# APPENDIX J

## List of Proposed Changes to Title 13, CCR and Incorporated Test Procedures

### List of Changes to Appendix A – Proposed Regulation Order

### Amendments to Title 13, CCR, Section 1900

Subsection (b)(22): The definition of a "small volume manufacturer" contains qualifying language that allows manufacturers that meet the 4,500 vehicle sales threshold for a small volume manufacturer, but are partially or fully owned by another manufacturer, to still qualify as "small volume manufacturers," if they remain operationally independent from the company that owns them. This definition has been modified to remove language that restricts the model years to which this qualifying language applies.

This change is needed because the restrictive language was the result of an error in how the qualifying language was added to the previous version of the "small volume manufacturer" definition. This provision recognizes that truly operationally independent small volume manufacturers operate under the same resource constraints as other small volume manufacturers. Staff intent, as reflected in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," (LEV III ISOR), has been and remains to provide these manufacturers with relaxed standards that reflect their ability to meet low emission requirements.

### Amendments to Title 13, CCR, Section 1956.8

Subsection (b): The date that the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" was last amended has been changed. This change is needed to incorporate by reference the version of this document that includes the modifications from this rulemaking.

Subsection (c)(3): This subsection currently allows manufacturers to certify complete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the

most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty gasoline vehicles also share engines with complete heavy-duty gasoline vehicles and medium-duty gasoline vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

Subsection (d): The date that the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines" and the "California Non-Methane Organic Gas Test Procedures," were last amended have been changed. This change is needed to incorporate by reference the versions of these documents that include the modifications from this rulemaking.

Subsection (h)

Subsection (5): This subsection currently allows manufacturers to certify complete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty diesel vehicles also share engines with complete heavy-duty diesel vehicles and medium-duty diesel vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

**Amendments to Title 13, CCR, Section 1960.1**

Subsection (r): The proposal is needed to extend the applicability of the 4,000-mile SFTP standards through the 2021 model year to accommodate the delayed LEV III phase-in for small volume manufacturers. Because small volume manufacturers may still be certifying LEV II test groups in the 2021 model year, this proposed change is necessary to clarify that such test groups will be subject to the 4,000-mile SFTP standards instead of the 150,000-mile SFTP standards applicable to LEV III vehicles.

**Amendments to Title 13, CCR, Section 1961**

Subsection (a)

Subsection (a)(1): The LEV III phase-in requirement in section 1961.2 subsection (b)(2) says that for the 2015 through 2019 model years, vehicles may only be certified to LEV II SULEV standards if they have previously been certified to these standards. Vehicles that are certifying to these emission levels for the first time must be certified to LEV III standards. It is necessary to amend this subsection to remove text that erroneously suggests that vehicles that have not previously been certified to LEV II SULEV standards may be certified to them in the 2015 through 2019 model years.

Subsection (b)

Subsection (b)(1)

Subsection (b)(1)(A): The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Subsection (d)

It is necessary to change the "as amended" date for both the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" and the "California Non-Methane Organic Gas Test Procedures," to incorporate by reference the versions of these documents that include the modifications from this rulemaking.

**Amendments to Title 13, CCR, Section 1961.2**

Introduction: It is necessary to add text to the introduction to clarify that all medium-duty vehicles with a gross vehicle weight rating of less than or equal to 10,000 pounds GVW must meet LEV III chassis standards beginning with the 2020 model year, as apparent from title 13, CCR section 1956.8 subsection (c)(1)(B), footnote B to the table and subsection (h)(2), footnote A to the table

Subsection (a)

Subsection (a)(1)

The LEV III phase-in requirement in subsection (b)(2) says that for the 2015 through 2019 model years, vehicles may only be certified to LEV II

SULEV standards if they have previously been certified to these standards. Vehicles that are certifying to these emission levels for the first time must be certified to LEV III standards. It is necessary to amend this subsection to remove text that erroneously suggests that vehicles that have not previously been certified to LEV II SULEV standards may be certified to them in the 2015 through 2019 model years.

Table: Staff inadvertently included the incorrect CO standards for LEV III medium-duty vehicles (MDVs) in the regulations. The correct standards are listed table II-A-2-6 in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," (LEV III ISOR). The CO standards in the LEV III ISOR are the standards ARB presented at the LEV III public workshops, but for some reason were not included in the regulations. The LEV III emission benefits will not change as a result of this correction, since the published emission benefits for LEV III included the correct CO standards as listed in the ISOR.

Subsection (a)(2)

Subsection (a)(2)(A): This subsection contains the LEV III particulate standards for passenger cars, light-duty trucks, and medium-duty <u>passenger</u> vehicles, as the title states. However, the first sentence erroneously leaves out the word "passenger," when describing the medium-duty vehicles to which it applies. It is necessary to amend this subsection to add the word "passenger" to the text, because the LEV III particulate standards for medium-duty vehicles, other than medium-duty passenger vehicles, are contained in the following subsection (a)(2)(B).

Subsection (a)(2)(D)

Subsection (a)(2)(D)1: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standard in the 2021 model year.

Subsection (a)(2)(D)2: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in

schedule must still meet the requirement that 100% of those vehicles meet the applicable standard in the 2028 model year.

Subsection (a)(2)(D)3: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standards in the 2021 model year.

Subsection (a)(7)

Subsection (a)(7)(A)

Subsection (a)(7)(A)2: The proposal would modify the *SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles* Table to clarify the test weight requirements for LEV II vehicles used in the LEV III SFTP Option 2 fleet average.

Footnote 2: The proposal would clarify that for federally-certified test groups certifying in California in accordance with Section H subparagraph1.4 of the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," the full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor.

Footnote 4: The proposal would clarify that, for the purposes of the LEV III SFTP Option 2 fleet average, the required bin increments of 0.010 g/mi and the bin emission value cap of 0.180 g/mi only apply to LEV III test groups.

Footnote 5: A reference in this footnote to footnote 7 would be corrected to refer to footnote 2 as intended.

Subsection (a)(9): This subsection has been modified to revise the time period under which a vehicle that uses a zero emission energy storage device must warranty that storage device in order to generate additional NMOG+NOx Fleet Average Credit. This revision is needed to maintain consistency with the ZEV regulations set forth in title 13, CCR, §1962.1(c).

Subsection (b)

Subsection (b)(1)

Subsection (b)(1)(A): The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Subsection (b)(1)(A)1: It is necessary to add text to this subsection to indicate how compliance with this requirement will be determined. An average of three model years is appropriate to account for fluctuations in yearly vehicle sales due to economic conditions.

Subsection (b)(1)(D): LEV III compliance is based on NMOG+NOx fleet average requirements. However, the current regulatory language refers to a NMOG fleet average, rather than a NMOG+NOx fleet average. It is necessary to correct this error, since no LEV III NMOG fleet average exists.

Subsection (b)(4)

Subsection (b)(4)(A)

Subsection (b)(4)(A)2: To improve clarity, the proposal would remove some redundant regulatory language and instead, reference subsection (a)(7)(A)2, where the requirements are currently duplicated.

Subsection (c)

Subsection (c)(1)

Subsection (c)(1)(B): This subsection currently incorrectly describes the types of vehicles to which this subsection applies. It is necessary to amend this subsection to correct that description.

Section (d): Amendments to this section are needed to update the "last amended" dates for the test procedures that are incorporated by reference in section 1961.2.

**Amendments to Title 13, CCR, Section 1961.3**

Subsection (a)

Subsection (a)(3)

Subsection (a)(3)(C)

Subsection (a)(3)(C)4: It is necessary to add text to this subsection to allow a manufacturer to demonstrate that it meets the eligibility requirements to request alternative fleet average greenhouse standards by demonstrating that it has successfully demonstrated compliance with the identical requirements in the 2017 through 2025 MY National Greenhouse Gas Program.

Subsection (a)(6)

Subsection (a)(6)(C)

Subsection (a)(6)(C)1.

The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 has been changed to identify the February 2012 version instead of the August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection (a)(6)(C)2.

The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 the version of SAE J2727 has been changed to discuss the February 2012 version instead of the August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection (a)(7)

Subsection (a)(7)(E): It is necessary to amend this subsection to reference the currently applicable AC17 test procedure.

Subsection (a)(11): It is also necessary to add text to this subsection to reaffirm and clarify the commitment that California made towards participating in USEPA and NHTSA's "mid-term review" of the 2022 through 2025 model year national greenhouse gas standards.

Subsection (b)

Subsection (b)(4)

Subsection (b)(4)(A): This subsection currently says, "For a given model year, a manufacturer that has Greenhouse Gas credits remaining after equalizing all of its Greenhouse Gas debits may use those Greenhouse Gas credits to comply with its ZEV obligations for that model year, in accordance with the provisions set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes."" However, this referenced document does not contain any such provisions. It is, therefore, necessary to delete the reference to this document from this subsection.

Subsection (c): It is necessary to add text to this subsection to accept compliance with the 2017 through 2025 National greenhouse gas program as compliance with California's greenhouse gas regulations for these model years.

Original Subsections (c) through (f): It is necessary to re-letter these subsections as (d) through (g), since a new subsection (c) has been added.

Subsection (f)

Subsection (f)(13): The final rule for the 2017 through 2025 MY National Greenhouse Gas Program does not contain a definition for the "EPA Vehicle Simulation Tool." Since the California LEV III greenhouse gas regulations require the use of this model, it is necessary to modify this subsection to reference the proposed rule in this definition.

Subsection (f)(17): It is necessary to modify this subsection to correct errors in the definition of "full-size pickup truck."

Subsection (f)(25): It is necessary to add a definition for "2017 through 2025 MY National Greenhouse Gas Program," since this program is referred to in this section of the regulations.

Subsections (f)(25) through (f)(36): It is necessary to re-number these definitions, dues to the addition of a new definition (e)(25).

**Amendments to Title 13, CCR, Section 1962.1**

Section (b)

Subsection (b)(2)

Subsection (b)(2)(D)

Subsection (b)(2)(D)1: Language in this subsection has been updated to improve readability.

Subsection (b)(2)(D)2: Language in this subsection has been updated to improve readability.

Section (c)

Subsection (c)(3)

Subsection (c)(3)(A): The revision date and revision number for Society of Automotive Engineers (SAE) J2841 has been updated. This change is needed to incorporate by reference the correct version and date of this document. Additionally, the amended date of the incorporated test procedure has been updated.

Section (h)

Subsection (h)(1): The amended date of the incorporated test procedure has been updated.

**Amendments to Title 13, CCR, Section 1962.2**

Section (c)

Subsection (c)(2)

Subsection (c)(2)(B): This subsection establishes which evaporative emission standards a TZEV is to certify to in section 1976, which is the zero evaporative standard. This language is been clarified to ensure TZEVs meet the most stringent evaporative emission standards available.

Subsection (c)(3)

Subsection (c)(3)(A): The amended date of the incorporated test procedure has been updated.

Section (g)

Subsection (g)(6)

Subsection (g)(6)(C)

Subsection (g)(6)(C)1

Subsection (g)(6)(C)1.a: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)1.c: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)2: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)2.a: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)2.b: This subsection is being modified to include references to the National greenhouse gas fleet subsections that may not be included in a manufacturer's greenhouse gas over compliance calculation.

Subsection (g)(6)(C)2.c: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)3: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)4: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection (g)(6)(C)5: This subsection is being deleted, because with this rulemaking, the federal greenhouse gas program is being made available for demonstration of compliance with section 1961.3.

Section (h)

Subsection (h)(1): It is necessary to amend this subsection to update the amended date of the incorporated test procedure.

**Amendments to Title 13, CCR, Section 1976**

Subsection (b)

Subsection (b)(1)(G)3: *Carry-Over of 2014 Model-Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards*. The purpose of this subsection is to allow 2014 model year vehicles certified to the optional zero-evaporative emission standards set forth in 13 CCR 1976(b)(1)(E) to carry-over to meet the new LEV III phase-in requirements from the 2015 through 2018 model years. The proposed amendment would clarify that for a vehicle certified using this carry-over provision, in-use compliance shall be determined using the zero-evaporative standards the 2014 model year vehicle originally certified to, rather than the family emission limit assigned for the purpose of calculating the fleet-average hydrocarbon emission values.

Subsection (c): It is necessary to amend this subsection to update the amended date of the incorporated test procedure.

**Appendix B – "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"**

**Part I. Subpart A**

Section 1.

Subsection 1.1: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1801-12. This change is needed to allow harmonization with federal regulations.

**Part I. Subpart B.**

Section 1.

Subsection 1.1: It is necessary to amend this subsection to incorporate the most recent definitions set forth in §86.1803-01 into these test procedures. This change is needed to allow harmonization with federal regulations.

Section 2.

"EPA Vehicle Simulation Tool" – The final rule for the 2017 through 2025 MY National Greenhouse Gas Program does not contain a definition for the "EPA Vehicle Simulation Tool." Since the California LEV III greenhouse gas regulations require the use of this model, it is necessary to modify this subsection to reference the proposed rule in this definition.

"Federal Tier II emission Bin 3 or Bin 4" – It is necessary to add this definition because the term is used later in these test procedures.

"Full-size pickup truck" - It is necessary to modify this subsection to correct errors in the definition of "full-size pickup truck."

"Methane reactivity adjustment factor" – It is necessary to add this definition because the term is used later in these test procedures.

"2017 through 2025 MY National Greenhouse Gas Program" – It is necessary to add this definition because the term is used later in these test procedures.

"Small volume manufacturer" – The current definition has been deleted and replaced by a reference to the definition of a small volume in title 13, §1900. This has been done, for simplification purposes.

"Subconfiguration" – This definition is currently missing from the test procedures. (The current text just says, ""Subconfiguration" means".) It is necessary to add this definition.

**Part I. Subpart D.**

Section 1. The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Paragraph (p): Currently for gasoline and diesel-fueled LEV II vehicles, manufacturers may measure non-methane hydrocarbons (NMHC) in lieu of NMOG and multiply NMHC measurements by an adjustment factor of 1.04 before comparing with the NMOG standard to determine compliance with that standard. This adjustment factor was developed based on current certification gasoline that includes MTBE. The LEV III certification gasoline eliminates MTBE and replaces it with ethanol, which changes the appropriate adjustment factor to 1.10. However, the current text shows the adjustment factor as 1.1, omitted the hundredths value. It is necessary to change the 1.1 to 1.10 to retain accuracy and to remain consistent with the format of the adjustment factor for LEV II. A formula to calculate the adjustment factor for other gasoline/ethanol blend certification fuels with an ethanol content up to 25 percent has been added. This formula is consistent with ARB's understanding of the current draft of 40 CFR Part 1066, which ARB will incorporate in its test procedures once finalized by the USEPA.

**Part I. Subpart E** California Exhaust Emission Standards

Section 1

Subsection 1.1: The proposal is needed to correct an incomplete reference to the Code of Federal Regulations. Specifically, the reference has been modified to read, "title 40, CFR Part 86, Subparts B and C."

Subsection 1.1.1: The LEV III phase-in requirement in subsection E.2.2 says that for the 2015 through 2019 model years, vehicles may only be certified to LEV II SULEV standards if they have previously been certified to these standards. Vehicles that are certifying to these emission levels for the first time must be certified to LEV III standards. It is necessary to amend this subsection to remove text that erroneously suggests that vehicles that have not previously been certified to LEV II SULEV standards may be certified to them in the 2015 through 2019 model years.

Subsection 1.1.2:

Introductory paragraph: It is necessary to add language to this introductory paragraph to clarify that these standards apply to all medium-duty vehicles 8,501 to 10,000 pounds GVW beginning with the 2020 model year, as apparent from title 13, CCR section 1956.8 subsection (c)(1)(B), footnote B to the table and subsection (h)(2), footnote A to the table.

Table: Table: Staff inadvertently included the incorrect CO standards for LEV III medium-duty vehicles (MDVs) in the regulations. The correct standards are listed table II-A-2-6 in the "Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider the "LEV III" Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-duty vehicles, and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," (LEV III ISOR). The CO standards in the LEV III ISOR are the standards ARB presented at the LEV III public workshops, but for some reason were not included in the regulations. The LEV III emission benefits will not change as a result of this correction, since the published emission benefits for LEV III included the correct CO standards as listed in the ISOR.

Subsection 1.1.2.1

Subsection 1.1.2.1.1: This subsection contains the LEV III particulate standards for passenger cars, light-duty trucks, and medium-duty <u>passenger</u> vehicles, as the title states. However, the first sentence erroneously leaves out the word "passenger," when describing the medium-duty vehicles to which it applies. It is necessary to amend this subsection to add the word "passenger" to the text, because the LEV III particulate standards for medium-duty vehicles, other than medium-duty passenger vehicles, are contained in the following subsection E.1.1.2.1.2.

Subsection 1.1.2.1.4

Subsection 1.1.2.1.4.1: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement



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that 100% of those vehicles meet the applicable standard in the 2021 model year.

Subsection 1.1.2.1.4.2: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standard in the 2028 model year.

Subsection 1.1.2.1.4.3: It is necessary to add language to clarify that a manufacturer that certifies its vehicles to this alternative phase-in schedule must still meet the requirement that 100% of those vehicles meet the applicable standards in the 2021 model year.

Subsection 1.2

Subsection 1.2.1: The proposal is needed to extend the applicability of the 4000-mile SFTP standards through the 2021 model year to accommodate the delayed LEV III phase-in for small volume manufacturers.

Subsection 1.2.2

Subsection 1.2.2.1

Subsection 1.2.2.1.2: The proposal would modify the *SFTP NMOG+NOx and CO Composite Emission Standards for 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles* Table to clarify the test weight requirements for LEV II vehicles used in the LEV III SFTP Option 2 fleet average.

Table footnote 2: The proposal would clarify that for federally-certified test groups certifying in California in accordance with Section H subparagraph 1.4, the full-useful life emission value used to comply with federal full-useful life SFTP requirements may be used in the sales-weighted fleet-average without applying an additional deterioration factor.

Table footnote 4: It is necessary to amendment this subsection to clarify that, for the purposes of the LEV III SFTP Option 2 fleet

average, the required bin increments of 0.010 g/mi and the bin emission value cap of 0.180 g/mi only apply to LEV III test groups.

Table footnote 5: It is necessary to correct a reference to footnote 7 to refer to footnote 2 as intended.

Subsection 1.7: This subsection has been modified to revise the time period under which a vehicle that uses a zero emission energy storage device must warranty that storage device in order to generate additional NMOG+NOx Fleet Average Credit. This revision is needed to maintain consistency with the ZEV regulations set forth in title 13, CCR, §1962.1(c).

Section 2.

Subsection 2.1

Subsection 2.1.1: The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

Subsection 2.1.1.2: It is necessary to add text to this subsection to indicate how compliance with this requirement will be determined. An average of three model years is appropriate to account for fluctuations in yearly vehicle sales due to economic conditions.

Subsection 2.1.4: The current text states that vehicles meeting the requirements of this subparagraph "shall be included in this equation." However, it is unclear which equation this sentence is referring to. It is necessary to amend this subparagraph to clarify the intent of this sentence.

Subsection 2.4

Subsection 2.4.1

Subsection 2.4.1(b): To improve clarity, it is necessary to amend the proposal to remove some redundant regulatory language and instead, reference subsection E.1.2.2.1.2, where the requirements are currently duplicated.



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Subsection 2.5

Subsection 2.5.1

Subsection 2.5.1.3

Subsection 2.5.1.3.4: It is necessary to add this subsection to accept compliance with the 2017 through 2025 National greenhouse gas program as compliance with California's greenhouse gas regulations for these model years.

Subsection 2.5.3

Subsection 2.5.3.3

Subsection 2.5.3.3.4: It is necessary to add text to this subsection to allow a manufacturer to demonstrate that it meets the eligibility requirements to request alternative fleet average greenhouse standards by demonstrating that it has successfully demonstrated compliance with the identical requirements in the 2017 through 2025 MY National Greenhouse Gas Program.

Subsection 2.5.6

Subsection 2.5.6.3

Subsection 2.5.6.3.1: The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 has been changed to identify the February 2012 version instead of the August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection 2.5.6.3.2: The definition of SAE LR has been changed to require the February 2012 version of SAE J2727 rather than the August 2008 version. This change is needed to require the most up to date procedures.

The Note describing allowed versions SAE J2727 has been changed to identify the February 2012 version instead of the



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August 2008 version. This change is needed for consistency with the change in the definition of SAE LR. i.e., it is needed to require the most up to date procedures.

Subsection 2.5.7

Subsection 2.5.7.5: It is necessary to amend this subsection to reference the currently applicable AC17 test procedure.

Subsection 2.5.10: It is necessary to add this subsection to reaffirm and clarify the commitment that California made towards participating in USEPA and NHTSA's "mid-term review" of the 2022 through 2025 model year national greenhouse gas standards.

Section 3.

Subsection 3.1

Subsection 3.1.1

Subsection 3.1.1.2: The current language in this subsection incorrectly describes the types vehicles to which this subsection applies. The proposed changes to this subsection are needed to correct the errors in the text.

Subsection 3.2

Subsection 3.2.4

Subsection 3.2.4.1: This subsection currently says, "For a given model year, a manufacturer that has Greenhouse Gas credits remaining after equalizing all of its Greenhouse Gas debits may use those Greenhouse Gas credits to comply with its ZEV obligations for that model year, in accordance with the provisions set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes."" However, this referenced document does not contain any such provisions. It is, therefore, necessary to delete the reference to this document from this subsection.

Section 4

Subsection 4.2



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Subsection 4.2.1: This subsection incorrectly states that the LEV III Particulate Interim In-Use Compliance Standards for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles applies through the 2021 model. Instead, it should say that these standards apply through the 2020 model years, which is consistent with title 13, CCR, section 1961.2(a)(8)(B)1. It is necessary to modify this subsection to correct this error.

**Part I. Subpart F**

Section 4

Subsection 4.2: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1823-08. This change is needed to allow harmonization with federal regulations.

Subsection 4.3: Staff is proposing to modify section F.4.3 to correctly state that the durability demonstration procedures do not apply to the 4,000-mile SFTP standards in section E.1.2.1. Currently, the provision incorrectly references the 150,000-mile standards in section E.1.2.2.

Subsection 4.5: It is necessary to add this subsection to the test procedures to clarify how emissions deterioration factors are to be calculated.

**Part I. Subpart G**

Section 3

Subsection 3.1: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1829-01. This change is needed to allow harmonization with federal regulations.

**Part I. Subpart H**

Section 1

Subsection 1.1

Subsections 1.1.1: The requirement that for natural gas vehicles the measured methane emissions value be multiplied by a methane reactivity adjustment factor and added to the NMOG and NOx emission values to determine compliance with the NMOG+NOx emission standards was inadvertently deleted from the current version of the regulations. It is necessary to add the missing regulatory language back into these test

procedures in order to retain this requirement from the current LEV II program.

Subsection 1.4

Subsection 1.4.1

Subsection 1.4.1.1: Subsection 1.4.1 requires that all federally-certified vehicle models certified for sale in California in accordance with subparagraph 1.4 be subject to California 50°F exhaust emission standards. However, no such standards exist for federal Tier II emission bins 3 and 4. It is, therefore, necessary to amend this subsection to exempt vehicles that are certified to federal Tier II emission bins 3 and 4 from California 50°F exhaust emission standards.

Subsection 1.4.1.2: Subsection 1.4.1 requires that all federally-certified vehicle models certified for sale in California in accordance with subparagraph 1.4 be subject to California highway NMOG+NOx exhaust emission standards. However, these standards only apply to LEV III vehicles. Instead, LEV II and federal Tier II vehicles are required to meet identical highway NOx exhaust emission standards. It is necessary to amend this subparagraph to require federal Tier II vehicles to meet highway NOx exhaust emission standards.

Subsection 1.4.2: It is necessary to amend this subparagraph to correct a reference.

Subsections 1.4.6: This subsection incorrectly refers to a fleet average NMOG requirement. However, the fleet average requirement for LEV III is a NMOG+NOx requirement. It is necessary to amend this subsection to correct this error.

Section 3

Subsection 3.2: This subsection currently requires manufacturers of vehicles not certified exclusively on gasoline or diesel to submit projected California sales and fuel economy data prior to vehicle certification. This provision was originally adopted to support a requirement that once a certain number of vehicles that used the fuel were sold in California, fuel distributers would have to sell that fuel in California. However, that fuels requirement has never been implemented, and, except for hydrogen fuel, no new fuels requirement has

been adopted. Therefore, ARB has no need for this reporting requirement for any alternative fuels other than hydrogen.

**Part I. Subpart I.**

Section 1

Subsection 1.1

Subsection 1.1.3: The regulations require in-use verification high mileage testing of LEV III vehicles to be conducted at a minimum odometer mileage of 112,500 miles. However, for certain test groups, it is extremely difficult to find test vehicles that meet this minimum odometer requirement. It is, therefore, necessary to amend this requirement to lower the minimum allowable odometer mileage to 105,000 miles.

**Part I. Subpart J**

Section 1: The CFR section incorporated by this section has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Sections 13 through 15: The CFR sections incorporated by these sections have been updated to the most current versions. These changes are needed to allow harmonization with federal regulations.

**Part II. Subpart A**

Section 100.2

86.111-94: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Section 100.5

86.135-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.159-08

Subsection 100.5.5

Subsections 100.5.5.2, 100.5.5.3, and 100.5.5.4: This proposal is needed to specify a maximum discharge velocity of 15,000 cubic feet per minute for fixed speed cooling fans used during SFTP testing.

86.165-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.166-12: It is necessary to remove the reference to this CFR section, because it has been deleted from the CFR.

86.167-17: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Subsection 100.5.6: This subsection has been deleted, because it is no longer is needed, since it is identical to 40 CFR §86.167-17, incorporated by reference in these test procedures.

**List of Changes to Appendix C – "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"**

**Part I. Subpart B.**

Section 2.

"Small volume manufacturer" – The current definition has been deleted and replaced by a reference to the definition of a small volume in title 13, §1900. This has been done, for simplification purposes.

**Part I. Subpart E**

Subsection 2

Subsection 2.1

Subsection 2.1.1: The footnote for this table erroneously says that MDPVs are included in the LEV II fleet average NMOG value for LDTs 3751 lbs. LVW – 8500 lbs. GVW. It is necessary to change the text to correct this error.

**Part I. Subpart F**

Section 4

Subsection 4.2: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1823-08. This change is needed to allow harmonization with federal regulations.

**Part I. Subpart G**

Section 3

Subsection 3.1: It is necessary to amend this subsection to incorporate the most current version of CFR §86.1829-01. This change is needed to allow harmonization with federal regulations.

**Part I. Subpart H**

Subsection 3



Date of Release: September 14, 2012; 45-Day Notice Version
Date of Hearing: November 15, 2012

Subsection 3.2: This subsection currently requires manufacturers of vehicles not certified exclusively on gasoline or diesel to submit projected California sales and fuel economy data prior to vehicle certification. This provision was originally adopted to support a requirement that once a certain number of vehicles that used the fuel were sold in California, fuel distributers would have to sell that fuel in California. However, that fuels requirement has never been implemented, and, except for hydrogen fuel, no new fuels requirement has been adopted. Therefore, ARB has no need for this reporting requirement for any alternative fuels other than hydrogen.

**Part I. Subpart I.**

Section 1

Subsection 1.1

Subsection 1.1.3: The regulations require in-use verification high mileage testing of LEV III vehicles to be conducted at a minimum odometer mileage of 112,500 miles. However, for certain test groups, it is extremely difficult to find test vehicles that meet this minimum odometer requirement. It is, therefore, necessary to amend this requirement to lower the minimum allowable odometer mileage to 105,000 miles.

**Part I. Subpart J**

Section 3: The CFR section incorporated by this section has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Sections 15 through 17: The CFR sections incorporated by these sections have been updated to the most current versions. These changes are needed to allow harmonization with federal regulations.

**Part II. Subpart A**

Section 100.2

86.111-94: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

Section 100.5

86.135-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.165-12: The CFR section incorporated by this subsection has been updated to the most current version. This change is needed to allow harmonization with federal regulations.

86.166-12: It is necessary to remove the reference to this CFR section, because it has been deleted from the CFR.

86.167-17: It is necessary to incorporate this CFR section, because it applies to vehicles certifying to the 2012-2016 MY National greenhouse gas program.

**List of Changes to Appendix D – "California Non-Methane Organic Gas Test Procedures"**

**Part B, Determination of Non-Methane Hydrocarbon Mass Emissions by Flame Ionization Detection**

Section 5

Subsection 5.2

Subsection 5.2.5: A statement has been added to define the NMHC density as 16.33 for all gasoline-based fuel, including Phase 2 gasoline and E85 fuel, rather than using the equation that is provided. This change is necessary to be consistent with USEPA's current practices.

Section 7

Subsection 7.1: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change to section 5.2.5.

Subsection 7.2: Several changes were made to this section. The fuel carbon:hydrogen:oxygen ratio given for the sample calculation has been corrected. This change is necessary to make the stated ratio consistent with the sample calculation that follows. In the previous revision of the test procedures, the fuel type was changed from M85 to E10, but the ratio was inadvertently changed to that of E85 instead of E10. Although the correct information was used for the sample calculations, the ratio given was incorrect. The dilution factor equation was expanded to show how the numerator was calculated from the equation presented in section 5.2.4. This change was made for clarity. A typographical error in the value of $NMHC_{mass\ 1}$ was corrected.

**Part D, Determination of $C_2$ to $C_5$ Hydrocarbons in Automotive Source Samples by Gas Chromatography, Method No. 1002**

Section 2

Subsection 2.2: The type of sample-containing material was changed to include several types of sample material. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, subsection 4.1.



Date of Release: September 14, 2012; 45-Day Notice Version
Date of Hearing: November 15, 2012

Section 4

Subsection 4.1: The wording was revised to reflect the types of sample-containing material typically used. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, subsection 4.1.

**Part E, Determination of $C_6$ to $C_{12}$ Hydrocarbons in Automotive Source Samples by Gas Chromatography, Method No. 1003**

Section 2

Subsection 2.2: The type of sample-containing material was changed to include several types of sample material. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, section 4.1.

Section 4

Subsection 4.1: The wording was revised to reflect the types of sample-containing material typically used. This change is necessary to reflect current laboratory practices, to allow flexibility, and to be consistent with Part G, section 4.1.

**Part F, Determination of Aldehyde and Ketone Compounds in Automotive Source Samples by High Performance Liquid Chromatography, Method No. 1004**

Section 7

Subsection 7.3: Two paragraphs were combined into one. This change is necessary for clarity.

**Part G, Determination of NMOG Mass Emissions**

Section 3

Subsection 3.2: A statement has been added to define the NMHC density as 16.33 for all gasoline-based fuel, including Phase 2 gasoline and E85 fuel, rather than using the equation that is provided. This change is necessary to be consistent with USEPA's current practices.

Subsection 3.2 b): The NMHC density is changed to 16.33 in the example given for Phase 2 gasoline. This is necessary to be consistent with the change to subsection 3.2.

Subsection 3.2 e): The NMHC density is changed to 16.33 in the example given for E85 fuel. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2. A capitalization error of the word "where" is also corrected.

Subsection 3.3: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2.

Section 4

Subsection 4.4

Subsection 4.4.1: Several typographical errors were corrected. The term "$Hc_{mass,}$" used in two places, was corrected to "$HC_{mass,2}$" in the first instance and "$HC_{mass,3}$" in the second. This is necessary for clarification.

Section 5

Subsection 5.4

Subsection 5.4.1: In the second table, the table header has been changed for one column, VMIX. This is to correct a typographical error in the units ($ft^3$).

Section 6

Subsection 6.4

Subsection 6.4.1:

In the first table, the table header has been changed for one column, $Ivol_c$. This is to correct a capitalization error in the abbreviation of the units (mL).

In the second table, the table header has been changed for one column, VMIX. This is to correct a typographical error in the units ($ft^3$).



Date of Release: September 14, 2012; 45-Day Notice Version
Date of Hearing: November 15, 2012

Section 7

Subsection 7.3: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2.

Section 8

Subsection 8.2: Several equations in the sample calculation have been changed. This is necessary to be consistent with the change made to the NMHC density in subsection 3.2.

**Appendix 1, List of Compounds**

The maximum incremental reactivity (MIR) factor for one compound, 3-methyl-1-hexene, has been revised. This change is necessary to correct a typographical error in the previous version of this test procedure.

**List of Changes to Appendix E – "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles"**

**Part I. Subpart E**

Section 1

Subsection 1.(e)(iii): Carry-Over of 2014 Model Year Evaporative Families Certified to the Zero-Fuel Evaporative Emission Standards. The purpose of this subsection is to allow 2014 model year vehicles certified to the optional zero-evaporative emission standards set forth in section I.E.1.(c) to carry-over to meet the new LEV III phase-in requirements from the 2015 through 2018 model years. The proposed amendment would clarify that for a vehicle certified using this carry-over provision, in-use compliance shall be determined using the zero-evaporative standards the 2014 model year vehicle originally certified to, rather than the family emission limit assigned for the purpose of calculating the fleet-average hydrocarbon emission values.

ATTACHMENT 5

## List of Changes to Appendix F – "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines"

### Part I. Subpart A

Subsection 10

Subsection 10.B

Subsection 10.B.2: This subsection currently allows manufacturers to certify complete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty gasoline vehicles also share engines with complete heavy-duty gasoline vehicles and medium-duty gasoline vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty gasoline vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

**List of Changes to Appendix G – "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles"**

**Part I. Subpart A**

Subsection 11

Subsection 11.B

Subsection 11.B.5

Subsection 11.B.5.4: This subsection currently allows manufacturers to certify complete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine, on the condition that the heavy-duty vehicle meets the most stringent LEV III standards to which any vehicle within that medium-duty vehicle test group certifies. Since certain incomplete heavy-duty diesel vehicles also share engines with complete heavy-duty diesel vehicles and medium-duty diesel vehicles, it is necessary to amend this subsection to also allow manufacturers to also certify incomplete heavy-duty diesel vehicles to medium-duty chassis standards if they share the same engine under the same conditions.

**Part II. Subpart H**

1065.701 subsection B.3(a)(1): This subsection incorporates the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels through 2014," as amended March 22, 2012, and the "California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years," as adopted March 22, 2012. These dates have been replaced by text that references the title 13, CCR, section (§2317) that incorporates these documents by reference. This change is needed to ensure that this subsection always incorporates the most current versions of these documents.

**List of Changes to Appendix H – "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"**

**Section C**

Subsection C.2

Subsection C.2.2

Subsection C.2.2(d)

Subsection C.2.2(d)(1): Language in this subsection has been updated to improve readability.

Subsection C.2.2(d)(2): Language in this subsection has been updated to improve readability.

Subsection C.3

Subsection C.3.3

Subsection C.3.3(a): An equation for Zero-emission VMT Allowance has been updated to correct a calculation error. The revision date and revision number for Society of Automotive Engineers (SAE) J2841 has been updated. This change is needed to incorporate by reference the correct version and date of this document.

**Section F**

Subsection F

Subsection F.8

Subsection F.8.2.6.2(i): A reference was corrected in this section to refer to section G.10 rather than F.10.

**List of Changes to Appendix I – "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes"**

**Section C:**

Subsection C.3

Subsection C.3.2

Subsection C.3.2(b): This subsection establishes which evaporative emission standards a TZEV is to certify to in section 1976, which is the zero evaporative standard. This language is been clarified to ensure TZEVs meet the most stringent evaporative available.

Subsection C.7

Subsection C.7.6

Subsection C.7.6(c)

Subsection C.7.6(c)(1)

Subsection C.7.6(c)(1)(A): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(1)(C).: This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(2): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(2)(A): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(2)(B): This subsection is being modified to include references to the National greenhouse gas fleet subsections that may not be included in a manufacturer's greenhouse gas over compliance calculation. Additionally, language has been added to this subsection to clarify manufacturers must use upstream emission values from Title 13,

section 1962.1, CCR when calculation its over compliance with the greenhouse gas fleet standard.

Subsection C.7.6(c)(2)(C): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(3): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(4): This subsection is being modified to include references to the National greenhouse gas fleet standards.

Subsection C.7.6(c)(5): This subsection is being deleted, since this rulemaking is including language which states the Federal greenhouse gas standard is functionally equivalent to California's greenhouse gas fleet standard.