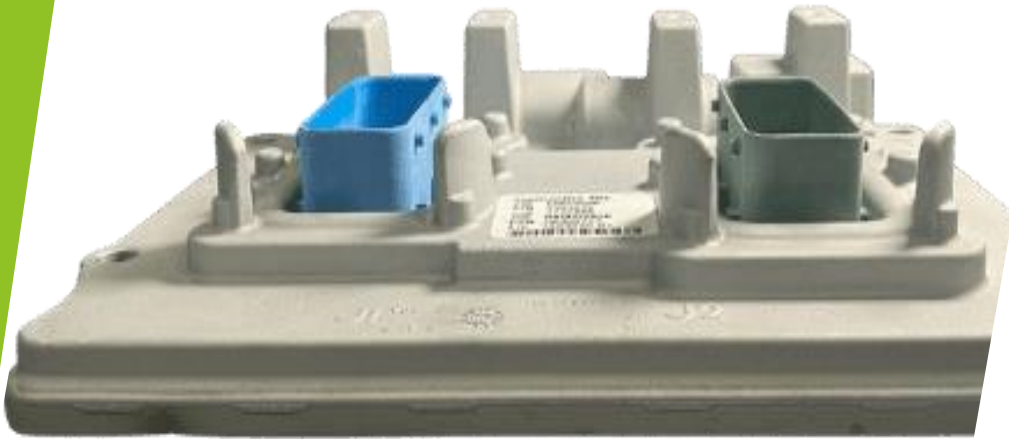


Cummins: a case about the computers that run pickup trucks



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- ▶ Vehicle and Engine Enforcement Branch, Air Enforcement Division, OCE, OECA, EPA
- ▶ February 27, 2024

BACKGROUND

Acronyms

- ▶ OTAQ: EPA's Office of Transportation and Air Quality, certifies vehicles and engines
- ▶ OECA: EPA's Office of Enforcement and Compliance Assurance
- ▶ CARB: the California Air Resources Board, certifies vehicles and engines with OTAQ, a coplaintiff in this case
- ▶ CAA: the federal Clean Air Act
- ▶ AECD: auxiliary emission control device, hardware or software that vehicles use to operate emission controls
- ▶ MY: model year

Recent Body of OEM Cases

- ▶ The recent body of cases v. “Original Equipment Manufacturers”
 - ▶ 2016-17: Volkswagen
 - ▶ 2019: FCA
 - ▶ 2021: Daimler/Mercedes Benz
- ▶ Auto makers used vehicle software to cheat on EPA certification tests
- ▶ Since VW, OTAQ and CARB employ “special cycle testing”
- ▶ (Distinct from aftermarket tampering/defeat device cases)



CAA Civil Prohibitions at Issue

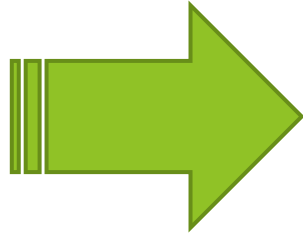
- ▶ Failure to disclose software functions (AECs) that change emissions => Sale of uncertified vehicles: 203(a)(1)
- ▶ Tampering with emission controls: 203(a)(3)(A)
- ▶ Manufacture, sale, and installation of defeat devices: 203(a)(3)(B)

What is a Defeat Device?

- ▶ Generally, any part or component that defeats any element of design of a vehicle or engine installed to comply with the Clean Air Act.
- ▶ In this case, the alleged defeat devices were various software components.
- ▶ Specifically in the context of certifying motor vehicles, a defeat device is a vehicle design feature “that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use...”
- ▶ EPA may allow such features to be included in a vehicle, but only if:
 - ▶ (1) such conditions are substantially included in the Federal emission test procedure;
 - ▶ (2) the need for the feature is justified in terms of protecting the vehicle against damage or accident;
 - ▶ (3) the feature does not go beyond the requirements of engine starting; or
 - ▶ (4) the software is justified for use in emergency vehicles.”

What Is This Case About? (And who?)

- ▶ Certain RAM 2500 and 3500 pickup trucks
- ▶ That are powered by Cummins diesel engines
- ▶ MY13-23, totaling approximately a million vehicles
- ▶ All had undisclosed software functions, some had defeat devices
- ▶ Cummins is the “vehicle manufacturer” under the CAA

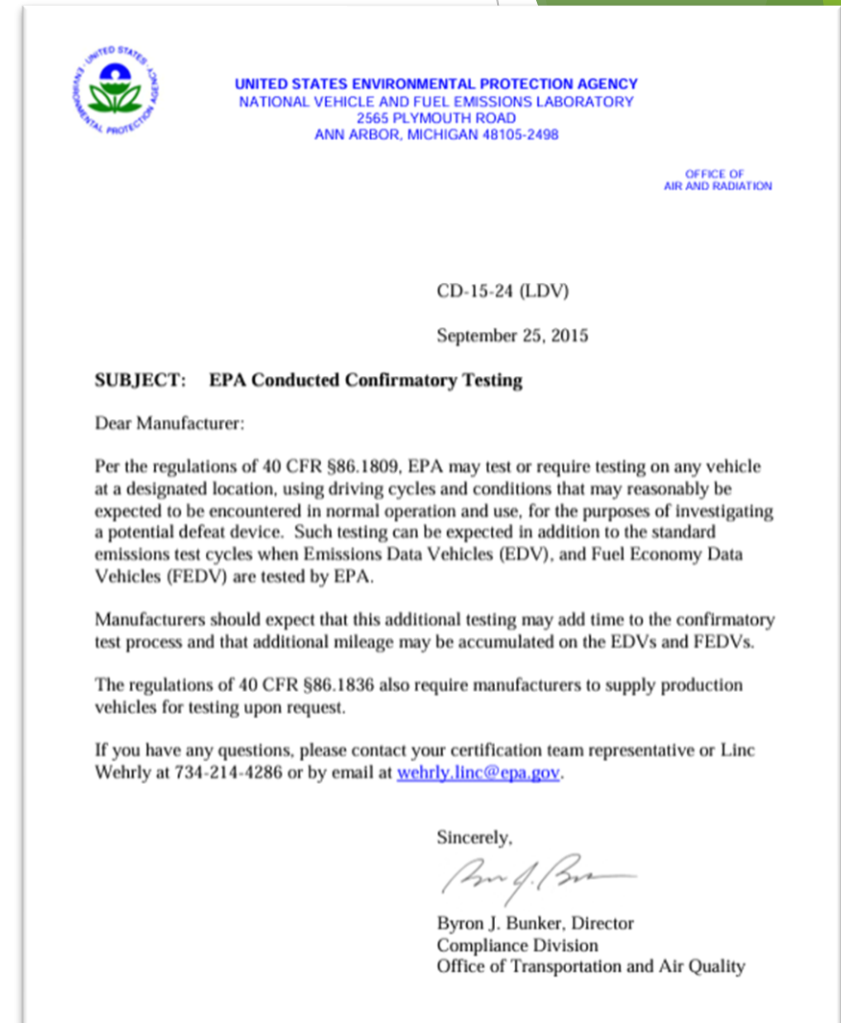


INVESTIGATION

“Special Cycle Testing”:

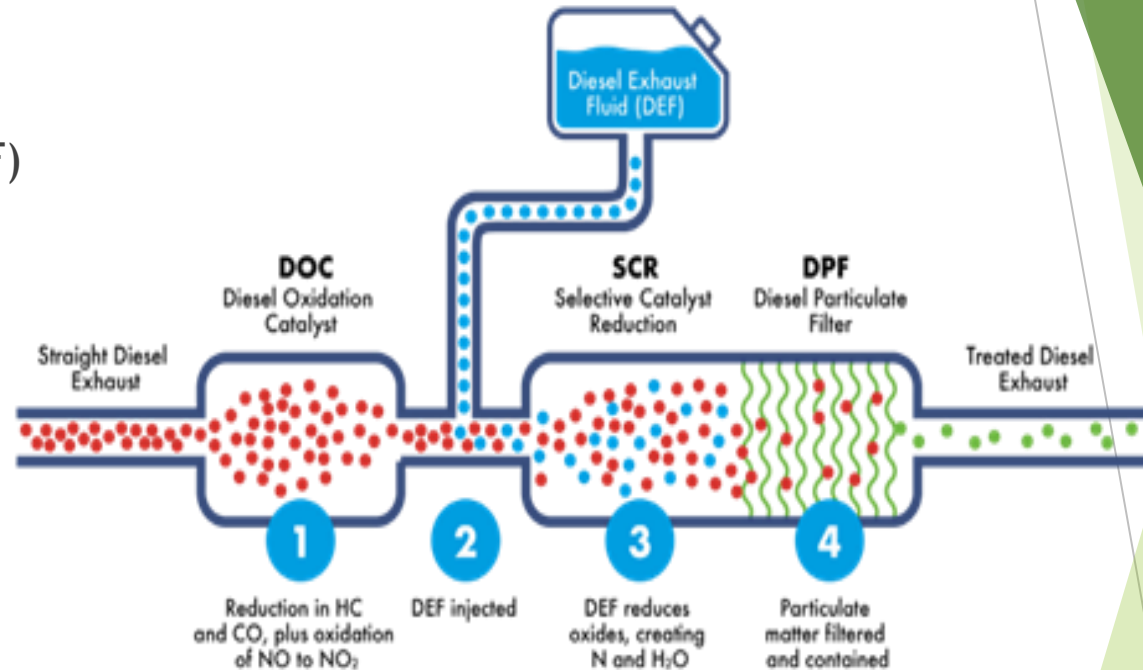
How the agencies discovered the problem

- ▶ Since 2015, EPA and CARB have conducted testing of vehicles during certification using different test cycles designed to evaluate emissions beyond the regulatory test cycles
- ▶ There is no emission standard for these tests, but they can identify the need to ask questions
- ▶ Special cycle testing of the Cummins Model Year 2019 Rams raised questions that uncovered defeat devices in those vehicles
- ▶ Additional questions eventually revealed a defeat device in MY13-18 vehicles as well
- ▶ Late in the investigation, Cummins disclosed an additional AECD that had remained undisclosed into MY23



What was the problem?

- ▶ A number of AECs in the MY19s and one in the MY13-18s were designed to conserve diesel exhaust fluid (DEF) in certain conditions
- ▶ DEF is a necessary component of the reaction that happens in the selective catalytic reduction system (SCR) to address emissions of NO_x
- ▶ NO_x is a criteria pollutant with important health impacts
- ▶ We allege that these AECs are illegal defeat devices. The recalls will correct them.
- ▶ (Also other AECs were undisclosed)



A-to-B PEMS Testing:

How we established the scale of the problem

- ▶ EPA's standards are defined by the regulatory test cycles.
- ▶ So what do we compare emission to in order to measure "excess" emissions off cycle?
- ▶ PEMS: Portable emission monitoring system; measure tailpipe emissions while driving on open roads
- ▶ Cummins's third-party consultant tested vehicles on agreed PEMS routes using both the violative software ("A") and the software fix ("B")
- ▶ That emissions data was then modeled to estimate the difference in lifetime emissions from both calibrations, accounting for the estimated recall implementation.



SETTLEMENT

Settlement Components

- ▶ **Vehicle Recall**
- ▶ **Compliance Assurance**
- ▶ **Mitigation**
- ▶ **Civil Environmental Penalty**

- ▶ *Total expense: approx. \$2 billion*

Vehicle Recall

- ▶ The two recalls (MY19 and MY13-18) are both software updates; no hardware changes are involved.
- ▶ The MY19 recall was implemented in the middle of the model year and has been largely completed.
- ▶ The MY13-18 recall was started in December 2023.
- ▶ Within 3 years of the settlement, Cummins must recall at least 85% of the vehicles. If they do not, they will face additional penalties and mitigation.
- ▶ The recall will remain available to consumers indefinitely.

What Vehicles Will Be Recalled?

Model Year	Eligible for Recall	No Recall Needed
2013-2015	Cummins Ram 2500 and 3500 diesel vehicles with a two-sensor selective catalytic reduction (SCR) controller	Cummins Ram 2500 and 3500 diesel vehicles not equipped with a two-sensor selective catalytic reduction (SCR) controller
2016-18	All Cummins Ram 2500 and 3500 diesel vehicles	N/A
2019	Cummins Ram 2500 and 3500 diesel vehicles with a production date on or before October 1, 2019.	Cummins Ram 2500 and 3500 diesel vehicles with a production date after October 1, 2019.
2020-2023	N/A	All Cummins Ram 2500 and 3500 diesel vehicles

Assuring Future Compliance

▶ *Enhanced Testing*

- ▶ *Testing to verify the durability of the MY13-18 software fix*

 - ▶ *If this fails, Cummins will perform additional mitigation*

 - ▶ *(The MY19 recall was implemented before the standard in use testing)*

- ▶ *Testing future model years (MY26-28) to screen for defeat devices*

 - ▶ *Will use an innovative new special cycle designed to mimic the PEMS testing route*

- ▶ ***Corporate Compliance:*** enforceable measures to prevent future violations.

Mitigation

Federal Mitigation	CA Mitigation
<ul style="list-style-type: none">• A cost-effective nationwide program to mitigate past and future air pollution from the vehicles with alleged defeat devices• Will fully mitigate the excess emissions from vehicles <u>outside</u> CA• Repowering 27 locomotives and installing idle reduction technology on 50 locomotives• If Cummins fails to recall at least 15% of vehicles or if they fail the durability testing, they will perform additional mitigation	<ul style="list-style-type: none">• As a co-plaintiff in the case, CARB opted to address excess emissions within CA distinctly from the rest of the US• CA has addressed low hanging fruit within the state and so tons of NOx are more expensive to mitigate in CA• Cummins will pay \$175 million to CA's environmental mitigation fund

Civil Environmental Penalty: \$1.675 billion

- ▶ **\$1.642 billion: Clean Air Act**
 - ▶ *\$1.478 billion to the US Treasury*
 - ▶ *\$164 million to CARB*
- ▶ **\$33 million: CA State Law claims by CA Attorney General**

Additional Information

- ▶ Case Information

Page: <https://www.epa.gov/enforcement/2024-cummins-inc-vehicle-emission-control-violations-settlement>

- ▶ EPA Press

Release: <https://www.epa.gov/newsreleases/united-states-and-california-announce-diesel-engine-manufacturer-cummins-inc-agrees>

- ▶ CARB Information:

<https://ww2.arb.ca.gov/news/california-attorney-general-bonta-and-carb-announce-372-million-settlement-engine-manufacturer>

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