997 - 1998" Engine Model E7-454 ESN "7A through 8R" FN or DF "All"

"Mack 1994 - 1998" Engine Model E7-460 ESN "4B through 8R" was changed to "Mack Trucks 1997 - 1998" Engine Model E7-460 ESN "7A through 8R" FN or DF "All"

4. Corrected typographical error in Section 2011 (b)(6). The definition name of "Low NOx Engine Manufacturer" was revised to "Low NOx Rebuild Engine Manufacturer."

5. Corrected typographical error in Section 2011 (c)(2). The word "manufacturer's" was changed to "Manufacturer's."

6. Corrected typographical error in Section 2011 (c)(7). The term "Low NOx Rebuild Manufacturers'" was revised to "Low NOx Rebuild Engine Manufacturers'."

7. Modified the implementation date in Section 2011 (d)(1). The implementation date was changed from "April 30, 2005" to June 30, 2005" to allow additional time for owner notification and dealer participation. The final implementation date of December 31, 2005, for achieving the total emission reductions from heavy heavy-duty diesel engines, remains unchanged. Further, the final implementation date of

December 31, 2006, and therefore the timetable for achieving the total emission reductions from this regulation, remains unchanged.

8. Modified the implementation date in Section 2011 (d)(2). The implementation date was changed from "August 31, 2005" to September 30, 2005" to allow additional time for owner notification and dealer participation. The final implementation date of December 31, 2005, for achieving the total emission reductions from heavy heavy-duty diesel engines, remains unchanged. Further, the final implementation date of December 31, 2006, and therefore the timetable for achieving the total emission reductions from this regulation, remains unchanged.

Economic and Fiscal Impacts

The Board has determined that the proposed regulatory action will not create costs or savings, as defined in Government Code section 11346.5(a)(6) to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other nondiscretionary savings to state or local agencies.

Statement Regarding Small Business Alternatives

The Board has determined that the proposed regulatory action will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

For the reasons set forth in the Initial Statement of Reasons, staff's comments and responses at the public hearings, and in this Final Statement of Reasons, and based on the Board's evaluation that the Voluntary Program is not as effective as the regulation itself in reducing NOx emissions from eligible heavy-duty diesel engines, the Board has determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed.

II. SUMMARY OF COMMENTS AND AGENCY RESPONSES

45-day Comment Submittals

The following individuals, engine manufacturer representatives, environmental organizations, industry groups, air district representatives, and others submitted written comments during the 45-day comment period.

American Lung Association of California, California Environmental Rights Alliance, Center for Energy Efficiency and Renewable Technologies, Coalition for Clean Air, East Yard Communities for Environmental Justice, Natural Resources Defense Council, Our Children's Earth, Planning and Conservation League, Sierra Club, and Union of Concerned Scientists (Environmental 1); Group letter dated December 10, 2003

American Lung Association of California, Center for Energy Efficiency and Renewable Technologies, Coalition for Clean Air, Community Action to Fight Asthma, Fresno Metro Ministry, Natural Resources Defense Council, Our Children's Earth, Regional Asthma Management & Prevention Initiative, Sierra Club, and Union of Concerned Scientists (Environmental 2); Group letter dated March 24, 2003, logged in on March 24, *2004.* 2003 date is a typographical error.

American Lung Association of California, California Environmental Rights Alliance, Coalition for Clean Air, Community Action to Fight Asthma, Earth Day Los Angeles, El Comite patra el Bienestar de Earlimart, Environmental Defense, Merced/Mariposa County Asthma Coalition, Natural Resources Defense Council, Regional Asthma Management & Prevention Initiative, Sierra Club, Steven & Michelle Kirsch Foundation, Union of Concerned Scientists, and West Oakland Environmental Indicators Project (Environmental 3); Group letter dated December 7, 2004
American Lung Association of Santa Clara-San Benito Counties (ALA Santa Clara)
American Trucking Association (ATA)
Leslie Angel
Walter Banos
Gabriela Barrientos
Bay Area Air Quality Management District
A. Berman
Eric Buer
David Carle
Carol and William Brashear
M. Calandrino
California Air Pollution Control Officers Association (CAPCOA)
California Department of Transportation
California Environmental Rights Alliance (CERA)
California Trucking Association (CTA)
Caterpillar, Inc. (Cat)
David Child, Child Environmental
Julie Cidell
Cleaner Air Partnership (CAP)
Dean Cordell
Jon F. Coster
Joyce A. Cotrone
Cummins Inc.
Detroit Diesel Corporation (DDC)
A. Denne
Bart Dickens
Joe Doremire
Shirley Dougherty
Engine Manufacturers Association
E. Edinger
Harold Farber, MD
Form Letter #1 (approximately 6,500 letter received)
Form Letter #2 (approximately 1,125 letters received)
Jim Fox
George Galamba
George Greer and Linda L. Lyerly
GRS Enterprises
Susan Hammack
Richard Hansen
Adam Harris
Jon Hays
Christine Hoekenga
James Holliday
International Truck and Engine Corporation (International)
Suzanne Jacobs
John Johantgen
Barry Katsen

Larry Keatley
Carrie King
Lyn Kleen
KRC Rock, Inc.
Rick Landavazo
Bernard L. Lee
Dan Leaverton
Lucar Trucking Co.
Merced/Mariposa County Asthma Coalition (MMCAC)
Motion Picture Association of America
Walter Muelken
Natural Resources Defense Council (NRDC)
Ruth Niswander
Cesar Nuñez
Scott Pettit
Regional Asthma Management and Prevention Initiative (RAMP)
Nancy Roca & Phillip Schneider
Edith Roth
J. M. Rountree
Stephen Rudolph
Sacramento Metropolitan Air Quality Management District (SMAQMD)
Sacramento Metropolitan Chamber of Commerce
San Diego Regional Asthma Coalition (SDRAC)
Santa Clara Valley Transportation Authority
Sebastian M. Sandoval
Kevin Scanlon
Thelma Schafer
Betty L. Schnaar
David W. Self
Willis Simms
Andrew Smith
South Coast Air Quality Management District (SCAQMD)
Teena Takata
temil@gocybernet.com
Dennis Thomas
Oliver Thomas
James Toomey
Thomas A. Treacy
Elaine Trogman
Betty Turner
Kutay Ustuner
Sybille Weiss
Blake Woodward
Jeffrey Ziemba

Oral Testimony at the December 11, 2003, Board Hearing

Representatives for the following engine manufacturers, environmental organizations, industry groups, air district representatives, and others presented oral testimony at the hearing on December 11, 2003. Organizations identified with an asterisk (*) also submitted written comments during the 45-day comment period.

American Lung Association of California* (ALAC)
American Trucking Association* (ATA)

California Air Pollution Control Officers Association (CAPCOA)
California Trucking Association* (CTA)
Center for Energy Efficiency and Renewable Technologies* (CEERT)
Cleaner Air Partnership (CAP)
Coalition for Clean Air (CCA)
Engine Manufacturers Association* (EMA)
International Truck and Engine Corporation* (International)
Motion Picture Association of America* (MPAA)
Natural Resources Defense Council* (NRDC)
Sacramento Metropolitan Air Quality Management District* (SMAQMD)
South Coast Air Quality Management District* (SCAQMD)
Union of Concerned Scientists* (UCS)

More than half of the oral testimony was in support of the regulatory proposal requiring the installation of low NOx software in eligible heavy-duty diesel engines. The Motion Picture Association of America was neutral regarding the regulatory proposal. The California Trucking Association, American Trucking Association, Engine Manufacturers Association, and International Truck and Engine Corporation were opposed to the regulatory proposal requiring the installation of low NOx software in eligible heavy-duty diesel engines.

Oral Testimony at the March 25, 2004, Board Hearing

Representatives for the following engine manufacturers, environmental organizations, industry groups, air district representatives, and others presented oral testimony at the hearing on March 25, 2004. Organizations identified with an asterisk (*) also submitted written comments during the 45-day comment period.

American Lung Association of California* (ALAC)
California Trucking Association* (CTA)
Center for Energy Efficiency and Renewable Technologies* (CEERT)
Coalition for Clean Air (CCA)
Community Action to Fight Asthma (CAFA)
Dean Kitak
Engine Manufacturers Association* (EMA)
Natural Resources Defense Council* (NRDC)
Punjali Truck Association (PTA)
Sacramento Metropolitan Air Quality Management District* (SMAQMD)
Union of Concerned Scientists* (UCS)

The majority of the oral testimony was in support of the regulatory proposal and/or the Voluntary Program to install low NOx software in eligible heavy-duty diesel engines. Mr. Dean Kitak were neutral regarding the regulatory proposal, while the Punjali Truck Association was opposed to the requirement to install low NOx software in eligible heavy-duty diesel engines.

Oral Testimony at the October 28, 2004, Public Meeting

Representatives for the following engine manufacturers, industry groups, and air district representatives presented oral testimony at the hearing on October 28, 2004. Organizations identified with an asterisk (*) also submitted written comments.

California Trucking Association (CTA)
Engine Manufacturers Association* (EMA)
International Truck and Engine Corporation (International)

South Coast Air Quality Management District* (SCAQMD)

Oral Testimony at the December 9, 2004, Public Meeting

Representatives for the following engine manufacturers, environmental organizations, industry groups, air district representatives, and others presented oral testimony at the hearing on December 9, 2004. Organizations identified with an asterisk (*) also submitted written comments.

American Lung Association of California* (ALAC)
California Air Pollution Control Officers Association* (CAPCOA)
California Trucking Association (CTA)
Detroit Diesel Corporation* (DDC)
Engine Manufacturers Association* (EMA)
Environmental Defense*
International Truck and Engine Corporation (International)
Natural Resources Defense Council (NRDC)
Sacramento Metropolitan Air Quality Management District* (SMAQMD)
San Diego Air Pollution Control District (SDAPCD)
South Coast Air Quality Management District* (SCAQMD)
Union of Concerned Scientists (UCS)

45-Day Comment Summary and Agency Responses

Set forth below is a summary of each objection or recommendation made regarding the specific regulatory actions proposed, together with an explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for making no change. The comments have been grouped by topic, whenever possible. Comments not involving objections or recommendations specifically directed toward the rulemaking or to the procedures followed by the ARB in this rulemaking are not summarized below. The Comment Summaries and Agency Responses cover those comments made in response to a public hearing notice dated January 27, 2004, (published February 6, 2004), and in response to a public hearing noticed dated August 26, 2003, (published September 5, 2003). The Comment Summaries and Agency Responses also cover those comments made in response to the staff's nonregulatory updates to the Board on the status of the Voluntary Program at the October 28, 2004, and December 9, 2004, public meetings.

A. Legal Authority

Where possible, comments of a similar nature have been grouped together and addressed with one Agency Response.

Settlement Agreements – Breach and Conflict with Consent Decrees

1. **Comment:** The Proposed Reflash Rule mandates ECM software retrofits for the identical set of 1993-1998 model year electronically-controlled diesel-fueled engines covered by the Settlement Agreements, regardless of whether those engines reach the point where rebuild is warranted. This is in clear breach of the terms of the legally-binding Settlement Agreements. ARB's abrogation of the Settlement Agreements is especially troubling since, as ARB concedes in its Initial Statement of Reasons ("ISOR"), "engine manufacturers have complied with the provisions of the Low NOx Rebuild Program" under the Settlement Agreements. (ISOR, p. 15). (EMA, Cat, International)

Agency Response: The commenters are correct as to which engines are targeted by the regulation; these are the engines that have low-NOx software readily available as a result of the Settlement Agreements. They are also correct that the regulation applies regardless of whether those engines are having their engines rebuilt as the term "engine rebuild" is defined in the Settlement Agreements.

However, the ARB reads the Settlement Agreements to require the settling manufacturers to make available, either directly or through its affiliated distribution networks, at no added cost, the appropriate Low NOx Rebuild Kit to any non-affiliated engine rebuilder or person who requests it. See Settlement Agreement paragraph 71. While "person" is not defined in the Settlement Agreements, the ARB believes the typically broad reach of that term clearly covers vehicle owners, operators, drivers, and others who will request the software under the regulation. Therefore, simply adopting a regulation that requires those persons to ensure their trucks' engines have the proper software – and if not, to request it – does not breach the Settlement Agreements.

In addition, the full passage containing the ISOR text quoted states not that the manufacturers have complied with all parts of the Low NOx Rebuild Program as the comment implies, but rather that they have developed the Low NOx Rebuild Kits as required under the Settlement Agreements.

2. **Comment:** The ARB's proposal applies to trucks outside of California and directly conflicts with the federal Consent Decrees, which provide that the same engines covered by California's proposal need not be reflashed until the time of engine rebuild. Indeed, ARB not only proposes to change its agreement with manufacturers, it also seeks to impose a different resolution of a complex regulatory dispute than that originally imposed by EPA and approved by the United States District Court for the District of Columbia after notice and comment. Here California seeks to impose a burden on truck owners nationwide that was considered and rejected by EPA (as well as ARB) in federal Consent Decrees that provide for reflash at the time of engine rebuild. California's Proposed Reflash Rule, therefore, conflicts with those Decrees and would be preempted. (EMA, Cat, DDC, International, CTA)

Agency Response: The ARB believes that the Low NOx Rebuild Program provisions of the federal Consent Decrees should be read the same as California's identical provisions (see Agency Response to Comment 1), and that therefore there is no conflict with the federal Consent Decrees. The ARB believes that, under the terms of the Settlement Agreements and Consent Decrees, manufacturers must provide the software at no added cost upon request. The U.S. EPA has also stated that manufacturers cannot charge for providing low NOx software at a time other than rebuild. In a letter to each engine manufacturer sent August 15, 2003, the U.S. EPA stated "EPA believes that the Consent Decree is clear in that manufacturers are required to supply the Low NOx Rebuild Kit at no added cost whenever it is requested, including at times other than rebuild." Attachment A to this FSOR contains a copy of the August 15, 2003, U.S. EPA letter to each engine manufacturer.

Even if the Consent Decrees were determined to create different requirements, California entered the Settlement Agreements under its own, separate authority, and those agreements are to be interpreted under California law. While the state and federal agencies do coordinate their implementation activities, this situation necessarily provides an opportunity for differing interpretations of the respective Decrees and Agreements. In addition, the ongoing waiver of preemption that U.S. EPA granted California for its on-road heavy-duty diesel engine program provides another opportunity for differences in federal versus California interpretation that would not rise to the level of a prohibited "conflict."

3. **Comment:** Faced with ARB's unilateral breach of the Settlement Agreements, the engine manufacturers that are signatories to (and have fully complied with) the Settlement Agreements have issued a notice of dispute to ARB. That notice has initiated a dispute resolution process under the terms of the Settlement Agreements. (EMA, Cat)

Agency Response: The dispute resolution process was initiated by written notice to the ARB on August 22, 2003. The engine manufacturers and the ARB met within seven days of the receipt of the notice as outlined in the Settlement Agreements. Neither party pursued the process further.

The dispute resolution notice was submitted as an attachment to these two comment letters. The comments therein pertaining to this rulemaking are fully covered in other comment letters to which this FSOR fully responds.

Settlement Agreements and Consent Decrees/Who Pays

4. **Comment:** The ARB's suggestion in its May 30,' 2004,' letter to truck owners in California that the Manufacturers must provide the low NOx software "free to anyone who requests it" outside of an engine rebuild is incorrect. The language, purpose and negotiating history of the Settlement Agreements make clear that the Manufacturers agreed to provide the low NOx software to its affiliates and others involved in engine rebuilding at no added cost above the amount the owner would otherwise pay to have the engine rebuilt. As reflected in the Settlement Agreements as well as the approved Low NOx Rebuild Plans, the Manufacturers undertook no obligation to make the software available beyond the scope of expected engine rebuilding (other than as agreed in approved Incentive Projects), let alone to make it available outside such rebuilding at no charge. (EMA)

Agency Response: See Agency Response to Comment 1. The ARB believes the applicable Consent Decrees and Settlement Agreements require manufacturers to supply the low NOx software at no added cost whenever it is requested (paragraph 71). Paragraph 71 as a whole is intended to place all costs attributable to the Low NOx Rebuild Kit on the manufacturer. This reading comports with the purpose of significantly reducing NOx from these in-use engines. This reading also reflects the negotiating history which shows the parties intended for substantial numbers of rebuilds to occur to achieve those reductions, even in the program's early years.

The U.S. EPA has also stated that manufacturers cannot charge a fee for providing low NOx software at a time other than rebuild. See Agency Response to Comment 2.

Settlement Agreements and Consent Decrees/Rebuild Provisions

5. **Comment:** Contrary to ARB's current statement that it would have expected 1993 to 1998 MY engines to be rebuilt by now, a March 1998 ARB Staff Report estimated that, "[b]ased on average mileage accumulation rates and typical mileage at time of rebuild, the typical time to rebuild would be 11 years for heavy-duty truck engines, and 9 years for urban buses. (U.S. EPA 1997b)." (Cat)

Agency Response: This comment and a number of comments that follow relate to rebuild times and engines lasting longer. In considering these comments and the accuracy of the ARB staff's statement that ARB would have expected 1993 to 1998 MY engines to be rebuilt by now, it's important to look at the comments in context and determine which model year vehicles they encompass.

In this particular comment, the commenter is referring to the "Initial Statement of Reasons: Proposed Amendments to Heavy-Duty Vehicle Regulations: 2004 Emission Standards; Averaging, Banking, and Trading; Optional Reduced Emission Standards; Certification Test Fuel, Labeling; Maintenance Requirements and Warranties," released March 6, 1998. The specific quote pertains to estimated time to rebuild of 2004 model year engines in the context of potential costs to engine rebuilders as a result of the proposed rulemaking, and, as such, is not contrary to staff's estimated time to rebuild for 1993-1998 model year heavy-duty engines in the March 1998 Staff Report.

The March 1998 Staff Report does recognize projected higher mileages for future – 2004 and later – model year engines. Indeed, two of the important provisions in that rulemaking increase the useful life provisions for heavy-duty vehicles. The useful life for heavy-duty engines is that period of time or mileage during which the engine's actual emissions are required to remain at or below the certification standard. The regulation discussed in the March 1998 Staff Report increased the useful life mileage from 290,000 miles for 1989 to 2003 engines, to 435,000 miles for 2004 and later model year engines. Similarly, the useful life for medium heavy-duty engines, for all pollutants except NOx, was increased from 8 years to 10 years (NOx useful life was already at 10 years).

Additionally, the March 1998 Staff Report referenced the "Draft Final Regulatory Impact Analysis: Control of Emissions of Air Pollution from Highway Heavy-Duty Engines" released June 20, 1997. Table 3-9 in the "Final Regulatory Impact Analysis: Control of Emissions of Air Pollution from Highway Heavy-Duty Engines" released September 16, 1997, includes 1995 average mileage to overhaul for class 6, 7, and 8 engines. The average mileage range for the three classes is 297,654 to 511,119 miles. This mileage range is well below the expected 750,000 to 1,000,000 miles before rebuild for current model year heavy-heavy duty diesel engines.

6. **Comment:** The ARB staff asserts that when it entered the settlements it was unaware that engines traveled 750,000 to 1,000,000 miles before being rebuilt. The Staff Report states that, "When the Low NOx Rebuild Program was included in the Consent Decrees/Settlement Agreements, the ARB expected engine rebuilds to occur at around 300,000 to 400,000 miles of service based on prevailing information regarding engine rebuild practices." However, this statement does not reflect what ARB staff knew (and should have known) when settlements were entered. When the parties were negotiating the terms of the Low NOx Rebuild Program, Detroit Diesel informed EPA and ARB in writing that it anticipated rebuild would occur, on average, around 1,000,000 miles. (Cat, DDC)

Agency Response: The commenters are referring to a letter from DDC to the U.S. EPA and ARB dated October 20, 1998. This letter contained confidential business information regarding the offset project obligations in Paragraphs 83 and 84 of the Consent Decree and Settlement Agreements. These paragraphs are part of the Agreements' Incentive and Offset Projects, not the Low NOx Rebuild Program. The estimate of one millions miles before engine rebuild was in a list of assumptions for DDC's supplemental emission project reduction formula, an attachment to the letter.

The U.S. EPA responded to DDC in writing on October 22, 1998. In the response, the U.S. EPA stated it had no basis to agree or disagree with the assumptions, and suggested that additional information would be needed before it could evaluate DDC's estimate of mileage before an engine rebuild. To the best of our knowledge, no additional information was provided by DDC until over a year after the signing of the Settlement Agreements. As a result, ARB had no reason to accept DDC's assumption of mileage before rebuild.

The above letter exchange did not concern the Low NOx Rebuild Program in particular, and contrary to the commenters' assertion, it occurred at the tail end of the Consent Decree and Settlement Agreement negotiation process; the Low NOx Rebuild Program provisions appear to have been negotiated toward the beginning of that process. The attempted late insertion of the letter by DDC into the voluminous negotiating record – which U.S. EPA refused to accept on its face as stated above – mirrors the late insertion of that letter in this rulemaking.

7. **Comment:** The ARB staff's current statement of what it "knew" in 1998 is inconsistent with then-prevailing information on rebuilding practices. In March 1998, a Cummins Vice President testified before the United States House Committee on Science, Subcommittee on Energy and Environment, that Cummins' "target for durability is a million miles before a significant rebuild." He also noted that it could take twelve or thirteen years to reach that mileage and that "heavy-duty engines stay around for a long time." (Cat)

Agency Response: The ARB disagrees with this comment. The United States Committee on Science, Subcommittee on Energy and Environment met on March 18, 1998, to address the topic of diesel technology for the 21st century. The remarks of the Cummins Vice President quoted in this comment were in response to a question of "how quickly bus and truck fleets change over" in the context of introducing engines that would be meeting the 2004 diesel emission standards. The Cummins Vice President responded "Relatively slowly, compared to the passenger car fleet. When we develop an engine today, our target for durability is a million miles before a significant rebuild." It was reasonable at the time of that remark for ARB to believe it pertained to the durability of engines being developed to meet the 2004 emission standards, not to 1993-1998 model engines already in service at that time.

The Cummins Vice President also stated "Now, a million miles comes faster today than it did years ago, but you can see with (a previous testifier's) average of 67,000 miles a year, he's looking at twelve or thirteen years." This estimate of years to reach one million miles pertains to a specific fleet's operations that was presented in earlier testimony.

The statement by the Cummins Vice President that "heavy-duty engines stay around a long time" supports ARB's need to reduce off-cycle emissions from 1993-1998 model year diesel engines through this regulation.

8. **Comment:** ARB staff's current statement of what it "knew" in 1998 is inconsistent with then-prevailing information on rebuilding practices. In 1987, ARB asked Sierra Research to conduct a survey of heavy-duty diesel engine rebuilding, reconditioning and remanufacturing practices. That survey concluded that much older (and presumably less durable) Caterpillar engines were expected to go 500,000 miles to first rebuild. (Cat)

Agency Response: The "Survey of Heavy-Duty Diesel Engine Rebuilding, Reconditioning, and Remanufacturing Practices" was prepared for ARB (contract #A4-152-32) by Sierra Research in August 1987. Data on mileage before first rebuild was collected from fleets, rebuild shops, and engine manufacturers, and is summarized in Table 5-2 of the report.

The statement of the commenter regarding mileage at rebuild for Caterpillar engines is not a conclusion of the survey, rather, this was information provided by Caterpillar for the survey. Two other heavy-duty engine manufacturers participating in the survey reported lower mileage before first rebuild (300,000 miles, 350,000 miles). The average mileage before engine rebuild from fleet participants was 431,448 miles. Rebuild shops responding to the survey reported an average mileage before engine rebuild of 336,458 miles. Caterpillar reported engine rebuilds at 500,000 miles, the highest mileage of all survey participants.

The ARB staff did consider this report, along with other engine rebuilding information, during the preparation of the staff report.

9. **Comment:** The ARB staff's current statement of what it "knew" in 1998 is inconsistent with then-prevailing information on rebuilding practices. Shortly after the settlements were entered, ARB and CE-CERT co-sponsored a program to evaluate the effectiveness of low NOx reprogramming on heavy-duty vehicles. As part of that collaboration, ARB and CE-CERT published a large colored poster that states "[t]he improvements in diesel technology have increased the useful service life of HDD trucks beyond 1M miles in many applications." (Cat)

Agency Response: The poster containing that statement presented the emission benefits resulting from low NOx software installation and/or mechanical repair. The project was undertaken to study the impact of very durable electronically controlled heavy-duty diesel engines on the mobile source emission inventory, and to identify methods to reduce NOx emissions from these engines. The results indicated that low NOx software installation provided a significant reduction in NOx emissions and was the most cost effective of the alternatives tested.

The statement quoted by the commenter was taken out of context from the conclusion section of the poster. The entire conclusion section is as follows: "The improvements in diesel technology have increased the useful service life of heavy-duty diesel trucks beyond one million miles in many applications. These advances in durability and electronic engine calibration will have a significant impact on the emission inventory for many years. The costs of alternative emission reduction strategies, scrappage, aftertreatment, engine repower and mechanical repair are significant. Updating engine control programming represents a quick and cost effective alternative emission reduction strategy which can be applied to current and future generations of HDD trucks." The conclusion supports the ARB's regulatory proposal as a cost-effective method for reducing NOx emissions from specific 1993-1998 model year heavy-duty diesel engines. Please also see Agency Response to Comment 5.

10. **Comment:** The ARB's primary basis for the Chip Reflash proposal, that International's Low NOx Reflashing is "not being installed as expected under the Settlement Agreement" is wrong. (International)

Agency Response: At the time the ARB and engine manufacturers entered into the Settlement Agreements and Consent Decrees, it was believed that almost all engines subject to low NOx software installation would be rebuilt within ten years. The statement quoted by the commenter was not directed solely to International but to all engine manufacturers subject to the Settlement Agreements and Consent Decrees.

In fact, the International engines subject to low NOx software installation are 1998 model year medium heavy-duty trucks and are less than ten years old. As the ARB staff acknowledged in the Initial Statement of Reasons released on February 6, 2004, because medium heavy-duty vehicles drive fewer miles than heavy heavy-duty vehicles, the newest (1997 & 1998 model years) medium heavy-duty vehicles are less likely to have acquired the number of miles that was expected to trigger rebuild. Therefore, the regulation as approved allows an additional year for compliance for the 1997 and 1998 medium heavy-duty diesel engines.

Federal Clean Air Act Preemption

11. **Comment:** The Proposed Rule would apply to "new" motor vehicle engines, as that term is understood under the federal Clean Air Act ("CAA"), an area expressly preempted by the

federal government. While California enjoys limited authority to seek a waiver of federal preemption in particular circumstances, the State may not promulgate and enforce a rule applicable to new engines without that waiver. California has not sought a waiver, and has indicated it has no plans to. As a result, the Proposed Rule unlawfully intrudes on an area specifically preempted by federal law. (EMA, Cat, DDC, ATA)

Agency Response: The ARB staff disagrees with this comment. Under federal law, states are generally preempted from adopting standards for new motor vehicles and new motor vehicle engines. California enjoys the ability, if needed, to get a waiver from that preemption. However, in this case, the regulations affect in-use, non-new vehicles. There is no federal preemption that would affect the ARB's ability to regulate in this area. (Further detail is provided in Agency Response to Comments 12 and 13.) As such, there is no need for the ARB to apply for a waiver.

12. **Comment:** Under the federal preemption provisions of CAA Section 209(a), states are prohibited from adopting or enforcing emissions standards applicable to "new motor vehicles or new motor vehicle engines." In the context of EPA's and ARB's emission standard-setting authority, a motor vehicle or motor vehicle engine is "new" only until its legal or equitable title is transferred to the ultimate purchaser. See CAA Section 216(3); Cal. H&S Code §§ 43101, 39042. As a result, engine manufacturers may be subject to ARB and EPA emission control standards only until such time as their engines are first sold. The proposed rule purports to require engine manufacturers to retrofit engines already in the stream of commerce. As a result, California evidently regards these as "new" engines, because once introduced in commerce, the standard-setting authority of ARB and EPA ceases as it relates to engine and vehicle manufacturers. Stated differently, and with the limited exception of potential enforcement actions relating to an engine's initially-certified emission limits, engine manufacturers may not be subject to ARB or EPA emission control requirements applicable to engines that manufacturers no longer own and control. Yet that is exactly what the Proposed Rule would require.

What "new" and "non-new" mean in the context of preemption is different from what the terms "new" and "non-new" mean in the context of EPA's and ARB's authority to adopt emission control standards. States may, in appropriate circumstances, exercise some controls over vehicles and engines in actual use. However, it is evident that the Proposed Rule is not an in-use regulation, because it seeks to regulate the activities of the engine manufacturer. (EMA)

Comment: ARB's Proposed Reflash Rule applies to heavy-duty engines prior to their first rebuild (i.e., when they are still "new" for purposes of federal preemption). Indeed, since the express purpose of the Reflash Rule is to impose its ECM software retrofit requirements on engines prior to the time of rebuild, it is absolutely clear that the Proposed Rule applies to engines that are still "new" for preemption purposes. Accordingly, the Proposed Rule is contrary to the CAA's express preemption provisions and so is invalid and unlawful. (EMA, Cat, DDC, ATA)

Agency Response: The ARB disagrees with these comments for several reasons. First, the ARB does not consider these engines – which range from 5-11 years old – to be "new" by any reasonable interpretation of that term. For example, the vast majority of engines affected by this rulemaking are no longer covered by emission warranties, and have exceeded their useful life provisions. Second, none of the commenters' citations establish that a heavy-duty on-road diesel engine is "new" until rebuild.

Finally, even if such engines were considered "new" until they were rebuilt (effectively making many heavy-duty on-road diesel engines forever "new"), the subject regulation does

not directly establish an additional requirement upon the original engine manufacturer. Rather, the regulation establishes a requirement on those driving trucks with such engines to be operating with upgraded software after a date certain, and recognizes others' pre-existing obligations to make that software available. These pre-existing obligations include requirements to develop low-NOx software, make it available to authorized dealers and distributors, and provide it free to customers upon request.

13. **Comment:** The end point of the authority of EPA and ARB to adopt emission control standards enforceable against engine and vehicle manufacturers does not mark the beginning of regulatory authority to enforce "in-use" emission control requirements against owners and operators. That is because an engine remains "new" for regulatory preemption purposes longer than for emission standard-setting purposes. If that were not the case, motor vehicles and engines, and their owners, could be subject to separate and inconsistent emission control standards the very moment after vehicles were bought and driven off a motor vehicle dealer's lot. But that would clearly undermine any regulatory stability for motor vehicles and engines and so would effectively nullify preemption, and the express Congressional intent "to prevent a chaotic situation from developing in interstate commerce in new motor vehicles." (Citations.) (EMA)

Agency Response: Please see the Agency Response to Comment 12. While the ARB agrees that at some point regulating a used engine could arguably relate to and impact the original engine manufacturer so much as to either be preempted or require a waiver, this regulation comes nowhere near that threshold.

Several of the citations provided in the comment pertain to the preemption of state standards and waiver procedures for nonroad engines and nonroad vehicles. They do not apply to this regulation affecting in-use on-road engines. Even if those nonroad citations did apply by analogy, neither U.S. EPA nor any court has stated or implied a general rule that nonroad engines other than locomotives are new until rebuild.

14. **Comment:** Because this regulation affects new engines, California not only must obtain a waiver federal preemption, it must provide lead time and stability as required by Clean Air Act Section 202(a)(3)(C). (EMA)

Agency Response: The ARB disagrees, first because the cited section, even if applicable to California, would apply only to regulation of new heavy-duty vehicles and engines. This regulation does not apply to new engines. See Agency Response to Comments 12 and 13.

Equally important, California continues to assert that because its regulations are not promulgated under Clean Air Act §202(a), but rather under its own state law authority, the cited lead time and stability section do not apply to California's heavy-duty vehicle or engine regulations.

Interstate Commerce

15. **Comment:** The Proposed Rule also constitutes an unreasonable interference with interstate commerce and, therefore, is prohibited by the United States Constitution. (International)

Agency Response: The ARB does not believe that the regulation violates the federal Interstate Commerce Clause. The regulation does not facially or purposefully discriminate against out-of-state vehicles. It does not favor California's economic interests over those of other states. Because California needs these vehicles' NOx reductions (and more) to meet federal air quality standards, no less harmful alternative exists. In addition, the local benefits

of chip reflash outweigh the minimal compliance burden on out-of-state owners and operators.

The regulation does not impose any requirements or conditions on commerce that occurs wholly outside of California. The regulation applies only to Low NOx Rebuild Engines operating in California. Low NOx Rebuild Engines not operating in California are not affected by this rulemaking. It would not be practical for other states to adopt a different software upgrade (development costs and lead time issues would be insurmountable), therefore "balkanization" is unlikely. See also the next Comment and Agency Response.

16. **Comment:** The ARB's proposed regulation would improperly create a national emission standard that effectively regulates truck operations occurring wholly beyond the State's borders and as such would violate the Commerce Clause's prohibition on extraterritorial regulation by a State. (EMA, ATA)

Agency Response: The ARB does not believe the regulation has an impermissible extraterritorial effect, and therefore, does not violate the federal Commerce Clause. The regulation does not regulate the sale or use of non-reflashed Low NOx Rebuild Engines in other states, nor does it control transactions or movement occurring wholly outside of California. In addition, the regulation does not impose a ban on the entry of non-reflashed out-of-state trucks into California, nor does it require those trucks to do anything upon leaving California.

17. **Comment:** The putative local benefits of the regulation in terms of its application to out-of-state motor carriers would be outweighed by substantial financial burdens the regulation would impose on those carriers. As such, the regulation would violate the Commerce Clause under the Court's dormant Commerce Clause balancing test analysis. (ATA)

Agency Response: The ARB believes the regulation does not violate the Court's balancing-test analysis. The potential burden on out-of-state owners and operators would be the time required to install low NOx software on applicable engines operating in California. The majority of out-of-state registered heavy-duty vehicles operating in California use engines newer than the Low NOx Rebuild Engines subject to this rulemaking. The installation of NOx software on out-of-state registered vehicles with Low NOx Rebuild Engines does not constitute a significant burden on out-of-state owners and operators. See also the response to Comment 57 on the cost-effectiveness for out-of-state trucks.

At most, this regulation creates for some out-of-state trucks a potential one-time stop, at little cost. This burden does not rise to the level of that imposed in dormant Commerce Clause trucking cases that have struck down more protectionist measures with little local benefit. The stricken statutes arguably forced the rerouting of trucks around a state or potentially required shifting of cargo or other changes at state lines. No such burden is created here. And the obligations and fines at issue are no more burdensome than the current and longstanding roadside inspection program, which also applies to non-California registered trucks when operating in California, to which this regulation is appended. Finally, the local benefits of this regulation – substantial NOx reductions in critical travel corridors within the state's most polluted air basins – far outweigh the perceived burden on interstate commerce. All of this balancing occurs against the backdrop of a heightened state power to regulate commerce in a matter of traditionally local concern – air pollution control – especially when no there is little or no threat of a patchwork of inconsistent state regulations.

State Law Authority

18. **Comment:** The essence of the Proposed Rule is to mandate the retrofit of used trucks, school buses and motor homes with ECM software upgrades to reduce NOx emissions to specified levels. However, this core feature of the Proposed Rule contravenes Health & Safety Code Section 43600, which states, in relevant part, that "the installation of certified devices on used motor vehicles shall not be mandated except by statue." H&S Code § 43600. Of course, heavy-duty trucks, buses and motor homes qualify as motor vehicles under the Health & Safety Code. See Vehicle Code § 415 (defining "motor vehicle" to mean "a vehicle that is self-propelled"). We are not aware of any California statute that specifically mandates the installation of emissions-related software devices or upgrades on any used heavy-duty motor vehicles. As to specific authority, because this regulation requires a significant modification to the engine it cannot be adopted under the authority in Health and Safety Code §43701(b). As a result, the Proposed Rule directly violates California law and is invalid. (EMA, Cat, DDC, International, ATA)

Agency Response: Health and Safety Code sections 43600 et. seq. concern the installation of certified devices that were a focus of early used motor vehicle emission controls. Low NOx software installation is not a significant modification to the engine that would require separate legislation; it is a simple change to software that will not be subject to the Board's device certification. As such, this provision is not applicable.

ARB's authority is not limited to implementing specific, legislatively mandated requirements on specific vehicles, but rather extends to its permissive authority to meet general legislative requirements. Here, the ARB has statutory authority to require reflashes in Health and Safety Code sections 39600, 39601, and 43701(b). Sections 39600 and 39601 of the Health and Safety Code authorize the ARB to adopt standards, rules, and regulations and do all such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law. The California Clean Air Act in sections 39002, 43013, and 43018, among other statutes, establishes the ARB as the state agency that sets standards for vehicular sources, both new and used. In addition, the later-enacted section 43701(b) of the Health and Safety Code requires the Board to adopt regulations that require heavy-duty diesel vehicles to utilize emission control equipment and alternative fuels to reduce emissions to the greatest extent feasible.

19. **Comment:** Health & Safety Code section 43701(b) provides that regulations regarding emission control equipment are only to apply to heavy-duty motor vehicles that are also subject to Section 43701(a), and because ARB's regulations implementing that section exempt non-California based vehicles (Cal. Admin. Code §2190), this regulation cannot cover those vehicles. (EMA).

Agency Response: The ARB disagrees. The administrative code section cited refers to an exemption of non-California based vehicles from California's periodic fleet inspection program. The exemption does not apply to the heavy-duty vehicle roadside inspection program, the enforcement provisions of which the subject regulation also amends to determine compliance with the software upgrade requirements.

20. **Comment:** For used heavy-duty motor vehicles, the only emission control equipment potentially authorized by California statute is that designed and certified to remedy excessive smoke, and this regulation is not a component of the statewide inspection program for excessive smoke. (EMA)

Agency Response: The ARB disagrees. There is no specific limit in Health & Safety Code Section 43701(b) to smoke measures. If anything, the more expansive language in that

section to require Board regulations to require trucks to use "alternative fuels" (to the extent available) and to consider other methods to reduce gaseous as well as smoke emissions, clearly provides authority beyond smoke measures.

21. **Comment:** The Proposed Rule is not a valid exercise of the ARB's statutory authority to adopt airborne toxic control measures ("ATCMs"). (EMA)

Agency Response: This comment appears irrelevant since the proposed regulation did not cite ATCM authority. However, the ARB disagrees in the event this regulation can be considered an exercise of its ATCM authority.

State law gives ARB ample authority to address the problem of diesel particulate matter. In the statutory provisions for addressing toxic air contaminants such as diesel particulate matter, there is specific authority to apply best available control technology to motor vehicles and motor vehicle engines. Health & Safety Code sections 39666 and 39667, respectively, direct the Board to adopt ATCMs for non-vehicular and vehicular sources. For both vehicular and non-vehicular in-use sources, sections 39666 and 39667 specifically direct the ARB to reduce emissions to the lowest level achievable through application of the best available control technology or a more effective control method, unless the Board determines that an alternative level of emission reduction is adequate or necessary to prevent an endangerment of public health. Best available control technology for non-vehicular sources has typically included retrofit technology. In accord, section 39667 suggests that control measures for vehicular sources may include, but are not limited to, the modification, removal, or substitution of vehicle fuel, vehicle fuel components, fuel additives, or the required installation of vehicular control measures (retrofits).

Other issues

22. **Comment:** I empathize with the proposed adoption of regulations "…necessary for the health, safety, and welfare of the people of the State of California." Neither empathy, nor the impact on health, safety, and welfare are valid reasons for enacting Ex Post Facto regulation that continue to impact California businesses. The Air Resources Board is not entitled to violate the provisions of the Constitution of the United States of America. (Thomas Treacy)

Agency Response: The ARB does not consider the regulation to be in violation of the United States Constitution. The Staff Report provided a thorough analysis of economic impacts. In addition, the ARB is required to file an "Economic and Fiscal Impact Statement" for approval by the Department of Finance. The regulation will not adversely affect California businesses.

The Board has determined that the regulation is cost-effective, technologically feasible, and necessary. Sections 39600 and 39601 of the Health and Safety Code authorize the ARB to adopt standards, rules, and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law.

Ex post facto issues arise only in the context of retrospective statutes applying to crimes committed before its enactment. Because this regulation imposes only reasonable civil penalties, concerns future actions or omissions (i.e., operating a vehicle on California highways without upgraded software after a date certain), and is being imposed for regulatory rather than punitive purposes, no ex post facto issue arises.

B. Emission Control through Mandatory Regulation or through Voluntary Progam?

Where possible, comments of a similar nature have been grouped together and addressed with one Agency Response.

Support for Mandatory Regulation

23. **Comment**: Please adopt the 'Chip Reflash' regulation. (Carrie King, Joseph Holmes, Betty Turner, ALA Santa Clara, RAMP, Dennis Thomas, Carol Brashear, MMCAC, George Galamba, SDRAC, B. Katsen, Edith Roth, James Holliday, Environmental 1, Form Letter #1, CAP, CAPCOA, SMAQMD, SMCC, MPAA, SCAQMD)

Comment: Adopt a mandatory program rather than relying on a voluntary program to install low NOx software in eligible heavy-duty diesel engines. (Harlod Farber, Kutay Ustuner, Ruth Niswander, Andrew Smith, A. Berman, A. Deuore, Jim Rountree, E. Trogman, E. Edinger, S. Dougherty, Teena Takata, Willis Simms, Betty L. Schnaar, Lyn Kleen, Stephen Rudolph, Christine Hoekenga, Julie Cidell, Suzanne Jacobs, CERA, Scott Petit, Environmental 2, Sybille Weiss, Thelma Schafer, Dean Cordell, Jeffrey Ziemba, Jim Fox, John Johantgen, Jon Hays, Walter Muelken,Nancy Roca and Phillip Schneider, temil@gocybernet.com, David Carle, Richard Hansen, David W. Self, Susan Hammack, Eric Buer, James Toomey, Bernard L. Lee, Leslie Angel, Rick Landavazo, Dan Leaverton, Adam Harris)

Agency Response: At the March 25, 2004, public hearing, the Board did approve the Low NOx Software Regulation (also referred to as the Chip Reflash regulation), but also directed the Executive Officer to withhold filing the regulation with the OAL while a Voluntary Program was put into effect to achieve emission reductions from the eligible California-registered vehicle fleet commensurate with what could be achieved through the regulation. In approving the mandatory regulation, the Board also approved the Voluntary Program to give the affected engine manufacturers the opportunity to install low NOx software without certain constraints inherent in a regulatory program. The Voluntary Program, developed through cooperation from the original engine manufacturers (OEMs), the California Trucking Association (CTA), the ARB staff, engine/truck dealers, and heavy-duty diesel vehicle owners, and environmental groups was the outgrowth of testimony made by the individual engine manufacturers, the Engine Manufacturers Association, and the CTA, at the December 2003 hearing. After the December 2003 hearing, the ARB staff continued the dialogue with the affected stakeholders to develop a defined Voluntary Program with measurable performance targets, which the Board approved at the March 2004 public hearing.

It was the Board's intent that the regulation be a "backstop" measure, and as such, it would not go into legal effect should the Voluntary Program prove successful. The Voluntary Program was structured to include specified reporting dates and defined performance targets. At the December 9, 2004, public meeting, the ARB staff presented to the Board its formal evaluation of the Voluntary Program. Based on this evaluation, the Board determined that, overall, the Voluntary Program did not meet the defined performance targets and was not a sustainable compliance option to the mandatory regulation. Therefore, the Board directed the Executive Officer to file the previously approved regulation with the OAL in order to put an enforceable regulation into effect, after clarifying modifications were made available for public comment.

24. **Comment:** A Voluntary Program provides no guarantees for emission reductions and would allow emissions to continue to be higher than necessary. (Jim Fox, David W. Self)

Agency Response: It is true that any voluntary program may not produce the same emission reductions as a mandated program. However, in developing the Voluntary Program, based on input from the affected engine manufacturers, CTA, and environmental organizations, the ARB staff designed a program to achieve higher near term emission reductions than would be achieved from the reflashing eligible engines in the California-registered fleet under the mandatory regulation. In fact, had the Voluntary Program succeeded and the Board approved its continuation at the December 2004 public meeting, it would have exceeded the emission benefits of the regulation during the 2004 and 2005 ozone season. In 2010, the emission benefits achieved through the regulation, once implemented, and the emission benefits achieved through the Voluntary Program, had the Board approved it as sustainable, would be identical.

25. **Comment:** We do not support a Voluntary Program to install low NOx software. (CCA)

Agency Response: The Board did approve a regulation to install low NOx software at its March 25, 2004, public hearing. It also approved a Voluntary Program to allow engine manufacturers the opportunity to install low NOx software on their own. Nonetheless, the Board ultimately determined that the Voluntary Program, overall, was not successful and directed the Executive Officer to file the regulation with OAL for adoption and subsequent implementation, after clarifying modifications were made available for public comment. Please also see Agency Response to Comment 23.

26. **Comment**: Please do not allow any trucks equipped with "cheater" devices that increase air pollution to operate in California. (Oliver Thomas)

Agency Response: The ARB agrees that trucks, or any other heavy-duty diesel vehicles, should not be allowed to operate in California under conditions that intentionally increase air pollution. Under the Low NOx Software Regulation, all vehicles operating in California subject to the requirements of the regulation with engines eligible for low NOx software, whether they are registered in-state or registered out-of-state, will face enforcement penalties, should they not comply by the regulatory compliance deadlines. Vehicles with engines manufactured by DDC are subject to the Voluntary Program, as approved by the Board at the December 9, 2004, public meeting. If the DDC engines are not reflashed expeditiously under the Voluntary Program schedule, the ARB staff will initiate regulatory action to bring these engines into compliance.

27. **Comment:** While we support a mandatory regulation for the installation of low NOx software, if a Voluntary Program is implemented, it must be tightened to include compliance for 100 percent of vehicles equipped with eligible heavy-duty diesel engines. (ALAC, CAFA)

Agency Response: The Board agreed with this comment provided at the March 25, 2004, public hearing and directed the staff to specifically include in the Voluntary Program a 100 percent compliance goal by the year 2008. In the ARB's mission to promote and protect public health, the ARB expects 100 percent compliance from a Voluntary Program intended to achieve similar emission benefits as a regulation. However, this issue became a moot point at the December 9, 2004, public meeting when the Board determined that, overall, the Voluntary Program was unsuccessful and thus directed the Executive Officer to file the previously approved regulation with OAL for adoption, once clarifying modifications had been made available for public comment.

28. **Comment:** We propose that the ARB Board should direct staff to immediately file the previously adopted mandatory regulation with the OAL. Further delay is unwarranted and

would reduce the chance for the mandatory program to succeed, as the near-term deadline for early model year compliance is now only six months away. (SCAQMD)

Agency Response: This comment was made at the October 28, 2004, public meeting in which the staff presented its preliminary analysis of the Voluntary Program to the Board, based on data received from the engine manufacturers up to the first reporting date of September 7, 2004, within the Voluntary Program. When the Board approved the Voluntary Program in March of 2004, it agreed to hear the staff's final analysis in December 2004. The staff's preliminary analysis did not include any data up to the second reporting date, November 1, 2004, within the Voluntary Program. Although the preliminary analysis results presented at the October meeting were extremely disappointing and it did not appear that, overall, the program's performance target could be met with an additional month, the Board chose to withhold its decision regarding the success or failure of the Voluntary Program until the December 2004 public meeting, as it originally agreed at the March 2004 meeting.

Ultimately, the Board's decision to wait until the December 2004 meeting to direct the Executive Officer to file the previously adopted regulation with the OAL does not impede its success as there is still sufficient time for OAL to review and adopt the regulation prior to the first compliance dates in the regulation.

29. **Comment:** We urge the ARB to move ahead with the regulation by forwarding it to the OAL for implementation as soon as possible. (SCAQMD, SMAQMD, Environmental 2, BAAQMD)

Agency Response: The Board agreed with this comment made at the December 2004 public meeting and directed the Executive Officer the Executive Officer to file the previously approved regulation with OAL for adoption, once clarifying modifications had been made available for public comment.

30. **Comment:** I'm urge you to implement the mandatory software upgrade regulation for diesel engines built between 1993 and 1998. I am discouraged that the Voluntary Program adopted in March 2004 has not met the stated goals and has achieved only limited emission reductions. (Form Letter #2)

Agency Response: The Board, too, was disappointed that the Voluntary Program, overall, did not achieve its defined performance targets. Therefore, at the December 2004 public meeting, the Board directed the Executive Officer to file the previously approved regulation with OAL for adoption, once clarifying modifications had been made available for public comment.

Support for Voluntary Program

31. **Comment:** We support a voluntary program to install low NOx software. CTA embraces voluntary reflash and is asking that all parties work together on this one to work it out, without imposing costs on truckers. We would like to begin a joint venture with the ARB, the engine manufacturers, and the dealers. (CTA, ATA)

Agency Response: The Board recognized that a Voluntary Program, developed and implemented through cooperation from the engine manufacturers, the CTA, and the ARB staff, had the potential to achieve emission reductions from the eligible California-registered fleet commensurate with what would be achieved under the regulation.

The Voluntary Program was in effect from April until December 2004. During that time, the CTA and the ARB staffs, along with the engine manufacturers, worked extensively and cooperatively together to promote the Voluntary Program, ensure all owners and operators

of vehicles with engines eligible for low NOx software were informed of the program, and that authorized dealers and distributors were aware of the program. Even with these combined and concerted efforts, the Board did not deem the overall Voluntary Program sustainable, except for one engine manufacturer, upon evaluation at the December 2004 public meeting. As stated in previous Agency Responses, the Board directed the Executive Officer to put the backstop regulation into effect by filing the appropriate documents with OAL, after making the clarifying modifications available for public comment.

32. **Comment:** We support a Voluntary Program to install low NOx software with a regulation in place as a backstop if the Voluntary Program is not successful. (SMAQMD)

Agency Response: At the March 25, 2004, public hearing, the Board did approve a Voluntary Program for implementation, with the regulation as a backstop should the evaluation of the Voluntary Program demonstrate that defined emission reduction targets were not met or the program was not sustainable. At the December 2004 public meeting, the Board directed the Executive Officer to put the backstop regulation into effect by filing the appropriate documents with OAL, after making the clarifying modifications available for public comment.

33. **Comment**: ARB should stay implementation of its proposed rule until the Board can be guided by a court's resolution of the dispute between ARB and manufacturers. But an even better solution would be for the Board to consider and adopt an alternative path to emissions reductions that would not breach the ARB's agreements with manufacturers. (EMA)

Agency Response: As stated in previous Agency Responses within this comment section, the Board did direct the Executive Officer to withhold filing of the approved regulation to give engine manufacturers the opportunity to install low NOx software under the terms and conditions of the Voluntary Program. In a sense, this action by the Board could be interpreted as "staying" implementation of the regulation for a time being while an "alternative path to emission reductions" –- the Voluntary Program -- was put into action. However, it is not now nor was it ever the Board's intent to stay implementation of the regulation until a court of law resolves the legal dispute between the ARB and the engine manufacturers. In particular, the ARB disagrees with the commenter's assertion that the regulation would breach the ARB's agreements (i.e., the Settlement Agreements) with the engine manufacturers. This issue, along with all other comments regarding the pertinent issues at the core of the legal dispute, are fully summarized and thoroughly addressed through Agency Responses in the comment section entitled "Legal Authority" beginning on page 9 of this FSOR.

It should be noted that the ARB staff's evaluation at the December 2004 meeting revealed that, overall, the "alternative path to emission reductions" did not meet the first performance target of achieving 35 percent of the emission benefits from the eligible California-registered heavy-duty diesel vehicle fleet. Therefore, the Board concluded that the regulation must be put into effect for the affected engine manufacturers, with the exception of the one engine manufacturer, DDC, that met the first performance target. The Board is allowing DDC to continue compliance through the Voluntary Program and will periodically review its progress to ensure that all future emission performance targets are achieved.

34. **Comment**: There are five good reasons to consider a Voluntary Program – 1) the Governor's temporary regulatory stay order; 2) the Board's inability to take action last December; 3) the unrealistic projected benefits associated with the proposed regulation; 4) the certainty of litigation over a regulatory approach; and 5) the strong support for a Voluntary Program expressed by the California Trucking Association. The EMA urges the

ARB not to adopt the regulatory proposal as a mandatory program, but instead replace it with a Voluntary Program. (EMA)

Agency Response: As discussed in previous Agency Responses in this comment section, the Board did consider the merits of a Voluntary Program, based, in part, on CTA's overwhelming support, to install low NOx software and did direct the ARB staff at the March 25, 2004, public hearing to work with the affected parties to develop and implement such a program. However, the Board's decision to approve a Voluntary Program was unrelated to the Governor's moratorium on new regulatory activity (Executive Order S-2-03**)**, which rendered the Board unable to consider approval of the proposed regulation at the December 2003 public hearing.

Regarding the commenter's assertion of "unrealistic projected benefits," the ARB disagrees with this comment and stands behind the assumptions and methodology used to calculate the emission reductions from the regulation. Comments regarding the calculation of emission benefits, including the EMA's and individual engine manufacturers' concerns that the regulation's emission benefits are unrealistic or are overestimated, are fully summarized and addressed through Agency Responses in the comment section entitled "Emission Benefits and Emission Inventory" beginning on page 30 of this FSOR.

Additionally, all legal issues related to the commenter's assertion that litigation is certain should the Board approve the regulation are fully summarized and thoroughly responded to through Agency Responses in the comment section entitled "Legal Authority" beginning on page 9 of this FSOR. Please also see Agency Response to Comment 33 above.

35. **Comment**: Interestingly, the Governor's order staying regulatory activity may provide an opportunity for the staff and the industry to develop a program that actually could be a substitute for regulation and, more important, could provide significant emission reductions in a practical, implementable, and cost-effective way without the delay and uncertainty associated with litigation. (EMA)

Agency Response: Please see Agency Responses to Comments 33 and 34 above. Additionally, it should be noted that the cost-effectiveness of the regulation is not considered a hindrance to its successful implementation. In fact, the regulation is very cost-effective at less than $100 per ton of NOx reduced for both California-registered vehicles and for vehicles registered out-of-state. This cost-effectiveness value compares favorably with the cost-effectiveness of other ARB mobile source regulations. For more a more detailed discussion of cost-effectiveness of the regulation for both California-registered vehicles and those registered out-of-state, please see Agency Response to Comment 57.

36. **Comment**: The Board should direct the staff to continue to work on an alternative to the regulatory proposal that could deliver emission reductions sought by ARB without abrogating existing agreements between engine manufacturers, and report back to the Board on the feasibility of an alternate program. If the ARB staff and manufacturers are able to develop a mutually acceptable alternative, the regulatory proposal should be withdrawn. (Cat, DDC)

Agency Response: At the December 2003 public hearing, the Board heard testimony from engine manufacturers, including the commenters, and the CTA, supporting a Voluntary Program to install low NOx software, rather than requiring it through regulation. The Board was responsive to this testimony and directed the staff to consider an alternative compliance mechanism. One Board member expressed that the parties "just figure out how to fix it and go out and fix it."

After the December 2003 hearing, the staff continued a dialogue with engine manufacturers, CTA, and environmental organizations, that led to the development of the Voluntary Program that was proposed by the staff and approved by the Board at the March 25, 2004, public hearing. At the same time, that Board approved the regulation as a backstop that would only go into effect should the Voluntary Program, which was in force from April thought December 2004, prove unsuccessful. Unfortunately for the parties most supportive of the Voluntary Program, overall, it did not meet its performance targets and was not sustainable. Thus, the Board directed the Executive Officer to put the backstop regulation into effect by filing the appropriate documents with OAL, after making the clarifying modifications available for public comment.

37. **Comment:** For the Voluntary Program to succeed, the CTA needs the ARB to identify the targeted vehicles in California eligible for low NOx reflash. (CTA)

Agency Response: The ARB agreed with this comment. In fact, the ARB dedicated five full-time staff to working on implementation of the Voluntary Program. The ARB staff performed a comprehensive technical analysis to develop a database that allowed it to match engines---specifically, each engine's manufacturer, model, and model year---to the individual truck chassis in which the engines were placed. This analysis involved decoding approximately 146,000 records obtained from the Department of Motor vehicles and sorting through over 306,000 records obtained from 12 different chassis manufacturers (i.e., truck builders). This information was essential for identifying the targeted vehicles in California that are eligible for low NOx reflash and was necessary for the ARB to accurately evaluate the engine manufacturers' progress in installing low NOx software under the Voluntary Program. This database will continue to be used to evaluate the progress of DDC's low NOx software installations, as it was the only engine manufacturer that the Board allowed to continue with the Voluntary Program, based on the staff's program evaluation presented at the December 2004 public meeting.

38. **Comment:** Based on the success of the Voluntary Program, we ask that the Board permit DDC to continue with the Voluntary Program. (DDC)

Agency Response: At the December 2004 public meeting, the Board determined that the Voluntary Program was not successful, except for one engine manufacturer, and it directed the Executive Officer to file the previously approved regulation with the OAL. However, in the case of DDC – the commenter, the Board did determine that it met the first performance target and that its progress in continuing low NOx software installations was sustainable under the Voluntary Program. Therefore, the Board approved DDC's request to continue low NOx software upgrade installations under the Voluntary Program.

39. **Comment:** Engine manufacturers have made a major commitment to the Voluntary Program and we have delivered on our commitment. We believe that given time, the Voluntary Program can deliver significant emission benefits to the state cost-effectively more so than a mandatory program, and set an important precedent for other cooperative programs. We urge the Board to give the Voluntary Program more time. (EMA)

Agency Response: This comment by the EMA at the October 2004 public meeting was made in the context of requesting that the Board allow the Voluntary Program to continue beyond that point in time in order for the engine manufacturers to fully report low NOx software installations up to the second reporting deadline of November 1, 2004, and to allow the ARB staff to refine its preliminary analysis to include the additional data set in the final staff analysis of the Voluntary Program, which was to be presented to the Board at the December 2004 public meeting. The EMA did not want the Board to make a determination

regarding the success or failure of the Voluntary Program at the October 2004 meeting and it did not.

C. Applicability

40. **Comment:** Are all 1999 trucks subject to the low NOx software requirements or only those on the list of engines for which low NOx software is available? (Mayra Romero)

Agency Response: Only those 1999 trucks for which low NOx software is available must have low NOx software installed. Some 1999 model year vehicles are equipped with 1998 model year engines for which low NOx software is available.

41. **Comment:** The requirement to install low NOx software should include out-of-state vehicles operating in California. (Christine Hoekenga, CERA, Scott Petit, Environmental 2, Thelma Schafer, Dean Cordell, Jim Fox, David Carle, David W. Self, Eric Buer, Rick Landavazo, Dan Leaverton, Adam Harris,)

Agency Response: The regulation is applicable to out-of-state registered vehicles operating in California. Owners and operators of 1993-1999 model year heavy-duty diesel vehicles (trucks, school buses, and motor homes) that use 1993-1998 model year engines and are registered out-of-state but travel within California are required to ensure that the engines in their vehicles have the appropriate low NOx software installed.

42. **Comment:** Recreational vehicles should be exempt from this regulation because each California-registered motor home is driven, on average, less than 2,000 miles a year in California. (Jon F. Coster)

Agency Response: The ARB staff disagrees with this comment. While the emission benefits from reflashing eligible motor homes (which are generally powered by medium heavy-duty engines) are small, these reductions are necessary to California's commitment for meeting federal air quality standards in regions that experience unhealthful air (please see Agency Response to Comment 64). Even with limited mileage accrual in California, the emission benefits of software upgrade on motor homes is a cost-effective means for achieving emission reductions; the cost-effectiveness would be comparable to that of the California-only emission benefits from out-of-state registered vehicles in line-haul service (see Agency Response to Comment 57).

43. **Comment:** The proposal has to affect the state government transportation institutions as well as community and metropolitan bus services. (Walter Banos)

Agency Response: Heavy-duty vehicles owned or operated by the State of California or public municipalities are subject to the provisions in the regulation and must receive software upgrades. However, low NOx software is not available for many engines used in transit buses. A provision of the Settlement Agreements/Consent Decrees allowed engine manufacturers to exclude engines manufactured in low volumes (such as urban bus engines) from the software upgrade requirement.

D. Economic Impacts and Costs

44. **Comment:** Because there are so many engines affected by the regulatory proposal and so little time allowed for the reflash, truck owners will be forced to incur down time and labor cost loses. Costs should not be passed on to the truck owner/operator. (Larry Keatley, CTA, CAFA)

Agency Response: The ARB staff evaluated the cost and the cost-effectiveness of installing the low NOx software and has described those costs in the Staff Report.

The Software Upgrade Regulation is very cost-effective at less than $100 per ton of NOx reduced and compares favorably with the cost-effectiveness of other ARB mobile source regulations. The cost-effectiveness value assumes that vehicle owners incur no labor costs for the software installation because the engine manufacturers are required to cover these costs under the Consent Decrees/Settlement Agreements.

Because the engine manufacturers are required to pay for the installation costs of the software upgrade, the only costs to the vehicle owners or operators should be the time that the vehicle is out-of-service. The staff has estimated two hours as the average time out-of-service. This estimate allows for time to: 1) drive the truck to the dealer/distributor facility; and 2) to install the low NOx software; and 3) to return the truck to service. An appointment is essential to minimize the wait time for the low NOx software installation.

The staff estimated the dollar amount for vehicle time out-of-service at one hundred dollars per vehicle. Cost and downtime for low NOx software installation can be reduced to next to nothing if the low NOx software is installed at the same time as other service or repair is performed on the vehicle.

The staff also considered the number of distributors and dealers authorized to install low NOx software along with the number of vehicles eligible for low NOx software and deemed the amount of time given for compliance to be reasonable.

45. **Comment**: Engine manufacturers will pay for reflashes so long as the reflash program is voluntary. Whenever a regulatory program kicks in, the regulated engine manufacturers would stop paying for the reflashes. Vehicle owners take a chance under the regulatory program as to whether or not reflashes will be paid for by the engine manufacturer. (EMA)

Agency Response: The ARB reads the Consent Decree/Settlement Agreements as requiring the reflash upon request and at time of engine rebuild. This regulation creates the impetus for making that request. We simply disagree with EMA about what the provision in the Consent Decree/Settlement Agreement means. Clarifying modifications that specify that engine manufacturers must provide the software at no charge to the dealers and reimburse the dealers for the installation of the software have been added to the regulatory language.

46. **Comment:** Does it cost the engine company or the dealership for the reflash? (Dean Kitak)

Agency Response: The engine manufacturers are financially responsible for development and installation of the low NOx software. The Consent Decrees/Settlement Agreements require them to develop the software and to reimburse their dealers for the labor time to install the software. Manufacturers established the reimbursement times allotted, which range from half an hour to one hour, depending on the manufacturer. Some dealers have stated that the reimbursement times are insufficient and therefore they are incurring some costs.

47. **Comment:** Amortize the cost of the low NOx software installation over time and have the Department of Motor Vehicles collect the fees. (Thomas A. Treacy)

Agency Response: The engine manufacturers are required to pay for the installation costs of the software upgrade. The U.S. EPA reiterated this assertion in a letter to each affected engine manufacturer, dated August 15, 2003, and addressed to the Consent Decree/Settlement Agreement manufacturers. Even if vehicle owners were charged for low

NOx software installation, we believe that the charges would be below 500 dollars per reflash and the cost to the vehicle owners or operators for the time that the vehicle is out-of-service. Installing low NOx software is a one-time event that is essential to obtaining the NOx reductions necessary for protecting public health. Additionally, ARB has found that using the Department of Motor Vehicles as part of the regulatory program is not practicable.

48. **Comment:** Engine makers must be required to pay for the costs of upgrading software in these trucks. (Walter Banos, Cesar Nunez, Andrew Smith, Jim Rountree, B. Katsen, CAPCOA, SMCC, CAFA, Environmental 3, Form Letter #2, SCAQMD)

Agency Response: At the December 2004 public meeting, the Board directed the Executive Officer to incorporate clarifying modifications into the approved regulatory text. The clarifying modifications include specifying that engine manufacturers provide the software at no charge to the dealers and reimburse the dealers for the installation of the software.

49. **Comment:** Vehicle owners should not have to pay for the installation of the low NOx software beyond the provisions contained in the Consent Decrees/Settlement Agreements. (ATA)

Agency Response: See Agency Response to Comment 44 and Agency Response to Comment 48.

50. **Comment**: If the Board wants to fund my installation and repairs due to putting the chip in an older truck then I may be interested. (M. Calandrino)

Agency Response: See Agency Response to Comment 44 and Agency Response to Comment 48.

51. **Comment:** The ARB has no agreement with engine manufacturers that requires them to pay for labor or downtime costs incurred for installation of chip reflash. (Larry Keatley)

Agency Response: Manufacturers are required to pay for labor (see Agency Response to Comment 48). The commenter is correct that ARB has no agreement that requires engine manufacturers to pay for downtime.

52. **Comment:** The control approach embodied in this regulation is one of few remaining strategies that will be inexpensive to implement while providing substantial immediate emission reductions. (SCAQMD)

Agency Response: The cost-effectiveness of this regulation is excellent. At less that $100 per ton of NOx reduced, it is more cost-effective than many regulatory control measures already adopted by the ARB. The emissions benefits associated with the low NOx software upgrade are significant. NOx emissions would be reduced 33 tons per day in 2006.

53. **Comment:** This regulation provides substantial NOx reductions at virtually no cost to vehicle owners and with little effort. (Environmental 1, SCAQMD)

Agency Response: See Agency Response to Comment 52 above.

54. **Comment:** Requiring software reprogramming outside of engine rebuilds will have a financial impact on the trucking industry. (ATA)

Agency Response: The ARB believes that because the software is to be provided free of charge, and because the time out of service is small, requiring software reprogramming will not have a significant financial impact on the trucking industry.

55. **Comment:** We feel that this proposed regulation will shift the financial and compliance burden to the trucking industry adding to the burden of truck owners and small businesses. (Thomas A. Treacy, Joe Doremire, Sebastian M. Sandoval, Randy Sunberg, Joyce A. Cotrone, M. Calandrino, ATA)

Agency Response: Truck owners will have a burden to comply prior to engine rebuild under the regulation. However, this burden is extremely cost-effective and is weighed against the burden of the people of California breathing excess NOx emissions which cause lung irritation and lung damage.

56. **Comment:** The ARB's proposed regulation places a disproportionate share of the costs on out-of-state vehicles disproportionately burdening interstate trucking companies doing business in California. (ATA)

Agency Response: The cost to comply for an out-of-state vehicle traveling in California is the same as the cost to comply for an in-state vehicle. The ARB wants to promote a level playing field for California businesses by requiring 1993-1999 model year trucks, buses, and motor homes registered out-of-state that operate in California to comply with this regulation.

57. **Comment:** Have you done a cost-effectiveness analysis for these out-of-state trucks? And if so, what numbers? (UCS)

Agency Response: Cost-effectiveness was calculated for the vehicles eligible for low NOx software in the South Coast Air Basin for their State Implementation Plan at $100 per ton. Cost-effectiveness for those vehicles registered out-of-state would also be $100 per ton, based on emission reductions that occur within California plus those that occur out-of-state.

Cost- effectiveness based just on the emission reductions that occur in California would vary widely depending on the frequency that a particular vehicle operates in California. For example, a truck that visits California four times per year, traveling 500 miles in California during each visit would accumulate 2,000 miles in-state per year. Since interstate line-haul trucks tend to quickly be relegated to local service after significant mileage accumulation, assume that the example truck has four years of line-haul service into the state remaining before entering local out-of-state service. The cost was assumed to be $100, which is the cost for two hours time out-of-service, and no charge for the reflash. With these parameters, the cost-effectiveness of reflashing out-of-state trucks for just those emission benefits that occur within California is approximately $2,100 per ton of NOx. At $2,100 per ton this measure is cost-effective and compares favorably with the cost-effectiveness of other ARB mobile source regulations.

58. **Comment:** The proposed regulation will have additional long-term financial impacts associated with a loss in fuel economy for those affected vehicles. (ATA)

Agency Response: Manufacturers have reported negligible fuel economy differences. Several fleets have had the low NOx software installed prior to rebuild and have reported no noticeable differences in their fuel use. However, there is a potential for a minor fuel economy penalty. The ARB expects the average fuel economy penalty, if any, to be below one percent.

59. **Comment:** Imposing standards after the fact or in arrears is punitive. (Thomas A. Treacy)

Agency Response: Rather than imposing a standard, the Low NOx Software Upgrade Regulation creates an impetus for the vehicle owner to request the low NOx software to be installed prior to time of engine rebuild. The computer software that is installed is provided by the engine manufacturers and is already developed. Without this regulation, the low NOx software would be installed at time of engine rebuild. During the time leading up to the engine rebuild and the installation of the low NOx software, the vehicle engine emits more NOx pollution than is necessary and contributes to the degradation of public health and our environment.

60. **Comment:** Owners/operators are being punished for buying a legal vehicle. (Thomas A. Treacy)

Agency Response: The ARB has the responsibility to protect people's health related to air emissions. All Californians benefit from improved air quality when the owners of these 1993-1999 model year vehicles install low NOx software. The Board has weighed both the impact on truck owners/operators and the benefits to public health and found merit in proceeding with the regulation.

61. **Comment:** The nearest dealer is 7 hours round trip away from me. My costs will be 700 dollars including 600 dollars for my down time. (Larry Keatley)

Agency Response: The ARB recognizes vehicle owners/operators that live further from in areas where service dealers do business will incur more cost related to their additional down time. We expect truck owners/operators to attempt to minimize their cost by having the software installed at the most convenient time possible.

62. **Comment:** We ask that the ARB staff work with the Rural Section of CAPCOA to ensure that reflash service is available within a reasonable travel distance for tethered public fleets. (CAPCOA)

Agency Response: The ARB has worked with CAPCOA on this issue and will continue to do so.

E. Emission Benefits and Emission Inventory

63. **Comment:** The method used to estimate the benefits of the proposed regulation are inconsistent with the methods used to estimate the baseline emission inventory for heavy-duty diesel vehicles, and likely results in inflated emission benefits. Specifically, to estimate emission reductions from the proposed regulation, the ARB staff used U.S. EPA/ARB conversion factors and U.S. EPA data regarding the frequency of "off-cycle" activity. However, the baseline heavy-duty diesel emissions inventory is calculated with chassis dynamometer test data from the Urban Dynamometer Driving Schedule (UDDS). These two methods for estimating emissions are inconsistent with each other. To achieve consistency in methodology, the ARB should re-estimate the benefits using available UDDS data from two recent heavy-duty vehicle testing programs. (EMA, International)

Agency Response: The ARB's current emission inventory model, EMFAC, uses chassis dynamometer data collected from trucks tested on the Urban Dynamometer Driving Schedule to estimate the emissions contribution of heavy-duty diesel vehicles. While the UDDS chassis test data used in EMFAC represents a vast improvement over engine-based test data used in previous versions of EMFAC, it still does not adequately capture the full range of heavy-duty diesel engine operation and is not a true reflection of emissions (particularly "off-cycle" emissions) that occur while the vehicle is in-use.

The chassis-based UDDS was designed to mimic the engine-based Federal Test Procedure (FTP) that was used to certify the 1993 through 1998 model year engines affected by this regulation. These engines were designed by the engine manufacturers to "beat" the FTP. Test data from the FTP under represents off-cycle NOx emissions, as does test data from the UDDS. The ARB staff does not believe it reasonable to use a methodology for calculating emission reductions that is known to under represent the specific emissions contributions that the regulation is seeking to mitigate. Instead, the ARB staff calculated emission reductions from the regulation using vehicle miles traveled, confidential Consent Decree data on engine manufacturer market share, engine time in off-cycle mode and engine emissions in off-cycle mode, as well as estimated emission levels after software upgrade. The staff also corrected the resulting reductions for a number of factors: the applicable model year engines for each manufacturer, the number of engines that have already received low NOx software upgrades, the manufacturers' low volume engine exemption, and the differences between calculated NOx emissions and modeled NOx emissions. The ARB staff believes this methodology does not inflate the estimated reductions but more accurately represents the reductions that can be achieved through the regulation.

64. **Comment:** The benefits of reflashing medium-heavy duty diesel vehicles are small when compared to the benefits of reflashing heavy heavy-duty diesel vehicles. Since it will be difficult to reflash all vehicles, and given the per-vehicle benefit differences, it makes more sense to target heavy heavy-duty diesel vehicles than to target medium heavy-duty diesel vehicles. (EMA)

Agency Response: It is correct that the emission reductions from reflashing eligible medium heavy-duty engines are small when compared to the total estimated reductions from reflashing all eligible engines. Reflashing eligible medium heavy-duty engines provides less than a one ton per day reduction in NOx emissions from the total 21 tons of reductions estimated for the year 2010. While the emission benefit from reflashing eligible medium heavy-duty engines is small, it is necessary to California's commitment for meeting federal air quality standards in regions that experience unhealthful air. This regulation is a defined measure in the ARB's 2003 State and Federal Strategy for the California State Implementation Plan (SIP). Every ton or fraction of ton of emission benefits is necessary to reduce total emission levels to emission budgets defined in the SIP. The SIP includes other defined measures that achieve less than a one ton per day reduction but that are not as cost effective as this measure. The failure to meet our SIP commitments impacts not only air quality but our ability to achieve transportation conformity—i.e., transportation agencies must ensure that new transportation projects and plans conform to SIP emissions budgets. The potential failure to meet our SIP commitments would mean we would not achieve transportation conformity, which would jeopardize our ability to receive millions of dollars in federal transportation funding. For these reasons, the ARB believes it necessary to include eligible medium heavy-duty engines in the regulation to achieve every emission reduction possible.

65. **Comment:** The ARB's emission benefits analysis assumes that all reflashes (Low NOx Software Upgrades) of California-registered and non-California registered vehicles that travel in California can be accomplished in only one year, which is not realistic. Specifically, the ARB staff estimates that there are 40,000 companies that own 100,000 California-registered vehicles eligible for low NOx software upgrades. It is unreasonable to expect that 40,000 owners will take all 100,000 vehicles in for service in one year. (EMA)

Agency Response: Based on 100,000 vehicles, assuming only 10 percent have already been reflashed, and considering there are 180 authorized dealers in the state, dealers and

distributors would need to reflash, on average, two vehicles per business day (excluding Saturdays and Sundays). While this is only an average, and some dealers would see significantly more business than others, ARB staff believes the capacity is adequate. Under the Voluntary Program, two dealers reported they reflashed over 40 vehicles in one day when reflashing large fleets. The regulation does not require out-of-state vehicles operating in California to have reflashes performed at California dealers or distributors. Reflashes on eligible out-of-state vehicles could occur in other states, which would reduce the workload of California distributors/dealers. Therefore, ARB believes it is reasonable to expect that reflashes on all eligible engines will occur in one year.

66. **Comment:** The ARB's emission benefits analysis assumes that 100 percent of California vehicles and non-California vehicles operated in California are reflashed, which is not realistic. (EMA, Cat, DDC)

Agency Response: It is correct that the ARB's emission benefits analysis assumes that 100 percent of eligible engines are reflashed under the regulation and believes this to be a realistic assumption. In its mission to promote and protect public health, the ARB cannot construct a regulation that requires only partial compliance from a regulated source. The ARB's public process for regulatory development and its comprehensive outreach programs ensure that the regulated community is aware of its legal obligations. Through its enforcement program, the ARB works with the regulated community to achieve those obligations, and, when necessary, takes appropriate enforcement action.

67. **Comment:** The ARB has substantially overestimated the potential emission benefits that may be derived from the proposed regulation. The Board cannot reasonably rely on that estimate in considering the merits of the proposed regulation. (EMA, Cat, DDC)

Agency Response: The ARB disagrees with this comment, which is intended as a summary comment of the specific issues raised by the EMA and individual engine manufacturers in Comments 63 through 66. The ARB stands behind the assumptions and methodology used to calculate the emission reductions from the regulation and responds to the EMA's and individual manufacturers' specific concerns in Agency Responses 63 through 66.

68. **Comment:** The Voluntary Program approach short-changes the breathing public out of approximately 35 percent of the emission reductions estimated to be achieved through the originally proposed regulation due to the fact that out-of-state vehicles are not included in the Voluntary Program and that 20 percent of in-state vehicles will not have to comply under the Voluntary Program. (Environmental 2)

Agency Response: The estimated statewide emission benefits of the originally proposed regulation and of the Voluntary Program are shown in the table below. These emission reduction estimates apply only to California-registered vehicles operating within California. Had the Voluntary Program succeeded and the Board approved its continuation at the December 2004 public hearing, it is not true that it would have achieved 35 percent less emission reductions that the proposed regulation. During the 2004 and 2005 ozone season, the emission benefits of the Voluntary Program would have exceeded the benefits of the proposed regulation. In the 2006 ozone season, the benefits of the regulation exceed those that could be achieved through the Voluntary Program, if there is no delay in implementation of the proposed regulation. In 2010, the emission benefits achieved through the regulation, once implemented, and the emission benefits achieved through the Voluntary Program, had the Board approved it as sustainable, would be identical.

Statewide Benefits of Software Upgrade From California-Registered Vehicles (tons per day NOx)

	Regulation	Voluntary Program**
2004 ozone season	0	11
2005 ozone season	15*	21
2006 ozone season	33*	26
2010 ozone season	21	21

- Assuming no delay in implementation
- **If successful

It is true that out-of-state vehicles were not required to receive low NOx software upgrades under the terms and conditions of the Voluntary Program. During the development of the Voluntary Program, the engine manufacturers agreed to provide free low NOx software upgrades for only California-registered vehicles (i.e., in-state vehicles). The concern that 20 percent of in-state vehicles would not be required to comply under the Voluntary Program was addressed at the December 2003 public hearing when the Board directed the staff to include a 100 percent compliance goal under the Voluntary Program. Nonetheless, the Board determined at the December 2004 public hearing that the Voluntary Program was not sustainable for all but one engine manufacturer, DDC, and has approved the staff to go forward with implementation of the regulation, once it has been reviewed and adopted by OAL.

69. **Comment**: To keep faith with our community, we really believe that the Air Resource Board must address successfully and completely these 3 tons of excess NOx emissions by 2005 in the Sacramento Region. This means giving your approval to this critical emission reduction strategy in time to implement the reflash regulation in 2004. (CAP)

Agency Response: This comment was presented at the December 11, 2003, public hearing at which the Board could not take any action on the proposed regulation due the Governor's moratorium on new regulatory activity (Executive Order S-2-03). However, the ARB acknowledges the critical air quality challenges faced by the Sacramento region and is committed to achieving near-term emission reductions as expeditiously as possible.

F. Regulatory Reporting, Implementation, and Outreach

70. **Comment:** We request a quarterly reporting requirement for the engine manufacturers participating in the Voluntary Program. (Environmental 2)

Agency Response: The Board directed staff at the March 2004 public meeting to incorporate quarterly reporting into the Voluntary Program in effect from April 2004 to December 2004. Engine manufacturers reported submitted reports twice during that period- on September 7, 2004 and again on November 1, 2004. The first reporting date was in September to allow adequate time for dealer notification and program outreach.

Because DDC will continue to implement the Voluntary Program, the ARB staff and DDC will develop a specific reporting schedule.

71. **Comment:** The proposed installation schedule should be amended to allow installation of the software in any model year vehicle within 24 months of the date that the regulation is enacted. The additional time allowed would give the vehicle operator more flexibility to schedule software installation in conjunction with other engine maintenance performed at an authorized vehicle or engine dealership. (KRC Rock, Inc)

Agency Response: The ARB staff recognizes the merit of scheduling software installation with other engine maintenance but does not agree with the extended installation timeframe. The emission reductions provided by low NOx software installation necessitate accelerated implementation. The tiered implementation schedule was created for engine dealers and distributors to accommodate the number of heavy-duty engines requiring software upgrade within an expedited timeframe.

72. **Comment:** We request that the April 30, 2004, compliance date be extended by a minimum of 60 days to June 30, 2004. (MPAA)

Agency Response: This comment was submitted in written form prior to the December 11, 2003, public hearing. The commenter indicated during oral testimony at the December 11, 2003, public hearing that the concern regarding the April compliance date was addressed as a result of the Governor's moratorium on new regulatory activity (Executive Order S-2-03).

73. **Comment:** We recommend that 80 percent of the California fleet receive chip reflashes by May 1, 2005 through the Voluntary Program and that the regulation be implemented if this goal is not met. (SMAQMD)

Agency Response: The commenter requested an accelerated schedule for Voluntary Program targets. Engine manufacturers other than DDC were unable to meet the first program target; as a result the regulation will be implemented. Staff will continue to work closely with DDC to insure that their program targets are met.

74. **Comment:** We request that 100 percent of the California fleet be reflashed by January 2006. (Environmental 2)

Agency Response: The implementation schedule for the regulation will result in nearly all applicable vehicles receiving Low NOx Rebuild Kits by January 2006. 1997 and 1998 model year medium heavy-duty diesel Low NOx Rebuild Engines are allowed one additional year for compliance. These engines are less likely to have acquired the number of miles that was expected to trigger engine rebuild, and contribute a much smaller portion of the off-cycle NOx emissions this regulation controls.

75. **Comment:** We request the chip reflash regulation be implemented in 2004 to help the Sacramento region's NOx attainment plan. (CAP)

Agency Response: Although the regulation was not filed with the OAL in 2004, implementation of the Voluntary Program did provide NOx emission reductions for the Sacramento metropolitan area in 2004. In addition, many eligible vehicles in the Sacramento region have already received software upgrades through a local incentive program. See Agency Response to Comment 69.

76. **Comment:** We request that the Board keep the rule alive as an emergency measure with the original time frames delayed by only six months to reflect the delay from October 2003 to March 2004, and not the elongated time frames currently proposed. (NRDC)

Agency Response: The ARB staff disagrees with this comment. The implementation schedule proposed by the commenter included a deadline prior to the Board's December 2004 review of the Voluntary Program. The implementation schedule for the regulation approved by the Board at the March 25, 2004, public hearing allowed for adequate time to notify vehicle owners if needed after the December 2004 public meeting. See Agency Response to Comment 74.

77. **Comment:** Engine manufacturers must make an active effort to fix non-compliant vehicles. (Environmental 2)

Agency Response: The engine manufacturers actively participated in the Voluntary Program by reimbursing their California dealers and service facilities for labor associated with installing low NOx software, even if the installation occurred at a time other than engine rebuild. The engine manufacturers also agreed to cover replacement costs of the Engine Control Module in rare cases of part failure. Engine manufacturers provided service bulletins and warranty alerts, if applicable, to their authorized dealers. In some cases, area representatives visited authorized dealers to explain low NOx software installation.

The Board proposed and approved modifications to the regulation at the December 9, 2004, public meeting. Those modifications require engine manufacturers to reimburse authorized dealers, distributors, repair facilities, and rebuild facilities for their costs to install software upgrades.

G. Offset Projects

78. **Comment:** Under the Consent Decrees and Settlement Agreements, some manufacturers have programs that allow credit for early reflashes. ARB's proposal does not explain how the regulation will affect these programs. This question has competitive significance. If ARB forces reflashes before the time rebuild, and allows manufacturers with incentive programs to take credit for the "early" reflashes, it will put Caterpillar and other manufacturers who are not participating in incentive programs at a competitive disadvantage. (Cat)

Agency Response: There were two manufacturers with approved Supplemental Environmental Projects (SEPs) involving reflash before the time of engine rebuild. One manufacturer had a nationwide SEP, and it fulfilled its SEP obligation several months ago. Another manufacturer had a California-specific SEP with a completion deadline of December 31, 2004, as well as a nationwide SEP. The ARB will not be granting an extension for the California-only SEPs. Therefore, manufacturers will not receive California SEPs credit for reflashes occurring before engine rebuild once the regulation goes into effect.

79. **Comment:** It is critical that Cummins continue to receive the negotiated offsets of its Settlement Agreement obligations for engines that Cummins would be required to reflash earlier than the date of rebuild. (Cummins)

Agency Response: The deadline for completion of Cummins' California-only SEP involving reflash prior to engine rebuild was December 31, 2004. Reflashes of California-registered vehicles prior to that time will count toward Cummins' SEP obligation. Reflashes after that date will not.

H. Miscellaneous Comments

80. **Comment**: Low NOx software installation will degrade horsepower upgrades. (David W. Child)

Agency Response: Engine manufacturers were required to disclose impacts of the low NOx software on fuel consumption, driveability, and safety. According to the engine manufacturers, the low NOx software upgrade does not adversely affect the operation of the vehicle. We expect the average fuel economy penalty, if any, to be below one percent.

81. **Comment**: There is some fuel economy penalty, which the technician said could be up to three percent. (ATA)

Agency Response: Manufacturers have reported negligible fuel economy differences. Several fleets have had the low NOx software installed prior to rebuild and have reported no noticeable differences in their fuel use. However, there is a potential for a minor fuel economy penalty. The ARB expects the average fuel economy penalty, if any, to be below one percent.

82. **Comment:** We suggest that engine manufacturers be required to send traveling technicians to those owners required to obtain the software upgrade, who demonstrate that they are too far from dealerships or other certified facilities. (Environmental 1, Environmental 2)

Agency Response: Owners and operators of 1993-1999 model year heavy-duty diesel trucks, school buses, and motor homes that use 1993-1998 model year engines and that operate in California must ensure that their vehicles have the appropriate low NOx software installed. Distributors and dealers must provide the appropriate low NOx software to the vehicle owner or operator upon request. These requirements mimic the requirements in the Consent Decrees and Settlement Agreements pertaining to the Low NOx Rebuild Program.

In some cases, distributors and dealers have installed low NOx software at the vehicle owner's facilities. Not every engine manufacturer has the capability to do a remote installation of low NOx software.

The ARB staff has estimated two hours as the average time out-of-service for an eligible vehicle to get the low NOx software installed. This estimate includes time to: 1) drive the vehicle to the dealer or distributor facility; 2) install the low NOx software; and 3) return the vehicle back to service. An appointment is recommended to minimize the wait time for the low NOx software installation.

The staff has estimated the dollar amount for vehicle time out-of-service at one hundred dollars per vehicle. Cost and downtime for low NOx software installation can be reduced to next to nothing if the low NOx software is installed at the same time as other service or repair is performed on the vehicle. The ARB believes that most vehicles will need to go to a dealer or distributor for some maintenance and we recommend that the low NOx software be installed then.

83. **Comment:** We would like to claim credit in our 2005 SIP for reflashes that we have done up to this point in time. (SMAQMD)

Agency Response: The Sacramento Metropolitan Air Quality Management District may claim SIP credit for the low NOx software installations completed prior to March 2004 in the 2005 SIP that it is developing. The ARB staff will work with the SMAQMD to ensure that both the emissions and the emission reductions are adequately reflected in the region's inventory and that the correct credit is claimed for reflashes performed under both the District's and the ARB's programs..

III. MODIFICATIONS TO THE ORIGINAL PROPOSAL – FIRST NOTICE OF MODIFIED TEXT

The following describes the modifications made available for a 15-day public comment period on December 23, 2004. The modifications incorporate the changes approved by the

Board at the December 9, 2004, public meeting. Renumbering of paragraphs as a result of the modifications is not included below.

Section 2011. Software Upgrade for 1993 through 1999 Model Year Heavy-Duty Trucks.

Paragraph (c)(1) was modified to indicate exceptions to the Low NOx Rebuild Kit installation requirement.

Paragraph (c)(2)(A) was modified to require Low NOx Rebuild Engine manufacturers' authorized dealers, distributors, repair facilities, and rebuild facilities to provide Low NOx Rebuild Kits at no added cost to the owner or driver of a vehicle with a Low NOx Rebuild Engine, and to any non-affiliated rebuilder or other person.

Paragraph (c)(2)(B) was modified to require Low NOx Rebuild Engine manufacturers' authorized dealers, distributors, repair facilities, and rebuild facilities to install Low NOx Rebuild Kits within a reasonable amount of time.

Paragraph (c)(3) was inserted to require Low NOx Rebuild Engine manufacturers to reimburse their authorized dealers, distributors, repair facilities, and rebuild facilities for costs incurred with Low NOx Rebuild Kit installation.

Paragraph (c)(7) was added to include a civil penalty on Low NOx Rebuild Manufacturers' authorized dealers, distributors, repair facilities, and rebuild facilities for refusing to install Low NOx Rebuild Kits upon request, or failing to install within a reasonable amount of time.

Paragraph (e)(2) was added to exempt DDC from the Low NOx Rebuild Kit installation requirements and to specify voluntary installation rates of Low NOx Rebuild Kits by DDC.

Paragraph (e)(3) was added to specify a reporting mechanism for DDC to use to provide the Executive Officer with Low NOx Rebuild Kit installation reports.

Paragraph (e)(4) was added to describe the Executive officer review process, and to include a mechanism for removing DDC's exemption.

Paragraph (g) was modified to include the reimbursement provisions in (c)(3) as a legal obligation.

IV. SUMMARY OF COMMENTS AND AGENCY RESPONSES – FIRST NOTICE OF MODIFIED TEXT

Written comments during the first 15-day comment period were received from the following engine manufacturers:

Caterpillar Inc. (Cat)
Cummins Inc. (Cummins)
Detroit Diesel Corporation (DDC)
Engine Manufacturers Association (EMA)
International Truck and Engine Corporation (International)
Volvo Powertrain (Volvo)

Set forth below is a summary of each objection or recommendation made regarding the specific regulatory actions proposed, together with an explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for

making no change. Comments not involving objections or recommendations specifically directed toward the modifications made or to the procedures followed by the ARB in this Notice of Modified Text are not summarized below.

Where possible, comments of a similar nature have been grouped together and addressed with one Agency Response.

84. **Comment:** The Board's modifications to the proposed regulation do not remedy the significant legal defects in the rule. To the contrary, they confirm that the rule is unlawful. (Cat, EMA, International)

Agency Response: This comment does not address the proposed modifications. The Agency Responses to Comments 1 through 22 provide ARB's legal authority in enacting this regulation.

85. **Comment:** We note that the ARB has failed to address any of the issues raised by its initial comments. These issues included ARB's contractual obligations under the Settlement Agreement, the effect of the federal Consent Decrees, and ARB's lack of authority to mandate such reflashes. Just as important to these legal issues, ARB fails to address the technical issues directly related to our reflash program and alleged excess emissions (or lack thereof) from our engines. (International)

Agency Response: The ARB disagrees with this comment. The proposed modifications were not intended to address comments previously submitted by the commenter. This FSOR thoroughly responds to each issue brought forward by the commenter.

86. **Comment:** The proposed modifications would require engine manufacturers to reimburse their dealers for all costs relating to the installation of Low NOx rebuild kits regardless of whether the reflash occurs at the time of a covered engine's rebuild. This contravenes the binding and judicially-enforceable Settlement Agreements in at least two respects: (i) engine manufacturers did not agree to pay all costs relating to chip reflashes; and (ii) engine manufacturers only agreed to provide Low NOx rebuild kits at the time of an engine's rebuild (so that the reflash could take place during other engine rebuild work for which the dealer would be compensated). (EMA)

Agency Response: Modifications were made to clarify the costs for which engine manufacturers must reimburse authorized dealers, distributors, repair facilities and rebuild facilities for Low NOx Rebuild Kit installation.

87. **Comment:** ARB specifically omitted key Settlement Agreement language from its "no added cost . . . to the owner or driver" clause. However, the actual language of the Settlement Agreement allows for "no added cost to the owner above the amount the owner would otherwise pay to have the engine rebuilt or repaired." Paragraph 40 of the Settlement Agreement. ARB's revision expands both the conditions at which the reflash would occur (other than rebuilt or repaired) and the persons receiving such "cost" protection (from owner to owner or driver). (International)

Agency Response: The ARB disagrees with this comment. The commenter also omitted key Settlement Agreement language in providing this comment. Paragraph 40 of this commenter's Settlement Agreement requires the engine manufacturer to make available, either directly or through its affiliated distribution network for free, the appropriate Low NOX Rebuild Kit to any non-affiliated engine rebuilder or person who requests it. Paragraph 40 also requires the engine manufacturer to reimburse its authorized dealers, distributors, repair facilities, and rebuild facilities, so that the ultimate purchaser of a Low NOx Rebuild Kit

will not be charged for any required reprogramming through its authorized dealers, distributors, repair facilities, and rebuild facilities, including any connection fees. The text of Paragraph 40 of the Settlement Agreement is nearly identical to the text of Paragraph 71 in the Settlement Agreements of other engine manufacturers. See the Agency Response to Comment 1 for the ARB's reading of the Settlement Agreements pertaining to the engine manufacturers' responsibilities for providing Low NOx Rebuild Kits.

88. **Comment:** ARB imposes a penalty, above that which is specified in the Settlement Agreement, upon us, as a dealer and rebuilder. Specifically, we are now subject to a fine of $500 per incident for refusing or 'failing' to install reflashes. However, under the Settlement Agreement, our obligations and, in this context, penalty for failing to meet those obligations are specifically defined. ARB's actions directly and explicitly conflicts with and changes the terms of the Settlement Agreement. (International)

Agency Response: The ARB disagrees with this comment. Low NOx Rebuild Engine manufacturers are not subject to a civil penalty. The civil penalty for refusing to install a Low NOx Rebuild Kit, or failing to install a Low NOx Rebuild Kit within a reasonable amount of time is to be levied upon their authorized dealers, distributors, repair facilities, and rebuild facilities. The Board requested the civil penalty in response to testimony stating dealers were refusing to install Low NOx Rebuild. Low NOx Rebuild Engine manufacturers have previously indicated that they can not require their authorized dealers, distributors, repair facilities, or rebuild facilities to install Low NOx Rebuild Kits. Imposing a civil penalty against facilities refusing to install Low NOx Rebuild Kits does not conflict with or change the terms of the Settlement Agreements.

89. **Comment:** ARB has no legal authority whatsoever to impose any regulatory requirements pertaining to used engines on the original engine manufacturer. Used engines by definition are beyond engine manufacturers' custody and control. (EMA)

Comment: Nowhere in the California Health and Safety Code is ARB empowered to regulate used engines through regulations directed against the original manufacturer. (EMA)

Agency Response: The regulation is not directed against the original manufacturer. The regulation places the obligation for Low NOx Rebuild Kit installation on vehicle owners/operators. See also Agency Responses to Comments 18 and 20.

90. **Comment:** ARB's Executive Officer asserted during the ARB hearing on December 9, 2004, that the Reflash Rule "is an enforcement action to accomplish the goals of the previous settlement." This statement by ARB's Executive Officer is further proof that the proposed modifications to the Reflash Rule – as well as the entire Rule – are barred by the previous 1998 Settlement Agreements. (EMA)

Agency Response: To the extent this comment is directed at the Board's December 9, 2004, action, it is outside the scope of the proposed modifications. The ARB does not consider this to be an enforcement action and is not in violation of the Settlement Agreements. The regulation places a new obligation for Low NOx Rebuild Kit installation on vehicle owners/operators. Requiring the engine manufacturers to pay for Low NOx Rebuild Kit installation reflects their existing obligation under the Settlement Agreements.

91. **Comment:** The ARB's proposed modifications to the Reflash Rule fail to comport with the engine manufacturers' and ARB's agreement regarding regulatory exemption through meeting targets of the voluntary program. Instead of exempting compliant manufacturers from the Reflash Rule, the Rule simply puts enforcement against those manufacturers on

hold pending the Executive Officer's determination of continuing compliance with future target dates for additional percentages of voluntary reflashes. This is not the type of "exemption" that manufacturers bargained for; since it is merely a deferral and not a true exemption. (EMA, DDC)

Comment: The proposed modifications fail to exempt DDC from the Reflash Rule, as the ARB agreed to do under the Voluntary Software Upgrade Program, and as the ARB directed during the ARB hearing of December 9, 2004. (DDC)

Agency Response: Modifications were made to revise the exemption provision for DDC.

92. **Comment:** Not all Renault VI engines as listed in the table in the proposed rule have Low NOx kits available. The following table details the eligible engines. We suggest that ARB replace the Renault VI engine listing in the proposed rule with the following (table omitted). (Volvo)

Comment: There is an error in the listing of Volvo's engine models VE D7C-275 and VE D7C-300. Pursuant to the Settlement Agreement, Volvo only has developed Low NOx Rebuild kits for its model year D7 engines, and not for model years 1994-1997. (Volvo)

Comment: In the table at Section 2011(b)(5), the Proposed Reflash Rule correctly states Engine Platforms and CPL Listing for the Cummins engines that were defined as "Low NOx Rebuild Engines" in the Consent Decree and Settlement Agreement, but this table fails to list the applicable SC for each included CPL. A listing of the SC is needed in order to correctly and completely define the eligible Low NOx Rebuild Engines for the Consent Decree and the Settlement Agreement as there are SCs in the CPLs for which Low NOx Rebuild Kits have not been developed. (Cummins)

Agency Response: Modifications were made in the table in Section 2011(b)(5) to incorporate these changes.

93. **Comment:** The Settlement Agreements exempt from the Low NOx rebuild requirement certain engines of which low volumes were sold in the U.S. This resulted in a complex array of engine rating, model year, and datafile combinations for which Low NOx Rebuild kits were (or were not) made available for Mack engines. In lieu of listing all engines for which Low NOx Rebuild kits have been developed and all those for which kits have not been required, we suggest that the error in the proposed rule be address by adding the words "Some engines excluded" in the "Notes" column next to each of Mack's engine models. (Volvo)

Agency Response: The ARB disagrees with this comment. The addition of "some engines excluded" in the list of Low NOx Rebuild Engines is ambiguous and could lead to incorrect identification of Low NOx Rebuild Engines.

V. MODIFICATIONS TO THE ORIGINAL PROPOSAL – SECOND NOTICE OF MODIFIED TEXT

The following describes the modifications made available for a second 15-day public comment period on January 13, 2005. The modifications were made in response to comments received in response to the first Notice of Public Availability of Modified Text.

Section 2011. Software Upgrade for 1993 through 1999 Model Year Heavy-Duty Trucks.

Paragraph (b)(5) was modified to more accurately identify eligible engines in the list of Low NOx Rebuild Engines.

Paragraph (b)(6) was modified to add a definition for "Low NOx Rebuild Engine Manufacturer."

Paragraph (c)(2) was modified to indicate exemptions to the requirements for Low NOx Rebuild Engine Manufacturers' authorized dealers, distributors, repair facilities, and rebuild facilities.

Paragraph (c)(3) was modified to clarify the reimbursement costs of Low NOx Rebuild Engine Manufacturers for Low NOx Rebuild Kit installation.

Paragraph (c)(7) was modified to indicate exemptions to the authorized dealers, distributors, repair facilities, and rebuild facilities subject to a civil penalty.

Paragraphs (d)(1), (d)(2), (d)(3), and (d)(4) were modified to indicate exemptions to the Low NOx Rebuild Kit installation deadline.

Paragraph (e)(2) was modified to clarify DDC's exemption from the regulation.

Paragraphs (e)(2)(A), (e)(2)(B), (e)(2)(C), (e)(3), and (e)(4) were deleted.

Appendix A, Voluntary Software Upgrade Program Discussion Paper (March 16, 2004)" was deleted.

VI. SUMMARY OF COMMENTS AND AGENCY RESPONSES – SECOND NOTICE OF MODIFIED TEXT

Written comments during the second 15-day comment period were received from the following stakeholders:

AdvaTech
Cummins, Inc. (Cummins)
Harbor Diesel Industries (HD Industries)
Volvo Powertrain (Volvo)

Set forth below is a summary of each objection or recommendation made regarding the specific regulatory actions proposed, together with an explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for making no change. Comments not involving objections or recommendations specifically directed toward the modifications made or to the procedures followed by the ARB in this Second Notice of Public Availability of Modified Text are not summarized below.

94. **Comment:** Several errors were included in the second revised text of the regulation pertaining to the list of Low NOx Rebuild Engines. (Cummins)

Agency Response: The three typographical errors in Cummins' list of Low NOx Rebuild Engines have been corrected and are indicated in the list of non-substantive changes.

95. **Comment:** Cummins has been informed that another engine manufacturer has submitted a previous comment claiming it is unfair for any Settlement Agreement signer to be operating incentive reflash programs that meet both its obligations for offset projects under the Settlement Agreements and its participation in the Voluntary Program with funds programmed for the Settlement Agreement. (Cummins)

Agency Response: While this comment is not germane to the proposed modifications in the Second Notice of Modified Text, the ARB will respond by referring this Commenter to Agency Responses to Comments 78 and 79.

96. **Comment**: If one or more of the engine manufacturer's reflash project was terminated on or before its approved completion date, this would cause a second unilateral amendment to the Settlement Agreement in terms of a need for an extension of the final termination date beyond July 2005 in order to have enough time to fairly develop, execute and complete alternative California Offset Projects. (Cummins)

Agency Response: This comment, related to Comment 95, is not germane to the proposed modifications in the Second Notice of Modified Text. The ARB again responds by referring the commenter to Agency Responses to Comments 78 and 79, and by stating that it will not terminate an approved California-specific Offset Project prior to its previously approved termination date.

97. **Comment:** The proposed modifications continue to identify a wider range of Mack engines than would be covered by the Regulation. We suggest that ARB replace the Mack engine listing in the proposed rule with the following (table omitted). (Volvo)

Agency Response: The additional identifying information for Mack engines has been added to the list of Low NOx Rebuild Engines and is indicated in the list of non-substantive changes.

98. **Comment:** Our company, as an authorized dealer representing Detroit Diesel, Caterpillar, and Cummins have [has] concerns regarding the reimbursement amounts mandated. In a perfect case scenario, the amounts given as reimbursement barely cover our actual time and costs; in most situations the amounts do not cover our costs. (HD Industries)

Response: The Consent Decree and Settlement Agreements require manufacturers to provide the software free of charge to any person upon request, and require manufacturers to reimburse dealers. The reimbursement amounts were established by the manufacturers in addendums to the Consent Decree and Settlement Agreements, and they range from 0.5 to 1.0 hour of labor (depending on the manufacturer). This regulation reiterates those existing obligations. Reimbursement for dealer costs above and beyond the amounts stipulated in the Consent Decree and Settlement Agreements falls within the purview of the business relationship between the dealer and the engine manufacturer, and is outside the scope of this regulation.

99. **Comment:** The engine manufacturers should be mandated to cover our true costs on a case by case basis, if not, then don't make it mandatory for dealers to have to do these reflashes. (HD Industries)

Response: Based on testimony expressing concern about the number of authorized dealers that elected not to participate in the Voluntary Program, the Board determined that it was prudent to protect truck owners/operators subject to the regulation, and help ensure adequate dealer coverage by mandating that authorized dealers provide reflash free of charge and within a reasonable time.