


DIESEL EXHAUST AFTER-TREATMENT AND MAINTENANCE TRAINING



CALIFORNIA

COUNCIL ON

DIESEL 

EDUCATION &

TECHNOLOGY

Verified Diesel Emission Control Device (VDECS) Executive Order (EO)

Terms and Conditions Exercise

1. Compare the terms and conditions from the three (3) VDECS EO's labeled, "Executive Order 1, Executive Order 2, Executive Order 3" and identify five (5) terms and conditions common to the three (3) EO's.
2. How does attachment 1 in EO 1 differ from attachment 1 in EO 2 & 3?
3. Which EO does not mandate the use of ultra low sulfur diesel fuel and why?

**State of California
AIR RESOURCES BOARD
EXECUTIVE ORDER DE-06-006-01**

Pursuant to the authority vested in the Air Resources Board (ARB) by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Section 39515 and 39616 and Executive Order G-02-003;

Relating to Exemptions under Section 27156 of the Vehicle Code, and Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations:

HUSS Umwelttechnik GmbH

FS-MK Series Diesel Particulate Filter

ARB has reviewed HUSS's request for verification of the FS-MK filter. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of ARB hereby finds that the FS-MK filter reduces emissions of diesel particulate matter consistent with a Level 3 device (greater than or equal to 85 percent reductions) (Title 13 California Code of Regulations (CCR) Sections 2702 (f) and (g) and Section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the FS-MK filter as a Level 3 system for on-road applications that use heavy-duty diesel engines of all model years up through and including 2006, except those belonging to engine families listed in Attachment 1. The FS-MK filter is compliant with the 2009 nitrogen dioxide emissions limit and as such is designated as a "Plus" system per Section 2702(f).

The aforementioned verification is subject to the following terms and conditions:

- The engine must be model year 2006 or older, and not belong to any of the engine families listed in Attachment 1.
- The engine must be used by an on-road motor vehicle with a manufacturer's Gross Vehicle Weight Rating of over 14,000 pounds.
- The engine must not employ exhaust gas recirculation.
- The engine must not have a pre-existing oxidation catalyst from the original equipment manufacturer unless the following conditions are met:
 - The original equipment diesel oxidation catalyst is left in place and not removed.
 - The FS-MK filter is installed downstream of the diesel oxidation catalyst.
 - The backpressure sensor is installed upstream of the diesel oxidation catalyst.
- The engine must not have a pre-existing diesel particulate filter from the original equipment manufacturer.
- The engine can be mechanically or electronically controlled.

- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, must not be mixed with the fuel.
- The system must not be operated with fuel additives, as defined in Section 2701 of Title 13, of the CCR, unless explicitly verified for use with the fuel additive(s).
- The product must not be used with any other systems or engine modifications without ARB and manufacturer approval.
- The other terms and conditions specified below.

IT IS ALSO ORDERED AND RESOLVED: That installation of the FS-MK filter, manufactured by HUSS Umwelttechnik GmbH of Nordostpark 74, D-90411 Nürnberg, Germany, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the FS-MK filter is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on all heavy-duty on-road vehicles except for those using engines listed in Attachment 1. This exemption is only valid provided the engines meet the aforementioned conditions.

The FS-MK filter consists of a wall-flow diesel particulate filter, a diesel fuel burner, and an electronic control system. The major components of the FS-MK filter are identified in Attachment 2. Schematics of the approved product and engine labels are shown in Attachment 3.

This Executive Order is valid provided that installation instructions for the FS-MK filter do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

No changes are permitted to the device. The ARB must be notified in writing of any changes to any part of the FS-MK filter. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Changes made to the design or operating conditions of the FS-MK filter, as exempted by ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this Executive Order.

Marketing of the FS-MK filter using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from ARB.

This Executive Order shall not apply to any FS-MK filter advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

Executive Order 1

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR, Section 2706 (g)), the ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/HUS/2006/PM3+/N00/ON/DPF01.

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, HUSS is responsible for honoring the required warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

In addition to the foregoing, ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of CCR, Title 13, Section 2222, et seq and CCR, Title 13, Sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

This Executive Order does not release HUSS from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

Executed at El Monte, California, this 25th day of July 2008.

/s/

Robert H. Cross, Chief

Mobile Source Control Division

Attachment 1: Engine Families Excluded from the FS-MK Filter Verification

Attachment 2: Parts List for the FS-MK Filter

Attachment 3: Labels for the FS-MK Filter

Executive Order 2

**State of California
AIR RESOURCES BOARD
EXECUTIVE ORDER DE-04-002-02**

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code, Div. 26, Part 5, Chap. 2; and pursuant to the authority vested in the undersigned by Health and Safety Code section 39515 and 39616 and Executive Order G-02-003;

Relating to Exemptions under Section 27156 of the Vehicle Code, and Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations

Engine Control Systems

Purifilter™ with High Load of Platinum (Purifilter™ H)

The California Air Resources Board (ARB) has reviewed Engine Control System's request for verification of the Purifilter™ H. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of the ARB hereby finds that the Purifilter™ H reduces emissions of diesel particulate matter (PM) consistent with a Level 3 Plus device (greater than or equal to 85 percent reductions) (Title 13 California Code of Regulations ("CCR") sections 2702 (f) and (g) and section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the Purifilter™ H as a Level 3 Plus system for heavy-duty on-road vehicles using engines from the engine families listed in Attachment 1.

The aforementioned verification is subject to the following terms and conditions:

- The engine is originally manufactured from model year 1993 through 2006 having an engine family name listed in Attachment 1.
- The engine does not employ exhaust gas recirculation.
- The application must have a duty cycle with an exhaust temperature profile greater than 280 degrees Celsius for at least 25 percent of the time.
- The engine may or may not have a pre-existing oxidation catalyst from the original equipment manufacturer.
- The engine must not have a pre-existing diesel particulate filter from the original equipment manufacturer.
- The engine must be certified for on-road applications.
- The engine must be certified at a PM emission level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr), and greater than 0.01 g/bhp-hr.
- The engine must be four-stroke.
- The engine can be turbocharged or naturally aspirated.
- The engine can be mechanically or electronically injected.
- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, must not be mixed with the fuel.
- The engine must be operated on fuel that has a sulfur content of no more than 15 parts per million by weight.
- The product must not be operated with fuel additives, as defined in Section 2701 of Title 13, of the CCR, unless explicitly verified for use with fuel additive(s).

Executive Order 2

- The product must not be used with any other systems or engine modifications without ARB and manufacturer approval.
- The other terms and conditions specified below.

IT IS ALSO ORDERED AND RESOLVED: That installation of the Purifilter™ H system, manufactured by Engine Control Systems of 165 Pony Drive, Newmarket, Ontario, Canada L3Y 7V1, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the Purifilter™ H is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles using engines listed in Attachment 1.

This exemption is only valid provided the engines meet the aforementioned conditions.

The Purifilter™ H consists of a catalyzed passive diesel particulate filter and a backpressure monitor. The major components of the Purifilter™ H system are identified in Attachment 2. Schematics of the approved product and engine labels are shown in Attachment 3.

This Executive order is valid provided that installation instructions for the Purifilter™ H system do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the Purifilter™ H, as exempted by the ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this Executive Order.

No changes are permitted to the device. The ARB must be notified in writing of any changes to any part of the Purifilter™ H. Any changes to the device must be evaluated and approved by the ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the Purifilter™ H using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from the ARB.

This Executive Order shall not apply to any Purifilter™ H advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser. As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR section 2706 (g)), the ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/ECS/2003/PM3+/N00/ON/DPF02

The designated family name **CA/ECS/2003/PM3+/N00/ON/DPF02** replaces the previous name CA/LUB/2003/PM3/N00/ON/DPF02.

Executive Order 2

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Engine Control Systems is responsible for honoring the warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

This Executive Order is valid provided that the diesel fuel used in conjunction with the device complies with Title 13, CCR, sections 2281 and 2282, and if biodiesel is used, the biodiesel blend shall be 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials specification D6751 applicable for 15 parts per million sulfur content;
- The diesel fuel portion of the blend complies with Title 13, CCR, sections 2281 and 2282; and
- The use of biodiesel applies to devices verified to reduce only diesel particulate matter.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this Executive Order.

In addition to the foregoing, the ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of California Code of Regulations, Title 13, Section 2222, et seq and California Code of Regulations, Title 13, Sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

This Executive Order does not release Engine Control Systems from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

Executed at El Monte, California, this 25th day of September 2008.

/s/

Robert H. Cross, Chief
Mobile Source Control Division
Attachment 1: ARB Approved California and Federal Engine Families for the Purifilter™ H
Attachment 2: Parts List for the Purifilter™ H
Attachment 3: Labels for the Purifilter™ H

Executive Order 3

**State of California
AIR RESOURCES BOARD
EXECUTIVE ORDER DE-08-006-01**

Pursuant to the authority vested in the Air Resources Board (ARB) by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Section 39515 and 39616 and Executive Order G-02-003;

Relating to Exemptions under Section 27156 of the Vehicle Code, and Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations

Cleaire Advanced Emissions Controls (Cleaire)

Longview™ System

ARB has reviewed Cleaire's request for verification extension of its Longview™ system (system). Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of ARB hereby finds that the Cleaire Longview™ system reduces emissions of diesel particulate matter (PM) consistent with a Level 3 Plus device (greater than or equal to an 85 percent reduction), and achieves a 25 percent reduction in oxides of nitrogen (NOx) (Title 13 California Code of Regulations (CCR), Sections 2702 (f) and (g) and Section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the Longview™ system as a Level 3 Plus system with a 25 percent NOx reduction for on-road vehicles that use heavy-duty diesel engines from the engine families listed in Attachment 1.

The aforementioned verification is subject to the following terms and conditions:

- The engine is originally manufactured from model year 1993 through 2006 having an engine family name listed in Attachment 1.
- The engine must be used by an on-road motor vehicle with a manufacturer's Gross Vehicle Weight Rating of over 14,000 pounds.
- The engine does not employ exhaust gas recirculation.
- The application must have a duty cycle with a temperature profile greater than 260 degrees Celsius for at least 25 percent of the time.
- The engine must be in its original certified configuration.
- The engine must not have a pre-existing diesel particulate filter from the original equipment manufacturer.
- The engine must not have a pre-existing diesel oxidation catalyst from the original equipment manufacturer.
- The engine must be certified for on-road applications at a PM emission level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr), and greater than 0.01 g/bhp-hr.
- The engine must be four-stroke.
- The engine must be turbocharged.
- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, must not be mixed with the fuel.
- The engine must be operated on fuel that has a sulfur content of no more than 15 parts per million by weight.
- The system must not be operated with fuel additives, as defined in Section 2701 of Title 13 of the CCR, unless explicitly verified for use with the fuel additive(s).
- The system must not be used with any other systems or engine modifications without ARB and manufacturer's approval.
- The other terms and conditions specified below.

Executive Order 3

IT IS ALSO ORDERED AND RESOLVED: That installation of the Longview™ system, manufactured by Cleaire Advanced Emissions Controls of 14775 Wicks Boulevard, San Leandro, California 94577, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the Longview™ system is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles using engines listed in Attachment 1.

This exemption is only valid provided the engines meet the aforementioned conditions.

The Longview™ system consists of a lean NOx catalyst, secondary fuel injection system, electronic controller, control sensors, and a catalyzed passive diesel particulate filter. The fuel injection system includes a fuel pump, injector, injector block, and a pressure regulator. The sensors include a manifold absolute pressure sensor, engine speed sensor, two exhaust temperature sensors, and an engine backpressure sensor. The major components of the Longview™ system are identified in Attachment 2. Schematics of the approved product and engine labels are shown in Attachment 3.

This Executive Order is valid provided that installation instructions for the Longview™ system do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer. No changes are permitted to the device without the written approval of ARB. Changes from the verified design without written approval of ARB shall invalidate this Executive Order.

Changes made to the design or operating conditions of the Longview™ system, as exempted by ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this Executive Order.

Marketing of the Longview™ system using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from ARB.

This Executive Order shall not apply to any Longview™ system advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser. The ARB estimates that the Longview™ system might incur a fuel economy penalty between three and seven percent depending on the application.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR Section 2706 (g)), ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/CLE/2008/PM3+/N25/ON/LNF01

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Cleaire is responsible for honoring a warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

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This Executive Order is valid provided that the diesel fuel used in conjunction with the device complies with Title 13, CCR, sections 2281 and 2282, and if biodiesel is used, the biodiesel blend shall be 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials (ASTM) specification D6751 applicable for 15 parts per million sulfur content; and
- The diesel fuel portion of the blend complies with Title 13, CCR, sections 2281 and 2282.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this Executive Order.

In addition to the foregoing, ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of CCR, Title 13, Section 2222, et seq and CCR, Title 13, Sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

This Executive Order does not release Cleaire from complying with all other applicable regulations. Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

Executed at El Monte, California, this 27th day of February 2009.

/s/

Robert H. Cross, Chief

Mobile Source Control Division

Attachment 1: ARB Approved Engine Families for the Longview™ System

Attachment 2: Parts List for the Longview™ System

Attachment 3: Labels for the Longview™ System

Carrier Name:		Unit #:	Odom:	
Year:	Make:	License #:		
Inspection Description		OK	Service Needed	Service Performed **
1. Fire extinguisher, first aid kit, and reflective warning devices				
2. Horn, defroster, gauges, odometer, and speedometer				
3. Mirrors and supports				
4. Windshield wipers, window cracks				
5. All lights, signals, reflectors, mud-flaps				
6. Electrical wiring – condition and protection				
7. Batteries – water level, terminals, and cables				
8. Warning devices – air, oil, temperature, anti-skid and/or vacuum *				
9. Radiator and water hoses – coolant level, condition, and/or leaks				
10. Belts – compressor, fan, water pump, and/or alternator *				
11. Air hoses and tubing – leaks, condition, and/or protection *				
12. Fuel system – tank, hoses, tubing, and/or pump; leaks				
13. Exhaust system, manifolds, piping, muffler; leaks and/or condition				
14. Engine – mounting, excessive grease and/or oil				
15. Clutch adjustment – free play				
16. Air filter, throttle linkage				
17. Starting and charging system				
18. Tractor – protection valve *				
19. Hydraulic brake system – adjustment, components, and/or condition *				
20. Hydraulic master cylinder level, leaks, and/or condition *				
21. Hoses and tubing – condition and protection *				
22. Air brake system – adjustment, components, and/or condition *				
23. 1 minute air or vacuum loss test *				
24. Air compressor governor cut-in and cut-out pressures (85 – 130) *				
25. Primary air tank – drain and test check valve *				
26. Other air tanks – drain and check for contamination; securement *				
27. Tire – depth, inflation, and condition *				
28. Wheels, lug nuts, and studs – cracks, looseness, and/or condition *				
29. Parking brake – able to hold vehicle *				
30. Emergency stopping system – labeled and operative *				
31. Brakes release after complete loss of service air *				
32. Steering system – mounting, free lash, and components *				
33. Steering arms, drag links, and/or tie rod ends *				
34. Connecting devices – fifth wheel, pintle hitch, and/or safety devices *				
35. Suspension system – springs, shackles, u-bolts, and/or torque rods *				
36. Frame and cross members – cracks and/or condition *				
37. Drive shaft, universal joints, and/or guards				
38. Transmission and differential mounting, leaks, and/or condition				

* = Inspection of these items meets the minimum requirements of 34505.5 CVC

** = Service Performed must be described on attached report

Technician Name:	Date:
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Lubrication and Inspection Report

Carrier Name						Unit #			Year							
Make				Model				License #								
Mileage or Hours	Date	By (technician name)	Lubrication	Oil Change	Oil Added	Filter Change	Transmission	Differential	Wheel Bearings	Batteries	Brake Adjustment	Tire Pressure	Exhaust After-treatment	"A" Level Service	"B" Level Service	"C" Level Service
			Description of Service(s) Performed													

Emissions Inspection Report

Inspection Description	OK	Service Needed	Service Performed **
Emission Control Label (ECL) – Present and legible			
Emission Control Systems (ECS) – CAC, ECM/PCM, EGR/CGI, DOC, TC, ECM, DDI, DPF, SCR, etc.			
Periodic Smoke Inspection (PSIP) – Due date, opacity			
Exhaust Retrofits (VDECS) – DOC, DPF, device/engine label (present and legible), warning lights, regen operation, etc			

Oil Consumption Log

Date of Last DPF Cleaning	Date of Oil Change	Oil Consumed (Include all oil added/oil needed since last DPF cleaning or oil change) *	Running Total of Oil Consumed

* Oil consumed – tally all oil added during refueling and pre-trip inspections to the amount of oil down at the time of draining oil during oil change.



Linda S. Adams
Secretary for
Environmental Protection

Air Resources Board

Mary D. Nichols, Chairman
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Arnold Schwarzenegger
Governor

TO: ALL INTERESTED PARTIES

DATE: DECEMBER 2008

SUBJECT: HAZARDOUS WASTE MANAGEMENT OF DIESEL EMISSION CONTROL STRATEGIES

This purpose of this guidance document is to address proper management of ash generated by diesel emission control strategies (DECS), such as diesel particulate filters (DPFs), flow-through filter (FTF), and/or diesel oxidation catalysts (DOCs) and the proper disposal of spent DECS.

ASH GENERATION BY A DECS

1. How is ash generated?

Some DECS, such as DPFs and FTFs, physically trap and collect diesel soot from engine exhaust. While the trapped soot is burned off through filter regeneration, metal oxide "ash" particles are not burned. Over time, the unburned ash will plug the filter unless the DECS is periodically cleaned.

2. Why is ARB concerned about ash management?

Analytical tests have shown that DECS ash is considered hazardous waste in California. Fleet owners are responsible to comply with all Federal, State, and local laws regarding hazardous waste. California laws, enforced by the Department of Toxic Substances Control (DTSC), require that you properly manage a hazardous waste. Because California laws are more stringent than laws in other states and foreign countries, some cleaning methods allowed in other states are not legal in California. You should contact your DECS supplier or the manufacturer for instructions on how to properly clean the DECS to comply with California hazardous waste laws.

3. How do I clean a DECS to remove ash?

DECS manufacturers recommend a variety of DECS cleaning techniques to remove the ash from devices. You are required to use techniques identified by the manufacturer that are developed under the assumption that the ash is a hazardous waste. You should contact your DECS supplier or the manufacturer for instructions on how to properly clean the DECS to comply with California hazardous waste laws.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

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Not all cleaning methods are appropriate for all DECS. Failure to follow the manufacturer approved cleaning methods for California may result in noncompliance with Federal, State and local hazardous waste laws, as well as DECS damage that could result in potential denial of the DECS warranty clause and along with non-compliance of ARB fleet rules.

Some manufacturers recommend the following cleaning techniques and these may be legal in California if all appropriate steps, as outlined by the manufacturer:

Compressed Air: This entails blowing compressed air through the filter in the direction opposite of the typical flow into a chamber with a HEPA filter that collects all of the particulates, for eventual disposal as a hazardous waste. You should contact a reputable hazardous waste management company regarding disposal of the ash. This method must be conducted in a chamber otherwise you may potentially expose workers to unsafe levels of zinc and other metal oxides. Also you may have an illegal disposal of a hazardous waste into the air.

High Pressure Water and Detergent: This method results in wastewater containing metal oxides, potentially a hazardous waste, and therefore requires collecting the waste water and disposing of it through a reputable hazardous waste management company. Discharging to a sanitary sewer, storm drains or pouring the residue on the ground is illegal in California.

Note: Some DPF manufacturers recommend reversing the filter periodically to more evenly distribute the collected particulate on the filter substrate. This is not a method for cleaning and the filter must be cleaned using an approved method for California prior to replacing the reversed filter.

4. How much ash will be generated by a DECS?

Ash generated and collected from a DECS ranges from a couple of teaspoons to about a cup.

5. How can I find out if the ash is a hazardous waste?

As a potential generator, you have two options. You can assume the ash is hazardous waste, based on your knowledge that other tests have confirmed it is hazardous, or you can have your waste tested by a state-authorized testing facility. You can get a list of these facilities from DTSC by contacting the DTCS Regulatory Assistance Office at 1-800-728-6942 or RAO@dtsc.ca.gov.

6. What do I do if the ash is a hazardous waste?

You must contact a reputable hazardous waste management company to manage your hazardous waste. For more information, you should contact the DTCS Regulatory Assistance Office at Call 1-800-728-6942 or RAO@dtsc.ca.gov.

7. Disposing of a Spent DECS.

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Proper management of spent DECS is required, since the ash or catalyst material in the device may be classified as hazardous waste. A spent DECS may be recyclable because of the value of the precious metals that coat the filter substrate. Once the ash and precious metals are removed or recovered, the DECS may be managed as scrap metal.

The DTSC regulates used automotive catalytic converters as scrap metal as long as the catalyst material is left in the converter shell during collection and transportation of the converters for recycling. You should contact a reputable hazardous waste management company for more information or the DTCS Regulatory Assistance Office at 1-800-728-6942 or RAO@dtsc.ca.gov.

FINDING OUT MORE ABOUT HAZARDOUS WASTE

In California, the DTSC has authority over the regulation of hazardous waste. The State's hazardous waste laws are found in the Health and Safety Code, Division 20, and in the California Code of Regulations, Title 22, Division 4.5. In California, all hazardous waste must be disposed of at a facility that is permitted by the DTSC. You can get more information from DTSC by contacting the DTCS Regulatory Assistance Office at 1-800-728-6942 or RAO@dtsc.ca.gov

Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles

I. EXECUTIVE SUMMARY

Particulate matter emissions from diesel-fueled vehicles and engines are about 28,000 tons per year in California. These emissions come from a wide variety of sources including over one million on-road and off-road vehicles, about 16,000 stationary engines, and close to 50,000 portable engines. On-road engines account for about 27 percent of the emissions, off-road engines about 66 percent, with the remaining 7 percent from stationary and portable engines. With full implementation of the current vehicle standards on the books and vehicle turnover, diesel particulate matter (diesel PM) will still be about 22,000 tons per year in 2010 and about 19,000 tons per year in 2020.

In 1998, following an exhaustive 10-year scientific assessment process, the Air Resources Board (ARB or Board) identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). On a statewide basis, the average potential cancer risk associated with these emissions is over 500 potential cases per million. In the South Coast Air Basin, the potential risk associated with diesel PM emissions is estimated to be 1,000 per million people. Compared to other air toxics the Board has identified and controlled, diesel PM emissions are estimated to be responsible for about 70 percent of the total ambient air toxics risk. In addition to these general risks, diesel PM can also present elevated localized or near-source exposures. Depending on the activity and nearness to receptors, these potential risks can range from small to 1,500 per million or more. As a result of this significant potential risk, when the Board identified diesel PM as a TAC, it directed staff to convene an advisory committee of interested parties to engage in a dialogue on the steps that can be taken to reduce these emissions.

This plan, the Diesel Risk Reduction Plan or Diesel RRP, represents the staff's proposal for a comprehensive plan to significantly reduce diesel PM emissions. The basic premise behind the staff proposal is simple: to require all new diesel-fueled vehicles and engines to use state-of-the-art catalyzed diesel particulate filters (DPFs) and very low-sulfur diesel fuel. Further, all existing vehicles and engines should be evaluated, and wherever technically feasible and cost-effective, retrofitted with DPFs. As with new engines, very low-sulfur diesel fuel should be used by retrofitted vehicles and engines. In short, the staff's proposed plan contains the following three components:

1. New regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce diesel PM emissions by about 90 percent overall from current levels;

California Council on Diesel Education and Technology
Diesel Exhaust After-treatment and Maintenance

2. New retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles where determined to be technically feasible and cost-effective; and

3. New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 ppm to provide the quality of diesel fuel needed by the advanced diesel PM emission controls.

Diesel PM filter control technology is now available and has been demonstrated in over 40,000 applications worldwide. It is staff's vision that well before the end of this decade these filters will become as commonplace on diesel-fueled engines as catalysts are now on gasoline-fueled vehicles.

Upon the Board's approval of this comprehensive plan with its various control measures, staff will begin the full regulatory process to develop the actual regulations envisioned by this plan. During the regulatory development process, the details associated with each specific regulation will be fully developed. Over the next several years, staff will be developing these regulations and bringing them to the Board for consideration of adoption. To assist staff in evaluating retrofit applications and provide technical advice to staff, the Board created an Advisory Committee on Toxic Air Contaminant Emissions from Diesel-Fueled Engines and Vehicles.

While the principal focus of this plan is the reduction in emissions of diesel PM, staff are well aware that there are a number of viable alternative technologies, such as compressed natural gas and electrification that in many cases could be used to accomplish the same results. It is staff's full intent, as it develops the regulations proposed in this plan, to fully explore and engage in dialogue with interested parties concerning opportunities for using these alternatives to reduce diesel PM emissions.

The projected emission benefits associated with the full implementation of this plan, including proposed federal measures, are reductions in diesel PM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020. The measures recommended in this plan will have a great impact on reducing the localized risks associated with activities that expose nearby individuals to diesel PM emissions. Further, there are other benefits associated with reducing diesel PM emissions. These include reduced ambient fine particulate matter levels, increased visibility, less material damage due to soiling of surfaces, and reduced incidences of noncancer health effects, such as bronchitis and asthma. Staff expects that the costs associated with carrying out this plan will be significant and will be on the order of the costs associated with other major ARB programs.

California Vehicle Code

Gross Polluter: Air Pollution Control Device

27156. (a) No person shall operate or leave standing upon a highway a motor vehicle that is a gross polluter, as defined in Section 39032.5 of the Health and Safety Code.

(b) No person shall operate or leave standing upon a highway a motor vehicle that is required to be equipped with a motor vehicle pollution control device under Part 5 (commencing with Section 43000) of Division 26 of the Health and Safety Code or any other certified motor vehicle pollution control device required by any other state law or any rule or regulation adopted pursuant to that law, or required to be equipped with a motor vehicle pollution control device pursuant to the National Emission Standards Act (42 U.S.C. 7521 to 7550, inclusive) and the standards and regulations adopted pursuant to that federal act, unless the motor vehicle is equipped with the required motor vehicle pollution control device that is correctly installed and in operating condition. No person shall disconnect, modify, or alter any such required device.

(c) No person shall install, sell, offer for sale, or advertise any device, apparatus, or mechanism intended for use with, or as a part of, a required motor vehicle pollution control device or system that alters or modifies the original design or performance of the motor vehicle pollution control device or system.

(d) If the court finds that a person has willfully violated this section, the court shall impose the maximum fine that may be imposed in the case, and no part of the fine may be suspended.

(e) "Willfully," as used in this section, has the same meaning as the meaning of that word prescribed in Section 7 of the Penal Code.

(f) No person shall operate a vehicle after notice by a traffic officer that the vehicle is not equipped with the required certified motor vehicle pollution control device correctly installed in operating condition, except as may be necessary to return the vehicle to the residence or place of business of the owner or driver or to a garage, until the vehicle has been properly equipped with such a device.

(g) The notice to appear issued or complaint filed for a violation of this section shall require that the person to whom the notice to appear is issued or against whom the complaint is filed produce proof of correction pursuant to Section 40150 or proof of exemption pursuant to Section 4000.1 or 4000.2

(h) This section shall not apply to an alteration, modification, or modifying device, apparatus, or mechanism found by resolution of the State Air Resources Board to do either of the following:

(1) Not to reduce the effectiveness of a required motor vehicle pollution control device.

(2) To result in emissions from the modified or altered vehicle that are at levels that comply with existing state or federal standards for that model-year of the vehicle being modified or converted.

(i) Aftermarket and performance parts with valid State Air Resources Board Executive Orders may be sold and installed concurrent with a motorcycle's transfer to an ultimate purchaser.

(j) This section applies to motor vehicles of the United States or its agencies, to the extent authorized by federal law.

Amended Ch. 27, Stats. 1994. Effective March 30, 1994.

Amended Sec. 1, Ch. 325, Stats. 2007. Effective January 1, 2008.

Pollution Control Device

38390. No person shall operate or maintain in a condition of readiness for operation any off-highway motor vehicle which is required to be equipped with a motor vehicle pollution control device under Part 5 (commencing with Section 43000) of Division 26 of the Health and Safety Code or with any other certified motor vehicle pollution control device required by any other state law or any rule or regulation adopted pursuant to such law, or required to be equipped with a motor vehicle pollution control device pursuant to the Clean Air Act (42 U.S.C. 1857 et seq.) and the standards and regulations promulgated thereunder, unless it is equipped with the required motor vehicle pollution control device which is correctly installed and in operating condition. No person shall disconnect, modify, or alter any such required device. Notwithstanding Section 43107 of the Health and Safety Code, this section shall apply only to off-highway motor vehicles of the 1978 or later model year.

Added Ch. 1093, Stats. 1976. Effective January 1, 1977.

California Code of Regulations

§ 2027. In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks.

(d)(3) Drayage Truck Owner Requirements

(A) Drayage truck owners shall:

1. meet all applicable requirements and deadlines set forth in Phases 1 and 2 above;
2. if an aftermarket level 3 VDECS is installed, be able to demonstrate that:
 - a. the VDECS has been verified by ARB for use with the engine and vehicle, as described in the Executive Order for the VDECS;
 - b. use of the vehicle must be consistent with the conditions of the Executive Order for the VDECS;
 - c. the VDECS is installed in a verified configuration;
 - d. the engine met the engine manufacturer's operational specifications prior to the VDECS installation;
 - e. the VDECS label is visible;
 - f. the level 3 VDECS is mounted in a safe and secure manner on the vehicle consistent with provisions in (3)(A)(2)(c) above, and the fixed position of the level 3 VDECS does not obscure vehicle rear view or side mirror visibility in any way.
 - g. all emission control devices are functioning properly and maintained per manufacturer's specifications;
 - h. in the event of a failure or damage of an aftermarket level 3 VDECS or an OEM equivalent diesel emissions control system while the device is still under warranty, it has taken prompt action to repair or replace the device by the manufacturer or authorized dealer with the same level of VDECS or OEM equivalent diesel emissions control system within 45 days of first noticing or being notified of the failure or damage to the device.
 - i. it has adhered to the terms and conditions in the aftermarket manufacturer or OEM warranty governing the use of the device.
 - j. if the failure or damage to the level 3 VDECS or OEM equivalent diesel emissions control system occurs after expiration of the warranty period, it has taken prompt action to personally repair or replace the failed or damaged device with the same level VDECS or OEM equivalent diesel emissions control system available for the engine within 90 days of first noticing or being notified of the failure or damage to the device.
 - k. it has not misused, dismantled, or tampered with any components of the level 3 VDECS or OEM equivalent diesel emissions control system, except for purposes of recommended periodical maintenance by an authorized agent, or when it is necessary to detach the device to service the vehicle.

CCR 2025 - Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles

(q) Special Provisions for VDECS and Experimental Diesel Emission Control Strategies

(1) VDECS Requirements

(A) VDECS Installation. Before installing a VDECS on a vehicle, the owner must ensure that:

1. The VDECS is verified for use with the engine and vehicle, as described in the Executive Order for the VDECS.
2. Use of the vehicle is consistent with the conditions of the Executive Order for the VDECS.
3. The VDECS is installed in a verified configuration.
4. The engine to be retrofitted meets engine manufacturer's specifications for installation of the VDECS.
5. The VDECS label will be visible after installation.

(B) VDECS Maintenance. If a fleet owner installs a VDECS to meet the requirements of section 2025(e), the VDECS must remain installed until the VDECS fails or is damaged or is replaced with a similar or higher level VDECS. Requirements for VDECS failure or damage are in section 2025(q)(2). The owner of a vehicle retrofitted with a VDECS must ensure that the VDECS and engine are properly maintained as recommended by the respective manufacturers.

California Council on Diesel Education and Technology
Diesel Exhaust After-treatment Device and Maintenance

Section 2449 General Requirements for In-Use Off-Road Diesel-Fueled Fleets

(d)(8) VDECS Installation – Before installing a VDECS on a vehicle, the fleet owner must ensure that:

- (A) The VDECS is verified for use with the engine and vehicle, as described in the Executive Order for the VDECS.
- (B) Use of the vehicle is consistent with the conditions of the Executive Order for the VDECS.
- (C) The diesel emission control strategy is installed in a verified configuration.
- (D) The engine to be retrofit is tuned up so that it meets engine manufacturer's specifications prior to VDECS installation.
- (E) The VDECS label will be visible after installation.

(d)(9) VDECS Maintenance – If a fleet owner installs a VDECS to meet the requirements in section 2449.1(a) or 2449.2(a), the VDECS must be kept installed until the VDECS fails or is damaged. Requirements for VDECS failure or damage are in section 2449(e)(1). The owner of a vehicle retrofit with a VDECS must ensure all maintenance on the VDECS and engine is performed as required by the respective manufacturers.