

**SOLUS-Solutions and Technologies LLC**  
754 Suffolk Lane, Virginia Beach, VA 23452  
[www.solusinc.com](http://www.solusinc.com)

September 20, 2009

RE: California Air Resources Board (ARB) "MODIFIED REGULATORY LANGUAGE FOR PUBLIC COMMENT, REGULATION TO REDUCE GREENHOUSE GAS EMISSIONS FROM HEAVY-DUTY VEHICLES"

Honorable Mary Nichols  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

Honorable Mary Nichols,

Listed in the attachment are recommended corrections to the subject document entitled "MODIFIED REGULATORY LANGUAGE FOR PUBLIC COMMENT, REGULATION TO REDUCE GREENHOUSE GAS EMISSIONS FROM HEAVY-DUTY VEHICLES". The corrections are primarily focused on aerodynamic terminology and test verification procedures.

Of particular concern is the EPA interim test method that is based upon the SAE J1321 standard. A few of the concerns with the EPA Interim Test Method are;

- *does not measure in-service performance* of a vehicle or vehicle component,
- *can not provide valid fuel consumption data*, and
- *has a precision error of at least 6%*.

If there are any questions or requests for additional information please feel free to contact me by email at [Richard.wood@solusinc.com](mailto:Richard.wood@solusinc.com) or by phone at 757-486-3570.

Richard Wood  
President  
SOLUS-Solutions and Technologies LLC  
757-486-3570  
[www.solusinc.com](http://www.solusinc.com)

## ATTACHMENT

The information provided in this document is in response to a request by CARB for comments to the MODIFIED REGULATORY LANGUAGE FOR PUBLIC COMMENT, REGULATION TO REDUCE GREENHOUSE GAS EMISSIONS FROM HEAVY-DUTY VEHICLES

**NOTE: The following information describes the input and edits provided in the body of this document**

**- AREAS OF CONCERN ARE HIGHLIGHTED IN YELLOW**

**- RECOMMENDED CHANGES ARE NOTED WITH RED TEXT, RED UNDERLINES AND RED STRIKE THRU.**

**- SUPPORTING BACKGROUND COMMENTS ARE OFFERED AS BLUE TEXT CONTAINED WITHIN ().**

Recommended corrections and changes to the subject document are provided below for sections 95302, 95303 and 95304:

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### *95302. Definitions.*

(a) The following definitions apply to this subarticle:

(24) “Flow control device” means ~~an object or a~~ **device or** design element that manipulates the air flow ~~around an object by changing the air flow~~ characteristics in order to reduce the pressure force exerted on the vehicle.

( A flow control device may be either an add-on device or an integrated design element of the vehicle.)

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### *95303 Requirements and Compliance Deadlines.*

(a) Tractor Requirements

**(1) Except as provided in subsection 95305, Exemptions, beginning January 1, 2010, no 2011 or subsequent model year sleeper-cab HD tractor pulling a 53-foot or longer box-type trailer shall operate on a highway within California unless such tractor is a U.S. EPA Certified SmartWay Tractor.**

**(2) Except as provided in subsection 95305, Exemptions, beginning January 1, 2010, no 2011 or subsequent model year HD tractor, including but not limited to sleeper-cab HD tractors, pulling a 53-foot or longer box-type trailer shall operate on a highway within California unless such tractor’s tires are U.S. EPA Approved Verified SmartWay Technologies.**

**(3) Except as provided in subsection 95305, Exemptions, beginning January 1, 2012, no 2010 or previous model year HD tractor, regardless of model year, pulling a 53-foot or longer box-type trailer shall operate on a highway within California unless such tractor’s tires are U.S. EPA Approved Verified SmartWay Technologies.**

(Currently none of the aerodynamic technologies on the EPA verified list have satisfied the published EPA interim test method based upon the SAE J1321 standard. SAE J1321 clearly states the following; “A test is inconclusive

regardless of the results. A single test should be taken as an indicator. Test results must be repeatable to have validity". EPA verification does not require that TEST be repeated to validate the fuel savings. The failure of EPA to require this fundamental and critical step in the process results in test results that do not satisfy either SAE J1321 or the EPA Interim test method and therefore the verification of device by EPA is not supported by valid test data.)

(b) Trailer Requirements

(1) 2011 and Subsequent Model Year Dry-Van Trailer Requirements

Except as provided in subsection 95305, *Exemptions*, ~~beginning~~ beginning January 1, 2010, no 2011 or subsequent model-year 53-foot or longer dry-van trailer shall travel on a highway within California unless such trailer is either:

(A) a U.S. EPA Certified SmartWay Trailer, or,

~~(B) equipped with one of the following two combinations of tires and aerodynamic technologies, installed in accordance with manufacturer's instructions:~~

- ~~1. tires that are U.S. EPA Approved SmartWay Technologies, and trailer side skirts that are U.S. EPA Approved SmartWay Technologies, and either a front trailer fairing that is a U.S. EPA Approved SmartWay Technology or a rear trailer fairing that is a U.S. EPA Approved SmartWay Technology for dry van trailers; or~~
- ~~2. tires that are U.S. EPA Approved SmartWay Technologies, and any combination of dry van trailer aerodynamic technologies that has been demonstrated to the U.S. EPA to meet or exceed a 5 percent fuel savings in accordance with the requirements defined by the U.S. EPA SmartWay Partnership Program.~~

(B) equipped with both:

1. tires that are U.S. EPA Verified SmartWay Technologies; and
2. any combination of dry-van trailer aerodynamic technologies that has been demonstrated to the U.S. EPA to meet or exceed a 5 percent fuel savings in accordance with the requirements defined by the U.S. EPA SmartWay Partnership Program.

3. any combination of dry-van aerodynamic technologies that has been demonstrated to the U.S. EPA or CARB to meet or exceed a 5 percent fuel savings in accordance with industry standards and based upon preferred in-service testing.

( CARB should provide itself an option for a waiver of the EPA verification process based upon a body of data provided by a fleet or fleets that desire to use non EPA verified technology. This waiver is critical to ensure that CARB does not arbitrarily restrict the use of technology that has continually demonstrated high fuel saving performance and operational performance in the real-world operational environment. This waiver option is critically important due to the unreliability of the EPA verification process based upon SAE J1321 test data.)

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*95304 Good Operating Condition Requirements.*

(b) Good Operating Condition Criteria for U.S. EPA Certified SmartWay Trailer Aerodynamic Technologies

(1) Aerodynamic technologies installed on a box-type trailer must meet the following criteria:

(A) The aerodynamic technologies must be installed in accordance with the manufacturer's specifications and used in a manner consistent with the test or evaluation data provided to approve the subject technology.

( This additional clarification is to ensure that the user does not modify the use of the device to a condition that may render it useless. This also will require that the manufacturer provide the device operational envelope to the user. A known problem area is related to trailer side skirts. Test data and EPA verification is based upon the skirt trailing edge in close proximity to the trailer rear wheels – however when in use the skirt performance is reduced by more than 70% when the wheel gap is increased to satisfy safety and operational requirements. )

(B) The aerodynamic technologies must be securely fastened to the trailer.

(C) The aerodynamic technologies must not be used for an extended period of time with missing sections that reduce the effectiveness of the subject technology more than 20%.

(D) The aerodynamic technologies must not be used if damaged to such an extent as to compromise their aerodynamic effectiveness more than 20%

(E) To allow for normal loading and unloading of freight and to allow the normal operation of both swing and roll-up trailer doors the rear trailer aerodynamic technology must be capable of being folded back against the trailer sides, ~~or otherwise be~~ readily compacted or structural sufficient to support normal operation criteria.  
~~to allow normal functioning of doors or~~

( The critical element related to aft mounted devices is that they do not alter the door operation , negatively impact the loading or unloading of freight, or impact safety in any way. A device may be permanent structures or modifications of a vehicle such that they do not alter door use, affect loading or unloading or impact safety. Permanent or integrated device would not need to fold, collapse, or move in any way. There is no need to add a description of currently known devices – this would only require future modifications of the statute.)