Attachment C-1

Descriptions of the proposed changes to the regulations and the reasons for making them.

This discussion does not address non-substantive modifications to correct typographical or grammatical errors, changes in numbering or formatting, addition of or edits to internal regulatory cross-references, or similar revisions that improve clarity.

Proposed Modifications to Section 1968.2, Malfunction and Diagnostic System Requirements - 2004 and Subsequent Model Year Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles and Engines

1. Subsection (c). The Advanced Clean Cars (ACC) II program proposes a further change in subsection (c) to define "Low-Emission Vehicle IV" (LEV IV) to accommodate the inclusion of proposed requirements for Low-Emission Vehicle IV applications in section 1968.2. The definition would define "Low-Emission Vehicle IV" applications as vehicles or engines certified to the exhaust emission standards defined in title 13, California Code of Regulations (CCR), section 1961.4 and would indicate that references to vehicle emission categories preceded by "LEV IV" in the regulation refer to Low-Emission Vehicle IV applications certified to that specific vehicle emission category defined in title 13, CCR, section 1961.4 (e.g., "LEV IV SULEV15 vehicles" refer to Low-Emission Vehicle IV applications certified to the Low-Emission Vehicle IV SULEV15 vehicle emission category). Because some of the Low-Emission Vehicle IV vehicle emission categories (e.g., SULEV20) share the same name as those for Low-Emission Vehicle III applications, the addition of "LEV IV" before the vehicle emission category name is necessary to clarify which standards are being referenced.

2. Subsections (d)(3.2.1)(D) to (d)(3.2.1)(G) and (d)(3.2.1.(G)(vi). The On-Board Diagnostics II (OBD II) rulemaking renumbers subsection (d)(3.2.1)(D) to (d)(3.2.1)(G) and amends subsection (d)(3.2.1)(G)(vi), the interim minimum acceptable in-use monitor performance ratios (IUMPR) for the diesel particulate matter (PM) filter filtering performance monitor (subsection (f)(9.2.1)) and missing substrate monitor (subsection (f)(9.2.5)), to extend the model years allowed to use an interim minimum acceptable IUMPR and modify the interim IUMPRs. The new subsections a.3. and a.4. of this section cross-reference the existing subsection (f), Table 2, and associated options. However, Table 2 was erroneously referenced. Table 2 is for all diesel emission threshold monitors other than the PM filter filtering performance monitor and does not provide options for compliance. The correct cross-reference is to Table 3 for the diesel PM filter filtering performance monitor that includes Options 1 and 2. It was necessary to correct this erroneous cross-reference for

accuracy, so the ACC II program proposes further amendments to correct "Table 2" to "Table 3" in sections 1962.8(d)(3.2.1)(G)(vi)a.3. and a.4.

3. Subsection (e)(11.2.3). The OBD II rulemaking amends subsection (e) to add subsection (11.2.3). As discussed in the OBD II Initial Statement of Reasons (ISOR) at pages 38-42 and OBD II 15-day Notice at pages 6-7, this subsection requires manufacturers to implement a new monitor as part of their overall cold start emission reduction strategy (CSERS) system monitors, known as the "Cold Start Catalyst Heating Monitor." The purpose of this new required monitor is to detect a significant reduction in the extra exhaust heat energy directed to a cold catalyst to accelerate the reduction of harmful tailpipe emissions subsequent to an engine start. The new monitor would be required to detect a fault if the system is unable to deliver the commanded or targeted extra cold start exhaust heat energy before emissions exceed specific emission thresholds or when the system fails to deliver most of the intended accelerated catalyst heating, specifically when the system is unable to achieve at least 20 percent of the additional element commanded by the cold start strategy.

   These amendments are needed to address issues concerning the currently required CSERS monitoring requirements. All these amendments were proposed as part of the OBD II proceeding. Staff is including the CSERS monitoring requirements here because the ACC II amendments to subsection (e)(17.1.6)(C) provide an exception to these requirements. The new subsection from the OBD II proceeding is shown here to present all the related aspects of the revised regulation, which is necessary for completeness.

4. Subsection (e)(14.2.2). The ACC II program proposes a further change in subsection (e)(14.2.2) to require Low-Emission Vehicle IV applications to meet the same direct ozone reduction (DOR) malfunction criteria as Low-Emission Vehicle III applications. Subsection (e)(14.2) currently describes two different malfunction criteria – one for non-Low-Emission Vehicle III applications and the other for Low-Emission Vehicle III applications. Amendments were necessary to make the malfunction criteria for Low-Emission Vehicle III applications applicable for Low-Emission Vehicle IV applications, which are more appropriate than the malfunction criteria applicable to non-Low-Emission Vehicle III applications.

5. Subsection (e)(17.1.6), (f)(17.1.8), and (h)(6.4.2)(B)(iii). The ACC II program proposes further changes in subsections (e)(17.1.6), (f)(17.1.8), and (h)(6.4.2)(B)(iii), to delete references to "certified to the exhaust emission standards defined in title 13, CCR, section 1961.4" and "meeting title 13, CCR, section 1961.4" since they are not needed due to the newly proposed definition of "Low-Emission Vehicle IV" in subsection (c). Additionally, the phrase "LEV IV" was added in front of references to specific vehicle emission categories throughout the sections where appropriate, which would match the phrasing described in the proposed definition of "Low-Emission Vehicle IV" in subsection (c) and provide a clear demarcation to which standards are being referenced. These changes are necessary to provide additional clarity and consistency with concomitant changes.

6. Subsection (e)(17.1.6)(A)(i). The ACC II program proposes a further change in subsection (e)(17.1.6)(A)(i) to indicate that the alternative malfunction criteria in (e)(17.1.6)(A)(vi) is also applicable to certain LEV IV SULEV20 vehicles, in addition to subsection (v). While both subsections (e)(17.1.6)(A)(v) and (vi) indicate alternate malfunction criteria for LEV IV SULEV20 vehicles, the regulation language proposed as part of the 45-day notice only mentioned subsection (e)(17.1.6)(A)(v) when listing the alternate criteria for LEV IV SULEV20 vehicles, when it should have listed both. This change is necessary to correct that omission and clearly indicate the exception of both (v) and (vi) to the criteria set forth in (i).

7. Subsections (e)(17.1.6)(A)(iii), (e)(17.1.6)(B)(ii), (f)(17.1.8)(A)(iii), (f)(17.1.8)(B)(ii), (f)(17.1.8)(C)(ii), and (h)(6.4.2)(B)(iii)b. The ACC II program proposes a further change in subsections (e)(17.1.6)(A)(iii), (e)(17.1.6)(B)(ii), (f)(17.1.8)(A)(iii), (f)(17.1.8)(B)(ii), (f)(17.1.8)(C)(ii), and (h)(6.4.2)(B)(iii)b. to clarify that these provisions also apply to chassis-certified medium-duty vehicles with a gross vehicle weight rating (GVWR) equal to 10,000 pounds (lbs.). The language proposed as part of the 45-day notice only applied the requirements of these sections to vehicles with a GVWR less than 10,000 lbs. when the requirements should apply to vehicles with a GVWR less than or equal to 10,000 lbs to align with the GVWR classifications of proposed Low-Emission Vehicle IV emission standards for chassis-certified medium-duty vehicles. These changes are therefore necessary for clarity and accuracy.

8. Subsection (e)(17.1.6)(C). The ACC II program proposes to add subsection (e)(17.1.6)(C) to allow Low-Emission Vehicle IV gasoline vehicles to use alternate "test-out" criteria (i.e., criteria used to determine if a specific component or function is exempt from the monitoring requirements) for cold-start emission reduction strategy monitoring and comprehensive component monitoring, instead of the criteria specified in subsections (e)(11.2.3)(C) and (e)(15.1.2). The test-out criteria allow components to be exempted from the OBD II monitoring requirements if the component has little or no impact on emissions when it malfunctions, since there is little benefit to implementing monitors for these components. Under these alternative test-out criteria, when determining if no malfunction can cause emissions to exceed the standards or to increase by the maximum allowed percentage of the standards, the manufacturer would use the full useful life Federal Test Procedure (FTP) exhaust emission standards to which the vehicle is certified except as follows:

    - For passenger cars, light-duty trucks, and chassis-certified medium-duty passenger vehicles (MDPVs) certified to the LEV IV SULEV15 category, the manufacturer would use the LEV IV SULEV20 standards;
    - For chassis certified medium-duty vehicles with a GVWR of less than or equal to 10,000 lbs. and certified to the LEV IV SULEV125, LEV IV SULEV100, LEV IV SULEV85, or LEV IV SULEV75 category, the manufacturer would use the LEV IV SULEV150 standards; and

- For chassis certified medium-duty vehicles with a GVWR between 10,000 and 14,000 lbs. and certified to the LEV IV SULEV175, LEV IV SULEV150, LEV IV SULEV125, or LEV IV SULEV100 category, the manufacturer would use the LEV IV SULEV200 standards.

As part of the Staff Report, staff proposed similar alternate test-out criteria in subsection (f)(17.1.8)(C) for Low-Emission Vehicle IV diesel vehicles to accommodate the proposed lower emission standards for Low-Emission Vehicle IV vehicles, but did not propose alternate test-out criteria for gasoline vehicles as intended. Similar to the proposed alternate test-out criteria for diesel vehicles, staff believe it is appropriate that the standards for the alternate gasoline test-out criteria be based on the lowest standards currently required for similar Low-Emission Vehicle III applications, as proposed here. For example, for passenger cars, light-duty trucks, and chassis-certified MDPVs certified to LEV IV SULEV15, staff is proposing use of the LEV IV SULEV20 standards here, which are equivalent to those of the Low-Emission Vehicle III SULEV20 standards. The two other categories in (C)(ii) and (C)(iii) follow the same pattern. These alternate criteria reflect the most stringent test-out criteria currently available, and staff will revisit these requirements to determine if lower criteria should be applied in a future OBD II rulemaking update. As with the originally proposed alternate test-out criteria in subsection (f)((17.1.8)(C), these changes are necessary to reduce burdens on regulated entities especially for emission-control components with very small emission impacts and to provide further clarity on the interplay between ACC II and OBD II programs.

9. Subsection (f). In the OBD II proceeding, subsection (f), Table 3, which describes the OBD monitor thresholds for the Low-Emission Vehicle III diesel PM filter filtering performance monitor, was modified to amend the PM thresholds. (*See* OBD II ISOR, pp. 71-72.) Specifically, for passenger cars, light-duty trucks, and chassis certified MDPVs, proposed Option 1 would lower the PM threshold from 17.50 milligrams-per-mile (mg/mi) to 10.00 mg/mi for 2029 and subsequent model year vehicles, while proposed Option 2 would lower the PM threshold from 17.50 mg/mi to 10.00 mg/mi for 2026 and subsequent model year vehicles. For medium-duty chassis certified vehicles (except MDPVs) with a GVWR between 8,500-10,000 lbs., the amendments would lower the PM threshold from 17.50 mg/mi to 14.00 mg/mi for 2029 and subsequent model year vehicles. Medium-duty chassis certified vehicles (except MDPVs) with a GVWR between 10,001-14,000 lbs. would still use the current PM threshold of 17.50 mg/mi. Additionally, footnote 5 was added to indicate how to use the Options, including how to use the provisions of subsections (h)(2.2.1) (which would allow relaxations for durability demonstration testing) and (k)(7.3) (which would allow relaxations for deficiencies).

   These amendments are necessary to address manufacturers' concerns regarding meeting the IUMPR requirements for the PM filter filtering performance monitors as well as to strengthen the final emission thresholds for the monitor. These

changes are presented here because the ACC II proceeding amends parts of subsection (f)(17.1) that cross-reference Table 3. Staff is including Table 3 here to more clearly show to the regulated industry how the two concurrent rulemakings interact.

10. Subsection (f)(9.2.1)(A)(ii)e. In the OBD II rulemaking, subsection (f)(9.2.1)(A)(ii)e. was added to modify the emission thresholds at which the PM filter must be detected as malfunctioning for medium-duty vehicles certified to an engine dynamometer tailpipe emission standard. (*See* OBD II ISOR, pp. 76-78.) For the PM threshold, this section would require vehicles to meet one of two options: Option 1 would require a PM threshold of 0.03 g/bhp-hr PM for 2026 through 2028 model year vehicles and 0.02 g/bhp-hr PM for 2029 and subsequent model year vehicles, while Option 2 would require a PM threshold of 0.02 g/bhp-hr for 2026 and subsequent model year vehicles. 2026 and subsequent model year vehicles would continue meeting the current NOx threshold of 0.2 g/bhp-hr above the applicable NOx standard.

    These amendments are needed to address manufacturers' concerns regarding meeting the PM filter monitor requirements. These changes are presented here because the ACC II proceeding amends parts of subsection (f)(17.1) that cross-references Table 3, which includes cross-references to other regulatory subsections (e.g., (h)(2.2.1) and (k)(7.3)) that in-turn reference this subsection. Staff is including the PM filter monitoring requirements here to more clearly show to the regulated industry how the two concurrent rulemakings interact.

11. Subsection (f)(14.1). The ACC II program proposes a further change in subsection (f)(14.1) to include Low-Emission Vehicle IV applications in the requirements for air conditioning (A/C) system component monitoring. The section currently requires A/C system component monitoring for 2019 and subsequent model year Low-Emission Vehicle III applications. Since CARB is proposing to require the implementation of Low-Emission Vehicle IV applications starting with the 2025/2026 model years and is also proposing to phase-out Low-Emission Vehicle III applications during this time, changes were necessary to account for this and make A/C system component monitoring applicable to Low-Emission Vehicle IV applications.

12. Subsection (f)(17.1.8)(A)(i). The ACC II program proposes a further change in subsection (f)(17.1.8)(A)(i) to indicate that the alternative malfunction criteria in subsection (f)(17.1.8)(A)(vi) is also applicable to certain LEV IV SULEV20 vehicles, in addition to subsection (v). While subsections (f)(17.1.8)(A)(v) and (vi) indicate alternate malfunction criteria for LEV IV SULEV20 vehicles, the regulation language proposed as part of the 45-day notice only mentioned section 1968.2(f)(17.1.8)(A)(v) when listing the alternate criteria for LEV IV SULEV20 vehicles, when it should have listed both. This change is necessary to correct that omission and clearly indicate the exception of both (v) and (vi) to the criteria set forth in (i).

13. Subsection (f)(17.1.8)(A)(ii). The ACC II program proposes a further change in subsection (f)(17.1.8)(A)(ii) to change the section reference for "(f)(17.1.8)(A)" to "(f)(17.1.8)(A)(i)," which was necessary to refer to the correct section.

14. Subsection (f)(17.1.8)(A)(ii) and (iii). The ACC II program proposes further changes in subsections (f)(17.1.8)(A)(ii) and (iii) to change the PM thresholds for the PM filter filtering performance monitor (subsection (f)(9.2.1)) in Tables 2-A and 2-B from 17.50 milligrams-per-mile (mg/mi) to the thresholds specified in Table 3 at the beginning of subsection (f). Table 3 of section 1968.2 was amended in the OBD II rulemaking to require PM thresholds lower than 17.50 mg/mi for the PM filter filtering performance monitor. However, the regulation language in the 45-day notice for the ACC II proceeding, which proposed Tables 2-A and 2-B, inadvertently did not reflect these new thresholds. These changes are necessary to align with the OBD II proposal and to more clearly show to the regulated industry how the two concurrent rulemakings interact.

15. Subsection (f)(17.1.8)(A)(vii). The ACC II program proposes a further change in subsection (f)(17.1.8)(A)(vii) to change the section references for "(g)(17.1.8)(A)(ii)" to "(f)(17.1.8)(A)(ii)," which is necessary to refer to the correct section.

16. Subsection (f)(17.1.8)(C). The ACC II program proposes further changes in subsection (f)(17.1.8)(C) to include that the provisions of the section also apply to test-out criteria that involve determining if no malfunction can cause emissions to "exceed the standards," which more accurately covers all test-out criteria in the regulation. The language proposed as part of the 45-day notice only referred to test-out criteria related to emissions increases tied to a maximum allowed percentage of the standards. Other subsections similarly describing alternate test-out criteria do so based on no malfunction causing emissions to either exceed the standards or increase by a maximum allowed percentage of the standards, not solely the latter as this provision originally did. This amendment is necessary to bring all these subsections into alignment for better consistency. Further, the phrase "the manufacturer shall base the 'applicable standards' on" was changed to "the manufacturer shall use" throughout the subsection, and the phrase "standards to which the vehicle is certified" was changed to "full useful life FTP exhaust emission standards to which the vehicle is certified to" in order to more precisely define the specific tailpipe emission standard that is to be used when calculating the test out criteria per the regulation. Additionally, the subsections under subsection (f)(17.1.8)(C) were renumbered since there is no subsection (f)(17.1.8)(C)(ii), so subsection (f)(17.1.8)(C)(i) is not needed and was therefore renumbered to (f)(17.1.8)(C).

17. Subsection (h)(2.2.1). In the OBD II rulemaking, subsection (h)(2.2.1) was added to indicate that for vehicles with PM filter monitors meeting Option 2 for the PM threshold in Table 3 at the beginning of subsection (f) or in subsection (f)(9.2.1)(A)(ii)e.2. and that do not have deficiencies for failing to meet the PM thresholds of Option 2 or the minimum acceptable ratio in subsection

(d)(3.2.1)(G)(vi), the manufacturer would be allowed to use one of the following additional options (but not both) related to demonstration testing or deficiencies:

> Option A: For each test group that uses Option 2 for the PM threshold as described above on 2026 through 2028 model year vehicles, the manufacturer may exclude one test group from the count of the total number of test groups being certified for one of the following two model years. This count of test groups is specifically for determining the total number of vehicles that the manufacturer has to perform durability demonstration vehicle testing on, as described in subsection (h)(2.2).
>
> Option B: Alternatively, manufacturers may use the provision under subsection (k)(7.3.2), which would allow manufacturers an additional "free" deficiency if the manufacturer is certifying a test group with deficiencies for that model year. This would be applicable for the 2026 through 2028 model years.

As discussed in the OBD II ISOR at pages 81-82, these amendments are needed to address manufacturers' concerns about the PM filter monitor and to incentivize manufacturers to meet the more stringent PM filter monitor thresholds earlier than required (via electing to meet Option 2). Staff is including the durability demonstration vehicle testing regulation language here to more clearly show the regulated industry how the two concurrent rulemakings interact, as the ACC II proceeding amends parts of subsection (f)(17.1) that cross-references Table 3.

18. Subsection (h)(6.4.2)(B)(i). The existing regulation contains the conjunction "and" between subsections (h)(6.4.2)(B)(i) and (ii). The proposal to delete the conjunction was inadvertently omitted in the proposed text. It is shown here as a deletion, which is necessary to provide complete disclosure of the intended amendments.

19. Subsection (k)(7.3). The OBD II rulemaking added subsection (k)(7.3) to indicate that for the PM filter filtering performance monitor, vehicles using Option 2 for the PM threshold in Table 3 at the beginning of subsection (f) or in subsection (f)(9.2.1)(A)(ii)e.2. and that do not have deficiencies for failing to meet Option 2 or the minimum acceptable ratio in subsection (d)(3.2.1)(G)(vi) would be allowed to use one of the following additional options (but not both) related to demonstration testing or deficiencies:

> Option A: The manufacturer may use the provisions of subsection (h)(2.2.1)(A), which indicates that for each test group that meets Option 2 for the PM threshold on 2026 through 2028 model year vehicles, the manufacturer may exclude one test group from the count of the total number of test groups being certified for one of the following two model years. This count of test groups is specifically for determining the total number of vehicles a manufacturer has to perform durability demonstration vehicle testing on, as described in subsection (h)(2.2). Option A, however,

would require that at least one vehicle is tested for the model year that the Option A provision is applied.

Option B: Alternatively, manufacturers would be allowed an additional "free" deficiency if the manufacturer is certifying a test group with deficiencies for that model year. This would be applicable for the 2026 through 2028 model years.

These amendments are necessary to address manufacturers' concerns about the PM filter monitor and to incentivize manufacturers to meet the more stringent PM filter monitor thresholds earlier than required (via the election to certify to Option 2 for the PM threshold). (*See* OBD II ISOR, pp. 92-93.) Staff is including the deficiency regulation language here to more clearly show the regulated industry how the two concurrent rulemakings interact, as the ACC II proceeding amends parts of subsection (f)(17.1) that cross-references Table 3.

Further, the language that was proposed as part of the OBD II rulemaking in subsection (k)(7.3) incorrectly stated that Option 2 is in "Table 2" at the beginning of section (f), when the correct table where it is listed in the regulation is "Table 3." This mistaken reference should not have caused significant confusion as subsection (k)(7.3) correctly states the subsection applies to the "PM filter filtering performance monitor," and Table 3 clearly indicates that it contains the thresholds for the diesel PM filter filtering performance monitor while Table 2 indicates it contains the thresholds for all diesel emission threshold monitors other than the PM filter filtering performance monitor. Further, Table 3 includes provisions clearly acknowledging and specifying Option 2, while Table 2 has no such references or mention of Option 2. Even though it is apparent from the regulatory text that Table 3 is the correct table that should have been referenced in subsection (k)(7.3), this change is proposed to correct "Table 2" to "Table 3" in this subsection, which is necessary for accuracy.