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Overview and “Hot Topics” — Nonroad Engine Regulation in the United States

Justin A. Savage
Simone Jones
Allison H. In
Samina M. Bharmal
Aaron L. Flyer

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Introduction

Agenda

- **Overview of Nonroad Engines U.S. Regulation**
  - Regulators and Preemption
  - Civil and Criminal Enforcement
  - Nonroad Engines Generally
  - Nonroad Engine Emission Standards
  - In-use Testing, Warranty, and Defect Reporting Requirements
  - Regulatory Filing Requirements
- **“Hot Topics”**
  - *Kohler*
  - *Hyundai Construction*
  - *FPT Powertrain Technologies*
  - *Honda*
- **Hypotheticals**
- **Conclusion**

Overview of Nonroad Engines U.S. Regulation

REGULATORS AND PREEMPTION

Federal Regulators

U.S. Environmental Protection Agency (EPA)

- Sets engine emission limits
  - Engines must be covered by Certificate of Conformity (CoC)
- Mobile source cases historically lower priority
  - Notable shift starting in 2013 with *Hyundai-Kia* fuel economy case
  - Shift accelerated with 2015 *Volkswagen* case
- Continued, heightened interest in the auto sector

U.S. Department of Justice (DOJ)

- Environmental Enforcement Section
  - Coordinates with EPA to take lead federal role in civil enforcement
    - Priorities tethered in that regard
  - Interest in nonroad engines
    - *MTU America Inc.* (2015)

U.S. Securities and Exchange Commission (SEC)

- Division of Enforcement
  - Coordinates with EPA/DOJ but usually does not take lead role
  - Interest in inadequate disclosures to shareholders re: alleged regulatory violations

EPA National Compliance Initiative

National Compliance Initiative: Stopping Aftermarket Defeat Devices for Vehicles and Engines

This is a new NCI for FY 2020-2023.

Problem

Mobile sources are a significant contributor to air pollution. The EPA, through its direct implementation authority, can play a critical role in addressing these important pollutant sources. Title II of the Clean Air Act (CAA) authorizes the EPA to set standards applicable to emissions from a variety of vehicles and engines. Required emission controls often include filters and catalysts installed in the vehicle's or engine's exhaust system, as well as calibrations that manage fueling strategy and other operations in the engine itself. The CAA prohibits tampering with emissions controls, as well as manufacturing, selling, and installing aftermarket devices intended to defeat those controls. The EPA has found numerous companies and individuals that have manufactured and sold both hardware and software specifically designed to defeat required emissions controls on vehicles and engines used on public roads as well as on nonroad vehicles and engines. Illegally-modified vehicles and engines contribute substantial excess pollution that harms public health and impedes efforts by the EPA, tribes, states, and local agencies to plan for and attain air quality standards.

Goal

This NCI will focus on stopping the manufacture, sale, and installation of defeat devices on vehicles and engines used on public roads as well as on nonroad vehicles and engines.

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Federal Authority

- Title II of the Clean Air Act (CAA), U.S.C. 7521 *et seq*.
  - Regulates “mobile” sources of emissions
  - Unlawful to introduce into commerce engines not covered by a CoC
    - Manufacturer does not apply for CoC
    - Engine covered by CoC does not conform in all material respects to CoC design specifications
  - Notice of emissions-related defects, labeling, warranties, recalls
  - Defeat devices unlawful

EPA Highlights Enforcement Actions Against Those Who Violate the Defeat Device and Tampering Prohibitions under the Clean Air Act

04/30/2020

Contact Information:
(press@epa.gov)

WASHINGTON (April 30, 2020) — The U.S. Environmental Protection Agency (EPA) has identified numerous companies and individuals who have manufactured and sold both hardware and software specifically designed to defeat required emissions controls on vehicles and engines used on public roads as well as on nonroad vehicles and engines.

Nonroad Preemption and Waiver/Authorization Process

- State and local emissions standards expressly preempted for new nonroad engines used in ***construction or farm equipment under 175hp*** in Section 209(e)(1)(A), 42 U.S.C. 7543(e)(1)(A).
- State and local emissions standards impliedly preempted for new *and used* nonroad engines not addressed in Section 209(e)(1). *Engine Manufacturers Ass'n v. EPA,* 88 F.3d 1075 (D.C. Cir. 1996) (preemption reaches used nonroad engines under Section 209(e)(2)).
  - CAA allows California to seek EPA waiver for "compelling and extraordinary conditions"
  - EPA deferential to California
  - Section 209(e)(2), 42 U.S.C. 7543(e)(2)
- Opt-in Process
  - Other states may opt into California standards, provided certain conditions met (e.g., opt-in standard is "identical" to California Air Resources Board (CARB) standard)
  - No prior approval from EPA required
  - Section 209(e)(2)(B), 42 U.S.C. 7543(e)(2)(B)

California Regulators

- California Air Resources Board
  - Granted authority by Congress to adopt mobile source emission standards
    - Must be at least as stringent as federal standards
  - Enforcement Division
    - Civil, administrative, criminal actions

- California Attorney General
  - Referred matters by CARB
    - Civil litigation where parties are unable to reach settlement
    - Alleged criminal violations
      - District attorney, other prosecutors

Federal and State Dynamics

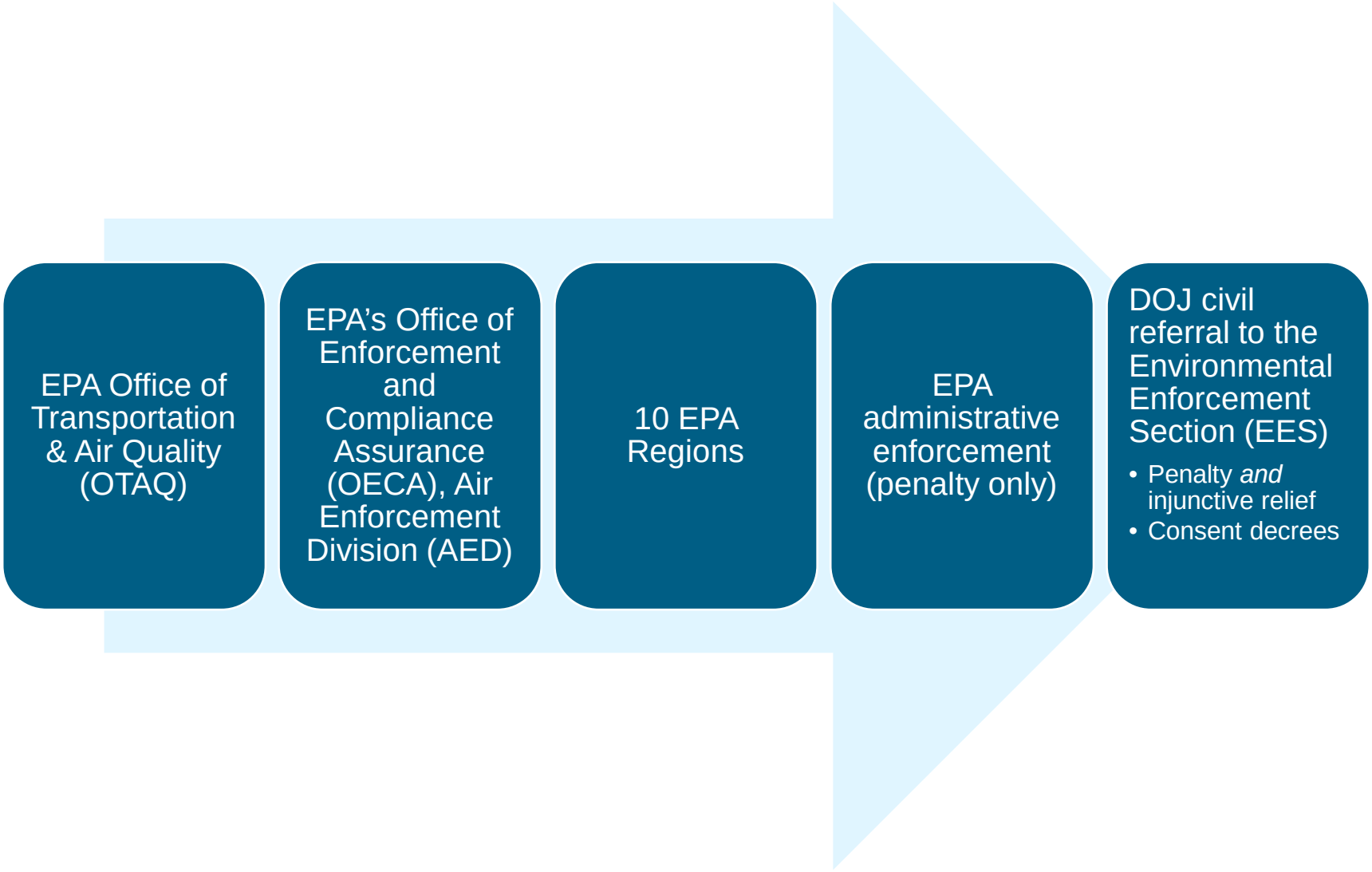
- Increased EPA-CARB Cooperation
  - E.g., *Kohler s*ettlement

- Potential Conflict Between the Administration and California
  - E.g., Safer Affordable Fuel-Efficient Vehicles rulemaking and litigation

- California's Nonroad Guidance
  - Be aware of California's additional requirements
  - E.g., CARB July 13, 2020, mail-out reminder for compliance with small off-road engines (SORE) and large spark-ignition (LSI) engine requirements for certification and labeling

CIVIL AND CRIMINAL ENFORCEMENT

Gates of Federal Civil Enforcement



Federal Civil Injunctive Relief

- Recalls
- Mitigation projects
- Compliance enhancements
- Correction of past filings, *e.g.*, ABT reports

Federal Civil Penalties

Statutory maximum of US$48,129 per engine	• Never awarded
Key penalty factors	• Economic benefit • Gravity of the violation
EPA's Mobile Source Penalty Policy	• Guidance for calculating penalties • Still results in astronomical penalties — typical settlement much lower

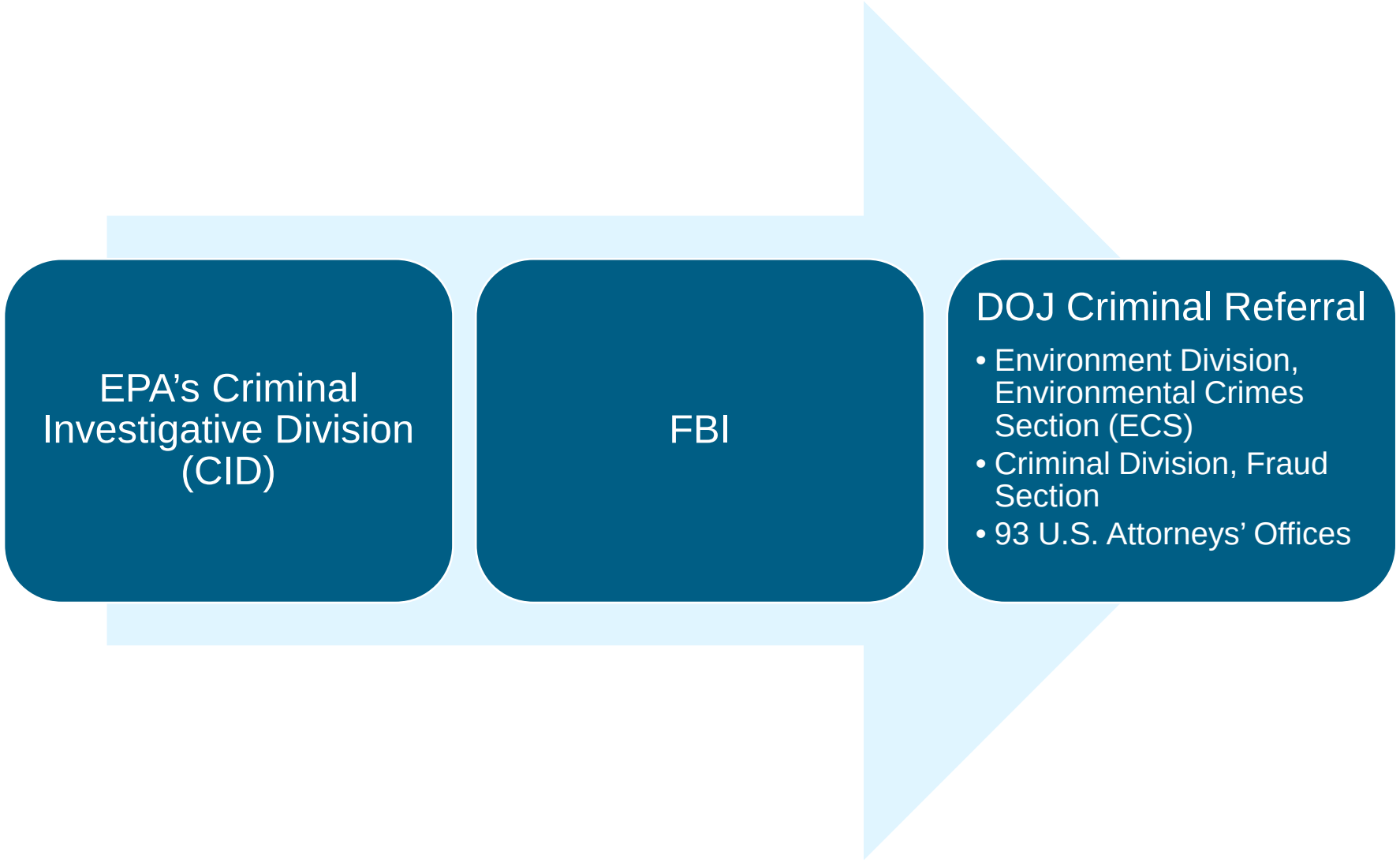
Federal Civil Penalties (cont'd)

- Why are cases settling for less than the penalty policy? Several factors …
- Litigation risk for the government
- Ability-to-pay – not supposed to financially hobble a company
- "Settlement precedent" – how have similar cases settled such that there's a "level playing field" with competitors?
- Injunctive relief agreed upon an "unofficial" factor?

Federal Civil Penalties: Recent Nonroad Cases

Settlement	Penalty	Engines Sold	Per Engine Penalty
MTU America Inc. (2015)	US$1.2M	895	US$1,340.78
Husqvarna AB (2017)	US$2.85M	1,235* *Also included several other engine families	US$2,307.69
Bandit Industries, Inc. (2017)	US$3M* *Ability-to-pay	2,552	US$1,174.55
Hyundai Construction Equipment (2019)	US$47M	2,269	US$20,713.97
Kohler Co. (2020)	US$20M	“millions” across ~200 engine families plus 144,000 associated with defeat device allegations	~US$10 (assuming two million engines sold)

Gates of Federal Criminal Enforcement



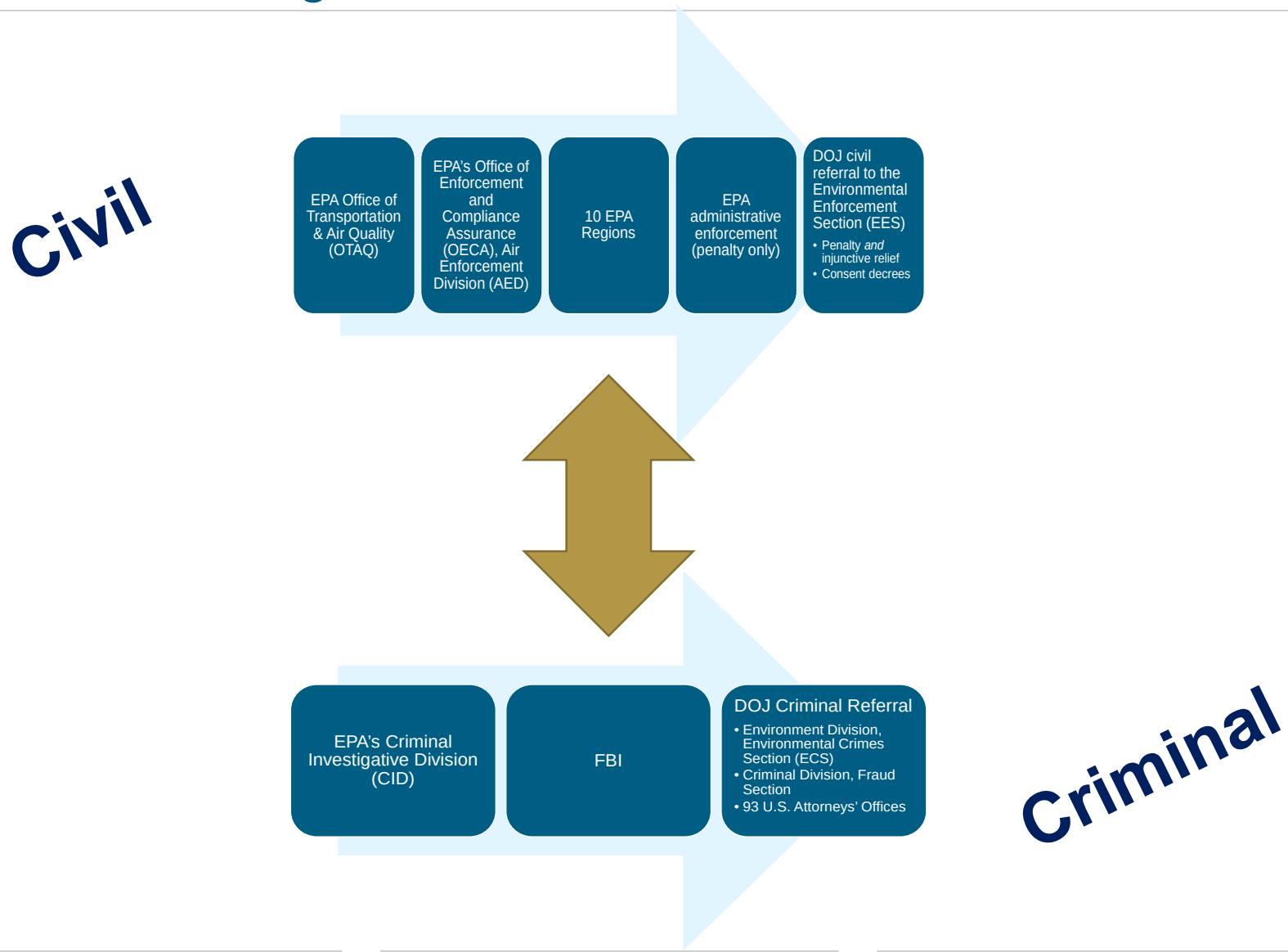
Federal Criminal Enforcement

- The Industry Lore: Mobile Source Enforcement Is Only Civil, Not Criminal
  - Representative John Dingell's role in the 1990 Clean Air Act amendments
  - Omission of Title II from "knowing" criminal violations in Section 113(c)(1), 42 U.S.C. § 7413(c)(1)
  - Technical issues and complex regulations
- Then Volkswagen Happened
- Since Then, Title 18 Charging Theories Seen in Several Mobile Source Cases Include:
  - Conspiracy to defraud the United States and/or to commit an offense against the United States, 18 U.S.C. § 371
  - Wire fraud, 18 U.S.C. § 1343
  - False statements, 18 U.S.C. § 1001

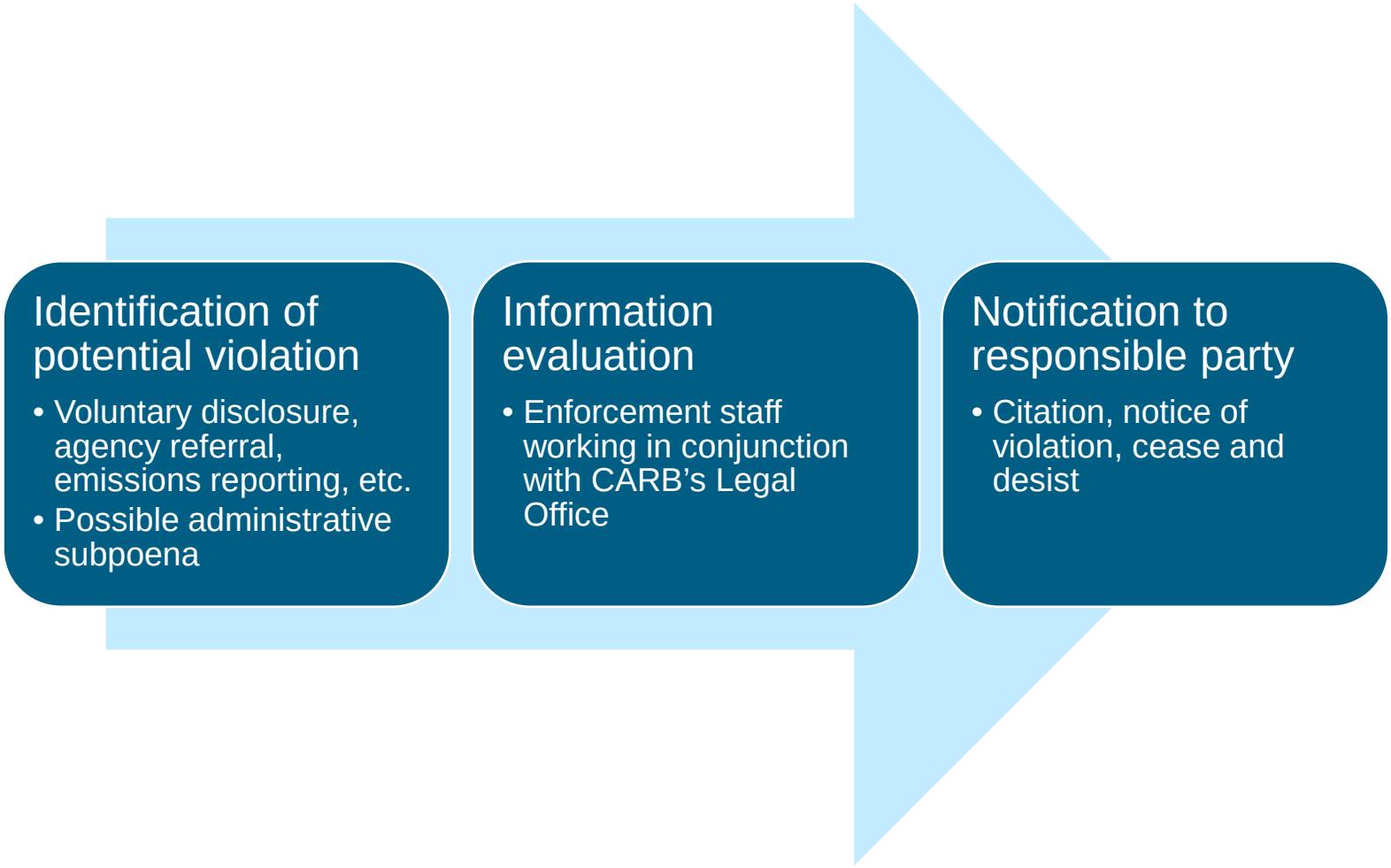
Federal Criminal Enforcement (cont'd)

- Clean Air Act Charges Include:
  - False statements for submissions under the Clean Air Act, Section 113(c)(2)(A)
  - Negligent release of hazardous air pollutants, Section 113(c)(4)
  - Above charges pled in *Hyundai Construction Equipment*
  - Also, charging on-board diagnostic (OBD) disablement as tampering with a monitoring device under 113(c)(2)(C) of the Act
- No Published Decisions — All Pleas So Far
- Motions to Dismiss Indictments Filed by Defendants in Two Federal District Courts
- Several More Indictments and Pleas to Come in Mobile Source Enforcement

Parallel Proceedings



California Enforcement Authority



California Health and Safety Code (HSC), Division 26, Part 5; Titles 13 and 17 of California Code of Regulations; CARB Enforcement Policy updated April 2020

California Civil Penalties

- Remove economic benefit obtained through noncompliance and industry deterrence
- Maximum penalties established by statute, general considerations in context of factors
  - General considerations: deterrence, investigation costs and litigation risk, voluntary disclosure
  - Statutory factors, HSC §§ 43024, 43031
    - Nature and persistence of violation, including magnitude of excess emissions
    - Extent of harm to public health, safety, and welfare caused by the violation
    - Compliance history of defendant, including frequency of past violations
    - Preventative efforts taken by defendant, including record of maintenance and any program to ensure compliance
    - Innovative nature and magnitude of effort required to comply, and the accuracy, reproducibility, and repeatability of available test methods
    - Efforts of defendant to attain, or provide for, compliance prior to violation
    - Cooperation of defendant during course of investigation and any action taken by defendant, including the nature, extent, and time of response of any action taken to mitigate violation
    - Financial burden to defendant

NONROAD ENGINES GENERALLY

Definition

- AKA: Nonroad, Offroad, Off-highway
- 40 CFR 1068.30 and CAA Section 216(11)
  - EPA defines nonroad engines subject to its emission standards mostly based on mobility (i.e., self-propelled) and use for competition
    - E.g., a *non-stationary* engine that is used solely for off-highway competition does not meet the definition of nonroad engine and thus is *excluded* from the requirements
  - California's definition for off-road engines — 13 CCR Chapter 9
    - Any non-stationary device, powered by an internal combustion engine or motor, used primarily off the highways to propel, move, or draw persons or property including any device propelled, moved, or drawn exclusively by human power, and used in, but not limited to, any of the following applications: Marine Vessels, Construction/Farm Equipment, Locomotives, Small Off-Road Engines, Off-Road Motorcycles, and Off-Highway Recreational Vehicles

Types

Type		Examples
Compression-ignition (CI) engines		Agricultural, construction, mining equipment — tractors, excavators, dozers, scrapers, portable generators, irrigation pumps
Small spark-ignition (SI) engines		Lawn and garden equipment, personal water craft
Large SI engines (> 19kW)		Forklifts, generators, compressors
Characteristics and Challenges from Regulatory Perspective • Low volume applications in highly diversified markets • Wide power ranges with a variety of different test cycles • Severe space, weight, and handling constraints, especially in lower power categories • Technical difficulty for transferring on-highway technology to nonroad applications		
Special Cases	Land-based recreational vehicles	Snowmobiles, all-terrain vehicles
	Commercial marine	Container ships, bulk carriers
	Locomotive and railcar	Passenger rail, line-haul
	Aircraft	Passenger aircraft, cargo aircraft

Certification and Delegated Assembly

- Certification
  - EPA's Certificate of Conformity vs. CARB's Executive Orders
  - Required to demonstrate nonroad engines meet emissions standards for particular pollutants (during prescribed test cycles)
- Delegated Assembly
  - Engine generally in certified configuration only when specific aftertreatment devices (ATDs) relied on to pass certification tests are installed on the engines (*see* 40 CFR § 1068.261)
  - EPA "generally" requires engines and ATDs to be assembled at the time of shipment

Delegated Assembly Exemption

- Delegated assembly provisions provide "an exemption that allows certificate holders to sell or ship engines that are missing certain emission-related components if those components will be installed by an equipment manufacturer" (40 CFR § 1068.261)
  - *But see* 40 CFR § 1068.260(a)(1) ("You do not need an exemption to ship an engine that does not include installation or assembly of certain emission-related components, if those components are shipped along with the engine. For example, you may generally ship aftertreatment devices along with engines rather than installing them on the engine before shipment.")
  - Rules contain detailed requirements, including the need to seek U.S. EPA's approval prior to shipping engines and ATDs
  - Specific provisions for engines shipped without air filters or other portions of the air intake systems

Delegated Assembly Exemption (cont.)

- Conditions on exemption include (but are not limited to):
  - Maintain a database showing how aftertreatment components are paired with the appropriate engine during final assembly
  - Provide detailed aftertreatment installation instructions to final equipment manufacturer
  - Have a contractual relationship with the equipment manufacturer obligating it to complete final assembly in certified condition
  - Obtain affidavits from equipment manufacturer that final assembly was completed in certified condition

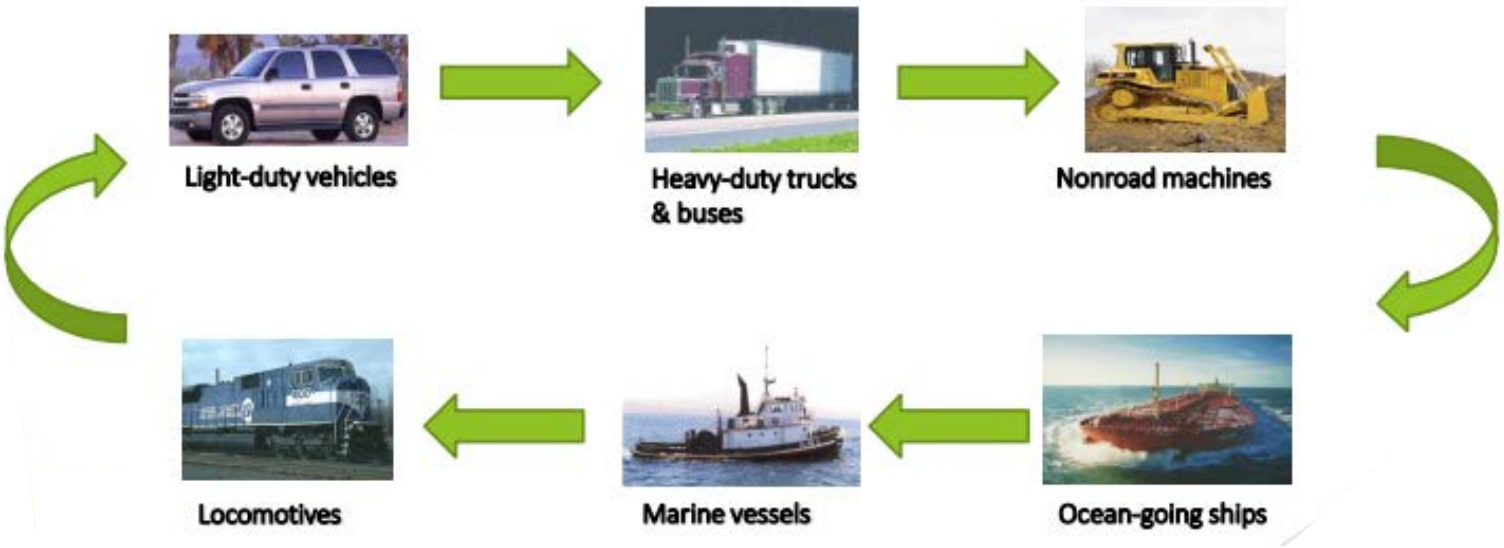
Regulations

- Similarities and Differences with Regulations for Onroad Engines
  - Notable omissions: on-board diagnostic (OBD) and mandatory manufacturer in-use testing (except for large SI)
    - *See* 40 CFR 1048.110 — requires diagnostic system in **large SI engines** equipped with three-way catalysts and closed-loop control of air-fuel ratios
    - *See* 40 CFR 1039.110 — requires monitoring of reductant quality and tank levels for **CI engines** equipped with SCR system using a reductant other than the engine's fuel
  - Still subject to the testing equipment and procedures for on-highway diesel engines, codified at 40 CFR Part 1065 (*see, e.g.,* 40 CFR 1039.501)
- Improper testing (e.g., wrong test speed) is a continuing compliance issue in the industry, in the regulators' view
  - Regulators may perform confirmatory in-use testing

NONROAD ENGINE EMISSION STANDARDS

Exhaust Emission Standards

- Pollutants
- Tiers and criteria
- Test cycles
  - Similarities and differences with onroad cycles
- Overlap/coordination with EU



https://www.epa.gov/sites/production/files/2019-05/documents/tampering-aftermarket-defeat-devices-2019-mcdi-mtg-33pp.pdf

Exhaust Emission Standards: Pollutants

- NOx — oxides of nitrogen
- PM — particulate matter
- HC — hydrocarbon
- CO — carbon monoxide
- No CO_2/GHG (if Biden wins?)
  - **BUT** CARB's reporting requirements for CO_2

CI Engine Emission Standards

- Codified at CFR, Title 40, Parts 89 and 1039
- Cover nonroad CI (i.e., diesel) engines of all sizes
  - Tier 1-3 Standards
  - Tier 4 Standards (Part 1039)

Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)
kW < 8	1	2000-2004	-	10.5	-	1.0	8.0
	2	2005-2007	-	7.5	-	0.80	8.0
	4	2008+	-	7.5	-	0.40 [e]	8.0
8 ≤ kW < 19	1	2000-2004	-	9.5	-	0.80	6.6
	2	2005-2007	-	7.5	-	0.80	6.6
	4	2008+	-	7.5	-	0.40	6.6
19 ≤ kW < 37	1	1999-2003	-	9.5	-	0.80	5.5
	2	2004-2007	-	7.5	-	0.60	5.5
	4	2008-2012	-	7.5	-	0.30	5.5
		2013+	-	4.7	-	0.03	5.5
37 ≤ kW < 56	1	1998-2003	-	-	9.2	-	-
	2	2004-2007	-	7.5	-	0.40	5.0
	3 [f]	2008-2011	-	4.7	-	0.40	5.0
	4 (Option 1) [g]	2008-2012	-	4.7	-	0.30	5.0
	4 (Option 2) [g]	2012	-	4.7	-	0.03	5.0
	4	2013+	-	4.7	-	0.03	5.0

Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)
56 ≤ kW < 75	1	1998-2003	-	-	9.2	-	-
	2	2004-2007	-	7.5	-	0.40	5.0
	3	2008-2011	-	4.7	-	0.40	5.0
	4	2012-2013 [h]	-	4.7	-	0.02	5.0
		2014+ [i]	0.19	-	0.40	0.02	5.0
75 ≤ kW < 130	1	1997-2002	-	-	9.2	-	-
	2	2003-2006	-	6.6	-	0.30	5.0
	3	2007-2011	-	4.0	-	0.30	5.0
	4	2012-2013 [h]	-	4.0	-	0.02	5.0
		2014+	0.19	-	0.40	0.02	5.0
130 ≤ kW < 225	1	1996-2002	1.3 [j]	-	9.2	0.54	11.4
	2	2003-2005	-	6.6	-	0.20	3.5
	3	2006-2010	-	4.0	-	0.20	3.5
	4	2011-2013 [h]	-	4.0	-	0.02	3.5
		2014+ [i]	0.19	-	0.40	0.02	3.5

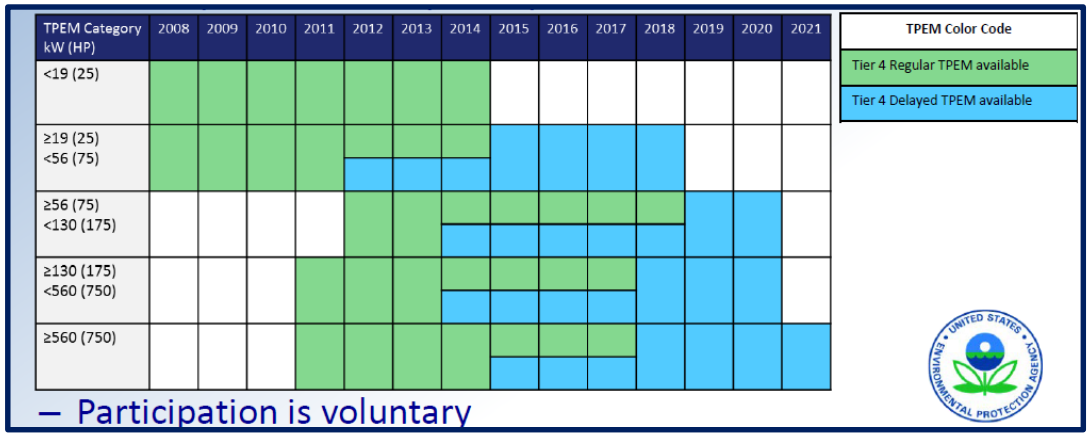
Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr	NOx (g/kW-hr	PM (g/kW-hr	CO (g/kW-hr)
225 ≤ kW < 450	1	1996-2000	1.3 [j]	-	9.2	0.54	11.4
	2	2001-2005	-	6.4	-	0.20	3.5
	3	2006-2010	-	4.0	-	0.20	3.5
	4	2011-2013 [h]	-	4.0	-	0.02	3.5
		2014+ [i]	0.19	-	0.40	0.02	3.5
450 ≤ kW < 560	1	1996-2001	1.3 [j]	-	9.2	0.54	11.4
	2	2002-2005	-	6.4	-	0.20	3.5
	3	2006-2010	-	4.0	-	0.20	3.5
	4	2011-2013 [h]	-	4.0	-	0.02	3.5
		2014+ [i]	0.19	-	0.40	0.02	3.5
560 ≤ kW < 900	1	2000-2005	1.3 [j]	-	9.2	0.54	11.4
	2	2006-2010	-	6.4	-	0.20	3.5
	4	2011-2014	0.40	-	3.5	0.10	3.5
		2015+ [i]	0.19	-	3.5 [k]	0.04 [l]	3.5
kW > 900	1	2000-2005	1.3 [j]	-	9.2	0.54	11.4
	2	2006-2010	-	6.4	-	0.20	3.5
	4	2011-2014	0.40	-	3.5 [k]	0.10	3.5
		2015+ [i]	0.19	-	3.5 [k]	0.04 [l]	3.5

EPA, Nonroad Compression-Ignition Engines: Exhaust Emission Standards, EPA-420-B-16-022 (Mar. 2016)

CI Tier 4 Engine Emission Standards

- Tier 4 recognizes new after-treatment (AT) system technology
  - Selective Catalytic Reduction (SCR) for NOx
  - Diesel Particulate Filter (DPF) for PM
    - Exhaust Gas Recirculation (EGR)
  - Diesel Oxidation Catalyst (DOC) for HC/CO/PM

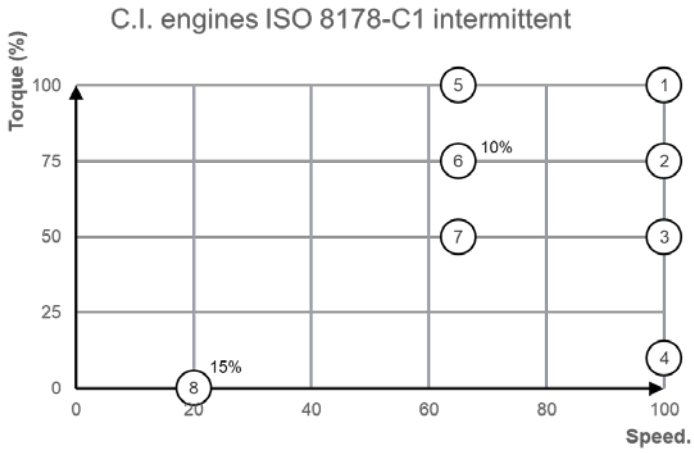
- Tier 4 Transition Program for Equipment Manufacturers (TPEM), aka flexibility program, codified at 40 CFR 1039.625-1039.626
  - Provides temporary exemption
  - Importers?
  - Voluntary participation

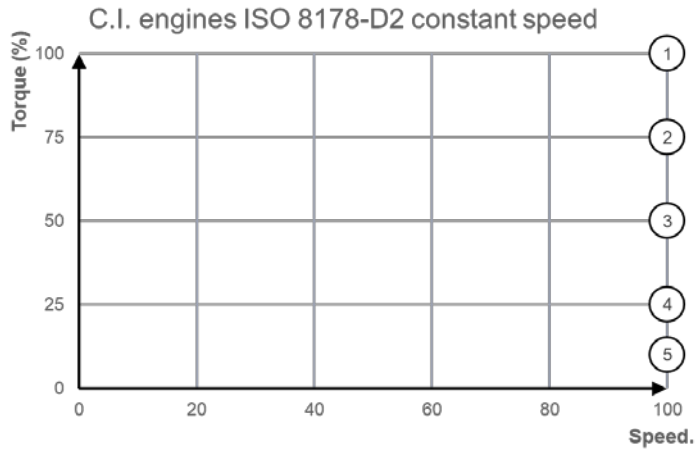


https://www.epa.gov/sites/production/files/2018-02/documents/02-update-tier-4-nonroad-diesel-engines-2017-12-06.pdf

CI Tier 4 Test Cycles

- CI engines tested over both steady-state and transient test cycles on an engine dynamometer for certification
  - Nonroad Steady-State Cycle (NRSC)
    - Engines operating with a constant speed or variable speeds below 19kW excluded
  - Nonroad Transient Cycle (NRTC)
    - Engines above 560kW and constant speed, variable-load engines exempted (from testing on NRTC)
    - Protocol consists of cold start and hot start, emissions from which are weighted at 5% and 95%, respectively





CI Tier 4 Test Cycles (cont'd)

- Not-To-Exceed (NTE) Requirements
  - NTE zone defined by torque curve (i.e., maximum torque at a given engine speed), 100% engine rated speed, 15% engine speed, 30% power line, and 30% torque line
  - Peak emissions within NTE zone should *not exceed* emission standard limits times a certain multiplier, prescribed for each pollutant
  - Purpose was to prevent possibility of "defeating" test cycles or required emissions controls
  - Applies to certification *as well as* in-use testing

Small SI Engine Emission Standards

- Defined:
  - Small SI engines — Power rating is ≤ 19kW
  - Non-handheld (Class I-II) and handheld (Class III-V)
- Exhaust Emission Standards

Current Exhaust Standards (g/kW-hr)

Engine Class	$HC+NO_x$	CO*	Alternate CO (on CARB LEVIII fuel)
Class I	10.0	610	549
Class II	8.0	610	549
Class III	50	805	536
Class IV	50	805	536
Class V	72	603	536

* CO standard for Auxiliary Marine Generator engines is 5.0 g/kW-hr

9

- CARB's small off-road engine (SORE)
  - Based on engine displacement

Small SI Engine Test Cycles

- 40 CFR 1054.501-1054.520 and Appendix II to Part 1054
  - Handheld: steady-state with discrete-mode

G3 mode No.	Engine speed [a]	Torque (percent) [b]	Weighting factors
1	Rated speed	100	0.85
2	Warm idle	0	0.15

  - Non-handheld: discrete-mode or ramped-modal

G2 mode No. [a]	Torque (percent) [b]	Weighting factors
1	100	0.09
2	75	0.2
3	50	0.29
4	25	0.3
5	10	0.07
6	0	0.05

RMC mode [a]	Time in mode (seconds)	Torque (percent) [b, c]
1a Steady-state	41	0
1b Transition	20	*
2a Steady-state	135	100
2b Transition	20	*
3a Steady-state	112	10
3b Transition	20	*
4a Steady-state	337	75
4b Transition	20	*
5a Steady-state	518	25
5b Transition	20	*
6a Steady-state	494	50
6b Transition	20	*
7 Steady-state	43	0

Large SI Engine Emission Standards

- Defined: > 19kW
- Exhaust Emission Standards

	Tier	Year	General Duty-Cycle Standards		Alternative Standards for Severe-Duty Engines		Field Testing Standards		Useful Life (years / hours)	Warranty Period
			HC+NOx [a] (g/kW-hr)	CO (g/kW-hr)	HC+NOx [a] (g/kW-hr)	CO (g/kW-hr)	HC+NOx [a] (g/kW-hr)	CO (g/kW-hr)		
Federal [b]	1 [c]	2004 - 2006	4.0 [d]	50.0	4.0 [d]	130.0	-	-	7 / 5,000 [e]	3 / 2,500 [f]
	2 [g]	2007+	2.7 [g]	4.4 [g]	2.7	130.0	3.8 [g]	6.5 [g]	7 / 5,000 [e]	3 / 2,500 [f]
			Evaporative Emission Standards (for engines fueled by a volatile liqued fuel)							
			Fuel line permeation	Nonmetallic fuel lines must meet the permeation specifications of SAE J2260 (November 1996)					5 / -	
			Diurnal emissions	Evaporative HC emissions may not exceed 0.2 grams per gallon of fuel tank capacity						
			Running Loss	Liquid fuel in the fuel tank may not reach boiling during continuous engine operation in the final installation at an ambient temperature of 30°C						

EPA Office of Transportation and Air Quality, Nonroad Compression-Ignition Engines: Exhaust Emission Standards, EPA-420-B-16-023 (Mar. 2016)

  - California's large SI (LSI) program
- Test Procedure — 40 CFR 1048.501-1048.515
  - Steady-state: between discrete-mode and ramped-modal
  - Different duty cycles for different applications (variable-speed versus high-load)

Emission Standards: EU

- Harmonized to a certain degree with U.S. nonroad engine emission standards
- Classify a broader category of nonroad mobile machinery (NRMM)
  - NRMM defined as “any mobile machine, transportable industrial equipment or vehicle with or without body work, not intended for the use of passenger- or goods-transport on the road, in which an internal combustion engine is installed” (E.C. 1997)
- Divided into stages (not tiers): Stage I, Stage II, Stage IIIA, Stage IIIB, Stage IV, Stage V
- Regulates ammonia emissions beginning with Stage IIIB standards

EU CI Engine Emission Standards: Example

Engine Rating (hp)	U.S. (Tier 4)	EU (Stage V)*
Pollutants (g/kWh)	CO/HC/NOx (HC+NOx)/PM	
P < 11	8.0/(7.5)/0.4	8.0/(7.5)/0.4
11 ≤ P < 25	6.6/(7.5)/0.4	6.6/(7.5)/0.4
25 ≤ P < 50	5.5/(4.7)/0.03	5.0/(4.7)/0.015
50 ≤ P < 75	5.0/(4.7)/0.03	
75 ≤ P < 100	5.0/0.19/0.4/0.02	5.0/0.19/0.4/0.015
100 ≤ P < 175		
175 ≤ P < 300	3.5/0.19/0.4/0.02	3.5/0.19/0.4/0.015
300 ≤ P < 600		
600 ≤ P < 750		
P ≥ 750	3.5/0.19/3.5**/0.04	3.5/0.19/3.5/0.045

* The example of EU standards represent Stage V for the engines in the categories NRE

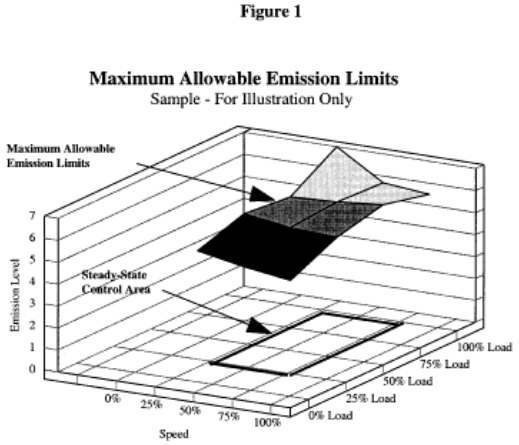
** Includes all engines except generator sets

IN-USE TESTING, WARRANTY, AND DEFECT REPORTING REQUIREMENTS

In-Use Testing

	CI Engine	Small SI (Phase 3)	Large SI
Mandatory In-Use Testing	No	No	Yes*
EPA Confirmatory Testing	EPA may perform testing of any engine		

- *May request manufacturer in-use testing of up to 25% of engine families per model year
  - Manufacturers must provide a plan to EPA within six months to test engines from a manufacturer's own fleet or from an independent source
- Guidance on Maximum Allowable Emissions Limit (MAEL) for CI engines
  - EPA's June 15, 2004, guidance establishing MAEL as a voluntary, objective screening tool
  - To assist EPA in "evaluating off-cycle emissions from base emission control strategies as they relate to the prohibition of defeat devices"
  - Mystery Points: Up to three (3) steady-state test points EPA randomly selects, which manufacturers would test to show compliance with the MAEL



Warranty Requirements

- Emissions-related warranty for all components whose failure would increase an engine's emissions

	CI Engine	Small SI (Phase 3)	Large SI
Warranty Period	Small engines — shorter of 1,500 hours or two years Large engines — shorter of 3,000 hours or five years	Two years from the point of retail sale	Evaporative emissions — at least two years Exhaust emissions — generally 50% of useful life or three years, whichever comes first
"critical emissions-related components"	Manufacturers must generally pay for scheduled maintenance during useful life		

- For small SI MY10 and later, manufacturers must maintain a repair network to ensure compliance with warranty requirements
- For large SI, high-cost warranted parts (exceeding US$400 in 1998 dollars) — 70% of useful life or five years, whichever comes first

Defect Reporting and Recalls

- All nonroad engines subject to defect reporting and recall requirements
- Manufacturers must investigate **possible** defects based on warranty claims, internal quality assurance procedures, or any other information for which "good engineering judgment" would indicate the presence of a defect
- Manufacturers must file defect reports at set thresholds

Engine Power	Annual Production	Threshold for Filing a Defect Report
≤ 560kw	Below 1,000	20 or more
	1,000-5,000	More than 2% of engine family
	50,000-550,000	1,000 + (production units – 50,000) x .01
	Above 550,000	6,000 or more
Above 560kw	Below 150	10 or more
	150-750	15 or more
	Above 750	More than 2% of the engine family

Defect Reporting and Recalls

- Defect reporting may spur ordered or voluntary recalls
- Ordered recalls
  - EPA has discretion to determine whether, based on reporting or other information, "emission-related defects result in a **substantial number** of properly maintained and used engines/equipment not conforming to the regulations during their useful life"
  - If this standard is met, EPA can order a recall, and a voluntary recall is not an option
- Voluntary recalls
  - Manufacturer can initiate a voluntary recall if it determines an engine family does not meet emission standards, and where EPA has not made the determination noted above
  - Manufacturer must first submit a recall plan for review and approval to carry out the recall
  - Follow-up reporting requirements apply

REGULATORY FILING REQUIREMENTS

Auxiliary Emissions Control Devices (AECDs)

- Definition:
  - Identical to the definition for highway vehicles and engines, codified at Part 86
  - "[A]ny element of design that senses temperature, motive speed, engine RPM, transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission-control system"
  - Any "devices that modulate or activate differently from each other" must be treated as "separate AECDs"
- Certain AECDs are NOT allowed — "Defeat Devices"

Defeat Devices Prohibition

- CAA 203(a)(3)(B) prohibits the manufacturing or selling, or offering to sell, or installing, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine where a **principal effect** of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle engine, **and** where the person **knows** or should know that such part or component is being offered for sale or is being installed for such use
  - EPA's prohibition against defeat devices applies to nonroad products, including those that are certified to California standards
    - 40 CFR 1068.101(b)(2), 1039.15(b)(1), 1054.15(c)(1), 1048.15(c)(1)
- Defeat Device is an **AECD that "reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use"**
  - 40 CFR 1054.115(e) and 1048.115(e)
  - EPA, Nonroad Mobile Source Compliance Management Program in the U.S. — The 4th SINO-US Workshop on Motor Vehicle Pollution Prevention and Control (June 10, 2014)

Defeat Device Exception

- Defeat Device Exception: An AECD that would otherwise meet the defeat device definition is **NOT** a defeat device if
  - Identified in application for certification **AND**
    - (1) substantially included in the applicable duty-cycle test procedures,
    - (2) necessary to prevent engine damage or accidents, or
    - (3) used only in starting the engine
  - Emergency operation exception for CI engines: manufacturers may also apply for approval of AECDs that could otherwise be deemed as defeat device for use in qualified emergency situations
    - 40 CFR 1039.665 (“AECDs approved under this section are not defeat devices”)

AECDs: Disclosure Requirements

- Application for certification **MUST** disclose **ALL**
- AECD disclosure requirements are designed to address agency concerns for use of defeat device
- Example: AECD disclosure requirements for CI engine (40 CFR 1039.205)
  - Each AECD general purpose and function
  - Parameters that "AECD senses (including measuring, estimating, calculating, or empirically deriving the values)," including equipment parameters
  - Parameters that "AECD modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AECD's stated purpose"
  - Specific calibration details of each AECD
  - Hierarchy among AECDs "when multiple AECDs sense or modulate the same parameter"
  - Extent to which "AECD is included in the applicable test procedures"
  - Additional descriptions required for AECDs designed to protect engines or equipment

EPA CONTINUES TO SEE ISSUES WITH INCOMPLETE OR INACCURATE AECD DISCLOSURES

Running Changes

- Engines in production
- CoC and/or CoC applications must be amended *prior to* taking certain actions
  - Changing an engine configuration already included in an engine family "in a way that may affect emissions, or any change to any of the components [the manufacturer] described in [its] application for certification," including "production and design changes that may affect emissions any time during the engine's lifetime"
  - Modifying a family emission limit for an engine family; or
  - Adding an engine configuration to an engine family
- Filing requirements found in EPA and CARB regulations and guidance
- Subject of EPA and CARB enforcement matters

Field Fixes

- Engines out of production where changes are made to the certified configuration of emission control system
- Filing requirement found in CARB regulations and guidance
- Largely CARB-only requirement
  - *But see Kohler* (allegations that unapproved "changes" were made at issue without distinguishing between field fixes and running changes)
- Failure to file may result in penalties
  - *See, e.g., Navistar* (March 2020), *Porsche* (2019), *Fiat* (2019)

“Hot Topics”

KOHLER®

U.S. v. Kohler Co., No. 20-cv-00683 (N.D. Cal.)

Case Summary

- January 30, 2020, civil settlement between Kohler Co. and U.S. DOJ/EPA/CARB entered by N.D. Cal. on April 6, 2020
  - US$20 million civil penalty
  - Retired 3,600 tons of unlawfully generated hydrocarbon and NOx emission credits
  - Compliance-related injunctive relief valued at ~US$3.7 million
- Alleged regulatory violations following sale of millions of small, nonroad, non-handheld spark-ignition engines (Small SI Engines) in 2010 to 2016, including:
  - Lawn mowers
  - Ride-on mowers
  - Commercial landscaping equipment
  - Generators
- Alleged violations under CAA (and analogous CA Health and Safety Code):
  - 203(a)(1) — selling engines not covered by certificate of conformity
  - 203(a)(2) — failure to make accurate reports/provide information required under CAA
  - 203(a)(3)(B) — selling engines with a defeat device

Alleged Violations

- December 2015 — Kohler voluntarily disclosed it had been using wrong test cycle to test many of its Small SI Engines
  - Worked with EPA/CARB and third-party audit in 2016 to investigate other issues
- Additional violations uncovered as follows:
  - Not fully complying with certified test procedures (40 CFR 1054.505; Part 1065)
  - Failure to comply with applicable emission limits (40 CFR 1054.105)
  - Failure to age emission-related components for deterioration factor testing (40 CFR 1054.240)
  - Failure to disclose AECDs and adjustable parameters equipped on the engines (40 CFR 1054.205)
  - Making changes to configuration of production engines without amending certification application covering those engines (40 CFR 1054.225)
- Millions of engines across ~200 engine families were affected with maximum statutory penalties of US$47,357 per engine

Alleged Violations (cont'd)

- EPA/CARB also uncovered defeat device strategy used in 144,000 electronic fuel-injected Small SI Engines
  - Operated "rich" during certification testing but "lean" during in-use operation
  - Fueling strategy developed in 2008 that commanded less fuel above 3,060 rpm was not disclosed and did not meet any of the applicable defeat device exceptions:
    - 1) was not substantially included in the applicable duty cycle test procedures;
    - 2) was not necessary to prevent engine damage/accidents; or
    - 3) was not limited to start-up
- Alleged violations led to submission of incomplete production line testing (PLT) reports and inaccurate averaging, banking, and trading reports (ABT)
- Separate, California-only settlement for violation of evaporative emission standards with $200,000 civil penalty

Disclosure and Settlement Considerations

- Pros for voluntary disclosure
  - Voluntary disclosure and transparency may lead to reduced civil penalties — here, the penalty was about US$10 per engine
  - Also, a factor in avoiding criminal investigation and/or obtaining declination of prosecution
  - Injunctive relief would likely be more severe if EPA/CARB uncovered violations on their own
- Cons for voluntary disclosure
  - Follow-on government investigation may widen scope of issues
  - Government can extract significant injunctive relief through settlement, including:
    - Creation of independent Kohler compliance team
    - Mandatory compliance training
    - Upgraded reporting systems
    - Required third-party audits

Regulators have considerable discretion in seeking penalties for mass-produced engines. Under CAA, manufacturers may be liable for civil penalties of ***up to $48,125 for each new engine*** not covered by a certificate of conformity.

HYUNDAI
CONSTRUCTION EQUIPMENT AMERICAS

U.S. v Hyundai Construction Equipment Americas,
No. 18-cr-00379 (N.D. Ga.)

Case Summary

- November 2018 guilty plea resulted in US$1.95 million criminal fine for violations of CAA
  - Section 113(c)(2)(A) — false statement report required under CAA
  - Section 113(c)(4) — negligent release of hazardous air pollutants
- Violations related to import of non-compliant construction equipment from South Korea in June 2013 to April 2014
  - Heavy construction nonroad diesel engines
  - Excavators, loaders, fork lifts
- Took advantage of Transition Program for Equipment Manufacturers (TPEM) allowing it to import a *limited number* of non-compliant engines during phase-in period
- Submitted reports substantially understating number of imported non-compliant engines under TPEM

Underlying Regulatory Violations

- EPA's TPEM exempted limited number of engines from compliance with 2011/2012 Tier 4 standards
  - 40 CFR Part 1039 Subpart G
  - Program required annual reporting of number of engines sold
  - Allowances vary for engine power category (< 19kW to > 560kW) and calendar years
  - Allowances limited to either 1) percent of production or 2) small volume
- Consultant warned Hyundai that actual imports substantially exceeded TPEM allowance — advised company to stop importing, notify EPA

Underlying Regulatory Violations (cont.)

- Company ignored consultant's advice, continued importing, and submitted annual report that intentionally understated number of imported non-compliant engines
  - Criminal information points to multiple documents proving company knew it exceeded TPEM allowances and that it could be subject to civil penalties if EPA found out in its 2013 annual report
  - Company then imported 17 *more* non-compliant pieces of equipment
- Company subsequently settled for US$47 million civil penalty for illegal import of 2,269 non-compliant nonroad vehicles from 2012 to 2015

Indictment of Outside Counsel

THE UNITED STATES DEPARTMENT of JUSTICE

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JUSTICE NEWS

Department of Justice

Office of Public Affairs

FOR IMMEDIATE RELEASE Monday, November 25

Chicago Area Lawyer Indicted for Perjury and Obstructing Justice

WASHINGTON – John Lee, an attorney who once represented Hyundai Construction Equipment Americas LLC, was arraigned Nov. 21 on an indictment issued on Oct. 8, for knowingly making false statements while testifying under oath before a federal grand jury and for obstructing justice.

The indictment relates to Lee's work for Hyundai, which entered a guilty plea and was sentenced to pay a criminal fine violating the Clean Air Act and conspiring to defraud the United States on Nov. 14, 2018. Hyundai has satisfied its liabi that matter.

The case against Lee is about testimony he gave under oath and pursuant to a privilege waiver issued by Hyundai. The indictment includes three perjury charges and one obstruction of justice charge. It alleges that during his testimony be grand jury, Lee denied giving Hyundai employees advice about submitting a "TPEM" report that contained false inform to the U.S. Environmental Protection Agency (EPA) regarding Hyundai's compliance with Clean Air Act regulations.

The indictment goes on to allege that this was a false statement because Lee both received the TPEM report by electron mail and approved its filing. Lee is also charged with falsely denying that he directed Hyundai employees to use their personal email accounts—rather than work accounts—to discuss Hyundai's regulatory issues, and falsely denying that h received emails about the regulatory issues on his own personal email account.

Lastly, the indictment alleges that Lee knowingly failed to produce relevant emails in response to a grand jury subpoen an effort to impede the grand jury investigation.

Case 1:19-cr-00395-SCJ-CMS Document 1 Filed 10/08/19 Page 1 of 9

ORIGINAL

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

UNITED STATES OF AMERICA
v.
JOHN LEE

Criminal Indictment
No. 1:19CR395

THE GRAND JURY CHARGES THAT:

At times relevant to this Indictment:

Background

1. Defendant JOHN LEE was a lawyer advising Hyundai Construction Equipment Americas Inc. (HCEA).

2. HCEA, headquartered in Norcross, Georgia, was a wholly-owned subsidiary of Hyundai Heavy Industries Co. Ltd. (HHI). HHI was a company headquartered in the Republic of Korea (South Korea).

3. The purpose of the Clean Air Act and its implementing regulations was to protect human health and the environment by, among other things, reducing emissions of pollutants from new motor vehicles.

4. Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) maintained emissions standards for new motor vehicles, including non-road compression-ignition (diesel) engines.

Indictment of Outside Counsel (cont'd)

- Federal indictment brought against John Lee, lawyer advising Hyundai in DOJ investigation into nonroad issues
- Knowing false statements charges
  - Testified under oath that he did not provide advice to Hyundai employees on submitting TPEM reports, but in fact had received TPEM reports and approved their filing
  - Falsely denied under oath that he directed Hyundai employees to use personal emails for discussing regulatory compliance issues
  - Falsely denied under oath that he did not provide advice using his personal email
- Obstruction charges
  - Knowingly failed to produce relevant emails in response to grand jury subpoena, in effort to impede the grand jury investigation
- Case is currently in progress, with delays due to the pandemic

Compare *Hyundai Construction Equipment* With *Kohler*

- Both Hyundai and Kohler identified regulatory violations
- Kohler voluntarily disclosed, whereas Hyundai dug in
- About US$20,000 per engine civil penalty, compared to *Kohler* penalty of ~US$10 per engine and *Bandit* TPEM penalty of ~US$1,100 per engine
- “Knowing” element of regulatory violation likely distinguishes civil penalty from criminal enforcement

California v. Fiat Powertrain Technologies Industrial S.p.A., No. 19-STCV-03053 (Cal. Sup. Ct.)

Fiat Powertrain Technologies Industrial (FPT)

- CARB civil enforcement matter
- Scope: ~2,000 on-road *and* off-road diesel engines
- Issue
  - FPT allegedly made unauthorized field fixes for MY2011-14 on-road diesel engines
  - Also used incorrect emissions data to certify MY2014-16 off-road diesel engines
- In 2015, FPT made voluntary disclosure to CARB of these issues
  - CARB considered disclosure to be completely voluntary
  - No economic benefit
  - Company quickly created a Remedial Action Plan, general cooperativeness
  - Cost of the settlement outweighed any potential economic benefit

Settlement

- Settlement entered with CARB in March 2019
- Mandatory recall of affected engines to apply Remedial Action Plan
- Retrofit older engines with updated emission control technologies, including SCR and turbochargers
  - Ensure higher emissions performance above standards and beyond useful life
  - Extended warranty for recalled engines
- Internal structural adjustments to prevent recurrences:
  - FPT conducted a systematic review of its design, engineering, and certification practices
  - Instituted several changes, including management change, timely collection and analysis of warranty data, and hiring skilled staff in a new independent emission compliance team
  - New independent emission compliance team has direct access to upper management
  - Development and implementation of a comprehensive compliance training program
  - Creation of an independent emissions governance structure

Settlement

- US$6.4 million penalty
  - About US$3,200 per engine
- US$2 million Supplemental Environmental Project (SEP)
  - Install air filtration systems in facilities with sensitive populations
  - About US$1,000 per engine
- The per-engine penalty + SEP cost = US$4,200


HONDA
The Power of Dreams

American Honda Motor Co.

- CARB administrative settlement
- Scope: off-road only, off-road engines used in generators of lawn and garden equipment
- CARB conducted “extensive” testing and identified that performance did not meet certified standards for evaporative emissions
  - Honda had certified to self-selected lower evaporative emission standards in order to obtain evaporative emission credits
  - 2016 testing showed diurnal standards exceeded for over 90,000 engines
  - Honda and CARB agreed on design changes needed to address the exceedances
  - Honda submitted a running change to raise the certified emission standards and reduce its related credit bank by ~100,000 credits

Settlement

- Settled in April 2020
- Honda forfeited evaporative emission credits gained from certification (~60,000) plus additional credits to align to its corrected standard (~100,000)
- Penalty of US$1,927,800
  - US$963,900 going to the California Air Pollution Control Fund
  - US$963,900 going to the IQAir Foundation, an environmental justice non-profit, which will in turn fund three SEPs
- Per engine outcome = US$21.42/engine + 1.78 credits/engine

Hypotheticals

The Facts Are All Made Up!

- We've selected some hypotheticals to illustrate key nonroad compliance issues of concern.
- The legal principles are accurate in the hypothetical, but the facts are completely made-up.
- Nothing in these hypotheticals resembles any actual person, company, or real-world set of facts. We made up all the facts.

Hypothetical #1: AECD Alexis

- In 2013, Alexis is an experienced certification engineer who was downsized at her prior company and recently joined Acme Corporation in the cert group.
- Alexis is reviewing a draft AECD disclosure for what appears to be a new calibration on a model year (MY) 2014 large compression ignition (CI) nonroad engine.
- Alexis can't understand one of the AECDs, so she texts Bob the product calibrator. Bob calls her back after-hours and seems impatient. He explains that the AECD in question optimizes NOx on the test cycles, but trades off fuel consumption for NOx off-cycle.
- When Alexis asks whether that calibration is a defeat device, Bob angrily responds, "No, of course not. NOx stays below the not-to-exceed (NTE) limit and the emission standard off-cycle."
- Alexis asks whether any defeat device exception applies, and Bob replies, "What are you working for EPA??!! No wonder you're in compliance!" Bob hangs up on Alexis.

Hypothetical #1: AECD Alexis (cont'd)

- Shaken, Alexis hangs up the phone and turns to another task.
- The AECD disclosure is submitted "as is" because Alexis is new and did not want to pick a fight with Bob.
- EPA grants certification, and about 5,000 MY14 large CI engines are sold in the United States.
- Last week, Acme received an EPA information request that includes the MY14 engine in question, including requests on whether it contains defeat devices.
- Alexis left the company in 2019 and joined another manufacturer. It was not a happy departure.
- Acme has a five-year document retention policy. Many of the documents relevant to the MY14 engine no longer exist on Acme's server.
- Acme is publicly trade on the NYSE.
- **What are the legal issues and factual questions to be asked?**

Hypothetical #1: AECD Alexis (cont'd)

Here are some of the factual questions

- What's the control logic on vs. off-cycle? How do you figure that out?
- Did ACME perform MAEL testing on the engine?
- Why did EPA issue an information request now?
- Are there back-up tapes of certification documents?
- Were the engines sold into California? How many?
- Were the engines sold into any overseas markets? Which ones?
- Were the agencies previously briefed on the calibration at issue in cert-preview meetings or otherwise?
- Interview Alexis even though she's left the company?
- Answer the information request only vs. proactive investigation?
- Voluntary disclosure an option?

Hypothetical #1: AECD Alexis (cont'd)

Here are some of the legal issues

- Is a five-year document retention policy adequate for certification documents?
- Is the draft AECD disclosure adequate?
- Is this a defeat device?
- Do any exceptions to the defeat device prohibitions apply?
- Are the NTE and/or the emission standard a defense to the defeat device prohibition?
- Statute of limitations?
- Are there currently any SEC disclosure obligations?

Hypothetical #2: Chain Saw Mary and Production Line Testing

- Mary is a recent college graduate who just secured a position as a certification and compliance engineer at Green Tools (GT), a manufacturer of chain saws. GT makes the small spark ignition (SI) engines used in its chain saws.
- Mary's job responsibilities include obtaining certificates of conformity for the small SI engines used in GT's equipment pursuant to 40 CFR Part 1054.
- EPA's regulations require small SI manufacturers to demonstrate compliance with the applicable emission standards for each of its engine families by performing "production line testing" (PLT). *See* 40 CFR Part 1054, Subpart D.
- PLT testing requires random selection of engines from the assembly line and testing the engines to determine compliance with the applicable emissions standard. *See* 40 CFR §§ 1054.310(b) and 1054.305(a).

Hypothetical #2: Chain Saw Mary and Production Line Testing (cont'd)

- Mary's boss, Roz, has worked at GT for 30 years and can be gruff. She asks Mary to review and sign the compliance certification for prior model year's PLT before it is submitted to EPA. When Mary sends Roz a chat request to require more direction, Roz ignores her.
- Mary then Skype chats with her co-worker, Jim, to ask for "any desktop procedures on how to review a PLT." Jim responds, "LOL - there are none. Roz hates policies. But will show where 2 get on the server the test results for last year."
- In comparing the test results to the PLT report, Mary notices that not all of the tests were included in the report. When she asks Jim about this on Skype chat, he says that those tests were "preliminary dry runs" until the official PLT testing began.
- Mary then asks Jim if the tested engines were used in production of chain saws, he responds, "IDK. Always done it this way. Roz talked 2 cert rep at EPA @ meeting 5-yr ago who said it was OK."
- When Mary asks Jim if she should talk to Roz about her EPA conversation, Jim replies "not a good idea ☺"

Hypothetical #2: Chain Saw Mary and Production Line Testing (cont'd)

- Mary sees that she would be signing the PLT report as an "Authorized Representative" to confirm the accuracy of this statement:
- "We submit this report under sections 208 and 213 of the Clean Air Act. Our production line testing conformed completely with the requirements of 40 CFR part 1054. We have not changed production processes or quality-control procedures for test engines in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations." 40 CFR § 1054.345(c).

Hypothetical #2: Chain Saw Mary and Production Line Testing (cont'd)

- On process, what would you advise Mary to do?

  A) Nothing — Sign and move on; it's the way things are done

  B) Talk to Roz

  C) Email Roz

  D) Call GT's Legal Department

  E) Call GT's Ethics Hotline

  F) Call EPA

  G) Instruct her to not email anyone about this

  H) Other?

Hypothetical #2: Chain Saw Mary and Production Line Testing (cont'd)

- Can GT exclude "preliminary dry run" testing in its PLT testing?

  A) Yes, Roz obtained EPA's verbal approval.

  B) It depends. If the engines in the preliminary testing weren't used in any product sold to the market, it would be OK.

  C) No. The regulation requires "random" selection of engines from the production line.

Hypothetical #2: Chain Saw Mary and Production Line Testing (cont'd)

- The correct answer is C). GT can't select engines for PLT testing and then disregard the test results by calling them "preliminary dry runs," based on both the text of the regulation and past enforcement precedents.
- *See, for example*:
  - 40 CFR § 1054.310(b) 1054.305(a) (requiring small SI manufacturer to "randomly select and test an engine from the end of the assembly line for each engine family")
  - 40 CFR § 1054.305(a) ("You must assemble the test engine in a way that represents the assembly procedures for other engines in the engine family in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production engines in the engine family.")
  - Complaint and Stipulation of Settlement and Judgment, *United States v. Husqvarna AB et al.,* No. 1:17-cv-02597 (D.D.C. filed Dec. 15, 2017) (civil resolution of claims, including claim for PLT reports that "failed to include emission test results")

Hypothetical #2: Chain Saw Mary and Production Line Testing (cont'd)

- But an EPA employee purportedly told Roz at a meeting that "dry run" testing is OK.
- Why isn't that enough?
- "***The general rule is that the federal government may not be equitably estopped from enforcing public laws,*** even though private parties may suffer hardship as a result in particular cases. Office of Personnel Management v. Richmond, 496 U.S. 414 (1990); Heckler v. Community Health Services of Crawford County, Inc., 467 U.S. 51 (1984); INS v. Miranda, 459 U.S. 14 (1982); Schweiker v. Hansen, 450 U.S. 785 (1981); Federal Crop Ins. Corp. v. Merrill, 332 U.S. 380 (1947)." DOJ, Civil Manual, § 209 (emphasis added).
- But, if an EPA employee did tell Roz that dry run testing was OK, it may be relevant in —
  - Showing good faith, a factor in the amount of any civil penalty
  - Showing a lack of intent in any criminal investigation

Conclusion: Thanks for Participating!

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Appendix I: The Sidley Team

Sidley Team

Justin A. Savage

Partner

jsavage@sidley.com

Washington, D.C. +1 202 736 8853

JUSTIN SAVAGE is global co-leader of the firm's Environmental practice and serves on the firmwide Marketing and Practice Development committee. He also serves on the firm's COVID-19 Task Force. Justin focuses on high-stakes environmental litigation and strategic counseling, including government enforcement actions, internal investigations, and rulemaking challenges.

Simone Jones

Associate

simone.jones@sidley.com

Washington, D.C. +1 202 736 8224

SIMONE JONES supports clients in complex environmental litigation and internal investigations, particularly in the automotive sector. Her recent cases include defending original equipment manufacturers and senior executives in matters involving auxiliary emission control devices, fuel economy and onboard diagnostics before federal courts, EPA, CARB, DOJ, FBI, SEC, and other agencies.

Allison H. In

Associate

ain@sidley.com

Washington, D.C. +1 202 736 8184

ALLISON IN is a member of the Environmental practice group in Washington, D.C. Her practice focuses on assisting a broad range of clients with many aspects of environmental matters, including regulatory compliance, rulemaking challenges and litigation. She has experience representing clients in federal and state court and before administrative tribunals in connection with air quality, oil and gas, water pollution, land use, and soil contamination.

Samina M. Bharmal

Associate

sbharmal@sidley.com

Washington, D.C. +1 202 736 8350

SAMINA M. BHARMAL is the associate lead for the group's work in Environmental, Social, and Governance (ESG) matters. She helps to guide businesses through high-stakes district court and appellate litigation, internal investigations, and strategic counseling for civil and criminal matters before federal courts, EPA, CARB, and DOJ.

Aaron L. Flyer

Associate

aflyer@sidley.com

Washington, D.C. +1 202 736 8127

AARON L. FLYER is a member of the Environmental practice group in Washington, D.C. His practice focuses on advising clients through a wide range of environmental matters, including enforcement actions, regulatory compliance, rulemaking challenges, federal litigation, and asset acquisitions. Aaron is particularly focused on assisting automotive and energy sector clients in defending against Clean Air Act enforcement actions.

Appendix II: Additional Slides

Nonroad Preemption — CAA Section 209, 42 U.S.C. 7543

(e) NONROAD ENGINES OR VEHICLES

(1) PROHIBITION ON CERTAIN STATE STANDARDS No State or any political subdivision thereof shall adopt or attempt to enforce any standard or other requirement relating to the control of emissions from either of the following new nonroad engines or nonroad vehicles subject to regulation under this chapter —

(A) New engines which are used in construction equipment or vehicles or used in farm equipment or vehicles and which are smaller than 175 horsepower.

(B) New locomotives or new engines used in locomotives.

Subsection (b) shall not apply for purposes of this paragraph.

(2) OTHER NONROAD ENGINES OR VEHICLES

(A) In the case of any nonroad vehicles or engines other than those referred to in subparagraph (A) or (B) of paragraph (1), the Administrator shall, after notice and opportunity for public hearing, authorize California to adopt and enforce standards and other requirements relating to the control of emissions from such vehicles or engines if California determines that California standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards. No such authorization shall be granted if the Administrator finds that —

- **(i)** the determination of California is arbitrary and capricious,
- **(ii)** California does not need such California standards to meet compelling and extraordinary conditions, or
- **(iii)** California standards and accompanying enforcement procedures are not consistent with this section.

Nonroad Preemption — CAA Section 209, 42 U.S.C. 7543 (cont'd)

(e) NONROAD ENGINES OR VEHICLES

(2) OTHER NONROAD ENGINES OR VEHICLES

(B) Any State other than California which has plan provisions approved under part D of subchapter I may adopt and enforce, after notice to the Administrator, for any period, standards relating to control of emissions from nonroad vehicles or engines (other than those referred to in subparagraph (A) or (B) of paragraph (1)) and take such other actions as are referred to in subparagraph (A) of this paragraph respecting such vehicles or engines if—

- **(i)** such standards and implementation and enforcement are identical, for the period concerned, to the California standards authorized by the Administrator under subparagraph (A), and
- **(ii)** California and such State adopt such standards at least 2 years before commencement of the period for which the standards take effect.

The Administrator shall issue regulations to implement this subsection.

- EPA's website on the status of California waivers and authorizations under CAA Section 209: https://www.epa.gov/state-and-local-transportation/vehicle-emissions-california-waivers-and-authorizations

Civil Penalties — CAA Section 205, 42 U.S.C. 7524

(c) ADMINISTRATIVE ASSESSMENT OF CERTAIN PENALTIES

(1) ADMINISTRATIVE PENALTY AUTHORITY

In lieu of commencing a civil action under subsection (b), the Administrator may assess any civil penalty prescribed in subsection (a) of this section, section 7545(d) of this title, or section 7547(d) of this title, except that the maximum amount of penalty sought against each violator in a penalty assessment proceeding shall not exceed $200,000, unless the Administrator and the Attorney General jointly determine that a matter involving a larger penalty amount is appropriate for administrative penalty assessment. Any such determination by the Administrator and the Attorney General shall not be subject to judicial review. Assessment of a civil penalty under this subsection shall be by an order made on the record after opportunity for a hearing in accordance with sections 554 and 556 of title 5. The Administrator shall issue reasonable rules for discovery and other procedures for hearings under this paragraph. Before issuing such an order, the Administrator shall give written notice to the person to be assessed an administrative penalty of the Administrator's proposal to issue such order and provide such person an opportunity to request such a hearing on the order, within 30 days of the date the notice is received by such person. The Administrator may compromise, or remit, with or without conditions, any administrative penalty which may be imposed under this section.

(2) DETERMINING AMOUNT

In determining the amount of any civil penalty assessed under this subsection, the Administrator shall take into account the gravity of the violation, the economic benefit or savings (if any) resulting from the violation, the size of the violator's business, the violator's history of compliance with this subchapter, action taken to remedy the violation, the effect of the penalty on the violator's ability to continue in business, and such other matters as justice may require.

Definition of Nonroad — CAA Section 216, 42 U.S.C. 7550

(10) NONROAD ENGINE

an internal combustion engine (including the fuel system) that is not used in a motor vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under section 7411 of this title or section 7521 of this title

(11) NONROAD VEHICLE

a vehicle that is powered by a nonroad engine and that is not a motor vehicle or a vehicle used solely for competition

Definition of Nonroad — 40 CFR 1068.30

(1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:

(i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).

(ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).

(iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:

(i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.

(ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)). Note that this criterion does not apply for engines meeting any of the criteria of paragraph (1) of this definition that are voluntarily certified under 40 CFR part 60.

(iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. For any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced, include the time period of both engines in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. See § 1068.31 for provisions that apply if the engine is removed from the location.

Defeat Device and Tampering Definitions

CAA Section 203(a)(3)(B)

The following acts and the causing thereof are prohibited ... for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use

40 CFR 1068.101(b)(2)

The following acts and the causing thereof are prohibited — For any person to manufacture or sell, or offer to sell, or install, a part or component for a motor vehicle, where a principle effect of the part or component is to bypass, defeat, or render inoperative any emission control device, and the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use

AECD Disclosure Requirements — 40 CFR 1039.205(b)

(b) Explain how the emission-control system operates. Describe in detail all system components for controlling exhaust emissions, including all auxiliary-emission control devices (AECDs) and all fuel-system components you will install on any production or test engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECDs any devices that modulate or activate differently from each other. Include all the following:

(1) Give a general overview of the engine, the emission-control strategies, and all AECDs.

(2) Describe each AECD's general purpose and function.

(3) Identify the parameters that each AECD senses (including measuring, estimating, calculating, or empirically deriving the values). Include equipment-based parameters and state whether you simulate them during testing with the applicable procedures.

(4) Describe the purpose for sensing each parameter.

(5) Identify the location of each sensor the AECD uses.

(6) Identify the threshold values for the sensed parameters that activate the AECD.

AECD Disclosure Requirements — 40 CFR 1039.205(b)

(7) Describe the parameters that the AECD modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AECD's stated purpose. Use graphs and tables, as necessary.

(8) Describe each AECD's specific calibration details. This may be in the form of data tables, graphical representations, or some other description.

(9) Describe the hierarchy among the AECDs when multiple AECDs sense or modulate the same parameter. Describe whether the strategies interact in a comparative or additive manner and identify which AECD takes precedence in responding, if applicable.

(10) Explain the extent to which the AECD is included in the applicable test procedures specified in subpart F of this part.

AECD Disclosure Requirements — 40 CFR 1039.205(b)

(11) Do the following additional things for AECDs designed to protect engines or equipment:

(i) Identify the engine and/or equipment design limits that make protection necessary and describe any damage that would occur without the AECD.

(ii) Describe how each sensed parameter relates to the protected components' design limits or those operating conditions that cause the need for protection.

(iii) Describe the relationship between the design limits/parameters being protected and the parameters sensed or calculated as surrogates for those design limits/parameters, if applicable.

(iv) Describe how the modulation by the AECD prevents engines and/or equipment from exceeding design limits.

(v) Explain why it is necessary to estimate any parameters instead of measuring them directly and describe how the AECD calculates the estimated value, if applicable.

(vi) Describe how you calibrate the AECD modulation to activate only during conditions related to the stated need to protect components and only as needed to sufficiently protect those components in a way that minimizes the emission impact.

CI Engine Exhaust Emission Standards

EPA United States Environmental Protection Agency

Office of Transportation and Air Quality
EPA-420-B-16-022
March 2016

Nonroad Compression-Ignition Engines: Exhaust Emission Standards

	Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)	Smoke [a] (Percentage)	Useful Life (hours /years) [b]	Warranty Period (hours /years) [b]
Federal	kW < 8	1	2000-2004	-	10.5	-	1.0	8.0	20/15/50	3,000/5	1,500/2
		2	2005-2007	-	7.5	-	0.80	8.0			
		4	2008+	-	7.5	-	0.40 [c]	8.0			
	8 ≤ kW < 19	1	2000-2004	-	9.5	-	0.80	6.6		3,000/5	1,500/2
		2	2005-2007	-	7.5	-	0.80	6.6			
		4	2008+	-	7.5	-	0.40	6.6			
	19 ≤ kW < 37	1	1999-2003	-	9.5	-	0.80	5.5		5,000/7 [d]	3,000/5 [e]
		2	2004-2007	-	7.5	-	0.60	5.5			
		4	2008-2012	-	7.5	-	0.30	5.5			
			2013+	-	4.7	-	0.03	5.5			
	37 ≤ kW < 56	1	1998-2003	-	-	9.2	-	-		8,000/10	3,000/5
		2	2004-2007	-	7.5	-	0.40	5.0			
		3 [f]	2008-2011	-	4.7	-	0.40	5.0			
		4 (Option 1) [g]	2008-2012	-	4.7	-	0.30	5.0			
		4 (Option 2) [g]	2012	-	4.7	-	0.03	5.0			
		4	2013+	-	4.7	-	0.03	5.0			
	56 ≤ kW < 75	1	1998-2003	-	-	9.2	-	-			
		2	2004-2007	-	7.5	-	0.40	5.0			
		3	2008-2011	-	4.7	-	0.40	5.0			
		4	2012-2013 [h]	-	4.7	-	0.02	5.0			
			2014+ [i]	0.19	-	0.40	0.02	5.0			
	75 ≤ kW < 130	1	1997-2002	-	-	9.2	-	-			
		2	2003-2006	-	6.6	-	0.30	5.0			
		3	2007-2011	-	4.0	-	0.30	5.0			
		4	2012-2013 [h]	-	4.0	-	0.02	5.0			
			2014+	0.19	-	0.40	0.02	5.0			

Continued

	Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr	NOx (g/kW-hr	PM (g/kW-hr	CO (g/kW-hr)	Smoke [a] (Percentage)	Useful Life (hours /years) [b]	Warranty Period (hours /years) [b]
Federal	130 ≤ kW < 225	1	1996-2002	1.3 [j]	-	9.2	0.54	11.4	20/15/50	8,000/10	3,000/5
		2	2003-2005	-	6.6	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 [h]	-	4.0	-	0.02	3.5			
			2014+ [i]	0.19	-	0.40	0.02	3.5			
	225 ≤ kW < 450	1	1996-2000	1.3 [j]	-	9.2	0.54	11.4			
		2	2001-2005	-	6.4	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 [h]	-	4.0	-	0.02	3.5			
			2014+ [i]	0.19	-	0.40	0.02	3.5			
	450 ≤ kW < 560	1	1996-2001	1.3 [j]	-	9.2	0.54	11.4			
		2	2002-2005	-	6.4	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 [h]	-	4.0	-	0.02	3.5			
			2014+ [i]	0.19	-	0.40	0.02	3.5			
	560 ≤ kW < 900	1	2000-2005	1.3 [j]	-	9.2	0.54	11.4			
		2	2006-2010	-	6.4	-	0.20	3.5			
		4	2011-2014	0.40	-	3.5	0.10	3.5			
			2015+ [i]	0.19	-	3.5 [k]	0.04 [l]	3.5			
	kW > 900	1	2000-2005	1.3 [j]	-	9.2	0.54	11.4			
		2	2006-2010	-	6.4	-	0.20	3.5			
		4	2011-2014	0.40	-	3.5 [k]	0.10	3.5			
			2015+ [i]	0.19	-	3.5 [k]	0.04 [l]	3.5			

Notes on following page.

EPA Office of Transportation and Air Quality, Nonroad Compression-Ignition Engines: Exhaust Emission Standards, EPA-420-B-16-022 (Mar. 2016)

Warranty — “Critical Emission-Related Component”

CI engines — 40 CFR 1039.801

(1) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, and all sensors and actuators associated with any of these components.

(2) Any other component whose primary purpose is to reduce emissions.

Small SI engines — 40 CFR 1048.801

(1) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, and all sensors and actuators associated with any of these components.

(2) Any other component whose primary purpose is to reduce emissions.

Large SI engines — 40 CFR 1054.801

(1) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, air filters, spark plugs, and all sensors and actuators associated with any of these components.

(2) Any other component whose primary purpose is to reduce emissions.

Recordkeeping Requirements Relating to Certification

CI engines — 40 CFR 1039.825

(a) This part includes various requirements to submit and record data or other information. Unless we specify otherwise, store required records in any format and on any media and keep them readily available for eight years after you send an associated application for certification, or eight years after you generate the data if they do not support an application for certification. You are expected to keep your own copy of required records rather than relying on someone else to keep records on your behalf. We may review these records at any time. You must promptly send us organized, written records in English if we ask for them. We may require you to submit written records in an electronic format.

Small SI engines — 40 CFR 1048.250(c) (*see* 40 CFR 1048.825)

Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in this section for eight years after we issue your certificate.

Large SI engines — 40 CFR 1054.250(c) (*see* 40 CFR 1054.825)

Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in this section for eight years after we issue your certificate.

U.S. Nonroad Regulations

- Federal Regulations
  - 40 CFR Parts 89 and 1039: CI engine emission standards and certification requirements
  - 40 CFR Part 1048: Large SI engines and equipment
  - 40 CFR Part 1054: Small SI engines and equipment
  - 40 CFR Part 1060: Nonroad evaporative emissions
  - 40 CFR Part 1065: Exhaust emission test procedures for lab and in-field testing
  - 40 CFR Part 1068: General compliance provisions

California Nonroad Regulations

- California Regulations
  - 13 CCR Chapter 9: Off-road vehicles and engines pollution control devices
    - Article 1: Small off-road spark-ignition engines (SORE)
    - Article 4: Compression-ignition engines and equipment
    - Article 4.5: Large off-road spark-ignition engines (LSI)
    - Article 7: Certification procedures for aftermarket parts for off-road vehicles, engines, equipment

Appendix III: List of Additional Guidance

Resources, Including Federal and State Guidance Documents

- EPA, Fact Sheet: Exhaust System Repair Guidelines (Mar. 13, 1991)
  - https://www.epa.gov/sites/production/files/documents/exhsysrepair.pdf
- EPA, Certification Guidance for Engines Regulated Under: 40 CFR Part 86 (On-Highway Heavy-Duty Engines) and 40 CFR Part 89 (Nonroad CI Engines) (Mar. 1999)
  - https://www.epa.gov/sites/production/files/2015-04/documents/compliance-nonroaddieselengines.pdf
- EPA, Non-Road Compression Ignited Engines: Guidance on Reporting Maximum Allowable Off-Cycle Emissions, CCD-04-12 (HD) (June 15, 2004)
  - https://ww2.arb.ca.gov/resources/documents/road-compression-ignition-certification-program-guidance-reporting-maximum
- EPA, Clean Air Act Mobile Source Civil Penalty Policy — Vehicle and Engine Certification Requirements (Jan. 16, 2009)
  - https://www.epa.gov/sites/production/files/documents/vehicleengine-penalty-policy_0.pdf
- EPA, Production Line Testing (PLT) Report Clarification, CD-15-21 (SI) (Aug. 31, 2015)
  - https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=35331&flag=1

Resources, Including Federal and State Guidance Documents

- EPA, Frequently Asked Questions from Owners and Operators of Nonroad Engines, Vehicles, and Equipment Certified to EPA Standards, EPA-420-F-18-004 (Feb. 2018)
  - https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100U8YP.pdf
- EPA, Nonroad Small Spark-Ignited (SI) Engines and Evaporative Components (Sept. 18, 2019)
  - https://www.epa.gov/sites/production/files/2019-09/documents/compliance-workshop-nrsi-presentation-2019-09-18.pdf
- EPA, COVID-19 Impacts to Diesel Engine Compliance Center Certification and Compliance Activities, CD-2020-09 (June 13, 2020)
  - https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=50494&flag=1
- CARB, Guide to Off-Road Vehicle & Equipment Regulations
  - https://ww3.arb.ca.gov/msprog/offroadzone/pdfs/offroad_booklet.pdf