California Air Resources Board

Public Hearing to Consider Proposed Heavy-Duty Inspection and Maintenance Regulation

Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response

Public Hearing Date: December 9, 2021
Agenda Item No.: 21-13-3

Table of Contents

List of Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ATA	American Trucking Association
BAR	Bureau of Automotive Repair
CAL ID	Calibration Identification Number
CAN	Controller Area Network
CARB	California Air Resources Board or Board
CCR	California Code of Regulation
CHP	California Highway Patrol
CTA	California Trucking Association
CVN	Calibration Verification Number
DEF	Diesel exhaust fluid
DMV	Department of Motor Vehicle
DTC	Diagnostic Trouble Code
ELD	Electronic logging device
EMA	Engine Manufacturers Association
GPS	Global positioning system
GVWR	Gross vehicle weight rating
HD I/M	Heavy-Duty Inspection and Maintenance
HTA	Harbor Trucking Association
IFTA	International Fuel Tax Agreement
IRP	International Registration Plan
ISO	International Organization for Standardization
ISOR	Initial Statement of Reasons
MIL	Malfunction indicator light
MY	Model year
NOx	Oxides of nitrogen
NST	Notice to Submit to Testing
OAL	Office of Administrative Law
OBD	On-board diagnostic
OEM	Original Equipment Manufacturer
PID	Parameter Identification
PM	Particulate matter
PSIP	Periodic Smoke Inspection Program
REMD	Roadside emissions monitoring device
ROBD	Remote On-board Diagnostic
SAE	Society of Automotive Engineers
SAM	State Administrative Manual
SB	Senate Bill
SCR	Selective catalytic reduction
SIP	State Implementation Plan
VIN	Vehicle Identification Number
WSTA	Western States Trucking Association

General

The Staff Report: Initial Statement of Reasons for Rulemaking (ISOR or Staff Report), entitled the "Proposed Heavy-Duty Inspection and Maintenance Regulation," released October 8, 2021, is incorporated by reference herein. The Staff Report contains a description of the rationale for the proposed regulation. On October 8, 2021, all references relied upon and identified in the Staff Report were made available to the public.

On December 9, 2021, the California Air Resources Board (CARB or Board) conducted a public hearing to consider the proposed Heavy-Duty Inspection and Maintenance (HD I/M) Regulation (Proposed HD I/M Regulation). The Board received 16 written comments during the 45-day comment period leading up to the hearing and on the day of the hearing and heard oral testimony from 22 stakeholders the day of the hearing.[1] At the conclusion of the hearing, the Board approved *Resolution 21-29* for adoption of the Proposed HD I/M Regulation with additional direction to staff to modify the original proposal to implement a path to transition from two times per year to four times per year periodic testing for on-board diagnostic (OBD) equipped vehicles three years after the effective date of the periodic vehicle emission testing requirements. Additionally, the Board directed the Executive Officer to determine if additional conforming modifications to the Proposed HD I/M Regulation were appropriate and to make any proposed modified regulatory language available for public comment, with any additional supporting documents and information, for a period of at least 15 days, as required by Government Code section 11346.8. The Board further directed the Executive Officer to consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days and present the Regulation to the Board for further consideration if warranted or take final action to adopt the Regulation after addressing all appropriate modifications.

The text of the proposed modifications in Appendices A-1.1 and B-1 of the originally Proposed HD I/M Regulation and other supporting documents were made available for a 15-day public comment period through a "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" (15-Day Notice).[2] The 15-Day Notice, modified regulatory language in Appendices A-1.1 and B-1, and additional supporting documents were posted on May 11, 2022, on CARB's website, accessible to stakeholders and interested parties.[3] The comment period commenced on May 11, 2022, and closed on May 26, 2022, with a total of eight comment letters received during this time. All modifications to the regulatory language are clearly indicated in the "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information."

On the same date that the 15-Day Notice and all attachments were posted on CARB's website, the posted documents were also electronically distributed to other parties

---

[1] The American Lung Association (ALA) submitted two identical written comment letters: one dated November 29, 2021, and the other dated December 9, 2021, the day of the Board Hearing. The content of the letters is identical, but the December 9th letter includes three additional signatories not in the November 29, 2021, letter. The additional signatories are identified in the footnotes to Table 2. For purposes of this Final Statement of Reasons, CARB staff has counted ALA's comments as one letter.

[2] California Air Resources Board. Notice of Public Availability of Modified Text and Availability of Additional Documents and Information. Posted on May 11, 2022. Available online at: *https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/hdim2021/15daynotice.pdf%20*

[3] *https://ww2.arb.ca.gov/rulemaking/2021/hdim2021.*

identified, per section 44(a), title 1, California Code of Regulations (CCR), in accordance with Government Code section 11340.85, including all persons having testified at the December 9, 2021, public hearing, all persons having submitted comments at the public hearing, all persons who submitted comments during the rulemaking comment period(s), and all organizations and individuals subscribed to the following CARB electronic distribution listings: Agricultural Activities; Community Air; Enforcement Activities; Environmental Justice Stakeholders Group; Freight Transport Efficiency Measures; Heavy-Duty Vehicle Inspection and Maintenance; Mobile Source Program Mailouts and Manufacturers Advisory Correspondence; On-Board Diagnostics Program; and State Implementation Plan.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text, including non-substantive modifications, as well as changes directed by the Board at the December 9, 2021, hearing, and text circulated for public comment during the 15-day comment period. The FSOR also contains a summary of the comments received by CARB on the Proposed Regulation during the formal rulemaking process and CARB's responses to those comments.

Mandates and Fiscal Impacts to Local Governments and School Districts

The Board determined that this regulatory action is a mandate to local agencies and school districts that own and operate in California non-gasoline on-road heavy-duty vehicles, including school buses, with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. However, the Board finds that these costs are not reimbursable pursuant to Part 7 (commencing with section 17500), Division 4, title 2 of the Government Code, because this action neither compels local agencies or school districts to provide new governmental functions (i.e., it does not require such agencies to provide additional services to the public), nor imposes requirements that apply only on local agencies and school districts.[4] Instead, this regulatory action establishes requirements that apply to all entities that own or operate heavy-duty vehicles that are subject to the requirements of the HD I/M Regulation. This action also does not compel local agencies to increase the actual level or quality of services that they already provide the public.[5] For the foregoing reasons, any costs incurred by local agencies and school districts to comply with the HD I/M Regulation are not reimbursable.[6]

Consideration of Alternatives

For the reasons set forth in the Staff Report, in staff's comments and responses at the Board Hearing, and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective and less burdensome to affected private persons, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board. As shown in Table 1, Alternative 1 would cost less than the HD I/M Regulation approved by the Board but would not be as effective in reducing NOx and PM emissions and

[4] County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 56.
[5] San Diego Unified School Dist. v. Commission on State Mandates (2004) 33 Cal.4th 859, 877.
[6] County of Los Angeles v. State of California, 43 Cal.3d 46, 58.

would be less cost effective. For these reasons, which are described in more detail below in this section, this alternative was rejected in addition to Alternative 2.

Since the Board Hearing on December 9, 2021, CARB staff conducted additional analyses of costs and benefits to include the following:

- Impacts of the recently adopted *Heavy-Duty Omnibus Regulation* on the emissions baseline inventory from which HD I/M Regulation's emissions reductions are calculated, and
- The 15-Day Notice modifications that are incorporated in the HD I/M Regulation and discussed in this FSOR.

A summary of the updated analyses of costs and benefits of the HD I/M Regulation, as approved by the Board, and the alternative scenarios is provided in Table 1. The alternative scenarios shown in Table 1 are defined and discussed further below. The HD I/M Regulation would provide significant emissions reductions of 6,219 tons of particulate matter (PM) emissions and 684,669 tons of oxides of nitrogen (NOx) emissions in the 2023 to 2050 period. It would result in 7,600 lives saved due to avoided cardiopulmonary mortality, and result in total monetized health benefit savings of $76.2 billion. The HD I/M Regulation is projected to cost $4.09 billion over the time period from 2023 through 2050 at a cost effectiveness of $60.65 per pound of PM and $1.80 per pound of NOx.

Table 1: Comparison of Costs and Emission Benefits for 2023 through 2050: HD I/M Regulation and Alternatives

Scenario	Costs	Emission Benefits	Cost Effectiveness
HD I/M Regulation	$4.09 billion	6,219 tons PM; 684,669 tons NOx	$60.65/pound PM, $1.80/pound NOx
Alternative 1	$3.44 billion	4,255 tons PM; 457,254 tons NOx	$65.56/pound PM, $2.20/pound NOx
Alternative 2	$5.04 billion	6,301 tons PM; 725,926 tons NOx	$69.32/pound PM, $2.27/pound NOx

1. Alternative 1: Less Stringent Periodic Testing Requirements than the HD I/M Regulation

Staff developed Alternative 1 based on feedback from stakeholders who suggested reduced periodic testing requirements on fleets. Alternative 1 would include similar required elements as the HD I/M Regulation, however, with less stringent periodic inspection requirements, specifically:

- Annual (rather than semiannual and quarterly) periodic inspections would be required for heavy-duty vehicle fleets (both OBD-equipped and non-OBD vehicles).
- Fleets would perform annual periodic testing on only a ten percent representative portion of their vehicles, rather than all the vehicles; and
- New vehicles would be exempted from the periodic testing requirement for the first two years after periodic inspections begin.

The total costs and emission benefits of Alternative 1 were assessed using the same updated baseline conditions used for the HD I/M Regulation. As indicated in Table 1, the overall cost of Alternative 1 was estimated to be approximately $3.44 billion over the 28 years of the

analysis period (2023 through 2050), which is less expensive than the HD I/M Regulation as approved by the Board. However, CARB rejected this alternative due to the following reasons:

- Alternative 1 would result in fewer PM and NOx emissions reductions than the HD I/M Regulation, i.e., a decrease in PM and NOx emissions reductions by 32 percent and 33 percent, respectively, when compared to the HD I/M Regulation for the 2023 through 2050 period.
- Alternative 1 would be less cost effective than the HD I/M Regulation ($65.56/pound PM, $2.20/pound NOx under Alternative 1 vs. $60.65/pound PM, $1.80/pound NOx under the HD I/M Regulation). Even though Alternative 1's total direct costs are $654 million less than the HD I/M Regulation's, Alternative 1's fewer emissions reductions outweigh its cost savings. Additionally, Alternative 1 would result in a decrease in monetized health benefits of $23 billion and 2,300 fewer lives saved compared to the HD I/M Regulation for the 2023 through 2050 period.
- The limited periodic testing requirements of Alternative 1 would increase the likelihood that vehicles would be operating in California with malfunctioning emissions control systems for a longer period.
- Because much less test data would be flowing into the State for possible fraud detection analysis, Alternative 1 would substantially limit the Regulation's ability to detect fraudulent testing activity and, as a result, constrain the effectiveness of the HD I/M Regulation and make it difficult to ensure a level playing field for all parties operating in California.

2. Alternative 2: More Stringent Periodic Testing Requirements than the HD I/M Regulation

Staff developed Alternative 2 based on feedback from stakeholders who suggested more stringent testing requirements beyond an opacity test and visual inspection for non-OBD vehicles with selective catalytic reduction (SCR) systems (2010 through 2012 model year (MY) engines) and quarterly testing for OBD-equipped vehicles starting earlier than will be implemented under the approved HD I/M Regulation (2024 vs. 2027). Alternative 2 parameters include, specifically:

- Non-OBD vehicles with 2010 through 2012 MY engines would be subject to chassis dynamometer testing in addition to smoke opacity testing and visual inspections during their required periodic testing events to further assess a vehicle for potential NOx emissions control system issues.
    - Non-OBD vehicles with 2010 through 2012 MY engines are equipped with SCR to control NOx emissions. Thus, incorporating a testing method that potentially identifies malfunctioning NOx emissions control systems using a data driven assessment method could lead to more NOx emissions reductions. Alternative 2's use of a chassis dynamometer test for non-OBD vehicles would be similar to the approach used in the Bureau of Automotive Repair's (BAR) Smog Check program for light-duty non-OBD vehicles.
- OBD-equipped vehicles would be subject to quarterly OBD data submission starting immediately in 2024 instead of a phased-in periodic OBD data submission frequency approach, (i.e., semiannual testing from 2024 through 2026 with quarterly testing starting in 2027 under the HD I/M Regulation).

The total costs and emission benefits of Alternative 2 were assessed using the same updated baseline conditions used for the HD I/M Regulation. Even though Alternative 2 would result in more emissions benefits than the HD I/M Regulation over the 28 years of the analysis period (2023 through 2050) as shown in Table 1, CARB rejected Alternative 2 due to the following reasons:

- Alternative 2 would be less cost effective than the HD I/M Regulation as approved by the Board ($69.32/pound PM, $2.27/pound NOx under Alternative 2 vs. $60.65/pound PM, $1.80/pound NOx under the HD I/M Regulation). Although Alternative 2 would result in more PM and NOx emissions reductions compared to the Regulation, a 1 percent and 6 percent increase in reductions, respectively, its total direct costs would be 23 percent higher than the HD I/M Regulation.
- Alternative 2, if implemented, would result in an unsustainable small business model of a heavy-duty chassis dynamometer testing infrastructure network to support the required testing. This business model would soon become obsolete due to the natural turnover of non-OBD vehicles to OBD-equipped vehicles over time. Either the small businesses created as a result of these requirements would go out of business or testing costs would increase substantially to cover the resulting loss of demand for these testing services. Both outcomes are undesirable.
- The large infrastructure network needed to support Alternative 2 would be difficult to develop by the proposed 2024 implementation date for periodic testing, risking a delay in the rollout of the HD I/M Regulation and its projected emissions reductions in its early years.

Modifications Made to the Original Proposal

Modifications Approved at the Board Hearing and Provided for in the 15-Day Comment Period

Subsequent to the December 9, 2021, Board Hearing, CARB staff made modifications to the original proposal to address comments received during the 45-day public comment period, at the hearing, and as a result of the Board's direction. CARB staff released the 15-Day Notice that presented modifications to the regulatory text pursuant to the Board's direction in *Resolution 21-29*. These modifications were explained in the "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" that was issued for a 15-day public comment period that began on May 11, 2022, and ended on May 26, 2022. CARB staff made modifications to the previously Proposed Regulation in sections 2195, 2195.1, 2196, 2196.1, 2196.2, 2196.3, 2196.4, 2196.5, 2196.6, 2196.7, 2196.8, 2197, 2197.1, 2197.3, 2198, 2198.1, and 2198.2 of title 13, CCR. CARB staff also made changes to the text of Appendix B-1, "California Standards for Heavy-Duty Remote On-board Diagnostics Devices," incorporated by reference in the HD I/M Regulation. In addition, staff added seven additional documents to the public record, as identified in the 15-Day Notice.

Listed below are the most significant modifications. For further details on all the modifications, see the "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" posted on May 11, 2022, available online here:[7]

- Clarifications to emphasize a vehicle owner's requirement to demonstrate HD I/M Regulation compliance for their vehicle rather than the requirement to obtain a HD I/M compliance certificate;
- Clarifications as to when specific regulatory requirements such as reporting, periodic testing, and freight contractor, broker, and facility requirements take effect and the conditions that must be satisfied before these requirements go into effect;
- Modifications to and additions to the regulatory definitions to improve clarity throughout the HD I/M Regulation;
- Clarifications to the types of documents the HD I/M Regulation would require to be presented as part of an enforcement inspection;
- Modifications to the periodic testing frequencies for OBD-equipped vehicles, as directed by the Board;
- Clarifications to the vehicle owner's payment of the compliance fee upon the vehicle's first demonstration of compliance in any given compliance year;
- Modifications to the smoke opacity standards for off-road engines used as motive power in on-road vehicles;
- Clarifications that the HD I/M referee will inspect a vehicle for HD I/M compliance and not solely for conditions of tampering or defective emissions control components;
- Modifications to the eligibility criteria for requesting a HD I/M compliance time extension and the number of extensions that can be granted;
- Clarifications to the Executive Officer's responsibilities upon approval of a vehicle owner's request for a HD I/M compliance time extension;
- Modifications to the freight contractor, broker, and applicable freight facility requirements;
- Modifications to the HD I/M tester training requirements;
- Modifications to improve clarity in the reporting and recordkeeping requirements;
- Modifications to improve clarity for both vehicle drivers and inspectors during in-person field inspections;
- Modifications to improve clarity in enforcement actions and responsibilities and to add criminal penalties as a potential enforcement action on any person or entity who fails to comply with the requirements of the HD I/M Regulation; and
- Modifications to the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (formerly identified as Appendix B and now identified as Appendix B-1) to correct technical specifications and improve clarity, including to correct formatting errors that resulted in unviewable descriptive text in Tables 1 through 3.

[7] *https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/hdim2021/15daynotice.pdf*

Non-Substantial Modifications

Subsequent to the 15-day public comment period mentioned above, staff identified the following additional non-substantive change to the Regulation:

Final Regulation Order:

- Section 2196.1(e): Fixed an erroneous uppercase "I" in the word "in" to lowercase for improved grammar so it now correctly reads as, "specified in section 2196.1(b) are met."
- Section 2197.1(b)(2)(A)2.: After "title 13," added "CCR," for improved readability.
- Section 2197.3(b)(1)(A); Removed an erroneous space at the end of the sentence between "California" and the semi colon for improved punctuation.
- Section 2198.1(a)(6): Added a space between "add" and "inspection" for improved punctuation.

California Standards for Heavy-Duty Remote On-Board Diagnostic Devices

- In subsection 1.3 of section E., deleted an extra space between "the" and "standardized" for improved punctuation.
- Table 1: The 15-day modified text errantly showed the addition of a footnote asterisk after "Odometer," but that footnote asterisk was already there with the originally proposed 45-day text and should not have been underlined in the 15-day proposed modifications to the text.
- Table 1: The 15-day modified text errantly showed footer text being struck as part of the last row in the table. This was a formatting error.
- Table 4: The 15-day modified text errantly showed the addition of asterisks to mark information in the footer of the table; however, the footer information was being deleted via the 15-day changes so the asterisks should have been shown in strikethrough instead of underline.

The above-described modifications constitute non-substantial changes to the regulatory text because they do not materially alter the requirements or conditions of the proposed rulemaking action.

Documents Incorporated by Reference

The HD I/M Regulation, adopted by the Executive Officer per the Board's direction in *Resolution 21-29*, incorporates by reference the following documents:

- "California Standards for Heavy-Duty Remote On-board Diagnostic Devices," adopted August 22, 2022, incorporated by reference in the HD I/M Regulation in title 13 CCR section 2195.1.
- Society of Automotive Engineers (SAE) J1667 Recommended Practice "Snap Acceleration Smoke Test Procedure for Heavy-Duty Powered Vehicles," as issued February 1996 ("1996-02"), incorporated in reference in the HD I/M Regulation in title 13 CCR section 2195.1 and 2196.4.

The following documents are incorporated by reference in the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" adopted on August 22, 2022:

- Section 86.010-18, title 40, CFR, "On-board Diagnostics for engines used in applications greater than 14,000 pounds GVWR", 2009.
- International Organization for Standardization (ISO) 11898-1 "Road vehicles – Controller area network (CAN) – Part 1: Data link layer and physical signaling," 2015.
- ISO 11898-2 "Road vehicles – Controller area network (CAN) – Part 2: High-speed medium access unit," 2016.
- ISO 15031-4 "Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 4: External test equipment," 2014.
- SAE J1699-2 "Test Cases for OBD-II Scan Tools and I/M Test Equipment," 2017.
- SAE J1962 "Diagnostic Connector," July 2016.
- SAE J1978 "OBD II Scan Tool – Equivalent to ISO/DIS 15031-4," April 2002.
- SAE J1979 "E/E Diagnostic Test Modes," February 2017.
- SAE J1979-DA "Digital Annex of E/E Diagnostic Test Modes," May 2019.
- ISO 15765-4 "Road Vehicles-Diagnostics Communication over Controller Area Network (DoCAN) - Part 4: Requirements for emission-related systems," April 2021.
- SAE J1939 Recommended Practice for a Serial Control and Communications Heavy Duty Vehicle Network – Top Level Document," August 2018.
- SAE J1939-DA "Digital Annex of Serial Control and Communication Heavy Duty Vehicle Network Data," March 2020.
- SAE J1939-3 "On Board Diagnostics Implementation Guide," 2015.
- SAE J1939-13 "Off-Board Diagnostic Connector," October 2016.
- SAE J1939-21 "Data Link Layer," October 2018.
- SAE J1939-73 "Application Layer – Diagnostics," June 2019.
- SAE J1939-81 "Network Management," March 2017.
- SAE J3005-1 "Permanently or Semi-Permanently Installed Diagnostic Communication Devices," February 2019.
- SAE J3005-2 "Permanently or Semi-Permanently Installed Diagnostic Communication Devices, Security Guidelines," March 2020.
- SAE J1979-2 "E/E Diagnostic Test Modes: OBDonUDS," April 2021.

CARB documents are readily available from CARB upon request and were made available in the context of this rulemaking in the manner specified in Government Code section 11346.5(b). The HD I/M Regulation is available online at CARB's website at *HD I/M Rulemaking* and at the following webpage: *https://ww2.arb.ca.gov/rulemaking/2021/hdim2021*. These documents may be available for inspection at the California Air Resources Board, 1001 I Street, Sacramento, California, 95814, between the hours of 9:00 a.m. to 4:00 p.m., Monday through Friday (excluding holidays). To inspect these documents please contact Chris Hopkins, Regulations Coordinator, at (279) 208-7347.

These documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to publish them in the California Code of Regulations. In addition, some of the documents are copyrighted, and cannot be reprinted or distributed without violating the licensing agreements. The documents are lengthy and highly technical test methods and engineering documents that would add unnecessary additional volume to the Regulation. Distribution to all recipients of the California Code of Regulations is not needed because the interested audience for these documents is limited to the technical staff

of engine, vehicle, telematics companies, and device manufacturers, most of whom are already familiar with these methods and documents. Also, the incorporated documents were made available by CARB upon request during the rulemaking action and will continue to be available in the future. The documents are also available at colleges and public libraries or may be purchased directly from the publishers.

Summary of Comments and Agency Response

Comments Received Before and at the Board Hearing

Written comments were received during the 45-day comment period in response to the October 8, 2021, public hearing notice, as well as submitted during the Board Hearing on December 9, 2021. The list of these written comments is shown in Table 2, identifying the date in which the written comments were submitted, commenter name, and affiliation. In addition, oral comments were presented at the Board Hearing, as shown in Table 3; these are listed by commenter name and affiliation in the order that the oral comments were presented at the Board Hearing.

Table 2: Written Comments Received During the 45-Day Comment Period and at the Board Hearing

Commenter, Date	Affiliation
Little, Katie (11/24/2021)	California Farm Bureau Federation [CFBF]
Brezny, Rasto (11/26/2021)	Manufacturers of Emission Control Association [MECA]
Barrett, William (11/29/2021)	American Lung Association in California [ALA][8,9]
Shimoda, Chris and Tunnell, Michael (11/29/2021)	California Trucking Association [CTA] and American Trucking Association [ATA]

[8] In addition to ALA, the signatories to this comment letter include: American College of Physicians, California Services Chapter; America Heart Association; Asthma Coalition of Kern County; Breathe Southern California; California Black Health Network; California Conference of Directors of Environmental Health; California Health Care Alliance; California Medical Association; Center for Climate Change and Health, Public Health Institute; Central California Asthma Collaborative; Dignity Health; Families Advocating for Chemical and Toxics Safety; Family Allergy Asthma Clinic (Fresno); Long Beach Alliance for Children with Asthma; Los Angeles County Medical Association; Maternal and Child Health Access (Los Angeles); Prevention Institute; Physicians for Social Responsibility - Sacramento; San Francisco Bay Physicians for Social Responsibility; Regional Asthma Management and Prevention; St. John's Well Child and Family Center (Los Angeles); and Health Professionals for Clean Air and Climate Action. Thus, the responses to the comments of ALA are responsive to the aforementioned signatories as well.

[9] ALA also submitted an identical letter on the day of the hearing with the signatories shown above and with the addition of three new signatories: American Academy of Pediatrics, California; American Cancer Society, Cancer Action Network; and California Thoracic Society. Thus, the responses to the comments of ALA are also responsive to these additional signatories. For purposes of this FSOR, CARB staff has counted ALA's comments as one letter.

Commenter, Date	Affiliation
Magavern, Bill (11/29/2021)	Coalition for Clean Air [CCA][10]
Whittick, Janet (11/29/2021)	California Council for Environmental and Economic Balance [CCEEB]
Boland, Catherine (11/29/2021)	Motor & Equipment Manufacturers Association [MEMA]
Sutarik, Scott (11/29/2021)	Geotab
Sutton Sysounthorn, Tia (11/29/2021)	Truck & Engine Manufacturers Association [EMA]
Lewis, Michael (dated and submitted 12/02/2021 to incorrect docket; posted to correct docket on 12/9/2021)	Construction Industry Air Quality Coalition [CIAQC]
Frank, Richard (12/9/2021)	University of California, Davis [UC Davis]
Sutton Sysounthorn, Tia (12/9/2021)[11]	Truck & Engine Manufacturers Association [EMA]
Edgar, Sean and Brown, Lee (12/9/2021)	CleanFleets.net & Western States Trucking Association [WSTA]
Ward, Ed (12/9/2021)	California Resident [Ward]
Romanosky, Theresa (12/9/2021)	Association of American Railroads [AAR]
Jelenic, Thomas (12/9/2021)	Pacific Merchant Shipping Association [PMSA]

Table 3: Oral Comments Presented at the Board Hearing
(Commenters are shown in the order in which they testified at the Board Hearing)

Commenter	Affiliation
Jakpor, Karen	Physician Volunteer with the American Lung Association in California [Physician Volunteer with ALA]
Magavern, Bill	Coalition for Clean Air [CCA]
Shimoda, Chris	California Trucking Association [CTA]
Jordan, Tom	San Joaquin Valley Air Pollution Control District [SJVAPCD]
Brown, Kevin	Manufacturers of Emission Controls Association (MECA)
Rao, Leela	Port of Long Beach [POLB]
Ward, Ed	California Resident [Ward]

[10] In addition to CCA, the signatories to this comment letter include: 350 Bay Area Action Legislative Committee; Natural Resources Defense Council; Union of Concerned Scientists; Environmental Working Group; Environment California; Ceres; Environmental Health Coalition; CALSTART; Regional Asthma Management and Prevention; 350 Silicon Valley; Los Angeles Alliance for a New Economy; Center for Community Action and Environmental Justice; Central California Asthma Collaborative; Sierra Club California; Central Valley Air Quality Coalition; and California Environmental Voters. Thus, the responses to the comments of CCA are responsive to the aforementioned signatories as well.

[11] Supplemental comments in addition to EMA's comment letter received on November 29, 2021.

Commenter	Affiliation
Tunnell, Mike	American Trucking Association [ATA]
Campbell, Todd	California Natural Gas Vehicle Coalition [CNGVC]
Rosenberger Haider, Laura	California Resident [Rosenberger Haider]
Little, Katie	California Farm Bureau Federation [CFBF]
Barrett, William	American Lung Association in California [ALA]
Jelenic, Thomas	Pacific Merchant Shipping Association [PMSA]
Jakpor, Jibiana	California Resident [Jakpor]
Okurowski, Peter	Association of American Railroads [AAR]
Edgar, Sean	Western States Trucking Association [WSTA]
Lewis, Michael	Construction Industry Air Quality Coalition [CIAQC]
Abbs, Allen	Bay Area Air Quality Management District [BAAQMD]
Schrap, Matt	Harbor Trucking Association [HTA]
Sutton Sysounthorn, Tia	Truck & Engine Manufacturers Association [EMA]
Alexander, Meredith	CALSTART
Brinn, Jordan	Natural Resources Defense Council [NRDC]

Comments of Support

1. Comment: CCEEB commends staff for inclusive and iterative rulemaking process. CCEEB also supports cross-divisional, collaborative coordination across CARB divisions to improve rule outcomes and appreciates being able to engage with both Mobile Source Control Division and Enforcement Division simultaneously. [CCEEB]

   Agency Response: Staff appreciates the comment.

2. Comment: CCEEB shares CARB's staff intention that the HD I/M Regulation is developed in such a way that for vehicles with OBD systems, the Regulation is largely a "set-it-and-forget-it" test, whereby emissions data is easily and quickly transmitted to CARB. [CCEEB]

   Agency Response: Staff appreciates the comment.

3. Comment: CFBF supports agricultural vehicle definition, HD I/M tester requirements, unavailability of parts compliance time extension for small fleets, including for agricultural vehicles. CFBF appreciates the continued dialogue and conversation so that the proposal may be attainable for the agricultural community. [CFBF]

   Agency Response: Staff appreciates the comment.

4. Comment: BAAQMD is in overall support of the proposal. Reducing heavy-duty truck emissions is important in meeting air quality attainment standards, reducing air toxics, and improving public health. Thanks to Senator Leyva for authoring and working to pass Senate Bill (SB) 210. [BAAQMD]

Agency Response: Staff appreciates the comment.

5. Comment: MECA is in overall support of the proposal and believes that the Proposed Regulation will result in improved vehicle maintenance practices and cleaner truck fleets. Diesel emission controls are proven effective and durable. Periodic inspection and maintenance requirements are critical to ensure all the benefits of diesel emission controls in trucks under a comprehensive vehicle emissions reduction strategy. MECA agrees with CARB's selection of the five percent opacity threshold for older non-OBD trucks that was originally adopted under the 2012 diesel retrofit verification procedure amendments. The importance of proper engine maintenance cannot be overemphasized for the durability and long-term performance of diesel engine and emissions control systems. Regular maintenance is critical for diesel oxidation catalyst/diesel particulate filter/SCR equipped vehicles because the presence of smoke in the exhaust can no longer be used as a visual indicator of engine problems. MECA supports the use of remote OBD (telematics) for the required OBD test in the proposed HD I/M Regulation. MECA believes California's HD I/M Regulation and experience will encourage other states to adopt equivalent regulations so that all trucks driving on our nation's highways are as clean as possible. [MECA]

   Agency Response: Staff appreciates the comment.

6. Comment: Jibiana Jakpor supports the proposal and mentions the positive impact the proposal will have on those around her. The proposal will save over 7,000 lives and will make my community a healthier place. [Jakpor]

   Agency Response: Staff appreciates the comment.

7. Comment: NRDC is in support of the proposal. SB 210 will improve public health more than any measure CARB has adopted the last 12 years. The proposed HD I/M Regulation will result in 7,500 avoided premature deaths and thousands of avoided hospitalizations, with the monetized health benefits being 18 times the expected costs. [NRDC]

   Agency Response: Staff appreciates the comment.

8. Comment: Dr. Jakpor is in overall support of the proposal and states a need to clean up truck pollution specifically in the San Joaquin Valley and throughout California as it is long overdue. I struggle with air pollution and the impact it has had on my own life and those living in environmental justice communities. Cleaning up trucking pollution and a HD I/M Regulation are needed to address this problem. [Physician Volunteer with ALA]

   Agency Response: Staff appreciates the comment.

9. Comment: Rosenberger Haider is in support of the proposal and mentions the impact it will have in disadvantaged communities. The proposal will help improve air quality which is important to helping disadvantaged communities and preventing COVID outbreaks. [Rosenberger Haider]

   Agency Response: Staff appreciates the comment.

10. Comment: ALA strongly supports the adoption of the Proposed Regulation. This is the most health-protective measure that CARB has considered in over a decade to

advance California's Clean Air Act responsibilities to protect public health. The Regulation will play a key role in improving the health of Californians living near ports, railyards, warehouses, freeways, and other high-truck traffic areas. [ALA]

Agency Response: Staff appreciates the comment.

11. Comment: POLB is in support of the proposal. The Proposed Regulation will help reduce truck emissions around the ports and protect the surrounding communities while drayage trucks transition to zero emission operations. [POLB]

    Agency Response: Staff appreciates the comment.

12. Comment: CCA supports the roadside emission monitoring devices (REMD) as a crucial piece of enforcement. [CCA]

    Agency Response: Staff appreciates the comment.

13. Comment: CALSTART expresses support for the proposal and congratulates staff for their work on implementing the bill. The proposal will level the playing field. It is a policy that makes sense and will clean the air while California transitions to cleaner vehicle types. [CALSTART]

    Agency Response: Staff appreciates the comment.

14. Comment: CNGVC expresses support of this measure. The 30 tons of reduction of NOx by 2024 is significant. This is a stride forward to reduce emissions throughout the State of California and we believe in low NOx technology for its durability and resilience. [CNGVC]

    Agency Response: Staff appreciates the comment.

15. Comment: SJVAPCD notes that mobile sources are the largest contributor to the valley's air quality challenge. Heavy duty trucks are the largest emission source in this category, contributing 40 percent of the total ozone and most of the air pollution in communities located near roadways. The valley will not be able to meet air quality standards without significant emissions reductions from mobile sources. Working with fleets to accelerate deployment of clean truck technology is important and it involves ensuring that these vehicles are maintained and working properly throughout their life. We are appreciative of CARB's efforts to address these emissions and the opportunity to comment. [SJVAPCD]

    Agency Response: Staff appreciates this comment.

Regulation Costs

1. Comment: CIAQC has concerns with the overall cost of the Proposed Regulation for fleets being too costly. There is a $30/vehicle fee for the compliance certificates that does not include the cost of employee training, testing, recordkeeping, and reporting required by this Regulation. There is no limit on the cost to the fleet or truck owner. [CIAQC]

   Agency Response: No changes were made in response to this comment. SB 210 directs CARB to develop a HD I/M Regulation and authorizes CARB to collect a Regulation compliance fee to cover the costs of the State to administer the

Regulation. Thus, the proposed collected compliance fee of $30/vehicle will be used to cover the State resource costs, HD I/M database development costs, referee network establishment costs, and all other needed contract costs to support and implement the HD I/M Regulation. CIAQC is correct that the compliance fee does not cover the costs of training, testing, recordkeeping, and reporting that may be associated with this HD I/M Regulation and CARB clearly described as much while assessing the costs of this Regulation in Appendix F - Further Details on Costs and Economic Analysis - of the Staff Report. Staff accounted for all these costs in the assessment of the HD I/M Regulation's economic impacts. The compliance fee, as specified in SB 210, was meant to cover only the costs for the State to administer the Regulation and was never meant to cover the additional costs to which CIAQC refers.

To minimize the Regulation's total cost impacts to affected fleet owners, staff has developed this HD I/M Regulation to allow fleets to have multiple streamlined, cost-effective options when it comes to vehicle testing and to minimize duplicative efforts with other regulations. For example, fleets will have the option of choosing from a telematics testing approach, a plug-in device testing approach, and the ability to check out a free testing approach at specific locations within California. This will allow fleets to choose the testing option that best suits their needs with minimal disruption to their business operations. In addition, the free testing approach will help provide fleets with testing devices to perform the required testing if the fleets cannot afford to purchase one. Furthermore, to minimize costs on the end users, CARB is developing a tester training course that is free for any individual who is interested in performing the required compliance tests. CARB is also looking to pull vehicle and owner data from various State databases such as existing CARB regulatory databases and Department of Motor Vehicle (DMV) database to minimize the duplicity of entering data that is already available to the State. Staff has made every effort while designing this HD I/M Regulation to take fleet owners' costs into account and to minimize costs where feasible. The Regulation strikes a good balance between ensuring emissions reductions through the required vehicle testing, while at the same time, minimizing business costs and disruptions. The HD I/M Regulation is projected to cost $4.09 billion over the period from 2023 through 2050 at a cost effectiveness of $60.65 per pound of PM and $1.80 per pound of NOx, which is well within the range of the previous CARB's regulations.

2. Comment: For fleets that would choose to use the state testing stations, there is no limit established on the cost of those tests. Nor are there testing stations established to provide the service. Such a testing scheme would require both the truck and an operator to be out of service for the testing period adding further to the cost for compliance. [CIAQC]

   Agency Response: No changes were made in response to this comment. As mentioned in the response to comment 1 above, fleets will have multiple streamlined, cost-effective options to choose from for testing. Unlike BAR's light-duty Smog Check program which requires vehicle owners to have the vehicle testing performed at State-designated testing stations, the HD I/M vehicle testing requirement is designed to harness remote submission mechanisms, thereby avoiding the need to bring vehicles to a specific State testing station. This can minimize operational downtime to heavy-duty fleet owners because the fleets can choose to submit the required OBD test data via telematics services. Under the remote submission method, the OBD data will be

automatically transmitted to CARB's HD I/M database in the background while vehicles are conducting their normal business operations without human intervention or vehicle downtime. Even fleets that choose the plug-in device testing approach are expected to only see vehicle downtime of about five minutes or less per test. These approaches substantially decrease the operational downtime of a vehicle compared to the traditional station-based approach that many states currently utilize for inspection and maintenance programs. Costs for testing will vary based on the option chosen by the fleets, however, will be based on open market rates. Based on conversations with device vendors and as further detailed in the Appendix F in the Staff Report, staff projects fleets that already utilize telematics for other fleet needs will see minimal cost increases to incorporate the HD I/M inspection, while fleets that choose to purchase plug-in testing device are likely to see costs varying between $100 to $700 per device.

3. Comment: CIAQC was shocked that the initial reporting was estimated at 5 minutes per vehicle. CARB needs to account for the time spent physically gathering the data. CARB states time would be saved by data from DMV, but that is not feasible when the operator is leasing or renting the vehicle. [CIAQC]

   Agency Response: No changes were made in response to this comment. As mentioned in the response to comment 1 above, to minimize the impact of the HD I/M initial reporting requirement on fleets, CARB plans to harness vehicle information already available in State databases such as CARB's existing regulations, DMV, and International Registration Plan (IRP) vehicle registration. Fleets will not have to duplicate data entry efforts already done for their vehicles in these other State systems. Under the HD I/M Regulation, owners would be required to report relevant fleet information into CARB's HD I/M database system, including fleet owner and company contact information. For vehicles already in the existing State databases utilized by the HD I/M Regulation, fleet owners will be able to simply enter a vehicle identification number (VIN) into their fleet, then the rest of the additional vehicle data fields required for the HD I/M Regulation will be automatically uploaded into their profile. Thus, this will substantially reduce not only the time needed to report fleet and vehicle information, but also the time needed to pull together the needed information prior to reporting in the HD I/M database. Considering the DMV dataset will contain all vehicles registered in California and the IRP vehicle database contains information on most out-of-state vehicles, the streamlined vehicle reporting process will apply to nearly all fleets subject to the HD I/M Regulation. It is also worth noting that for fleets with multiple vehicles, the fleet owner and company information would only need to be reported once, and not reentered for each vehicle entry. Hence, the estimated five minutes for each reported vehicle is reasonable.

   Finally, regarding the concerns relating to reporting by the operator of a leased or rental vehicle, the reporting requirement would be primarily the responsibility of vehicle owner, not the operator themselves. Thus, staff does not see an initial vehicle reporting issue for the lessee of the vehicle.

4. Comment: SB 210 envisioned "minimized costs." Given the time required to drive to and from a Kiosk, or schedule a mobile service twice a year, there is no way the cost per truck will not greatly exceed the low costs outlined in the legislation, let alone the costs compared to the current Periodic Smoke Inspection Program (PSIP) that run between $75 to $150 per vehicle. [CIAQC]

Agency Response: No changes were made in response to this comment. The HD I/M Regulation as approved for adoption by CARB meets the requirements of SB 210. This HD I/M Regulation strikes a balance between ensuring emissions reductions through required vehicle testing, while at the same time, incorporating ways to minimize business costs on and disruptions to the regulated parties. As discussed in the responses to comments #1, #2, and #3 above, fleets will have multiple streamlined, cost-effective testing options to perform the required testing. Fleets will not be required to drive to a kiosk or schedule a mobile inspection, as this comment suggests. If fleets choose to submit the required testing data via telematics, the data submission will automatically take place in the background during each vehicle's normal operation without further human intervention every time the data submission is due. If fleets choose to submit the testing data via a purchased plug-in device, they can perform the testing in-house without the need of hiring third-party mobile testers as long as the in-house testers successfully complete the require HD I/M tester training course that will be offered for free on CARB website.

Further, this HD I/M Regulation meets the specific cost limit included in SB 210. The only cost specified in SB 210 is the cost of the compliance fee to support State's implementation of the Regulation (as further described in the response to comment 1 above), which can be no more than $30 at the start of the Regulation with increases tied to the consumer price index in subsequent years. CARB's compliance fee for this HD I/M Regulation is $30 per vehicle, thus meeting the only cost requirement within the SB 210.

5. Comment: CIAQC has concerns that under the proposed HD I/M Regulation, fleets will be required to purchase a dongle to extract data and subscribe to a service to be able to access telematics. Because there appears not to be a universal dongle, more than one will be required for each manufacturer. The real reporting cost per truck could be several hundred dollars. For those fleets that may use their in-house technicians, the company will need to buy the annual software from each vehicle original equipment manufacturer (OEM) in order to access the vehicle engine control module ($2,000 to $4,000 per computer). [CIAQC]

   Agency Response: No changes were made in response to this comment. As mentioned above, the HD I/M Regulation is built to allow multiple testing options for fleets to choose which method makes the most sense for their business needs. One of these options is a telematics-based approach that staff expects most fleets that already subscribed to telematics services would choose to utilize. As staff discussed the telematics approach with interested vendors, the vendors mentioned that submission of HD I/M test data would likely be offered as an add-on service to their existing telematics platform with little to no additional costs relative to their current subscription services. Thus, fleets already paying for a telematics subscription would likely see little to no cost increase to add the telematics submission of HD I/M test data.

   The telematics testing option likely is the most convenient testing approach, but some fleets not currently subscribed to telematics services could view its added hardware and monthly service subscription costs as too expensive of an upfront cost. Hence, the HD I/M Regulation allows for other alternative options from which fleets may choose. For example, fleets will have the option of hiring a HD I/M tester to perform the

testing or even becoming their own testers by completing the free CARB-provide training courses. Choosing to become their own testers would require the fleets to purchase a testing device with an expected cost between $100 and $700, and such testing devices could be used on all vehicles within the given fleet moving forward. Further, CARB is planning to implement a device check-out option where fleets would be loaned testing devices for zero cost.

Finally, staff expects testing devices certified to meet the HD I/M Regulation's requirements to be universal and work for the various vehicle OEMs. Fleets and testers will not need to purchase different software for each vehicle OEM. CARB's Heavy-Duty OBD Regulation requires a standardized set of OBD data to be made available on all OEM makes. CARB's HD I/M Regulation specifically utilizes only these standardized OBD data; thus, devices certified to the HD I/M Regulation will be able to access the standardized data for the various OEMs. CARB's HD I/M pilot program, as further described in Appendix G of the Staff Report, demonstrated the ability to utilize a single testing device to collect the required OBD data set from the different engine and vehicle manufacturers.

For the reasons described above, CARB does not agree with the commenter's assertion that the reporting costs per truck will be upwards of several hundred dollars per truck. The Regulation has been developed to provide fleets multiple options as to how they want to comply to minimize fleet disruptions and overall costs to comply with the Regulation as much as possible, while still achieving necessary emission reduction need in California.

6. Comment: CARB assumes a cost savings for large fleets doing testing in-house, but the software costs alone make this cost prohibitive. This was not disclosed in any of the pilot programs. Further, CIAQC finds it odd that CARB equated a cost savings to PSIP sunsetting. Given the excessive costs associated with this Proposed Regulation, there would be no cost savings. [CIAQC]

   Agency Response: No changes were made in response to this comment. The HD I/M Regulation will require OBD-equipped vehicles to perform an OBD test, whereas the current PSIP Regulation requires these vehicles to undergo an annual smoke opacity test. Thus, when the HD I/M periodic testing requirements are implemented, fleets will see the costs savings of not having to perform the annual smoke opacity test. This is not to say that there will not be a cost to performing the newly required periodic OBD inspection, which staff separately accounted for and discussed in detail in the Appendix F of the Staff Report. The cost analysis appendix was structured to separately describe the full incremental cost of the new periodic OBD inspections (Chapter I – Direct Cost Impacts – of the Appendix F) and the avoided smoke opacity testing costs (Chapter II – Cost Savings – of the Appendix F) compared to the current cost baseline, instead of combining these two cost elements together into one overall cost delta. Hence, staff referred to the removal of this smoke opacity test as cost savings. The estimated cost savings due to the avoided smoke opacity testing would only help partially offset the increased costs to vehicle owners due to the HD I/M Regulation. Overall, vehicle owners would still incur an increase in costs due to the Regulation.

   Furthermore, as detailed in staff's response to comment 5 of this section, CARB does not see the costs of purchasing OBD testing devices for fleets that choose to perform

in-house testing as cost prohibitive. Fleets and testers will not need to purchase different software specific to each vehicle OEM. The CARB's Heavy-Duty OBD Regulation requires a standardized set of OBD data to be available on all OEM makes. The HD I/M Regulation specifically targets these standardized OBD data; thus, devices certified to the HD I/M Regulation will be able to access the standardized data for the various OEMs. Therefore, fleets will only need to buy one testing device that will meet the HD I/M testing needs for their various vehicle types. The cost of such device is expected to be between $100 and $700 per device. Fleets will not have to buy multiple OEM specific testing devices costing thousands of dollars as suggested by the commenter.

Finally, consistent with the statute requirements in SB 210, the pilot program (described in Appendix G of the Staff Report) focused on demonstrating technologies that show potential for readily bringing vehicles into the Regulation. In addition, supplemental chapter B of the pilot report contains an analysis of the potential per vehicle annual testing and repair costs. The cost estimates developed as part of the pilot effort were utilized in the full cost analysis of the HD I/M Regulation (Chapter IX and Appendix F of the Staff Report).

7. Comment: It is very unclear at what cost our members can accomplish vehicle testing and reporting. While the state fees are capped at $30 per vehicle, it is not clear whether a small fleet owner will be able to accomplish this on his own or what the fee will be to the HD I/M tester. [WSTA]

   Agency Response: No changes were made in response to this comment. Staff estimated costs for small fleets as part of the Cost and Economic Analysis accompanying this Regulation (Chapter IX and Appendix F of the Staff Report). Furthermore, the Regulation is designed to allow fleets various compliance testing options to choose from, so fleets can choose the approach that makes the most sense for them. Testing options range between a variety of options including a telematics-based approach, hiring a testing company to perform the compliance testing, and checking out a testing device from specified locations. These various options have different estimated costs, all of which are detailed in Appendix F of the Staff Report. A small fleet will have the ability to perform the compliance testing themselves if they choose by becoming a HD I/M tester. To do this, an individual would simply have to take the training class offered to individuals interested in becoming a HD I/M tester. This training is free to all interested parties. If a fleet chooses to outsource the testing and hire an outside HD I/M tester, this cost will be based on open market forces; however, conservatively, staff used a cost of $125 to hire an outside tester to perform a compliance test when performing the cost assessment.

8. Comment: The compliance fee should be apportioned for interstate vehicles based on miles operated in California based on the rationale that the Commerce Clause of the U.S. Constitution precludes states from imposing flat annual fees on commercial trucks. Furthermore, assessing an identical compliance fee for both in-state and out-of-state trucks will result in a losing litigation for the state. [CTA/ATA, WSTA]

   Agency Response: No changes were made in response to this comment. Staff respectfully disagrees with the comment. The proposed compliance fee aligns with the statutory direction contained in SB 210. The proposed compliance fee is not intended to recover or fund road maintenance or other expenses for which benefits may relate

to miles traveled. Rather, the fee is a mechanism by which all regulated parties evenly share the costs of a vehicle testing, certification, and inspection program. The nature of the program requires the reporting and review of testing data and the issuance of certificates *on a per-vehicle basis*, as well as other costs (e.g., vehicle inspections, enforcement, fraud monitoring) that can rise or fall with the number of regulated vehicles. With a per-vehicle fee, operators' total fees will vary based on the size of their fleets, which is a far better measure of proportionate share of program implementation costs than in-state miles. *See Am. Trucking Associations, Inc. v. Michigan Pub. Serv. Comm'n*, 545 U.S. 429, 435 (2005) ("The bulk of such costs would seem more likely to vary per truck or per carrier than to vary per mile travelled."). Moreover, the costs and benefits of reviewing testing data, issuing certificates, answering questions, monitoring for fraud, and taking enforcement actions (and the administrative overhead required to support those functions) are unlikely to vary significantly, if at all, based on an operator's location inside or outside California, and commenters introduced no evidence of such variation. For example, out-of-state vehicle owners require the same access to the HD I/M database's functionalities for submitting test data, paying fees, and tracking their program compliance as California-based vehicle owners, regardless of the number of miles traveled in California. The per-vehicle fee, thus, apportions costs rationally and "maintain[s] state boundaries as a neutral factor in economic decision making." *Am. Trucking Associations, Inc. v. Scheiner*, 483 U.S. 266, 283 (1987).

As detailed in the Staff Report's Appendix F, Chapter III., staff calculated the proposed HD I/M compliance fee of $30 per vehicle based on the estimated funding needed to establish necessary HD I/M program infrastructure and secure resources to effectively implement and enforce the program as authorized by SB 210.[12] The per vehicle fee was calculated by dividing the estimated total costs by the estimated number of vehicles operating in California (including in-state and out-of-state vehicles).

During discussions with ATA representatives and affected stakeholders during the development of the HD I/M Regulation, CARB staff highlighted the need for individual vehicle mileage to be reported for any type of fee apportionment to be feasible. During those discussions, ATA representatives and stakeholders were not receptive to submitting the detailed documentation that CARB would need to make such a system work.

It is worth noting that stakeholders opposed the additional requirements that would be necessary to accurately determine a per-mile apportioned fee, assuming, *arguendo*, that such apportionment were appropriate, no feasible mechanism exists to effectively enforce whether reported self-reported mileage in California on a vehicle-by-vehicle basis is accurate without additional vehicle tracking data. During the development of the HD I/M program, CARB staff did discuss the potential of fleets equipping their vehicles with global positioning system (GPS)/geofencing technology to track vehicles as they operate in California. Such GPS-based equipment could be used to track vehicle's California mileage on a vehicle-by-vehicle basis with the data being reported to CARB to calculate an apportioned fee. Stakeholders expressed

[12] Except as authorized by Health and Safety Code Section 44154(a)(2) to adjust annually the maximum allowable compliance fee based on the California Consumer Price Index.

strong opposition, however, to the use of this technology during the regulatory development process due to concerns regarding privacy and security and a desire to avoid unnecessary State oversight of private trucking activities.

9. Comment: In response to the claim that the imposition of a fee on out-of-state vehicles would violate the Commerce Clause of the US Constitution, Richard Frank (UC Davis School of Law) points out that the $30 annual compliance fee proposed by CARB staff would apply equally to both California-based and out-of-state trucking companies. He concludes that there is no plausible basis upon which it can be claimed that the proposed fee discriminates against out-of-state actors or unfairly burdens interstate commerce. Several previously-adopted CARB Regulations have been challenged by out-of-state companies and other litigants as violating Dormant Commerce Clause principles, and those legal challenges have been soundly rejected by the courts. Frank gives several examples of these rejections. [Frank, UC Davis]

   Agency Response: We appreciate this comment and have responded to this issue in the response to CTA/ATA, WSTA comment 8, above.

Regulation Testing Frequency

1. Comment: CIAQC question the reason behind requiring more than annual testing and believes two tests a year is excessive and adds unnecessarily to the cost of compliance when CARB's own data demonstrate that the vast majority of trucks are in compliance with the existing standards. WSTA and CleanFeets.net state that twice per year testing is extremely onerous and their members will not be able to navigate a complicated (and likely costly) testing and reporting program, which will result in no DMV renewal and therefore preventing the legal operation of their trucks. [CIAQC, WSTA, CleanFleets.net]

   Agency Response: No changes were made in response to these comments. Staff does not agree with the comment on reducing the proposed testing frequency. As discussed in the Staff Report, the current annual smoke opacity testing requirement for California fleets of 2 or more heavy-duty diesel vehicles under the Periodic Smoke Inspection Program (PSIP) Regulation is inadequate in ensuring heavy-duty vehicles operating in California are properly maintaining their vehicles' emission control systems to control the vehicles' PM and NOx emissions. Recent CARB field testing of heavy-duty vehicles suggest a significant number of heavy-duty vehicles are operating in California with malfunctioning emissions control systems (11 to 17 percent of tested OBD-equipped vehicles had illuminated OBD malfunction indicator light (MIL), indicating issues with their emissions control systems). Data from heavy-duty and light-duty studies also demonstrate that often, if a malfunction does not significantly impact drivability, many vehicle owners will wait until mandated by a regulation to fix the issue. More frequent inspections would require heavy-duty vehicle owners to more regularly maintain their vehicle emissions control systems to prevent their vehicles from failing the required periodic tests. Heavy-duty vehicles operate a significant amount of mileage per year in California, up to 100,000 miles per year. Considering the large emissions increase that comes from damaged emissions control systems and the large amount of mileage that such vehicles travel, it is critical to ensure heavy-duty vehicles are tested on a more frequent basis than the current annual testing requirement. The Board explicitly discussed and debated testing frequency, and for

the reasons mentioned above, directed staff to adopt semiannual testing in the first 3 years following the effective date of the periodic testing requirement, followed by quarterly testing.

2. Comment: Vehicles owned by rental and leasing companies should follow a similar compliance schedule like the DMV smog inspection program and require equipment under the ownership of rental and leasing companies to meet compliance deadlines once a year. [CTA/ATA]

   Agency Response: Staff assumes that this comment is referring to the California's Smog Check program implemented by BAR and not DMV, as BAR is responsible for its oversight and administration. Rental and leasing companies subject to the Smog Check program are required to meet the same testing requirements and compliance deadlines as all vehicles subject to the Smog Check program. Thus, rental and leasing companies do not receive special treatment when it comes to the testing requirements in the Smog Check program. Similarly in this HD I/M Regulation, special treatment is not warranted simply because a vehicle is owned by a rental or leasing company. It is still the responsibility of the owner to ensure that their vehicles are well maintained and repaired in a timely manner.

   Furthermore, staff had many conversations with rental companies during the development of this HD I/M Regulation and learned that most rental agencies already harness telematics systems to monitor their vehicles' operations. Thus, the "set it and forget it" nature of this HD I/M compliance testing mechanism allows for a simple solution to perform compliance testing with minimal disruption, even if the vehicle is being rented or leased out at the time of testing. During their participation in the HD I/M rulemaking workgroup process, many rental agencies seemed relatively unconcerned with meeting the HD I/M testing requirements due to the ease with which telematics would enable the submission of periodic compliance test data. As such, no changes were made in response to this comment.

3. Comment: CIAQC requests a provision in HD I/M that allows for an exception to the test interval if the vehicle is out on rent across a test window. [CIAQC]

   Agency Response: No changes were made in response to this comment. Allowing for an exception to the periodic testing interval if the vehicle is out on rent across a test window would reduce the emissions benefits of the Regulation. Furthermore, such a provision would be extremely difficult to enforce and would likely require the submission of substantial reporting from the rental companies concerning the details of rentals and require significant State resources to effectively audit these reports. Thus, such a requirement would impose a large burden on both rental agencies and CARB staff, creating a Regulation that is more burdensome than simply performing tests on a regular schedule, as required in the HD I/M Regulation. Given that most rental agencies already use telematics systems to monitor their vehicles, the "set it and forget it" nature of this test allows for a simple solution to perform testing without being physically present with the vehicle at the time of the test.

4. Comment: CTA supports staff's decision to keep twice/year annual testing, however, believes that the vast majority of fleets would be over testing at twice a year. To the extent changes are made in the future, CTA hopes to reduce the testing burdens of those 90 plus percent of well-maintained fleets and concentrate any enhanced testing,

including quarterly testing on those vehicles and fleets which are found to be gross emitters. ATA and HTA echo CTA's concern on the proposed testing frequency. [CTA, ATA, HTA]

Agency Response: CARB staff proposed twice-per-year testing for both OBD-equipped and non-OBD vehicles in the Proposed Regulation released for public comment on October 8, 2021. However, at the Board Hearing on December 9, 2021, the Board directed staff to modify the originally proposed regulatory language to implement a path to transition from two times per year to four times per year periodic testing for OBD-equipped vehicles to further reduce emissions from heavy-duty vehicles operating in California. Hence, the initial periodic testing frequencies will reflect this. As the HD I/M Regulation is implemented, staff will collect and analyze incoming test data to assess the effectiveness of the Regulation and determine whether changes to the Regulation requirements could improve the overall success of the Regulation moving forward. Any future changes to the HD I/M Regulation that staff proposes would be developed via a data-driven process and in an open public process. Staff welcomes collaboration from stakeholders to ensure the HD I/M Regulation is as effective as possible in ensuring vehicles operating in California are in good maintenance, while at the same time, ensuring limited disruption to the affected fleets. Staff looks forward to continued coordination with interested stakeholders including ATA, CTA, HTA and affected truck owners and operators on these efforts.

5. Comment: CFBF requests agricultural vehicles be afforded with an annual inspection requirement. [CFBF]

   Agency Response: Under the HD I/M Regulation, agricultural vehicles would be subject to an annual compliance test requirement. Most vehicles subject to the HD I/M Regulation will have semi-annual periodic testing requirements, increasing to four times per year after three years for OBD-equipped vehicles. However, agricultural vehicles often operate differently than most typical on-road heavy-duty vehicles. Their operation is focused primarily during planting and harvest seasons, where vehicle availability is critical in assisting planting processes and delivering agricultural products to the first point of processing as expeditiously as possible. Outside of these critical operational periods, agricultural vehicles are generally inactive. Thus, to minimize potential disruptions and vehicle downtime during the critical planting and harvest seasons, along with reducing test burdens during times of inactivity, agricultural vehicles are subject to annual testing frequencies.

6. Comment: Multiple entities and individuals urge CARB to increase the frequency of reporting to quarterly to increase the health benefits of the Proposed Regulation. [NRDC, CCA, ALA, -Physician Volunteer with ALA]

   Agency Response: At the Board Hearing on December 9, 2021, the Board directed staff to modify the originally proposed regulatory language to implement a path to transition from two times per year to four times per year periodic testing for OBD-equipped vehicles. Under the HD I/M Regulation, OBD-equipped vehicles will be subject to semiannual (twice per year) testing for the first three years of the periodic testing implementation, then quarterly testing (four times per year) starting in the fourth year of the periodic testing implementation. Staff estimates that the increased testing frequency would increase the PM and NOx emissions benefit by four percent and six percent, respectively. Consequently, hundreds of more lives would be saved as

compared to the staff's originally proposed semiannual OBD testing in the Staff Report.

7. Comment: BAAQMD suggests an added requirement for quarterly reporting for vehicles with prior compliance issues or that have been identified as prone to higher emissions based on make or model of the truck, with the ability to return to semiannual testing after succeeding compliant reports. This would minimize reporting requirements for well-maintained vehicles and achieve additional reductions for high emitters. [BAAQMD]

   Agency Response: The Board directed staff to increase the frequency of periodic testing from semiannually to quarterly for OBD-equipped vehicles three years after the initial implementation of the periodic testing requirement. Heavy-duty vehicles can travel a significant amount of mileage each year, leading to risks of vehicles travelling significant mileage with malfunctioning emissions control systems with significantly higher excessive emissions if they are not repaired in a timely manner. Data from California's light-duty Smog Check program shows that vehicle owners tend to complete emissions related repairs right before testing deadlines, thus, it is important to have regularly scheduled inspections to ensure these repairs happen quickly.

   BAAQMD further suggests that the ability to transition back and forth between semiannual and quarterly testing based on the compliance history of the vehicle could help minimize reporting requirements for fleets. However, staff sees such a requirement as potentially having an opposite impact on fleet's business practices as fleets would be required to track which of their vehicles are subject to each specific testing frequency and would not have certainty into the future as to what their testing frequencies may become. Thus, not only could this lead to an additional administrative burden on fleet owners due to the increased tracking needs, but also may impact future business planning due to uncertainty regarding future testing frequencies. Certainty regarding testing frequency will help ensure fleets can more easily plan their operations. Hence, keeping one consistent test frequency would be less burdensome than the commenter's proposal of adjusting testing frequency based on past testing history.

Vehicle Reporting and Test Data Submission Deadlines

1. Comment: CARB is proposing a requirement based upon the DMV registration period instead of on the calendar year basis performed in the PSIP Regulation under Health and Safety Code section 43701, which allows the testing period to be on a calendar year for smoke tests for ease of fleet management. Considering OBD testing is related to PSIP, it is unclear how CARB can now deviate requiring testing in anything other than a calendar year without legislation changing the Health and Safety Code. Also, having different 90-day windows for every vehicle in a fleet will be extremely difficult to track for the rental industry and will ultimately lead to a high probability of inadvertent missed testing date windows. [CIAQC]

   Agency Response: No changes were made in response to this comment. Staff does not agree with the comment. CIAQC referred to a Health & Safety Code section applicable to the current PSIP. The HD I/M Regulation is established under a separate statute authorized as part of SB 210 and supersedes the previous PSIP related statutes. For example, SB 210 requires that the PSIP be sunset once the HD I/M

Regulation is fully implemented. SB 210 directs CARB to develop and implement a comprehensive HD I/M Regulation for heavy-duty vehicles operating in California. The bill has no restriction that the required test procedures must be allowed on a calendar year basis. Furthermore, tying testing requirements to vehicles' DMV registration period will not be burdensome for fleets, as they already track their vehicles' DMV registration dates for their annual vehicle registration. As discussed in the Staff Report, the proposed compliance deadlines based on DMV registration dates for California-registered vehicles would spread affected heavy-duty vehicles' compliance dates throughout the year. Spreading out testing and compliance determination periods evenly throughout the year is critical to ensuring a smooth and effective implementation of the Regulation. Without such a process, Regulation resources such as the referee network, call center, and even the database system could become overwhelmed by activity during high volume periods where demand is greater. For example, if all vehicles had the same compliance deadlines, the need for these resources would spike right before the compliance deadlines and then be low for the rest of the year. Such peaks and valleys would lead to difficulties and inefficiencies in adequately resourcing the Regulation. By specifying a spread of compliance dates as proposed, implementation resources can plan for consistent volume and activity and better serve the entire regulated community.

Staff's proposed "90-day submission window" would allow vehicle owners to submit their vehicle compliance test results up to 90 days prior to their vehicles' compliance deadlines. This will help provide fleets with flexibility in arranging testing for their vehicles in multiple batches throughout the year if they choose or to align their vehicle testing compliance deadlines with other regulatory testing requirements, such as California's Basic Inspection of Terminals program, which requires vehicles to have a safety inspection performed every 90 days. The 90-day testing window helps balance the need for flexibility for regulated entities and the need for a consistent testing volume for CARB to implement the Regulation smoothly. In addition, the 90-day testing window under the HD I/M Regulation is consistent with the light-duty inspection and maintenance Regulation (Smog Check) in California, which allows registration with the DMV if a test has been passed within the last 90 days. Furthermore, staff had discussions with multiple rental agencies during the development of this Regulation and the majority did not express concerns with the 90-day testing timeframe.

2. Comment: CTA/ATA recommends alternative options to the proposed VIN-based compliance schedule for vehicles registered out-of-state. The rationale is to allow fleets to submit data that aligns more closely with existing business practices, such as maintenance intervals. [CTA/ATA]

   Agency Response: No changes were made in response to this comment. For out-of-state vehicles, staff proposed a VIN-based compliance schedule due to the challenge of accurately keeping track of out-of-state vehicles' registration dates with their home states. As noted above in the staff's response to comment 1 above, spreading out vehicles' compliance deadlines would allow for a more efficient Regulation implementation's resources planning and prevent overwhelming the Regulation resources during high volume periods. In addition, fleets can choose to submit the required compliance test results within 90 days of the vehicles' compliance deadlines, providing flexibility for fleets to schedule the required compliance tests

performed around the vehicles' regular maintenance events and other safety related inspection requirements.

3. Comment: CIAQC has concerns with the proposed requirement to report purchases and sales within a 30-day window for large fleets with multiple sites, especially with fleet purchases that are managed separately at each location. There is concern that this requirement would result in fleets inadvertently missing the 30-day window, only to be handed a notice of violation and a fine. CIAQC request the Governing Board to consider issuing warnings instead of violations for this administrative error. [CIAQC]

   Agency Response: No changes were made in response to this comment. The requirement to report changes of ownership within 30 days is consistent with other reporting and change of ownership requirements in existing CARB regulations. Large fleets, including those with multiple locations, have shown the ability to meet these timing requirements through regulations already being implemented.

Regulation Testing Methods and Accessibility

1. Comment: CIAQC questions the need for submitting vehicle OBD data when engine de-rate exists. Vehicles running with the MIL on will derate and finally shut down within a short period. [CIAQC]

   Agency Response: No changes were made in response to this comment.
   The commenter's statement that having a MIL will always cause derating and engine shutdown within a short period is not factual. Instead, manufacturers are only required to derate their engines in certain narrow circumstances (for low diesel exhaust fluid (DEF), poor DEF quality, or SCR tampering). The current strategies for SCR inducement are based on U.S. EPA's guidelines for certification of heavy-duty diesel engines illustrated in CISD-09-04R[13], as well as in the U.S. EPA-CARB joint public workshop held in July 2010[14]. Malfunctions that trigger the MIL can result in significant emissions increases; however, they rarely trigger an engine derate, as evidenced in field testing performed as part of the CARB's pilot HD I/M Regulation and contracting efforts. CARB's field studies show that 11 to 17 percent of trucks are still driven on the road with their MILs on, mostly all without any derate process being triggered. Thus, the derate procedure is not requiring these emissions related repairs to be performed. Requiring OBD data submission in an I/M Regulation has been proven to be a highly effective method to identify vehicles with malfunctioning emissions control systems and ensure repairs. If not fixed in timely manner, such malfunctions result in increased emissions, leading to excessive pollution from the heavy-duty trucking sector.

2. Comment: CIAQC comments that CARB has ignored SB 210's requirement of proposing a "streamlined process" for reporting. The proposed reporting process is

[13] U.S. EPA, "Revised Guidance for Certification of Heavy-Duty Diesel Engines Using Selective Catalytic Reduction (SCR) Technologies", CISD-09-04R, available at: https://dis.epa.gov/otaqpub/display_file.jsp?docid=20532&flag=1.
[14] U.S. EPA-CARB, "Selective Catalytic Reduction Workshop", 2010, available at: https://ww2.arb.ca.gov/sites/default/files/2020-05/ADA__workshop--2010-07-20--scr--presentation.pdf.

not streamlined and envisions the cooperation of two state agencies (CARB and DMV) in the registration process. [CIAQC]

Agency Response: No changes were made in response to this comment. Staff does not agree with the commenter. CARB followed and met SB 210 requirements in developing the HD I/M Regulation. Specifically, for the required OBD testing on OBD-equipped vehicles, staff proposed a set of streamlined data submission options from which vehicle owners can choose. The proposed telematics option is a "set-it-and-forget-it" OBD test option. With this option, once the telematics device is set up on the vehicle, the vehicle owner does not need to worry about when and how to submit the required data. This is because telematics companies would pre-program their telematics devices to automatically collect the data from the vehicle's OBD system and remotely submit the data to CARB's HD I/M database on a pre-set data submission frequency without any further human intervention. For the OBD test device plug-in option, the data will be remotely submitted to the HD I/M database as the HD I/M tester plugs the OBD test device into the vehicle's OBD port and initiates the data submission process on the test device. For the required smoke opacity testing on non-OBD vehicles, the tester would follow the same smoke opacity testing procedure as currently required under the PSIP. Not all smoke meters have the capability of remotely transmitting the opacity test result to the HD I/M database. Hence, manual opacity test result submission would still be required for those vehicle owners. Because smoke opacity testing is limited to monitoring PM emissions control systems and not as comprehensive as OBD testing in terms of testing a vehicle's full emissions control systems, staff proposed an additional visual inspection of emissions control systems as part of vehicle compliance testing for non-OBD vehicles. The proposed visual inspection would require a tester to verify that all emissions control components are in the manufacturer-approved configuration without the need of any additional tools. Similar to smoke opacity testing, visual inspection results of non-OBD vehicles would also be manually reported to the HD I/M database via a CARB-designed visual inspection report template. It is worth noting that these non-OBD vehicles for which manual opacity test result and visual inspection reporting will be required are only a small and dwindling part of the heavy-duty fleet. In 2023, only about 20 percent of all affected vehicles will be non-OBD vehicles; by 2050, such vehicles will represent less than 1 percent of the total affected vehicles.

In addition, SB 210 specifically states that DMV shall confirm prior to the initial registration, the transfer of ownership, or the renewal of registration that a heavy-duty vehicle is compliant with, or exempt from, the HD I/M Regulation (Health and Safety code section 4000.17). Hence, the required HD I/M Regulation compliance tie to the vehicle's California DMV registration followed and met SB 210 requirements.

3. Comment: To address language in the Board resolution regarding the intent of the $30 testing fee option, while we have no issues prioritizing testing locations in and around disadvantaged communities, the enacting bill specifically directed CARB to make a $30 test and fee option as widely available as possible. We would ask that CARB follow that direction and ensure these options are readily available to truckers throughout the state. [CTA]

   Agency Response: No changes were made in response to this comment. CARB is following the directive in SB 210 [Health and Safety Code section 44152(a)(1)(B)] to

provide at least one test procedure that is reasonably accessible, and in aggregate with the compliance fee, does not exceed the maximum allowable $30.00 compliance fee specified in Health and Safety code section 44154. Staff considered the appropriate way to implement this lower cost testing provision while still ensuring the entire HD I/M Regulation could be funded and effective. Given the funding constraints imposed by a mechanism that essentially requires emissions testing free-of-cost to vehicle owners, it is not reasonable to expect free testing services could be offered in every location or for every entity throughout California. Because the legislature would have been aware of this predicament, it presumably wanted a lower cost testing program in areas where such a program would aid in overall Regulation effectiveness – which is to say, helping individuals in lower income areas disproportionately exposed to pollution from heavy-duty vehicular sources. The legislature has repeatedly focused on air quality and harmful emissions in disadvantaged communities.[15] For example, Assembly Bill (AB) 617 directs CARB to focus air monitoring efforts in disadvantaged communities and develop community reduction programs in an effort to reduce emissions in these sensitive areas. Furthermore, disadvantaged communities refer to areas disproportionately affected by environmental pollution with concentrations of low-income individuals[16] and in SB 210, the legislature explicitly found that "trade corridors, such as those in the Inland Empire and Central Valley, consist of some of the most environmentally disadvantaged cities in the state."[17]

Based on this history, staff interprets the requirement for a test procedure reasonably available within the maximum allowable certification fee cost as the legislature expressing its desire to assist low income and small fleets operating in and around the State's most impacted communities with the costs of compliance testing. Considering funding for the Regulation is limited by the $30.00 compliance fee maximum specified in SB 210, staff must work within the means of budgeted funding. To meet this provision, staff intends to implement a system to allow fleet and vehicle operators to access vehicle compliance testing equipment without having to purchase an inspection device, with an initial focus on establishing locations that best help achieve emissions reductions in AB 617 communities,[18] followed by potential expansion to other areas throughout the State should funding become available. CARB staff's intent is to ensure low-income individuals and vehicle owners operating in these communities have easier access to CARB-provided free testing equipment to help incentivize these fleets to complete their required compliance testing. Overall compliance rates for vehicles operating in these communities would be expected to increase due to the availability of free testing equipment, thus further reducing pollution coming from heavy-duty vehicles within these impacted communities. Through this approach, those looking to utilize this testing option would have reasonable access, while also being cognizant of the fiscal constraints established as part of the SB 210 statute.

---

[15] Cal. Health & Safety Code sections 39711, 39719.2, 44125, 42705.5, 44258.4, and 44391.2.

[16] Cal. Health & Safety Code sections 39711.

[17] SB 210, section 1(a)(2).

[18] AB 617 requires CARB each year to select communities (AB 617 communities) for participation in Community Air Protection Program to improve air quality in the communities. CARB staff works with local air districts and community members to identify and recommend communities for the Board approval to implement community air monitoring systems and/or community emissions reduction programs in those selected AB 617 communities.

4. Comment: CFBF requests CARB have a program in place to provide OBD plug-in devices and/or opacity testing devices for the State's socially disadvantaged farmers so that their HD vehicles may also be compliant with the Regulation. [CFBF]

   Agency Response: As discussed above in the response to comment 3 within this section, CARB plans to set up a system where end users in need could have access to testing equipment to perform the required testing without being required to purchase testing devices. This would assist the regulated community with testing costs and benefit air quality in disadvantaged communities in California. In line with the intent of the statute, CARB plans to focus these initial efforts on assisting disadvantaged communities and low-income fleets. As funding permits, staff plans to expand this network to further areas within the State. Staff looks forward to coordinating with interested stakeholders, such as the CFBF and local farm bureaus, on ways to offer low/no cost testing equipment in areas that could most benefit their socially disadvantaged constituents.

Regulation Compliance Demonstration

1. Comment: A process is needed to allow owners/drivers to instantaneously demonstrate compliance and pay fees prior to or upon entering California. Fleets should also receive refunds for vehicles that paid compliance fee but did not operate in California. This can be implemented through an apportioned fee scheme (like IRP and International Fuel Tax Agreement [IFTA]). [CTA/ATA]

   Agency Response: No changes were made in response to this comment. The HD I/M Regulation does not mandate where a compliance test must be performed. Thus, the Regulation would already allow out-of-state vehicles to submit compliance test data to CARB's HD I/M database and pay compliance fees shortly before or upon entering California. CARB is developing a HD I/M database system where affected heavy-duty vehicle owners can submit the required compliance test data and fee payments and receive confirmation of the result in a matter of minutes. Vehicle owners will be able to access the database system online from anywhere to demonstrate their Regulation compliance prior to or upon entering California. CARB staff's goal is to provide all owners/fleets a fair and equitable compliance fee that covers the cost of the Regulation, including allowing access to a simple-to-use owners' portal. Furthermore, for many of the same reasons as identified in the response to comment 8 in the "Regulation Costs" section above regarding the infeasibility of an apportioned fee scheme, the administrative machinery of revenue collection and subsequent refunds would present an impractical administrative and cost burden on the State and would seriously impede the effective implementation of the HD I/M Regulation, thus resulting in fewer emissions reductions and health benefits for the people of California.

2. Comment: In-cab certificates are prohibited by federal law [49 U.S.C. §14506(a)], which specifically preempts any state law or regulation "that requires a motor carrier, motor private carrier, freight forwarder, or leasing company to display any form of identification on or in a commercial motor vehicle." [CTA/ATA, WSTA]

   Agency Response: Staff take no opinion on the accuracy of the Commenter's assertions regarding federal law. Staff changes to the Proposed Regulation in the

15-Day Notice modifications, however, address this comment. With these modifications, vehicle owners are responsible for demonstrating compliance with the requirements in this HD I/M Regulation to legally operate in California, but vehicle owners are not required by the HD I/M Regulation to display any form of identification. These modifications are intended to emphasize a vehicle owner's requirement to demonstrate compliance rather than displaying their HD I/M compliance certificate on or in their commercial motor vehicle. CARB will continue to make HD I/M compliance certificates available in line with the Legislative intent under SB 210.

3. Comment: EMA has concerns that the Proposed Regulation does not specify passing criteria for compliance testing. §2196.3 states what the criteria are for failing a compliance test, and other sections of the Proposed Regulation refer to "completion of a passing compliance test as specified in §2196.3;" however, §2196.3 does not affirmatively state criteria for a passing test. Leaving passing criteria up to interpretation, as the section currently does, would create confusion and ambiguity. EMA recommends the addition of a new §2196.3(d), for "Criteria for passing a compliance test." [EMA]

   Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment. The HD I/M Regulation now explicitly specifies the passing criteria for compliance testing.

4. Comment: WSTA requests that CARB use its existing TRUCRS reporting system owner and vehicle details along with California DMV to populate any new reporting system, so the fleet owner's obligation is to verify or simply clarify information. [WSTA]

   Agency Response: To minimize burden on regulated entities, staff is developing a database that will look to pull from existing vehicle data sources to minimize duplicative reporting efforts. This includes coordinating with DMV to pull DMV and IRP registration data along with available data from other existing CARB databases such as TRUCRS. Only owners that have vehicles not registered in CARB's or DMV's databases or have entries with missing critical data elements required by the HD I/M Regulation (e.g., VIN, license plate, etc.), would need to re-enter such vehicle information. All other owners would simply report relevant fleet owner and company information and their relevant VINs.

5. Comment: WSTA requests that the submittal of data be user-friendly, and that in no case should CARB staff review exceed 10 calendar days from submittal. [WSTA]

   Agency Response: No changes were made in response to this comment. Submittal of test data will be uploaded to the HD I/M database. Upon submission, the database will determine the result of the submitted test and inform the user. This process will be automated in the database and is expected to occur within a matter of minutes, well less than the 10-day request here.

Pilot Program

1. Comment: CIAQC has concerns regarding the pilot program conducted by CARB. Rather than pilot their Proposed Regulation, CARB tested devices and experimental

technologies. They did not test the effort needed to meet the requirements of the Regulation, nor did they thoroughly examine the time and cost required to acquire and report the data utilizing the methods required by the Regulation, nor does it appear that the pilot program was ever submitted to the legislature for their review as required. [CIAQC]

Agency Response: No changes were made in response to this comment. SB 210 requires CARB to conduct HD I/M pilot program activities ahead of the Board's consideration of the proposed HD I/M Regulation and its implementation. The bill states that CARB must conduct a pilot program in consultation with other state agencies to develop and demonstrate technologies that show potential for readily bringing vehicles into the Regulation. As discussed in detail in Appendix G of the Staff Report, staff closely followed and met all the SB 210's pilot study requirements, including demonstration of the feasibility of various technologies for use in the HD I/M Regulation. The final pilot report was attached to the Staff Report (Appendix G - Heavy-Duty Inspection and Maintenance Regulation Pilot Report) and was sent to the legislature on October 8, 2021, prior to the Board Hearing date on December 9, 2021. Furthermore, staff did thoroughly examine the time and costs required to report the data required as part of the Regulation as part of the cost assessment for this HD I/M Regulation. This analysis is included as part of the ISOR, with further details provided as part of Appendix F, the cost appendix.

2. Comment: The Truck and Engine Manufacturers Association (EMA) comments that, "there is a need for more study and refining of the Regulation before its implementation. Thus, the concurrent release of a report on the pilot program documenting the need to improve the efficacy of the proposed HD I/M Regulation, and the Proposal of that very same Regulation is patently inappropriate." WSTA concurs with EMA's comment on the pilot program and believes that the legislative intent of the "pilot program" is to demonstrate a Regulation that is not overly burdensome or onerous to affected vehicles owners. It does not appear that CARB has met that requirement. [EMA, WSTA]

   Agency Response: No changes were made in response to this comment.
   SB 210 requires CARB to conduct HD I/M pilot program activities ahead of the Board's consideration of the proposed HD I/M Regulation and its implementation. The bill states that CARB must conduct a pilot program in consultation with other state agencies to develop and demonstrate technologies that show potential for readily bringing vehicles into the Regulation. In fact, when SB 210 was being considered by the Legislature, the bill sponsor, Senator Connie Leyva, shared handouts with legislative staff specifically describing the pilot program as consisting of demonstrations of individual test devices that collect and submit OBD data.[19] As discussed in detail in Appendix G of the Staff Report, staff closely followed and met all of the SB 210's pilot study requirements, including demonstration of the feasibility of various technologies for use in the HD I/M Regulation. Staff also held a series of workshops and workgroups to solicit public stakeholders' feedback on the development and completion of the pilot study, as well as provided the public with

[19] The handout was included as part of the Staff Report's references that are available for public view upon request.

updates on the pilot study's progress and findings throughout the course of the study. Staff also held a public workshop on the pilot report on August 3, 2021, prior to releasing it as part of the Staff Report, to provide public stakeholders opportunity to comment on the staff's pilot report effort. Based on these efforts, an additional follow-on report would not be necessary. Furthermore, as this Regulation is implemented, CARB staff will continue to outreach to regulated entities, post relevant material, and hold informational sessions regarding the Regulation to ensure the public and regulated entities have adequate knowledge of the regulatory requirements.

3. Comment: Ward would ask that CARB staff continue to hold additional HD I/M Workshops along with developing a larger pilot study over the next two years to assure that families and freight costs will not become victims of HD I/M. This additional time will allow CARB time to validate studies regarding emissions reduction. [Ward]

   Agency Response: No changes were made in response to this comment.
   As discussed in detail in Appendix G of the Staff Report, staff closely followed and met all SB 210's pilot study requirements, including demonstration of the feasibility of various technologies for use in the HD I/M Regulation. Staff also held a series of workshops and workgroups to solicit public stakeholders' feedback on the development and completion of the pilot study, as well as provided the public with updates on the pilot study's progress and findings throughout the course of the study. Staff also held a public workshop on the pilot report on August 3, 2021, prior to releasing it as part of the Staff Report, to provide public stakeholders opportunity to comment on the staff's pilot report effort. The final pilot report was attached to the Staff Report (Appendix G - Heavy-Duty Inspection and Maintenance Regulation Pilot Report) and was sent to the legislature on October 8, 2021, prior to the Board Hearing date on December 9, 2021. However, we share the commenter's desire for a smooth implementation of the Regulation. As this Regulation is implemented, CARB staff will continue to test Regulation elements prior to and during implementation to ensure a smooth rollout and effective Regulation. Further, we also share the commenter's desire for further collaboration with stakeholders as the Regulation is developed and rolled out and will continue to engage stakeholders on the HD I/M Regulation moving forward. Additional engagement including outreach to regulated entities, the posting and distribution of relevant Regulation material, and informational sessions regarding meeting the regulatory requirements are planned to ensure the public and regulated entities have adequate knowledge of the regulatory requirements and can interaction with CARB staff as the Regulation is rolled out.

OBD Testing Devices

1. Comment: An industry standard or protocol is needed for device communication with vehicles prior to the implementation of the I/M Regulation. [EMA]

   Agency Response: No changes were made in response to this comment.
   After careful and thorough consideration of the Regulation needs, as well as the technical capabilities and limitations of the current technologies in the market, staff determined that the existing standards/guidelines cited in Part II of the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" incorporated by reference in the HD I/M Regulation as contained in Appendix B-1) are sufficient to meet the requirements of the Regulation and ensure minimal risk to the end-users.

Thus, a separate industry standard is not needed and would be duplicative of the existing requirements already referenced as part of this HD I/M Regulation. This follows the structure for establishing device communication requirements in BAR's Smog Check program that has been successfully implemented for more than a decade. The requirements for the OBD testing devices in BAR's program for the Data Acquisition Devices (DAD) model the structure used in this HD I/M Regulation for referencing existing industry standards without developing a separate industry standard specifically for these OBD devices. Furthermore, the HD I/M OBD testing device communication requirements have been designed to minimize the active time-on Controller Area Network (CAN) bus. To reduce the risk of unexpected communication problems, the devices will communicate and collect data only when the vehicle is in an idle state. Thus, these devices will operate similarly to conventional OBD scan tools and DADs that operate based on the existing industry standards while the vehicle is at idle, engine running, but not in motion.

2. Comment: EMA raises concerns regarding the proposed implementation timeline. The current timeline will not provide adequate lead time for device manufacturers and vehicle manufacturers alike to ensure the feasibility and compatibility of the technology, or to protect against any unintended impacts to critical vehicle systems. [EMA]

   Agency Response: No changes were made in response to this comment. The proposed periodic testing requirement will not start earlier than January 1, 2024, which is at least one year from the Regulation implementation start date on January 1, 2023. The Regulation will also be approved by OAL prior to the January 2023 implementation date, giving device vendors additional lead-time for device development and testing. Of note, the lead time provided for HD I/M device development is similar to the timing it typically takes OBD device vendors to complete the certification process that BAR uses in the light duty smog check program. Thus, the timing provided within the HD I/M regulation is consistent with similar programs. Throughout the development of the HD I/M Regulation, staff engaged and worked with multiple OBD test device vendors and telematics companies while developing the OBD test device requirements and certification process and conducted multiple public workgroup meetings and workshops on these topics. Staff discussed the proposed timelines with vendors to ensure that enough time was provided for testing devices to come to market. As part of one of the public workgroup meetings focused specifically on device requirements, staff also surveyed participating device vendors on the proposed device development timelines. The overwhelming majority of participants were satisfied with the timelines proposed as part of this regulation. Staff also established the device certification requirement to ensure that robust testing and development of the devices are performed prior to becoming available on the market to end users. As part of this process, staff plans to test the devices and work with the vendors to ensure the devices do not have negative impacts of critical vehicle systems. Furthermore, devices are required to collect data related to the HD I/M Regulation only when the vehicle is in an idle state to help minimize the risk of any unintended impacts to critical vehicle systems when collecting the required vehicle data.

3. Comment: Concerns are raised over third-party OBD testing device failures being considered as tampering if such a device inadvertently impacts emissions or safety controls of the tested vehicle. [EMA]

Agency Response: No changes were made in response to this comment. The HD I/M Regulation established a certification requirement for OBD test devices used in the HD I/M Regulation to ensure that these devices are robustly tested by both vendors and staff prior to being allowed on the market. Furthermore, the Regulation has established specific requirements of OBD testing devices to mitigate against such issues. For example, devices are not allowed to interfere with the normal operation of the vehicle. In addition, devices are required to communicate and collect vehicle data only while the vehicle is at idle to minimize any potential risks to safety systems and vehicle operation. Furthermore, devices are required to meet industry standards and guidelines including the ISO-15765-4, SAE 3005-1, SAE J3005-2, SAE J1939-3, and SAE J1939-21 to meet the certification requirements of the HD I/M Regulation. Prior to being accepted to the Regulation, devices will go through a robust certification testing and review process to ensure they will not inadvertently impact a vehicle's operation, emissions, or safety controls. Based on these safeguards, it would be highly unlikely for the OBD testing devices that meet the requirements of the HD I/M Regulation and successfully undergo the certification process to pose such risks.

4. Comment: EMA and WSTA raise concerns with durability and safety of vehicle's standardized data link connector when using continuously connected remote OBD devices. [EMA, WSTA]

   Agency Response: No changes were made in response to this comment.
   Devices that are continuously connected to vehicle's standardized data link are currently used widely without posing significant durability and safety issues to the vehicle connection ports. Keeping a device continuously plugged into the vehicle's standardized data link connector is likely to result in less wear/damage to the connector compared to repeatedly plugging and unplugging a testing device into and out of the vehicle's data link connector. Finally, the Regulation allows testing devices to be plugged into other connection points on the vehicle (using a different port, etc.) if the vendors demonstrate the device can effectively collect the required data elsewhere. Thus, vendors and end-users are not limited to using the standardized data link connector if they wish to connect elsewhere to the vehicle.

5. Comment: EMA recommends CARB to consider revision of subsection E.2.1.4, Part II in Appendix B of the Proposed Regulation and adding a requirement for the remote OBD tool to disable CAN communications with the vehicle while the tool is loading or initializing the operating system or application software. This action shall not disable communications on vehicle network segments. Communications shall not be enabled for use by the application until after all POST activity has completed. [EMA]

   Agency Response: No changes were made in response to this comment.
   It is staff's understanding that it is a routine practice for the OBD devices to disconnect from vehicle's OBD system during the initial loading of the device or while it undergoes over-the-air updates. Hence, staff determined that EMA's proposed revision could lead to over-specification of non-essential technical requirements and potentially cause conflict with the operation of the vehicle and/or the telematics systems. Furthermore, staff finds EMA's proposed requirement difficult to test for the purpose of certifying remote OBD (ROBD) devices for the Regulation. For the reasons mentioned above, staff does not believe the addition of EMA's proposed requirement is necessary.

6. Comment: EMA recommends CARB to add an initialization failure provision in subsection E.2.1.4, Part II in Appendix B of the Proposed Regulation. [EMA]

   Agency Response: Staff agrees with the comment and made changes to the Proposed Regulation in the 15-Day Notice modifications.

7. Comment: EMA recommends CARB to consider revision of subsection E.2.2.3, Part II in Appendix B of the Proposed Regulation and include SAE J1939-84 in the list of references in Subsection C, as it has practical information that will aid implementors. The same concept applies to J1699-3 & -5, as the specifications lie in ISO 15765-4. [EMA]

   Agency Response: No changes were made in response to this comment.
   All listed documents/guidelines in subsection C provide information on vehicle's OBD systems and particularly, its interaction with OBD testing devices. The information in the referenced guidelines is necessary to ensure safe operation of OBD testing devices when in communication with vehicles and to aid vendors to develop devices that meet HD I/M requirements. However, the content of the documents recommended here by EMA is more relevant to the OEM new vehicle OBD system certification process the OEM's go through to receive an Executive Order to sell a vehicle as it is focused on test methods for vehicles OBD systems to verify that they comply with CARB heavy-duty OBD requirements. Thus, staff does not believe the proposed additional references are reasonable to include as part of the HD I/M testing device requirement. Furthermore, the recommended references suggested here by EMA would not be directly referenced within the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (now identified as Appendix B-1), whereas all references listed in subsection C are directly referenced within the device requirements of the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices". Therefore, the abovementioned documents are outside the scope of subsection C.

8. Comment: Related to subsection E.2.5, Part II in Appendix B of the Proposed Regulation, does CARB intend to mean initialization as establishing vehicle network speed, or establishing whether the vehicle is subject to HD I/M? Does this apply to each data item collected, or just the process to identify the vehicle as relevant and if it is just the process, under what circumstances should the ROBD tool fail data collection in progress? [EMA]

   Agency Response: No changes were made in response to this comment.
   The purpose of subsection E.2.5 is to establish the response time requirement in ROBD device-vehicle communication, as specified in the SAE documents listed under E.2.5.1. the provision clearly specifies the communication fail criteria (i.e., vehicle not responding to the ROBD device within the required duration) and the subsequent required actions of the ROBD device (i.e., repeating the initialization sequence up to three times, notifying the vehicle owner of the failed communication between the device and the vehicle, and submitting a "Failed Communication" message to the HD I/M electronic reporting system).

9. Comment: EMA recommends that the provisions of E.2.5 and 2.6, Part II in Appendix B of the Proposed Regulation, be expanded for foreign vehicles. [EMA]

Agency Response: No changes were made in response to this comment.
After careful consideration of the comment, staff determined that provisions of E.2.5 and E.2.6 cannot be expanded for foreign vehicles due to potential inconsistencies in performance of the OBD systems related to confounding factors such as fuels used in different countries. Furthermore, the HD I/M Regulation requires vehicles operating in California to meet at least federal emissions standards for the MY of the engine; thus, the OBD systems will need to meet the requirements of CARB/federal OBD requirements.

10. Comment: EMA poses a question to CARB related to subsection E.2.6.2, Part II in Appendix B of the Proposed Regulation; What is the desired list of relevant OBD compliance values? [EMA]

    Agency Response: No changes were made in response to this comment.
    Per SAE J1979 and SAE J1979-2 requirements, all emissions-related OBD ECUs which at least support one of the OBD services shall support service $01 and Parameter Identification (PID) $00. Additionally, ECUs shall not send any response message for any service request not supported. Thus, the permitted response is quiet (no response) for a non-OBD controller. Per SAE J1939-73, the ECU response to a DM5 request message should be an OBD Compliance code (SPN 1220) of 5 or FF to identify itself as a non-OBD controller. Thus, the permitted response is either quiet (no response), or acknowledgement of non-OBD for a non-OBD controller.

11. Comment: EMA poses a question to CARB related to CAN Bus data formatting requirements for the J1979 or J1979-2 (subsection E.4.1.2, Table 2 in Appendix B of the Proposed Regulation); Why omit the tool addresses when it is often included in test logs? (There appears to be an example missing for 29-bit CAN IDs that will use TA and SA fields.)? [EMA]

    Agency Response: No changes were made in response to this comment.
    The comment references data submission template examples in the older draft informal versions of the Proposed Regulation that were released to the public during the regulatory development process. Staff determined that the submission template examples may not be entirely representative of different real-world situations, thus, removed them from the HD I/M Regulation to avoid confusion.

12. Comment: EMA poses a question and made a recommendation to CARB related to CAN Bus data formatting requirements for the J1979 or J1979-2 (subsection E.4.1.2, Table 2 in Appendix B of the Regulation); Is there a length limit for the intended CSV reference? A more practical limit of 255 bytes is recommended. [EMA]

    Agency Response: No changes were made in response to this comment. Considering that the total number of returned bytes could be as high as 1785 (according to SAE J1939-21), staff determined that EMA's proposed character limit of 255 is too small and would result in errors or the potential to receive truncated data submissions. Thus, to avoid a risk of submission errors, staff determined it was best not to limit the character size for this message within the regulatory text itself.

13. Comment: EMA has concerns with the provision in subsections E.5.4.1 and E.5.4.2 in Appendix B of the Proposed Regulation. As currently drafted, the proposal does not provide an encryption method for stored data which could create an issue with personal identifiable information (PII). However, EMA suggests the required data to be

submitted as part of the HD I/M Regulation does not contain any PII information. Thus, without PII information, encryption seems to be an overspecification and recommends the word "encrypted" be deleted from subsection E.5.4.2. [EMA]

Agency Response: Staff made changes based on the received comment. The OBD data required by the HD I/M Regulation is publicly available and can be collected using non-proprietary OEM OBD scan tools and telematics OBD devices. Hence, staff agrees with EMA that there should not be a concern regarding PII. Staff revised subsection E.5.4.2 in the HD I/M Regulation to improve clarity as it relates to PII information and encryption.

14. Comment: EMA raises a concern with subsection E.6.1 in Appendix B of the Proposed Regulation; CARB would require development of ROBD tools prior to HD I/M Regulation being finalized and adopted. [EMA]

    Agency Response: No changes were made in response to this comment.
    From the Regulation implementation start date on January 1, 2023, until the start of the proposed periodic testing requirement (which will not be earlier than January 1, 2024), the PSIP OBD submission requirements will be in effect. These requirements are based on the current CARB heavy-duty OBD Regulation (section 1971.1, title 13, CCR), which has been in place since 2019. ROBD devices are required to be certified to the requirements in the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (Appendix B-1) of the HD I/M Regulation once the periodic testing requirements in section 2196.2 take effect. Thus, there is at minimum a year between when the Regulation is initially implemented and when the HD I/M device certification requirements take effect. There are no requirements to develop devices prior to finalization and adoption of the Regulation.

15. Comment: EMA has concerns that the proposed implementation schedule would leave very little time for ROBD device prove-out [EMA].

    Agency Response: No changes were made in response to this comment.
    As stated in CARB's responses to earlier comments in the present document, staff engaged and worked with multiple OBD test device vendors and telematics companies and held multiple public workshops on these topics while developing the OBD test device requirements and certification process. Furthermore, staff discussed the proposed timelines with vendors to ensure that enough time was provided for testing devices to come to market. Staff also established the device certification requirement to ensure that robust testing and development of the devices are performed prior to becoming available on the market to end users. As part of this process, staff plans to test the devices and work with the vendors to ensure the devices do not have negative impacts of critical vehicle systems. The use of HD I/M certified devices for periodic testing will not be required prior to the HD I/M periodic testing requirements take effect, thus providing at least until 2024 before these requirements take effect, and thereby providing sufficient time for testing to ensure desired functionality of such devices. Finally, the HD I/M pilot program demonstrated the feasibility of collecting the required data from vehicles effectively, further providing evidence that devices can meet the data requirements established by the HD I/M Regulation.

16. Comment: EMA makes a recommendation to CARB related to item #1 of Table 4 in Appendix B of the Proposed Regulation. This item should only apply to DM5 completion bits for supported monitors and not DM26 monitor enabled bits. Further, DM21 may be better placed in Item #2. [EMA]

    Agency Response: Staff agrees with the comment. Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment and made item #1 in Table 4 of the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (Appendix B-1) specific to DM5. The content of DM21 and DM26 are included in the data stream requirements of the HD OBD Regulation (covered by item #2 in Table 4 of "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (Appendix B-1).

17. Comment: EMA makes a recommendation to CARB related to item #2 of Table 4 in Appendix B of the Proposed Regulation. We recommend the addition of the text "PGN 40960 (DM34) SPNs 4127 thru 41. [EMA]

    Agency Response: No changes were made in response to this comment.
    The data stream requirement as specified in Item #2 of Table 4 already includes NTE parameters. Thus, staff finds it redundant and unnecessary to mention DM34 explicitly (similar to how the content of DM21 and 26 is already covered in item #1 and therefore there is no need to list them under item #1).

18. Comment: EMA requests addition of DM24 to item #3 of Table 4 in Appendix B of the Regulation. The DM25 data cannot be interpreted without the record layout in DM24, which is hundreds of bytes long now. [EMA]

    Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment and added more clarifications to the "Comments" section of item #3. This will further highlight the importance of DM24 in interpreting DM25 data and emphasize to the ROBD device vendors that DM24 data must be collected and provided in submitted files.

19. Comment: EMA recommends deletion of DM1 from item #4 of Table 4 in Appendix B of the Regulation; DM1 is not cited in the regulations and includes non-emissions related faults which are not relevant to I/M pass/fail decisions. [EMA]

    Agency Response: No changes were made in response to this comment. Staff disagrees with the comment and believes that collecting DM1 information is necessary as it provides important information regarding MIL status and all active fault codes. It is true that other DMs also show MIL status; however, some engines rely on DM1 specifically for illuminating the MIL.

20. Comment: EMA suggests a revision to the statement in the Comments section of item #4 of Table 4 in Appendix B of the Proposed Regulation. A more informative comment, which could explain the potential perception of an extra entry in the J1939 column, could state: "The union of fault codes returned by DM12 and DM23 meet the J1979 definition for confirmed fault codes." [EMA]

    Agency Response: Staff agrees with the comment and made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment.

21. Comment: EMA recommends CARB to add a statement related to DM7 request in the Comments section of item #5 of Table 4 in Appendix B of the Proposed Regulation. EMA suggests the addition of the following in the Comments field: "Use DM7 with a Test ID value of 247 and Failure Mode Indicator of 31 to obtain test results (DM30 responses) for SPs listed in DM24." [EMA]

    Agency Response: Staff agrees with the comment and made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment.

22. Comment: EMA highlights the importance of collecting DM56 and poses a question to CARB related to item #9 of Table 4 in Appendix B of the Proposed Regulation regarding the reasoning behind the absence of DM56 request. [EMA]

    Agency Response: Staff agrees with the comment. DM56 provides important information about tested vehicle's engine and is required from all heavy-duty OBD systems starting from 2024 MY engines. As part of 15-day change modifications, the HD I/M Regulation includes a new item in Table 4 of the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (Appendix B-1) for DM56.

23. Comment: EMA makes a comment related to item #15 of Table 4 in Appendix B of the Proposed Regulation. Item 15 references Section 1971.1(h)(5.8); however, this is a 2024 MY requirement that will not be available for vendor certification testing until at least calendar year 2023. [EMA]

    Agency Response: No changes were made in response to this comment. As stated in response to comment 14 in this section, the PSIP OBD submission requirements will be in effect within the first proposed phase of the Regulation implementation (from January 1, 2023, until the start of the proposed periodic testing requirement, which will be no earlier than January 1, 2024). The PSIP OBD data submission requirements, in place since 2019, do not require the data fields that EMA is referencing in its comment. The certification of ROBD devices to the requirements in the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (Appendix B-1) of the HD I/M Regulation would not need to occur prior to these new data fields coming available. However, for improved clarity, the
    HD I/M Regulation included the following statement in the Comments section of the corresponding item in Table 4: "Applies to 2024 and subsequent model year engines"

24. Comment: EMA poses a question to CARB regarding the requirement in subsection E.2.1.4.3 in Appendix B of the Proposed Regulation: "Is it truly Staff's intent that an SAE J1939 device would need to try up to six times?" [EMA]

    Agency Response: No changes were made in response to this comment.
    There are several technical issues that could result in the failure of the OBD device initialization sequence and prevent a successful two-way communication of the device and vehicle from being established. Based on staff's experience, some of these technical issues are temporary and may be resolved within a short time. Since the initialization sequence is a critical part of the vehicle-ROBD device communication, it is essential for the ROBD device to make multiple attempts to perform the initialization sequence in case the initial attempt fails (i.e., vehicle not responding within the allowed time, or no responses received from at least one OBD-compliant ECU, maximum of three attempts for each) to maximize the chances of establishing a successful communication with the vehicle.

25. Comment: EMA makes a comment regarding the requirement in section E.2.5 in Appendix B of the Proposed Regulation. Subsection E does not address or define VIN failure outcomes. [EMA]

    Agency Response: No changes were made in response to this comment.
    The CARB's heavy-duty OBD Regulation requires OEM's of OBD-equipped vehicles to make the OBD data specified in this Regulation available and accessible by a scan tool designed to communicate with SAE J1979 and J1939 network. This includes both VIN and odometer (2024 MY engines and newer) readings. Based on this requirement, the VIN should be available to collect on vehicles subject to the HD I/M Regulation. If situations arise where the VIN is for some reason not accessible from a given vehicle, CARB will use other vehicle identifier OBD parameters collected as part of the OBD submission and work with the device vendors to identify the tested vehicle. Furthermore, as these data are required to be collected and available as part of the OBD regulation, CARB staff will work directly with the engine OEM to remedy the issue for future HD I/M test submissions.

26. Comment: EMA poses a question to CARB regarding the requirement in subsection E.4.1.1 in Appendix B of the Proposed Regulation. Vehicle Miles (chassis odometer readings) are not required until 2024 MY, and thus not guaranteed until then. What should be provided when the odometer value is not provided by the vehicle? [EMA]

    Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment. CARB staff added the phrase "required if supported" in the "Description of Data" column for Odometer in Table 1, subsection E.4.1.1 to account for the possible lack of support for this parameter in pre 2024 MY engines' OBD systems.

27. Comment: EMA recommends adding the engine hour meter to the listed requirements for OBD data submission header listed in Table 1, subsection E.4.1.1 in Appendix B of the Proposed Regulation. [EMA]

    Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment. Staff modified the HD I/M Regulation to include the Engine Total Runtime as a new required parameter in the referenced table.

28. Comment: MEMA has concerns that restricting access to OBD data by engine OEMs may increase as telematics use increases, which would result in independent repair facilities not being unable to access necessary OBD data to accurately diagnose and repair vehicles. MEMA calls for policies to ensure that vehicle and engine manufacturers cannot block individual owners' access to vehicle/OBD data. [MEMA]

    Agency Response: No changes were made in response to this comment.
    All CARB-regulated OBD data is publicly available through the standardized OBD connector for individual owners and independent repair facilities to access with generic scan tools and include all the required data needed to determine compliance with the HD I/M Regulation. However, CARB authority is limited to emissions OBD data, thus, CARB does not have authority over how vehicle and engine manufacturers provide access to non-regulated diagnostic data via the standardized OBD connector, telematics systems, or other data access ports on or off the vehicle.

29. Comment: Geotab has concerns with telematics providers' inability to access the required OBD data through the RP 1226 port recommended to use by the OEMs and not having a single plug to access both emissions and non-emissions data. [Geotab]

    Agency Response: No changes were made in response to this comment.
    Staff is aware of the OEMs' shift towards keeping the third-party telematics providers away from the standardized data link connector by presenting the RP-1226 port as an alternative. Because the RP 1226 port is not standardized by the industry or regulating agencies like CARB, it is different in their implementation by the OEMs, which in some cases limits the amount of data available through such ports. Using the OBD connector, which is standardized by the CARB's heavy-duty OBD Regulation, is the only way to ensure that all the required OBD data for the HD I/M Regulation can be collected from vehicles of all makes and MYs equipped with CARB-certified OBD systems. The Regulation allows for other types of connections (i.e., using a different port, etc.) if the vendors can demonstrate the device is also capable of connecting to the standardized data link connector and collecting the required data. Thus, vendors and end-users are not limited to using the standardized data link connector.

30. Comment: Geotab recommends CARB to maintain a registry of vehicles and approved connectors that transmit the data required to comply with the HD I/M Regulation. [Geotab]

    Agency Response: No changes were made in response to this comment.
    Staff agrees with the comment and acknowledges the benefit of maintaining the recommended registry, which CARB is planning to do as part of the device certification process.

31. Comment: Because there are currently no non-continuously connected OBD devices available for testing or use, we are uncertain whether these devices can meet WSTA members' needs, even if an OBD port on a vehicle is available. [WSTA]

    Agency Response: No changes were made in response to this comment.
    CARB is working with multiple vendors to ensure that device(s) capable of meeting the Regulation requirements will be available before the beginning of the Regulation implementation. Furthermore, the pilot report demonstrated the feasibility of these devices and their ability to meet the needs of the HD I/M Regulation.

Roadside Emissions Monitoring Devices

1. Comment: EMA has concerns with the HD I/M Regulation's application of the OBD thresholds and the malfunction criteria as the benchmark for a roadside emissions malfunction threshold. REMD's will record a "snapshot" in time and may not be an accurate measure of an actual malfunction. OBD systems must continuously monitor for malfunctions over time and are not an instantaneous snapshot like used in REMD. The use of REMD, as currently proposed, will create a high likelihood for the "false" flagging of vehicles, since there is no underlying instantaneous emission limit or standard." OBD Regulations allow the manufacturer to request Executive Officer approval to temporarily disable continuous monitoring for technical reasons to avoid false indicators. The use of REMD, as currently proposed, could result in potential "false" flagging of vehicles since there is no underlying instantaneous emission limit or standard. This may result in unnecessary and costly testing. [EMA, WSTA]

Agency Response: No changes were made in response to this comment. REMD is a screening tool that allows CARB to screen real-time emissions of individual heavy-duty vehicles as they pass through the system and use the aggregated emissions screening data to characterize the heavy-duty fleet for measuring overall Regulation performance. REMD is a screening device and is not designed or relied on to determine whether a vehicle is in a non-compliant state. Hence, no penalties will be assessed based on REMD emissions readings alone. Vehicle owners who are issued a Notice to Submit to Testing (NST) based on a REMD reading will use vehicle compliance tests established in the Regulation to verify compliance.

Although REMD currently cannot determine the compliance state of a vehicle, an abnormally high emissions reading, even instantaneous, can suggest potential issues, especially if similar abnormally high readings occur during multiple screening events. CARB plans to target only the highest emitting vehicles screened through REMD systems over multiple occurrences. Targeting the highest emissions that occur multiple times will help minimize situations where a properly functioning vehicle may be flagged for compliance testing. Thus, this helps ensure that the highest emitters can be addressed and cleaned up, while at the same time, not overburdening the regulated community. In the event a vehicle is flagged as a high emitter, CARB does not expect the costs for follow up testing to be overly burdensome as the tests will be the same OBD or non-OBD vehicle compliance tests already required. There are several options available for testing vehicles. Fleet and vehicle owners may choose to become their own testers which can help reduce the costs associated with testing and verifying compliance. Also, CARB is planning to implement a device check-out option where fleets would have the option to utilize testing devices for zero cost. Finally, as with all Regulations implemented by CARB, staff will continuously evaluate the Regulation based on incoming data and use a data-driven process to further refine and improve the effectiveness of the Regulation moving forward.

2. Comment: Further studies of REMDs are needed prior to the implementation of the HD I/M Regulation as there is a significant level of uncertainty that must be accounted for to avoid erroneous flagging of vehicles due to measurement errors. [EMA]

   Agency Response: No changes were made in response to this comment. CARB, other agencies, and outside researchers have been operating REMD systems for many years to evaluate heavy-duty diesel vehicle emissions. In addition, these systems are currently utilized in ongoing inspection and maintenance programs today. For example, the state of Colorado has utilized remote sensing technology as part of their light-duty inspection and maintenance program for many years. Staff would also like to reiterate that REMD currently is a screening tool that provides the ability to screen for vehicles that may have emissions-related issues, and the screening process will not be used as the basis for issuing violations. Vehicle owners who are issued an NST will use established OBD or smoke opacity testing methods to verify compliance with the HD I/M Regulation. Additionally, CARB currently utilizes unattended REMDs that prompt CARB staff to follow-up with vehicle owners via mail as well as mobile REMDs deployed with accompanying field inspectors for targeted enforcement. The use of REMD technology at CARB has been successful and has greatly enhanced CARB's

ability to enforce vehicle regulations. Thus, CARB does not agree that further studies are needed prior to implementation of the REMDs in the HD I/M Regulation as this technology has been successfully utilized both by CARB and other I/M inspection programs.

As CARB implements REMDs under the HD I/M Regulation, staff will continuously evaluate the system based on incoming data and use a data-driven process to further enhance and improve the use of REMDs and minimize the potential for "false positive" vehicle flags as much as possible.

3. Comment: Additional work is needed to study the vehicles being flagged by REMDs to determine the error rate between vehicles flagged and those that have an actual emissions exceedance such that repair is needed. [EMA]

   Agency Response: No changes were made in response to this comment. As mentioned in staff's response to comment 2 above, REMD systems have been used to evaluate vehicle emissions by states in their current inspection and maintenance programs. It is important to note REMD currently is only a screening tool intended only to give one possible indication that a vehicle may be high emitting and/or in a non-compliant state and is being used in conjunction with other enforcement efforts. Staff will continuously evaluate the Regulation based on incoming data and use a data-driven process to further refine and improve the effectiveness of the Regulation moving forward.

4. Comment: The Pilot Report released alongside the ISOR states "As a follow-up to this pilot, CARB staff are working to implement upgrades to improve the efficacy of REMDs like PEAQS," and the study highlighted the need to roll out REMD carefully and constantly monitor the outcomes so as to be sure a large number of vehicles are not being directed for further testing without identifiable or repairable emissions-related issues." There is a need for more study and refining of the Regulation before its implementation, and thus, the concurrent release of a report on the pilot program documenting the need to improve the efficacy of the proposed HD I/M Regulation, and the Proposal of that very same Regulation is patently inappropriate. [EMA]

   Agency Response: No changes were made in response to this comment. As mentioned in staff's responses to the comments above, as with all Regulations implemented by CARB, staff will continuously evaluate the Regulation based on incoming data and use a data-driven process to further refine and improve the effectiveness of Regulation moving forward. Thus, a commitment to make improvements and monitor outcomes from the implementation of an REMD network is no different than any other CARB implementation efforts. As stated earlier, CARB plans to target only the highest emitting vehicles screened through REMD systems over multiple occurrences, which will help balance the need to detect the highest emitting vehicles with malfunctioning emissions control systems for repair in a timely manner. Furthermore, CARB does not agree with the framing of EMA's comment related to the release of the pilot report and its findings as the pilot program was carefully evaluated and reviewed in a public setting on multiple occasions. Staff held a

series of workshops and workgroups while designing and implementing the HD I/M pilot program. Staff also held a public workshop specifically on the pilot report on August 3, 2021, prior to releasing it as part of the Staff Report, to provide public stakeholders opportunity to comment and discuss the findings of the pilot effort. Thus, CARB does not agree with EMA's characterization of the release of the pilot report and its findings, nor the statement that this process was "patently inappropriate."

Freight Contractors and Applicable Freight Facilities

1. Comment: The right of entry for shipments certificate at applicable freight facilities is overly broad and calls for more clarity. EMA suggests the following language: *"An applicable freight facility, operated by a motor common carrier or private carrier, allowing the operation of vehicles subject to the requirements of this HD I/M Regulation on their property."* [EMA]

   Agency Response: No changes were made in response to this comment. Included in the Regulation is a definition of what constitutes an "applicable freight facility" and which facilities are subject to the requirements of this Regulation. Thus, the existing language in the HD I/M Regulation provides sufficient clarity on the right of entry for shipments certificate. Furthermore, staff worked directly with stakeholders associated with freight facilities subject to this Regulation to ensure these provisions are understandable and feasible.

2. Comment: The Regulation requires freight contractors and brokers, which includes "any person," verify that vehicles owned by third parties comply with Regulation and maintain records to that effect. This requirement is pointless for trucks registered in California because such trucks cannot be registered if they do not comply with the HD I/M Regulation. Such a requirement should only apply to trucks not registered by DMV in California. Limiting the application to trucks registered out of state not only makes rational sense, but it also provides a small benefit to California registered truck owners. [CIAQC]

   Agency Response: No changes were made in response to this comment. The freight contractor and broker requirements are intended to provide a level playing field for all vehicles regardless of where they are registered. In addition, DMV registration for in-state vehicles is an annual requirement, whereas compliance with the HD I/M Regulation is demonstrated on a more frequent basis. Furthermore, about 50 percent of the vehicle population operating in California each year are registered in other states without a tie to California's DMV registration. They contribute about 27 percent of the NOx emissions and 36 percent of PM 2.5 emissions of the total HD truck sector emissions profile in California. Thus, it is critical to incorporate additional compliance mechanisms such as the freight contractor and broker requirements which add an additional layer of compliance verification, for both in-state and out-of-state vehicles, to help ensure all vehicles doing business in California remain compliant with the HD I/M requirements.

3. Comment: CTA requests streamlined enforcement at freight facilities to prevent deterioration of the already congested conditions at ports and railyards. [CTA]

Agency Response: Staff made changes based on the received comment. Staff agrees with ensuring that compliance verification requirements at freight facilities do not result in negative potential impacts related to wait times, congestion, and their overall business operations. Staff received related comments over the course of the rulemaking process and in response, made modifications to the Proposed Regulation as part of the 15-day change package. These changes address verifying compliance for vehicles that enter terminals that use alternative compliance methods. Utilizing existing compliance verification methods is important for ensuring that the compliance verification process remains as efficient as possible.

4. Comment: Freight contractors should be able to turn away non-compliant vehicles from their facilities to ensure a level playing field for in-state and out-of-state entities. [NRDC, CCA]

   Agency Response: The HD I/M Regulation provides the option for applicable freight facilities to turn away non-compliant vehicles or to retain records of non-compliant vehicles they allow onto their property. Staff has proposed these two options because requiring all non-compliant vehicles to be turned away regardless of the circumstance may have the potential to create negative unintended impacts, including issues such as longer wait times for vehicles and the disruption of the movement of goods. However, because the alternative to turning vehicles away requires detailed recordkeeping of non-compliant vehicles, CARB will be able to utilize this information to pursue enforcement action on those vehicles and ensure they are brought back into compliance. This dual option approach helps balance the need to ensure vehicles are compliant with the HD I/M regulatory requirements, while also balancing the economic and supply chain needs of the transportation and goods movement sector.

5. Comment: Commenters state that given that the San Pedro Bay ports see an average of 36,000 truck visits per day, manually checking compliance certificates on this many trucks is not feasible. POLB has discussed this issue with CARB and recommends that trucks have their compliance statuses checked annually with the ports or, for one-time callers, when they apply for a day pass for port access. [POLB, AAR, PMSA, HTA]

   Agency Response: Given that vehicle owners demonstrate HD I/M compliance more frequently than an annual basis and considering the importance of improving public health and reducing community exposure, it is important to ensure that compliance is checked more frequently than annually at freight facilities, where feasible. Due to the large volume of daily truck traffic that come in and out of ports, nearby communities are especially vulnerable to the associated emissions impacts nearby and are in need of equitable protections to improve human health. Given that other CARB regulations require similar compliance requirements as the HD I/M Regulation with verification upon entering the facility, staff sees this requirement as technically feasible. Compliance would be checked manually every time a vehicle enters the facility, and instead, would be verified through technology such as radio frequency identification that is already installed at most terminals.

   Staff is aware that some terminals may not have access to such automated verification technology and understands POLB's concerns about verifying compliance during each occurrence at these select terminals and the potential impacts that such requirements could have on wait times and overall business operations at these select terminals. Therefore, staff modified the verification requirements for non-automated terminals

during the 15-day comment period. These changes address verifying compliance for vehicles that enter terminals using alternative compliance methods and require vehicles to have been verified for compliance within the last 12 months, essentially becoming an annual verification check requirement.

6. Comment: AAR and PMSA request that the reporting requirements for freight facilities be clarified to state that the requirements on applicable freight facilities do not apply to trucks delivering goods to the end users or consumers. [AAR, PMSA]

   Agency Response: Staff proposed changes during the 15-day comment period addressing this comment. Section 2197 was changed to clarify that vehicles delivering goods or providing services to the final end-user or consumer of the good or service would not be subject to the compliance verification requirements.

7. Comment: Regarding the requirements for Freight Contractors, WSTA objects to any requirement to surrender confidential private party agreements to enforce an emissions requirement, although WSTA is amenable to asking for a "hired fleet's" annual compliance document. [WSTA]

   Agency Response: No changes were made in response to this comment. The requirements outlined in section 2197.3 specify the type of information that will need to be retained. This documentation only pertains to the compliance of the vehicle involved and information about the parties requiring its operation. This requirement is consistent with documentation required in other CARB regulations and is needed to assist with effective enforcement and leveling the playing field for vehicles doing business in California. Pursuant to California Code of Regulations, title 17, section 91022, CARB has a process for designating information such as that described in section 2197.3 as confidential, if appropriate. However, it is the responsibility of the submitter to identify and designate information they believe is confidential at the time of submission to CARB, and the submitter may be asked to provide documentation to support the claim of confidentiality.

8. Comment: Regarding the requirements for Freight Contractors, the onus is on CARB to develop and maintain a user-friendly database lookup tool that enables retrieval of the compliance status of fleet owners by name, USDOT number and/or VIN. CARB's database should be formatted to time stamp the date of the query and be printable on a single page. [WSTA]

   Agency Response: Staff made no changes based on the received comment. Staff understands the importance of ensuring that the process is user friendly and efficient. The HD I/M database will provide a look-up functionality for compliance checks. Staff is working to ensure that the documents generated by this database provide the necessary information needed for regulated entities to verify a vehicle's compliance status.

9. Comment: AAR, PMSA, POLB, and HTA recommend linking the HD I/M database to the existing State drayage truck registry. Linking the two databases will provide the ports the ability to streamline compliance checks to increase overall efficiency. POLB recommends a 15-day change to address this issue. [AAR, PMSA, POLB, HTA]

   Agency Response: Staff made no changes based on the received comment. Staff understands the importance of streamlined compliance verification tools and utilizing

existing compliance verification methods where feasible to ensure that the process remains effective and efficient. As the HD I/M database is developed, staff will continue to look for overlap between existing Regulations to make compliance as easy as possible on the regulated entities. Although staff cannot guarantee that a direct link between the two databases will occur, staff will remain in coordination with interested stakeholders to ensure a process is put in place that works for all parties to verify compliance at the ports and railyards and is streamlined as much as possible.

10. Comment: PMSA raises concerns with the Freight Facility Requirements under § 2197(c) and urges CARB to consider non-container terminal processes. It must be noted that non-container terminals operate differently than traditional terminals and do not have the same technology resources. Vehicles serving non-container terminals receive an access sticker from the ports that is valid only in the calendar year received, and are verified in the DTR once per year, as opposed to daily as for container terminals. The HD I/M database is updated on a rolling calendar, which will cause cross-checking to be very difficult. As previously discussed with CARB staff, PMSA recommends requiring once a year validation of the database. [PMSA]

    Agency Response: Staff acknowledges the concerns raised by PMSA regarding compliance verification at certain terminals and the potential impacts the requirements may have on day-to-day operations for these entities. Therefore, staff proposed changes during the 15-day comment period that establish alternative compliance methods for terminals that do not have automated technology to help alleviate issues and to be more consistent with their current business practices.

11. Comment: CCEEB raises concerns with the efficacy and practicality of holding freight facilities responsible for verifying HD I/M compliance because this adds to their responsibilities to monitor multiple complex rules. This requirement will deputize facilities to serve as CARB inspectors. [CCEEB]

    Agency Response: No changes were made in response to this comment. To assist in meeting the requirements of multiple rules, CARB is looking to streamline compliance checks and make the process as efficient and effective as possible for freight facilities. Staff has worked very closely with representatives from ports, railyards, and freight brokerages to identify ways to make the process fit existing business practices. staff does not agree with the suggestion that these requirements deputize facilities to serve as CARB inspectors. The requirements associated to applicable freight facilities under HD I/M are very similar to those outlined in existing CARB regulations and do not impose any new or significant requirements beyond those existing processes. These requirements were made to be similar to existing regulations to help reduce the burden on the regulated community and to avoid duplicative efforts across CARB regulations.

Enforcement

1. Comment: Concerns were raised regarding enforcing the Proposed Regulation to ensure a level playing field for California-registered and out-of-state (OOS) vehicles. Given the number of OOS vehicles (and California registered vehicles) still running non-compliant under the truck and bus Regulation, we do not see how this Regulation can be properly enforced to ensure OOS vehicles operating in the state will be on a

level playing field with in-state vehicles, as required by SB 210. Non-compliant vehicles are not being stopped by California Highway Patrol (CHP) at the borders. [CIAQC]

Agency Response: No changes were made in response to this comment. Staff does not agree with the commenter's portrayal of the issues raised. While vehicle registration will not be withheld for OOS vehicles, CARB and CHP will enforce the Regulation requirements regardless of vehicles' state of registration, have the authority to cite any non-compliant vehicles operating in California, and may seek further enforcement action, as deemed necessary. In addition, CARB will deploy a network of REMDs that will serve as another enforcement mechanism to ensure compliance of vehicles operating throughout California regardless of where they are registered. Additionally, the requirements for freight contractors, brokers and applicable freight facilities add an additional layer of compliance verification for all vehicles, to help ensure those doing business in the State remain compliant with the HD I/M requirements and to ensure a level playing for those dispatched to and/or operating in California.

2. Comment: CTA/ATA request CARB to start with soft enforcement, with the initial focus being on education and awareness before issuing citations. [CTA/ATA]

   Agency Response: No changes to the HD I/M Regulation were made in response to this comment. Each regulated entity will need to comply with the regulatory requirements once it becomes law. As with all regulations, staff plans to undergo significant outreach to help educate fleets and other regulated entities on the requirements of the Regulation.

3. Comment: CCEEB requests CARB to ensure enforcement notifications reach responsible parties in timely manner. Currently, enforcement notices are mailed to a vehicle's registered owner based on DMV records, and not necessarily the responsible party of record reported in CARB's databases. We recommend sending enforcement notices to both registered owner and responsible party identified in CARB databases, as well as send email notification. [CCEEB]

   Agency Response: No changes to the HD I/M Regulation were made in response to this comment. Staff would like to ensure vehicle/fleet owners that CARB is taking the necessary steps to gather accurate owner information to ensure that the responsible party of a vehicle is notified about any outstanding enforcement actions and/or upcoming periodic testing reminders as efficiently and expeditiously as possible and that these notices adhere to proper service procedures so that the responsible party has ample time to respond. Additional notification may occur digitally through the HD I/M database in certain cases by informing the reporting party about any pending compliance actions that vehicles must undergo, such as periodic testing.

4. Comment: Where the Proposed Regulation references physical documents to be carried in an affected vehicle, there should also be allowance for a digital image of the required document. [WSTA]

   Agency Response: No changes to the HD I/M Regulation were made in response to this comment. The HD I/M Regulation does not limit documentation to a physical form, thus electronic and digital methods are acceptable.

5. Comment: The Notice-to-Correct (NTC) process may be appropriate for some very minor violations but must not become a free pass to violate HD/IM requirements. For both NTCs and citations, violators should have to submit proof of correction. [CCA]

   Agency Response: No changes were made in response to this comment. The Proposed Regulation does not describe a provision for an NTC. Any violation of the provisions outlined by the Regulation carries the potential for penalties and requires corrective action. Violations require vehicles to be brought back into compliance and prove this correction has occurred to clear the violation and to avoid further enforcement action.

Referee Network

1. Comment: We request CARB to establish a geographically widespread HD I/M referee network with flexible operation hours and adequate facilities for hundreds of thousands of trucks needing referee services each year. Such facilities must be reasonably accessible for truck owners and fleets, especially in low-population counties and/or in out-of-state locations and should be adequately staffed and funded. [CTA/ATA, WSTA]

   Agency Response: No changes to the HD I/M Regulation were made in response to this comment. However, CARB staff is working to establish a HD I/M Referee program with adequate resources and funding to meet the needs of the Regulation and plans to establish a Referee program that is as accessible as possible for all entities subject to the Regulation. It is worth noting that a limited amount of the heavy-duty vehicle population under the HD I/M Regulation would be subject to Referee testing on an annual basis, hence the commenter's stated "hundreds of thousands of trucks" needing Referee services each year is an overestimate. The purpose of the HD I/M Referee program is to provide independent evaluations of heavy-duty vehicles and services only for vehicles with inspection incompatibilities or unusual compliance issues. To ensure reasonable coverage throughout the state, staff envisions referee services provided to HD I/M-regulated vehicles (including in-state and out-of-state vehicles that are subject to the Regulation) at convenient trucking service locations throughout California. Potential locations being considered include but are not limited to truck stops, mobile inspections, and government facilities. Furthermore, as CARB works to implement this Regulation, opportunities may exist to perform virtual referee inspections in certain circumstances to further expand accessibility to the services.

Parts Unavailability Compliance Time Extension

1. Comment: CARB should expand parts unavailability compliance time extension to fleets of all sizes due to the unprecedented supply chain crisis, which has led to shortages of parts such as NOx sensors, diesel exhaust sensors, and other emission control components. CARB should allow multiple extensions for a vehicle. [CTA/ATA, EMA, WSTA]

   Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment to expand the parts unavailability compliance time extension from fleets of ten or fewer vehicles to fleets of all sizes. Staff agrees it is reasonable to consider that parts unavailability due to significant

supply chain disruptions would impact all fleets, not just smaller fleets. As evidenced during the recent pandemic, all fleets, regardless of size, are experiencing difficulties in obtaining certain replacement parts that have resulted due to manufacturing and supply chain issues. In addition, staff made changes in the final Regulation to allow vehicle owners to apply for multiple compliance time extensions, as needed, if parts shortages due to disruptions in the supply chain continue for extended periods.

2. Comment: A new §2196.8(e) should be added to allow for fleets to request a compliance extension request for extreme unforeseen situations that are completely outside an owner's control. [EMA]

   Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment to allow all fleets the ability to request a compliance extension and to allow for more than one extension to be granted per vehicle. These changes adequately address situations outside the control of the fleet that make it infeasible to repair the vehicle back to a compliant state. It is important to link this compliance extension to an unavailability of parts instead of using broader language such as "any extreme situation" to provide the regulated community clarity as to when a fleet can subject for a compliance extension and when they cannot. Using too broad of a term like "any extreme unforeseen situation" would lead to confusion from both regulated entities and implementing agencies.

3. Comment: We request CARB to specify in the Regulation that provisions corresponding to parts unavailability only apply to trucks with GVWR greater than 14,000 pounds. [CTA/ATA]

   Agency Response: No changes were made to the HD I/M Regulation in response to this comment. As clearly stated in section 2195 of the HD I/M Regulation, the Regulation would apply to heavy-duty vehicles, defined as any motor vehicle having a manufacturer's GVWR greater than 14,000 pounds, operating in California. The parts unavailability compliance time extension would also only apply to heavy-duty vehicles with a GVWR greater than 14,000 pounds. Therefore, the proposed change is unnecessary.

4. Comment: CTA/ATA requests CARB to revise requirements associated with the parts unavailability time extension and consider financial feasibility to acquire parts as a valid reason for non-compliance, not just unavailability of part. Component prices have significantly increased due to shortages. For example, a DEF quality sensor that typically cost $300 has been reported as now costing up to $7,000. [CTA/ATA]

   Agency Response: No changes were made in response to this comment. Although the issues of parts unavailability and the high parts costs due to parts shortages may have some similar underlying causes, they are not the same issues. Parts unavailability, in the context of the parts unavailability compliance time extension provision in this Regulation, is established to help vehicles remain in operation when forces outside of a fleet's control make it unfeasible to repair the vehicle. This could be due to unexpected disruption of the current global manufacturing process, for example, or supply disruptions for a critical part needed to make a repair. Staff acknowledges that in some cases parts prices have been impacted due to constrained supplies. However, it is normal for component prices to fluctuate based on supply and demand. Dealing with price fluctuations of parts is a normal part of operating a

trucking company. CARB's regulations are developed based on technology and overall business considerations. It is impractical to tailor the requirements of a regulation based on changing parts prices since those prices are changing all the time. Furthermore, to do so could potentially have adverse unintended consequences by interfering with normal market forces.

5. Comment: Given significant parts availability issues brought on by persistent ongoing supply chain problems, we're pleased with staff's proposed 15-day changes to provide flexibility in the event of parts unavailability to all fleets. [CTA]

   Agency Response: Staff appreciates this comment. During the Board Hearing, staff proposed a 15-day change to edit the regulatory language pertaining to the parts unavailability section and expand the extension to fleets of all sizes instead of fleets comprised of 10 or fewer vehicles.

6. Comment: CTA/ATA request CARB to revise the process for vehicle owners that are using OEM-certified dealerships or in-house OEM-certified mechanics. As these resources rely on factory direct OEM parts from a dedicated distribution network the need to contact three different repair facilities as specified in section 2197.2(i) is redundant. [CTA/ATA]

   Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications based on this comment. The proposed modifications to the requirements in section 2197.2(i) aim to reduce the number of required repair facilities a vehicle owner must contact (from three to one) when applying for a parts unavailability time extension as allowed in section 2196.8. This change was made to acknowledge the redundancies this process would impose for owners that use OEM parts for repairs, and for all owners in general due to supply chain disruptions issues. For example, if parts are unavailable due to supply chain disruptions, it is unlikely that contacting additional repair facilities would enable vehicle owners to locate necessary parts.

7. Comment: CTA/ATA recommend CARB to expand period for contacting repair facilities to account for time it takes for truck to finish deliveries and return to repair facility beyond seven days, as proposed in the Regulation. [CTA/ATA]

   Agency Response: CARB staff made changes to the HD I/M Regulation in the 15-Day Notice modifications based on this comment. Staff removed the required seven-day period for contacting repair facilities in the HD I/M Regulation to allow vehicle owners sufficient time to finish in-progress deliveries and reach a repair facility for diagnosis of the vehicle malfunction. Staff recognized this process may take longer than the originally-proposed seven days.

8. Comment: The CFBF respectfully requests additional clarification as to the applicability of the extension to agricultural vehicles and the owners of said vehicles, exclusively. We believe the intent of the compliance time extension is for all HD vehicle owners subject to the Regulation, including those owners of agricultural vehicles. The proposed language needs further clarification as to whether the extension is applicable to all HD I/M covered vehicles and owners. [CFBF]

   Agency Response: No changes were made to the HD I/M Regulation in response to this comment because it is already clear that owners of any heavy-duty vehicle subject

to the Regulation, including agricultural vehicles, may be eligible for a compliance time extension. The parts unavailability compliance time extension provision in Section 2196.8 does not exclude any heavy-duty vehicle types or industry sectors; hence, any vehicle owner subject to the HD I/M Regulation, including those that own agricultural vehicles, would be eligible to utilize this provision.

9. Comment: HTA expresses appreciation for the 15-day change where staff will address the parts unavailability concerns. [HTA]

   Agency Response: Staff appreciates this comment. During the Board Hearing, staff proposed a 15-day change to edit the regulatory language pertaining to the parts unavailability section and expand the extension to fleets of all sizes instead of fleets comprised of ten or fewer vehicles.

Miscellaneous Comments

1. Comment: EMA raises concerns with impact of CARB's concurrent regulatory proposals. The data and validation requirements of the HD I/M Regulation will create duplicative requirements with existing and future OBD data reporting requirements (i.e., CARB's Omnibus Regulation and revisions to the Heavy-Duty OBD Regulation). EMA strongly recommends streamlining or consolidating the overlapping data submissions to better align the regulations. [EMA]

   Agency Response: No changes were made in response to this comment. As stated in the FSOR for the Omnibus Regulation, CARB staff plans to revisit in-use emissions data reporting provisions in the Omnibus Regulation, as necessary, once the HD I/M Regulation is reviewed by the Office of Administrative Law (OAL) and finalized. Staff will also assess the need for any revisions to the recently amended Heavy-Duty OBD Regulation following finalization through the OAL. Staff appreciates this comment and agrees with the need to streamline or consolidate duplicative data submissions within CARB's regulations.

2. Comment: Many provisions referenced in this proposal, including those specific to ROBD devices and protocols, are currently being amended by CARB's proposed revisions to the OBD Regulation. Stability in the regulations is needed to allow stakeholders to assess this proposal. [EMA]

   Agency Response: No changes were made in response to this comment.
   Staff has worked with stakeholders in an open public setting for multiple years in the development of this HD I/M Regulation and the device requirements to ensure that all stakeholders could have ample time to assess the requirements of this Regulation and provide input and modifications. Staff held multiple public workshops during the development efforts and held numerous individual meetings with interested stakeholders regarding these requirements. Furthermore, staff feedback well before the official release of the proposal on October 8, 2021, again to ensure that stakeholders had ample time to assess the regulatory requirements and provide feedback and potential modifications. For example, staff released an initial version of the draft regulatory language and device requirements in December of 2019 and worked directly with stakeholders to make modifications based on industry feedback. Based on this, industry had sufficient time prior to the formal proposal release to

assess and understand the proposal and work with staff to ensure that changes that needed to be made were completed.

3. Comment: CCEEB recommends streamlining of verification and certification processes across all CARB rules, instead of separate compliance and enforcement databases. There is a need to reduce confusion and duplication of efforts for regulated entities dealing with multiple CARB regulations. [CCEEB]

   Agency Response: Staff agrees with the comment and finds it in line with CARB's plans to streamline the regulatory efforts where feasible. For example, as part of the HD I/M effort, CARB plans to pull vehicle information from various data sources to reduce any potential duplicity on the fleet side regarding reporting requirements. Furthermore, CARB has aligned freight contractor, broker, and facility requirements between the various regulations to ensure simplicity and a streamlined process from the regulated entity side in verifying compliance.

4. Comment: Ward expresses thanks for the work the Board and Chair have done to clean up the air. Zero-emission vehicles are the best choice to deliver the highest air quality, but the focus on all electric and the assault on near zero emission alternatives overlook the value of other fuels that provide significant reductions in emissions. HD I/M will put an unnecessary burden on children and the economically challenged due to increased cost of goods and transportation, and will cripple the movement of goods in CA. The use of existing regulations to monitor and enforce truck operational standards is sufficient. [Ward]

   Agency Response: Staff appreciates this comment and recognizes the benefit and impact that a transition to zero-emission vehicles will provide. However, the transition to zero-emission technologies will not be fully realized for decades, thus it is critical to minimize emissions from the combustion fleet prior to this transition being fully realized. Recent CARB field testing of heavy-duty vehicles suggest a significant number of heavy-duty vehicles are operating in California with malfunctioning emissions control systems (11 to 17 percent of tested OBD-equipped vehicles had illuminated OBD MIL, indicating issues with their emissions control systems). Thus, current regulatory programs are not sufficient to ensure the heavy-duty combustion fleet repairs these emissions related issues and more needs to be done. The overall goal of the HD I/M Regulation is to establish an improved testing program to ensure that emissions control systems on heavy-duty vehicles driven in the State of California are operating as designed and are repaired in a timely manner when they malfunction. The HD I/M Regulation is expected to significantly reduce PM and NOx emissions from in-use heavy-duty vehicles operating in California. This would help protect public health and attain federal air quality standards as CARB has committed to do in the California SIP. Studies have shown that PM and NOx emissions contribute to adverse health outcomes[20,21]. The anticipated emissions reductions from heavy-duty vehicles

---

[20](CARB, 2021l) Overview: Diesel Exhaust & Health, California Air Resources Board, accessed July 2021. Available online at: *https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.*

[21] (CARB, 2021m) Inhalable Particulate Matter and Health (PM2.5 and PM10), California Air Resources Board, accessed July 2021. Available online at: *https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health.*

due to the Regulation would reduce Californian's exposure to harmful pollutants and consequently the number of emergency room and doctor's office visits for asthma, hospitalizations for heart disease, as well as premature deaths, resulting in $76.2B in monetized health benefits. These health savings costs dwarf the projected cost of the Regulation, $4.09B in direct costs over the 2023-2050 period, by a factor of 19, suggesting this Regulation would be a net economic gain for the state of California and a benefit to the people living in the State.

5. Comment: Ward states that the use of existing regulations to monitor and enforce truck operational standards is sufficient. To replace the estimated 1.6 million heavy-duty trucks in California by 2030 would require that 685 trucks a day be built, five days a week, 52 weeks of the year to meet the 2030 deadline. It would mean that 256 trucks a day would have to be built to meet the 2045 requirement. These facts, along with the power grid estimated need to be a minimum 4 times larger than we have today pose huge challenges ahead for all who value clean air. [Ward]

   Agency Response: No changes were made as a result of this comment. While the transition to zero-emission vehicles will be important to meet long term air quality goals, this comment is outside of the scope of this Regulation. The overall goal of the HD I/M Regulation is to establish an improved testing program to ensure that emissions control systems on heavy-duty vehicles currently driven in the State of California are operating as designed and are repaired in a timely manner when they malfunction. The HD I/M Regulation is expected to significantly reduce PM and NOx emissions from in-use heavy-duty vehicles operating in California. This would help protect public health and attain federal air quality standards as CARB has committed to do in the California SIP. While other regulations that are currently being implemented or are in development, such as the Advanced Clean Trucks and Advanced Clean Fleets Regulations, will facilitate the transition to zero emission vehicles in the coming decades, this HD I/M Regulation is focused on the near-term reductions achieved through proper testing and maintenance of the vehicles operating in California.

6. Comment: MECA encourages CARB to continue to work with the diesel engine and emission control manufacturers, and truck fleets to investigate real-world deterioration from a representative cross-section of vehicle ages, state of repair and ownership status. Such collaborative programs will be vital in the years leading up to and during the implementation of the Omnibus requirements. [MECA]

   Agency Response: No changes were made to the HD I/M Regulation in response to this comment. However, staff agrees that continued coordination with stakeholders is important to the success of the HD I/M Regulation. Staff plans to continue working with stakeholders as the HD I/M Regulation is implemented to ensure the Regulation is as effective as possible at reducing emissions from the heavy-duty trucking sector, while at the same time, minimizing the burden on the regulated community.

7. Comment: MECA encourages CARB to continue to explore potential concepts for future comprehensive I/M regulations that would complement Omnibus and future Tier 5 off-road standards. [MECA]

   Agency Response: No changes were made to the HD I/M Regulation in response to this comment. However, CARB staff plans to continue to explore concepts that may

lead to improved air quality and help meet both near-term and long-term SIP goals, including efforts that could complement the omnibus and future Tier 5 off-road standards.

8. Comment: MECA believes an important opportunity exists for CARB to work with manufacturers to incorporate basic in-use data from zero-emission heavy-duty truck to help inform CARB staff on how these vehicles are performing in the real world and obtain initial statistics on charging behavior and durability. MECA also recommends that state of health monitoring should be included on zero-emission heavy-duty trucks. [MECA]

   Agency Response: SB 210 exempts a few vehicle types from the requirements of the HD I/M Regulation, including zero-emission heavy-duty vehicle (others include emergency, military tactical, etc.). Because zero-emission vehicles are exempt, their data will not be collected as part of the HD I/M Regulation.

9. Comment: To the extent that other definitions in §2195.1 define terms that already exist in other areas of the Regulation, we recommend that CARB provide a reference to those chapters, rather than creating new (and potentially conflicting) definitions in proposed new Chapter 3.7. [EMA]

   Agency Response: No changes were made to the HD I/M Regulation in response to this comment. Staff agrees with the comment and referenced applicable definitions used in existing CARB regulations when drafting the proposed HD I/M Regulation. Staff did not develop new definitions for those that existed already in other CARB regulations. In discussions with EMA, it subsequently clarified that this comment was not in response to a specific issue, but a general comment.

10. Comment: EMA raises concerns with using the terms "compliance certificate" (or "certificate") in the Proposed Regulation. This term has a very specific meaning in Title 13 and means an *emissions* compliance certificate. Given that, EMA requests that CARB use a different term for the HD I/M Regulation to avoid potential confusion. Although this term is used in SB 210, the drafters of the legislation likely were not aware of the existing "compliance certificate" definition. EMA is worried the term could get misconstrued with terms used related to certificates given to OEMs upon initial vehicle certification.

    EMA also raises concern with using the term "provisional compliance certificate" in relation to the same issue raised above. Again, use of the term "compliance certificate" is confusing in and of itself; thus, any modifiers added to that term for provisional or conditional circumstances would still provide the same potential for confusion. [EMA]

    Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice Amendments based on this comment. CARB staff changed the originally proposed "compliance certificate" and "provisional compliance certificate" terms to "HD I/M compliance certificate" and "provisional HD I/M compliance certificate," respectively, in the HD I/M Regulation to distinguish this compliance certificate from other types of compliance certificates issued under other CARB regulations. Adding the term "HD I/M" to these terms helps make it clear that these certificates are specific to the HD I/M Regulation.

11. Comment: EMA raises concerns with the definitions for OBD and OBD-equipped vehicles in §2195.1 of the Proposed Regulation and suggested revisions for improved clarity. [EMA]

    Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice Amendments based on this comment to clarify the definitions for OBD and OBD-equipped vehicle. Specifically, staff revised the originally proposed "OBD" definition title to "OBD system" definition title to clarify the provided definition is specifically for the OBD system, not OBD in general. In addition, staff modified the "OBD system" definition to clarify that an OBD system must be certified to any but not all the referenced regulatory sections.

12. Comment: If it is intended that the existing PSIP requirements of §2193 would sunset when the HD I/M Regulation begins, EMA recommends that the proposed Regulation order include amendments to §2193 (Appendices A-2.1 and A-2.2) to clearly state that those requirements will be superseded when the I/M Regulation begins. This is important both for public notice, and to ensure that regulated entities are not subject to duplicative (or conflicting) regulations. [EMA]

    Agency Response: No changes were made in response to this comment.
    For administrative procedural reasons, the language to sunset the PSIP when periodic inspections begin in the HD I/M Regulation must be in the HD I/M Regulation, not in the PSIP Regulation. This is a routine legal procedure to avoid duplicative regulations.

Comments Received During the 15-Day Comment Period

Table 4 lists the commenters who submitted comments in response to the 15-Day Notice, arranged in the time order in which the comments were received. The table identifies the date in which the comments were submitted, commenter name, and affiliation. Following the list is each objection or recommendation from these commenters, together with an agency response providing an explanation of how the proposed action has been changed to accommodate the objection or recommendation, or the reasons for making no change.

Some commenters provided comments in support of certain elements of the 15-Day Notice. These comments of support are appreciated by CARB staff but not all are summarized below in this section.

Table 4. Written Comments Received During the 15-Day Comment Period

Commenter, Date	Affiliation
Grote, Douglas (05/11/2022)	California resident [Grote]
Spencer, Todd (05/26/2022)	Owner-Operator Independent Drivers Association [OOIDA]
Barrett, William and Magavern, Bill (05/26/2022)	ALA/CCA

Commenter, Date	Affiliation
Lewis, Michael (05/26/2022)	CIAQC
Smith, Julie (05/26/2022)	California resident [Smith]
Sutton Sysounthorn, Tia (05/26/2022)	EMA
Finster, Carl (05/26/2022)	Individual [Finster]
Shimoda, Chris and Tunnell, Michael (05/26/2022)	CTA/ATA

Comments of Support

1. Comment: ALA supports the 15-day change package and notes the importance of the modified provisions regarding the increased frequency of testing for OBD-equipped vehicles, clarification of operator requirements to demonstrate compliance, and the five percent opacity standard for DPF-equipped off-road engines in on-road vehicles. [ALA/CCA]

   Agency Response: Staff appreciates the comment.

2. Comment: CTA and ATA applaud CARB for incorporating our recommendations to allow all fleet sizes to use the part unavailability compliance time extension. [CTA/ATA]

   Agency Response: Staff appreciates the comment.

3. Comment: EMA supports the proposed amendments related to compliance time extensions due to the unavailability of parts and the proposed amendments in section 2195(d) related to the requirements needed to be met to implement the periodic testing requirements. [EMA]

   Agency Response: Staff appreciates the comment.

Regulation Costs

1. Comment: The Compliance Fee should be apportioned for Interstate Vehicles. §2196.1(f) of the proposed Regulation requires vehicle owners to pay an annual $30 "compliance fee" per registered vehicle (to be adjusted annually for inflation). The Supreme Court held decades ago that the Commerce Clause of the U.S. Constitution precludes states from imposing these kinds of flat annual fees on commercial trucks. The flat "compliance fee" proposed here would be similarly invalid under the Commerce Clause principles at issue. [CTA/ATA]

   Agency Response: No changes were made in response to this comment. We appreciate this comment and have responded to this issue in the response above in Comments Received Before and at the Board Hearing: comment 8 of the Regulation Costs section.

2. Comment: The inordinate burdens these testing requirements place on interstate owner-operators constitute a clear violation of the Commerce Clause of the U.S. Constitution. Neither the CARB Board, nor the CARB Staff, have yet to provide a legally sufficient response to concerns raised in the comments that the CARB tax violates the Commerce Clause because it is not apportioned or reduced for interstate truckers who drive comparatively fewer miles on California highways than California-based truckers. [OOIDA]

   Agency Response: No changes were made in response to this comment. We appreciate this comment and have responded to this issue in the response above in Comments Received Before and at the Board Hearing: comment 8 of the Regulation Costs section.

3. Comment: CARB does not adequately explain the totality of the costs and burdens its regulations impose on owner-operators. There is scant attention paid to the economic pinch owner-operators feel as a result of unusual State taxes and costs like those imposed by the HD I/M Regulation. CARB staff has added an article by Adam Hoesksema to the record about trucker take home salary, however, the article does not identify aberrational costs like those the HD I/M Regulation imposes that deplete a trucker's take home pay. [OOIDA]

   Agency Response: No changes were made in response to this comment. CARB does not agree with the commenter's statement about CARB lacking adequate cost impact analysis on owner-operators in its assessment of the HD I/M Regulation economic impact. As part of the HD I/M rulemaking package released for public comments on October 8, 2021, staff provided a detailed economic impact analysis on affected heavy-duty vehicle owners due to the proposed HD I/M Regulation (Chapter IX and Appendix F of the Staff Report). Specifically, in subsection IX.C.2 of the Staff Report, staff provided an assessment of the HD I/M Regulation's direct cost impact on small fleets of one vehicle. Under the HD I/M Regulation, staff estimated annual incremental on-going costs on single-vehicle fleets would range from about $300 to $700 per fleet (Table IX-12 of the Staff Report). These estimated annual costs include all the anticipated incremental costs on single-vehicle owners due to the more stringent requirements under the HD I/M Regulation, including vehicle testing costs, reporting costs, training costs, compliance fee, and vehicle repair costs. Staff also notes that the cost assessment for small businesses and owner operators was not reliant solely on Adam Hoesksema's referenced article, which was mentioned by the commentor. Staff's detailed cost and economic assessment encompassed many different sources, ranging from leading industry experts, vendor discussions, repair shop information, peer reviewed research papers, etc. As stated above, all these sources and cost information are detailed in Chapter IX and Appendix F of the Staff Report.

4. Comment: Interstate truckers face a panoply of atypical California regulations, taxes, and fees which are not acknowledged by CARB in identifying the economic impact of its regulations. For example, interstate truckers have previously been required to spend many thousands of dollars under the California Truck and Bus Regulation. Other unusual assessments, like the $30 CARB "compliance" tax under the HD I/M Regulation are also absent from these assumptions. [OOIDA]

   Agency Response: No changes were made in response to this comment. The comment is outside of CARB's 15-Day Notice scope, but CARB is providing a response

for completeness and transparency. Staff's economic impact assessment of the HD I/M Regulation followed and met the State Administrative Manual (SAM) 6600's methodology for making economic impact estimates. The SAM specifically states, "The agency shall compare regulatory alternatives with a baseline that reflects the anticipated behavior of individuals and businesses in the absence of the proposed major regulation and shall identify the baseline it used."[22] The HD I/M Regulation's baseline reflects the implementation of the currently existing Federal and State laws and regulations on the vehicles the HD I/M Regulation will affect, i.e., non-gasoline combustion heavy-duty vehicles with GVWR greater than 14,000 pounds. This includes CARB's Truck and Bus Regulation. The economic impacts of the HD I/M Regulation were evaluated against this current baseline for each year from 2023 through 2050.

As detailed in Chapter IX and Appendix F of the Staff Report, I HD I/M Regulation will impose more stringent in-use testing requirements on heavy-duty fleets, leading to more emissions control related repairs. Increased direct costs relative to the baseline on owners of heavy-duty vehicle operating in California include costs related to additional reporting, vehicle testing, training, compliance fees, and vehicle repairs. The costs for compliance fees, referred to as a "compliance tax" by the commentor are a direct cost input into the cost assessment for this HD I/M Regulation, specifically in Chapter IX.B.4. and Appendix F, subsection I.D. of the Staff Report.

In addition to the direct cost impact assessment described above, staff further performed a macroeconomic impact analysis of the HD I/M Regulation on California businesses using Regional Economic Models, Inc. (REMI) (Chapter IX.F. and Appendix F, section IV. of the Staff Report). REMI is a structural economic forecasting and policy analysis model that integrates input-output, computable general equilibrium, econometric and economic geography methodologies. The estimated direct costs on heavy-duty vehicle owners were translated into REMI policy variables and used as inputs for the macroeconomic analysis. Based on the REMI's results, staff anticipates the HD I/M Regulation is unlikely to have a significant impact on the California economy. In all years of the assessment (2023 through 2050), the statewide impacts to the economic indicators were projected to be less than or equal to 0.01 percent of the baseline, only a slight reduction to normal economic growth.

Regulation Testing Frequency

1. Comment: Multiple entities raised concern over the proposed increase in testing frequency from two to four times per year. CTA and ATA urge CARB to consider increasing the frequency of testing for only vehicles that violate the Regulation's requirements and decrease the frequency of testing to once a year. The increase in testing frequency will contribute to further delays in the supply chain and hinder the goods movement sector. This disruption of pulling trucks from their day-to-day operations will not reduce the number of illegally operating trucks or minimize emissions.

---

[22] California Department of General Services, "Standardized Regulatory Impact Assessment for Major Regulations – 6600," June 2014, available on its website at *https://www.dgs.ca.gov/Resources/SAM/TOC/6000/6600*.

Further, Owner-Operator Independent Drivers Association (OOIDA) objects to increasing the testing frequency. CARB has provided no explanation as to why interstate truckers, who drive less miles on California highways than California-based trucks, should be required to expend the additional direct, administrative, and overhead costs for such testing. Doubling the testing requirements-when the testing methods themselves have not been demonstrated to be reliable, efficient, and economical-is patently unreasonable.

And finally, EMA does not support this proposed amendment. The increased reporting will not necessarily lead to any additional or improved compliance with the HD I/M Regulation, yet will constitute an additional burden to regulated entities in reporting information to the agency. [CTA/ATA, OOIDA, EMA]

Agency Response: No changes were made in response to this comment. At the Board Hearing on December 9, 2021, the Board directed staff to implement a path to transition from two times per year to four times per year periodic testing for OBD-equipped vehicles to further reduce emissions from heavy-duty vehicles operating in California. Heavy-duty vehicles operate a significant amount of mileage per year in California, some more than 100,000 miles per year. CARB field tests show that 11 to 17 percent of vehicles operating in the State are doing so with a potential emissions control issue (i.e., MIL on). Considering the large emissions increase that comes from damaged emissions controls and the large amount of mileage these vehicles travel, it is critical to ensure compliance on a more frequent basis. Behavioral studies suggest that most of emissions related repairs would not get repaired until right before a vehicle inspection is due. For example, recent BAR roadside studies show a steady increase in vehicle operation with an illuminated MIL following a vehicle's inspection date, and then a dramatic decrease in illuminated MIL rates starting at the 90-day mark before a vehicle's DMV registration date.

The increase in testing frequency from two times to four times a year is projected to result in higher PM and NOx emissions reductions (a three percent and one percent, respectively). The emissions reductions would result from reducing the likelihood that vehicles would be operating in California with malfunctioning emissions control systems for an extended periods and increasing the Regulation's ability to detect fraudulent testing activity. Further, staff incorporated streamlined testing options to minimize the burden of an increased test frequency. Specifically, for OBD-equipped vehicles, staff incorporated a telematics testing option that enables compliance tests to be completed and submitted to CARB without requiring the vehicle to be taken out of service to be completed. With this option, once the telematics device is set up on the vehicle, the vehicle owner does not need to worry about when or how to submit the required data. This is because telematics companies would pre-program their telematics devices to automatically collect the data from the vehicle's OBD system and remotely submit the data to CARB's HD I/M database on a pre-set data submission frequency. Thus, the increased testing requirement improves the emissions benefits of the Regulation by reducing the operation of poorly maintained vehicles without necessitating further delays in the goods movement process or pulling vehicles away from their day-to-day operations.

Staff also performed a pilot program which demonstrated the feasibility of submitted vehicle compliance testing data as part of the HD I/M Regulation. The testing methods

were shown to be reliable, efficient, and economical. Further, staff incorporated a device certification requirement into the HD I/M Regulation to ensure that all OBD testing devices are robustly tested prior to being allowed into the HD I/M Regulation. This certification process will further help ensure that testing devices meet the requirements of the Regulation and submit data in an effective and efficient manner.

2. Comment: There was very little justification presented to support even a twice-a-year testing protocol and no justification or data to support four times per year testing or an emissions benefit for the increased testing requirement. For the Board to assume that four times a year is appropriate is in direct contradiction of SB 210 and the stated intent of the author Senator Connie Leyva to keep the cost and inconvenience to a minimum. As we stated at the time, four-times-a-year reporting is really punishing for truck owners. That punishment should be reserved for vehicles or fleets that have clearly been neglecting the MIL light repairs, or that have fraudulently tried to manipulate and bypass the malfunction light through illicit software. To impose this costly burden on every truck in California is unnecessary, costly, violates SB 210 and will overwhelm CARB's reporting system with millions of reports that shed no additional light on the overall compliance of the truck fleet in the state. We believe that the first three years of twice-a-year reporting should provide sufficient data to determine the overall compliance rate of the state fleet. We also believe that the data will show the same thing that your early staff analysis showed that more than 85 percent of the fleets are in compliance. [CIAQC]

   Agency Response: No changes were made in response to this comment. The Staff Report contains justifications for both twice-per-year testing and four times per year testing (Sections V and X of the Staff Report). Included as part of the staff report are detailed cost and economic assessments and emissions benefits assessments for both testing options. The Staff Report also includes a pilot report detailing additional research performed to establish a successful HD I/M Regulation.

   At the Board Hearing on December 9, 2021, the Board directed staff to implement a path to transition from 2 times per year to 4 times per year periodic testing for OBD-equipped vehicles to further reduce emissions from heavy-duty vehicles operating in California. Heavy-duty vehicles operate a significant amount of mileage per year in California, some more than 100,000 miles per year. CARB field tests show that 11 to 17 percent of vehicles operating in the State are doing so with a potential emissions control issue (i.e., MIL on). Considering the large emissions increase that comes from damaged emissions controls and the large amount of mileage these vehicles travel, it is critical to ensure compliance on a more frequent basis. Behavioral studies suggest that most of emissions related repairs would not get repaired until right before a vehicle inspection is due. For example, recent BAR roadside studies show a steady increase in vehicle operation with an illuminated MIL following a vehicle's inspection date, and then a dramatic decrease in illuminated MIL rates starting at the 90-day mark before a vehicle's DMV registration date.

   The increase in testing frequency from two times to four times a year is projected to result in higher PM and NOx emissions reductions (a three percent and one percent increase, respectively). The emissions reductions would result from reducing the likelihood that vehicles would be operating in California with malfunctioning emissions control systems for extended periods and increasing the Regulation's ability to detect

fraudulent testing activity. Further, staff incorporated streamlined testing options to minimize the burden of an increased test frequency. Specifically, for OBD-equipped vehicles, staff incorporated a telematics testing option that enables compliance tests to be completed and submitted to CARB without requiring the vehicle to be taken out of service to be completed. With this option, once the telematics device is set up on the vehicle, the vehicle owner does not need to worry about when or how to submit the required data. This is because telematics companies would pre-program their telematics devices to automatically collect the data from the vehicle's OBD system and remotely submit the data to CARB's HD I/M database on a pre-set data submission frequency. Thus, the increased testing requirement improves the emissions benefits of the Regulation by reducing the operation of poorly maintained vehicles without necessitating further delays in the goods movement process or pulling vehicles away from their day-to-day operations.

As the HD I/M Regulation is implemented, staff will collect and analyze incoming test data to assess the effectiveness of the Regulation and determine whether changes to the Regulation requirements could improve the overall success of the Regulation moving forward. Any future changes to the HD I/M Regulation that staff proposes would be developed via a data-driven process and in an open public process. Staff welcomes collaboration from stakeholders to ensure the HD I/M Regulation is as effective as possible in ensuring vehicles operating in California are in good maintenance, while at the same time, ensuring limited disruption to the affected fleets. Staff looks forward to continued coordination with interested stakeholders and affected truck owners and operators on these efforts.

The HD I/M Regulation as approved for adoption by CARB with the increase in testing frequency to four times per year meets the requirements and intent of SB 210. This HD I/M Regulation strikes a balance between ensuring emissions reductions through required vehicle testing, while at the same time, incorporating ways to minimize business costs on and disruptions to the regulated parties. As discussed in the responses to similar comments received earlier, to minimize the Regulation's total cost impacts to affected fleet owners, staff has developed this HD I/M Regulation to allow fleets to have multiple streamlined, cost-effective options when it comes to vehicle testing and to minimize duplicative efforts with other regulations. The Regulation strikes a balance between ensuring emissions reductions through the required vehicle testing, while at the same time, minimizing business costs and disruptions. Further, Senator Connie Leyva, author of SB 210 and a sitting member on CARB's Board, spoke in favor of four-times-per-year testing at the Board Hearing. If this testing frequency did not meet the author's intent of the bill itself, she would not have spoken in favor of the change.

3. Comment: CARB appears to have doubled the testing requirement based solely upon the conclusory rationale provided by one commenter, without publishing an updated cost impact analysis of its own. It is difficult to comprehend how a single commenter's speculative remarks could cause CARB to second-guess its own cost impact analysis. [OOIDA]

   Agency Response: No changes were made in response to this comment. CARB did not increase the proposed OBD testing requirement from two times per year to four times per year solely based on one public comment asking for increase in the testing

requirement. As part of the Staff Report, a detailed cost and benefit analysis was provided for both twice per year testing for OBD equipped vehicles and four times per year testing as an alternative.

CARB also took into account submitted comments from stakeholders regarding testing frequency, and further heard oral testimony from the public at the December 9, 2021, Board Hearing regarding this topic. Board members also had open discussions on the testing frequency topic during the public Board Hearing. After weighing all this information, Board members directed CARB staff to implement a path to transition from two times per year to four times per year periodic testing for OBD-equipped vehicles to further reduce emissions from heavy-duty vehicles operating in California.

The increased testing frequency in the HD I/M Regulation does result in higher testing costs on affected heavy-duty vehicle owners than in staff's original proposal, but also will result in higher projected emission benefits (increased by 3 percent for PM emission benefit and 1 percent for NOx emission benefit) that outweigh the increased testing cost burden. Increasing testing to 4 times per year after the first 3 years of biannual testing results in a cost effectiveness of $60.65/pound PM and $1.80/pound NOx, still well within the range of previous CARB regulations (Figure IX-2 and IX-3 of the Staff Report).

4. Comment: This is information that is already provided to CARB through other means (e.g., the HD OBD regulations of 13 CCR 1971.1), that will result in duplicative reporting by manufacturers – and an increased burden on Staff in reviewing such information. However, the true burden of reporting will fall on vehicle owners and/or operators, many of whom are small businesses currently operating on small margins. These parties may not be able to readily absorb the time (or associated cost) burdens of such increased reporting – again, with unclear benefit. [EMA]

   Agency Response: No changes were made in response to this comment.
   As stated in the FSOR for the Omnibus Regulation, CARB staff plans to revisit in-use emissions data reporting provisions in the Omnibus Regulation, as necessary, once the HD I/M Regulation is reviewed by the OAL and finalized. Staff will also assess the need for any revisions to the recently amended Heavy-Duty OBD Regulation following finalization through the OAL. Staff appreciates this comment and agrees with the need to streamline or consolidate duplicative data submissions within CARB's Regulations.

   Regarding vehicle owners' burden of reporting additional vehicle compliance tests to CARB, staff incorporated a telematics testing option that enables compliance tests to be completed and submitted to CARB without requiring the vehicle to be taken out of service to be completed. With this option, once the telematics device is set up on the vehicle, the vehicle owner does not need to worry about when or how to submit the required data. This is because telematics companies would pre-program their telematics devices to automatically collect the data from the vehicle's OBD system and remotely submit the data to CARB's HD I/M database on a pre-set data submission frequency. Thus, the requirement to report vehicle compliance testing results can be completed without necessitating additional efforts from the vehicle owner themselves or forcing vehicles to be pulled away from their day-to-day operations, minimizing additional business costs and disruptions.

5. Comment: Renters and leasers should follow a similar compliance schedule like the Department of Motor Vehicle's smog inspection program and require equipment under their ownership to meet a compliance deadline once a year. [CTA/ATA]

   Agency Response: Staff interprets that this comment is referring to the California's Smog Check program implemented by BAR and not DMV, as BAR is responsible for its oversight and administration. Rental and leasing companies subject to the Smog Check program are required to meet the same testing requirements and compliance deadlines as all vehicles subject to the Smog Check program. Thus, rental and leasing companies do not receive special treatment when it comes to the testing requirements in the Smog Check program. Similarly in this HD I/M Regulation, special treatment is not warranted simply because a vehicle is owned by a rental or leasing company. It is still the responsibility of the owner to ensure that their vehicles are well maintained and repaired in a timely manner.

   Furthermore, staff had many conversations with rental companies during the development of this HD I/M Regulation and learned that most rental agencies already harness telematics systems to monitor their vehicles' operations. Thus, the "set it and forget it" nature of this HD I/M compliance testing mechanism allows for a simple solution to perform compliance testing with minimal disruption, even if the vehicle is being rented or leased out at the time of testing. During their participation in the HD I/M rulemaking workgroup process, many rental agencies seemed relatively unconcerned with meeting the HD I/M testing requirements due to the ease with which telematics would enable the submission of periodic compliance test data. As such, no changes were made in response to this comment.

6. Comment: The proposal to increase the testing from two times in 2023 and then four times per year after is ridiculous and will require owners to have their vehicles tested more than actually working. [Grote]

   Agency Response: No changes were made in response to this comment.
   BAR roadside studies show a steady increase in vehicle operation with an illuminated MIL following a vehicle's inspection date. This is a clear indication that poor maintenance tends to increase the further a vehicle is from its last testing deadline. Further, these roadside studies also show a dramatic decrease in illuminated MIL rates starting at the 90-day mark before a vehicle's DMV registration date, suggesting that repairs of these poorly maintained emissions components do not occur until near a vehicle's next testing deadline. Considering heavy-duty vehicles can operate upwards of 100,000 miles per year and current data suggests that between 11 to 17 percent of these vehicles operating in California have an emissions related issue (MIL on), it is critical to test these vehicles frequently to ensure they are operating properly. Even with a testing frequency of 4 times per year, these long-haul heavy-duty vehicles can be operating over 25,000 miles within this three-month period between tests. These 25,000 miles are significantly more than a light duty passenger car travels within a whole year. Thus, staff does not agree with the commentor's assertion that heavy-duty vehicles will be tested more frequently than they operate. The increased testing frequencies are critical to ensure that these vehicles are properly maintained while operating in California.

Regulation Compliance Demonstration

1. Comment: Federal law preempts any state law or regulation "that requires a motor carrier, motor private carrier, freight forwarder, or leasing company to display any form of identification on or in a commercial motor vehicle." [49 U.S.C. §14506(a).] [CTA/ATA, OOIDA]

   Agency Response: Staff's changes to the Proposed Regulation in the 15-Day Notice modifications address this comment. With these modifications, vehicle owners are responsible for demonstrating compliance with the requirements in this HD I/M Regulation to legally operate in California, but vehicle owners are not required by the HD I/M Regulation to display of any form of identification. These modifications are intended to emphasize a vehicle owner's requirement to demonstrate compliance rather than to display their HD I/M compliance certificate on or in their commercial motor vehicle. CARB will continue to make HD I/M compliance certificates available in line with the Legislative intent of SB 210.

2. Comment: EMA has concerns with some of the proposed elements specified as criteria for passing an HD I/M compliance test. Would CARB provide consideration for vehicle owners whose vehicles fail based on permanent faults alone, when the owners can provide evidence of a completed repair as recommended by SAE J1939-03? Monitors associated with infrequent regeneration can make erasure of permanent faults difficult to achieve in a short time. Vehicles that cannot be driven will never erase permanent faults. Lost business revenue from sidelined commercial vehicles is highly punitive to vehicle owners, especially for small businesses. [EMA]

   Agency Response: No changes were made in response to this comment.
   The HD I/M Regulation order does not prohibit vehicle operation upon a Permanent Diagnostic Trouble Code (DTC) being set or the submission of a failed compliance test. Rather, the Regulation requires vehicle owners to submit a passing compliance test by a given deadline and provides a submission window of up to 90 days for a passing submission to occur. Thus, vehicles can remain operational and if repaired properly, should be able clear the permanent DTC(s). Beyond this, the Regulation will establish a referee network to assist with extreme and unexpected compliance situations. It is not staff's vision of the Regulation to sideline compliant vehicles or cause lost business revenue. As the HD I/M Regulation is implemented, staff will continue to analyze incoming test data and work with stakeholders on potential future data-driven modifications that may help improve the Regulation's implementation and effectiveness moving forward.

3. Comment: EMA has concerns with requiring all OBD monitors to be ready for passing a compliance test. This indicates that a single readiness group reporting a "Not Ready" status would result in a failing grade for an HD I/M compliance test. EMA recommends the following language, which also includes consideration for the SAE J1979-2 protocol that introduces additional readiness groups (CSERS, PCV Monitoring, etc.): "The vehicle's OBD data indicates the OBD system has not yet operated sufficiently to determine the presence or absence of a DTC for three or more of the supported readiness groups. [EMA]

   Agency Response: No changes were made in response to this comment. Staff respectfully disagrees with this comment. The OBD system provides readiness

indicators to communicate when monitoring has completed, and the system is ready to detect emissions-related malfunctions. This information would serve as another effective means to prevent fraud in the HD I/M Regulation by showing whether certain OBD monitors have completed the necessary time to run and check for emissions-related faults since the OBD system's memory was cleared. This useful characteristic of the OBD system can be used to help detect attempted fraud in the OBD compliance test and therefore is proposed to be used as one of the pass/fail criteria for the HD I/M Regulation. Furthermore, the HD I/M Regulation order does not prohibit vehicles that failed a compliance test from operating. Rather, the Regulation requires owners of such vehicles to submit a passing compliance test by a given deadline and provides up to 90 days for this submission to occur. During this period, the vehicle can remain operational and set OBD readiness monitors as needed.

4. Comment: EMA requests CARB to add more clarity regarding the criteria for passing an OBD compliance test and recommends making the requirement in §2196.3 subsection (c)(4) specific to the tested vehicle's Calibration Verification Number(s) (CVN), and Calibration Identification Number(s) (Cal ID). [EMA]

   Agency Response: No changes were made in response to this comment. Cal ID and CVN provide valuable information that can be used to validate OBD test submissions from vehicles and detect fraud, however, they alone are not sufficient. A robust and effective fraud detection approach requires more comprehensive checks and balances (e.g., comparing certain OBD parameters in the submitted compliance test results against data results from other similar vehicles or prior results from the same vehicle) to ensure a high success rate and accuracy.

Pilot Program

1. Comment: CARB's pilot program and report were released in tandem with the Initial Statement of Reasons and Proposed Regulation Order. Thus, any significant issues that are found following the pilot program, or in report review, were likely not adequately reflected in the proposal. We reiterate our request that full consideration be given to the report and a subsequent review should be completed prior to the issuance of a Final Regulation Order. There are significant technical issues, some of which were flagged in the Initial Statement of Reasons by CARB staff, that warrant proper consideration prior to finalizing the rule. [EMA]

   Agency Response: No changes were made in response to this comment. SB 210 requires CARB to conduct HD I/M pilot program activities ahead of the Board's consideration of the proposed HD I/M Regulation and its implementation. The legislative bill states that CARB must conduct a pilot program in consultation with other state agencies to develop and demonstrate technologies that show potential for readily bringing vehicles into the program. In fact, when SB 210 was being considered by the Legislature, the bill sponsor, Senator Connie Leyva, shared handouts with legislative staff specifically describing the pilot program as consisting of demonstrations of individual test devices that collect and submit OBD data. As discussed in detail in Appendix G of the Staff Report, staff closely followed and met all the SB 210's pilot study requirements, including demonstration of the feasibility of various technologies for use in the HD I/M Regulation. Staff also held a series of workshops and workgroups to solicit public stakeholders' feedback on the

development and completion of the pilot study, as well as provided the public with updates on the pilot study's progress and findings throughout the course of the study. Staff also held a public workshop on the pilot report on August 3, 2021, prior to releasing it as part of the Staff Report, to provide public stakeholders opportunity to comment on the staff's pilot report effort. Based on these efforts, an additional report would not be necessary. Furthermore, as this Regulation is implemented, CARB staff will continue to outreach to regulated entities, post relevant material, and hold informational sessions regarding the regulation to ensure the public and regulated entities have adequate knowledge of the regulatory requirements.

OBD Testing Devices

1. Comment: The assertion that the requirement is "quick and simple, not at all burdensome" is belied by CARB's own data and the comments of others who are much more familiar with the technology in question. [OOIDA]

   Agency Response: No changes were made in response to this comment. CARB demonstrated in its HD I/M Pilot Program that OBD scans can be completed with currently available scan devices in approximately five minutes. Staff also coordinated directly with the regulated community and testing device vendors to establish the testing requirements. Furthermore, this HD I/M Regulation provides fleets multiple streamlined, cost-effective options for vehicle testing. For example, fleets will have the option of choosing from a telematics testing approach, a plug-in device testing approach, and a free testing approach at specific locations within California. This will allow fleets to choose the testing option that best suits their needs with minimal disruption to their business operations. Staff incorporated a telematics testing approach as one of the options that enables compliance tests to be completed and submitted to CARB without requiring the vehicle to be taken out of service to be completed. With this option, once the telematics device is set up on the vehicle, the vehicle owner does not need to worry about when or how to submit the required data. This is because telematics companies would pre-Regulation their telematics devices to automatically collect the data from the vehicle's OBD system and remotely submit the data to CARB's HD I/M database on a pre-set data submission frequency. Thus, this testing option essentially removes the testing burden from the owner themselves. Finally, the HD I/M Regulation established a certification requirement for OBD test devices used in the HD I/M Regulation to ensure that these devices are robustly tested by both vendors and staff prior to being allowed on the market to ensure a reliable product.

2. Comment: I am a certified opacity tester and know first-hand the manufacturers do not have the ability yet to test only the emissions required per the regulation from OBD. The requirement does not bode well with the technology available. [Grote]

   Agency Response: No changes were made in response to this comment. This comment is vague and lacks specificity, and therefore CARB is not required to respond. Furthermore, throughout the development of the HD I/M Regulation, staff engaged and worked with multiple OBD test device vendors and telematics companies while developing the OBD test device requirements and certification process and conducted multiple public workgroup meetings and workshops on these topics. Staff discussed the proposed timelines with vendors to ensure that enough

time was provided for testing devices to come to market and continue to work closely with vendors to ensure devices are available on the timelines identified. Staff also established the device certification requirement to ensure that robust testing and development of the devices are performed prior to becoming available on the market to end users and that all devices collect the required data specified in the HD I/M Regulation. Furthermore, devices are required to collect data related to the HD I/M Regulation only when the vehicle is in an idle state to help minimize the risk of any unintended impacts to critical vehicle systems when collecting the required vehicle data.

3. Comment: EMA raises concerned regarding the lack of time for full prove-out of OBD devices. There are many questions and concerns with the feasibility, compatibility, and readiness of devices, especially given the short amount of time between issuance of the final HD I/M Regulation, device manufacturers' field testing, and the Regulation implementation date proposed in the Initial Statement of Reasons. Specifically, there must be an assurance any device that CARB approves for use must not have any impact on heavy-duty vehicle OBD system normal operations and communication [EMA]

   Agency Response: No changes were made in response to this comment. Throughout the development of the HD I/M Regulation, staff engaged and worked with multiple OBD test device vendors and telematics companies while developing the OBD test device requirements and certification process and conducted multiple public workgroup meetings and workshops on these topics. Staff discussed the proposed timelines with vendors to ensure that enough time was provided for testing devices to come to market. Staff also established the device certification requirement to ensure that robust testing and development of the devices are performed prior to becoming available on the market to end users. As part of this process, staff plans to test the devices and work with the vendors to ensure the devices do not have negative impacts of critical vehicle systems. Furthermore, devices are required to collect data related to the HD I/M Regulation only when the vehicle is in an idle state to help minimize the risk of any unintended impacts to critical vehicle systems when collecting the required vehicle data. Finally, it is important to note that the HD I/M device requirements will not become effective until the periodic testing requirements are implemented no earlier than January 1, 2024, providing vendors adequate time to develop and certify devices with CARB. Prior to January 1, 2024, OBD test submissions are required to meet the current optional PSIP OBD submission requirements which have been in effect since 2019.

4. Comment: Device prove-out must ensure that there are no issues with regard to the durability of the OBD port and mechanical load on the connecter with the use of a continuously connected tool. [EMA]

   Agency Response: No changes were made in response to this comment. Devices that are continuously connected to vehicle's standardized data link are currently used widely without posing significant durability and safety issues to the vehicle connection ports. For example, the Federal Motor Carrier Safety Administration's electronic logging devices (ELD) mandate on commercial heavy-duty vehicles has required such vehicles to be continuously connected with ELD to track their hours of service since 2016. Another example is BAR's continuous testing

program (CTP). Under the CTP, BAR allows government fleets to use telematics systems plugged into the standardized data link connector to demonstrate compliance with the light-duty Smog Check program in California. Government fleets can opt into continuous remote OBD data submission through telematics in lieu of biennial Smog Check inspection at BAR-authorized testing stations. This testing program has been successfully implemented on tens of thousands of vehicles, showing that a similar continuously connected testing platform is feasible and effective. Furthermore, keeping a device continuously plugged into the vehicle's standardized data link connector is likely to result in less wear/damage to the connector compared to repeatedly plugging and unplugging a testing device into and out of the vehicle's data link connector. Finally, the Regulation allows testing devices to be plugged into other connection points on the vehicle (using a different port, etc.) if the vendors demonstrate the device can effectively collect the required data elsewhere. Thus, vendors and end-users are not limited to using the standardized data link connector if they wish to connect elsewhere to the vehicle.

5. Comment: Time is needed for the development of an industry standard or protocol (e.g., SAE, IEEE, etc.) for device communication with vehicles, prior to the implementation of the Regulation. A standard, well-defined communication protocol is critical to the success of the Regulation, and to the safety and robustness of the OEM systems on which the devices – especially those that will be "continuously connected" – will be installed. [EMA]

   Agency Response: No changes were made in response to this comment. Staff determined that the existing standards/guidelines cited in Part II of the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" incorporated by reference in the HD I/M Regulation as contained in Appendix B-1) are sufficient to meet the requirements of the Regulation and ensure minimal risk to the end-users. Thus, a separate industry standard is not needed and would be duplicative of the existing requirements already referenced as part of this HD I/M Regulation. This follows the structure for establishing device communication requirements in BAR's Smog Check program that has been successfully implemented for more than a decade. The requirements for the OBD testing devices in BAR's program for the Data Acquisition Devices (DAD) model the structure used in this HD I/M Regulation for referencing existing industry standards without developing a separate industry standard specifically for these OBD devices. Furthermore, the HD I/M OBD testing device communication requirements have been designed to minimize the active time on Controller Area Network (CAN) bus. To reduce the risk of unexpected communication problems, the devices will communicate and collect data only when the vehicle is in an idle state. Thus, these devices will operate similarly to conventional OBD scan tools and DADs that operate based on the existing industry standards while the vehicle is at idle, engine running, but not in motion.

6. Comment: EMA recommends using the 2021 version of the SAE J1939-DA, incorporated by reference in Part II, C of the "California Standards for Heavy-Duty Remote On-board Diagnostic Devices" (now identified as Appendix B-1). We also encourage Staff to engage with the SAE committees to ensure that the most up to date version of referenced documents are utilized and updated for the HD I/M Regulation. [EMA]

Agency Response: No changes were made in response to this comment. All documents incorporated by reference in Part II, C of Appendix B-1, including the document in question in this comment, were the current versions at the time of releasing the Proposed Regulation. Staff reviewed the 2021 version of the SAE J1939-DA and determined that the changes compared to the referenced version are minor and would not affect the requirements of Appendix B-1. However, staff will be in coordination with the SAE committees and closely monitor the upcoming versions of the documents incorporated by reference in Appendix B-1 and will update them as needed.

7. Comment: EMA makes a comment regarding the "Odometer" field in Table 1 of Appendix B-1. The Data Type ("Integer") for the Odometer field does not specify if data must be submitted in miles or kilometers. [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates the comments, however, since tested vehicle's OBD compliance (e.g., CARB or U. S. EPA OBD requirements that vehicle's OBD system meets) is known and the OBD device will collect odometer data as specified by the vehicle's OBD system, units of all physical parameters will be known when converting the submitted OBD data into human-readable format. Thus, staff does not believe specifying the unit is necessary.

8. Comment: EMA makes a comment regarding the "Engine Total Runtime" field in Table 1 of Appendix B-1. The Data Type for the "Engine Runtime Total" field does not specify what how the data must be submitted (e.g., hours and tenths, minutes, seconds, etc.). [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates the comments, however, as specified by the SAE, the "Engine Total Runtime" is reported in seconds by vehicle's OBD system. Thus, staff does not believe specifying the unit here is necessary as it is already covered by the SAE requirement.

9. Comment: EMA makes a comment regarding the "Message Type" field in Table 3 of Appendix B-1. We recommend shortening "REQ" and "RSP" to "T" and "R", respectively. [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates the comments, however, believes the suggested change would not provide improved clarity in regard to the requirements of Appendix B-1. Thus, staff determined that the comment does not necessitate editing the exiting language of the Proposed Regulation.

10. Comment: EMA makes a comment regarding the "CAN ID" field in Table 3 of Appendix B-1. The Data Type specifies a proposed length of 15 characters; however, 29-bit CAN IDs are typically represented as 8 ASCII characters (e.g., "18EEFF00"). Is there a need for the additional 7 characters? [EMA]

    Agency Response: No changes were made in response to this comment. Staff agrees that CAN ID is typically represented by 8 characters, however, and to account for possible rare cases of longer CAN IDs, the maximum number of characters is set to 15.

11. Comment: EMA makes a comment regarding subsection E.5.3 of Appendix B-1. The language of subsection E.5.3 would require that ROBD devices encrypt data, yet the Regulation does not state requirements (e.g., AES-256 to NIST 800-38a, or PKI as discussed in NIST SP 800-175B) for how the data shall be encrypted. [EMA]

    Agency Response: No changes were made in response to this comment. Staff already modified the language regarding data security following EMA's earlier comment received during the 45-day comment period. The current language of section E.5 of Appendix B-1 in the proposed 15-day changes to the proposed HD I/M Regulation does not specifically require data encryption, hence there is no need for specification of an encryption method.

Roadside Emissions Monitoring Devices

1. Comment: EMA has concerns with the roadside emissions monitoring devices provisions of §2196. The use of these devices to flag vehicles with excessive PM and NOx emissions may result in erroneous flagging because there is no instantaneous limit of emissions. Emissions are measured as part of an entire drive cycle, and it is not abnormal to have emissions that exceed these thresholds for short intervals of time. The use of the OBD emission limit may result in vehicles being flagged when they are functioning properly. The OBD systems are designed to detect problems over time, not from an instantaneous snapshot as would be detected by REMD. EMA is concerned that erroneous flagging of vehicles could lead to situations where a properly functioning vehicle is required to undergo unnecessary and costly testing. [EMA]

    Agency Response: No changes were made in response to this comment. See Agency Response to comment 1 in the Roadside Emissions Monitoring Devices section of Comments Received Before and at the Board Hearing.

2. Comment: EMA notes that participants in workshops described situations where a vehicle may be flagged due to the MIL illuminating, but the MIL may go off before a vehicle is taken in for testing and repair. [EMA]

    Agency Response: REMD are screening tools intended only to give an indication that a vehicle may be high emitting. If a vehicle is flagged by REMD, a NST will be sent to the owner of the vehicle requiring the vehicle to undergo compliance testing. The compliance status will be determined using follow-up tests consisting of established testing procedures, in this scenario referenced in the comment, an OBD test. In the event that a vehicle is found to have no MIL or emission issues during a follow-up test, the vehicle would be considered compliant, and no enforcement action would be taken. Thus, as the vehicle no longer has a MIL issue, the vehicle would pass the compliance test and submit that test record to CARB. Staff will continuously evaluate the Regulation based on incoming data and use a data-driven process to reduce the possibility of vehicles being flagged when issues are not present.

    Staff believes that the situation described in the comment is highly unlikely as there are multiple checks and balances included within a vehicle's OBD system to ensure an emissions related issue has occurred to illuminate the MIL, and then to confirm the issue has been resolved to extinguish the MIL. When an emissions malfunction is detected, the heavy-duty OBD system is required to store a pending fault code

indicating the likely area of the malfunction. An emissions control issue is only determined to be an active fault code, i.e., indicative of an actual emissions issue, if the same identified malfunction is again detected before the end of the next driving cycle. This double confirmation prior to identifying an emissions related issue provides a built-in fail safe within the OBD system to ensure a true emissions related issue is present and minimizes false failures. Such information is stored within the OBD system in a standardized structure and available to be requested and looked at to assess whether a vehicle currently has any emissions related issues.

Moreover, heavy-duty OBD systems are required to undergo rigorous CARB and U.S. EPA certification testing procedures. CARB certification of heavy-duty OBD systems requires heavy-duty engine manufacturers to submit emission test data from test engines equipped with their developed OBD systems. Manufacturers are required to induce or simulate malfunctions in all emissions control components of the vehicle (through deterioration, aging, etc.) to demonstrate that their developed heavy-duty OBD system can properly diagnose emissions related malfunctions within the regulatory specifications. In addition to meeting initial testing requirements prior to certification, in-use vehicle confirmatory testing is also performed to verify the OBD systems are performing correctly in-use as they were certified. This robust testing/certification process helps to ensure heavy-duty OBD systems are capable of consistently and effectively diagnosing emission-related malfunctions throughout the operation life of the vehicle.

3. Comment: EMA raises concerns that a truck traveling on a fixed route may be flagged several times by REMD before an operator is able to receive a notification. [EMA]

   Agency Response: CARB plans to target only the highest emitting vehicles screened through REMD systems over multiple occurrences. CARB analyses suggest that targeting the highest emitting vehicles screened over multiple occurrences will help minimize situations where a properly functioning vehicle may be flagged for compliance testing. In the case that a vehicle owner is notified that their vehicle is flagged by REMD, they will be given a timeframe to respond with follow-up test results and/or repair documentation before any enforcement action is taken. If the vehicle is flagged multiple times during this initial timeframe, there would not be additional requirements for the vehicle owner beyond what is described in the initial notice. However, if the vehicle continues to be flagged as a high emitter after follow-up testing demonstrates it complies, it may be referred over to the referee for further testing.

4. Comment: EMA reiterates their previous comment regarding the need to study the vehicles being flagged by REMDs, and the error rate between flagged vehicles, to determine those that have an actual emissions exceedance such that repair is needed. There is a need to determine an appropriate PEAQS threshold and measurement allowance that can reliably be used to differentiate improperly flagged vehicles. A full study of the PEAQS system, and other roadside monitoring devices planned for use for the HD I/M Regulation, are needed prior to Regulation implementation to provide certainty and to avoid situations where a significant portion of the vehicle population is erroneously flagged for unnecessary repair. [EMA]

   Agency Response: No changes were made in response to this comment. CARB, other agencies, and outside researchers have operated REMD systems for many years to

evaluate heavy-duty diesel vehicle emissions. In addition, these systems are currently utilized in ongoing inspection and maintenance programs today. For example, the state of Colorado has utilized remote sensing technology as part of their light-duty inspection and maintenance program for many years. Staff would also like to reiterate that REMD are screening tools that provide the ability to screen for vehicles that may have emissions related issues. Vehicle owners who are issued an NST will use established OBD or smoke opacity testing methods to verify compliance with the HD I/M Regulation. Additionally, CARB currently utilizes unattended REMD that prompt CARB staff to follow-up with vehicle owners via mail as well as mobile REMD deployed with accompanying field inspectors for targeted enforcement. The use of REMD technology at CARB has been successful and has greatly enhanced CARB's ability to enforce vehicle regulations.

As CARB implements REMD under the HD I/M Regulation, staff will continuously evaluate the Regulation based on incoming data and use a data-driven process to further enhance and improve the use of REMD within the HD I/M context to minimize potential "false positive" vehicle flagging for follow-up tests as much as possible.

Enforcement

1. Comment: The Regulation will subject a substantial number of trucks to new reporting and testing requirements. An enhanced education effort is needed during the initial Regulation rollout. Similarly, enforcement should initially focus on education, awareness, and compliance rather than issuing citations during the initial six-months of reporting and/or testing. [CTA/ATA]

   Agency Response: No changes were made in response to this comment.
   The Regulation is being implemented in phases to help ensure a smooth roll-out and to adequately inform regulated entities of their requirements before enforcement takes effect. Prior to the implementation of each phase of the Regulation, staff plans to undergo significant outreach efforts to help educate fleets and other regulated entities on the requirements of the Regulation.

2. Comment: I stand against this Proposed Regulation because the enforcement is nonexistent. It will only catch the companies doing their best to comply with the Regulation while others outside of California will be able to go for years before being caught. [Grote]

   Agency Response: No changes were made in response to this comment. Staff does not agree with the commenter's portrayal of the issues raised. While vehicle registration will not be withheld for OOS vehicles, CARB and CHP will enforce the Regulation requirements regardless of vehicles' state of registration, have the authority to cite any non-compliant vehicles operating in California, and may seek further enforcement action, as deemed necessary. In addition, CARB will deploy a network of REMDs that will serve as another enforcement mechanism to ensure compliance of vehicles operating throughout California regardless of where they are registered. Additionally, the requirements for freight contractors, brokers and applicable freight facilities add an additional layer of compliance verification for all vehicles, to help ensure those doing business in the State remain compliant with the

HD I/M requirements and to ensure a level playing for those dispatched to and/or operating in California.

Referee Network

1. Comment: §2196.7 directs the use of referee services for a number of circumstances including "a Notice to Submit to Testing" and "the vehicle owner requests a compliance time extension." Since these services are the only path some vehicles may have to demonstrate compliance, availability of these services is essential. How these services will be made available, especially to businesses in low population counties or out-of-state locations, should be addressed both in terms of staffing and Regulation funding. [ATA/CTA]

   Agency Response: No changes were made in response to this comment. CARB staff is working to establish a HD I/M Referee program with adequate resources and funding to meet the needs of the Regulation and plans to establish a Referee program that is as accessible as possible for all entities subject to the Regulation. To ensure reasonable coverage throughout the state, staff envisions referee services provided to HD I/M-regulated vehicles (including in-state and out-of-state vehicles that are subject to the Regulation) at convenient trucking service locations throughout California. Potential locations being considered include, but are not limited to, truck stops, mobile inspections, and government facilities. Furthermore, as CARB works to implement this Regulation, opportunities may exist to perform virtual referee inspections in certain circumstances to further expand accessibility to the services.

Parts Unavailability Compliance Time Extension

1. Comment: As a small, one-man trucking company, this bill, as written, will put me out of business. There are many more like me. Please reconsider elimination of the low-mileage provision and the lack of extension for unavailability of parts. [Finster]

   Agency Response: Staff made changes to the Proposed Regulation in the 15-Day Notice modifications to expand the parts unavailability compliance time extension from fleets of ten or fewer vehicles to fleets of all sizes. Staff agrees it is reasonable to consider that parts unavailability due to significant supply chain disruptions would impact all fleets, not just smaller fleets. As evidenced during the recent pandemic, all fleets, regardless of size, are experiencing difficulties in obtaining certain replacement parts that have resulted due to manufacturing and supply chain issues. In addition, staff made changes to allow vehicle owners to apply for multiple compliance time extensions, as needed, if parts shortages due to disruptions in the supply chain continue for extended periods.

   Regarding a low mileage odometer-based provision, staff has many concerns related to the implementation of such a provision. Mileage-based provisions are extremely difficult to implement and effectively enforce. Staff has significant concerns with a mileage-based regulatory provision based on experiences enforcing other CARB regulations that rely on the self-reporting of mileage readings. No feasible mechanism exists to effectively enforce whether reported mileage in California on a vehicle-by-vehicle basis is accurate without additional vehicle tracking data. During the development of the HD I/M Regulation, CARB staff did discuss the potential of fleets

equipping their vehicles with global positioning system (GPS)/geofencing technology to track vehicles as they operate in California. Such GPS-based equipment could be used to track vehicle's California mileage on a vehicle-by-vehicle basis with the data being reported to CARB to calculate an apportioned fee. Stakeholders expressed strong opposition, however, to the use of this technology during the regulatory development process due to concerns regarding privacy and security and a desire to avoid unnecessary State oversight of private trucking activities. As a result of these discussions, and considering the concerns expressed by stakeholders, it would not be reasonable to require GPS-based technology and reporting. This in turn limits CARB's ability to effectively implement a mileage-based apportionment fee on a vehicle-by-vehicle level.

Given the lack of vehicle tracking capability, there is currently no reliable method to electronically collect/verify odometer mileage from the vehicle. Essentially all odometer mileage readings would need to be reported manually. Because a vehicle's odometer could be tampered to show an incorrect mileage,[23,24,25] and because vehicle owners could benefit from reporting lower mileages in a vehicle-by-vehicle mileage-based Regulation, such a set up would encourage fraudulent activity such as tampering with the odometer to falsify the actual odometer readings, posing a significant challenge for the Regulation enforcement. Furthermore, CARB would need to substantially increase enforcement resources to perform extensive audits on fleets reported annual mileages. However, SB 210 limits the ability to collect additional funding to expand resources beyond the current projections. Thus, it is not feasible to increase resources to audit vehicle reported mileages. It is also important to note that auditing a vehicle's mileage would not be an easy task. A vehicle's mileage in California would only be a subset of a vehicle's total mileage, thus, verifying mileage would have to go beyond that of simply verifying the odometer mileage of the vehicle itself. To perform such a task, auditors would likely have to review a vehicle's entire yearly record of fuel receipts, pickup locations, travel routes, etc. just to audit a single vehicle. Considering the HD I/M Regulation potentially incorporates over one million heavy-duty vehicles that operate in the State, with about half of the affected vehicles coming from outside of California, substantial resources and funding would be needed to support such an effort. Auditing vehicle operation details like this would be the best use of the Regulation funds. Furthermore, taking on this audit task would result in the limited State resources having to shift to the enforcement of payments and away from the SB 210's intended focus on addressing the major health issues that result from operating mal-maintained heavy-duty vehicles in California.

Miscellaneous

1. Comment: If the Coalition for Clean Air comment proposing increased frequency of testing has any factual basis, it is the suggestion that the emissions equipment

---

[23] The National Highway Traffic Safety Administration's "Odometer Fraud" accessed April 4, 2022, at: https://www.nhtsa.gov/equipment/odometer-fraud#the-topic-laws-and-regulations.

[24] The Tennessee Department of Safety and Homeland Security's "Odometer Fraud" accessed April 5, 2022, at: https://www.tn.gov/safety/tnhp/sib/odometerfraud.html.

[25] Yezig "How to Roll Back Odometer: Quick and Easy Ways" accessed April 5, 2022, at: https://yezig.com/roll-back-odometer/.

required by HD I/M lacks reliability. The procedure proposed by the comment surmises that at least four times a year such equipment might be expected to fail to meet CARB's standards. Whether such failures are attributable to the truck's emissions or to the testing equipment itself-truck owners will be required to pay for even more frequent maintenance (and the accompanying loss of revenue when the truck is in the shop) than acknowledged by CARB in the rulemaking. [OOIDA]

Agency Response: No changes were made in response to this comment. As discussed in other responses related to the benefit of increased testing frequencies, analysis of light duty smog check program test data shows that owners tend to wait to repair emissions control equipment on their vehicles until right before a compliance testing deadline. Thus, the impact of increasing the testing frequency from two to four times per year is that emissions-related malfunctions will be detected and repaired earlier, leading to an emissions benefit Quarterly testing simply reduces the maximum time between an initial MIL illumination and the time when the associated emissions control repair must be performed. Furthermore, multiple compliance testing options are provided to allow fleets to choose the best testing option that fits their needs. The telematics testing option allows fleets to complete compliance testing without taking the vehicle out of service, while a separate option allows fleets the ability to check out a testing device for no cost. Thus, staff has developed a testing program that minimizes the burden and limits the costs of an increased testing frequency.

2. Comment: We appreciate the proposed addition of the qualifier "HD I/M", which does help to distinguish a compliance certificate under this Regulation from an emissions compliance certificate; however, we would prefer the use of a completely different term to avoid confusion. [EMA]

   Agency Response: No changes were made in response to this comment. Staff respectfully disagrees with this comment and believes that the current language provides sufficient clarification and is therefore sufficient to distinguish the compliance certificate under this Regulation from other types of compliance certificates issued under other CARB regulations.

3. Comment: We support the proposed amendments to the "On-Board Diagnostics system" definition but note that EPA has recently proposed a rulemaking that would make changes to its OBD-related regulations. Specifically, provisions related to OBD would be codified in 40 CFR parts 86 and 1036. We recommend that CARB staff coordinate with EPA to ensure the correct references to EPA's regulations prior to finalizing the HD I/M Regulation order. [EMA]

   Agency Response: No changes were made in response to this comment. Title 40, Code of Federal Regulations (CFR), section 86.010-18 is specific to OBD-related provisions for heavy-duty engines. It is cited in the OBD-related provisions (OBD definition and compliance within the context of vehicle applicability for periodic OBD testing) in HD I/M Regulation. 40 CFR 1036, however, contains certification provisions that go well beyond the focus of the OBD system, including requirements such as certification testing requirements, labeling, warranty requirements, in-use testing requirements, and so on. Thus, the current citations sufficiently meet the needs of the "OBD system" definition in the HD I/M Regulation. Regardless though, staff will continue to coordinate with U.S. EPA as we implement the HD I/M Regulation to ensure an effective regulation.

4. Comment: EMA recommends CARB to add the phrase "emission compliance" to the definition of "Manufacturer" in §2195.1. [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates this comment, however, believes that the existing language provides sufficient clarity and thus, no further clarification is needed.

5. Comment: EMA suggest an edit to the definition of "Roadside emissions monitoring device" in §2195.1 for improved clarity. [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates this comment, however, believes that the existing language provides sufficient clarity and thus, no further clarification is needed.

6. Comment: EMA recommends CARB to amend subsection (d)(3) under §2196.1 to clarify that the three-year period begins after the effective date of the periodic testing requirements, as specified by the Executive Officer. [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates this comment, however, believes that the existing language provides sufficient clarity and thus, no further clarification is needed.

7. Comment: EMA comments that since there may be cases where someone other than a vehicle owner would demonstrate compliance (e.g., a vehicle operator, etc.), it is overly restrictive to require that only vehicle owners can demonstrate compliance. EMA suggests edits to §2196.1(e). [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates this comment, however, believes that the existing language provides sufficient clarity and thus, no further clarification is needed. Ultimately, it is the owner's responsibility to ensure their vehicle has demonstrated compliance and meets the requirements of the HD I/M Regulation. This is regardless of whether the vehicle compliance tests are performed by the owner themselves as a credentialed HD I/M Tester or through another compliance demonstration method allowed within the HD I/M regulatory requirements.

8. Comment: EMA recommends CARB to add "HD I/M Regulation" to §2196.1(h) for improved clarity. [EMA]

   Agency Response: No changes were made in response to this comment. Staff appreciates this comment, however, believes that the existing language provides sufficient clarity and thus, no further clarification is needed.

9. Comment: EMA suggests correction of a typographical error in §2197.1(b)(2)(A)2. by adding "CCR". [EMA]

   Agency Response: Staff appreciates this comment and has included this non-substantial modification in the regulatory text.

10. Comment: EMA suggests a minor edit to §2198.1(a)(3)(A) to ensure that there is not confusion regarding a vehicle's emissions compliance status and its HD I/M compliance status. [EMA]

Agency Response: No changes were made in response to this comment. Staff appreciates this comment, however, believes that the existing language provides sufficient clarity in regard to the compliance status of this Regulation, and thus, no further clarification is needed.

11. Comment: I am also aware the DMV does not have capability now to accept downloads from vehicles over 14,000 GVWR. [Grote]

    Agency Response: No changes were made in response to this comment. The vehicle compliance test information will be sent directly to CARB, not DMV, thus there is no requirement for DMV to accept any type of downloads from vehicles over 14,000 lbs. CARB will determine vehicle compliance based on the submitted data and will transfer relative vehicle compliance information to DMV. The exchange of heavy-duty vehicle compliance information as it relates to compliance with CARB regulations has already been implemented between CARB and DMV, most recently with the implementation of Senate Bill 1 passed in 2017 which linked Truck and Bus Rule compliance to DMV registration. CARB and DMV have been in constant discussions to incorporate any needed changes to this process to incorporate HD I/M compliance verification into this data exchange process and expect to have this operational in 2023.

12. Comment: Please support clean cars to help air to be clean in California. [Smith]

    Agency Response: No changes were made in response to this comment. CARB works closely with partner agencies, vehicle manufactures, and community stakeholders to reduce the health and climate impacts of on-road and off-road vehicles.

Peer Review

Health and Safety Code section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. However, this rulemaking action is based on a technical and engineering basis, rather than a scientific basis, and is therefore not subject to the requirement of Health and Safety Code section 57004.

Specifically, this rulemaking primarily establishes vehicle emissions inspection, enforcement, reporting and recordkeeping, and programmatic procedures to ensure that heavy-duty vehicles are in compliance with existing emission standards and receive timely repairs for malfunctioning emissions control components to legally operate in California. It also includes modified smoke opacity standards for heavy-duty diesel off-road engines used as motive power in on-road vehicles.[26] Based on the demonstrated technical feasibility of off-road engines equipped with the highest-efficiency exhaust aftertreatment technology, these modifications are necessary to align standards for off-road engines (used in on-road vehicles) with their on-road engine counterparts. The factors for developing all these components of the rulemaking did not involve the application of scientific findings or the development of scientific theories.

[26] California Air Resources Board's Off-Road Engine Opacity Testing Effort and Results - Testing Period: July – September 2021 (2021).

CARB's determination that this rulemaking action is exempted from Health and Safety Code section 57004 is consistent with guidance provided by the California Environmental Protection Agency that expressly excludes work product regarding technical performance related to new control standards or manufacturing technologies, such as emission standards for new motor vehicles. It is not the intent of Health and Safety Code section 57004 to review engineering data to support the technical feasibility of these standards or technologies."[27]

[27] California Environmental Protection Agency, Policy and Guiding Principles for External Scientific Peer Review (1998), page 7.