California Environmental Protection Agency

Air Resources Board

Final Statement of Reasons for Rulemaking

Including Summary of Comments and Agency Responses

PUBLIC HEARING TO CONSIDER ADOPTION OF
AIRBORNE TOXIC CONTROL MEASURE FOR
IN-USE DIESEL-FUELED TRANSPORT REFRIGERATION UNITS (TRU)
AND TRU GENERATOR SETS,
AND FACILITIES WHERE TRUs OPERATE

Public Hearing Dates: December 11, 2003 and February 26, 2004
Agenda Item No.: 03-10-02

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AIR RESOURCES BOARD

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I. GENERAL

This Final Statement of Reasons provides an update of the *Staff Report: Initial Statement of Reasons for the Proposed Rulemaking –Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate* (*Staff Report*), released to the public on October 24, 2003, and is incorporated by reference herein.

A. Description of Board Action

On December 11, 2003, the Air Resources Board (ARB or Board) conducted a public hearing to consider adoption of the Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate. But, the Board did not take action on this date due to the Governor's Executive Order S-03-02. The item was continued to the February 26, 2004 Board meeting, and the comment period was extended to that date. At a public hearing on February 26, 2004, the Board considered and unanimously approved Resolution 03-37 adopting this ATCM into the California Code of Regulations (CCR), title 13, division 3, chapter 9, article 8, as new Section 2480.[1] This regulation uses a phased approach to reduce the diesel PM emissions from in-use transport refrigeration units (TRUs) and TRU generator (gen) set equipment used to power electrically driven refrigerated shipping containers and trailers that are operated in California. This regulation also requires large facilities to submit a one-time report to ARB on their TRU activities.

[1] As initially proposed, the regulation was to be codified at title 13, CCR, section 2022. The staff has now determined that the placement of the TRU ATCM would more appropriately be codified in chapter 9 of title 13, which is the chapter that pertains to off-road engines. This is a nonsubstantive change. (Title 1, CCR, section 100.)

Public comments were accepted on the proposed regulation from October 24, 2003 to the February 26, 2004 public hearing. Modifications were made to the ATCM and new documents and information made available twice for 15-day public comment from April 5, 2004, to April 30, 2004, and July 16, 2004, to August 2, 2004. This FSOR summarizes the written and oral comments received during the extended 45-day comment period preceding the February 26, 2004 public hearing, both public hearings, and both 15-day comment periods. The ARB's responses to those comments are also set forth in section II of this FSOR.

B. Modifications to the Original Proposal

At the adoption hearing, the staff presented, and the Board approved, minor modifications proposed in response to comments received during the public comment period that began on October 24, 2003, and ended at the hearing on February 26, 2004. These modifications were explained in detail in the Notice of Public Availability of Modified Text that was issued for a 15-day public comment period that began on April 5, 2004, and ended on April 30, 2004 (First 15-Day Notice). This Notice, along with a copy of the modified text and the documents and information referenced in the Notice, were sent to each of the individuals described in subsections (a)(1) through (a)(4) of section 44, title 1, CCR and made available on ARB's website, in accordance with Government Code section 11346.8. The First 15-Day Notice is incorporated by reference herein. In order to provide a complete Final Statement of Reasons for this rulemaking, the following is a summary of these modifications and staff's rationale for making them:

1. Language was added to the applicability subsection (b), subparagraph (1) for owners and operators of TRUs operated in California to clarify that the requirements of the ATCM applied to operators of California-based and non-California-based TRUs and TRU generators sets.

2. The definition of "Alternative Diesel Fuel" was modified to be consistent with the definitions used in the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (13 CCR section 2701)*.

3. The definition of "California-Based TRUs and TRU Generator Sets" was modified to improve clarity.

4. The definition of "CARB Diesel Fuel" was modified to be consistent with the definitions now used in the Airborne Toxic Control Measure for Stationary Compression-Ignition Engines, adopted by the Board February 26, 2004.

5. Definitions for "Certification," "Certification Data", "Deterioration Factor," "Non-California-Based TRUs and TRU Generator Sets," and "Tier 4 Nonroad/Offroad Emissions Standards" were added to improve clarity to subsection (e)(1)(A).

6. The definitions for "Cryogenic Temperature Control System" and "Hybrid Cryogenic Temperature Control System" were modified in response to a comment asking that the definition be clarified.

7. The definition for "Diesel Fuel" was modified to be consistent with the new definitions in 13 CCR, sections 2281(b)(1) and 2281(b)(3).

8. The definition of "Intermodal Facility" was modified to be specific to "refrigerated" shipping containers.

9. The definition for "Refrigerated Shipping Container" was deleted and replaced with the more general reference and definition of "Refrigerated Trailer" which includes the reference to shipping containers as a type of refrigerated trailer. The reference to refrigerated trailers is consistent with California Health and Safety Code section 39618.

10. Sections (e)(1)(A)1.a.I. and (e)(1)(A)2.a.I. were modified so that compliance can be achieved by using any certified in-use engine that meets the applicable nonroad/offroad standards for all regulated pollutants and the in-use performance standards, taking into account deterioration factors when determining compliance.

11. Footnotes 1, 3, and 4 were added to improve clarity by indicating that the proposed in-use performance standards are aligned with the federal interim Tier 4 standards for new nonroad engines.

12. Section (e)(1)(A)3.d. was modified by adding "CARB diesel fuel" to improve clarity.

13. The application information required for issuing an ARB Identification Number pursuant to subsection (e)(1)(E)1.a. was modified to improve clarity.

14. The fuel requirements in subsection (e)(2)(A) were modified to be consistent with the changes in the definitions of "Alternative Diesel Fuel", “CARB Diesel Fuel", and "Diesel Fuel."

15. Language in the operator reporting subsection (f)(1)(A)1.c. was modified to improve clarity.

16. The word "shipping" was added to subparagraph (f)(2)(A)8. to improve clarity.

17. Subparagraph (f)(2)(A)12. was added to the facility reporting requirements to require the reporting of the number of refrigerated trailers used for cold storage and their annual hours of operation. This would provide data on a practice that may contribute to near-source risk.

18. Subsection (h) was added to reference the specific Health and Safety Code sections addressing penalties.

19. Additional authority and reference citations were added to the Authority and Reference section for the purpose of being comprehensive.

In addition, the ATCM has been modified to correct spelling and typographical errors and to make adjustments to the outline notation.

In the interests of completeness, staff has also added to the rulemaking record the following additional documents and information:

1. Several comments that have been received have referred to the International Registration Plan (IRP) database. Following-up on those comments, staff requested information from the IRP section of the Department of Motor Vehicles. Data was received from the following reference that confirmed there is no current, definitive database that provides a reliable number of refrigerated trailers that may visit California.

   Clark, 2004. Jennifer Clark, IRP Operations Manager, Dept. of Motor Vehicles, to Jon Manji, ARB, Stationary Source Division, *Personal Communication (Electronic Mail),* Sacramento, California, March 4, 2004.

2. Staff research from the references listed below also revealed several estimates of the percentage of trailers on California highways that are refrigerated to be between 4 percent and 23 percent.

   Coffman, 2004. Zail Coffman, Santa Barbara Electric Transportation Institute, to Rod Hill, ARB Stationary Source Division, *Personal Communication (Electronic Mail),* Sacramento, California, February 10, 2004.

   Faucett, 2002. Jack Faucett Associates, *Heavy-Duty Vehicle Fleet Characterization for Reduction of NOx and Particulate Matter Emissions in the South Coast Air Basin*; Prepared for California Air Resources Board, April 2002, JACKFAU-02-558.

   Wilson, 2004. Bob Wilson, IdleAire, to Rod Hill, ARB Stationary Source Division, *Personal Communication (Electronic Mail)*, Sacramento, California, February 10, 2004.

3. Staff research on the references listed below revealed that between 1996 and 2000, from 14 percent to 26 percent of the trailers manufactured in the U.S. were insulated (refrigerated).

   U.S. Census Bureau; Manufacturing, Mining, and Construction Statistics; Truck Trailers Summary, Table 2 and Table 4; 2000 (M336L(00)-13),

www.census.gov/cir/www/336/m336l.html, then click on 2000.

U.S. Census Bureau; Manufacturing, Mining, and Construction Statistics; Truck Trailers Summary, Table 2 and Table 4; 1999 (M336L(99)-13), www.census.gov/cir/www/336/m336l.html, then click on 1999.

U.S. Census Bureau; Manufacturing, Mining, and Construction Statistics; Truck Trailers Summary, Table 2 and Table 4; 1998 (M336L(98)-13), www.census.gov/cir/www/336/m336l.html, then click on 1998.

U.S. Census Bureau; Manufacturing, Mining, and Construction Statistics; Truck Trailers Summary, Table 2 and Table 4; 1997 (M336L(97)-13), www.census.gov/cir/www/336/m336l.html, then click on 1997.

4. The *Staff Report* was released to the public on October 24, 2003. A revised version of the *Staff Report* and an errata were made available for public review on October 28, 2003, providing more than 45 days before the close of the public comment period that ended February 26, 2004. Staff's Supplemental Economic Analysis, dated April 2004, discusses changes to the economic analysis and was made available for public review and comment with the First 15-Day Notice. This information was the basis for cost and cost-effectiveness slides used in staff's presentations on December 11, 2003 and February 26, 2004.

5. Chapter VI of the *Staff Report* discussed the availability and technical feasibility of control measures. For the sake of completeness, staff added the following additional reference, as it pertains to the 25 to 50 horsepower and less than 25 horsepower diesel engine categories.

   U.S. Environmental Protection Agency, *Draft Regulatory Impact Analysis: Control of Emissions from Nonroad Diesel Engines,* Assessment and Standards Division, Office of Transportation and Air Quality, Document Number: EPA420-R-03-008, pages 4-1 to 4-83, April 2003, http://www.epa.gov/nonroad-diesel/2003nprm.htm, and click on Draft Regulatory Impact Analysis.

Responses to comments made during the First 15-day comment period for the above modifications are presented in section II.B. of this FSOR.

Staff proposed additional minor modifications in response to comments to the First 15-Day Notice. These modifications were explained in detail in the second Notice of Public Availability of Modified Text that was issued for a 15-day public comment period that began on July 16, 2004, and ended on August 2, 2004 (Second 15-Day Notice, which is incorporated by reference herein). This second notice, along with a copy of the modified text and the documents and information referenced in the notice, were mailed to individuals described in subsections (a)(1) through (a)(4) of section 44, title 1, CCR and made available on ARB's website, in accordance with Government Code section 11346.8. In

order to provide a complete Final Statement of Reasons for this rulemaking, the following is a summary of these modifications and staff's rationale for making them:

A. The definition of "Tier 4 Nonroad/Offroad Emission Standards" and footnotes 1 and 2 were amended to reflect the recently promulgated final rule by the United States Environmental Protection Agency, "Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel" (June 29, 2004).

B. Subparagraph (e)(1)(F)1.c. was added so that early compliance with the Low Emission TRU In-Use Performance Standard (LETRU standard) may not earn a delay in the Ultra-Low Emission TRU In-Use Performance Standard (ULETRU standard) compliance date if public funds are used to achieve early compliance. The applicant for ULETRU delay would be required to disclose whether any public funds were used for any portion of early compliance and what program the funding came from. Staff believes that use of public funds for the early LETRU compliance incentive should not result in earning the ULETRU compliance delay because it would give an unintended double benefit to recipients.

C. The facility reporting compliance deadline in subparagraph (f)(2)(A) was changed from January 31, 2005 to January 31, 2006. This delay was necessary due to the delay in Board adoption of the TRU ATCM from December 11, 2003 to February 26, 2004. Such a delay will provide the necessary time for facilities to set up recordkeeping systems and collect data on their TRU operations. As a result, the data collection period was also changed from "as of December 31, 2004" to "as of December 31, 2005" and changed from "2004" to "2005" in subparagraphs (e)(2)(A)7. through (e)(2)(A)11.

D. Subparagraph (f)(2)(A)7. was modified to clarify that the total annual TRU engine operating hours required to be reported is to include both the on-road and offroad (at-facility) operations.

E. Subparagraph (f)(2)(A)8. was modified to clarify that the average weekly number of inbound refrigerated loads is to be calculated by dividing the annual total inbound refrigerated loads by 52 (weeks per year).

F. Subparagraph (f)(2)(A)9. was modified to clarify that the average weekly number of outbound refrigerated loads is to be calculated by dividing the annual total outbound refrigerated loads by 52 (weeks per year).

G. Subparagraphs (f)(2)(A)10., and (f)(2)(A)11. were modified to allow affected facilities to use average values for TRU engine operating time, provided the results are representative of actual TRU engine operating times at the facility. Average values would be determined based on recordkeeping conducted in accordance with subparagraph (f)(2)(B)2. Staff believes this approach will reduce the recordkeeping effort required of facilities and still provide useful results. A description of the

calculation of average weekly number of hours of TRU engine operation was also included to improve clarity.

H. Subparagraph (f)(2)(B) was amended as follows: Subparagraph (f)(2)(B)1. was added to incorporate the language that had previously been included in subparagraph (f)(2)(B), and subparagraph (f)(2)(B)2. was added to allow the Executive Officer to approve alternative recordkeeping and calculation procedures, provided the Executive Officer finds that the alternative procedure meets the intent of subparagraph (f)(2). Staff believes this approach will reduce the recordkeeping effort required of facilities and still provide useful results.

I. Subparagraphs (e)(1)(E)1.b.I., (f)(1)(A)2.a.I., and (f)(2)(C)1. added a line to ARB's mailing address reading "Stationary Source Division (TRU)" to facilitate the routing of submittals to staff.

J. Subparagraph (e)(1)(A)3.e. was modified to clarify that only fuel cell technologies that use a reformer using diesel fuel as a source of hydrocarbons would be required to be evaluated and verified through the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines*. The intent is to assure that if there are diesel-related emissions from the reformer, then these emissions would be measured and evaluated to assure potential health impacts are at or near zero.

In the interest of completeness, staff has also added to the rulemaking record and invited comments on the following additional documents and information (the two documents below were included in the Second 15-Day Notice):

1. Memorandum, dated February 23, 2004, from Diane Moritz Johnston, General Counsel, to Alan C. Lloyd, Chairman and Honorable Board Members on the Legal Authority for Air Toxics Control Measures for Diesel Particulate Matter from In-Use Diesel Engines.

2. Letter, dated April 20, 2004, from Air Resources Board Executive Officer, Catherine Witherspoon, to Ms. Stephanie Williams, California Trucking Association.

C. Incorporation by Reference in the Regulation

No material was incorporated by reference in the regulation itself.

D. Fiscal Impacts to School Districts and Local Agencies

The Board has determined that although this regulatory action will likely have a fiscal impact on school districts and other local public agencies that operate TRUs, the impact will not be a reimbursable mandate pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code. The projected fiscal costs that will be incurred

by the local public agencies are indistinguishable from those that will be incurred by the private sector. See County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 55-57.

E. Consideration of Alternatives

Alternatives to this regulatory action were considered in the *Staff Report*, in accordance with Government Code section 11346.2. After responding to the comments received, Staff concludes that no reasonable alternative considered by the agency, or that has otherwise been identified and brought to the attention of the agency, would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the regulation adopted by the Board.

II. SUMMARY OF COMMENTS AND AGENCY RESPONSES

A. Responses to Comments Received During 45-Day Public Comment Period

The Air Resources Board (ARB or Board) received written and oral comments during and after a 45-day public comment period provided for the proposed ATCM. The public comment period began on October 24, 2003, continued through presentation and discussion of the proposed ATCM at a public hearing on December 11, 2003, and concluded with the Board taking final action to adopt the proposed ATCM with suggested modifications at a public hearing on February 26, 2004.
Persons that commented on the proposed ATCM or the modified regulatory language are listed below. Following each list of commenters are responses to summarized objections and recommendations. Each response is an explanation of either the changes made as a result of an objection or recommendation or the reasons for making no change.

List of Commenters - Proposed ATCM

- Anair, Don, Union of Concerned Scientists (UCS), December 11, 2003.
- Bailey, Diane, Natural Resources Defense Council (NRDC), December 11, 2003.
- Bailey, Diane, NRDC, and other signatories: American Lung Association of California, Environmental Defense, Sierra Club, East Yard Communities for Environmental Justice, Union of Concerned Scientists, Coalition for Clean Air, Planning and Conservation League, Center for Energy Efficiency and Renewable Technologies, Physicians for Social Responsibility Los Angeles, and California Environmental Rights and Lands (as per Diane Bailey testimony on December 11, 2003) (NRDC et al.),

December 10, 2003.

- Bailey, Diane, NRDC, and other signatories: Union of Concerned Scientists, Sierra Club, Center for Energy Efficiency and Renewable Technologies, and Environmental Defense (NRDC et al.), February 25, 2004a.
- Bailey, Diane, NRDC, and other signatories: Union of Concerned Scientists, American Lung Association, Coalition for Clean Air, Environmental Defense, Planning and Conservation League, Sierra Club, Center for Energy Efficiency and Renewable Technologies, East Yard Communities for Environmental Justice, Physicians for Social Responsibility Los Angeles, California Environmental Rights Alliance, Regional Asthma Management & Prevention Initiative, and Our Children's Earth (NRDC et al.), February 25, 2004b.
- Breen, Damian, Bay Area Air Quality Management District (BAAQMD), October 27, 2003.
- Campbell, Todd, Coalition for Clean Air (CCA), December 11, 2003.
- Digges, Robert, ATA, February 26, 2004.
- Foster, Stan, NORCO Ranch and Eggs Ranch (NORCO), February 26, 2004.
- French, Timothy, Law Offices of Neal, Gerber, and Eisenberg on behalf of Engine Manufacturers Association (EMA), December 9, 2003.
- Greene, Larry, California Air Pollution Control Officers Association (CAPCOA), December 10, 2003.
- Guzman, Peter, Carrier Transicold, December 10, 2003.
- Heaton, Staci, California Trucking Association (CTA), December 11, 2003 and February 25, 2004.
- Holmes-Gen, Bonnie, American Lung Association of California (ALA), December 11, 2003.
- Kirwan, B.J., Thermo King Corporation (Thermo King), December 11, 2003 and February 26, 2004.
- Kubsh, Joseph, Manufacturers of Emission Controls Association (MECA), December 11, 2003.
- Larkin, Peter, California Grocers Association (CGA), December 8, 2003.
- Mandel, Jed, Engine Manufacturers Association (EMA), December 11, 2003.
- Mayer, Andreas, Technik Thermische Maschinen (TTM), December 9, 2003.
- McKeeman, Jay, California Independent Oil Marketers Association (CIOMA), December 11, 2003.
- McKinnon, Dale, Manufacturers of Emission Controls Association (MECA), December 9, 2003.
- Miller, Paul, Environmental Science Associates (ESA), December 4, 2003.
- Modisette, David, California Electric Transportation Coalition (CETC), December 11, 2003, February 23, 2004, and February 26, 2004.
- Nartker, Tom, Safeway, Inc., December 11, 2003.
- Phillips, Mark, Millbrook Energy International, October 28, 2003.
- Saito, Dean, South Coast Air Quality Management District (SCAQMD), December 11, 2003 (for written comments see letter from Wallerstein, SCAQMD, December 9, 2003).
- Smith, Paul, California Grocers Association (CGA), December 11, 2003.
- Tavaglione, John, Riverside County Board of Supervisors (Riverside County), February

24, 2004.
- Tunnell, Mike, American Trucking Association (ATA), December 11, 2003.
- Viegas, Herman, Thermo King Corporation (Thermo King), December 11, 2003 and February 17, 2004.
- Wallerstein, Barry, South Coast Air Quality Management District (SCAQMD), December 9, 2003.
- Warf, Bill, California Electric Transportation Association (CETC), December 11, 2003.
- Williams, Stephanie, CTA, February 26, 2004.
- Willoughby, Stacy, January 5, 2004.
- Wilson, Bob, IdleAire, February 26, 2004.

1. General and Process

1.a. Comment: The Board should consider regulations to curb diesel exhaust particulate matter (diesel PM) from significant sources such as refrigerated trailers and off-road yard equipment. [Willoughby, January 5, 2004]

Response: Separate airborne toxic control measures regulating diesel PM emissions from diesel-fueled TRU and other stationary and portable off-road engines were adopted by the Board at a public hearing held in Sacramento, California on February 26, 2004. Registration and inspection programs to detect excess emissions have been and continue to be incorporated in measures addressing diesel-fueled off-road equipment.

1.b. Comment: Representatives of several organizations (specified below) commented that they supported the proposed ATCM because it would reduce diesel exhaust particulate matter and its associated adverse health effects. These persons urged the Board to adopt and implement the regulation as quickly as possible. [Anair, UCS, December 11, 2003; Bailey, NRDC, December 11, 2003; Bailey, NRDC et al., December 10, 2003; Bailey, NRDC et al., February 25, 2004a; Bailey, NRDC et al., February 25, 2004b; Campbell, CCA, December 11, 2003; Greene, CAPCOA, December 10, 2003; Holmes-Gen, ALA, December 11, 2003; Kubsh, MECA, December 11, 2003; Miller, ESA, December 4, 2003; Modisette, CETC, December 11, 2003 and February 26, 2004; Saito, SCAQMD, December 11, 2003; Wallerstein, SCAQMD, December 9, 2003; Warf, CETC, December 11, 2004]

Response: The proposed ATCM and staff's suggested modifications were adopted by the Board at a public hearing held in Sacramento, California on February 26, 2004.

1.c. Comment: Whenever feasible and appropriate, IdleAire supports voluntary mechanisms rather than regulations to achieve emission reductions. [Wilson, IdleAire, February 26, 2004]

Response: Pursuant to California Health and Safety Code (H&SC) section 39665(a), the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled*

Engines and Vehicles (October, 2000) and additional information in the *Staff Report* identified and explained the need and appropriate degree of regulation for TRU engines.

1.d. Comment: Any delay in adopting the proposed ATCM contradicts Governor Schwarzenegger's Action Plan for California's Environment and the Governor's goal of cutting air pollution statewide by up to 50 percent. [Miller, ESA, December 4, 2003]

Response: The proposed ATCM and staff's suggested modifications were adopted by the Board at a public hearing held in Sacramento, California on February 26, 2004.

1.e. Comment: In the future, the Board should consider adopting stricter TRU regulations because of the relatively high cancer potency factor associated with diesel exhaust particulate matter (diesel PM). [Miller, ESA, December 4, 2003]

Response: The ARB will continue to evaluate TRU engine diesel PM emissions, particularly at large distribution facilities frequented by TRUs, to determine if further regulations are warranted.

1.f. Comment: Pursuant to Governor Schwarzenegger's Executive Order S-2-03, signed November 17, 2003, the ARB should not proceed with any new or pending regulation, including the proposed ATCM, until the impact on California's economy has been assessed. [Heaton, CTA, December 11, 2003 and February 25, 2004; Larkin, CGA, December 8, 2003; Williams, CTA, February 26, 2004]

Response: The ARB fully evaluated the economic and fiscal impacts of the adopted regulation and concluded that the benefits from the regulation outweighed the associated costs. Based on its review of the Economic and Fiscal Impact Statement for the proposed ATCM, the California Department of Finance (DOF) granted approval to proceed with the rulemaking on December 10, 2003.

1.g. Comment: The Board should not close the record at the conclusion of presentation and discussion of the proposed ATCM at the December 11, 2003 public hearing. The record should remain open for further deliberations, especially if there are changes to the proposed ATCM pertaining to retrofit control device requirements. Also, the record should remain open in the spirit of Governor Schwarzenegger's Executive Order S-2-03, signed November 17, 2003. The proposed ATCM is not exempt from Executive Order S-2-03 regardless of the 1999 court settlement agreement between ARB and three environmental groups (see Comment 1.h. below). [Smith, CGA, December 11, 2003]

Response: The record for the ATCM remained open for public comment submittal until the measure and modifications suggested by staff were adopted by the Board at a public hearing held in Sacramento, California on February 26, 2004. Additional comments were solicited and received on the modifications to the ATCM during two public comment periods from April 5, 2004 through April 30, 2004, and July 16, 2004 through August 2, 2004.

1.h. Comment: State law requirements for full public participation in regulatory activities were not observed for the proposed ATCM due to the 1999 settlement agreement between ARB and three environmental groups (i.e., the Natural Resources Defense Council (NRDC), Communities for a Better Environment (CBE), and Coalition for Clean Air (CCA). Stakeholders (i.e., TRU manufacturers, dealers, and owner/operators) were not allowed to provide information or advice during settlement negotiations that established deadlines for the Board's adoption of specific regulatory programs and implementation schedules relative to the proposed ATCM. Settlement agreements between a few parties are not a good way to do public policy. [Larkin, CGA, December 8, 2003; McKeeman, CIOMA, December 11, 2003; Smith, CGA, December 11, 2003]

Response: As discussed at the public hearing on December 11, 2003, the Board was not obligated to adopt the ATCM simply because a settlement agreement identified dates by which the regulation of sources of diesel exhaust particulate matter must be considered. The Board has the authority to act independently and decide, based on the weight of evidence, the need and appropriate degree of regulation for toxic air contaminant emission sources, including diesel-fueled TRU engines. Throughout the development of the recently adopted ATCM, stakeholders had many opportunities to provide information and express concerns (see Comment 1.i.). If ARB had obtained or received information indicating that settlement agreement provisions relative to TRUs were impractical, the agency could and would have sought to renegotiate those provisions.

1.i. Comment: The ARB should delay adoption of the proposed ATCM in order to work more closely with the regulated industries to ensure that the proposed regulation is feasible, effective, and appropriate.

Transportation fleets and drivers are unaware that the proposed ATCM could impact fleet operation and drivers' jobs. Recently, the ARB has proposed several different air quality regulations targeting separate, but occasionally overlapping, sectors of commercial and public service transportation. This series of regulations constitutes a systematic attack on the California Trucking Association (CTA) and the rest of the trucking industry and has made it difficult for the industry to stay informed and participate in the regulatory process.

In addition, with regards to the proposed ATCM, representatives of the California Grocers Association (CGA) could not participate in the Board Hearing held on February 26, 2004, due to their involvement in critically-important negotiations with striking grocery workers in southern California. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: The recently adopted ATCM was developed over nearly three years, during which time staff discussed numerous regulatory approaches and industry concerns at a public consultation meeting, nine workgroup meetings, five public workshops, and a large number of stakeholder meetings, e-mails, and telephone conversations. In addition, staff:

- Met with representatives from American Trucking Association's (ATA – a trade association that represents the U.S. trucking industry) Technology and Maintenance Council and truck and trailer leasing companies;
- Met with TRU, TRU engine, TRU generator set, and trailer manufacturers, dealers, and repair and maintenance companies;
- Contacted State, national and international trucking associations and many individual carriers;
- Conducted approximately 25 facility tours and interviews with facility operators (including intermodal facility operators at rail yards and marine shipping terminals);
- Met with representatives of the agricultural community and food manufacturers;
- Contacted grocer, meat and poultry, refrigerated warehouse, railroad, and port terminal associations; and
- Met with government agencies with jurisdiction over carriers and facilities where refrigerated carriers operate.

Notices regarding the proposed ATCM were published on the ATA and CTA websites and in several issues of "Refrigerated Transporter," a trade journal distributed to 15,000 business or individual subscribers.

Staff's efforts were recognized by ATA's Mike Tunnell in his comments before the Board on December 11, 2004, where he stated, "ATA appreciates the effort of staff. They've done an excellent work on workshopping this."

As a result of industry participation in development of the proposed ATCM, several important issues came to light and were resolved prior to publication of the *Staff Report.* The Engine Manufacturing Association (EMA) (French, EMA, December 9, 2003; Mandel, EMA, December 11, 2003) and the ATA (Tunnell, ATA, December 11, 2003) commended staff's efforts to harmonize proposed ATCM performance standards with the U.S. Environmental Protection Agency (U.S. EPA) Tier 4 new nonroad engine emission standards. In addition, EMA commended staff's efforts to: 1) work with industry and the U.S. EPA to develop a representative TRU engine test cycle; 2) recognize that a federal Clean Air Act section 209(e) waiver from U.S. EPA is necessary to enforce the TRU ATCM; and 3) address some of EMA's concerns with the risk assessment and risk characterization.

Staff met with the California Grocer's Association (CGA) several times prior to and between the Board's public hearings to discuss and resolve CGA members' concerns. CGA is a statewide trade association representing over 500 retail and supplier members, who operate trucking fleets that rely on TRUs. Representatives of the CGA demonstrated that they were aware of the proposed ATCM by submitting comments and testifying during the public comment period. Specifically, Peter Larkin, CGA, submitted a comment letter regarding the proposed ATCM on December 8, 2003 and Paul Smith, CGA, testified orally and submitted written comments at the December 11, 2003 Board Hearing for the proposed ATCM. Staff continued to meet with CGA after the February 26, 2004 Board adoption of the TRU ATCM to discuss and resolve the remaining issues important to CGA.

Some of the modifications to regulatory language included in the first and second 15-Day Notices accommodated objections and recommendations made by CGA (see section B, above). CGA President and CEO, Peter Larkin, submitted a comment letter dated July 29, 2004, expressing support regarding the proposed modifications.

2. Legal Issues/Legal Authority

2.a. Comment: The California Trucking Association (CTA) requested a written opinion on the legal issues surrounding the proposed ATCM a year ago. However, the ARB staff did not issue a written legal opinion until February 23, 2004, just three days prior to the February 26, 2004 Board Hearing to consider adoption of the proposed ATCM. Moreover, in their legal opinion, the staff failed to support interpretations of State and federal laws with case citations. [Williams, CTA, February 26, 2004]

Response: In general, in developing an ATCM for final adoption by the Board, the ARB staff is involved in ongoing technical and legal research and evaluation. As the control measure evolves and takes form, staff regularly meets with interested stakeholders and holds continuous internal deliberations on the scope and content of the measure. As a consequence, the measure goes through numerous iterations before it is publicly noticed and made available for official public comment. It has customarily been the ARB staff's practice to respond to issues as they are raised in the development process verbally based on the staff's current understanding of the evolving regulatory proposal.

As part of the development process for the TRU ATCM, stakeholders raised numerous technological, economic, legal and other issues during public workshops, workgroup meetings, and conversations with staff. The legal issues primarily involved questions about regulatory authority and potential conflicts with State and federal laws. Staff addressed these issues verbally during meetings and conversations with stakeholders throughout the development process. Many of the issues were also addressed in the *Staff Report*, which was released on October 24, 2003.

In response to a request from the Board at the December 11, 2003 public hearing, the ARB General Counsel provided a memorandum to the Board Chairman and Board members entitled "Legal Authority for Air Toxics Control Measures for Diesel Particulate Matter from In-use Diesel Engines," dated February 23, 2004. This memorandum was made available to the public at the February 26, 2004 Board hearing. The memorandum addressed the Board's authority to adopt measures to control exhaust from in-use diesel trucks and other diesel engines, including TRU engines. At the public hearing on February 26, 2004, the Board subsequently requested that staff provide examples of case law citations to supplement the opinions expressed in the memorandum. These example citations were sent to the commenter, Ms. Stephanie Williams, CTA, in a letter dated April 20, 2004 (Witherspoon to Williams). The letter to Ms. Williams and the February 23, 2004 authorization memorandum were made available for public comment in the Second 15-Day Notice.

2.b. Comment: The ARB legal opinion (page 6, paragraph 3, sentence 5) states that the proposed ATCM does not set standards for engine output, tailpipe emissions, or evaporative emissions yet the staff's presentation to the Board on February 26, 2004, mentioned the proposed ATCM's "standards" 15 times. The ARB should explain this discrepancy. [Williams, CTA, February 26, 2004]

Response: The ARB's legal opinion issued to the Board at its February 26 public hearing, discussed the agency's general authority to regulate diesel PM exhaust emissions through air toxic control measures for the three items that were on the Board's agenda for that hearing. The paragraph specifically cited by the commenter was an attempt by the ARB to address stakeholders' concerns that the ARB must obtain a waiver (for on-road vehicles) under federal Clean Air Act (CAA) section 209(b) or an authorization (for non-road engines and vehicles) under CAA section 209(e). Specifically, in sentence 5, the ARB explained why the waiver provisions of CAA section 209(b) are not applicable to the three ATCM's being considered by the Board. The provisions of CAA section 209(b) allows California to seek a waiver of preemption for on-road motor vehicles covered by the federal preemption set forth in CAA section 209(a). The latter section provides that no state shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles. Although California is the only state that may request and obtain a waiver from the federal preemption, the preemption prescribed under CAA section 209(a) does not apply to the ATCMs that were under consideration by the Board in that none of the ATCMs deal with "new" on-road motor vehicles. This is specifically true for the TRU ATCM. TRUs use nonroad engines and are covered under the provisions of CAA section 209(e). Although TRUs are often associated with motor vehicles, TRU engines do not propel motor vehicles and, therefore, are considered nonroad engines rather than motor vehicle engines. Recognizing that the TRU ATCM establishes emission standards for in-use TRU engines, the memorandum expressly states in the last sentence of paragraph 3 that the ARB will be seeking authorization from U.S. EPA. Thus, no contradiction exists as implied by the commenter.

2.c. Comment: In its legal opinion, the ARB appears to justify adoption of the proposed ATCM based on engine manufacturer claims that model year 2004 TRUs will be able to meet the proposed ATCM's 2008 performance standards. The ARB should provide background information and proof of such engine manufacturer claims. [Williams, CTA, February 26, 2004]

Response: Staff provided documentation of TRU engine manufacturer statements to CTA, in a letter dated April 20, 2004. The letter and documentation were made available for public comment in the Second 15-Day Notice.

2.d. Comment: From the perspective of the CTA, the ARB has no legal authority to regulate in-use TRUs, nor interstate transportation (see Comments 2.e.-q. and 2.s.) and is seeking such authority indirectly via the courts by provoking litigation. Such a process preempts the trucking industry's participation in the regulatory process. See also Comment 1.i. [Williams, CTA, February 26, 2004].

2.e. Comment: The ARB should delay adoption of the proposed ATCM until the Agency obtains a federal Clean Air Act section 209(e) waiver. Such a waiver would empower the ARB to adopt and enforce emission control standards for nonroad engines such as TRU engines, but only insofar as such standards would apply to "new" engines. As written, the proposed ATCM conflicts with the federal Clean Air Act waiver provision because it applies to in-use nonroad engines that are subject to federal preemption. Thus, the proposed ATCM would circumvent federal Clean Air Act safeguards by establishing separate and inconsistent requirements for in-use TRU engines operating in California. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response to Comments 2.d. and e.: As set forth in the ARB's legal authority memo dated February 23, 2004, that was made available for public comment in the second 15-Day Notice, staff believes that ARB has authority to adopt the TRU ATCM under federal and state law. Pursuant to Health and Safety Code sections 39650 et seq., the ARB has authority to adopt ATCMs for identified toxic air contaminants (See H&SC sections 39666 and 39667). Diesel PM has been identified as a toxic air contaminant and the Board has developed and approved a Diesel Risk Reduction Plan in September 2000. Additionally, the ARB has authority to adopt emission control measures for offroad engines under H&SC sections 43013 and 43018. The TRU ATCM and emission standards have been developed under the above authority.

As stated, California will apply for authorization from U.S. EPA under CAA section 209(e). U.S. EPA has already addressed the issue raised by the commenter that the ARB should delay adoption of the proposed ATCM until the California has obtained authorization from U.S. EPA. In its final 209(e) rule, U.S. EPA found that under the CAA, it could and should allow California to adopt its regulations before submitting them to U.S. EPA for consideration. (See 59 Fed. Reg. 396969, at 36981-36983). In ruling on California's authorization request, U.S. EPA will be determining whether there is any basis for finding the Board acted arbitrarily and capriciously in determining that the TRU engine in-use emission standards are at least as stringent as applicable federal standards; whether California does not need its own standards to meet compelling and extraordinary conditions; and whether California's standards are consistent with section 209 of the CAA. The ARB will be addressing each of these issues in its request letter for authorization from U.S. EPA. In granting authorization, U.S. EPA will be finding that California-adopted standards and regulations are authorized by the CAA.

The commenters are mistaken when they state that an authorization can only be granted for a "new" engine. The Court of Appeals, D.C. Circuit has opined that CAA section 209(e)(2) provides California with the right to seek authorization from U.S. EPA to adopt and enforce emission standards for new and in-use nonroad engines that are not specifically preempted under CAA 209(e)(1).[2] (*Engine Manufacturers Association v. U.S. EPA* (D.C. Cir. 1996) 88 F.3d 1075.). The ARB's adoption of in-use performance standards for TRU engines would not contravene the CAA; indeed the court stated that, under the CAA, California is the only governmental body in the nation with authority to adopt, in the first instance.[3]

The ARB is not attempting to seek authority to adopt in-use emission standards through the courts. As stated, California has authority to adopt such regulations under state and federal court. No effort has been made to deny the trucking industry a role in the regulatory process. The ARB has actively sought the trucking industry's participation in the development of this regulation. Indeed, the trucking industry has participated in most, if not all, of the scheduled workshops for the ATCM and has provided comment throughout the process. Both CTA and ATA attended both public hearings in which the Board considered the regulation and have provided both oral testimony and written comment. Please see Responses to Comments 2.e.-q., 2.s., and 1.i.

2.f. Comment: The end of ARB's authority to adopt emission control standards does not mark the beginning of regulatory authority to enforce "in-use" emission control requirements against owners and operators. This is because an engine remains "new" for regulatory preemption purposes longer than for emission standard-setting purposes (i.e., it is "new" until its legal or equitable title is transferred to the ultimate purchaser). Otherwise in-use engines could be subject to separate and inconsistent emission control standards the moment they are bought and delivered to a purchaser. This would effectively nullify the federal Clean Air Act section 209(e) preemption. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: See response to comments 2.d. and e. As discussed above, California is not per se preempted from adopting emission standards for either new or in-use TRU engines, which are neither farm or construction engines under 175 horsepower nor locomotive engines. (See CAA section 209(e)(1). Under CAA section 209(e)(2), California may request authorization to adopt and enforce emission standards for new and in-use TRU engines. And, the Administrator of U.S. EPA shall grant such authorization unless those opposed to the granting of the authorization have met their evidentiary burden. (See *Motor and Equipment Manufacturers Assoc. v. U.S. EPA* (D.C. Cir 1979) 627 F.2d

[2] CAA section 209(e)(1), preempts all states, including California, from adopting state emission control standards or requirements for less than 175 horsepower (hp) new nonroad engines or new nonroad vehicles used in construction or farming and for new locomotives or new engines used in locomotives. The TRU ATCM does not attempt to regulate any of these categories.

[3] Once California has adopted regulations and obtained authorization from U.S. EPA, other states may opt to adopt identical regulations as adopted by California. (CAA section 209(e)(2)(B). U.S. EPA is without authority to adopt standards for in-use nonroad engines. See CAA section 213.)

1095; see also *California State Nonroad Equipment Pollution Control Standards; Authorization of State Standards Notice of Decision (Utility and Lawn and Garden Regulation Authorization)* 60 Fed. Reg. 37440, *Decision Document*., at p.12.).

2.g. Comment: Since California has no authority over interstate trucking, the proposed ATCM would violate the federal Interstate Commerce Clause, even if the U.S. EPA approves ARB's application for a federal Clean Air Act section 209(e) waiver for the regulation (see Comments 2.e.-f.). [Digges, ATA, February 26, 2004; Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

2.h. Comment: CTA supports national regulatory uniformity among all states. Because ARB does not have the authority to regulate interstate trucks, the proposed regulation will be another single-state mandate that will affect only trucks that register in California. [Heaton, CTA, December 11, 2003 and February 25, 2004; Williams, CTA, February 26, 2004]

Response to Comments 2.g. and h.: The ARB does not believe that the TRU ATCM violates the federal Interstate Commerce Clause. First, if U.S. EPA grants a waiver for the ATCM pursuant to federal Clean Air Act section 209(e)(2), the measure is likely to be considered exempt from the Interstate Commerce Clause. Presently, no federal court has ruled on the question as to whether §209(e)(2)(A) exempts ARB emission standards and other emission-related requirements from Interstate Commerce Clause analysis; however, several California courts have opined that an exemption exists under federal Clean Air Act section 209(b). (See *People ex rel. State Air Resources Board v. Wilmshurst* (1999) 68 Cal.App.4th 1332, 1345; see also discussion in *Jordan v. Department of Motor Vehicles* (1999) 75 Cal. App. 4th 449, 461.). Second, the ATCM only regulates TRU engines operating within California and does not directly regulate or discriminate against interstate commerce, substantially impede the flow of interstate commerce, or have an effect that favors in-state economic interests over out-of-state interests. Third, the ATCM's indirect effects on interstate commerce are incidental and minor, particularly when compared to the public health benefits that will be achieved as a result of the measure's implementation. Finally, to the extent that the regulation of TRU engines should be uniform, California has been delegated by Congress to lead in that task as described in the Response to Comment 2.d. and e. supra. See also, the Responses to Comments 2.i.-m.

2.i. Comment: Establishing an individual state requirement for TRUs involved in interstate commerce sets a precedent which could lead to a patchwork of state requirements that restrict the ability of interstate trucking companies to effectively serve the nation. [Tunnell, ATA, December 11, 2003]

Response: As stated above in response to comments 2.g. and h., Congress has designated California to take the lead in adopting in-use emission standards for nonroad engines. (CAA section 209(e)(2); see also section 213 and *EMA v. U.S. EPA, supra,* 88 F.3d at 1086-1092.). As stated, California has exclusive authority to initially establish in-

use emission standards and related requirements for mobile nonroad engines, such as TRU engines. There is no potential for inconsistent requirements for TRU engines because other states opting to adopt in-use TRU engine standards must adopt standards identical to those of California as required by §209(e)(2)(B). In the context of state regulations, there can only be two types of regulations in the nation, California's regulation or no regulation. Consequently, there can be no patchwork of regulation running throughout the nation. Trucking companies that meet California's standards and operate in other states than California cannot be cited for failing to comply with the other state's requirements since they would be identical. See also Responses to Comments 2.d. and e. and 2.g. and h.

2.j. Comment: Due to unpredictable transportation service needs and operation, ARB's proposed regulation will disproportionately burden interstate commerce operations by requiring out-of-state TRU owners, including large fleet owners, to retrofit or replace all their TRUs on the chance that their units may someday service California. Many of these TRUs would actually operate very little or not at all in California. Moreover, the proposed ATCM could subject a TRU to enforcement actions even though the unit is just passing through the State without making a pick-up or delivery. [Digges, ATA, February 24, 2004; Tunnell, ATA, December 11, 2003]

Response: The ARB does not believe that the recently adopted ATCM will impose a significant burden on out-of-state TRU owners or operators. First, individuals or fleets with TRU-equipped trucks or semi-trailers will have until 2008 to decide whether or not they intend to operate in California and need to comply. Between 2004 and 2008, as a result of routine fleet turnover rather than regulation, most out-of-state long-haul trucking companies are expected to replace existing TRUs or TRU engines with units or engines that meet both the proposed 2008 federal Tier 4 standards and ATCM standards. Second, staff does not believe that entire out-of-state refrigerated fleets, nor more than that portion of any out-of-state refrigerated fleet that actually travels within California, will need to comply. Modern day truck dispatching uses the latest communication technology including global positioning systems. This technology, coupled with inventory and recordkeeping, should allow trucking companies to know where each TRU-equipped vehicle is at any particular moment in time. With such knowledge, dispatchers could direct fleet vehicles sending only vehicles with compliant TRU engines to California. Finally, because of California's location, it is very unlikely that many refrigerated trucks will drive through without making a pick-up or delivery within the State.

2.k. Comment: The U.S. Supreme Court (Court) has long recognized that specialized state requirements that unduly burden interstate commerce violate the federal Interstate Commerce Clause. The Court has been especially concerned with state regulations that have "extraterritorial reach," i.e., the effect of regulating conduct occurring wholly outside the state's borders. The proposed regulation has "extraterritorial reach" because it will have the practical effect of regulating conduct and dictating the purchase and/or permanent alteration of equipment that occurs wholly outside of California. The Court has said that state regulations which have "extraterritorial reach" obstruct national policy, and that such

regulations, should be promulgated by Congress, if at all. See *Healy v. The Beer Institute* (1989) 491 U.S. 324, 332 and *Southern Pacific v. Texas* [sic] *(1945)* [Heaton, CTA, December 11, 2003 and February 25, 2004; Digges, February 26, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: Courts have typically found state laws to have an impermissible extraterritorial effect only when a state's economic regulation would be projected onto commerce wholly occurring in other states. (See *Brown-Forman Distillers Corporation v. New York State Liquor Authority (1986)* 476 U.S. 580) [New York statute that would force liquor distillers once they post prices in New York not to change prices anywhere else in the country has an impermissible extraterritorial effect.]; see also *Healy*, 491 U.S. 336 [Connecticut price affirmation statute violates the Interstate Commerce Clause because it has the practical effect of controlling prices in other states.] A further example of when a court will find an impermissible extraterritorial effect is in *National Solid Waste Management Association (NSWMA) v. Meyer* (1995, 7th Cir.) 63 F.3d 652, 656. There, a Wisconsin statute conditioned the right of out-of-state generators of waste to use Wisconsin landfills on the generators' home communities adopting and enforcing Wisconsin recycling standards. The court found an impermissible extraterritorial effect because the Wisconsin statute would have required another state, or at least a community within that state, to adopt Wisconsin standards and require all generators in the out-of-state community to effectively "adhere to Wisconsin's standards whether or not they dump their waste in Wisconsin." (Emphasis added.) (*NSWMA*, 63 F.3d, at 657.) As explained below, the recently adopted ATCM will impose no requirement or condition on the conduct of commerce occurring wholly outside California's borders.

As set forth in subsection B., Applicability, the ATCM applies to TRUs operating within the State and to large facilities (e.g., food distribution centers where TRU-equipped trucks, trailers, shipping containers, and railcars are loaded or unloaded) located within the State. While out-of-state TRU engines associated with vehicles that travel in California are subject to the ATCM, TRU engines that never enter California will not be subject in any way (see also Response to Comment 2.j.). Similarly, facilities located outside the State will not be subject to the ATCM.

In addition to not affecting TRU engines or TRU-equipped vehicles that operate wholly outside California, the ATCM imposes no direct requirement or condition on commercial transactions that occur wholly outside of the State. (See N*ational Electric Manufacturers Association (NEMA) v. Sorrell* (2nd Cir. 2000) 272 F.3d 104 [Vermont statute requiring labeling of lamps sold in the state did not have an extraterritorial reach because "by its terms, is 'indifferent' to whether lamps sold anywhere else in the United States are labeled or not."] Although the ATCM may influence the sale and installation of TRUs, TRU engines, and retrofit devices or kits, these effects are indirect and incidental because the regulation entails no requirements, obligations, or liability on such transactions whether they occur in or outside California. Staff anticipates that compliant TRUs and TRU engines will be available nationally as a result of the U.S. EPA's Tier 4 new nonroad engine standards.

Staff also anticipates that retrofit kits will be available nationally to be installed on out-of-state refrigerated vehicles that travel into California. Thus, no in-state interests should gain any economic benefit through implementation of the ATCM.

Thus, the ATCM is limited to regulating commerce that operates within California and does not project the terms of the regulation on businesses in other states. The adoption of California's TRU ATCM by other states could not be construed as impermissible "extraterritorial reach" because it is expressly authorized by Congress in federal Clean Air Act section 209(e)(2)(B). In addition, §209(e)(2)(B) eliminates any potential for non-uniform state requirements for TRU engines by giving California exclusive authority to adopt emission-related regulations for in-use nonroad engines and by allowing other states to adopt only those regulations identical to the California regulations authorized by the U.S. EPA.

Southern Pacific Co. v. State of Arizona (1945) 325 U.S. 761, is distinguishable on the facts from the TRU ATCM. The state regulation in question in Southern Pacific had a much different effect on Interstate Commerce than the TRU regulation would have. There the state statute restricted the number of cars that could be operated in Arizona as part of any passenger or freight train to 14 and 70 cars respectively. The Court found that such a statute placed a far greater burden on interstate commerce than any local safety consideration (*Id.,* at 325 U.S. 775). In making its ruling, the Court was specifically concerned that if one state could adopt such length of train standards, all states could. (*Id.*) The consequence would be a patchwork of state regulation that would impede interstate train travel at each state border. (*Id.*) As stated in response to comment 2.i., that cannot be the case under the TRU ATCM. California is the only state that can develop and adopt off-road regulations, like the TRU ATCM. While other states can adopt regulations identical to California's, no state can adopt regulations that deviate from those adopted by the ARB. Thus, there can be no federal patchwork that could impede interstate commerce.

2.l. Comment: The U.S. Supreme Court (Court) has applied the "Pike-balancing test" when an interstate commerce burden is implicated by a state action. The balancing test weighs the "putative local benefits" of the regulation against the burden that it imposes on interstate commerce to determine whether it violates the federal Interstate Commerce Clause (*Pike v. Bruce Church, Inc.* (1970) 397 U.S. 137, 142. See also *Raymond Motor Transportation v. Rice,* (1978) 434 U.S. 429, 439; *Bibb v. Navajo Freight Lines, Inc.* (1959) 359 U.S. 520; and *Kassel v, Consolidated Freightways Corp.* (1980) 450 U.S. 662.) The proposed ATCM would violate the Pike-balancing test. Specific concerns relative to determining the burden associated with the proposed ATCM are described below:

- By assuming that out-of-state TRUs operate in California as much as California-based TRUs, the ARB has overstated the reduction in emissions that it can expect to achieve from out-of-state TRUs. In comparison to the emission reductions that will be achieved, the burden on the owners of out-of-state TRUs will be extreme.

- Because it is impossible for interstate carriers to determine which of their equipment will be used in a particular area, out-of-state carriers will likely be required to replace or retrofit all of their TRUs, many of which will be used very little or not at all in California. The financial burden to an owner of an out-of-state TRU, which ARB estimates to range from $2,050 - $22,000 per TRU in capital costs plus maintenance-related costs ranging from $0 - $6,133 annually, is clearly excessive in relation to the pollution-reduction benefit that will be achieved by the proposed ATCM. Such an imbalance violates the *Pike*-balancing test.

- In *Southern Pac. Co. v. State of Arizona* (1945) 325 U.S. 761, the Court concluded that the safety benefits of a regulation did not outweigh its burden on interstate commerce. These safety benefits are analogous to the public health benefits as a result of emission reductions required by the proposed ATCM. The Court has also concluded that a state's interest in promulgating legitimate safety measures may "not outweigh the national interest in keeping interstate commerce free from interference which seriously impede it." (*Bibb*, 359 U.S. 520, 524.) [Digges, ATA, February 26, 2004; Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: When a state law regulates evenhandedly and has only indirect effects on interstate commerce as does the recently adopted ATCM (see Response to Comment 2.k.), the courts will then evaluate the burden of complying by examining whether a state's interests in adopting the challenged laws are legitimate and whether the burden on interstate commerce imposed by the subject law clearly exceeds the local benefits. (*Pike*, 397 U.S. 137, 142.) Balancing the local interest in regulation against the burden on interstate commerce is considered on a case-by-case basis, and the more legitimate the public interest, the greater the interference must be to overcome it. (See *Raymond Motor Transportation v. Rice,* (1978) 434 U.S. 429, 439.) Indeed, the Court has found that there is a strong presumption of validity of local safety regulations when challenged. (*Bibb* 359 U.S. 520) (See also *Huron Portland Cement Co. v. Detroit* (1960) 362 U.S. 440, 443) ["Constitution when conferring upon Congress the regulation of commerce . . . never intended to cut the States off from legislating on all subjects relating to the health, life, and safety of their citizens."] [4]

In evaluating a state's interests, the Court has recognized that such interests are never

[4] Given that TRU engines and systems are equipped on vehicles that travel interstate, the TRU regulation would best be analyzed under the interstate transportation line of cases: *Bibb*; *Ramond*, and *Kassel.* Although the Court has divided on how exactly the balancing test should be applied (See *Ramond* and *Kassel*), it is clear that the Court, is in agreement that a greater degree of deference should be given to state safety interests than economic protectionist interests. (See Tribe, American Constitutional Law, at p. 1100 ["[s]tate regulations seemingly aimed at furthering public health or safety . . . are less likely to be perceived as 'undue burdens on interstate commerce' than are state regulations evidently seeking to maximize the profits of local businesses or the purchasing power of local consumers."]

greater than in matters of traditional local concern. (*Hunt v. Washington Apple Advertising Comm'n* (1977) 432 U.S. 333, 350.) Air pollution prevention is undoubtedly a traditional local safety concern. (See *Huron Cement Co.,* 362 U.S. 445-446.) In adopting the federal Clean Air Act, Congress expressly found that air pollution poses a significant danger to public health and welfare and that "air pollution prevention is primarily a responsibility of the states and local governments." (FCAA §101(a)(1) and (2)[5].)

The California Legislature has similarly found that a strong public interest exists in the control of air pollution for the purpose of protecting the health and welfare of its citizens. (H&SC §§ 39000 and 39001.) More specifically, as it applies to the recently adopted ATCM, the California Legislature has found that toxic air contaminants pose a grave danger to the citizens of the State and that emissions of such contaminants need to be controlled. (H&SC §39650.) In an effort to address this problem, in August 1998, the ARB identified diesel exhaust particulate matter (diesel PM) as a toxic air contaminant and approved a comprehensive Diesel Risk Reduction Plan in September 2000, to reduce emissions from new and existing diesel-fueled engines and vehicles. TRU engines have been identified as a major contributor of diesel PM emissions, and the ATCM is a major element in the plan to reduce diesel PM emissions in the State.

Thus, an undeniable strong public interest exists for adoption and implementation of the ATCM. Since the regulation has strong support and is not illusory, significant deference should be accorded to the regulation. (See *Ramond*, 434 U.S. 448 (Blackmun, J., concurrence); cf. *Kassel*, 450 U.S. 670-671 ["if safety justifications are not illusory, the Court will not second-guess legislative judgment about their importance in comparison with related burdens on interstate commerce"].) Weighed against this strong local public interest are the burdens that would be imposed on interstate commerce by implementation of the regulation. As previously stated, the ATCM requires that all TRU engines operating in the State comply with the emission limits set forth in the regulation. This means that owners of TRUs must replace existing, noncompliant TRU engines with new compliant models, retrofit existing engines with verified diesel engine technologies, or use verified alternative diesel fuel with the existing engines. Regarding the commenters' specific concerns about overstated emission reductions and the inability to determine which out-of-state TRUs will operate in California, please see Responses to Comments 6.b., 6.g. and Comment 2.j. in conjunction with the discussion below.

The anticipated burdens to interstate commerce do not outweigh the presumed local health and welfare benefits of the regulation. The primary burden on interstate operators that will likely be identified by those who challenge the regulation will likely be the cost of retrofitting or replacing the TRU engines and systems. These costs are expected to range between $2,000 and $5,000. Replacement of an entire TRU at an estimated cost of about $20,000

[5] To the extent that it may be argued that TRU engines are nonroad engines and that such regulation should be handled uniformly on a nationwide basis, the FCAA delegated the responsibility to adopt nationally uniform regulations to California. (See *EMA*, 88 F.3d at 1089-1092.)

is not expected to be necessary. Although engine retrofit and replacement costs are not insignificant, they are costs that for most will not be repeated. Thus, the compliance costs should not impose an excessive interstate commerce burden that outweighs the health and safety benefits of the regulation. Indeed, many interstate carriers are expected to purchase new complying engines as a
normal course of business within the nearly five years of lead-time provided by the regulation.

Being a one-, or at most two-time, cost to operators, the costs of the ATCM are distinguishable from the identified costs in transportation cases such as *Raymond* and *Kassel*. In both *Raymond* and *Kassel,* the states of Wisconsin and Iowa had adopted legislation prohibiting the use of 65-foot double trailers in their states, with certain exceptions. A plurality of the Court in both decisions found that the states did not provide persuasive evidence showing that 65-foot double trailers were any less safe than 55-foot single trailers. (*Raymond,* 434 U.S. 444-445; *Kassel,* 450 U.S. at 671.) The asserted safety interests, having been found to be illusory, were then weighed against the imposed burden on interstate commerce caused by the legislation. In *Raymond* and *Kassel*, the Court found that the regulation would impose a substantial burden on the movement of interstate goods, finding the potential monetary burdens to be continual and substantial:

> Trucking companies that wish to continue to use 65-foot doubles must route them around Iowa or detach the trailers of the doubles and ship them through separately. Alternatively, trucking companies must use the smaller 55-foot singles or 60-foot doubles permitted under Iowa law. Each of these options engenders inefficiency and added expense. The record shows that Iowa's law added about $12.6 million each year to the costs of trucking companies. Consolidated alone incurred about $2 million per year in increased costs. (Emphasis added.) (*Kassel*, 450 U.S. 676-677;

In finding that the state laws in *Raymond* and *Kassel* imposed unconstitutional burdens on interstate commerce, the Court relied on more than just the increased cost to interstate carriers. As stated, the Court further found that neither state showed a particularly strong safety interest in support of need for their respective statutes. (See also *Southern Pacific v. Arizona*, 325 U.S. at 777 [""We think that the Arizona Train Limit Law, viewed as a safety measure, affords at most slight and dubious advantage, if any, over unregulated train lengths. . . ."] In *Kassel,* the Court further found that the Iowa law provided favorable exemptions to in-state carriers. The Court there expressed considerable concern that the purpose of the exemptions was to "deflect" interstate commerce to other states. (*Id.* at 677.) In sum, the *Raymond* and *Kassel* Courts weighed these considerable burdens against public interest claims that they found to be illusory.

Regarding the commenters' specific concern about the ATCM's public health benefits relative to compliance expenses for TRU owners and operators, staff believe the public interest in reducing the risk associated with TRU engine diesel PM exhaust is real and

vitally necessary. Weighed against this are relatively minimal burdens: carriers are given a significant lead-time of at least four years to upgrade their engines and/or systems; the costs for most carriers are a one-time cost; and total costs are relatively insignificant when compared to other cases. Additionally, the ATCM provides technology reviews to assure that the regulation is technologically feasible and cost-effective and also provides a military equipment exemption and early compliance extension that would be applied evenhandedly to both in-state and out-of-state carriers. The regulation is an unmistakable health and safety measure with no aspect of economic protectionism.

Additionally -- and this point should not be understated -- the Court has long deferred to state regulations unless there is a strong need for national uniformity in regulation. (See *Southern Pac. Co. v. State of Arizona* 325 U.S. at 770 ["There has been left to the states wide scope for the regulation of matters of local state concern, even though it in some measure affects the commerce, provided it does not materially restrict the free flow of commerce across state lines, or interfere with it in matters with respect to which uniformity of regulation is of predominant national concern."] (Emphasis added.) Congress has delegated to California exclusive authority to initially establish in-use emission standards and related requirements for nonroad engines. (*Engine Manufacturers Association (EMA) v. Environmental Protection Agency)* (D.C. Cir. 1996, 88 F.3d at 1089-1092.) And, if any regulations are adopted by other states, they must be identical to California's. [CAA §209(e)(2)(B)] A patchwork of different state regulations cannot develop; states must adopt California's standards or no standards at all. Interstate carriers that operate in California and meet the state's standards will not be subjected to a disruptive myriad of different regulations as they move across state borders. Thus, being that no conflict between the states is possible, the ATCM should not be found to interfere in a matter for which uniformity of regulation is of predominant national concern. (*Southern Pacific*, 325 U.S. at 770; cf., *Bibb*, 359 U.S. at 529 [Illinois law requiring contoured mud flap on interstate trucks found unlawful in that it directly conflicted with an Arkansas law that required the use of straight mud flaps.])[6]

2.m. Comment: Due to the extraordinarily heavy burden it places on interstate commerce, the proposed ATCM can not be construed as the least burdensome alternative to accomplish the purposes of reducing diesel PM emissions from in-use TRU engines in California. To lessen the interstate commerce burden, the proposed ATCM could focus on regulating in-state TRUs by making sure that interstate motor carriers operating in California on a marginal basis are not affected. See also Comments k-l. [Digges, ATA, February 26, 2004; Tunnell, ATA, December 11, 2003]

Response: During development of the recently adopted ATCM, staff evaluated a number of regulatory approaches. The approach selected allows a wide variety of compliance options and was found to be the most feasible and cost-effective. Also, during the development process, staff considered exempting out-of-state TRU engines that

[6] It should be expected that with California being the southern-most Pacific state that interstate pass-through travel would be minimal. (Cf., *Kassel supra,* 450 U.S. at 677.)

operate very little in California from in-use performance standard requirements. However, following discussion with stakeholders and compliance inspectors, staff concluded that such an exemption could not be practically enforced. Therefore, staff does not intend to add such an exemption unless and until further information becomes available and demonstrates a need and a practical means of conducting case-by-case tracking of out-of-state TRU activity in California. Additionally, In developing the regulation, staff was also very cognizant that unless the regulation applied evenhandedly to all TRU operators the regulation could provide an unfair competitive advantage to those not regulated. To avoid this outcome, the regulation was developed to apply to all TRUs operating in the State, regardless of the location of their home terminal.

2.n. Comment: ARB has failed to cite any specific authority to regulate TRUs. Health and Safety Code section 39667 (AB 2728, 1993, Tanner) does not give the ARB broad authority to regulate mobile sources of toxic air contaminants. According to its sponsor, the intention of AB 2728, 1993, was to make the administration of the State Toxic Air Contaminant Program consistent with the federal Hazardous Air Pollutant Program. [Heaton, CTA, December 11, 2003 and February 25, 2004; Williams, CTA, February 26, 2004]

Response: As explained in the *Staff Report*, Chapter I, Section C, the State Legislature has provided the ARB with broad regulatory authority to reduce air pollutants, including toxic air contaminants, from both stationary and mobile sources. (H&SC §§39600, 43013(b), and 430180.) Moreover, in 1983, Assembly Bill (AB) 1807 (Stats. 1983, Ch.1047), established California's Toxic Air Contaminant Program and specifically authorized the ARB to identify and control toxic air contaminants pursuant to Health and Safety Code sections 39650-39675. Since 1983, the Program has been amended by subsequent legislation on several occasions; however, no amendment (including AB 2728) has altered the ARB's explicit power to adopt airborne toxic control measures such as the TRU ATCM.

As the commenter indicated, the primary purpose of AB 2728 was to coordinate the federal Hazardous Air Pollutant and California Toxic Air Contaminant Programs (H&SC §§39656-39659). However, contrary to Comment 2.n., AB 2728 neither established nor changed Health and Safety Code sections 39666 and 39667 provisions that specifically address Board authority and considerations when adopting measures for vehicular and nonvehicular sources. The Responses to Comments 2.b. (paragraph 2) and 2.o., explain why TRUs and TRU engines are not considered vehicular sources. The *Staff Report*, Chapter I, Section C, Regulatory Authority, mentions Health and Safety Code section 39667, in combination with §§39658, 39665, and 39666, to elucidate the requirement that staff, with the participation of local air districts, stakeholders, and others, prepare a report on the need and appropriate degree of regulation of a toxic air contaminant regardless of source. Staff fulfilled this requirement with respect to in-use TRUs by publishing the *Diesel Risk Reduction Plan* in October 2000, and the *Staff Report* on the ATCM on October 24, 2003.

2.o. Comment: The proposed regulation disregards relevant provisions of California law. Requiring the use of retrofit devices directly conflicts with Health and Safety Code section 43600, which provides that ARB is empowered to "... adopt and implement emission standards for used motor vehicles for the control of emissions therefrom…, [but] the installation of certified devices on used motor vehicles shall not be mandated except by statute." There is no statute that allows ARB to require TRU engine retrofits by repealing or superceding §43600. (See also Comments 3.h. and 3.o.) [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

2.p. Comment: The proposed ATCM's retrofit requirements conflict with Health and Safety Code section 43600 et seq. retrofit requirements which primarily consider oxides of nitrogen emission reductions (H&SC §§43610 and 43611), prohibit the ARB from requiring more than one exhaust control device on any motor vehicle (H&SC §43602), provide for exhaust control device warranty and useful life (H&SC §43611), and cap the installation and maintenance costs of such after-treatment control devices (H&SC §§43604 and 43612). [Heaton, CTA, December 11, 2003 and February 25, 2004; Williams, CTA, February 26, 2004]

Response to Comments 2.o. and 2.p.: Health and Safety Code section 43600 applies solely to the regulation of used motor vehicles or motor vehicle engines and does not apply to TRUs or TRU engines. Although TRUs are often associated with motor vehicles, TRU engines do not propel motor vehicles and, therefore, are considered "nonroad" mobile sources rather than motor vehicles or motor vehicle engines. (See Health and Safety Code section 39039 and Vehicle Code section 450 "a motor vehicle is a vehicle that is self-propelled.")

2.q. Comment: Together, the ARB and California Trucking Association (CTA) should go to the California Legislature to encourage a statute authorizing the ARB to require TRU retrofits in such a manner that California's trucking industry can remain competitive. [Williams, CTA, February 26, 2004]

Response: As explained in the Response to Comment 2.n., ARB staff believe that the Board already has ample authority to adopt the TRU ATCM. Additionally, as discussed in response to comment 2.m., the ARB staff drafted the regulation so that no sector of TRUs was economically disadvantaged in relation to another sector. The ATCM applies to in-state and out-of-state motor carriers, railroads, and shipping industries.

2.r. Comment: By focusing on diesel exhaust particulate matter (diesel PM) emission reductions, the proposed ATCM ignores the State Legislature's intention that the ARB and air quality management and pollution control districts consider controlling oxides of nitrogen, sulfur dioxide, reactive organic gases, and ammonia during the development of measures to control particulate pollution. Senate Bill (SB) 656, (Sher, 2003) states:

> In order to be effective, control measures to reduce particulate pollution need to

control not only diesel particulate and other directly emitted PM10 and PM 2.5, but also control precursors that contribute to formation of particulate matter, including, but not limited to, oxides of nitrogen, sulfur oxide, reactive organic gases and ammonia.

It is the intent of the Legislature that the State Air Resources Control Board, and each air quality management district and air pollution control district in the state consider the impact of proposed control measures for PM2.5 and PM10 on the other criteria pollutants when adopting the implementation schedule pursuant to Section 39614 of the Health and Safety Code. [Modisette, CETC, December 11, 2003]

Response: Staff considered and discussed non-PM criteria pollutant emissions as well as diesel PM emissions in the *Staff Report* [see Executive Summary (Number 9); Chapter IX, Section B, (Pages IX-2 and IX-3); and Appendix D]. As described in the *Staff Report*, the recently adopted ATCM is expected to reduce PM emissions 65 percent by 2010 and 92 percent by 2020 (respective to baseline year 2000 TRU engine emissions). The ATCM is also expected to reduce year 2000 TRU engine reactive organic gas emissions by 30 percent and oxides of nitrogen emissions by up to 50 percent, depending on the compliance options selected. Sulfur dioxide emissions from diesel-fueled engines will be reduced due to revisions to CCR, title 13, section 2281, that were adopted in 2003 and that will phase in reductions in fuel sulfur content starting in 2006. Ammonia emissions are immaterial with respect to diesel-fueled TRU engines and, therefore, were not analyzed for the purposes of the TRU ATCM.

The references to the SB 656 are misplaced. That bill sets forth prospective responsibilities for the ARB and the districts that do not begin to apply until January 1, 2005. At that time the ARB, in consultation with the districts, shall develop and adopt a list of the most readily available, feasible, and cost-effective proposed control measures, based on rules, regulations, and programs existing in California as of January 1, 2004 that could be employed to reduce PM 2.5 and 10. Then, not later than July 31, 2005, the ARB shall adopt an implementation schedule for the state measures on the list. Thus, SB 656 has no applicability to this regulation at this time.

2.s. Comment: On Page 3 of its legal opinion, ARB staff's paraphrase of Health and Safety Code section 39667 omits the critical word "new" in the following sentence: "Those regulations may include, but are not limited to, the modification, removal, or substitution of vehicle fuel, vehicle fuel components, or fuel additives, or the required installation of vehicular control measures on new motor vehicles." [Emphasis added.] The proposed ATCM's requirements for in-use TRUs conflict with §39667 which authorizes the ARB to regulate new vehicles only. [Williams, CTA, February 26, 2004]

Response: First, as discussed in response to comment 2.a., the memorandum on the Board's authority drafted by the General Counsel was intended to address the Board's general authority to adopt ATCMs for vehicular and nonvehicular sources. As explained in

the Response to Comment 2.o., Health and Safety Code section 39667 specifies the Board's considerations when adopting measures for vehicular sources and is not directly applicable to measures for TRUs and TRU engines. The Board's authority to adopt control measures for TRUs and TRU engines derives in the first instance from Health and Safety Code sections 39666, 43013, and 43018. None of these provisions excludes vehicular control measures for in-use nonroad engines, such as TRU engines. Nonetheless, §39667 was discussed in the staff's legal opinion dated February 23, 2004, because one could possibly infer that the State Legislature intended the Board to look at the criteria of section 39667 when adopting mobile, but not vehicular, source measures. The staff reasoned that criteria for a motor vehicle mobile source measure may be useful and instructive when considering a non-vehicular mobile source measure such as the TRU ATCM.

Section 39667 applies to emissions from both new and used vehicular sources. Staff did not address criteria for new vehicle measures on Page 3 of its memorandum because that part of the opinion concerned only the ATCM that affects in-use TRUs. For in-use sources, the Board is directed to utilize "the best available control technologies or more effective control methods." It should be noted that the regulations that may be adopted under section 39667 are not exhaustively listed, but merely refer to some of the types of control measures that may be adopted.

2.t. Comment: The ATCM is more far-reaching than any measure yet made by an air quality agency of the United States or Europe. [Williams, CTA, February 26, 2004]

Response: The ARB does not necessarily concur that the TRU ATCM is the most far-reaching measure ever adopted by an air quality agency, but will acknowledge that Congress has recognized the ARB as the nation's pioneering efforts in emission control and that it serves as the nation's laboratory for innovation. (See *Motor and Equipment Manufacturers Association v. U.S. EPA* (D.C. Cir., 1979) 627 F.2d 1095, 1110-1111). In allowing California to be the only state in the nation to be able to obtain waivers from the motor vehicle preemption of CAA section 209(a) and the preemption of section 209(e)(2), Congress fully intended that the ARB adopt potentially more stringent emission standards and related requirements to address the unique and serious environmental problems confronting the State. Indeed, in order for California to obtain a waiver or authorization from preemption, the ARB must demonstrate that the adopted emission standards are more protective of public health and welfare than applicable federal standards and requirements. (See CAA sections 209(b) and 209(e)(2).) In other words, California must demonstrate that its standards are, indeed, in the aggregate, at least as stringent than federal regulations.

As previously stated, California has determined that diesel PM is a toxic air contaminant that is responsible for a significant number of premature deaths and ongoing health problems for many state residents. To address this problem, the ARB has adopted in-use performance standards to bring expeditious relief in a cost-effective and fair manner.

3. Business Impact/Cost Analysis

3.a. Comment: The proposed ATCM creates regulatory confusion by requiring emission-reducing performance standards on engines already subject to emission standards. The resulting regulatory uncertainty will impact the movement of goods in California by causing the number of California-based motor carriers to decline as bordering international and state motor carriers capture the market. [Heaton, CTA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: With the ATCM requirements for TRU operators being the same for those located in-state as well as out-of-state, staff does not believe that in-state operators are placed at a competitive disadvantage relative to out-of-state operators. Although the identification (ID) number requirement is mandatory for California operators and optional for out-of-state operators, most out-of-state operators are expected to participate in the ID number program to avoid delays at inspection stations and other compliance inspection locations. It should be noted that the TRU engine exhaust emission compliance requirements are the same for both types of operators. While California-specific reporting requirements are imposed upon the very largest facilities frequented by TRUs, these large facilities are also the most likely to have automated tracking systems in place which will minimize the recordkeeping burden associated with ATCM compliance. The facility reporting, thus, should have no direct or indirect impact on California carriers.

3.b. Comment: The proposed ATCM does not consider the purpose of refrigerated transportation trucks and trailers: the efficient movement of goods.
[Williams, CTA, February 26, 2004]

Response: Staff has undertaken extensive research and made numerous site visits and performed interviews at transportation-related facilities to better understand the complexities of the refrigerated transport and distribution industries. These interviews and visits include TRU dealers, cold storage warehouses, dairy, meat, and produce processing facilities, intermodal terminals, truck and trailer leasing companies, grocery distribution warehouses, and ports. Staff recognizes the importance of refrigerated goods movement in the economy, and the Board has taken steps to balance the need for diesel PM reduction from TRU engines, the associated costs and other impacts upon affected businesses, and the efficient movement of goods.

3.c. Comment: The ARB staff's estimated cost of the proposed ATCM is impossible to validate because of uncertainty about the number of affected out-of-state vehicles with TRUs. [French, EMA, December 9, 2003; Tunnell, ATA, December 11, 2003]

Response: This comment is directly related to the next comment below, which pertains to the affected out-of-state TRU population figure used in the *Staff Report*. A discussion of the quality of the out-of-state TRU population figure used in the S*taff Report* is presented in the response to the comment 3.d., below.

3.d. Comment: The ARB staff underestimated of the number of out-of-state TRUs affected

by the proposed ATCM, resulting in an underestimate of the compliance costs and a misleading cost effectiveness analysis. The out-of-state TRU population estimate, and, therefore, the cost analysis which uses this estimate, are based on the unreasonable assumption that the same small number of out-of-state trailers with TRUs will enter and re-enter California over a 13-year compliance period. At minimum, the cost analysis should be revised to include all of the trailers with TRUs in all of the remaining 49 states. Such revision would result in a 5- to 15-fold increase in total compliance cost. [French, EMA, December 9, 2003; Mandel, EMA, December 11, 2003]

Response: Recognizing that businesses outside of California will be affected by this ATCM, staff has made a good-faith effort to undertake and present an estimate of ATCM compliance costs to out-of-state businesses and individuals, and has included these estimated costs in the total overall cost of the ATCM. Any cost estimate is just that, an estimate, since the following factors contribute to TRU population figures that are constantly changing and therefore subject to uncertainty:

- The number of TRUs is constantly changing as TRUs are placed into service and taken out of service.
- TRUs are not registered like motor vehicles; staff knows of no database that has population figures of out-of-state and California TRUs.
- Businesses that operate TRUs are constantly deciding to enter or withdraw from the California market.
- No direct data are available on the number of TRUs from out-of-state operating in California at any given time.
- Information on the annual number of trips that a TRU-equipped vehicle may make into and out of California is not available.

Given these major factors that prevent the calculation of a precise figure, indirect techniques based on available information must be used. For this reason, surrogates such as Census Bureau reports of vehicle miles traveled (VMT) and estimates of percentages of refrigerated goods transported were used to arrive at the TRU population figures used in the *Staff Report*. The responses to comments 6b through 6d address the specific aspects of the methodology used to construct the TRU inventory in the *Staff Report*.

Staff feels that the commenters' suggestion to use the total number of out-of-state refrigerated trailers is inappropriate because it vastly overestimates the out-of-state TRU population that operates in California. It is known that all out-of-state refrigerated trailers will not enter California, due to the nature of the TRU-operating businesses—many strictly operate within a local or regional (non-California) territory.

3.e. Comment: An accurate cost impact analysis is impossible because the cost of anticipated after-treatment technologies is not known. These technologies are unverified and have not been used in actual operating environments. [Heaton, CTA, December 11, 2003 and February 25, 2004; Nartker, Safeway, Inc., December 11, 2003; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: The cost estimates for VDECS were obtained from the aftertreatment device manufacturers, and are quoted in Table VIII-1 of the *Staff Report*. These estimates are based upon the best current information available, and in many cases are based upon actual device sales. Staff believes that these estimates are accurate. Staff also believes that these costs will fall as the devices become more popular and larger quantities of them are sold. Staff also acknowledges that there is uncertainty in the cost analysis, as pricing can change and the extent to which affected businesses will choose among the various compliance options is unknown. For this reason, staff has expressed total ATCM costs and cost-effectiveness as ranges, rather than fixed figures.

Staff disagrees with the commenters' assertion that anticipated after-treatment technologies have not been used in actual operating environments. Please see comments 5b, 5d, and 5g and the staff responses for a discussion of the real-world application and use of diesel exhaust after-treatment technologies. Please also see staff's response to Comment 3.f. regarding the commenters' assertion related to the use of unverified technology.

3.f. Comment: The proposed ATCM should ensure that the regulated community is not forced to purchase control equipment until alternative technologies are thoroughly evaluated and demonstrated to be cost effective. [Heaton, CTA, December 11, 2003 and February 25, 2004; Larkin, CGA, December 8, 2003; Nartker, Safeway, Inc., December 11, 2003; Smith, CGA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: Staff acknowledges the commenters' concerns over the use of unproven technologies, and for this reason, only those control strategies that have been evaluated and approved under ARB's *Verification Procedure, Warranty & In-Use Compliance Requirements for In-Use Strategies to Control Emissions From Diesel Engines (Verification Procedure)* are acceptable for compliance with this ATCM. The *Verification Procedure* requires a thorough technical evaluation of a diesel emission control strategy, durability testing, and a warranty that meets regulatory requirements.

In addition to the approval through the *Verification Procedure*, the ATCM also has two technology reviews (in 2007 & 2009) included in its structure, so that if any major technical issues arise, they may be addressed as appropriate. Please also see the responses to comments 5d and 5g for further discussion of this topic.

3.g. Comment: The cost analysis, particularly the estimated cost effectiveness, for the proposed ATCM should be revised to reflect more realistic premature mortality and cancer risk assumptions. For example, the cost analysis should consider that the cancer risk may be zero. See also Comment 7.b. [French, EMA, December 9, 2003]

Response: Staff based its premature mortality analysis and related cost estimate on sound and defensible methodological elements from U.S. EPA reports on the topic as discussed on page IX-6 of the *Staff Report*. Please refer to the response to comment 7b

for the explanation of why the zero cancer risk concept is unsuitable for this ATCM.

3.h. Comment: The proposed ATCM effectively mandates equipment "scrappage" because it bans and devalues TRUs more than seven years old by requiring engine retrofit or replacement before the end of the units' useful life (i.e., 10 to 12 years). The cost of premature retrofit or replacement, and of financing over a shortened lifespan, is an unreasonable expense for TRU owner/operators that should be reflected in the cost analysis for the proposed ATCM. See also Comments 2.o. and 3.o. [Heaton, CTA, December 11, 2003 and February 25, 2004; Nartker, Safeway Inc., December 11, 2003; Williams, CTA, February 26, 2004]

Response: Staff contends that this ATCM is not a scrappage regulation—some TRU engines currently meet the LETRU standard, and for those that do not, TRU operators may continue to use the TRU engine by choosing from among retrofit technologies that have been approved under ARB's *Verification Procedure,* conversion to alternative fuel or alternative diesel fuel, or engine-only replacement for an in-use TRU engine. An owner/operator may choose to do an outright replacement of the entire TRU, but it is not a requirement.

Staff has considered the option and cost of accelerated TRU/TRU engine replacement as a back-up scenario to the retrofit compliance option (with ARB *Verification Procedure*-approved technologies). The cost of the TRU/TRU engine replacement option was found to be similar to the retrofit compliance option cost and is discussed in detail starting on page VIII-14 of the *Staff Report*.

3.i. Comment: Because retrofit and engine replacement are unverified means of compliance with the proposed ATCM, TRU replacement, at a cost of $10,000 to $20,000 or more per TRU, should be the only basis for determining the cost of the measure. Such high costs will have extreme economic consequences for the trucking industry and California businesses, both of which are likely to move to other states. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: The commenters' suggested approach is inappropriate for a number of reasons. First, as mentioned in the response to comment 3.h., staff does not believe that replacement of the TRU or TRU engine is required by the TRU ATCM. Second, some in-use TRU engines already comply with LETRU. Third, staff believes that it is inappropriate to use the full replacement cost of a TRU or TRU engine in estimating the TRU ATCM compliance cost because the value of a TRU or TRU engine is consumed or reduced as it is used, throughout its useful life. Staff acknowledges that, although some TRUs or TRU engines will need to be replaced because they are at the end of their useful life (e.g. old and worn out), the ATCM does impose accelerated replacement for some in-use TRU engines. Therefore, under the Engine/TRU Replacement Scenario that was discussed in the *Staff Report* (see page VIII-14) staff feels it is appropriate to apportion the remaining useful economic life that is greater than the seven year compliance cycle imposed by the

TRU ATCM to the cost of the ATCM.

3.j. Comment: Retrofit costs are seriously underestimated and will exceed the actual value of the TRU being retrofitted. [Williams, CTA, February 26, 2004]

Response: As discussed in the response to comment 3.e., cost estimates were obtained from the exhaust aftertreatment device manufacturers and are based on the best current information available. Retrofit is not the only compliance option. TRU or TRU engine replacement and alternative fuel conversion are other alternatives, and the compliance choice is left up to the operator. In the case of a TRU or TRU engine that is worth less than the retrofit cost, this is probably a unit at or past the end of its normal service life and a business would or should be planning (and budgeting for funds) to replace the unit anyway, as a normal part of doing business.

The TRU population information was obtained from the sales data provided by the TRU manufacturers, and was cross-checked for accuracy by comparing it against engine sales data from engine manufacturers that supply to the TRU manufacturers. Using this TRU sales data and the retrofit device cost information supplied by the manufacturers, staff calculated the compliance cost estimates given in the *Staff Report*. The retrofit device cost information used reflected the range of costs of all known technologies that are either currently in production or close to it. It should also be noted that the retrofit prices used in the cost estimates are based upon low-volume unit sales, and staff expects that higher sales volumes will cause the per-unit prices to decrease in the future. Technology advancements, or lack thereof, and associated cost-effectiveness are subjects that will be addressed at the 2007 and 2009 Technology Reviews.

3.k. Comment: The $2,000 to $20,000 range of cost per TRU estimated by staff significantly understates the costs of both retrofitting and replacing TRUs. [Nartker, Safeway, Inc., December 11, 2003]

Response: The cost estimates are either price estimates or actual sales price information supplied by retrofit device manufacturers, recent TRU purchasers, and TRU sales dealers. These estimates are based on a single-unit purchase quantity; these cost-information sources have indicated that quantity purchases, such as those that are manufacturer-direct sales to large fleet customers, do result in pricing that can be 15 percent below those prices quoted in the *Staff Report*.

3.l. Comment: Complying with the proposed ATCM entails a number of burdensome costs for trucking companies, including the capital cost of compliant equipment and the costs of installation, annual maintenance, vehicle downtime, and, if necessary, additional fuel use. Furthermore, trucking companies will be financially burdened as a result of the need to identify TRUs operating in California and the most efficient control method for these TRUs. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, February 26, 2004]

Response: Staff agrees that affected businesses will need to identify TRUs operating in California and the appropriate compliance method(s) for those TRU engines. But, staff has determined that the regulation is cost-effective and that the cost burdens identified in the *Staff Report* are outweighed by the public health and welfare benefits.

As part of its outreach and education effort for this ATCM, staff is currently working with ARB's Compliance Assistance Section to develop educational materials and appropriate training classes to assist affected parties in identifying and complying with the requirements of this ATCM in the most cost-effective and least troublesome manner possible. In addition, staff is also developing an Internet-based reporting system for TRUs and facilities that will give the affected parties the option of complying with the ATCM's reporting requirements in a paperless manner.

3.m. Comment: The reporting requirements in the proposed ATCM pose an additional financial burden by creating a need for white-collar (i.e., non-manual-labor) staff positions that currently do not exist in the trucking industry. [Williams, CTA, February 26, 2004]

Response: Staff disagrees with this comment, since most of the information requested under the additional reporting requirements imposed by the ATCM is information already compiled and maintained by affected businesses in the normal course of conducting business. For example, a TRU operator already tracks the number of TRUs operated, their make(s) and model(s), and age(s), annual operating hours, and operating fuel type(s), for maintenance purposes. For facilities, information already tracked includes the number of incoming and outgoing refrigerated loads and their rate (number of refrigerated loads per given time period (week, month, etc.). The Second 15-Day Notice also added language to the ATCM that provides an approval procedure for alternative recordkeeping and calculation procedures that will reduce cost burden where certain new facility recordkeeping is required.

3.n. Comment: Because the proposed ATCM will have a staggering impact on grocery distribution resources, the ARB should provide incentives (e.g., financial assistance or delayed compliance schedules) to the industry, especially to distributors that assist with the development of alternative compliance strategies. [Larkin, CGA, December 8, 2003; Smith, CGA, December 11, 2003]

Response: While the ATCM does not provide financial incentives or assistance for compliance, delayed implementation of the second phase of implementation is offered for those fleets with 2002 and older TRU engines that choose to bring TRU engines into compliance ahead of schedule for the first phase. This is done on a unit-for-unit, year-for-year basis, and allows a TRU operator to spread out over time the work needed to bring the fleet into compliance. The Second 15-Day Notice also delayed the facility recordkeeping and reporting requirements one year, compared to the original proposal, and added regulatory language that provides an approval procedure for alternative recordkeeping and calculation procedures that will reduce cost burden where certain new facility recordkeeping is required.

3.o. Comment: To compensate for the lost value due to the proposed ATCM's mandate for the early retirement of TRUs, the ARB staff should identify a funding source to assist owner/operators with the cost of retrofitting or replacement. See also Comments 2.o. and 3.h. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: A number of voluntary retrofit programs for which TRU engines may be eligible are discussed on page I-5 & I-6 of the *Staff Report*. Also, under the Engine/TRU replacement scenario discussed on pages VIII-14 & VIII-15 of the *Staff Report*, the cost of lost value due to early TRU replacement for the oldest TRU in service, was estimated and found, along with engine replacement for newer TRUs, to be roughly cost-equivalent to the use of a retrofit control strategy approved under ARB's *Verification Procedure* for ATCM compliance.

3.p. Comment: The ARB staff's cost analysis does not include the additional compliance costs that can be attributed to the proposed ATCM beyond 2020. [Tunnell, ATA, December 11, 2003]

Response: Government Code Section 11346 and related California Department of Finance guidelines require that costs associated with a proposed regulation be estimated for a time period of five years, or the life of the regulation, whichever is shorter. Since there is a significant period of time between the adoption of the ATCM and when its requirements take effect, staff felt that the application of the required five-year cost estimation period would provide an underestimate and misleading characterization of the costs associated with the ATCM. Thus, the time period from 2005 to 2020 was selected as the cost analysis time period, since this would include all of reporting and capital costs associated with this ATCM, and nearly all of the annual costs.

Most of the costs associated with this ATCM will occur in the 2008 to 2020 time period, when existing in-use TRU engines will have to comply with the ATCM requirements on a rolling implementation schedule determined by their model year. For each year during the 2008 – 2020 time period, existing TRU engines that are seven years old (and older, for the first year, 2008) must comply with the ATCM requirements and therefore may incur compliance costs.

In the year 2013, U.S. EPA Tier 4 "long term" PM emission standards take effect for all new 25-50 hp offroad engines. Since the ULETRU standard for the Engine Certification compliance option is aligned with the Tier 4 "long term" standards for the 25-50 hp category, 2013 and subsequent model year TRU engines will not incur compliance costs, as all new TRU engines in this horsepower category sold in all 50 states will be compliant with the ATCM. There may, however, be some lingering compliance costs beyond 2020 resulting from increased maintenance and operating costs related to retrofit compliance options, as these units serve out their remaining useful life.

In contrast, for the less than 25 hp engine category, there was no Tier 4 "long-term" new engine emission standard for PM that would meet the Diesel Risk Reduction Plan goal of 85 percent reduction in PM emissions by 2020 (see *Staff Report* page E-2). So, the TRU ATCM does not have an ULETRU standard for the Engine Certification compliance option. Compliance will be achieved by retrofitting with a Level 3 verified diesel emission control strategy or using an Alternative Technology, which may incur compliance costs from 2013 and beyond.

Alternative Technologies eliminate diesel TRU engine operation while a TRU is at a distribution facility. Use of electric standby, cryogenic temperature control systems, alternative fuels, alternative diesel fuels, fuel cells, or other systems that eliminate diesel PM emissions that have been approved by the Executive Officer are examples of Alternative Technologies.

However, as discussed in the *Staff Report* on pages VII-2 and VII-5, after a planned technology review in 2007, a "long term" Tier 4 emission standard may be adopted by U.S. EPA for the less than 25 hp category. If that occurs, the TRU ATCM would be amended to include this standard as the ULETRU standard for the Engine Certification compliance option for less than 25 hp engines. When new engines comply with that standard, there would be no continuing compliance costs, other than possible increases in maintenance costs and operating costs that resulted from the retrofit compliance option, as these units completed their useful life. The less than 25 hp engine category is a small fraction of the total TRU population (approximately 15 percent).

3.q. Comment: Approximately 80 percent of affected owner/operators are small businesses that are not likely to replace refrigerated trailers as frequently as large operations. [Heaton, CTA, February 25, 2004; Williams, CTA, February 26, 2004]

Response: Many TRU operators with small fleets purchase used rather than new TRUs, and staff expects this practice to continue; should a small-fleet TRU operator choose not to retrofit an existing TRU engine, ATCM-compliant TRUs should be available on the used market. As large fleets that typically have short TRU retention cycles replace their ATCM-compliant TRUs (either new TRUs equipped with engines meeting EPA Tier 4 standards or existing TRU engines with VDECS retrofit) with newer TRUs, the used TRU market will receive these ATCM-compliant TRUs and they should be available to the small-fleet TRU operators.

4. Environment/Compliance

4.a. Comment: The ARB should describe the enforcement mechanisms and penalties associated with violations of the proposed ATCM. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: See *Staff Report at* pages E-8 and –10 of the Executive Summary, Chapter VII, pages VII-12, -14, -16, and –18, and Chapter VIII, pages VIII-1 and -6.

Subsection h was added to the adopted regulation, which was included in the April 5, 2004 First 15-Day Notice to provide a reference to specific Health and Safety Code sections addressing penalties.

4.b. Comment: The ARB should provide guidance about the party(ies) ultimately responsible for ensuring compliance with the proposed ATCM. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: Subsection (b) – Applicability - of the regulation lays out who the regulation applies to and who is responsible for compliance. ARB Enforcement Division is ultimately responsible for ensuring compliance with the requirements of the ATCM (see response to Comment 4.a.). The ARB will actively be engaging in an outreach program that will provide stakeholders with further notice and guidance about the ATCM.

4.c. Comment: The ARB needs to define the role local air districts will play in enforcing the proposed ATCM. Specifically, the ARB needs to clarify whether or not local air districts are expected to enforce the regulation's reporting provisions for major distribution facilities located within the local air districts' jurisdictions. [Breen, BAAQMD, October 27, 2003]

Response: California Health and Safety Code section 39618 classifies refrigerated trailers as mobile sources and assigns regulatory authority over them to the ARB. As discussed in the *Staff Report*, ARB Enforcement Division is responsible for enforcement (see responses to Comments 4.a. and b.). Local air districts have no direct role in enforcing any of the provisions of the regulation. However, local air districts are encouraged to report to ARB on TRU activities that may be potential violations of the TRU ATCM or that may cause potential adverse public health impacts.

4.d. Comment: Once the proposed ATCM is adopted, the ARB staff should make it a priority to work directly with, and to periodically review compliance at, large facilities that are frequented by TRUs and located near residential neighborhoods. Such facilities have generated complaints (i.e., soot, noise, parking) and are a major issue from an environmental justice perspective because the neighborhoods they are near are often communities of color and low income. [Bailey, NRDC, December 11, 2003; Bailey, NRDC et al., December 10, 2003; Bailey, NRDC et al., February 25, 2004b; Holmes-Gen, ALA, December 11, 2003]

Response: ARB will evaluate the reports required from large facilities to see if there will be residual near-source risk to the public once the TRU ATCM's in-use performance standards are met by the TRU engines visiting the facility. Staff will follow up with facilities where the residual near-source risk appears to be higher than acceptable to verify and refine the information received and then refine the health risk assessments (HRA). If the refined HRAs remain higher than acceptable, staff will discuss options for reducing the risk to acceptable levels. As described in the *Staff Report,* ARB Enforcement Division will conduct regular audits of facilities and operator terminals to assure compliance with the

TRU ATCM (see response to comment 4.a. – c.).

5. Control Technology Availability

5.a. Comment: In general, the in-use diesel-fueled TRU performance standards and timetable for implementation are reasonable and supportable by virtue of the emission reductions they will achieve. [Bailey, NRDC et al., December 10, 2003; Bailey, NRDC et al., February 25, 2004b; Guzman, Carrier Transicold, December 10, 2003; Holmes-Gen, ALA, December 11, 2003; Kubsh, MECA, December 11, 2003; McKinnon, MECA, December 9, 2003]

Response: Staff agrees. The in-use performance standards and compliance lead times used in the TRU ATCM were the result of extensive research and coordination with stakeholders.

5.b. Comment: Level 2 control technologies (i.e., equal to or greater than 50 percent diesel PM emission reduction) should be verified by 2008, the compliance date for the initial phase of performance standards. Diesel particulate filters are currently commercially available and have been used successfully in a number of applications. Moreover, the proposed ATCM provides for technology reviews in 2007 and 2009 to determine the status of filters and other control technologies specifically intended for TRU engines. [Kubsh, MECA, December 11, 2003; McKinnon, MECA, December 9, 2003]

Response: Staff agrees. The compliance schedule provides over four and half years before the first compliance date, with subsequent compliance phases following on a yearly basis. This should be plenty of time to demonstrate and verify compliance technologies on TRU engines.

5.c. Comment: It is important that the Board adopt the proposed TRU ATCM in order to provide the regulatory certainty that manufacturers need before they shift resources and make decisions to invest in the verification of control technologies needed for TRU engines. [Kubsh, MECA, December 11, 2003]

Response: Staff agrees and encourages timely demonstrations of control technologies on TRU engines to generate operator familiarity and confidence in these technologies.

5.d. Comment: Switzerland has been very active in retrofitting offroad and onroad diesel engines. Our regulations deal with all sizes, designs, and applications of diesel engines. Based on this widespread retrofit experience, we have tested a TRU engine with a particle filter system consisting of a silicon carbide particle filter using a fuel-borne catalyst and electronically-controlled intake throttling to achieve regeneration. Lab tests showed this system achieved better than 99 percent particle collection efficiency. All of the components for these particle trap systems are commercially available and could be used to reduce diesel PM emissions regardless of a TRU engine's brand, design, or age. [Mayer, TTM,

December 9, 2003]

Response: Staff appreciates hearing about progress being made in Europe on reducing diesel PM from TRU engines and looks forward to observing the scheduled demonstrations of these devices on TRU engines in California.

5.e. Comment: The Board should consider accelerating compliance, particularly for the oldest and dirtiest TRUs. [Anair, UCS, December 11, 2003; Bailey, NRDC, December 11, 2003; Bailey, NRDC et al., December 10, 2003; Bailey, NRDC et al., February 25, 2004(b); Campbell, CCA, December 11, 2003; Holmes-Gen, ALA, December 11, 2003]

Response: The adopted compliance schedule is designed to provide a reasonable amount of time to develop, demonstrate, verify, and commercialize a variety of control technologies for a broad range of TRU engine makes, models and model years. Staff believes it is very important to schedule enough time to assure these control technologies are reliable and that operators feel confident that perishable product safety will not be compromised (e.g. food, drugs, blood, etc.).

5.f. Comment: Under no circumstances should the proposed ATCM compliance requirements be delayed or weakened. [Bailey, NRDC et al., December 10, 2003; Bailey, NRDC et al., February 25, 2004b; Holmes-Gen, ALA, December 11, 2003]

Response: Staff agrees with the commenters' sense of urgency in reducing emissions of this potent toxic air contaminant. And, staff is confident there will be no need for delay. However, technology reviews in 2007 and 2009 are scheduled to assure there are reliable, cost-effective control technologies available for a broad range of TRU engines. Staff believes these technology reviews are needed to assure the control technologies used on TRU engines are reliable and that the TRU ATCM does not result in adverse public health risk due to compromised temperature control of perishable products. If staff determines that delay or relaxation of the requirements is necessary, any proposed amendment to the TRU ATCM would go through the formal public rulemaking process.

5.g. Comment: The proposed ATCM requires the use of technology that has neither been verified by ARB nor reviewed by affected industry. If and when verified retrofit technology compliant with the proposed ATCM becomes available, it is likely to be surrounded by reliability and warranty issues. Reliable technology is essential to ensure safe transportation of food and other temperature-sensitive cargoes. [French, EMA, December 9, 2003; Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: The TRU ATCM provides many compliance options. Electric standby (E/S) and cryogenic temperature control systems are commercially available now and do not require verification. According to TRU manufacturers, E/S has been commercially available for over a decade. ARB is following the development of diesel emission control strategies on an international basis. Several manufacturers have assured staff that diesel

emission control strategies (DECS) will be verified before the first compliance date in 2008 (see Comment 5b and 5d).

As discussed in the Executive Summary of the *Staff Report* (p. E-7), and in Chapters VI (p. VI-2, -6, -9, -13, and -14), VII (pp. VII-7 and -11), and IX (p. IX-10), in-use control strategies are required to be verified by ARB through the *Verification Procedure*. The *Verification Procedure* requires all in-use diesel emission control strategies be thoroughly evaluated and tested for durability, and they must meet warranty requirements before being granted verification.

Staff believes the compliance schedule provides enough time to assure the control technologies are reliable. However, if technical issues should arise, they can be addressed in the technology reviews scheduled for 2007 and 2009. These reviews are intended to assure there are reliable, cost-effective technologies available for a broad range of TRU engines. Another option available to stakeholders includes the replacement of older, higher-emitting TRUs and TRU engines with newer, cleaner diesel engines or TRUs that meet U.S. EPA's Nonroad/Offroad Tier 4 emission standards. Staff agrees that safe transportation of food and other temperature sensitive cargoes are a high-priority concern. If staff determines that delay or relaxation of the requirements is necessary to protect the public health, an amendment to the TRU ATCM will be proposed, which would go through the formal public rulemaking process.

5.h. Comment: ARB should delay adoption and implementation of the TRU ATCM until alternative control technologies have been validated for in-use TRUs. ARB-verified diesel particulate filters for other applications (e.g., diesel-fueled municipal buses) have proven unreliable in other states. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: The TRU ATCM's compliance schedule provides over four and a half years before the first compliance date. This should be sufficient time to develop, test, and verify diesel emission control strategies for TRU engines. Please see the response to Comment 5.g. Much of that work has already begun and ARB staff is working closely with control system manufacturers, TRU manufacturers, TRU engine manufacturers, and TRU fleet operators to apply existing diesel emission control technologies to the TRU engine application and begin demonstrations. ARB has connected several demonstration project partners with funding. Field demonstrations of one or more diesel emission control strategies (DECS) should start in mid- to late-2004. This early experience is designed to produce reliable systems in time for the compliance due dates.

The early compliance incentives in this ATCM are intended to encourage early testing and use of diesel emission control strategies. This early experience is designed to produce reliable systems in advance of the compliance due dates.
Staff believes it is too early to conclude that the experiences with buses will be repeated with TRUs. In fact, it is likely that the lessons learned from those experiences and those in Europe will benefit the TRU engine DECS development process.

Regardless, the TRU ATCM and the Board's adoption resolution both include technology reviews scheduled for 2007 and 2009. These reviews are intended to assure there are reliable, cost-effective technologies available for a broad range of TRU engines. If staff determines that there are significant reliability issues and that delay or relaxation of the requirements is necessary to protect the public health, an amendment to the TRU ATCM will be proposed and would go through the formal public rulemaking process.

5.i. Comment: The American Trucking Association (ATA) is concerned that the retrofit technology associated with the proposed ATCM's compliance options may not be ready by the effective dates of compliance. The proposed ATCM provisions for technology reviews one year prior to implementation are insufficient because fleets will need at least 18 months after technology verification to determine integration strategies and to obtain and field test equipment under a variety of conditions, particularly summer and winter temperature extremes. [Tunnell, ATA, December 11, 2003]

Response: The early compliance incentives in this ATCM are intended to encourage early testing and use of diesel emission control strategies. These early introduction efforts should accelerate the availability of reliable systems in advance of the compliance due dates and generate experience with and confidence in their use. Please also see the responses to Comments 5a, b, c, d, e, g, and h. The need for testing in a variety of conditions, particularly under known extreme conditions, such as summer and winter, is a concern that staff has raised with several manufacturers preparing to test their diesel emission control strategies for verification. Staff will continue to raise this concern with other manufacturers that begin the application process under the *Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines* (CCR Section 2700 et seq.).

5.j. Comment: The proposed ATCM mandates an arbitrary useful life of 7-years for TRU engines, a significant reduction from the true economic life of such equipment. We've shown where the 10 year average useful life currently assumed to be the case by staff is far short of actual industry experience. The difference stems from the nature of how the equipment is used in our industry, as compared to an exclusively perishable foods supplier. Hours of operation rather than actual age in years is the critical determinant of economic life. It is common in our industry to have TRUs on most trailers for logistical flexibility, even though the actual TRU running time in most cases averages less than 4 hours per day. Therefore, the actual useful life of a TRU in our industry's application is nearly double that proposed by staff. We would like to see compliance dates aligned with a realistic replacement cycle of at least 10-to-12 years or based on operating hours. [Larkin, CGA, December 8, 2003; Nartker, Safeway, Inc., December 11, 2003; Smith, CGA, December 11, 2003]

Response: The *Staff Report* discusses useful life of a TRU engine in the Executive Summary (pp. E-5 and E-9) and Chapters V (pp. V-2 and V-4), VII (pp. VII-10, -13, -14), and VIII (pp. VIII-1, -8, -9, -11, and -15). Staff agrees that useful life varies considerably,

depending on how the unit is used. But, useful economic life also varies on how it is maintained. Staff has learned that TRUs used for regional food distribution (e.g. for convenience stores, restaurants) where numerous daily stops and door openings are made, result in higher TRU engine use compared to TRUs used for grocery distribution that may deliver to only one large store before returning to the distribution center. We agree that there is considerable variability in the number of annual hours of TRU engine use. We also agree that the average useful life is probably about 10 years, meaning that 50 percent of the units in a model year last about 10 years and at 20 years, the remaining population is about 1 percent to 2 percent of the original population for that model year. But staff also discovered TRUs that are 30 years and older, are still in use after several engine overhauls and still using no emission control technology whatsoever (e.g. combustion chamber geometry refinements and fuel injection enhancements, etc.).

Staff believes that basing compliance deadlines on a total operating hours would make enforcement difficult (if not impossible) and costly for both ARB and the owner/operators. It is simply too easy to replace hour meters and tamper with them. Verification of actual accumulated operating hours would be very problematic with the quality of hour meters that are installed on many older TRUs. There are no easy, low-cost solutions to this problem.

The TRU ATCM is intentionally designed to accelerate the turnover of older, higher emitting TRUs with newer TRUs with cleaner engines, or to replace older, higher-emitting TRU engines with newer, cleaner engines. Otherwise, operators that find their TRUs have sufficient useful economic life remaining to justify it may retrofit the TRU engine with a verified diesel emission control strategy (VDECS), approved under the *Verification Procedure* or use an Alternative Technology. This conscious decision to accelerate replacement of older TRU engines will result in costs related to the loss of useful life that were taken into account when evaluating the cost-effectiveness of the TRU ATCM. The cost-effectiveness of the TRU ATCM was found to be within an acceptable range and within the range of other diesel PM control measures. This strategy also produces significant emission benefits and public health benefits that more than offset the costs, as discussed in the *Staff Report*, Executive Summary (pp. E-10 to –12), Chapters II (pp. II-1 and -5), VII (p. 19), VIII (pp. VIII-5, -11, and -19), and IX (pp. IX-3 to -6, and -10).

5.k. Comment: There are no Level 2 (i.e., equal to or greater than 50 percent diesel PM emission reduction) add-on control devices that have been demonstrated to work on TRU engines. The legislation would mandate TRU customers replace their engine or try out new, unproven trap technology at great initial expense.

The proposed ATCM should include, for meeting the LETRU in-use performance standard, Level 1 (i.e., equal to or greater than 25 percent diesel PM emission reduction) or Level 2 VDECS as options for qualifying for the early compliance incentive and complying with the 2008 performance standard requirements. [French, EMA, December 9, 2003; Guzman, Carrier Transicold, December 10, 2003; Kubsh, MECA, December 11, 2003; McKinnon, MECA, December 9, 2003]

Response: Several diesel emission control system manufacturers have assured staff that Level 2 control technologies will be verified before the first compliance date in 2008 (see Comments 5b and 5d). Staff believes that verification of Level 2 diesel emission control strategies is achievable in the next few years for the reasons cited in Comments 5c, e, g. h, and i.

5.l. Comment: Data points based on an eight-mode test cycle and used to certify TRU engines to the current U.S. EPA tier 1 and tier 2 non-road engine emission standards should be allowed to recalculate values to demonstrate compliance based on the U.S. EPA's recently proposed four-mode test cycle designed specifically for TRU engines. [Guzman, Carrier Transicold, December 10, 2003]

Response: Staff agrees and proposed modified regulatory language in the First 15-Day Notice. Subparagraphs (e)(1)(A)1.a.I. and (e)(1)(A)2.a.I. of the TRU ATCM were affected.

5.m. Comment: The ARB should explain the process for getting a product, such as the Millbrook Energy International, L.L.C. Fitch Fuel Catalyst, added to the list of TRU ATCM compliance options. [Phillips, MillBrook, Energy International, October 28, 2003]

Response: Such a diesel emission control strategy would need to be verified through the *Verification Procedure*. The commenter is encouraged to review the latest version of this *Verification Procedure*, which can be accessed on the Internet at http://www.arb.ca.gov/diesel/verdev/verdev.htm, and begin the application process at his/her earliest convenience.

5.n. Comment: This entry intentionally left blank.
Response: This entry intentionally left blank.

5.o. Comment: The proposed ATCM should consider requirements for NOx and other criteria pollutant emission reductions, as well as requirements for PM emissions reductions. [Anair, UCS, December 11, 2003; Holmes-Gen, ALA, December 11, 2003; Modisette, CETC, December 11, 2003]

Response: The authority for proposing an airborne toxic control measure, such as the TRU ATCM, stems from the identification of a toxic air contaminant (TAC) in accordance with Chapter 3.5 of the California Health and Safety Code (section 39650 et seq.). Diesel PM has been identified as a TAC. NOx and other criteria pollutants have not been identified as TACs. However, as discussed in the Executive Summary of the *Staff Report* (pp. E-7, -8, -9, and -10) and Chapters II (pp. II-2, -3, and -6), VI (pp. VI-1, -5 to -9, -13, and -14), VIII (pp. VIII-5 and -19), and IX (pp. IX-8 to -10), most if not all, diesel emission control strategies will result in reductions of NOx (10 percent to 50 percent) and other criteria pollutants (e.g. HC – greater than or equal to 30 percent).

5.p. Comment: The ARB should consider future rulemaking covering new TRUs. This

rulemaking should consider inclusion of electric standby (E/S) as a compliance option or requirement. At a minimum, technologies that can provide emissions reductions over and above minimum requirements on new TRUs should be encouraged and rewarded. More should be done than just adopt the draft federal nonroad engine regulation. [Modisette, CETC, December 11, 2003, February 23, 2004, and February 26, 2004]

Response: E/S is currently a compliance option in the TRU ATCM. In an earlier TRU ATCM proposal, staff included provisions for new TRU engine standards that were more stringent than the U.S. EPA's proposed Tier 4 nonroad diesel engine emission standards. Opposition to that proposal was very strong because it would mean separate emission standards for new TRU engines compared to non-TRU engines in the same horsepower category. Under that scenario, there would need to be California-only TRU engines or all engines would have to meet California's standards, meaning that California's standards would effectively be national standards. Engine manufacturers assured ARB that the California TRU engine market was not big enough to warrant California-only TRU engines. ARB took the policy position to harmonize with the federal nonroad standards for new engines.

Part of this comment appears to suggest that new engine emission standards should also require TRUs to be equipped with E/S. Staff believes it would not be appropriate to require E/S equipment on new TRUs as part of a new engine emissions standard because engine emission standards apply to the engine exhaust (i.e. bare engine emissions or engine and exhaust aftertreatment system emissions). While the E/S equipment requirement may reduce overall emissions from TRU engines, that approach would fall outside the long-established conventions for engine emission standards.

Also, requiring all new TRUs to be equipped with E/S is problematic. Staff evaluated the use of E/S, as discussed in the Executive Summary of the *Staff Report* (pp. E-6 and -7) and in Chapters VI (pp. VI-2, -10, -12, and -17), VII (pp. VII-2, -7, -14, -15, and -18), and VIII (pp. VIII-1 to -4, -20, and -22). Early in the TRU ATCM development process, staff proposed regulatory concepts that would have mandated E/S. Staff conducted four Special TRU Workgroups on electrification to explore this approach. As a result of this research, staff believes that although E/S has been available for decades (and thus, is feasible), there are instances where making E/S a requirement would not be practical and would add unnecessary capital and maintenance costs without producing the requisite TRU engine emission reductions.

For example, less than half of the current TRU models offer E/S as an option. Also, for TRUs that are used for transporting deep-frozen goods in the longer trailers used in California, current E/S designs would not provide enough cooling capacity to meet the heat load during the hot summer days experienced throughout most of California. Considerable design effort would be required to add E/S to all models and to provide more powerful electric drive systems.

It also became clear that while E/S may be viable for a narrow group of TRU operators

affected by the ATCM (e.g. distribution centers that own and operate their own TRU-equipped trailers and deliver only to their own facilities), E/S would not be a good choice for railcar TRUs, TRUs used in intermodal transport operations (e.g. refrigerated trailers and shipping containers loaded on rail flatcars), and for TRU operators that don't own the facilities they deliver to and pick up goods from. In short, if plugging in is not practical, then no emission reductions would be realized.

In addition, E/S was found to be much more costly than other compliance options. The E/S option on a new trailer TRU costs from $2,000 to $2,600 per unit and from $350 to $600 per unit for a new truck TRU. TRU manufacturers assured us that retrofits were too expensive ($6,000 to $8,000) and although they had provided several cost estimates to their customers for E/S retrofits, the cost was so prohibitive that the customers dropped the idea. Infrastructure costs added significantly to this cost: Loading dock door electric outlets cost about $1,250 each if no transformer upgrades are necessary and from $5,000 to $7,000 per outlet if transformer upgrades are necessary. Power outlets in the truck/trailer parking areas cost more than these estimates due to trenching costs necessitated by underground distribution requirements. The total capital cost for E/S was found to be about $15,600 per unit, compared to $2,050 per unit for a VDECS compliance approach.

Also, TRU manufacturers reported that some TRU models cannot be retrofitted with E/S due to space constraints. TRU models that didn't offer the E/S option for a new TRU likely would not have enough space available for the retrofit motor and pulleys.

The mandatory E/S concept for the TRU ATCM was abandoned because, for a large percentage of TRUs, it could force scrapping or selling TRUs out of state. However, the E/S compliance option was retained for those that can justify the cost and find it a practical approach for their operations.

Mandatory E/S on all new TRUs or technologies that eliminate TRU engine operation at facilities could be reconsidered in the future, if staff's evaluation of large facility reports finds that residual public health risk will occur at facilities after allowing for full implementation of the TRU ATCM in-use performance standards. This suggestion would need to be thoroughly considered by the TRU Workgroup so that the status of all of the relevant issues could be updated.

Staff believes the TRU ATCM does encourage technologies that can provide emissions reductions over and above minimum requirements. Please see the response to the similar Comment 5.r. concerning zero-emission control technology.

5.q. Comment: The proposed ATCM compliance options focus solely on particulate matter emission reductions to the detriment of very clean technologies, such as electrification, that would capture the most emission reductions, or the most cost-effective emission reductions, from a multiple pollutant perspective. The proposed regulation does not encourage or reward additional reductions of NOx or ROG, yet E/S can provide large

reductions in NOx and ROG in addition to PM reductions. As a result, the regulation contains a de facto bias against technologies that exceed the minimum PM requirements, thus discouraging future technological innovation and additional emissions reductions. [Modisette, CETC, December 11, 2003, February 23, 2004, and February 26, 2004]

Response: Staff does not agree that the TRU ATCM compliance options focus solely on PM emissions. Staff has evaluated the various compliance options and estimated they will produce 10 percent to 50 percent reductions in NOx and at least 30 percent reductions in non-methane hydrocarbons. This was discussed in the Executive Summary of the *Staff Report* (pp. E-7, -8, -9, and -10) and in Chapters II (pp. II-2, -3, and -6), VI (pp. VI-1, -5 to -9, -13, and -14), VIII (pp. VIII-5 and -19), and IX (pp. IX-8 to -10). Although the TRU ATCM does not include minimum emission reduction requirements for NOx and HC, staff considers these reductions part of the baseline TRU ATCM emission reductions and plans to claim these emission reductions for the State Implementation Plan.

Since this regulation is an ATCM, with diesel PM being the target toxic air contaminant, cost-effectiveness is based on reductions of PM. While ARB is committed to capturing multi-pollutant emission reductions, if possible, staff believes it is not appropriate to include those reductions in a diesel PM ATCM cost-effectiveness calculation. Staff considers including non-PM emission reductions in the cost-effectiveness calculation as informative for comparison purposes, but has found that the bottom line capital costs per TRU are much higher for the E/S compliance option than for other options (see comment 5.p.). These higher costs may be acceptable for some TRU owner/operators. As discussed in Comment 5.p., above, mandating the E/S requirement for all TRUs was considered but found to be impractical and too costly for most TRU operators.

ARB is interested in capturing multi-pollutant reductions and evaluating ideas for proposed incentives (see Comment 5.x.). Other programs encourage and reward NOx and ROG emission reductions (see Comment 5.r. and 5.z.(1)) and could be applied to TRU engines, if TRU owner/operators were interested.

5.r. Comment: The ARB staff should consider future updates or amendments to the TRU ATCM to encourage zero emission control technologies such as cryogenic technology, electric standby, and fuel cells. ARB staff is urged to continue investigating methods to increase the use of zero-emission technologies. In evaluating zero emission technology proposals, the ARB should ensure that: 1) emission reductions are enforceable, verifiable, and greater than or equal to those associated with the proposed ATCM; 2) no adverse impacts would occur; and 3) incentives are preferentially provided in high-risk communities where pollutant exposure and the potential for public health benefits are the greatest. [Anair, UCS, December 11, 2003; Bailey, NRDC et al., February 25, 2004a]

Response: Staff believes the TRU ATCM does encourage zero emission control technology. For all 2002 and older TRUs, an operator can opt to use an Alternative Technology (which includes electric standby, cryogenic temperature control systems, and fuel cells) to comply with both the LETRU and the ULETRU standards. In other words, use

an Alternative Technology and you're done, instead of first complying with LETRU and then seven years later with ULETRU.

In addition, if TRU operators apply and qualify for Carl Moyer Program funds five years before the TRU ATCM compliance date, then grant funding can be used to pay for the technology installation costs. To qualify for Carl Moyer Program funds, the emission reductions must be enforceable and verifiable. (See response to Comment 5.z.(1).)

Also, ARB has met with interested parties and developed a process that will consider applications for Alternative Technology Compliance Plans (ATCP) that would allow compliance schedule flexibility for Alternative Technologies that require extensive and costly infrastructure in order to meet the goals of the TRU ATCM. (See also Comment 5.x.) The application would include an operating protocol with at-facility operating procedures, monitoring, recordkeeping, and reporting to show emission reductions that are real, enforceable, verifiable, and meet or exceed the TRU ATCM baseline emissions reductions. If approved by the Executive Officer, the applicant would then conduct a pilot project to demonstrate how the ATCP results in overall cumulative emission reductions that are equivalent to the TRU ATCM and how emission reductions at full compliance would be near-zero at distribution facilities. If the ATCP and operating protocol prove successful, then ARB would issue an Executive Order that allows continued large-scale operations under the ATCP. Staff would also evaluate whether the protocol could be used only on a case-by-case basis, or whether it would be appropriate to amend the TRU ATCM to allow the protocol to be applied to other facilities in high-risk communities.

5.s. Comment: Cryogenic technology based on the direct injection of liquid carbon dioxide into temperature-sensitive cargo-carrying areas is a good alternative strategy for complying with the proposed ATCM. It is the only strategy that would eliminate both on-road and facility emissions of TRU diesel exhaust and ozone-depleting chlorofluorocarbons. In addition, this technology has already been demonstrated to operate safely and reliably, would reduce diesel fuel costs, and promises to provide flexible compliance options, such as hybrid diesel-cryogenic units and cargo pre-cooling at distribution facilities. [Kirwan, Thermo King, December 11, 2003; Viegas, Thermo King, December 11, 2003]

Response: Staff agrees that cryogenic refrigeration approaches have some positive attributes and has therefore included these as possible compliance options in the TRU ATCM. However, there are some limitations to the application of such technology. For example, on-board liquefied carbon dioxide (CO_2) storage capacity would limit the range from the filling station that deliveries could safely be made to without jeopardizing product safety. And, facility filling station proximity to sources of liquefied CO_2 will have an effect on the delivery costs for the cryogenic liquid, which may adversely affect cost-effectiveness of this option for fleets that are located further away from sources of liquefied CO_2. Also, manufacturers have provided staff with cost information that shows costs are comparatively higher than other compliance options (please see the *Staff Report*, Chapters VI (pp. VI-12 to 17), VII (pp. VII-2, -4, and –7), and VIII (pp. VIII-2 to –4, -21, and –22).

5.t. Comment: The proposed ATCM's definition of "Cryogenic Temperature Control System" should be revised by adding the following sentence: "Electrically driven fans may be used instead of a vapor motor. The heating and defrost needs may be met by using electric heaters and/or engine coolant." [Viegas, Thermo King, February 17, 2004]

Response: Staff agrees and changed the definition accordingly in the First 15-Day Notice.

5.u. Comment: The proposed ATCM's definition of "Hybrid Cryogenic Temperature Control System" should be revised to “conventional TRU” instead of “diesel-fueled engine”. [Viegas, Thermo King, February 17, 2004

Response: Staff agrees and changed the definition accordingly in the First 15-Day Notice.

5.v. Comment: Operating TRUs on E/S power at facilities would employ proven technology, be cost-effective, substantially reduce multiple pollutants (eg., oxides of nitrogen, reactive organic gases, and global climate change gases, as well as diesel PM), extend engine life, reduce engine maintenance, reduce fuel use and cost, and promises to provide dual-fuel and other new designs.

However, incentives are needed to equip TRUs and build the necessary facility infrastructure capable of providing electrical power to the many refrigerated delivery vans and truck vans whose associated TRUs are already equipped to use electric standby. [Modisette, CETC, February 23, 2004; Tavaglione, Riverside County, February 24, 2004; Warf, CETC, December 11, 2003]

Response: Staff agrees with elements of the comment, but has not found the E/S approach to be more cost-effective compared to most other compliance options or the best approach for all TRU operators. Please refer to comments 5p, 5q, and 5r. In addition, while the use of E/S may tend to extend the life of the TRU engine, reduce engine maintenance, and reduce fuel use and cost, it would not extend the life of, or reduce the maintenance costs of the rest of the TRU (e.g. refrigeration system), which must continue to operate when E/S is being used. Also, the trailer insulation and door seals continue to degrade over time (e.g. condensation and moisture build-up in insulation and UV and ozone degradation of seals). These wear and tear effects cause the refrigeration system to work harder to maintain set point temperature and would also mean the TRU engine would have to work harder and/or longer even when the E/S was not being used (e.g. on the road).

Staff agrees that incentives would help build the necessary electric power infrastructure at facilities. Some incentives currently exist (see comments 5q, 5r, 5x, and 5z.).

5.w. Comment: At a capital cost of approximately $10,000, a single IdleAire electric

standby power unit could provide power to operate hundreds of electric power-capable TRUs and trucks per year at a travel center, highway rest area, or distribution center. We believe we are a less burdensome compliance alternative. Moreover, IdleAire technology provides an auditable trail because it is capable of tracking electric power use. [Wilson, IdleAire, February 26, 2004]

Response: Staff does not agree that E/S would be a less burdensome compliance alternative. The $10,000 per outlet cost cited by the commenter exceeds what staff found the cost would be, as discussed in the *Staff Report*. Staff's research found it would cost $1,250 per outlet at the loading dock if no transformer upgrades are needed and from $5,000 to $7,000 per outlet if transformer upgrades are needed. For power outlets in the yard. where the power must be distributed underground, costs of trenching and installation add to these estimates. Staff found the overall cost of the E/S compliance option to be over seven times more expensive than using the VDECS compliance approach (see comment 5p and *Staff Report*, Chapter VIII, Table VIII-1(p. VIII-2)).

Nonetheless, ARB supports the addition of electric "shore" power infrastructure at travel centers (truck stops), highway rest areas, and distribution centers since the availability of these plugs may encourage the purchase of more new TRUs with E/S. In fact, ARB has committed $2 million in NOx and PM Emissions Reduction Credit Program grant funds to subsidize IdleAire's Advanced Truck Stop Electrification projects in California.

5.x. Comment: The proposed ATCM creates a disincentive for choosing E/S as a compliance option by requiring TRU owner/operators to use E/S at all the facilities they frequent. This requirement is unreasonable because it would mean that TRU owner/operators using electrification as their compliance option would have to ensure that E/S power was available at every distribution point, even those they do not own or have any control over. Instead, for initial compliance, the proposed ATCM should require: 1) a TRU owner/operator to operate on electric standby a minimum of 50 percent of total operating time; 2) electric standby at a limited number of facilities visited by the TRU owner/operator; or 3) electric standby only at the facilities owned or controlled by the TRU owner/operator. [Foster, NORCO, February 26, 2004; Modisette, CETC, February 23, 2004 and February 26, 2004; Tavaglione, Riverside County, February 24, 2004]

Response: As discussed in the TRU ATCM, E/S and cryogenic temperature control systems only qualify as Alternative Technology options meeting the ULETRU standard if the TRU is not operated under diesel engine power while at a facility, except during an emergency. Staff's intent was to require near elimination of emissions while at a facility to qualify for ULETRU. The *Staff Report* at Chapter VII (p. VII-7), discusses staff's intent to allow E/S-equipped TRUs a reasonable amount of TRU engine operation at a shipping or distribution facility for ingress/egress and maneuvering. "Reasonable" means a few minutes at distribution facilities.

However, in the case where a TRU-equipped vehicle spends more time at a shipping or distribution facility waiting for a loading dock space, or typically runs the TRU engine for

longer duration while at a shipping or distribution facility for other reasons, E/S-equipped TRUs would be required to be plugged in to electric power to qualify for ULETRU compliance. This is due to the fact that at distribution facilities, there are usually a number of TRUs present at any given time, so the combined emissions result in greater near-source public health risk.

It was also staff's intent to apply the same thinking to retail and foodservice delivery points (e.g. grocery stores, restaurants, conveniences stores, etc.). But, since it is unusual to see more than one refrigerated truck or trailer at a time at these types of facilities, and the amount of time needed to unload is typically short, then the “reasonable” amount of TRU engine operating time would be somewhat greater than the distribution facility case. Staff believes a "reasonable" amount of time for TRU operation while unloading at retail and foodservice delivery points is 20 to 30 minutes. Electric plugs for E/S would not be required at these types of facilities unless the typical delivery stop took longer than 20 to 30 minutes, several TRUs were present and operating at one time, or a trailer is dropped off to serve as temporary refrigerated storage.

Also, under the adopted TRU ATCM, an owner/operator electing to use the E/S option between 2008 and 2012 would meet the ULETRU standard, provided operations are conducted in accordance with those described above. The ATCM does not provide a way for E/S to be used to meet LETRU through operations that resulted in emission reductions equivalent to 50 percent or more (the TRU ATCM's emission reduction goal for LETRU). Staff reasoned that an E/S LETRU option would be too difficult to verify compliance and enforce. It would also significantly increase the uncertainty regarding near-source public health risk reduction.

However, the Board directed staff to create a process that would allow Alternative Technologies to compete in California by considering an alternative pathway in meeting the TRU regulatory goals. To that end, staff created a process that will consider Alternative Technology Compliance Plans (ATCP) for technologies that require extensive and costly infrastructure (e.g. E/S and cryogenic or hybrid cryogenic) in order to meet the goals of the TRU ATCM.

Staff met with interested parties and discussed concepts for ATCP pilot projects that would demonstrate how an ATCP could produce emission reductions that are real, enforceable, verifiable, and meet or exceed the TRU ATCM baseline emissions reductions. Based on the input from interested parties, the following process was developed.

Step 1: The stakeholder would submit an application proposing a detailed ATCP that includes at-facility operating procedures, monitoring, recordkeeping, and reporting to show emission reductions are real, verifiable, enforceable, and meet or exceed the TRU ATCM baseline emissions reductions (ATCP application requirements are available upon request). The applicant would be responsible for showing how a modified Alternative Technology infrastructure compliance schedule would result in overall cumulative emission reductions that are equivalent to the TRU ATCM and how emissions at full compliance

would be near-zero at distribution facilities. The modified compliance schedule would likely be phased in early, at a reduced initial compliance rate, but progressing toward full compliance by the ULETRU compliance deadline.

The TRU ATCM's LETRU baseline emission reductions require at least 50 percent reduction in diesel PM, and 85 percent PM reduction for ULETRU. Both of these standards apply to specific model years in accordance with a compliance schedule. In addition, to the required baseline PM emission reductions, NOx and HC emission reductions, discussed as goals in the ATCM S*taff Report*, are less than 50 percent and less than 30 percent, respectively.

Step 2: If the application is approved by the Executive Officer, the applicant would conduct a pilot project to demonstrate the feasibility of the proposed protocol. Data collection from a representative number of units under a range of representative operating scenarios would be necessary.

At the conclusion of the protocol demonstration, the applicant will submit an ATCP Pilot Project Report to ARB documenting the protocol, demonstration, and results. The report would be required to discuss the resulting cost-effectiveness of the ATCP.

Step 3: Staff would evaluate the ATCP Pilot Project Report to determine whether following the protocol results in emission reductions that are real, verifiable, enforceable, and meet or exceed the TRU ATCM baseline emissions reductions. These key evaluation criteria are considered the minimum core evaluation criteria. Other criteria may apply, depending on the type of Alternative Technology involved and the nature of the proposed protocol.

If staff determined the protocol did not successfully address one or more of the key criteria, then staff would meet with the applicant to determine if corrective actions or additional conditions could provide remedies. If a revised protocol and compliance schedule is agreed to, the applicant may then need to demonstrate and report on it, followed by staff's re-evaluation.

Step 4: If staff found the protocol to be successful, ARB would issue an Executive Order that allows continued large-scale operations under the ATCP throughout the effective life of the TRU ATCM for the specific TRU operator and/or specific facility. Staff would also evaluate whether the protocol could be used only on a case-by-case basis, or whether it would be appropriate to amend the TRU ATCM to allow the protocol to be applied to other facilities.

Staff believes the ATCP process provides opportunities for parties that are interested in showing how Alternative Technologies can meet infrastructure compliance requirements that are consistent with the emission reduction goals of the TRU ATCM, ultimately reaching the near-elimination of TRU engine emissions while at a facility.

5.y. Comment: The ARB should consider providing incentives and less restrictive

infrastructure requirements to encourage the completion of a limited number of local electric standby and/or cryogenic technology pilot projects by 2009. [Foster, NORCO, February 26, 2004; Kirwan, Thermo King, February 26, 2004; Modisette, CETC, February 23, 2004 and February 26, 2004; Tavaglione, Riverside County, February 24, 2004]

Response: Staff agrees. Please see the responses to the related comments 5q, 5r, 5x, and 5z.

5.z. Comment: The Board should direct staff to explore future regulations that require E/S on all new TRUs. In future TRU regulations, ARB should consider alternative control technology requirements, such as requiring electric standby on all new TRUs and addressing the development of electric power hook-ups at shipping terminals, rail yards and large facilities, particularly those near residential neighborhoods. [Bailey, NRDC, December 11, 2003; Bailey, NRDC et al., December 10, 2003; Bailey, NRDC et al., February 25, 2004b; Campbell, CCA, December 11, 2003]

Response: During the implementation of the TRU ATCM, as ARB learns more about the compliance options chosen, staff will evaluate whether there will be residual public health risk near facilities where TRUs operate. The results of this evaluation may lead to additional requirements on facilities if the residual risk is found to remain at unacceptable levels. One option may be to require electric standby (E/S) on all new TRUs. However, staff believes there are instances where this requirement may not be practical, would add unnecessary capital and maintenance costs without producing the requisite TRU engine emission reductions, and would cause significant redesign of TRUs to solve these challenges. (Please see the response to comment 5p.) Other approaches to further reducing TRU diesel engine emissions would also be considered at that time.

5.z(1). Comment: The ARB staff should develop recommendations, options, and incentives that reward accelerated reductions of PM and additional reductions of oxides of nitrogen, sulfur dioxide, reactive organic gases, ammonia, and carbon dioxide, particularly at "hot spot" (i.e., high emission) facilities such as distribution centers. [Anair, UCS, December 11, 2003; Bailey, NRDC, December 11, 2003; Holmes-Gen, ALA, December 11, 2003; Modisette, CETC, December 11, 2003, February 23, 2004, and February 26, 2004; Tavaglione, Riverside County, February 24, 2004; Wilson, IdleAire, February 26, 2004]

Response: Some incentive options are discussed in the *Staff Report* at Chapter I under Voluntary Retrofit Programs (p. I-5). Please also see responses to related Comments 5p, 5q, 5r, 5v, 5x, and 5y.

In addition, the regulation is structured to provide many compliance options while encouraging the use of Alternative Technologies, which all provide for the virtual elimination of diesel PM emissions (and much lower NOx and HC emissions) at facilities. For example, if a 2002 or older TRU uses the Alternative Technologies compliance approach

to comply with the LETRU requirements by the LETRU compliance date while meeting the qualification criteria for ULETRU (e.g. eliminate TRU engine operation while at a facility, except during emergencies and ingress/egress maneuvers), they would not be required to do anything seven years later to comply with the scheduled ULETRU standards.

Furthermore, emission reduction credits (ERC) could be generated by operators under current air district rules and state guidelines. But in order to meet federal, state, and local ERC requirements, emission reductions must be real, quantifiable, permanent, and surplus. TRU operators must document each TRU engine's baseline emissions before a reduction occurs. Before an ERC generator would go to the trouble of documenting baseline emissions and investing in the control technology, they would need to know that a buyer was in need of the ERCs. The portion of the emission reductions that occur at the facility could be considered stationary, but probably not in the same sense as those generated by a stationary source. There could be differences due to the way TRUs are often moved about the state between different facilities. This interpretation would be up to the local air district responsible for banking ERCs. The portion of the emission reductions that occur on-road would be mobile ERCs (MERC), which are typically considered temporary, not permanent, and can generally not be used to offset emissions increases at stationary sources.

The South Coast Air Quality Management District's (SCAQMD) MERC program allows these temporary ERCs, but they must be used contemporaneously since they are not permanent. SCAQMD adopted MERC rule 1633 that could have been used for TRUs, but not a single application was filed before the rule's application deadline passed (January 1, 2004), and the rule expired.

The ability to generate ERCs is limited since the TRU ATCM will require PM emission reductions starting at the end of 2008 and continuing until 2020. Staff will continue to work with the California Air Pollution Control Officers Association on resolving issues related to ERCs. Operators interested in ERCs should consult the local air district where the TRU home base facility is located.

Finally, although the Carl Moyer Memorial Program is available to fund the installation costs associated with early use of PM control technologies that produced NOx and HC reductions, TRU projects may not be able to qualify due to the required life of the project (typically three to five years). As with ERCs, the emission reductions have to be surplus – the project would have to occur prior to mandatory compliance with the ATCM and the emissions reductions cannot be counted in any local district State Implementation Plan. That said, it is possible that TRU engines could comply with the TRU ATCM when they are less than two years old, resulting in five years of project life before the mandatory requirement kicks in seven years after the TRU engine's model year. The installation costs are not typically a significant portion of the total project costs, so the value of the incentive may be impractical. As described above for ERCs, however, the baseline emissions and reductions would have to be well-documented for each TRU engine involved in order to comply with the program requirements.

5.z(2). Comment: State and/or local agencies should use financial incentives such as emission reduction credits to encourage the use of "blue chip" multiple pollutant control technologies that substantially reduce NOx and ROG emissions beyond the reductions that would be realized as a result of the proposed ATCM's requirements. Specifically, a limited-term Statewide emission reduction credit pilot project should be established for such surplus emission reductions with projects approved on a case-by-case basis by the ARB Executive Officer. As a first step, the ARB should quantify the proposed ATCM's baseline emission reductions to enable reductions over the baseline to be rewarded with emission reduction credits. [Modisette, CETC, December 11, 2003, February 23, 2004, and February 26, 2004]

Response: The minimum TRU ATCM PM emission reductions would be 50 percent for those TRU engines required to meet the LETRU standard and 85 percent for those TRU engines required to meet the ULETRU standard. Also, baseline emission reduction goals for NOx and HC emissions would be 50 percent and 30 percent, respectively.

ERCs could be generated by operators under current air district rules and state guidelines (see Comment 5.z(1)), however there are rigorous documentation and verification requirements that must be met to assure the emission reductions are legally binding. Establishing a new "blue chip" ERC program is beyond the scope of this regulation.

5.z(3). Comment: The Coalition for Clean Air supports incentives, but not emission reduction credit incentives, for the use of multi-pollutant control technology alternatives. [Campbell, CCA, December 11, 2003]

Response: Staff agrees that emission reduction credits (ERC) are a challenge with respect to TRU engines. The South Coast AQMD's Rule 1633 – *Pilot Credit Generation Program for Truck/Trailer Refrigeration Units* attempted to bridge some of these gaps, but this rule reached its expiration date before any applications were received.

6. Emissions Inventory

6.a. Comment: The *Staff Report* does not meet its fundamental objective of providing accurate and representative information to justify adoption of the proposed ATCM by the Board because inconsistent approaches used in emission inventory, cost, and health risk evaluations biased the information reported. The overestimate of TRU health risk, the underestimate of compliance costs, and the resultant overstatement of cost-effectiveness should be corrected in the Final Statement of Reasons for the ATCM. [French, EMA, December 9, 2003]

Response: We disagree with this comment. Staff developed a revised emission inventory, a detailed cost-effectiveness analysis, and provided a number of opportunities for stakeholders to provide additional information. Staff also used the current accepted health risk methodology approved by the Office of Environmental Health Hazard

Assessment (OEHHA), and used the best data available. Staff does not plan to amend the health risk or economic analyses presented in the *Staff Report*, unless and until new data demonstrates the need to do so. Unfortunately, health risk assessment and emission inventory information are rarely as definitive and complete as investigators would prefer. In the case of the *Staff Report*, the absence of a comprehensive TRU registry[7] made TRU population estimates especially difficult. Staff did consider a number of data collection and handling approaches for its estimates - none proved more credible than the methods used in the *Staff Report*. Therefore, based on available information, staff believe its *Staff Report* accurately reflects the health risk associated with TRU engines as well as the probable compliance costs and overall cost-effectiveness of the ATCM. See also Responses to Comments 3.c.-e., 3.g., 3.j., 3.k., 3.p., 6.b., 7.a., and 7.e.

6.b. Comment: The ARB staff's TRU population estimate is based on unreliable indicators. The staff should justify the use of these indicators. [French, EMA, December 9, 2003]

Response: Staff used the best data available and gave an opportunity to stakeholders to provide alternative data. In the *Staff Report*, the best TRU population information available from various sources, including the federal government, State agencies, trucking associations, and TRU and TRU engine manufacturers was used. Federal and State agency information was incomplete and trucking associations did not respond to requests for information. TRU and TRU engine manufacturers did provide sales data which, coupled with U.S. Census Bureau heavy duty vehicle transportation activity data and other data, provide the basis for staff's California and out-of-state TRU population estimates as explained below:

Estimate of California-based TRUs[8]: Based upon the reasonable assumption that the majority of TRUs sold in California will be based and used in the State, staff used the cumulative total of TRUs sold over approximately 20-years (adjusted for survival rates) to estimate the California-based population for the following TRU engine horsepower (hp) size categories: less than 15 hp, 15-25 hp, and 25 to 50 hp.

Estimate of Out-of-State TRUs: Staff assumed that out-of-state TRUs would generally be used on heavy heavy-duty vehicles (HHDVs) (i.e., long-haul-capable semi-trailers with TRU engines size 25 to 50 hp). Staff relied on California's on-road vehicle emissions inventory model EMFAC2002 assumption that 25 percent of the total HHDV population operating in California on any given day is comprised of HHDVs registered

[7] The recently adopted ATCM requires registration of California-based TRUs and encourages registration of out-of-state TRUs. ARB's technology reviews scheduled for 2007 and 2009 will provide opportunities to consider registry information, ascertain technology availability and cost, and update estimates as necessary.

[8] Although vehicular registration has been mandated for years, there is no comprehensive registration program for TRUs. The recently adopted ATCM requires registration of California-based TRUs and encourages registration of out-of-state TRUs operating in Califoirnia. This data will be used to refine TRU population estimates.

out-of-state. The EMFAC2002 assumption is based on activity, i.e., vehicle miles traveled (VMT), data from the Truck Inventory and Use Survey conducted by the U.S. Bureau of Census. Thus, the out-of-state TRU population operating in California on any given day is estimated to be 33 percent of the estimated California-based semi-trailers with TRUs (or 25 percent of the total out-of-state and California-based semi-trailers with TRUs). For example, for year 2000: 0.33 x 22,772 California-based semi-trailers with TRUs = 7,515 out-of-state semi-trailers with TRUs which is about 25 percent of the total semi trailers with TRUs operating in the State (sum of 22,772 + 7,515).

6.c. Comment: The staff should explain how the heavy-duty diesel truck population can be used to estimate out-of-state TRUs, the majority of which are associated with trailers. [French, EMA, December 9, 2003]

Response: Staff agree that the majority of out-of-state TRUs are associated with semi-trailers which are in turn pulled by diesel-fueled semi-trucks. According to TRU and TRU engine manufacturers, refrigerated semi-trailers engaged in long-haul interstate transportation are typically equipped with 25 to 50 hp TRU engines and are heavy heavy-duty vehicles (HHDVs) weighing 33,000 pounds or more. Information from the California Department of Motor Vehicles International Registration Program also indicates that the majority of out-of-state vehicles, including semi-trailers, registered to operate in California, are HHDVs. Based on mileage data from the U.S. Census Bureau, out-of-state HHDVs constitute about 25 percent of the total HHDVs operating in California on any given day. Therefore, in the absence of more definitive data, staff's estimate that the out-of-state refrigerated semi-trailer population (i.e., TRUs 25 to 50 hp) also constitutes 25 percent of the total refrigerated semi-trailers (i.e., TRUs 25 to 50 hp) operating in California on any given day. Please see Response to Comment 6.b.

6.d. Comment: Out-of-state trucks traveling in California clearly outnumber California-based trucks. The ARB should explain the discrepancy between the *Staff Report* (Appendix D) estimated ratio of 3:1 California-based versus out-of-state-registered trailers with TRUs operating in California and the 1:3 ratio of California- vs. out-of-state-registered trucks cited in *Staff Report: Initial Statement of Reasons - Public Hearing to Consider Adoption of the Heavy-Duty Diesel Engine Software Upgrade Regulation (Chip Reflash)*, September 5, 2003. [Heaton, CTA, December 11, 2003 and February 25, 2004; Tunnell, ATA, December 11, 2003; Williams, CTA, February 26, 2004]

Response: Staff used a vehicle-miles-traveled (VMT)-based estimate (as described in the Responses to Comments 6.b. and c.) for the purpose of assessing the out-of-state TRU emission impact. In contrast, out-of-state registration data was used for the purpose of estimating the potential number of individual heavy duty trucks or vehicles subject to Chip Reflash requirements.

Both ratios are correct based on the available data and purposes described.
Based on EMFAC2002 and VMT data, California-based HHDVs with TRUs are expected to drive more miles than out-of-state HHDVs with TRUs by 3:1 on any given day. As

previously mentioned, this ratio was primarily used to calculate daily out-of-state TRU emissions in California because activity is a more reliable indicator of emissions than simple numbers of vehicles. However, staff used absolute numbers of heavy-duty trucks or vehicles registered to operate in California to estimate that a total of approximately 300,000 to 400,000 out-of-state and 100,000 California-based heavy duty trucks or vehicles are subject to Chip Reflash requirements. We understand that the trend towards increasing numbers of out-of-state HHDVs registering to operate in California is continuing, but their VMT within the State is still estimated to be about 25 percent of the total HHDV VMT.

6.e. Comment: The ARB staff should identify the basis for the EMFAC2002 assumption that 25 percent of the total heavy-duty diesel truck population operating in California (i.e., 33 percent of California-based heavy-duty diesel trucks) are comprised of trucks registered outside the State. [French, EMA, December 9, 2003]

Response: As described in the Responses to Comments 6.b., c., and d., the basis for the EMFAC2002 assumption is VMT data from the Truck Inventory and Use Survey conducted by the U.S. Bureau of Census.

6.f. Comment: The ARB staff should explain the *Staff Report* statement in Appendix D, p. D-9, that 25 percent of the total heavy-duty truck population operating in California equates to 33 percent of California-only heavy-duty trucks. [French, EMA, December 9, 2003]

Response: As described in the Response to Comment 6.b., the out-of-state TRU population operating in California on any given day is estimated to be 33 percent of the estimated California-based trailers with TRUs (or 25 percent of the total out-of-state and California-based trailers with TRUs). For example, for year 2000: 0.33 x 22,772 California-based trailers with TRUs = 7,515 out-of-state trailers with TRUs which is about 25 percent of the total trailers with TRUs operating in the State (sum of 22,772 + 7,515).

6.g. Comment: In calculating emissions, the ARB staff should not assume that out-of-state TRUs have the same age distribution and usage as TRUs associated with trucks registered in California. [Tunnell, ATA, December 11, 2003]

Response: ARB staff based the estimate of out-of-state TRU engine emissions in California on the estimate of California-registered HHDV semi-trailers with 25 to 50 hp TRU engines, and assumed the same useful life and activity for both populations (see Response to Comment 6.b). Although TRU and TRU engine manufacturers indicate that TRUs associated with out-of-state long-haul HHDVs are likely to be newer and "cleaner" (i.e., emit less diesel exhaust particulate matter) than TRUs associated with California-registered HHDVs, they also indicate that out-of-state TRUs tend to operate continuously while in the State. In contrast, most in-state TRUs have significant periods of downtime. Therefore, for the purposes of estimating in-state TRU engine and out-of-state TRU engine emissions in California, staff believe that out-of-state TRU engine emissions due to increased running times are likely to balance out any emission reductions due to the

population being comprised of later model units.

7. Health Risk Assessment

7.a. Comment: The *Staff Report* should have included a comprehensive discussion of the uncertainties surrounding the health risk assessment. Such discussion should have addressed epidemiological and toxicological data availability, mechanisms of toxicity, the accuracy and validity of health values [e.g., the diesel exhaust particulate matter (diesel PM) cancer risk factor], and related findings and opinions of other reputable and qualified health agencies and organizations. [French, EMA, December 9, 2003]

Response: The *Staff Report* does provide a comprehensive discussion of the uncertainties surrounding health risk assessments. Appendix E and Chapter V of the *Staff Report* discusses the qualitative nature of the health risk assessment for the operation of diesel-fueled TRU engines as well as a number of key variables that can affect the results of such an assessment. The accuracy and validity of the diesel PM cancer risk factor based on epidemiological and toxicological data and related findings and opinions of U.S. EPA, the International Agency for Research on Cancer (IARC), and others are thoroughly discussed in the references cited for Appendix E and Chapter V. It was neither the intent or purpose of the Staff Report to reproduce these lengthy discussions. The ARB and the Office of Environmental Health Hazard Assessment (OEHHA) documents, *Proposed Identification of Diesel Exhaust as Toxic Air Contaminant, Appendix III, Part A, Exposure Assessment* and *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* address the toxicity and validity of health values regarding diesel PM. No alternative data was presented to staff that changes this basis.

7.b. Comment: The *Staff Report* should have included the U.S. EPA's opinion that "zero risk cannot be ruled out" and the cancer risk assessment for a distribution facility should be based on a theoretical cancer risk range that includes zero risk. See also Comment 3.g. [French, EMA, December 9, 2003]

Response: Based on California's Scientific Review Panel's (SRP) finding and the Board's determination that there is not sufficient evidence to support identification of a threshold level for diesel exhaust particulate matter (diesel PM) below which no significant adverse health affects are anticipated, zero or "no" diesel PM health risk can be assured only to the extent that zero or "no" exposure can be assured. Since neighborhood receptor exposure to TRU engine diesel PM emissions from a distribution facility cannot be ruled out, staff cannot include zero risk in the theoretical cancer range of its health risk assessment analysis.

7.c. Comment: Staff should revise a sentence on pp. V-9 and V-10 of the *Staff Report* to show that two studies reviewed by CARB found exposure to diesel exhaust did not result in an increased risk of cancer. [French, EMA, December 9, 2003]

Response: We disagree. The preponderance of scientific evidence clearly links diesel PM with increased cancer risks. See OEHHA's diesel exhaust identification report entitled *Proposed Identification of Diesel Exhaust as Toxic Air Contaminant, Appendix III, Part A, Exposure Assessment.*

7.d. Comment: Staff should justify the results of the premature mortality analysis in the *Staff Report* by providing and reviewing data used to derive the premature mortality rate and by demonstrating linear relationships for diesel-fueled TRU PM emissions, ambient particulate matter (PM) 2.5 concentrations, and adverse health impacts. [French, EMA, December 9, 2003]

Response: The *Staff Report* uses the most current peer-reviewed information, (i.e., the journal articles cited at the end of Chapter II of the *Staff Report*) as the basis for the premature mortality rate for exposure to PM 2.5.

7.e. Comment: The ARB staff overestimated excess cancers due to TRU diesel exhaust particulate matter (diesel PM) emissions from a distribution facility by basing its assessment on worst-case dispersion modeling assumptions/inputs for meteorological conditions, emission source-to-receptor distance, radials of diesel PM concentrations, and indoor exposure levels. Staff should conduct a refined cancer risk assessment using realistic assumptions/inputs based on site-specific (i.e., representative of the State of California) data. If staff do not refine the risk assessment, they should characterize the existing one as a screening analysis and discuss the conservative and limited interpretations possible from such an analysis. [French, EMA, December 9, 2003; Mandel, EMA, December 11, 2003]

Response: Appendix E, p. E-1, paragraph 2, of the *Staff Report* clearly indicates that staff's health risk assessment for the operation of diesel-fueled TRUs used SCREEN3 and Industrial Source Complex Short Term (ISCT3) models consistent with Tier 1 analysis methodology presented in OEHHA and ARB guidelines. The nature of assessment results obtained by using these guidelines is not site specific and is thoroughly discussed in the references cited for Chapter V and Appendix E.

7.f. Comment: Regarding the modeling analysis and cancer risk assessment for a distribution facility, ARB staff should: 1) clarify inhalation rate(s) used; 2) provide the stack parameters used to derive plume rise; 3) explain why TRU operating hours and distances between source and receptor indicated in the *Staff Report at* Chapter V, appear inconsistent with those in Appendix E; 4) account for fleet turnover rather than assuming that there is no fleet turnover for a 70-year exposure period; and 5) provide sensitivity study data regarding the evaluation of alternative meteorological data, facility orientation, facility property boundaries relative to loading dock doors, facility size and configuration, and receptor location. [French, EMA, December 9, 2003]

Response: Appendix E, p. E-1, paragraph 2, of the *Staff Report* clearly indicates that staff's health risk assessment for the operation of diesel-fueled TRU engines is consistent

with Tier 1 analysis methodology presented in OEHHA and ARB guidelines. The risk assessment is based on operating parameters that would give a general idea of health risks expected due to operations of diesel TRU engines at facilities in California. Specifically, in response to the requests of the commenter, the ARB finds:

1) OEHHA risk assessment guidelines require that a Tier 1 evaluation use the high-end point-estimates (95^{th} percentile) for the inhalation pathway to present the inhalation cancer risk. As shown in the guidelines, the 70-year exposure duration high-end breathing rate is 393 liters per kilogram of body weight.

2) Engine manufacturer data was used to develop stack parameters of typical TRU engines for the risk assessment. Site specific operating stack parameters were not used. The resulting plume heights used to develop health risk estimates for typical operations are shown in Table 1 in Appendix E, on page E-3.

3) The tables in Appendix E show a range of operating hours (from 100 hours per week to 1,500 hours per week). Figure V-3 and paragraph 2 on page V-13 both state that the figure shows 300 hours per week of TRU engine operation at a 60 percent load factor. Figure V-3 shows receptor distances out to 1100 meters to demonstrate that at 300 hours per week of TRU engine operation, the cancer risks to offsite receptors remains above 10 in a million until over 1000 meters from the center of the source of emissions.

4) Figure V-3 shown estimated cancer risk ranges at the current average fleet emission rate, reduced 65 percent in 2010, and further reduced in 2020. The tables in Appendix E also show emission rates lower than the current emission rate. This demonstrates that health risks will be reduced as fleet turnovers reflect lower emission rates over the 70-year exposure period.

5) The risk assessment shows health effects due to typical TRU engine operations at varying distances from the center of the area source. Pages E-1 and E-2 of the *Staff Report* state that Figure 1 in Appendix E characterizing the layout of a facility with a large area source of TRU engines is only given as an illustration of the modeling layouts and is not to scale. Figure 2 in Appendix E shows a comparison of the downwind ambient concentrations for four meteorological data sets used for assessing potential cancer risks. As discussed in the document, risk assessment results are for general TRU operations and does not show site-specific results.

7.g. Comment: ARB staff should conduct a thorough evaluation of the potential health, and environmental impacts of using alternative fuels (e.g., compressed natural gas or "CNG," synthetic fuels, and water emulsion fuels) as a compliance option. The evaluation should also consider safety hazards, such as the potential for fire or explosion. [French, EMA, December 9, 2003]

Response: An evaluation of potential health and environmental impacts of using alternative fuels is not required as part of this Airborne Toxic Control Measure (ATCM).

These impacts would be addressed as part of feasibility studies for use of alternative fuels in compliance with this ATCM. These impacts will also be addressed as part of the *Verification Procedure*, used for the ATCM.

B. Responses to Comments Received During the First 15-Day Comment Period from April 5 to April 30, 2004.

The ARB also received written comments on the modified regulatory language during the first 15-Day public comment period beginning April 5, 2004 and concluding April 30, 2004. The Board received 2 letters or emails with written comments from the persons listed below.

- Ray, Ron, Carrier Transicold of Southern California (CTSC), April 27, 2004.
- Modisette, Dave, California Electric Transportation Coalition (CalETC), April 30, 2004.

A summary of each objection or recommendation regarding the modified language, or the procedures used by the ARB, together with an agency response, follows. Although Government Code section 11346.9(3) does not require the agency to summarize the objections or recommendations received on the elements of the regulation not subject to the additional 15-day comment period, we have prepared some additional responses to give further clarification of the regulation.

1. Comment: Using the rounding method proposed for the Early Compliance with LETRU standards, there is no incentive to use early technology in the second half of the year technology is available. The benefit to residents near the facility is clearly stated. The best way to protect those near source is to encourage early adoption of reduced emissions systems. Operators with large fleets of TRUs will have a difficult time, logistically, in achieving early compliance in the first half of the year. There is simply not enough time to upgrade that many TRUs in that time frame. Perhaps when it is not practical for large TRU users, consideration could be given in the second half of the year. (Ray, CTSC, April 27, 2004)

Response: This comment is not germane to the first 15-day changes made by the Board and therefore does not require a response; but for the sake of clarification, staff is providing the following response.

The comment refers to the rounding conventions set forth in subparagraphs (e)(1)(F)2.b. As background, LETRU compliance must be achieved by December 31, 2008 for 2001 and older model years and by December 31, 2009 for 2002 model year. Seven years later, these TRU engines must comply with the ULETRU standards. Each year of early compliance with the LETRU standard will be rewarded by one year of delay in compliance with the ULETRU standard. The rounding conventions are illustrated below.

Amount of early compliance with	**Reward - Delay in ULETRU**

LETRU	Compliance
2-years and 183 days or greater	Three years
1-year and 183 days to 2-years and 182 days	Two years
183 days to 1-year and 182 days	One year
Less than 182 days	None

TRU operators might be tempted to wait until the just before the 183-day cut-off point to comply early in an effort to maximize the return on the investment (i.e. get the most reward for the least impact on cash flow). But, that strategy could cause scheduling challenges for even the smallest TRU operator if it's pushed too close to the 183-day rounding cut-off point.

This early compliance scheduling challenge would be present no matter where the rounding cut-off point was chosen. For example, if the ATCM had stipulated that a one year delay in ULETRU would require early compliance to be achieved at least one full year before the LETRU compliance date, operators would probably still be tempted to put off early compliance until as close to the one-year cut-off point as possible. Then, the logistics on when to start early compliance efforts would simply be shifted six months earlier than under the present system. Staff believes the TRU ATCM provides a very fair exchange for early compliance.

Staff recognizes that small operators may be able to wait until they are closer to the early compliance rounding cut-off dates to begin early compliance and that large TRU operators will probably need to begin early compliance efforts sooner to be sure they complete their early compliance plans by the cut-off date. Staff urges those interested in the early compliance incentive to start early compliance installations as soon as the technology is available to avoid missing this opportunity.

2. Comment: In Attachment I of the first 15-Day Proposed Modification, page 13, paragraph (e)(1)(A)3.(a), E/S is provided as an Alternative Technology qualified to meet the ULETRU standard, provided it does not operate on diesel while at a facility except during an "emergency." The definition of "emergency" provided in subparagraph (d)(26) is narrow, providing solely for unscheduled power outages. We believe that CARB had agreed to include an allowance for reasonable diesel operations when entering, exiting, and maneuvering in the terminal and during some instances of short term parking while at the terminal.

We propose that the language defining the E/S alternative on page 13 be changed to reflect the requirement for electric operation when at the facility *loading dock*. This would create an allowance for reasonable access, egress and yard maneuvers without having to define every known activity exception. We recommend adding the words "loading dock" to the description, as follows:
"Electric Standby, provided that the TRU is not operated under diesel engine power while

at a facility **loading dock**, except during an emergency." (Modisette, CalETC, April 30, 2004)

Response: This comment is not germane to the first 15-day changes made by the Board and therefore a response is not required. However, staff would like to respond to clarify the reasoning behind the regulatory language.

Staff agrees that for TRUs equipped with E/S there should be a reasonable amount of time allowed, while at a facility, that the E/S is not required to be plugged in. Please see 45-Day Comment 5.x. on page 50.

During the development of the TRU ATCM, staff met with the operations managers of over 25 facilities where TRUs operate and learned that at most of these facilities the greatest part of TRU engine operation time at a facility does not occur while the TRU is backed up to the loading dock. Instead, most of TRU engine run time that occurs at a facility takes place in the truck/trailer parking areas while the van is pre-chilled prior to loading, and after loading while the truck/trailer is waiting to be dispatched on its delivery route. In fact, a majority of the facility operators that staff talked to said they typically shut down the TRUs while they are at the loading dock. Therefore, if E/S-equipped TRUs were only required to plug in while at the loading dock, as suggested by this comment, this would not effectively reduce the TRU engine operating time while the TRU is at the facility. Plugs are needed at the loading dock and at the truck/trailer parking spaces at a distribution facility to effectively eliminate TRU engine operations at the distribution facility.

3. Comment: We believe that CARB's definition and interpretation of the term "facility" discourages the option of electric standby in that it will require ALL facilities be equipped w/ electric infrastructure and that TRUs be plugged in at all times (page 6, subsection (d)(30)). The definition mentions food distribution centers, cold storage warehouses and intermodal facilities, implying large terminal operations. However the interpretation has been put forward by CARB that "facility" also includes *every* stop along the daily route of a TRU equipped vehicle, i.e. every store and delivery point, many of which may not be under the control of the truck owner/operator. By requiring electric standby be installed at every facility, including those outside of the control of the truck owner/operator, the option of electric standby essentially becomes a non-candidate for compliance.

As a point of clarification, it needs to be emphasized that delivery stops are often very short. Depending on municipal regulations and neighborhood pressures, drivers may be required to shut down the diesel TRU when stopped at some or most of these delivery points already. Stops may only last 20 to 30 minutes, so it is usually not a burden to shut off the TRU engine. Even if infrastructure were available for electric standby, most drivers would not, in our opinion, spend the time to hook up for a short stop.

We request that CARB clarify whether an operator would be in compliance if he simply shut down his diesel TRU in these instances, or does he actually have to have electric infrastructure available whether utilized or not.

Obviously there will be other circumstances where electric standby equipped trailers will be loading or unloading for extended times at facilities not under the operators control and where it would be impossible to demand or expect electric standby infrastructure to be available.

It is our recommendation that the requirement for electric standby infrastructure and mandatory electric TRU operation be applied to main terminal facilities controlled by the truck's owner/operator. We strongly recommend that wording be modified to exclude any requirements for infrastructure on facilities where he has no ownership or control.

However, this problem situation might be significantly mitigated by requiring the diesel TRU to be shut off at facilities, as an alternative to requiring installation and use of electric infrastructure. This should work well at delivery locations where stops are of short duration. (Modisette, CalETC, April 30, 2004)

Response: This comment is not germane to the first 15-day changes made by the board and therefore a response is not required. However, staff would like to provide the following response as points of clarification on issues brought up by this comment.

During our research into E/S, TRU manufacturers told staff that one of the reasons there are so few TRUs equipped with E/S in the U.S. is that there were no local ordinances that limit TRU engine operation and which would *require* the use of E/S. Staff also asked TRU operators if they were aware of any local ordinances that require the use of E/S or TRU engine shut-down for noise and odor reduction. We were told there were no known ordinances in California at that time. Use of E/S for noise and odor reduction was found to be voluntary, resulting from informal agreements between TRU operators and local neighborhoods.

Staff does not believe it is appropriate to apply the E/S infrastructure requirements only to main terminal facilities controlled by the truck's owner/operator. Near-source risk at some facilities that are not main terminals may remain unacceptably high. However, staff believes that a greater TRU operating allowance at delivery points where there are typically never more than one or two TRUs at a time is reasonable (e.g. at grocery stores, conveniences stores, restaurants, etc.). See staff's response to the related 45-day comment 5.x. on page 50. Staff will consider this more closely as part of evaluating Alternative Technology Compliance Plan pilot projects.

4. Comment: The Air Resources Board's adopted Resolution 03-37 regarding TRUs contained the direction about "pilot-demonstration projects": The current version of the 15-day language does not contain any specific authorization for, or reference to, pilot-demonstration projects. We understand that ARB staff is currently considering possible eligibility criteria for the pilot-demonstration projects, and that once this criteria is decided upon, then there will be a determination as to whether additional regulatory language, in the form of another 15-day Change version of the ATCM, is needed.

We believe the ability to do pilot-demonstration projects is an extremely important aspect of this ATCM given the "technology forcing" nature of the regulation. Further, this provision has additional importance for E/S options because of the fact that there is very little E/S infrastructure at refrigerated facilities today, and increasing the penetration of facilities that have this infrastructure will be a lengthy process.

We look forward to working with ARB staff on the determination of eligibility criteria, and the subsequent decision on whether additional 15-day language is necessary for implementation of the pilot-demonstration projects. We also look forward to working with ARB staff on other actions (not related to 15-day language) such as changes to incentive programs that is needed to make these pilot-demonstrations a success. (Modisette, CalETC, April 30, 2004)

Response: Staff agrees and appreciates CalETC's commitment to participate in the Alternative Technology Compliance Plan pilot projects. Please see the response to 45-Day comment 5.x. on page 50.

5. Comment: We appreciate the clarification in the definition of "Refrigerated Trailer" equipped with a TRU (subdivision (d)(57), page 10) that they are considered mobile sources. We also note that state law classifies these trailers as vehicles However, TRUs even though they spend much of the time, on the road, are classified as non-road sources. This has the inadvertent impact of denying clean fuel and electric TRUs from qualifying from a very large and important source of grant funds, the federal Congestion Mitigation Air Quality account. For example, the non-road classification of TRUs has resulted in a large demonstration program of electric standby TRUs at Norco Ranch in Riverside to lose its CMAQ funds, which were 80 percent of its total grant funds. This situation was mentioned in testimony by Stan Foster at the Board hearing. Riverside County would still like to re-award these funds to the Norco Ranch, and has set aside CMAQ funds for the Norco Ranch electric TRU project, if a solution can be found. Given this situation, we believe that there are two possible solutions:

A. TRUs could be reclassified as on-road mobile sources.
B. Or truck TRUs could remain non-road sources, but the CARB could require the metropolitan planning organizations in California to make an exception for truck TRUs and model them as on-road mobile sources and specifically allow electric and clean fuel TRUs as eligible under CMAQ. This would appear to meet the only remaining concern of the Federal Highway Administration regarding the eligibility of electric standby and clean fuel TRUs. It would allow them to meet the transportation conformity requirements of federal law where CMAQ must fund transportation projects AND meet the Clean Air Act requirements imposed on metropolitan planning organizations / regions (see **(42 U.S.C. 7506)** This compromise would appropriately allow funding of these important projects – not just for the "main engine on the truck - but for the auxiliary or second engine on the truck (which are sometimes eligible for CMAQ). And this compromise would still allow TRUs to remain as mobile sources, while MPO modeling could either treat them as on-road or

possibly exempt them. (Modisette, CalETC, April 30, 2004)

Response: This comment is not germane to the 15-day changes made by the Board and therefore does not require a response. However, for the sake of clarification staff is providing the following response.

The TRU ATCM does nothing to re-classify TRU engines as offroad or nonroad engines. State and federal regulations have been harmonized to define offroad (California Code of Regulations, title 13, §2421) and nonroad (40 CFR, §1068.30) engines. TRU engines have been appropriately included in the offroad (nonroad) mobile emissions inventory category as this term is defined in State and federal law.

It should be noted that if TRU engines were re-categorized to be onroad engines, they would then need to comply with more stringent emission standards than they are presently subject to as offroad engines.

C. Responses to Comments Received During the Second 15-Day Comment Period from July 16 to August 2, 2004.

The ARB received only one written comment letter during the second 15-Day Comment Period beginning July 16, 2004 and concluding August 2, 2004. The person that commented on the second proposed modified regulatory language is listed below.

- Larkin, Peter, California Grocers Association (CGA), July 29, 2004.

A summary of these comments regarding the modified language, or the procedures used by the ARB, together with an agency response, follows. Each response is an explanation of either the changes made as a result of an objection or recommendation or the reasons for making no change.

1. Comment: CGA members support the proposed modifications of the ATCM. We are pleased that the ARB extended the facility reporting deadline until January, 2006. This extension has allowed for continued dialogue between CGA and ARB staff in creating additional flexibility in meeting the regulation's requirements.

Response: Staff appreciates the support.