2020 Truck and Engine Manufacturers Association Compliance Workshop

April 21 & 22, 2020
Outline

• Organization Chart
• Certification Statistics
• Flexibilities due to COVID-19
• Heavy-Duty Deterioration Factor (DF)
• Certification Updates MY20/21 and beyond
• Update on ECERT
• Status of certification and compliance
• Introducing HD GHG Section
• In-Use slides
Relocation to Riverside in March 2021

Picture Below: April 2019
Relocation to Riverside in March 2021
CY19 Certification Approval Timing – CIHD & OFSEC

Total Number of EOs signed in 2019 CY: 2131
Flexibilities due to COVID-19

• CARB, EPA and EMA are actively working together to address concerns.

• All vehicles and engines will require a 2021MY Executive Order to be legal for sale in the state of California.

• CARB will be considering flexibilities on a case by case basis. Please submit a written request to CARB.
Heavy-Duty DF Validation

- Brief History
- Applicability and Timing
- 5 pathways to verification
- Other considerations
CARB View: EMA DF Program Showed Mixed Results for SCR Engines

• Engine deterioration
  • Engine-out emissions are fairly stable throughout the UL
  • DF is fairly flat

• Tailpipe-out
  • Tailpipe-out emissions are higher at the end of UL when compared to 35%, 50% or 75%
  • DF increases with inclusion of more data out to UL
EMA DF Program Showed Mixed Results

SCR Engines

OffRoad Engine - Tailpipe NOX - NRTC

NOx STD

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70

Useful Life

0% 75% 50% 35% 100%
Applicability and Timing

- DF validation is applicable to MY2021+ programs with SCR-equipped engines and after-treatment systems
- MY2021: manufacturers need to submit a DF validation plan
- MY2022: manufacturers need to submit DF validation data
- Previous model year DF’s need to be validated in order to be carried over for 22MY+
5 Pathways to Validate

1. Engine dyno testing of in-use engines: Two or more in-use engines will be tested every year for the next six years or until compliance at 85% UL is demonstrated.

2. PEMS testing of in-use engines: Five or more in-use engines to be tested every year for the next six years or until compliance at 85% UL is demonstrated.
5 Pathways to Validate Cont.

3. Data collected from on-board NOx sensors of in-use engines: Seven or more in-use engines to be tested every year for the next six years or until compliance at 85% UL is demonstrated

4. Demonstrate at FUL using an approved DF plan

5. FUL durability demonstration using upcoming on-road procedures (On-road / Highway, Off-road / Non-road)
HD DF - Other Considerations

• Requests for alternate validation procedures based on sound engineering judgement will be considered.

• DF validation must be conducted on the same DDE family and the same rating as the initial durability demonstration (carry across, as applicable).
Certification Issues MY20/21 and beyond

Key compliance issues seen in the past year, including clarifications and guidance for addressing those issues

- Ensure that ECS is designed to operate the same on the test cycle and in real world performance
- Provide clear descriptions of engine operating modes, AECDs and emission control strategies
Field Fixes

• Does AC-2B (1975) still cover EPA/CARB's expectations for manufacturers in terms of field fixes?

• If a software improvement is approved by EPA/CARB in a current model year, does a manufacturer need separate approval to update field software for older model years, assuming that no investigation or defect thresholds have been exceeded?

• Manufactures must submit emissions related field fixes for applicable model years.
Certification Issues Cont.

• Provide data from DDE/ATS stabilization justifying DF low-hour test point

• New procedures for IRAF calculations starting MY2021: 40 CFR 1065.680

• Test DPF loaded with soot
Certification Issues Cont.

- Submit OFCI engine’s emergency AECD report submission
- Submit replacement engine report submission
- For OFCI engine power ratings stepping into the next level, ensure the tested power matches certification power category limits
- Last FLEX program in 2021MY
Certification Issues Cont.

- Label language: OFCI vs Non-road; CA stationary engines

"THIS ENGINE COMPLIES WITH CALIFORNIA REGULATIONS FOR [CURRENT MODEL YEAR] OFF-ROAD COMPRESSION-IGNITION ENGINES UNDER 13 CCR 2423(b)(7)."

- EPA, non-road, stationary may be on the same label
ECERT Updates

- Data Requirements and Business Rules documents have been updated. CARB expects to release these documents soon.
- Alpha testing of the E-Cert database is underway.
- CARB will schedule a workshop to cover the changes made and to describe the submission process. Targeted for early summer.
Comments on Cert Fee Reg Items

• Application fee; 2022/2023 MY timeframe
• Board Hearing delayed to early 2021
• Next workshops late summer/early fall
• Need your input. Please provide your comments by May 15


• Send to project Lead: Kathleen Mead; 916.324.9550
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In 2019, CARB created the new HD GHG Certification Section (NVEPB), in the ECCD.

The section will handle certification applications for new:

- Phase 2 GHG vocational vehicles and tractors,
- Aero Devices,
- Zero Emissions Powertrain, and
- Trailers

This section currently has a manager, Lucky Benedict, and two staff, Tsatsu Nukunya and Mohammad Mollaei. Three more staff will be hired soon.
What do We certify?

- **Tractors and Vocational Vehicles**
  GHG Phase I – 2014 – 2020 MY
  GHG Phase 2 – 2021 MY+
- **2020 MY+ Aero Devices**
  (Transferred from the Mobile Source Control Division (MSCD.))
- **2021 MY+ Zero Emissions Powertrains (ZEP) and Enhanced Fuel Cell and Electric Vehicles**
  (Voluntary, alternate pathway to Phase 2 GHG)
- **2020 MY+ Trailers** (Voluntary through 2021).
  (Transferred from MSCD)
- **HD GHG Engine certification**
  (Compression Ignition and Heavy-Duty Certification Section will continue to certify engines)
Contact Information

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Questions