



# **2021 Truck and Engine Manufacturers Association Compliance Workshop: On-Road Breakout Session**

April 28, 2021

# Outline

- Heavy Duty GHG Section Overview
- On-Road In Use Compliance Update
- Heavy Duty Inspection and Maintenance Update
- EMA Q+A

# Heavy-Duty GHG Certification Overview

- Certification Section Overview
- Certification Section Staff
- Certification Activities
- Trailers
- ZEPs
- Lessons Learned from MY2021 Certification
- Reminders to Manufacturers
- Miscellaneous Topics

# HD GHG Certification Section Overview

- The HD GHG is responsible for certification of new heavy-duty vocational vehicles, tractors, trailers, aerodynamic devices, and Zero Emission Powertrains (ZEP)



Vocational vehicle



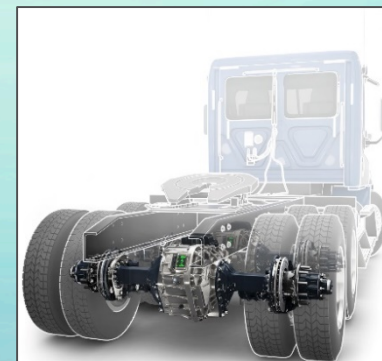
Tractor



Trailer



Aerodynamic device



ZEP

# Certification Section Staff

- **Current staff in the HD GHG Section**

- Lucky Benedict, Manager
- Tsatsu Nukunya, Air Resources Engineer (ARE)
- Mohammad Mollaei, ARE
- Tyler Walton, ARE
- Hamid Niakani, ARE
- Jade Jiang, ARE

- **Other staff involved in Certification**

- Mitzi Magtoto, ARE, Mobile Source Control Division(MSCD)- Regulation Development
- Tao Zhan, ARE (Research Division) – AC Review
- Seungju Yoon, Manager (RD)
- Rajvir Nijjar, ARE MSCD– AC Review

# Certification Activities

- Manufacturers Advisory Correspondence (MAC) - Certification Guidance for California Phase 2 Greenhouse Gas Regulations for Medium- and Heavy-Duty Engines, Vehicles and Trailers- MAC 2020-02, October 2020
- Mail-out for Zero Emissions Powertrain Naming – ECC 2020-04 , August 2020
- Application Templates for:
  - GHG Phase 2 Vehicle Certification – June 2020
  - ZEP – September 2020
- Issued 271 EOs (for 230 families) from 3/1/2020 through 3/31/2021. 96% of these were for tractors and vocational vehicles.

# Trailers

- CARB continues to certify trailers to the CA Phase 2 standards
- CARB suspended the enforcement of the trailer standards of the CA Phase 2 GHG regulations for MY2020 and MY2021 trailers through January 1, 2022 (CARB Advisory # 295 at <https://ww3.arb.ca.gov/enf/advs/adv295.pdf>)

# Zero Emissions Powertrain Certification

## Started with MY2021

(Alternate Pathway)

- Heavy-duty fuel cell and battery vehicles and powertrain manufacturers have a few certification paths:
  - Certify the Zero Emissions Powertrain as a ZEP for a powertrain EO.
  - Certify as an Enhanced Fuel Cell and Electric Vehicle. Process requires a certified ZEP for the powertrain and a separate EO for the vehicle.
  - Use the standard Phase 2 GHG pathway (i.e. without going through ZEP certification)
- ZEP certification will be required for compliance with certain CARB programs-- Advanced Clean Truck (ACT) and Zero Emissions Airport Shuttle



# MY2021 Lessons Learned

- Submit applications early– At least 90 days before start of production.
- Please review all applicable regulations including CARB amendments to EPA regulations in 40 CFR 1037.
- Fill in Phase 2 Application template completely. (e.g. select and justify engine cycle for ZEV)
- Manufacturers are reminded to submit end of year reports due now or soon.
  - CA production reports (end of March after MY) and
  - ABT (end of March and September after MY)

# Improving AC Package Submissions

- For AC Leakage Packages - Manufacturers are encouraged to submit combined submissions for all vehicle families.
- AC Documentation for CARB - See CARB amendments to 40 CFR 86.1819-14(h) and 1037.115(e), (Cover letter, summary table, schematics, and SAE J2727 Spreadsheets) should be submitted with applications for certification or even earlier if possible.

# Improving AC Package Submissions (cont.)

- If a component technology is not listed in SAE J2727 (e.g. weld-shut compressor housings), manufacturer must certify via alternative leakage demonstration means (e.g. an adapted or modified SAE J2727 approach).
- To streamline certification review process, manufacturers should submit sufficient data, evidence, or explanation supporting the claimed leak rate for the unlisted component technology.
- Minor amendments to this Section expected in early Fall 2021.

# Make VECI Labels Readily Visible

- Placement of GHG Vehicle Emissions Control Information (VECI) labels must be in locations that are easily viewed by inspectors.
- Label provisions of 40 CFR 1037.135 invoke § 1068.45 General labeling provisions which require readily visible labels--*1068.45 (a)(5) Make the labels readily visible to the average person after all installation and assembly are complete.*
- CARB will consider limited locations for GHG VECI labels.
- CARB will consult with the industry and EPA for agreement.
- Per the requirements of 1037.135, the labels must have sufficient information to determine the applicable standard for the vehicle family

# Small Manufacturers have Certification Options

- Small Manufacturers (as defined in 40 CFR 1037.150(c)) have a couple of certification options.
  - Take the small business exemption- You would need to submit documentation to CARB to demonstrate you meet the criteria. Also note that there are specific labelling requirements for this option
  - Certify to the Phase 2 Standards with all the associated requirements.
  - EPA Technical amendments should be incorporated shortly.

# Plans for 2021

- AC Leakage MAC
- Minor revisions to HD GHG Phase 2 Application Template
  - Including the Enhanced Electric and Fuel Cell Vehicle Certification option.
  - Adds question on location of bus labels
  - Changes to HFC Worksheet
  - Corrects errors and typos.
- Hope to hire more staff for the HD GHG certification reviews

# Proposed CA Alignment with the Federal Phase 2 Tech Amendments

- CARB proposes to align with certain provisions of the U.S EPA's Phase 2 Technical Amendments
  - Omnibus rulemaking 30-day package
  - Expected to be released for public comment end of April/early May
- Proposed amendments may be available upon Office of Administrative Law approval by August/September timeframe

# Future GHG Standards

- Potential Phase 3 GHG standards for MY 2030+
- Phase 2 GHG last step down is in MY2027
- Phase 3 GHG needs to take into account significant deployment of HD ZEVs





# HDIUT Vehicle Screening Procedure

2021 EMA Compliance Workshop  
April 28, 2021

# Agenda

1. Background
2. Applicable regulations
3. Screening practices

# Background

- CARB identified some HDIUT vehicle screening practices that are of concern as they appear not to align with current regulations
- These concerns are based on review of submitted HDIUT data, review of industry practices and manufacturers discussions
- The following slides provide CARB's areas of concerns and opportunity for discussion

# HDIUT Vehicle Screening Requirements

- Subpart T—Manufacturer-Run In-Use Testing Program for Heavy-Duty Diesel Engines
  - § 86.1908 How must I select and screen my in-use engines?
  - § 86.1910 How must I prepare and test my in-use engines?
- EPA’s Vehicle Screening Guidance CISC-06-010 (HD)
- Title 13, California Code of Regulations, Section 1956.8
- California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles, Subpart T

# Reporting Requirements

- **§ 86.1908**
  - (c) You must notify us before rejecting a candidate vehicle for reasons other than failing to meet the acceptance criteria in paragraph (a) of this section. A candidate vehicle is any prospective vehicle you have identified to potentially fulfill your testing requirements under this subpart. Include your reasons for rejecting each vehicle. If an owner declines to participate in the test program, you may reject the vehicle without prior notification. Such a rejection must be reported as described in § 86.1920. We may allow you to replace the rejected vehicle with another candidate vehicle to meet your testing requirements for the specific engine family.
  - (d) You must report when, how, and why you reject candidate vehicles, as described in § 86.1920.
- **§ 86.1910 How must I prepare and test my in-use engines?**
- **§ 86.1920 What in-use testing information must I report to EPA?**
  - (B)(1) For each engine family, describe how you recruited vehicles. Describe how you used any criteria or thresholds to narrow your search or to screen individual vehicles.
  - (B)(2) Include a summary of the candidate vehicles you have rejected and the reasons you rejected them, whether you base the rejection on the criteria in § 86.1908(a) or anything else. If you rejected a candidate vehicle due to misfueling, included the results of any fuel sample tests.

# Telematics

- The use of telematics must be consistent with **§ 86.1908**
- If telematics is used, please document and report to the agency per **§ 86.1920 b) 1)** ... “Describe how you used any criteria or thresholds to narrow your search or to screen individual vehicles”

# Re-flashing/Altering Calibrations

- Vehicles must not have an alternate calibration during testing
- § 86.1908 a) (5) The **engines** have not been tampered with, rebuilt or undergone major repair that could be expected to affect emissions.
- In this context, CARB refer to “engines” as a comprehensive system including but not limited to; engine, ECU, and emission control system (DOC,DFP, SCR, and related components)

# Prescreening Vehicle Prior to Testing

- Vehicles should not be rejected based on a visual inspection of tailpipe or conducting snap idle or opacity testing
- A dirty tailpipe is not conclusive evidence of improper maintenance and thus not a reason for rejecting vehicles
- If a vehicle history is consistent with the required maintenance, no tampering, and no MIL or alerts are present then a vehicle should not be rejected based on a dirty tailpipe
- **§ 86.1908 a) (4)** The key vehicle/engine systems (e.g., power train, drive train, emission control) have been properly maintained and used.



# Major Emission Component Replacement

- Some HIDUT vehicles had DPF replaced with a new DPF prior to testing
- DOC, DPF, SCR and other emission related component should not be replaced or altered during the useful life of the vehicle.
- **§ 86.1908 a)**
  - (1) The engines must be representative of the engine family.
  - (5) The engines have not been tampered with, rebuilt or undergone major repair that could be expected to affect emissions.
- **§ 86.007-25 (b)(4)(iii)**
  - (D) Particulate trap or trap oxidizer systems including related components (adjustment and cleaning only for filter element, **replacement of the filter element is not allowed during the useful life**).
  - (F) Catalytic converter (adjustment and cleaning only for catalyst beds, **replacement of the bed is not allowed during the useful life**).

# Forced Regen Before a Test

- Manufacturers must not initiate a forced regen unless it is required by an indicator on the dashboard or other similar alert
- **§ 86.1910** a) You must limit maintenance to what is in the owners manual for engines with that amount of service and age

# Use of Biodiesel <20%

## Current regulations:

### § 86.1908 How must I select and screen my in-use engines?

(6) The engines have not been misfueled. For example, an engine may be considered misfueled if operated on a biodiesel fuel blend that is either not listed as allowed or otherwise indicated to be an unacceptable fuel in the vehicle's owner or operator manual.

## Omnibus - Test Procedures – Date of release June 23,3030 :

### § 86.1910 How must I prepare and test my in-use engines?

October 25, 2016. 2.2 Amend subparagraph (c)(2) as follows: (i) For 2005 through 2023 model year engines, you may use any biodiesel fuel blend that is either expressly allowed or not otherwise indicated as an unacceptable fuel in the vehicle's owner or operator manual or in the engine manufacturer's published fuel recommendations. (ii) For 2024 and subsequent model year engines, you may use any commercially available biodiesel fuel blend...

**Comments/Questions**  
**Thank You**

# HD Inspection and Maintenance

- Q: Please provide update on HD I/M regulation and interplay with HD OBD regulation changes.
- A: Staff will present on CARB's developing HD I/M program in Thursday's HDOBD session and is including brief response here for Wednesday's on-highway breakout session:
  - Proposed HD I/M regulation is scheduled for Board consideration at December 2021 hearing. For more information, please see:  
<https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>
  - Phased-in implementation starting in CY 2023.
  - CARB regulated HD OBD data specified in 1971.1, title 13 CCR, sections (h)(4) and (h)(5) to be collected in OBD data submissions under HD I/M program.

# EMA Q+A

- Q: What is the expectation for GEM 4.0 for the end of the year and the impact on production reporting? Will CARB align its program to match?
- A: CARB proposes to align with U.S. EPA's GEM 3.5.1 version for 2021 MY as included in the Phase 2 GHG technical amendments. We are however not aware of GEM 4.0 version

# EMA Q+A

- Q: What is the expectation for enforcement for Phase 2, and how will this be handled with COVID?
- A: Compliance and Enforcement continues. COVID related issues may be considered on a case by case basis, upon request from manufacturers.

# EMA Q+A

- Q: What will be required for Phase 2 reporting? Could an advance template be provided, so that manufacturers can begin preparing IT systems, etc.?
- A: There are no additional reporting requirements for MY2020



# Contact Information

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# Questions

