

## ATTACHMENT IV

### **Proposed Modifications to Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II), Section 1968.2, Title 13, California Code of Regulations**

- Section 1968.2, title 13, California Code of Regulations (CCR)
  - Changes 12, 19, 21, 23, 26, and 37 reflect changes that have been made since the April 25, 2002 Board Hearing in response to comments submitted at or subsequent to the Hearing.
1. Section (c)(23): The definition of “normal production” has been added. Due to conflicting interpretations of the definition of “production” by different manufacturers as used in section (j), especially when determining time requirements in relation to the start of “production”, the term “normal production” has been adopted and defined in this regulation. “Normal production” is defined as the time after the start of production when the manufacturer has produced two percent of the projected volume for the test group or calibration of concern. Consequently, references to “production” in section (j) have been changed to “normal production”.
  2. Section (d)(1.3): An additional statement has been added to the general requirements of the OBD II system. This addition clarifies that the regulation is not intended to change current enforcement practice regarding a manufacturer’s liability for a vehicle beyond its useful life, except in cases where a vehicle has been programmed or designed to deactivate its OBD II system based on vehicle age and/or mileage.
  3. Section (d)(2.1.5): This section has been modified to allow manufacturers to use the malfunction indicator light (MIL) to indicate stored fault codes under conditions other than the key on, engine off position, to which it was previously restricted. This is in response to a manufacturer’s statement that its vehicles were able to perform this function during both the key on, engine off condition and the key on, engine on condition. The Executive Officer will approve alternative conditions if normal in-use driving and inspection and maintenance (I/M) testing will not cause vehicles to activate this method of fault code indication.
  4. Sections (d)(2.2), (e)(3.4), (e)(6.4): These sections have been modified to reflect the change in the requirements regarding storage and erasure of “freeze frame” conditions. Section (d)(2.2.4) now allows manufacturers to choose to store and erase “freeze frame” conditions, in conjunction with the storing and erasing of either a pending fault code or a confirmed fault code. Additionally, sections (e)(3.4.3) and (e)(6.4.4) have been modified for the misfire monitor and fuel system monitor, respectively, to clarify the storage and erasure priority of “freeze frame” conditions for these two monitors. Due to these changes, references to storage and erasure of “freeze frame” conditions during storage or erasure of pending fault codes in sections (d)(2.2), (e)(3.4), and (e)(6.4) have been deleted.

5. Sections (d)(2.5), (e)(18.9), and (f)(7.2): These sections have been added to provide manufacturers with additional leadtime in implementing certain requirements of section 1968.2 that are substantively different from those of section 1968.1 of title 13, CCR. Manufacturers can continue to use the requirements of section 1968.1 for MIL and fault code storage, OBD II monitoring, and/or standardization for 2004 model year vehicle, but only with Executive Officer approval, which shall be granted based on data and/or engineering evaluation demonstrating and supporting the need for the leadtime, which may include software or hardware changes. With the addition of section (f)(7.2), sections (f)(2.4) and (f)(4.3.4) have been deleted, since section (f)(7.2) includes the allowances previously provided for in these sections.

6. Section (d)(3.2): The phase-in percentage requirements for section (3.2) (i.e., in-use performance ratio monitoring) have been modified to allow more leadtime for manufacturers to implement this new requirement on their vehicles. The regulation requires that, for manufacturers not utilizing an alternate phase-in schedule as allowed for in section (d)(3.2), 30 percent of all 2005 model year vehicles, 60 percent of all 2006 model year vehicles, and 100 percent of all 2007 model year vehicles must comply with the requirements of section (3.2).

7. Section (d)(3.2.1)(D): This section has been added to address vehicle manufacturers' concerns regarding the initial implementation of in-use performance ratio monitoring, as required in section (d)(3.2). This additional allowance would allow a manufacturer certifying a new vehicle in the 2004 through 2007 model year to certify to the in-use performance ratio of 0.100 ratio for all the monitors specified in sections (d)(3.2.1)(A) through (C) for the vehicle's first two model years. For example, a vehicle first certified in the 2007 model year would certify to the 0.100 ratio for the 2007 and 2008 model years, but would be required to meet the ratios set forth in sections (d)(3.2.1)(A) through (C) for the 2009 model year.

8. Section (d)(4.3.2)(F): This section has been modified to limit the incrementing of the denominator for the variable valve timing and/or control system monitor beyond the requirements specified in section (d)(4.3.2)(B). Specifically, under the modification, the variable valve timing and/or control system denominator would only be incremented if the system is commanded to function "on" two or more occasions during the driving cycle or for a time greater than or equal to ten seconds, in addition to the specifications set forth in section (d)(4.3.2)(B). This will provide a more accurate in use measurement, especially for systems that may only operate at high engine speeds and/or loads.

9. Section (d)(4.3.2)(G): This section contains a new requirement that allows manufacturers to develop and seek Executive Officer approval to use alternate or additional criteria to that set forth in section (d)(4.3.2)(B) for incrementing the denominator of certain monitors. This modification provides flexibility for monitors that require "special" operating conditions to run or that don't follow the typical definition of a "once per trip" monitor. For example, most vehicle manufacturers typically require the vehicle to accumulate a certain mileage before running the stuck fuel level sensor rationality monitor. Unfortunately, without the relief provided under the proposed modification, this could lead to very low in-use performance ratios. The modification

should alleviate vehicle manufacturers' concerns regarding having to meet the required in-use performance ratios set forth in section (d)(3.2.1).

10. Section (d)(6.2): This section has been modified to address manufacturers' concerns about having to retain original test equipment used to develop their OBD II monitors. Manufacturers were originally required to keep in storage all test equipment used for each different system until the vehicle of concern exceeded its applicable full useful life (e.g., 10 years). However, manufacturers have expressed concern about the large amount of storage space that would be needed to retain all the equipment. As such, the modified language does not specifically require the storage of the exact test equipment used during requirement, but it requires, upon request by the ARB, manufacturers to make available test equipment that can be used to duplicate the original testing. Manufacturers can choose to store original equipment or to build/generate new equipment upon ARB's request.

11. Section (e)(1.5.2)(A): The catalyst malfunction thresholds for the 2004 model year and subsequent diesel passenger cars, light-duty trucks, and medium-duty passenger vehicles have been increased from 1.5 times the applicable FTP standard to 1.75 times the applicable FTP standard to be consistent with the catalyst malfunction threshold for non-diesel vehicles.

12. Section (e)(1.5.2)(A)(i): The criteria have been revised to include the NMHC+NO<sub>x</sub> standard used for some engine dynamometer certified applications (instead of separate NMHC and NO<sub>x</sub> standards).

13. Section (e)(4.4.2)(A): This modification is intended to clarify that alternative indicators for missing or improperly secured fuel caps do not need to follow the same requirements as the MIL (section (d)(2.1.1)).

14. Section (e)(7.2.2)(C): This section was modified to address manufacturers' concerns regarding the monitoring requirements for rear oxygen sensors. The section requires monitoring of the sensor to ensure that the sensor still has sufficient output characteristics necessary for proper operation of other diagnostics that rely on the rear oxygen sensor. However, the presence of a catalyst upstream of the rear oxygen sensor places physical limits on how precisely the output characteristics of the rear oxygen sensor can be measured. The section was modified to clarify that manufacturers are only required to monitor the sensor characteristics "to the extent feasible" and provide manufacturers with assurance that ARB will not require monitoring to a level beyond what is technically feasible.

15. Section (e)(10.3.2)(E), (e)(16.3.1)(C), and (e)(16.3.2)(D): The addition of these sections would allow manufacturers to disable continuous monitoring of the engine coolant temperature (ECT) sensor, input comprehensive components, and output comprehensive components/systems during conditions in which a malfunctioning component cannot be distinguished from a properly working component. Manufacturers have indicated that under certain conditions, properly working ECT sensors and various input and output comprehensive components may temporarily exhibit characteristics that cannot be distinguished from circuit continuity or out-of-range fault. As such,

section (e)(10.3.2)(E) for the ECT sensor monitor, section (e)(16.3.1)(C) for input comprehensive components, and section (e)(16.3.2)(D) for output comprehensive components/systems have been added to allow for disablement during these temporary conditions.

16. Section (e)(11.1): This section has been modified to provide additional leadtime, to clarify the alternative phase-in requirement, and to clarify that this monitoring requirement for cold start emission reduction strategies is applicable only to Low Emission Vehicle II applications. Vehicle manufacturers not utilizing the alternate phase-in schedule set forth in section 1968.2(e)(11.1.2) are required to conduct OBD II monitoring of cold start emission reduction strategies on all 2006 and subsequent model year Low Emission Vehicle II applications equipped with this strategy. Vehicle manufacturers utilizing the alternative phase-in schedule are required to implement monitoring on Low Emission Vehicle II applications so that they meet the schedule set forth in section 1968.2(e)(11.1.2) based on a percentage of their entire vehicle fleet, not a percentage of their Low Emission Vehicle II applications.

17. Section (e)(12.1): This section has been modified to make it consistent with the malfunction criteria identified in section (e)(12.2).

18. Sections (e)(12.2.1) and (e)(12.2.2): Language has been added in these sections to clarify that air conditioning system component monitoring is limited to electronic components and does not include purely mechanical components.

19. Section (e)(13.3): This section has been modified twice regarding the monitoring conditions for the variable valve timing (VVT) and/or control system. The originally proposed requirements required monitoring to occur every time the monitoring conditions were met during the driving cycle. Subsequent to the original proposal, staff issued modifications to the proposed requirements at the Board Hearing that would only require monitoring to occur at least once per driving cycle in which monitoring conditions have been met. This change was made at the request of one manufacturer that indicated a continuous monitoring requirement would restrict the use of certain monitoring strategies, especially those that are intrusive (i.e., temporarily interrupt normal operation of the system to perform monitoring). However, upon further consideration regarding the importance of proper VVT operation and the increasing reliance on proper emission control on these systems, staff has modified the language back to the original proposal to require monitoring whenever the monitoring conditions are met during the driving cycle.

As mentioned, VVT systems are increasingly being used as a primary emission control component to control NOx emissions, so proper VVT operation throughout the driving cycle is essential to minimize NOx emissions. VVT systems are generally combinations of mechanical, electrical, and hydraulic components, and thus are susceptible to many different failure or deterioration modes. For instance, proper oil pressure can be essential to VVT system performance but oil pressure can vary widely on vehicles as they age. Commonly, aged engines have comparatively reduced oil pressure while operating at idle and gradually regain proper oil pressure as the engine is operated at higher speeds and loads. This can translate to significantly different

levels of VVT system performance on transitions away from idle (such as accelerations where proper NOx control is crucial) whereas performance during steady cruises at higher speeds and loads might remain satisfactory. If VVT monitoring only occurs intrusively once per driving cycle during steady cruise conditions, for example, poor VVT performance during low speed accelerations might not be detected, even though NOx emissions could increase greatly. Requiring monitoring to occur whenever the monitoring conditions are satisfied on the driving cycle minimizes the opportunity for such problems to go undetected and better ensures that vehicles will maintain appropriate NOx emissions as they age.

20. Sections (e)(16.2.1)(B) and (e)(16.3.2)(C): These sections have been modified to allow more leadtime for manufacturers to implement storage of separate fault codes for input comprehensive components and define monitoring conditions for the idle speed control system functional check. These requirements will apply to all vehicles starting with the 2005 model year.

21. Section (e)(16.2.1)(C): This section has been added to provide clarification regarding camshaft position sensor and crankshaft position sensor monitoring. As originally clarified in ARB Mail-Out #95-20, the OBD II system is required to monitor the cam/crank sensors for proper alignment. Consistent with several manufacturers' requests to incorporate clarifications issued in past Mail-Outs directly into the OBD II regulation, staff has added new language to specify the minimum malfunction criteria required for cam/crank sensor alignment. However, staff has modified the language from that originally used in the Mail-Out to eliminate the reference "to the extent feasible," since monitoring for this alignment is indeed feasible and is being done on vehicles today. Additionally, staff has removed the clause "for vehicles that require precise alignment between the camshaft and crankshaft" because all vehicles meeting current and future low emission standards do indeed require precise alignment between the camshaft and crankshaft. And lastly, while the Mail-Out indicated that the intent of this monitor was to help identify a timing belt or chain that "has either slipped or been installed incorrectly," it did not explicitly require that the monitor be designed to detect a malfunction if the timing belt or chain slipped by one "tooth" (or cam/crank sprocket cog). To allow manufacturers to make any necessary adjustments (if any) to account for these differences from the original Mail-Out language, leadtime has been added to require this level of detection on 2006 and subsequent model year vehicles.

22. Section (e)(16.4.2): This section has been modified to account for the very low tailpipe emission standards that the PC/LDT SULEV II applications are certified to. Under the proposed modification, OBD II systems in PC/LDT SULEV II applications would not be required to illuminate the MIL when a malfunction of any comprehensive component does not cause vehicle emissions to exceed 25 percent or more of the FTP standard and if the component is not used as part of the OBD II diagnostic strategy of another component or system. Initially, the proposed regulation required illumination of the MIL when emissions exceeded 15 percent or more of the FTP standard, which is still required for all other motor vehicle applications.

23. Section (e)(17.3): This section has been modified to clarify that the monitoring requirements of this section are in addition to the requirements of section (e)(17.1) as

opposed to in lieu of as some manufacturers have mistakenly interpreted. Additionally, a provision has been added to allow manufacturers to carry-over existing system designs into the 2005 through 2008 model years without complying with these new requirements. Carry-over would be allowed until the engine or intake air delivery system has been redesigned but in all cases, all 2009 and subsequent model year vehicles would be required to comply with the new requirements. The proposed changes at the Board Hearing did not limit the carry-over to 2005-2008 model year vehicles and allowed carry-over until the engine or intake air delivery system was redesigned. However, subsequent to the Board Hearing, staff has had discussions with several manufacturers regarding what type of changes would or would not be considered a “redesign”. Rather than try to predict every possible change that could happen and determine whether it would be a significant enough change to be considered a “redesign”, staff added the 2005-2008 model year limitation to ensure that all vehicles in the future will comply with the new requirements. The extension through the 2008 model year provides four years of leadtime and should be more than enough time to allow manufacturers to schedule redesigns on products that would not normally be redesigned in the 2005-2008 timeframe.

24. Section (e)(18.5): This section has been separated into two sections to clarify and distinguish the requirements for disabling OBD II monitoring due to low or high vehicle battery or system voltages. While the requirements for disablement due to low vehicle battery or system voltages have already been detailed (section (e)(18.5.1)), an additional allowance has been added to permit manufacturers, upon Executive Officer approval, to disable OBD II monitoring due to high vehicle battery or system voltage (section (e)(18.5.2)).

25. Section (e)(18.7): This requirement has been added to provide specific allowance for manufacturers, upon Executive Officer approval, to disable OBD II monitoring in vehicles equipped with tire pressure monitoring systems that cause the vehicle to enter a default mode when a tire pressure-related fault is detected.

26. Section (f)(1): The titles and publication dates of the Society of Automotive Engineers (SAE) and International Organization of Standards (ISO) documents, which are incorporated by reference into section 1968.2, have been revised and updated to reflect the recent harmonization of the SAE and ISO documents into one document. References to the original document names throughout section 1968.2 have also been revised to reflect these changes. In addition, a reference to document SAE J1939 has been added (section (f)(1.10)).

27. Section (f)(2.3): The section has been modified to be consistent with SAE and ISO standards. The maximum voltage allowed at the diagnostic connector has been increased from 18.0 Volts to 20.0 Volts.

28. Section (f)(2.4): Refer to change #5 for explanation.

29. Section (f)(3.2): This section has been modified to allow vehicle manufacturers to use the communication protocol ISO 9141-2 up to and including the 2007 model year. Initially, the proposed regulation allowed its use through the 2006 model year. This

modification is in response to comments from vehicle manufacturers who have indicated that they would be carrying over systems that utilize this protocol up to the 2007 model year. The modification also makes the phase-out of this protocol consistent with the phase-out of other communication protocols.

30. Section (f)(4.1.2): This section has been modified to clarify the readiness code setting procedures for evaporative system monitors. Under the provisions of section (e)(4), manufacturers are required to monitor the purge valve for proper function as well as monitor for leaks in the evaporative system. Manufacturers are required to separately monitor for 0.020 inch leaks and 0.040 inch leaks but a provision exists for manufacturers to monitor for 0.090 inch leaks in lieu of the 0.040 inch leaks if certain criteria are met. To ensure consistent readiness code setting for the evaporative system monitor, this section explicitly states when the readiness code should be set for vehicles with the various combinations of leak size monitors. In determining the requirements, staff balanced the stringency (and emission impact) of the leak size monitor with the expected in-use monitoring frequency for the various leak size monitors to minimize delay in setting the readiness code prior to an Inspection and Maintenance (I/M) test while still ensuring the evaporative system had been sufficiently evaluated for leaks. Accordingly, section (f)(4.1.2)(A) clarifies that the readiness status for the evaporative system is required to be set after both the functional check of the purge valve and either (whichever occurs first) of the 0.020 or 0.040 inch leak detection monitors has been completed. Thus, even though a 0.040 inch leak is approximately four times as large as a 0.020 inch leak, the 0.040 inch leak monitor is still fairly stringent and generally runs more often than the 0.020 inch leak monitor and it is appropriate to set the readiness code upon completion of either monitor. On the other hand, for vehicles with evaporative system monitors that detect 0.090 inch leaks instead of 0.040 inch leaks, section (f)(4.1.2)(B) requires that the readiness status for the evaporative system monitor be set after both the functional check of the purge valve and the 0.020 inch leak detection monitor are completed. In this case, a 0.090 inch leak is over 20 times as large as a 0.020 inch leak leaving a large range of leak sizes unverified by the monitor if the readiness code is set based on the 0.090 inch leak detection monitor completing instead of the 0.020 inch leak monitor.

31. Section (f)(4.2.2): The section has been modified to properly refer to “manifold absolute pressure” instead of “manifold air pressure”.

32. Section (f)(4.3.4): Refer to change #5 for explanation.

33. Section (f)(4.4.2): This section has been modified to allow manufacturers additional leadtime to distinguish between different kinds of failures through the use of separate fault codes. Such additional leadtime may be particularly necessary to distinguish rationality faults from circuit faults. This requirement will apply to all vehicles starting with the 2005 model year.

34. Section (f)(4.6): The modification to this section provides additional flexibility to manufacturers that use on-board computers with multiple sets of software. In lieu of ensuring that the calibration identification number can distinguish between the software

sets, a manufacturer may use a single identification number as long as the MIL illuminates anytime the wrong software set is used.

35. Section (f)(4.7.3): The section was modified to add additional situations in which the calibration verification number (CVN) value would not have to be made available to a generic scan tool. Specifically, with the modification, the OBD II system would not be required to make available the CVN to the scan tool for the first 30 seconds of engine operation after a volatile memory clear or battery disconnect. This means that rather than having to store the CVN in the non-volatile memory, the CVN would now be able to be stored in volatile memory as long as the CVN value is recalculated quickly after engine start.

36. Section (f)(4.7.4): This section has been modified to clarify that manufacturers will not need to comply with the CVN and CAL ID combination information requirements for Inspection and Maintenance testing until the 2005 model year.

37. Section (f)(7): Section (f)(7.1)(B) has been added to allow medium-duty vehicles to utilize the SAE J1939 protocol, upon Executive Officer approval, for the 2004 and 2005 model year, provided that the vehicle meets the requirements of SAE J1939 and has features that allow it to be tested in the California Inspection and Maintenance program. Additionally, the original requirements of section (f)(7)(A) and (B) have been combined into section (f)(7.1)(A).

38. Section (g)(6.1): The reference to OBD II group has been changed to vehicle configuration, which is defined in 40 Code of Federal Regulations (CFR) 86.082-2. Using vehicle configuration as opposed to OBD II group would better ensure that the vehicle tested by ARB will be representative of the vehicle originally tested by the manufacturer.

39. Section (i)(6.1): The deadline for manufacturers to request a retroactive deficiency and to amend a vehicle's certification has been extended from 4 months (120 days) to 6 months after commencement of normal production. This better aligns the requirements of this section with the time limits which provide manufacturers with up to six months after commencement of normal production to report deficiencies.

40. Section (j)(1.1): The section has deleted the reference to vehicles utilizing ISO 15765-4 as the communication protocol. Manufacturers would now be required to perform production vehicle evaluation testing of the standardized requirements set forth in sections (f)(3) and (f)(4) on all 2005 and subsequent model year vehicles irrespective of whether they use the ISO 15765-4 protocol.

41. Section (j)(1.4.2)(B): Language has been added to clarify the exact conditions that need to be verified for proper MIL command status.

42. Sections (j)(2): In section (j)(2.1), the deadline for when manufacturers are to complete production vehicle evaluation testing of the monitoring requirements has been extended from the first four months to the first six months after the start of normal production. This extension is to address concerns expressed by manufacturers about



the short time period required to complete this verification testing. Section (j)(2.2) has been added to detail the selection process of production vehicle evaluation test vehicles, with the number of test vehicles being twice the number of test vehicles selected for durability demonstration testing (section (g)). Incidentally, this selection process can take place during the selection process of the durability demonstration test vehicle as described in (g)(2.1.1) and (j)(2.2.1).

43. Section (j)(3): Section (j)(3.1) has been modified to clarify the time requirement for collection and reporting of in-use monitoring performance data for production vehicle evaluation testing by the manufacturers. Under the proposed changes, such testing shall be done within six months from either the time that vehicles in the test group were first introduced into commerce or the start of normal production for such vehicles, whichever is later. This is in response to comments from manufacturers whose vehicles are built in foreign countries and then shipped to the United States and thereby lose a significant portion of the six month time frame during transit to the United States. Additionally, modifications have been made to section (j)(3.1) to clarify that manufacturers may collect and report one set of data that represents multiple test groups, with Executive Officer approval. Section (j)(3.3) has been modified to reduce the vehicle sample size from a minimum of thirty vehicles to fifteen vehicles. This is in response to manufacturers' concerns that the originally proposed thirty vehicles was too high and the testing would impose additional burden and high cost. Additionally, section (j)(3.5) has been altered to address concerns of small volume manufacturers regarding sample size. Under the proposed change, these manufacturers may request Executive Officer approval to use a smaller sample size than that set forth in section (j)(3.3).

**Proposed Modifications to Enforcement of Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II), Section 1968.5, Title 13, California Code of Regulations**

- Section 1968.5, title 13, California Code of Regulations (CCR)
  - Changes 6, 7, 8, 14, 20, 22, 28, 29, 34, 35, and 49 reflect changes that have been made since the April 25, 2002 Board Hearing in response to comments submitted at or subsequent to the Hearing.
1. Section (a)(3)(A): The definition of “days” has been changed from calendar days to normal working days to make the definition consistent with that used in ARB tailpipe emission standard enforcement procedures.
  2. Section (a)(3)(C): The section has been modified to clarify that information other than enforcement testing results can also result in an influenced recall.
  3. Section (b)(2)(A): This section has been modified to allow the ARB to perform testing on any vehicle “certified for sale” in California rather than “sold and operated” in California. This change has been made to ensure that only vehicles certified to California OBD II requirements would be subjected to enforcement testing.
  4. Section (b)(3)(A)(iii): Language has been added to clarify that the motor vehicle class used for enforcement testing can, if appropriate, cover multiple model years as well as multiple OBD II groups. The burden, however, would still remain on the Executive Officer to justify his or her determination to include multiple OBD II groups and/or model year vehicles into a single motor vehicle class.
  5. Section (b)(3)(A)(iv): As initially proposed, this section was intended to exclude from OBD II enforcement testing motor vehicle classes that were primarily comprised of vehicles that exceeded the defined certified useful life of the class. The section has been modified to allow testing of such a class for the limited purpose of determining whether an OBD II system in such vehicles has been designed to deactivate based on age and/or mileage. The proposed change is consistent with the modification being proposed in section 1968.2(d)(1.3). Additionally, the title of the EMFAC2000 technical support document referenced in this section has been corrected.
  6. Section (b)(3)(B): This section has been modified to clarify the size of test sample groups that the ARB will use in conducting in-use OBD II enforcement testing. Under the proposed modifications, the test sample size that will be used for OBD II emission testing (section (b)(3)(B)(i)) will continue to be a minimum of 10 vehicles. The regulation, however, would clarify that emission test results from a sample of 10 vehicles meeting the selection criteria of section (b)(3)(D)(i) would be determinative as to their representativeness of the emission characteristics of the motor vehicle class being tested. This modification is consistent with the in-use tailpipe emission-testing program developed under title 13, CCR, section 2137, the provisions of which the Executive Officer is expressly required to follow. Under the tailpipe enforcement

program, it has been long accepted by both the ARB and motor vehicle manufacturers that a sample size of 10 vehicles is representative of the emission characteristics of an engine family, test group, or subgroup. Indeed, section 2137 provides that a sample size of less than 10 vehicles may at times be used to represent the entire class of vehicles subject to enforcement.

Similarly, section (b)(3)(B)(ii) has been modified to clarify that for in-use ratio testing of OBD II monitors, a sample of at least 30 vehicles meeting the selection criteria of section (b)(3)(B)(ii) shall be used to represent the in-use ratio monitoring performance of OBD II systems installed in the tested motor vehicle class. Using common statistical methods, the pass/fail ratio criteria to be used for enforcement testing were modified from the minimum ratio requirements in section 1968.2 to account for a sample size of 30 (see Appendix V of the Staff Report: Initial Statement of Reasons for Proposed Rulemaking, issued on March 8, 2002). Specifically, the enforcement pass/fail ratios were lowered to the point that ensured that the Executive Officer would have a 90% confidence interval that any sample of 30 vehicles that had an average ratio below the pass/fail ratio would be a conclusive determination that the tested motor vehicle class had a ratio below the minimum required ratios in section 1968.2. Consequently, the combination of 30 or more vehicles and the adjusted enforcement pass/fail ratios provide an accurate indication of the in-use ratio characteristics of the tested motor vehicle class.

Section (b)(3)(B)(iii) has been modified to make it clear that because of the myriad of possible requirements to be tested under this section, the Executive Officer will make determinations regarding sample size on a case-by-case basis. As initially noticed, in making his or her determination, the Executive Officer will consider the nature of the noncompliance and the identified scope of the motor vehicle class. In response to manufacturer comments, the ARB is further proposing to expressly state that the sample used will be sufficient in size to reasonably infer the results of such testing to the motor vehicle class as a whole.

7. Section (b)(3)(C): This section has been modified to clarify that for both in-use emission and ratio testing, the ARB will procure vehicles for testing consistent with the process that the ARB has historically followed in procuring vehicles under the in-use enforcement-testing program for tailpipe emissions. As in the tailpipe program, the ARB will obtain lists of vehicle owners in a specific geographical area, send out mail solicitations to all identified owners, select vehicles for inspection from the responses that have been received, and conduct an inspection of selected vehicles -- eliminating all vehicles that fail to meet the criteria of section (b)(3)(D) -- until a sufficient sample has been obtained for testing. To eliminate redundancy, paragraphs (i) and (ii) of section (b)(3)(C) have been combined.

To address all other OBD II enforcement testing, section (b)(3)(C)(ii) (formerly paragraph (iii)) has been modified to make clear that the Executive Officer will make his or her determinations regarding procurement on a case-by-case basis. This is necessary given the wide spectrum of testing that may be conducted under this section.

8. Section (b)(3)(D): The section has been modified throughout to delete the reference “no reasonably apparent” from paragraphs (i) through (iii). The phrase was used in recognition of the difficult task that the Executive Officer could often face in making conclusive findings as to the listed criteria. The clause effectively recognized that despite the Executive Officer using his or her best efforts to select vehicles in compliance with the criteria, some vehicles might unwittingly be included in a test sample.

Manufacturers have raised concerns that use of the “no reasonably apparent” phrase in the criteria themselves would result in vehicles being included in test samples even after it was discovered that they should not be. This clearly was not the ARB’s intent; accordingly, as stated, the modifications have deleted use of the phrase in the criteria. In its place, section (b)(3)(D)(iv) has been added to the vehicle selection procedures. The new section would establish a rebuttable presumption that a vehicle has properly been included in a test sample group upon the Executive Officer following the procurement and selection provisions of section (b)(3) and determining that no reasonably apparent evidence exists that the vehicle should be excluded. Under the proposed modification, the presumption would be rebutted upon the Executive Officer receiving information, from the vehicle manufacturer or on his or her own, that demonstrates that a vehicle has been improperly included in the sample group. Upon making the determination, the Executive Officer would be required to remove the vehicle from the test sample group and could elect to replace it with a vehicle meeting the selection criteria. The proposed provision also makes it clear that the Executive Officer could not rely upon any test results from the removed vehicle.

The language of paragraph (iv) has been modified slightly from the language that was made available at the Board hearing. The changes have been made only for clarity and the presumption and conditions for its rebuttal have not been changed substantively.

9. Section (b)(3)(D)(i)c.: As initially proposed, the selection criterion set forth in this section would have excluded vehicles that exceed their certified full useful life. The section has been modified to now exclude vehicles that exceed 75 percent of their certified full useful life mileage. This change is consistent with the criterion used in tailpipe emission standard enforcement testing. With the modification, the Executive Officer will now only include vehicles in the sample that have an odometer reading less than 75 percent of their certified full useful life mileage and do not exceed their certified full useful life age.

10. Section (b)(3)(D)(i)d.: Language has been added to this criterion to make it clear that vehicles will be excluded if they have been tampered with or have had add-on or modified parts installed on the vehicle that permanently affect the exhaust emission performance of the vehicle. This is in addition to the vehicle being excluded if such modifications cause the vehicle’s OBD II system to be out of compliance with title 13, CCR, section 1968.2. This modification underscores the purpose for why vehicles are not included in the test sample group – that is, the possibility that the vehicle has a condition that might lead to unreliable test results. The new language is consistent with

title 13, CCR, section 2137 and the other selection criteria for OBD II emission testing under section (b)(3)(D)(i).

11. Section (b)(3)(D)(ii)b.: This section has been modified to ensure proper selection of vehicles for OBD II ratio enforcement testing. Specifically, language has been added to clarify the process that will be used by the Executive Officer to select vehicles and determine that the vehicles have collected a sufficient amount of ratio data for monitors that are not tracked and reported in a standardized format.

12. Sections (b)(3)(D)(ii)d. and (b)(3)(D)(iii)d.: These sections have been added to limit the selection of vehicles for use in OBD II ratio testing only to those vehicles that are still within their full useful life age and mileage.

13. Section (b)(4)(A): In response to comments by several manufacturers, this section has been modified to limit the malfunctions implanted or simulated by the Executive Officer for enforcement testing to malfunctions representing failure modes that a manufacturer could have reasonably foreseen.

14. Sections (b)(6)(A)(i) and (ii): In response to manufacturer concerns that the ARB should provide a higher interim standard for determining nonconformance with OBD II emission testing, the staff has proposed that the regulations be modified. At the Board Hearing, staff proposed that for 2004 through 2008 model year non-SULEV vehicles, the Executive Officer would find a nonconformance only if 50 percent or more of the vehicles tested did not properly illuminate the MIL when emissions exceeded 2.0 times the FTP standards. Prior to the modification, the proposed regulation provided that a nonconformance would be found if the vehicles failed to illuminate the MIL when emissions exceeded the malfunction criterion threshold of 1.5 or 1.75 times the FTP standards. In the case of SULEVs, the staff proposed that the cut-point for finding a nonconformance should be raised to 3.5 times the FTP standards instead of the malfunction criterion of 2.5 times the FTP standards. Additionally, subsequent to the Board Hearing, the staff has determined that it would be appropriate that for monitors calibrated to 3.5 times the FTP standards, a nonconformity should not be found unless the MIL in 50 percent of the tested vehicles did not illuminate when emissions exceeded 4.5 times the FTP standards. Staff has proposed this change because the previous language providing for higher interim standards that was made available at the Board Hearing inadvertently overlooked the 3.5 criteria used during the phase-in of NO<sub>x</sub> catalyst monitoring strategies. For 2009 and subsequent model year vehicles, manufacturers would be held to the initially proposed tighter standards for nonconformance determinations (e.g., 1.5 times the FTP standards).

15. Sections (b)(6)(B)(i) and (ii): In further response to the above-stated manufacturer concerns, these sections have been modified to provide manufacturers with a lower (less stringent) interim OBD II ratio to be used by the Executive Officer in determining nonconformances. The lower ratio will apply to some vehicles starting in 2004 and phasing out through the 2008 model year. Starting with 2007 model year, vehicles not in the phase-out will be subjected to the higher, non-interim OBD II ratios for nonconformance determination.

16. Section (b)(7)(B)(i) through (iii): The substitution of these sections for the language previously proposed clarifies what information the Executive Officer shall include in the notice of nonconformance to the manufacturer. These sections state that the Executive Officer must include a description of each group or set of vehicles or engines covered by the determination and a factual basis for the determination including supporting test results. Further, the modified language provides that the Executive Officer shall, upon request of the manufacturer, make available all records material to the Executive Officer's determination consistent with the Public Records Act.

17. Section (b)(7)(C): This section has been modified to make the deadline for submission of information to the Executive Officer consistent with the allowance for deadline extensions. This section also has been modified to require (in lieu of allow) manufacturers to provide any information that rebuts the Executive Officer's finding of nonconformance to the Executive Officer within the prescribed deadline. Within this deadline, in accordance with section (c)(3)(B), manufacturers would also be required to submit to the Executive Officer any information or data that would exempt a motor vehicle class, for which a preliminary finding of nonconformity has been made, from mandatory recall. The requirements of this section have been modified from permissive to mandatory to ensure that the Executive Officer is provided with all pertinent and necessary information at the time he or she makes his or her determinations regarding OBD II compliance and remediation.

18. Section (b)(7)(C)(i): This section has been modified to clarify a manufacturer's responsibilities if it elects to conduct its own testing. Upon submitting its test results, the manufacturer would be required to also provide a detailed description of the procurement and test procedures that it used in conducting the testing. Here again, this language has been added to assure that the Executive Officer has all pertinent and necessary information at the time final determinations regarding compliance are made. Formerly proposed requirements that would have required manufacturers to notify the ARB before conducting such testing have been deleted.

19. Section (b)(7)(C)(iii)b.: This section has been modified to allow a manufacturer to present any evidence it has to rebut an Executive Officer's finding of nonconformance for OBD II ratio testing provided the evidence offers a level of proof that the vehicles do comply equivalent to the level of proof that would be achieved from collecting data in the exact same manner as the Executive Officer. The requirement that the manufacturer would have had to obtain prior Executive Officer approval before conducting any alternative testing has been deleted.

20. Section (b)(7)(D): This section has been added to emphasize that the Executive Officer will not consider data gathered or submitted by the manufacturer after the deadline for submission of such data unless the manufacturer could not have foreseen the need for the data within the time allowed. The proposed section is necessary to assure that the Executive Officer has all necessary information at the time that he or she issues a final determination regarding nonconformity or the need to order the mandatory recall of a motor vehicle class. The proposed modification differs slightly from the language that was made available at the Board hearing as part of staff's suggested changes to title 13, CCR, section 1968.5. The section has been rephrased

largely for clarity. Also, upon post-hearing review, the staff concluded that it would be more appropriate for the Executive Officer to consider the issue of whether a manufacturer is unable to produce relevant evidence despite the exercise of reasonable diligence within the context of an extension request filed under section (b)(7)(H). By requiring the manufacturer to present such information as part of an extension request, the Executive Officer would be able to consider in a more timely manner the issue of whether the manufacturer is exercising reasonable diligence in its efforts to generate relevant evidence. By requiring consideration of the issue upfront, unnecessary last-minute surprise could be avoided. The modification requiring upfront disclosure of delays in generating relevant evidence should not adversely affect the manufacturer, which is the only party aware of the circumstances surrounding its inability to produce the evidence.

21. Section (b)(7)(E): This section has been added in response to manufacturer concerns and to clarify that the requirements of this section of the OBD II enforcement regulation are not intended to supercede any rights or privileges afforded to a manufacturer under California law.

22. Section (b)(7)(H): This section has been modified consistent with the modification to section (b)(7)(D) to make it clear that a manufacturer should request an extension of time if, despite acting with reasonable diligence, it is unable to produce relevant evidence in the time that has been allotted. The modification would further make it clear that the Executive Officer would consider such circumstances in granting a request for additional time and would grant a reasonable extension of time if the manufacturer were able to properly support its request. To the extent that testing or other production of evidence could not be produced because the need for such evidence was not foreseeable and the request for an extension of time could not be raised in the time provided by the Executive Officer, such circumstances would be considered under the proposed modifications set forth in section (b)(7)(D) above.

23. Sections (c)(1) and (2): These sections have been modified to separately identify the requirements for voluntary recalls from those for influenced recalls for purposes of clarity.

24. Section (c)(3)(A): Language has been added to this section to reference the exceptions to mandatory recall in section (c)(3)(B). Additionally, this section has been modified to add that the Executive Officer is required to order a mandatory recall if information provided by the manufacturer indicates that vehicles within the motor vehicle class meet one of the criteria for mandatory recall. Formally, recall was only required based on information collected during OBD II enforcement testing. Irrespective of how information is collected, the objective of these enforcement procedures is to ensure compliance and proper enforcement of the OBD II regulations.

25. Section (c)(3)(A)(i): Consistent with the lower (less stringent) interim OBD II ratios added in sections (b)(6)(B)(i) and (ii), the ratios for mandatory recall have been revised to reflect the interim standards. For 2004 through 2008 model year vehicles certified to the interim ratio, the ratio triggering a mandatory recall has been eliminated

and all decisions related to recall for OBD II ratio testing will be made under the provisions of section (c)(4).

26. Section (c)(3)(A)(ii): This section has been revised to increase the emission threshold that must be exceeded during OBD II emission testing before a mandatory recall is required. Specifically, emissions are required to exceed two times the required regulatory level (e.g., two times the required level of 1.5 times the FTP standard would be 3.0 times the FTP standard) before a mandatory recall is required. The section has also been modified to provide an even higher (less stringent) emission threshold of three times the required level to trigger a mandatory recall for the first two years that a new monitoring requirement is phased-in.

27. Section (c)(3)(A)(v): This section was modified after the Board Hearing to correct a parenthetical example. The section refers back to the earlier section (c)(3)(A)(ii) and includes a parenthetical example of an incorrect threshold level identified as “exceeds the malfunction criteria by an additional amount equal to or greater than 1.5 times the applicable FTP standard”. The parenthetical example threshold was modified to “exceeds two times the malfunction criteria” to be consistent with the actual threshold used in section (c)(3)(A)(ii).

28. Section (c)(3)(B): The section has been added to address concerns raised by manufacturers regarding mandatory recall. After review, the staff is proposing that the mandatory recall provision be modified to provide for several express exceptions. Under the proposed exceptions, the Executive Officer would not order recall even though a nonconforming motor vehicle class meets or exceeds the criteria set forth in section (c)(3)(A). The first exception has been proposed upon determining that the redundant monitors would provide assurance that the OBD II system will still effectively be able to monitor the performance of a vehicle’s emission-related components. Staff is proposing the second exception upon determining that under the specific circumstances proposed therein, it would be unfair to require mandatory recall. This exception is intended to be construed narrowly and a manufacturer would not be able to argue that a failure or deterioration mode was unforeseen if a reasonable manufacturer could or should have known of its possible occurrence through diligent and thorough research, testing, and quality assurance programs. In proposing the third exception, staff has recognized that even though an OBD II monitor may not be performing properly, the integrity of the OBD II system is intact because, as with a redundant monitor, there is certainty that the monitored emission-related component if it were to malfunction would be detected and repaired.

As proposed in section (b)(7)(C), manufacturers would be required to present evidence regarding the above exceptions to mandatory recall in response to the Executive Officer’s preliminary findings of nonconformity. Although such evidence would not, by itself, preclude a finding of nonconformity, it would, as indicated above, be considered by the Executive Officer in determining appropriate remedial action.

29. Section (c)(3)(C): This section has been added to make it clear that while a nonconforming motor vehicle class may be excused from mandatory recall upon the Executive Officer making a finding that a condition set forth in section (c)(3)(B) has been



met, the motor vehicle class may still be subject to discretionary recall under section (c)(4).

30. Section (c)(4)(A): This section has been modified, similar to section (c)(3)(A), to make it clear that an Executive Officer may order remedial action based upon either information collected during OBD II enforcement testing or information provided by the manufacturer that indicates OBD II systems within the motor vehicle class are nonconforming. As stated in the earlier section, irrespective of how information is collected, the objective of these enforcement procedures is to ensure compliance and proper enforcement of the OBD II regulations.

31. Section (c)(4)(C): This section has been added to underscore that the Executive Officer will not consider the average tailpipe or evaporative emissions of vehicles within the motor vehicle class when determining the appropriate remedial action. The rationale for the ARB's position on the relevance of vehicle emissions in the recall of nonconforming OBD II is set forth and fully discussed in the Staff Report that was issued on March 8, 2002.

32. Section (c)(5): This section has been modified to remove redundant and unnecessary language consistent with the deletion of section (c)(5)(H).

33. Section (c)(5)(H): This section, while intended to be used as a mitigating factor in the Executive Officer's determination, has been deleted at the request of several manufacturers. These manufacturers were concerned that this factor could be used not only to mitigate and reward responsive manufacturers but also inappropriately to punish non-responsive manufacturers.

34. Section (c)(6)(A): Language has been added to clarify that the Executive Officer can issue the notice for an ordered remedial action to a manufacturer at the time of or subsequent to the final notice of nonconformity determination, described in section (b)(7)(G).

35. Section (c)(7)(A): Language has been added to emphasize that, consistent with title 17, CCR, section 60055.1 et seq. the Executive Officer has the initial burden of proof in providing evidence to support the Executive Officer's determination. Additionally, the section emphasizes that each issue of controversy in any finding of nonconformance challenged at a public hearing shall be decided based on a preponderance of evidence presented at the hearing.

36. Section (c)(7)(B): This section has been added to clarify that public hearings to contest findings of nonconformance shall be referred to the Office of Administrative Hearings notwithstanding title 17, CCR, section 60055.17 and that the procedures set forth in title 17, CCR, shall otherwise be followed.

37. Section (d)(1)(A): This section clarifies that manufacturers are not required to submit a remedial action plan for the payment of monetary penalties.

38. Section (d)(1)(A)(iii): This section has been reworded to make clear the dual responsibilities of a manufacturer to describe its method for determining the names and addresses of affected vehicle or engine owners and its method and schedule for contacting such owners and the service facilities that will perform the remedial action.
39. Section (d)(1)(B)(iv): This section has been modified to clarify that it only applies to ordered remedial actions.
40. Section (d)(1)(B)(v): This section has been revised to allow manufacturers to resubmit a revised remedial action plan within 30 days if the Executive Officer initially rejects the remedial action plan for a voluntary or influenced remedial action.
41. Section (d)(1)(B)(vi): This section has been added to provide clear direction as to the manufacturer's responsibilities upon receipt of the Executive Officer's approval of a remedial action plan for a voluntary or influenced remedial action.
42. Section (d)(2)(B): This section has been modified to be more consistent with the language used for tailpipe emission standard recall procedures. The modification makes clear that the manufacturer will not be obligated to perform the recall on vehicles that have been modified or tampered in a manner that prevents the remedial action from being performed without additional cost.
43. Section (d)(3)(A): This section has been modified to limit the Executive Officer's authority to require the use of certified mail only to ordered remedial actions.
44. Sections (d)(3)(C)(i) and (ii): These sections have been modified, at the request of the manufacturers for the purposes of convenience and economy, to be consistent with the tailpipe emission standard recall procedures. Those procedures require a manufacturer to use different statements in its recall notice letters to vehicle owners depending upon whether it is an ordered remedial action or a voluntary or influenced remedial action.
45. Sections (d)(3)(C)(iii) and (vi): Similarly for purposes of convenience and economy, these sections have been reworded to be identical to the language used in letters to owners involved in tailpipe emission standard enforcement recalls. This will allow manufacturers to continue to use the same templates and/or sample letters for both OBD II-related recalls and tailpipe emission standard recalls.
46. Section (d)(5): Clarification has been added to this section to ensure that the proof of completion certificate required by the Executive Officer for OBD II-related remedial actions will not differ in form or format from the certificate required for tailpipe emission standard recalls. This will allow manufacturers to continue to use the same templates for both OBD II related recalls and tailpipe emission standard recalls.
47. Sections (d)(6)(B) and (d)(6)(B)(i) and (v) through (x): These sections have been modified to be identical to the requirements for record keeping and reporting of tailpipe emission standard recalls. This will allow manufacturers to use the same computer

programs, file formats, and templates for both OBD II related recalls and tailpipe emission standard recalls.

48. Section (d)(7): This provision has been added to give the Executive Officer the ability to extend, for good cause, any of the deadlines established in (d).

49. Section (e)(1): This section clarifies that the penalties mentioned in this section are those established in section 43016, Health and Safety Code.

50. Section (e)(2): This section provides explicit allowance for the Executive Officer to order remedial action in situations where the manufacturer has failed to comply with a voluntary or influenced remedial action plan.