



# **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

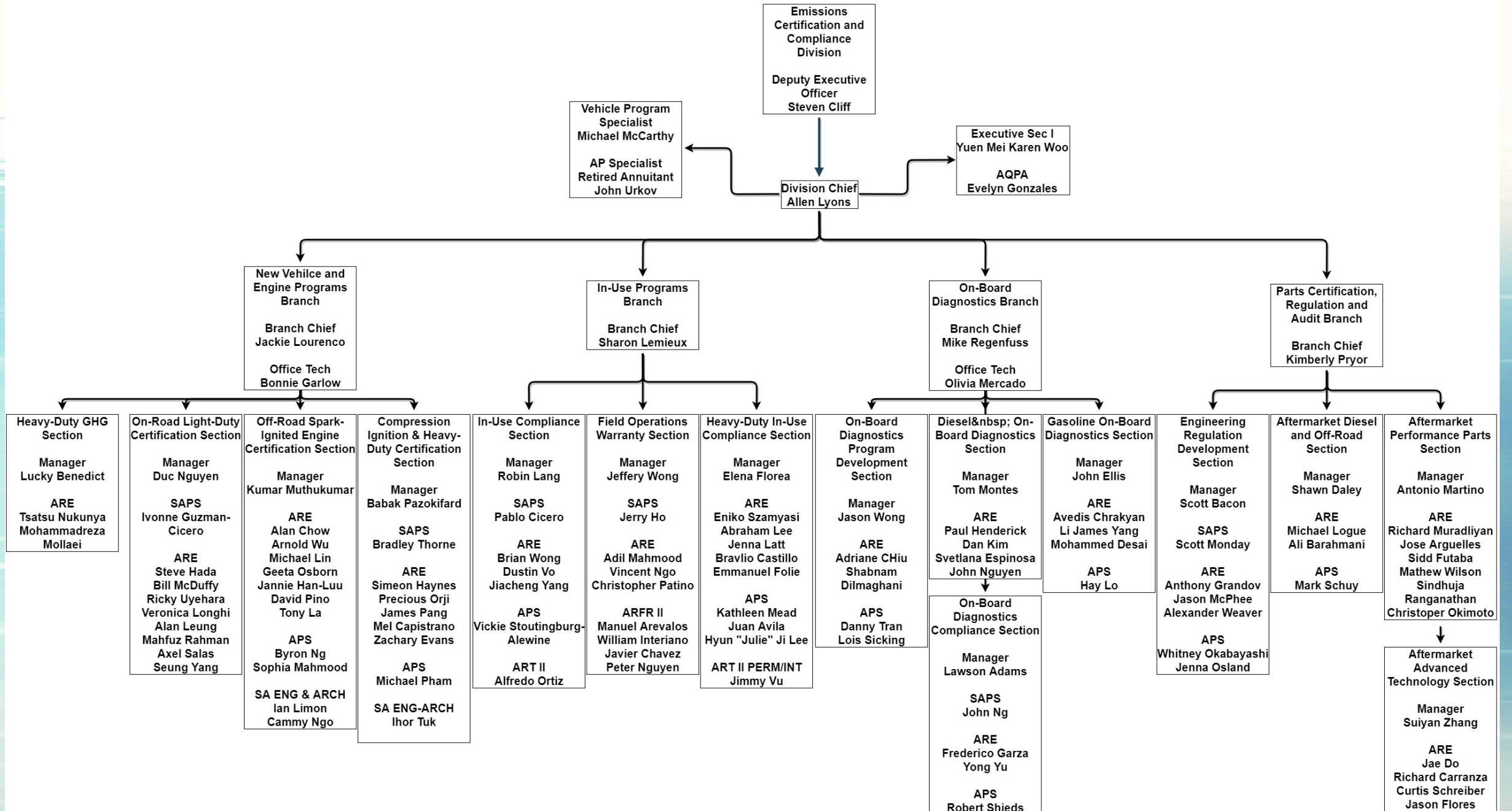




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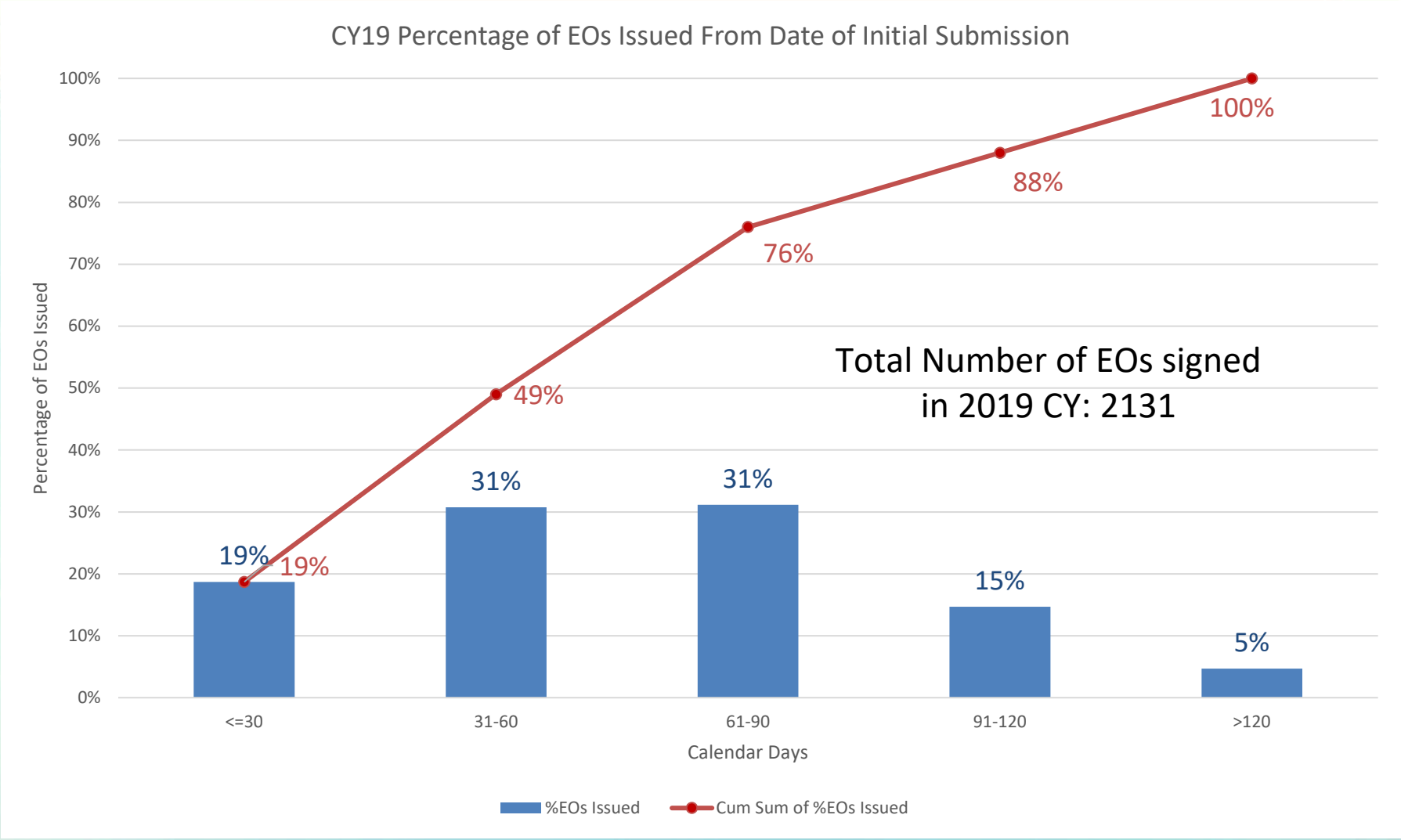


# Emissions Certification and Compliance Division Organization Update





# CY19 Certification Approval Timing – CIHD & OFSEC



# 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

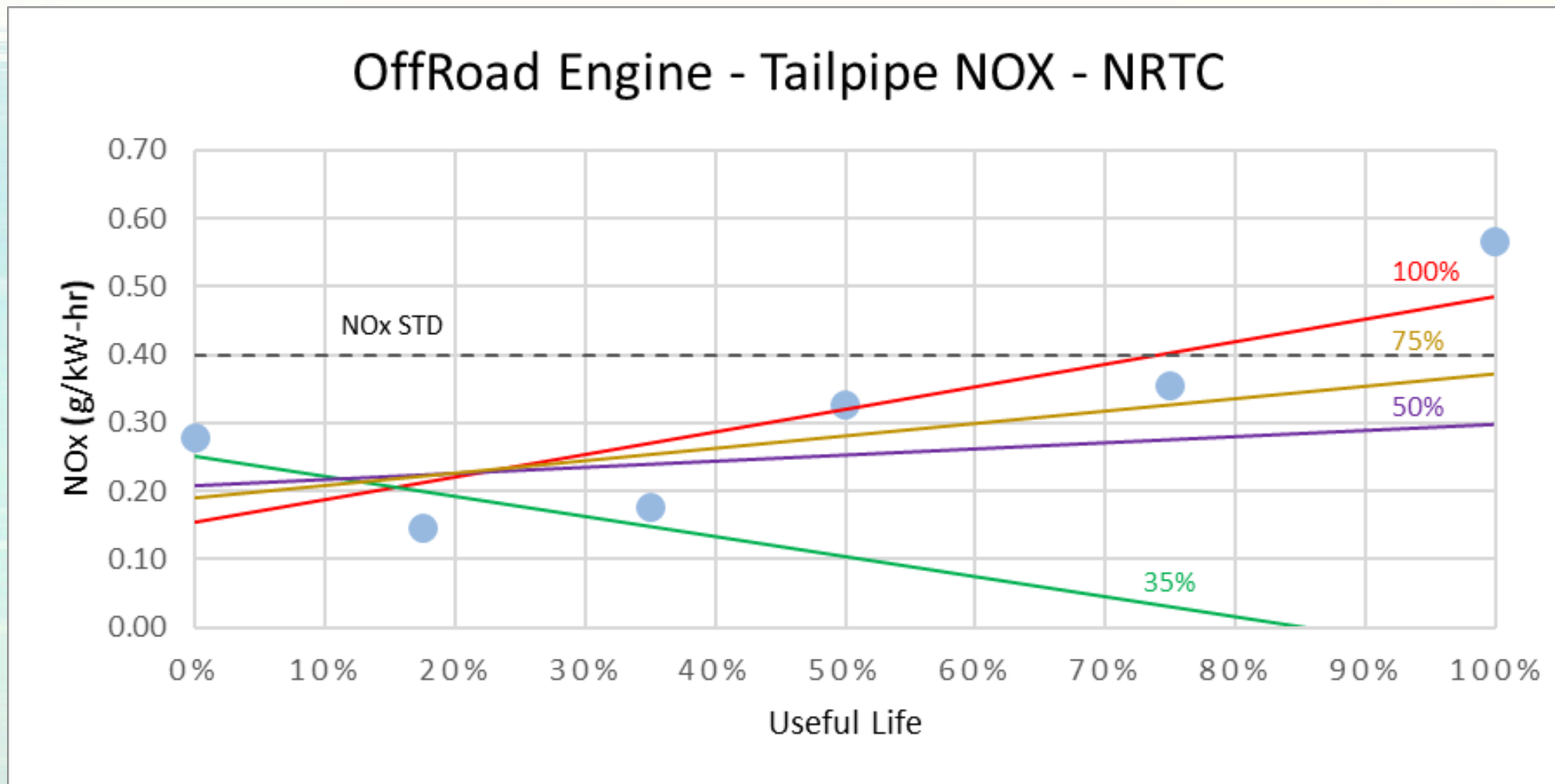


# CARB View: EMA DF Program Showed Mixed Results for SCR Engines

- 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





# 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, AECs 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  
<https://ww2.arb.ca.gov/mobile-source-certification-and-compliance-fee-regulation-meetings-workshops>
- Send to project Lead: Kathleen Mead; 916.324.9550  
kathleen.mead@arb.ca.gov

# Heavy-Duty GHG Certification Section

- 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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## Heavy-Duty Green House Gas Certification Section

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# Questions

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