MEMORANDUM OF AGREEMENT

Program to Develop Emission Measurement Accuracy Margins for Heavy-Duty In-Use Testing

1. Parties: The Engine Manufacturers Association (EMA) representing its member companies that manufacture heavy-duty on-highway ("HDOH") diesel-fueled engines, the United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) (collectively "the Signatories" or "the parties") recognize the challenge of the upcoming emission standards for heavy-duty diesel engines and the importance of meeting those standards in-use. EPA has proposed and will soon finalize heavy-duty in-use testing (HDIUT) regulations aimed at assessing in-use compliance with the emission standards. Following a pilot testing program, full program testing would begin in 2007 for gaseous emissions and 2008 for particulate matter (PM) emissions. This program would require the use of portable emission measurement systems (PEMS) on heavy-duty diesel vehicles in actual operation. This memorandum of agreement describes the joint understandings and agreements of the Signatories with regard to developing data-driven emission measurement accuracy margins for gaseous and PM emissions to be applied to the results of PEMS in-use in field testing under the forthcoming HDIUT regulations.

2. Background: In a Settlement Agreement dated June 3, 2003, EPA and EMA agreed to an "Outline of a Regulatory Proposal for a Manufacturer Run In-Use Heavy-Duty Vehicle NTE Testing Program." The outline states that emission measurement accuracy margins for the HDIUT program will be jointly determined by EPA, CARB, and the engine manufacturers. The purpose of these additive margins is to account for the emissions measurement variability associated with PEMS units in the field. In meetings on this subject, manufacturers have stated their belief that more data is needed to establish the HDIUT accuracy margins for the fully enforceable program (FEP) for gaseous emissions (scheduled to commence in 2007) and for PM (scheduled to commence in 2008). EPA and CARB agree that more data would be helpful in determining these accuracy margins.

3. Purpose: This agreement describes how data-driven accuracy margins for gaseous and PM emissions will be developed, the roles and responsibilities of the parties to this agreement, how the final accuracy margins will be incorporated into the governing HDIUT regulations, and the consequences of failing to complete the program to develop data-driven accuracy margins in time to start either portion (gaseous emissions or PM emissions) of the FEP.

4. Program for Gaseous Emission Margins:

a. Scope: Working together with CARB and the engine manufacturers, EPA has prepared a document (attached) which will serve as the test plan for developing data driven accuracy margins for gaseous emissions. The test plan describes the basic scope and objectives of this research, development, and demonstration (RDD) program and defines specific analyses, laboratory experiments, and field work which need to be accomplished to develop the accuracy

margins. For gaseous emissions, individual margins will be established for NOx, NMHC, and CO. The test plan contains the following basic elements:

- Third-party laboratory experiments to assess the variability of PEMS measurements of emissions concentrations, exhaust flow, and torque measurement, and other parameters needed for the determination of brake-specific emission level using PEMS units incremental to the variability experienced in the laboratory. Results will be used to "calibrate" a computer model that will calculate the measurement allowances.
- Third party laboratory experiments to assess the effects of environmental parameters on the measurement accuracy capability of the PEMS units and their ability to operate correctly and consistently in use over a normal sampling time. Results will be used to "calibrate" a computer model that will calculate the measurement allowances.
- Third party on-vehicle/trailer comparison of portable emission measurement versus field laboratory emission measurement. Results will be used to validate the computer model used to calculate the measurement allowances.
- Manufacturer voluntary submissions of data that demonstrate non-deficiency AECD effects or production variability effects on the ability to estimate NTE torque/bsfc values from ECM parameters, using prescribed mapping procedures. EPA and CARB, in consultation with HDOH engine manufacturers, will utilize this information, if reasonably common among manufacturers, to determine and include a margin component in the error model that accounts for the variability in the torque/bsfc values used in the NTE brake-specific emission calculations. For example, EPA/CARB would consider information for an additional allowance if variability due to non-deficiency AECDs are consistent across manufacturers. If variability is inconsistent and infrequent across the submissions or if there is a consistent bias, EPA and CARB would expect manufacturers to account for these errors by creating more sophisticated algorithms that decrease the infrequent large deviations or account for the consistent bias that exists across manufacturers.

b. Costs: The portion of the RDD program to develop data-driven accuracy margins for gaseous emissions is not intended to cost more than $1.5 million. EPA's participation in this agreement is subject to the availability of appropriated funds. In addition to the resources EPA commits to this effort, CARB and the engine manufacturing industry intend to donate additional resources to the Agency under Section 104(b)(4) of the Clean Air Act. The industry intends that it will contribute a 50% cost share up to $750,000, subject to EPA/CARB funding the remainder of the RDD program Those contributions may be in the form of money used to fund contract work efforts and/or vehicles, engines, and PEMS test equipment. Parties that contribute the use of items such as vehicles, engines, and PEMS test equipment will have those program contributions valued as part of their overall contribution based on current fair market value. The parties further agree that this project should be funded through a single contract vehicle or work assignment as appropriate to support the RDD project that will be financed with EPA funds and donations from industry and CARB.

c. Execution of the Gaseous Emission Testing Program: It is intended that the RDD program will follow the test plan and the schedule discussed in paragraph 4d, below. All testing and subsequent data analyses will be managed by EPA in close coordination with the HDOH engine

manufacturers of EMA, and CARB. Program technical direction (including any necessary modifications to the test plan) will be provided by a Steering Committee drawn from representatives of the parties. The Steering Committee will also track progress of program completion both in terms of technical output and schedule. EPA will keep records of Steering Committee meetings and documents related to this project and make them part of the public record for the direct final rule discussed below.

The experiments described in the attached test plan have been submitted to a statistician to ensure that the information generated is sufficient and appropriate for developing the gaseous emission accuracy margins and to establish an algorithm for calculating the margins using the data derived from the program. This overall approach will provide assurance that the experimental designs are acceptable to all participants and is intended to prevent multiple and competing interpretations of the data. It will also help ensure that the program will be completed on schedule and within budget.

Participation by HDOH manufacturers in the RDD test programs will result in some burden to those companies, but will produce useful information. Therefore, for each engine manufacturer that participates in the RDD test programs, EPA expects that the final rule to be promulgated in June 2005 (discussed below) will limit that manufacturer's testing burden under the original pilot program (2005-2006 for gaseous emissions) to five vehicles per designated engine family, subject to the allowable annual cap on the number of engine families that can be designated for in-use testing in a single calendar year. EMA will provide to EPA a list of those companies that contributed to the funding of the RDD effort, coincident with their initial donation payment to the gaseous emission RDD program.

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d. Schedule: In order to provide adequate time to promulgate the data-driven accuracy margins for gaseous emissions, the gaseous emission portion of the RDD program will need to be completed and final accuracy margins calculated by November 1, 2006. The parties recognize that to meet this milestone all laboratory and field work need to be completed prior to September 30, 2006. Toward that end, the following not-later-than dates are agreed upon by the parties as working targets:

Schedule for Gaseous Measurement Allowance Program		
	Description	Date[1]
1	Funding and execution of lab test plan contract	15 July 2005
2	Delivery of PEMS units to be provided by PEMS suppliers, EPA, or CARB	15 August 2005[2]
3	Delivery to lab of all agreed upon engines, PEMS and other equipment to be provided by the engine manufacturers/EMA	15 August 2005[2]
4	Commencement of engine dyno lab testing	1 October 2005[2]
5	Completion of lab testing programs (~5 months duration)	1 March 2006
6	Delivery of lab testing interim report	30 March 2006
7	Funding and commencement of environmental testing	15 April 2006
8	Contractor report on all environmental testing	1 July 2006
9	Funding and execution of field testing contract	1 July 2006
10	Delivery to field of agreed upon vehicle, PEMS and other equipment	15 July 2006[2]

11	Commencement of field testing	30 July 2006
12	Completion of field testing (~2 months duration)	30 September 2006
13	Delivery of field testing interim report	15 October 2006
14	Delivery of contractor final report with accuracy margin inputs	1 November 2006
[1]All dates specified at time of close-of business (COB) [2]Or when contractor requires in-kind equipment, whichever is later		

5. Program for PM Emission Margins:

a. Scope: EPA, CARB, and the engine manufacturers have agreed to work together to prepare a test plan for developing data driven accuracy margins for PM emissions. As is the case for gaseous emissions, the test plan for the PM portion of the HDIUT program will address the basic scope and objectives of this RDD program, and define specific analyses, laboratory experiments, and field work which need to be accomplished to develop the data-driven accuracy margins for PM emissions. The test plan is expected to contain the following basic provisions:

- Third party laboratory experiments to assess emissions measurement variability of PM PEMS units incremental to that experienced in the laboratory. Results will be used to "calibrate" a computer model that will calculate the measurement allowances.
- Third party laboratory experiments to assess the effects of environmental parameters on the measurement accuracy capability of the PM PEMS units and their ability to operate correctly and consistently in use over a normal sampling time. Results will be used to "calibrate" a computer model that will calculate the measurement allowances.
- Third party on-vehicle/trailer comparison of portable PM emission measurement versus field laboratory PM emission measurement. Results will be used to validate the computer model used to calculate the measurement allowances.

b. Costs: The portion of the RDD program to develop data-driven accuracy margins for PM is not intended to cost more than $1.5 million. EPA's participation in this agreement is subject to the availability of appropriated funds. In addition to the resources EPA commits to this effort, CARB and the HDOH engine manufacturing industry intend to donate additional resources to the Agency under Section 104(b)(4) of the Clean Air Act. The industry intends that it will contribute a cost share up to $750,000, subject to EPA/CARB funding of the remainder of the RDD program. Those contributions may be in the form of money used to fund contract work efforts and/or vehicles, engines, and PEMS test equipment. Parties that contribute the use of items such as vehicles, engines, and PEMS test equipment will have those program contributions valued as part of their overall donation based on the current fair market value. The parties further agree that this project should be funded through a single contract vehicle or work assignment as appropriate to support the RDD project that will be financed with EPA funds and donations from industry and CARB.

c. Execution of the PM Emission Testing Program: It is intended that the RDD program will follow the test plan and schedule discussed in paragraph 5d, below. All testing and subsequent data analysis will be managed by EPA in close coordination with the HDOH engine manufacturer members of EMA, and CARB. Program technical direction (including any necessary modifications to the test plan) will be provided by a Steering Committee drawn from

representatives of the parties. The Steering Committee will also track progress of program completion both in terms of technical output and schedule. EPA will keep records of Steering Committee meetings and documents related to this project and make them part of the public record for the direct final rule discussed below.

The experimental designs to be set forth in the test plan will be submitted to a statistician to ensure that the information generated is sufficient and appropriate for developing the PM accuracy margin and to establish an algorithm for calculating the margin using the data derived from the program. This overall approach will provide assurance that the experimental designs are acceptable to all participants and is intended to prevent multiple and competing interpretations of the data. It will also help ensure that the program will be completed on schedule and within budget.

Participation by manufacturers in the RDD programs will result in some burden to those companies, but will produce useful information. Therefore, for each manufacturer that participates in these RDD programs, EPA expects that the final rule to be promulgated in June 2005 (discussed below) will limit that manufacturer's testing burden under the original pilot program (2006-2007 for PM emissions) to five vehicles per designated engine family subject to the allowable annual cap on the number of engine families that can be designated for in-use testing in a single calendar year. EMA will provide to EPA a list of those companies who contributed to the funding of the RDD effort, coincident with their initial donation payment to the PM RDD program.

d. Schedule: In order to provide adequate time to promulgate the data-driven accuracy margins for PM emissions, the RDD program will need to be completed and final accuracy margins calculated by November 1, 2007. The parties recognize that to meet this milestone all laboratory and field work will need to be completed prior to September 30, 2007. Toward that end, the following not-later-than dates are agreed upon by the parties as working targets:

Schedule for PM Measurement Allowance Program		
	Description	Date[1]
1	Working group agreement on draft test plan	29 July 2005
2	Final agreement on PM test plan	30 September 2005
3	Funding and execution of lab PM test plan contract	14 July 2006
4	Delivery of PEMS units to be provided by PEMS suppliers, EPA, or CARB	14 August 2006[2]
5	Delivery to lab of all agreed upon engines, PEMS and other equipment to be provided by the engine manufacturers/EMA	14 August 2006[2]
6	Commencement of engine dyno lab PM testing	31 August 2006[2]
7	Completion of lab PM testing programs (~ 5 months duration)	1 February 2007
8	Delivery of lab PM testing interim report	30 March 2006
9	Funding and commencement of PM environmental testing	30 March 2007
10	Contractor report on all PM environmental testing	1 July 2007
11	Funding and execution of PM field testing contract	1 July 2007
12	Delivery to field of agreed upon vehicle, PEMS and other equipment	15 July 2007[2]
13	Commencement of PM field testing	30 July 2007

14	Completion of PM field testing (~2 months duration)	30 September 2007
15	Delivery of PM field testing interim report	15 October 2007
16	Delivery of contractor final report with PM accuracy margin inputs	1 November 2007
[1]All dates specified at time of close-of business (COB) [2]Or when contractor requires in-kind equipment, whichever is later		

It is the parties' intent that if fundamental, irresolvable technical problems are identified relative to PM portable emission measurement systems, the PM portion of the RDD program, will go into abeyance until such time as suitable emission measurement devices are identified and available or the problems otherwise resolved. Accordingly, the parties' inability to comply with any of the dates set forth in the schedule above due to fundamental, irresolvable technical problems may result in holding in abeyance the RDD program for establishing data-driven PM accuracy margins until those technical problems are resolved. Similarly, the PM portion of the two year pilot program and FEP would be delayed until the PM accuracy margin program discussed herein is completed. EPA would make the final determination since any revisions to the regulatory program would require a regulatory action.

If the PM portion of the FEP is delayed, 2007 and subsequent model year engines may be selected and subject to enforcement testing (for gaseous as well as PM emissions) once the data-driven accuracy margins are established and the PM portion of the FEP begins. Such engines would be counted toward the annual cap on the number of engine families that may be designated for in-use testing in any single calendar year.

6. Resolution of the Laboratory Gaseous Emission Measurement Error Issue: Concern has been expressed about what exactly the HDIUT accuracy margin should cover. EPA and CARB maintain that the accuracy margin is intended to address the incremental measurement variability of assessing emissions from an in-use vehicle using an onboard PEMS unit versus laboratory measurements using Part 1065 compliant laboratory emissions measurement systems of NTE events as short as 30 seconds. However, EMA is concerned that laboratories using Part 1065 compliant laboratory emissions measurement systems have not been optimized to measure gaseous emissions over 30 second intervals and that during this testing the laboratory error over NTE events might be significantly larger than the error that is known to exist when measuring steady-state (SET) emissions. EMA is concerned that a large laboratory NTE error could lead to a very small or nonexistent PEMS measurement allowance as discussed above.

To address this issue, the parties agree to the following terms. Steady-state lab error determined in Section 3.2 of the attached test plan will be subtracted from transient PEMS error determined in Section 3.3. Therefore, the error model will not subtract any lab accuracy or precision that was determined from the lab measuring transient 30 second NTE events. Further, if the test plan results show that the lab 95th percentile NTE error determined in Section 3.3 (transient) is greater than the lab 99th percentile error in Section 3.2 (steady-state), then EPA, CARB, and EMA would agree to the following:

a. EMA will work with EPA and CARB to optimize laboratory NTE measurement specifications and procedures. This work will primarily be in the form of participating in and supporting joint laboratory NTE test procedure development efforts and meetings.

b. EPA would intend to issue a guidance document and/or propose changes to Part 1065 to reflect any optimized specifications and procedures for laboratory NTE testing as a result of those efforts and meetings no later than the end of calendar year 2008.

7. Preamble and Regulatory Provisions: The HDIUT program and associated regulatory language will be contained in a Final Rule to be promulgated in June 2005. EPA intends: 1) that the basic programmatic objectives and approach of this agreement will be reflected in the HDIUT final rule, 2) that the key provisions of this agreement will be referenced and to the degree possible contained in the preamble of the final rule, and 3) that certain key provisions will also be reflected in the final rule's regulatory language, including provisions such as the interim accuracy margins[1], changes in the pilot program provisions, the key milestone dates for the gaseous emissions and PM portions of the RDD program, and also the consequences of failing to meet those dates and complete the accuracy margin test programs as specified below.

EPA intends to propose the data-driven accuracy margins determined through the RDD program in direct final rules as soon as reasonably practical after the final values and documentation are available, with the target dates of 15 January 2007 and 15 January 2008 for the rules pertaining to gaseous emission and PM emission margins, respectively. Although EPA intends to implement data-driven accuracy margins by direct final rule, the Agency cannot guarantee that the results of RDD test programs will end up being implemented in a final rule if significant adverse comments are received. The Signatories agree to support the final accuracy margins, assuming that the agreed upon program to develop the accuracy margins is followed and the results of the RDD test programs are incorporated in the direct final rules or any subsequent final rules based on the related NPRMs accompanying the direct final rules. All parties agree to use the data-driven accuracy margin values for their planning and implementation efforts for the FEPs as soon as the data becomes available.

The parties agree that publishing the direct final rule with the data-driven accuracy margins, or if necessary publishing a final rule based on the test results (due to public comment on the direct final rule document), will fulfill EPA's obligation under the settlement agreement.

Even if there is adverse comment on the direct final rule, the schedules laid out in the tables above are intended to include ample time for rulemaking action and lead time for manufacturers before engine family selection begins. Thus, assuming that a follow-on final rule resulting from comments on a direct final rule still results in implementation of accuracy margins substantially similar to those originally developed in the RDD program, EPA and CARB would expect to select engine families without any additional time allowance. If the follow-on final rulemaking is substantially delayed or there are significant changes in the accuracy margin, EPA would address the engine designation and FEP implementation schedule in the follow-on final rule. EPA would intend to provide at least three months between promulgation of the final rule and engine family designation (for both gaseous and PM emission data-driven accuracy margins and related provisions), even if this results in engine family designation after the normal June 30 date. Such

[1] The HDIUT final rule will establish the following interim additive accuracy margins for use in connection with the pilot programs: NMHC=0.17 g/bhp-hr; NOx=0.50 g/bhp-hr; CO=0.60 g/bhp-hr; and PM=0.10 g/bhp-hr. All testing using these interim margins will be conducted as a pilot program but not in the FEP which relies on the data driven accuracy margins.

delays would be accommodated in the total time allotted to complete the first year of the program. Subsequent model year's designation would not be affected.

8. Consequences If Commitments Are Not Met: The parties agree that successful completion of this RDD project on schedule is essential to implementation of the FEPs. Critical to that success is for the Signatories to meet their various commitments in a timely manner. All of the Signatories believe that, subject to the caveats set forth in paragraph 5d above, the projects described in the attached test plan can be completed on time and within budget and are signing this agreement in the cooperative and constructive spirit that has been exhibited in development of the gaseous emissions test plan. However, to address potential problems the following are agreed upon by all parties.

If the data-driven accuracy margin values and documentation are not obtained from the contractor by November 1, 2006 for gaseous emissions and November 1, 2007 for PM because a manufacturer(s) does not meet its commitments under this agreement, but the delay is less than a total of 3 months, the implementation date of the FEP would be delayed by the same number of whole months (rounded up) that it takes to complete and finalize the final contractor report.[2] If the final values and documentation are delayed beyond 3 months, the FEP would go into abeyance for the pending calendar year (i.e., 2007 for gaseous emissions or 2008 for PM). If this occurs, the number of engine families that would otherwise have been designated for testing in that year if the FEP was not delayed, would be accumulated and may be designated for testing when the FEP is initiated. Those accumulated tests would not count toward the allowable annual cap on the number of engine families that may be designated for in-use testing in that year. However, the normal 18-month period for testing and reporting would be expanded to 24 months for such "carryover" engine families. If necessary, this cycle would be repeated until the final accuracy margins are identified and documented in a final report with the agreement of all parties.[3]

A delay in the PM portion of the HDIUT program would not necessarily trigger a delay in gaseous emission testing for that calendar year. If engine families are selected for gaseous emissions testing, EPA would retain the option to select additional engine families for gaseous and PM testing in subsequent years, subject to the allowable annual cap on the number of engine families that may be designated for in-use testing in a single calendar year.

For the gaseous emission portion of the RDD program, a manufacturer's failure to meet its commitments may be demonstrated by missing one or more of the critical milestones as follows:

Deliverables Required from Manufacturers for Gaseous Measurement Allowance Program		
	Description	Date[1]
1	Contract funding: quarterly payments each representing 25% of the total obligation	15 Oct 2005, 15 Jan 2006, 15 April 2006, 15 July 2006

[2] The anticipated June 30 date for designating engine families, which initiates the 18-month testing/reporting period, would be delayed.

[3] If the cycle is repeated, the six month additional period for testing will be continued for all carryover engine families.

2	Delivery to lab of all agreed upon engines, PEMS and other equipment to be supplied by EMA	15 August 2005[2]
3	Delivery to field of agreed upon vehicle, PEMS and other equipment to be supplied by EMA	30 June 2006[2]
[1]All dates specified at time of close-of business (COB) [2]Or when contractor requires in-kind equipment, whichever is later		

Furthermore, manufacturers are invited to voluntarily submit to EPA/CARB laboratory information on how non-deficiency AECDs and production variability affect the error of ECM-derived NTE torque/bsfc. EPA/CARB will not consider such information if it is submitted later than one month prior to the start of model validation. This deadline is required in case the voluntary submissions lead to a change in the error model, which is scheduled to be on-road validated. Once the error model is validated, no changes to the model will be made.

For PM emission testing a manufacturer's failure to meet its commitments may be demonstrated by missing one or more of the critical milestones as follows:

Deliverables Required from Manufacturers for PM Measurement Allowance Program		
	Description	Date[1]
1	Contract funding: quarterly payments each representing 25% of the total obligation	15 Oct 2006, 15 Jan 2007, 15 April 2007, 15 July 2007
2	Delivery to lab of all agreed upon engines, PEMS and other equipment to be supplied by EMA	1 August 2006[2]
3	Delivery to field of agreed upon vehicle, PEMS and other equipment to be supplied by EMA	30 June 2007[2]
[1]All dates specified at time of close-of business (COB) [2]Or when contractor requires in-kind equipment, whichever is later		

A failure by any individual manufacturer that leads to not fulfilling one or more of the critical milestones described above (for gaseous or PM testing) could trigger this provision for all manufacturers.

If a failure to obtain the final accuracy margin values and documentation from the contractor by November 1, 2006 for gaseous emissions (November 1, 2007 for PM) results from the actions or inactions of CARB or EPA or a party other than the manufacturers, and the delay is less than a total of 3 months, the FEP would be delayed by the same number of whole months (rounded up) that takes to complete and finalize the final contractor report.[4] If the final values and documentation are delayed beyond 3 months, the Phase 1 pilot program would be implemented for that year using the interim accuracy margins contained in the HDIUT regulations. If necessary, and agreed upon by all Signatories this cycle will be repeated until the final accuracy margins are derived and documented in a final report.

[4] The anticipated June 30 date for designating engine families, which initiates the 18-month testing/reporting period, would be delayed.

Regardless of the reason, if either the gaseous or PM emission portion of the FEP is delayed, model year 2007 and subsequent model year engines may be selected and subjected to testing once the data-driven accuracy margins are established and the FEP begins. Such engines would be counted toward the total number of engine families that may be designated for in-use testing in any single calendar year as described earlier.

9. Changes Based on Contractor Work Plan: The laboratory and field work associated with this MOA will be conducted through a contractor. The test plan associated with this MOA will be at the center of the work assignment sent to the contractor by EPA. If the final schedule or budget agreed upon with the contractor is materially different than that discussed above, EPA, ARB, and EMA will negotiate any necessary changes to the provisions of the MOA or in the scope of the test plan to resolve any differences compared to the final schedule or budget agreed upon with the contractor. The Signatories understand that in some cases the changes may implicate EPA regulations and in those cases EPA cannot confirm such changes unless and until they are adopted through rulemaking following notice and opportunity for comment.

10. Commitments of CARB: CARB intends to propose for adoption a manufacturer run HDIUT program that is fully consistent with the provisions of this agreement.

11. Data Ownership and Use: The parties agree to work together to ensure that any contract with third parties to implement the RDD program contain mutually acceptable provisions related to ownership, use, patent rights, confidentiality and dissemination of the data derived under the contract.

12. Modifications: The terms of this agreement may be modified at any time and from time to time by mutual written agreement among the parties. All parties agree to meet to discuss and negotiate any revisions which in judgment of any party are needed to address significant changes in circumstances or to assure that this agreement continues to accomplish the objectives of the parties. No amendment to this agreement will take effect unless in writing and signed by authorized representatives of the parties.

13. General: This agreement does not imply a requirement to commit funds or other resources from any party to any other party. The activities undertaken in connection with this agreement are not intended to provide services to the Federal government and the parties agree not to seek compensation from the other parties for this work. The Federal Government is prohibited from endorsing products nor does it recommend for or against the purchase of specific products. This agreement does not negate any existing legal right or requirements, nor does it create any new legal rights, benefits, obligations or requirements, substantive or procedural, under state or federal law or equity.

Margo Tsirgotis Oge, Director _____
EPA, Office of Transportation and Air Quality date

Catherine Witherspoon, Executive Officer _____
California Air Resources Board date

Jed Mandel, President _____
Engine Manufacturers Association date