

**SORE Evaporative Emission Control System Certification  
FAQs  
(Ref: Article 1, Chapter 15, Division 3, Title 13 CCR)  
Revised 8/21/2019**

This list of frequently asked questions has been developed to provide information on the evaporative emission requirements for small off-road engines in California, as detailed in title 13 of the California Code of Regulations, division 3, Chapter 15. This document is provided for convenience and describes the requirements of the regulations, but is not a regulation. In all cases, the regulations supersede the information contained in this document, if they differ.

**Table of Contents**

1. Evaporative Family Certification	2
2. Component Certification	13
3. Test Procedures	18
4. Model Year 2020 Certification	22

# 1. Evaporative Family Certification

- 1-1. When did the amendments to the evaporative emission regulations become effective?

Response: Amendments to the evaporative emission regulations were adopted by the Board November 17, 2016, approved by the Office of Administrative Law on November 13, 2017, and became effective January 1, 2018. The approved regulations and related documents can be found at:  
<https://www.arb.ca.gov/regact/2016/sore2016/sore2016.htm>.

Nonsubstantial changes were approved May 6, 2019, to correct typographical errors and update the web address of a Department of Treasury circular. More information on these nonsubstantial changes can be found at:

<https://arb.ca.gov/regact/2019/sore19.pdf>

“Clean” versions (with no strikeout or underline formatting) can be found at:  
<https://ww2.arb.ca.gov/sore-current-regulations-and-regulatory-history>.

- 1-2. When are design-certified evaporative families required to meet the diurnal emission standards?

Response: Design-certified evaporative families for engines with greater than 80 cc displacement must meet the diurnal emission and design standards in California Code Regulations, title 13, section 2754 (all references hereafter are to title 13 of the California Code of Regulations unless otherwise indicated) beginning in model year 2020. Large spark-ignition (LSI) engines with displacement less than or equal to one liter have slightly different requirements (see question 4-11).

- 1-3. What is an evaporative family? Where is it defined?

Response: As defined in section 2752(a)(8), “ ‘Evaporative Family’ means small off-road engine or equipment models in the same engine class that are grouped together based on similar fuel system characteristics as they relate to evaporative emissions. For engines with displacement less than or equal to 80 cubic centimeters (cc), all models using fuel tanks and fuel lines constructed by the same process with the same material and the same permeation control may be grouped into one evaporative family. The engine family and the evaporative family may be considered equivalent at the manufacturer’s discretion.”

- 1-4. May emission data for one evaporative family be carried across to other evaporative families?

Response: No. Section 5.4 of CP-901 and section 4.4 of CP-902 prohibit the use of emissions data for one evaporative family being used to certify another evaporative family. See question 1-3 for information on evaporative families. If two evaporative families were similar enough to use data carry-across previously, the engine and equipment models may have similar fuel system characteristics as they relate to evaporative emissions such that they can be grouped into one evaporative family.

- 1-5. Are fuel tank vent lines (line connecting the fuel tank vent to a carbon canister) subject to the  $15 \text{ g} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$  permeation standard?

Response: These can be a significant source of permeation emissions if uncontrolled. Vent lines are not subject to the  $15 \text{ g} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$  permeation standard. However, CARB recommends using vent lines that do meet the standard to minimize emissions and facilitate compliance with the diurnal emission standards.

- 1-6. a) What criteria will CARB utilize to determine if the fuel cap performance standard of section 2756 is met?

Response: Section 2756(a) requires that the fuel cap must be permanently attached to the tank, equipment, or engine with a tether for the full life of the small off-road engine or equipment.

To meet the requirement of section 2756(b), a description and an evaluation of how the user will obtain physical and/or audible fuel cap feedback that a fuel tank vapor seal is established should be included in the certification application.

To meet the requirement of section 2756(c), applicants must also demonstrate that the fuel cap meets the durability requirements in TP-902 section 2.1. Note that testing according to TP-902 is not required for certification when using design certification.

In the certification application, the manufacturer must describe how their fuel cap meets the performance standards in section 2756(a), 2756(b) and 2756(c) by providing a design diagram. Please provide the fuel cap description on page 3 for performance certification or page 5 for design certification. If necessary, CARB may request manufacturers to submit fuel cap and tether samples for evaluation.

As an alternative, if an equipment manufacturer is using the same fuel cap design in a number of certification applications, they may choose to submit the fuel cap design to the Document Management System (DMS, <https://www.arb.ca.gov/msprog/dms/dms.htm>) once and get an approval number (not a component Executive Order, or EO) for that specific design. Then, as long

as there are no changes, manufacturers can just list the approval number on future applications instead of providing the design diagram.

b) Can a fuel cap manufacturer request an approval number for their fuel cap design to provide to equipment manufacturers?

Response: Although this is not a requirement, a fuel cap manufacturer may voluntarily choose to request an approval number (not a component EO) for their fuel cap design if they are selling the same fuel cap to a number of equipment manufacturers. Then, the fuel cap manufacturer can provide the equipment manufacturer with the approval number to list in their certification application instead of providing the design diagram.

For fuel cap manufacturers that would like to request an approval number for their fuel cap design, please provide a letter along with the supporting information specified in question 1-6.(a) above to the following address:

Chief  
Emissions Certification and Compliance Division  
California Air Resources Board  
9480 Telstar Ave., Suite 4  
El Monte, California 91731

1-7. Can engines or equipment be certified with the engine family name and the two letter evaporative code that is independent of the exhaust engine family name?

Response: Yes. Manufacturers can use an integrated exhaust and evaporative label with the last two characters of the exhaust family code representing the evaporative family (see section 2752(a)(8) and CP-902 Attachment 1).

1-8. Can a manufacturer use additional characters in the evaporative family codes?

Response: Yes. However, the evaporative family code should begin with the U.S. EPA-assigned three-character manufacturer code and include the two characters that identify the venting control and fuel tank barrier type as specified by CP-902.

1-9. What level is being certified for an evaporative family certified to diurnal emission standards, the Evaporative Model Emission Limit (EMEL) or Evaporative Family Emission Limit Differential (EFELD)?

Response: The EMEL and EFELD are only applicable when a manufacturer is participating in the averaging and banking provisions of section 2754.1. When a manufacturer chooses to certify engines using the regulatory provisions for

averaging and banking, the level being certified is the EMEL. The EMEL for each model is the model's effective diurnal emission standard and the EFELD is calculated by this equation:

$$\text{EFELD} = \text{Applicable diurnal emission standard} - \text{EMEL}$$

This is described in section 2754.1(e)(1). See section 2754.1(b)(5) for additional details on determining an EFELD.

- 1-10. How do the effective dates of the evaporative and exhaust emission regulations interact for cases where the engine manufacturer is the exhaust EO Holder and the equipment manufacturer (sometimes referred to as the original equipment manufacturer, or OEM) is the evaporative EO Holder? For example if an equipment manufacturer certifies and produces a product in their 2020 model year, can that product be built with an engine certified and built by the engine manufacturer in the 2019 model year?

Response: For equipment manufactured during a specific model year, the engine or equipment must comply with the respective exhaust and evaporative standards in effect for that model year in which it was produced. In the example described above, as long as the 2019 model year engine was compliant with the 2019 model year exhaust standards, and the 2020 model year evaporative emission control system is compliant with 2020 model year evaporative requirements, a 2020 model year evaporative certification could be issued for the evaporative emission control system.

- 1-11. Does a running change need to be submitted to CARB if the OEM puts an "Equivalent Fuel Line" on the engine?

Response: Yes. Any changes to a certified evaporative emission control system will require the certification Holder to submit a running change request to CARB for approval prior to the engine manufacturer or equipment manufacturer's sale or lease, or the offering for sale or lease, for use or operation in California or the delivery or importation for introduction into commerce in California any engine or equipment subject to CARB's SORE regulations. (See section 2753; see also CP-901, section 6.8 and CP-902, section 5.11.)

- 1-12. Does a manufacturer need to describe how running loss emissions are controlled in a certification application? What if the manufacturer installs a carbon canister that meets the requirements in the regulations?

Response: Yes, section 2754(b)(1) requires an applicant to submit a determination in the certification application that running loss emissions (defined in section 2752(a)(24)) are controlled from being emitted into the atmosphere. In any case where a manufacturer applies for evaporative family certification and

uses a carbon canister that meets the requirements of the regulations, the manufacturer must still provide an engineering description of the evaporative emission control system as part of the certification application (see CP-902 section 6). The description should describe how vented tank emissions are prevented from being emitted into the atmosphere during engine operation. In addition, Executive Officer approval is required for running loss determinations on evaporative emission control systems using a passive carbon canister. Test data are necessary to demonstrate the running loss emissions are controlled (see FAQ 1-15).

- 1-13. Can "running losses" be redirected back into the intake manifold as opposed to directing them into a carbon canister?

Response: Yes, running loss emissions that are combusted, such as by directing them into the engine intake manifold, are considered controlled.

- 1-14. What are the definitions of "active purge" and "passive purge"?

Response: Active purge refers to the ambient air being drawn through a carbon canister by a vacuum created by the intake system. Passive purge refers to ambient air being drawn through a carbon canister by the vacuum created within the fuel tank by normal diurnal temperature variations.

- 1-15. Under what circumstances, if any, can an evaporative emission control system use a passive rather than an active purge system? And what test data or other information is required to certify a passively-purged evaporative emission control system? And what level of running loss control is acceptable?

Response: A manufacturer can certify a passively purged carbon canister if it meets the minimum working capacity required in section 2.2 of TP-902 and the Executive Officer approves the running loss determination before the certification process. For a manufacturer certifying a passively-purged system, adequate test data must be included in the certification application that demonstrate running loss emissions are controlled from being emitted into the atmosphere. At a minimum, the running loss demonstration test data need to show that the evaporative system could handle a running loss event after repeated diurnal cycles and is:

- designed to control running loss emissions from being emitted into the atmosphere
  - Data example: For a carbon canister controlled fuel tank design, provide carbon canister capture and loss gravimetric measurements before and after a running loss event

- designed in a manner that protects the system from exposure to liquid fuel, extreme temperatures or pressures, or other conditions that would make the system less efficient or inoperable
  - Design example: Evidence fuel slosh is not interfering with carbon canister performance

A CARB control number will be assigned to each approved running loss determination and should be referenced in a SORE equipment Executive Order application. The running loss determination Executive Officer approval request package is sent to:

Ms. Catherine Dunwoody, Chief  
Monitoring and Laboratory Division  
California Air Resources Board  
P.O. Box 2815  
Sacramento, California 95812

At a minimum, the package should include a letter requesting the running loss determination, a functional description of the evaporative emission system, the test procedure, the test data, and an interpretation of the test results.

- 1-16. Do diesel engines need to be counted in the total of models sold in California when qualifying for a small production volume tank exemption?

Response: No. Compression-ignited engines are not regulated in the small off-road engine regulations.

- 1-17. Is certification required for generators that are fueled from the fuel tank of an on-road motor vehicle?

Response: Yes, Section 2753(e) requires that manufacturers of generators under this category (see section 2766) must be certified under "Reduced Certification Requirements." However, fuel lines from these generators must meet the design standard specified in section 2754.

- 1-18. For motor homes that are sold with generators less than 19 kilowatts, does the effective date apply to the model year of the motor home chassis or the model year of the generator?

Response: The effective date applies to the model year of the generator's evaporative emission control system.

- 1-19. What equipment types with engines rated at or below 19 kW are considered to be construction or farm equipment and therefore not subject to CARB's SORE regulations?

Response: A list of these equipment types is provided on the following webpage: <https://ww3.arb.ca.gov/msprog/offroad/preempt.htm>. Section 209 of the federal Clean Air Act preempts California from regulating new construction or farm equipment rated below 175 horsepower. Definitions for construction equipment and farm equipment are given in 40 CFR Part 1074.5. The equipment types that are in these categories are therefore called "preempt."

- 1-20. Do you have to repeat preconditioning when conducting a retest or confirmatory test if the original test results indicate marginal compliance?

Response: The retest must be performed on the same engine or equipment that generated the original test results. No additional preconditioning is required if the fuel system has continuously contained fuel subsequent to the original test. (See CP-902, section 4.1.)

- 1-21. The manufacturer does not want to specify Date of Manufacture (DOM) on the emissions label and instead wants to use a serial number which he says can be used to identify the DOM if necessary. Would this be acceptable?

Response: Section 2759(i) applies here. The Executive Officer may, upon request, waive or modify the certification label content requirements provided that the intent of the labeling specifications in section 2759 is met. Such approval may be conditioned upon providing such waived or modified information in the owner's manual as the Executive Officer deems appropriate.

- 1-22. Alternatively, can the manufacturer specify the DOM on a separate decal placed adjacent to the evaporative label?

Response: Not alternatively. See answer to question 1-21.

- 1-23. Can a manufacturer opt to report only the base engine/equipment model(s) in the Model Summary page (9) of the certification application?

Response: Yes. A manufacturer may report only the base engine/equipment model(s), provided all variations of the base model are equipped with identical evaporative controls. The naming convention for base engine/equipment model(s) reported must contain sufficient common identifiers to associate specific model variation to its appropriate base model.



For design certification, manufacturers must report the component(s) (via reporting the component Executive Order number) associated with each engine model in the Model Summary page of the certification application.

1-24. How is the engine power (SORE or LSI engines) determined?

Response: The engine manufacturer declares the maximum power rating in the exhaust certification submission.

1-25. Does nominal fuel tank capacity include un-useable volume?

Response: As defined in section 2752(a)(17), "Nominal Capacity" means the volume of fuel indicated by the manufacturer that represents the maximum recommended fill level. The nominal capacity declared in a certification application must match the fuel capacity or fuel tank volume specified in documentation (e.g., owner's manuals, specifications) for the engines or equipment models in an evaporative family. The nominal capacity must also be consistent with filling instructions and markings. For example, commonly-used red plastic "fill line" indicators, if used, must be located at a height corresponding to the nominal capacity. Where a distance from the top or bottom of the filler neck is given as a maximum recommended fill level, filling to the nominal capacity must bring the fuel level to the same height recommended in engine or equipment documentation. Indicating a nominal capacity in a certification application that differs from that in engine or equipment documentation, or is otherwise inconsistent with the maximum recommended fill level specified in engine or equipment documentation constitutes submission of false information, which could result in denial, suspension or revocation of an Executive Order under section 2770 of the regulations.

1-26. On the evaporative emissions control system warranty statement, can a certification Holder list different manufacturer/distributor names and contacts of manufacturers that sell their products as long as the remainder of the warranty is unchanged? For example, Company A sells an equipment model through Company B. Company A is the primary manufacturer but wants to use a contact at Company B in the warranty statement for the warranty contact. Is this acceptable? Please also note that section 2759(c)(4)(B) allows for this on the equipment labels.

Response: This is acceptable; however, the manufacturer applying for certification will ultimately be responsible. In other words, if Company A is the certification Holder, but Company B's name is on the warranty statement, CARB will hold Company A responsible. To document the delegation of warranty service to a third party, the manufacturer must submit a copy of the warranty service agreement signed by both parties, at the time of certification, including a list of the affected evaporative families and model years.

1-27. Should all emissions related and emissions critical components be labeled?

Response: Yes. According to section 2759(a), emissions related and emissions critical parts must be properly labeled in order to identify equipment that meets applicable evaporative emissions standards.

1-28. What does the warranty cover and who is responsible? Who does the warranty cover?

Response: The warranty covers the evaporative emission control system. The EO certification Holder is responsible for repairing or replacing all components of the certified evaporative emissions control system covered under the terms of the warranty. The engine or equipment must be warranted to the ultimate purchaser and any subsequent owner. (See sections 2760(b), 2760(d) and 2764 of the regulations.)

1-29. What is an appropriate default equipment volume for SHED testing class I and class II engines?

Response: Section 5.5 of TP-902 requires the actual volume of the test engine or equipment to be used in calculating hot soak and diurnal emissions. Section 6 of CP-902 requires the volume of each engine or equipment model to be reported on the certification application. If the volume is not known, a volume of 0 must be used.

1-30. Must I use the same CARB approved test fuel for evaporative testing that I used for exhaust testing?

Response: No, a manufacturer can choose a different CARB approved fuel for evaporative testing than the one used for exhaust testing. Test fuels are specified in the test procedures and in section 2754(b)(2).

1-31. Are equipment manufacturers required to apply labels to their equipment if they meet the small production volume tank exemption requirements of section 2766(b)? If so, what should be included on the label?

Response: Under section 2759, equipment manufacturers (and engine manufacturers where applicable) must include a label on their equipment indicating that the equipment conforms to California regulations. However, section 2759(c)(4)(E), the unconditional statement of compliance, should read:

"THIS EQUIPMENT MEETS CALIFORNIA (13 CCR SECTION 2766(b))  
EVAP EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES FOR  
20XX MODEL YEAR."

The requirements of section 2759(c)(4)(A), (B), and (D) are still in effect for the label, as is the remainder of section 2759.

- 1-32. Does the small production volume tank exemption apply to engines less than 225 cc in displacement?

Response: No. As discussed in the staff report and the final statement of reasons for the regulations approved by OAL on September 20, 2004, this exemption only applies to engines greater than or equal to 225 cc. This exemption is not applicable to model year 2020 and subsequent model year evaporative emission control systems or fuel tanks (see section 2766(b)).

- 1-33. If a manufacturer certifies a 50-state evaporative family under the small production volume tank exemption in section 2766(b), how can the manufacturer demonstrate that their total California sales of a particular fuel tank is 400 or fewer units per model year?

Response:

2009-2019 Model Years

For 2009 and later model years, the evaporative families that are certified under the small production volume tank exemption must meet the following requirements:

- 1) All units must be labeled in accordance with the FAQ 1-31 language:

“THIS EQUIPMENT MEETS CALIFORNIA (13 CCR SECTION 2766(b))  
EVAP EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES FOR  
20XX MODEL YEAR.”

- 2) If the projected 50-state sales is <4000 units, manufacturers do not have to submit any additional documentation to demonstrate that their total California sales are 400 or fewer units (since manufacturers' data suggest that typical California sales are about 10 percent of 50-state sales).
- 3) If the projected 50-state sales is  $\geq$  4000 units,
- A. Recommended Option:  
Manufacturers print and use up to 400 small production volume tank exemption labels only. In addition, a serial number must be included on each label to ensure that the total number of labels that are issued does not exceed 400 units.
  - B. Alternatives:  
If a manufacturer chooses not to limit the small production volume tank exemption labels to 400 or fewer units, they are required to either

- i.) submit an annual year-end actual California sales report for a period of 5 years from the beginning of the specific model year, OR
- ii.) obtain prior CARB approval on an alternate method of assurance not presented in this response.

To assist in the certification process, manufacturers must provide a description of how they plan to demonstrate that their total California sales of a particular fuel tank is 400 or fewer units per model year in the Additional Comments page (item 66) of the certification application.

- 1-34. With the requirements that U.S. EPA has promulgated on October 8, 2008, and amended on April 30, 2010, for Evaporative labels (40 CFR 1060.135), is it possible to have a combined label for 50-state equipment?

Yes, for SORE and LSI ( $\leq 1$  Liter) equipment, manufacturers may use a combined label for equipment that meets both U.S. EPA and CARB evaporative emission requirements. Manufacturers shall include all of the California label requirements per section 2759. Staff may also accept the addition of the following U.S. EPA information:

- 1) For the label heading, "Emission Control Information" may be substituted for "Important Emissions Information."
- 2) For a design-certified product label, the addition of "Using Certified Components" at the end of the compliance statement.
- 3) For the combined compliance statement:

"THIS EQUIPMENT MEETS U.S. EPA AND CALIFORNIA EVAP  
EMISSION REGULATIONS FOR SMALL OFF-ROAD ENGINES FOR  
20XX MODEL YEAR."

(Manufacturers may use a similar structure for SORE exhaust and LSI  $\leq 1$  Liter exhaust and evap labels.)

- 1-35. If a manufacturer tests an evaporative family per TP-902, do the components (fuel tank, fuel lines, carbon canister) also have to be certified with a CARB component EO?

Response: No. Either the entire unit must undergo TP-902 testing (performance certification) or the components must be tested and certified (design certification). Note, though, that all carbon canisters must meet the carbon canister working capacity standard in section 2.2 of TP-902 (whether certified as components or not), except on evaporative emission control systems that use a carbon canister and pressurized fuel tank.

1-36. Section 2754(e) requires all fuel lines to be securely connected to prevent fuel leakage throughout the useful life of the evaporative emission control system. It also requires fuel line assembly testing to be conducted in accordance with the Fuel Line Assembly Tensile Test in section 5.4 of ANSI/OPEI B71.10-2013. Section 4.4 of ANSI/OPEI B71.10-2013 provides that “all fuel line connection designs shall be qualified one-time in accordance with the fuel line assembly tensile test requirements of 5.4, except as follows:

- Fuel lines of less than 50 mm (2 inches) in length and which are held in place by compression after assembly;
- Fuel line assembly connections which cannot reasonably be exposed to a tensile pull in the end use.

Do these exceptions apply to testing to meet the requirements of section 2754(e)?

Response: Yes, the exceptions in section 4.4 of ANSI/OPEI B71.10-2013 from the requirements for one-time qualification apply when testing to meet the requirements of section 2754(e).

## **2. Component Certification**

2-1. Is there a formal application format for component certification?

Response: No. A manufacturer needs only to provide a letter, signed by an authorized Company representative, requesting component certification.

2-2. What information is required in a component certification application?

Response: In general, section 2767.1 requires the manufacturer to submit supporting documentation that quantifies the emissions data from 5 component samples, including the test method(s) used to generate the data. The manufacturer needs to provide this information in a letter on company letterhead to CARB requesting component certification. An authorized company representative must sign the letter. The manufacturer should also submit a sample of the component, detailed engineering drawings, installation and maintenance instructions, and identify limits or conditions on component usage. The manufacturer may elect to provide additional information regarding the materials used in the design and construction of the component. The following requirements, specific to each type of component, are worth noting. Deviation from these requirements constitutes an alternative test procedure and requires pre-approval. Please see the test procedures for complete requirements.

### Fuel Line Component Certification

- Preconditioning and permeation testing must be conducted at a constant 40 °C, or higher;

- Test fuel used must be LEV III Certification Gasoline (E10), the fuel defined in 40 CFR 1060.515(a)(2) or CE10; and
- Permeation rate must be measured following SAE J1737 (May 2013), SAE J30 (February 2012), SAE J1527 (February 2011), or, only for fuel lines with inner diameter 4.75 mm or less, SAE J2996 (January 2013).

#### Fuel Tank Component Certification

- Fuel tanks tested must have the highest permeation rate relative to the applicable permeation emission standard of any fuel tank within the production range (i.e., the fuel tank with the highest permeation rate measured in  $\text{g}\cdot\text{m}^{-2}\cdot\text{day}^{-1}$ , not total permeation in  $\text{g}\cdot\text{day}^{-1}$ );
- Testing must be conducted at a constant 40 °C;
- Test fuel used must be LEV III Certification Gasoline (E10) or the gasoline defined in 40 CFR 1060.520(e); and
- Permeation rate must be measured following TP-901, amended September 18, 2017.

#### Carbon Canister Component Certification

- Working capacity must be measured following TP-902, including durability testing prior to measurement of working capacity;
- Canister must be loaded with butane mixed 50/50 by volume with air or nitrogen; and
- Manufacturer must specify the largest tank from which the carbon canister can control vapors and still meet the performance requirements in TP-902.

2-3. Are component certifications required on an annual basis?

Response: No. A component Executive Order is valid for a period of four years. A component Executive Order may be renewed without new testing if the Executive Order Holder certifies that no changes have been made that could affect the component's evaporative emissions (for a fuel line or fuel tank) or butane working capacity (for a carbon canister). See section 2767.1.

2-4. Can a manufacturer submit an application for a component Executive Order with data from fewer than five samples?

Response: No. Section 2767.1 specifically requires data from a minimum of five components samples. If more samples than five are tested, data from all samples must be submitted to CARB. All results must be submitted from all emissions-related tests performed on the components, including test results from invalid tests or from any other tests, whether or not they were conducted according to TP-901, TP-902, or SAE J1737 (Stabilized May 2013), SAE J30, SAE J1527, or SAE J2996.

- 2-5. Are component certifications provided on a family basis or on an individual part basis?

Response: An Executive Order may be issued for only one model of carbon canister, as the working capacity must be determined by testing samples of each model. An Executive Order can be issued for an individual fuel line or fuel tank or for a family of fuel lines or fuel tanks. The manufacturer must specify details about each model in the request for component family certification. Only those models listed on an Executive Order are certified and may be used in evaporative emission control systems for engines introduced into California commerce. If a manufacturer wishes to add one or more models to the list of models certified on an Executive Order, a request must be sent to

Ms. Catherine Dunwoody, Chief  
Monitoring and Laboratory Division  
California Air Resources Board  
P.O. Box 2815  
Sacramento, California 95812

The request must include justification for adding new models (i.e., information demonstrating the permeation rate(s) of the new model(s) is(are) not expected to be higher relative to the applicable permeation emission standard) if additional testing is not performed. The Executive Order number will be incremented when the Executive Order is amended to include additional models. For example, Q-19-999 would become Q-19-999A when amended. New models would need to be labeled with Q-19-999A, but models originally listed on Q-19-999 could continue being labeled with Q-19-999 as long as the Executive Order remained valid.

- 2-6. What statistical criteria will CARB use to evaluate component data?

Response: For component certification under section 2767.1, CARB requires that emissions data from each of the five samples comply with the specified performance requirement. CARB will ensure that each data point meets the specified requirement and that the specified test method was used.

- 2-7. If test data for a fuel line are generated above 40 °C, does the permeation rate still need to be below  $15 \text{ g} \cdot \text{m}^{-2} \cdot \text{day}^{-1}$ ?

Response: Yes. The fuel hose permeation requirement is not relaxed when data are generated at test temperatures greater than 40 °C.

- 2-8. What is the length of time given to engine manufacturers and OEM's to change over if a component manufacturer has their component EO revoked?

Response: Manufacturers using a component whose EO has been revoked will be required to stop installing that component on engines or equipment once the EO is revoked. If they are unable to substitute another certified component or otherwise meet the requirements set forth in sections 2754 through 2757 of the regulation, they can apply for a variance pursuant to section 2768. Note that manufacturers who apply for a variance may only do so if the noncompliance with section 2754 through 2757 is due to extraordinary reasons beyond the manufacturer's reasonable control. Variances may only be granted if the Executive Officer or his or her nominee can make all of the four findings in section 2768(c).

- 2-9. Once the component is mounted to the equipment the component label may no longer be visible unless removed from the equipment. Is this acceptable if the entire piece of equipment has a visible compliance label?

Response: Yes it is acceptable for the component label to be obscured by another piece of the equipment as long as the evaporative emission control system certification label is readily visible as described in section 2759(f) and states that the equipment is certified to California standards. However, components must still meet the labeling requirements of section 2759.

- 2-10. Is it acceptable to not use a contrasting color on a component label?

Response: Yes it is acceptable to not use a contrasting color on a component label as long as the text is raised from the surface of the component and the component is clearly labeled or marked by a permanent identification showing the Holder's name, the EO number, and model or part number. (See section 2759(d).)

- 2-11. Can more than one carbon canister be used to certify equipment under the design requirements?

Response: Yes. When it comes to using two carbon canisters on a separate two-tank system, the Executive Officer may approve the use of one canister for each separate tank as long as the canister's working capacity is compatible to the size of the tank.

However, when it comes to using multiple canisters in sequence for one large fuel tank, the Executive Officer would require that the canister manufacturer apply for a new component EO under the innovative products program (see section 2767(a)). Canisters in sequence must be tested per TP-902 and the working capacity data should be submitted with the request for a new component



EO. As with single carbon canister EOs, the working capacity of the canisters in sequence should determine the maximum fuel tank capacity.

2-12. Is certification required for metal and coextruded multilayer fuel tanks?

California Code of Regulations, title 13, section 2766(a) provides an exemption through model year 2019 from the requirements of section 2755 for metal tanks, coextruded multilayer tanks, and structurally integrated nylon tanks on SORE equipment with engine displacement less than 80 cc. Section 2755 contains the permeation emission standard for equipment that use engines with displacement less than or equal to 80 cc. This exemption does not apply to any fuel tank for use on SORE equipment with engine displacement greater than 80 cc. For 2020 and later, no fuel tanks are exempt from the emission standards or testing.

2-13. Can an innovative product EO be obtained for a fuel tank?

Response: No. The provision for obtaining an innovative product EO for a fuel tank was eliminated in the amendments that became effective January 1, 2018. Innovative product EOs may be obtained for fuel tank vent emission control technology or for an exemption from the requirements of section 2756(b).

2-14. Must the entire text of a fuel line label be present on every piece of fuel line installed on an engine?

Response: Fuel lines must be labeled as required in section 2759 of the regulations. Molded fuel line labels must include the information specified in section 2759(d). Labels on fuel lines produced in bulk must also include the information specified in section 2759(d). CARB staff understand that when bulk fuel lines are cut to length for installation on engines, the label may also be cut. As a result, not all of the information specified in section 2759(d) will be present on every piece of fuel line installed on an engine. This is not considered a violation of the requirements of section 2759.

2-15. Can I certify a carbon canister contained in a fuel cap?

Response: A carbon canister contained in a fuel cap may be certified as a carbon canister per section 2767.1. The process is the same as that for a carbon canister in any other housing. Note that the certification granted under section 2767.1 would be for the carbon canister, and would not also certify compliance with the requirements of section 2756. An approval (not an Executive Order) may be sought for compliance of a fuel cap with the requirements of section 2756 separately (see question 1-6). Note also that CARB does not require measurement of fuel cap permeation rate, nor does CARB certify the permeation rate of fuel caps.

- 2-16. One of the component samples in our certification test failed (broke) during durability testing. Can we send a substitute component to the test lab or use results for the remaining components to obtain certification?

Response: An example of this was a fuel tank that split along a seam during pressure testing. This may be indicative of a problem with the construction of the fuel tank or poor quality assurance or quality control. Substituting one or more additional samples for those that failed would not resolve the problem. All test results would be considered with the certification application, and all samples must meet the standards for the component to be approved. The applicant would need to identify and correct any problems with the component or its quality assurance and quality control protocols. After making corrections, five samples produced after implementation of the corrections would need to be tested.

In any case, a component sample that does not meet the emission standards or fails during durability testing may not be substituted with another sample.

### 3. Test Procedures

- 3-1. Can I accelerate preconditioning for TP-901 testing?

Response: Yes, but section 9 of TP-901 requires “data documenting that permeation emissions from the fuel tanks will not increase with further preconditioning must be provided for tanks soaked less than 140 days.” An example of data that have been submitted for this purpose when performing the gravimetric permeation test in section 11 of TP-901 is a linear plot showing linear mass loss, i.e., a linear plot of cumulative mass loss for the 10 most recent days of preconditioning showing a coefficient of determination,  $r^2$ , at or above 0.95. An example of data that could be provided for this purpose when performing the permeation test with flame ionization detector in section 12 of TP-902 is results for two 24-hour permeation tests at  $40 \pm 2$  °C that are separated by 30 days and show no increase in emissions during the second test versus the first.

- 3-2. Can I accelerate preconditioning for TP-902 testing?

Response: Yes, but section 5.1 of TP-902 requires “data documenting that the diurnal emissions will not increase with further preconditioning must be provided for tanks soaked less than 140 days.” An example of data that could be provided for this purpose is results for two diurnal emission tests that are separated by 30 days and show no increase in emissions during the second test versus the first.

- 3-3. What test fuel is required for TP-901 and TP-902 testing for model year 2020 and later?

Response: For TP-901, the fuel must be

1) LEV III Certification Gasoline as defined in part II, section A.100.3.1.2 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*, as last amended September 2, 2015, or

2) the gasoline defined in 40 CFR Part 1060.520(e).

For TP-902, the fuel must be

1) LEV III Certification Gasoline as defined in part II, section A.100.3.1.2 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*, as last amended September 2, 2015, or

2) the fuel defined in 40 CFR Part 1065.710(b) for general testing.

For LSI engines, the fuels listed above may be used, or the fuels listed in the 2004 versions of TP-901 and TP-902 may be used (see also question 4-11).

3-4. Can I submit data generated with a modification of the test procedure?

Response: Under section 15 of TP-901 and section 7 of TP-902, any alternative test procedure shall only be used if prior written approval is obtained from the Executive Officer. In order to secure the Executive Officer's approval of alternative test procedures, the applicant is responsible for demonstrating to the Executive Officer's satisfaction that the alternative test procedures are equivalent to the required test procedures. Alternative test procedure approval shall be granted on a case-by-case basis, only after all necessary comparison testing has been conducted. The applicant shall demonstrate equivalency between the reference test procedure and the proposed alternative test procedure according to the procedure in "Method 301 – Field Validation of Pollutant Measurement Methods from Various Waste Media," which is in Appendix A to 40 CFR Part 63. See also CP-901 section 6.5 and CP-902 section 5.7. Alternative test procedure requests may be submitted to the following address:

Ms. Catherine Dunwoody, Chief  
California Air Resources Board  
Monitoring Laboratory Division  
P.O. Box 2815  
Sacramento, California 95812

3-5. Can I use a different test fuel than those specified in the SORE regulations?

Response: Manufacturers may only use a different test fuel if pre-approved by the Executive Officer as part of an alternative test procedure request.

3-6. When conducting SHED testing, can we test the engine without a chassis?

Response: Yes, the engine with its complete evaporative emission control system can be tested without the equipment chassis. See TP-902 section 3.

3-7. Where should the canister be located when conducting a SHED test without the chassis?

Response: The canister should be in a position comparable to where it would normally be found on the equipment.

3-8. Does the engine need to be placed under a load during engine warm-up prior to the hot soak portion of the test procedure?

Response: No. The engine or equipment must be operated for 15 minutes at its maximum governed speed prior to hot soak. (See TP-902, section 5.2.)

3-9. How is the worst-case fuel tank determined (as required for testing in TP-901)?

Response: The applicant must determine which fuel tank model exhibits the highest permeation rate relative to the applicable permeation emission standard and detail the criteria used to make that determination in the certification application (see also question 2-2).

3-10. Are hot soak emissions required to be measured in TP-902?

Response: Yes, the hot soak test must be performed in a SHED, and emissions must be measured (TP-902 section 5.2) and reported in the certification application. TP-902 section 5.5 describes calculation of the mass of hot soak and diurnal emissions.

3-11. What are examples of valves, cables and linkages that have to be actuated in the durability demonstration in TP-902?

Response: The definition of "Evaporative Emission Control System" in section 2752(a)(7) reads, "the fuel system and associated components that are designed to control evaporative emissions." Per section 2760(d), the evaporative emission warranty parts list shall include all parts whose failure would increase evaporative emissions. (The list in section 2760(d) is not intended to be a complete list of

parts that are designed to control evaporative emissions.) Any valve, cable or linkage that is designed to control evaporative emissions or whose failure would increase evaporative emissions must be actuated a minimum of 5,000 cycles as part of the durability demonstration in TP-902. Non-exhaustive examples include fuel shutoff valves and primer bulbs.

- 3-12. Can the procedures for the durability demonstration in TP-902 be performed during the preconditioning time of 140 days?

Response: Actuations and fuel cap installation cycles (section 2.1(a)) may be performed either before preconditioning or during preconditioning.

The pressure test is done before preconditioning and without fuel (section 2.1(b)), so it can't be part of the preconditioning time.

The fuel tank may be removed for slosh testing, but does not have to be removed (section 2.1(c)). If it is removed, it would be necessary to use another fuel tank (sometimes referred to as a "surrogate") to continue to precondition the rest of the evaporative emission control system if the time of the slosh test were to be performed during the preconditioning period, in addition to the requirement to keep the test fuel tank 50 percent full. Note that the fuel cap that will be used for the hot soak and diurnal emission tests must remain on the test fuel tank during the slosh test.

The time for carbon canister thermal cycling and vibration exposure (section 2.1(d)) is not part of the preconditioning period.

The ultraviolet radiation exposure is to be performed on the whole evaporative emission control system, not just the fuel tank. It is acceptable to expose the fuel tank and the rest of the evaporative emission control system to UV radiation or sunlight separately, though. If the fuel tank were removed from the unit during the UV exposure, a surrogate fuel tank must be used to continue to precondition the rest of the evaporative emission control system if the time of the ultraviolet radiation exposure procedure is performed during the preconditioning period, in addition to the requirement to keep the test fuel tank 50 percent full.

- 3-13. Do I have to use carbon canisters that meet the working capacity requirements in TP-902?

Response: Yes, all evaporative families using engines with displacement greater than 80 cc must use carbon canisters that meet the working capacity requirements in section 2.2 of TP-902 (section 3.2 in the 2004 version of TP-902), unless approval has been granted for an innovative fuel tank vent emission control.

- 3-14. Can the actual, as-tested engine or equipment volume for calculations in section 5.5 of TP-902 be estimated using the overall length, width and height of the test unit?

Response: Because most equipment and engines contain a significant amount of empty space, this method would overestimate the actual volume. An estimate of the volume must take into account the detailed shape of the engine or equipment and be accurate to at least three significant figures. If the actual volume is not determined, an engine or equipment volume of zero must be used in these calculations.

- 3-15. Does a carbon canister used on a performance-certified evaporative family have to meet the working capacity standard?

Response: Yes, carbon canisters (if they are used) for all engines greater than 80 cc displacement must meet the working capacity requirements of TP-902 section 2.2, whether the evaporative family is performance-certified or design-certified. The certification application includes a place to list the working capacity of the carbon canisters used for an evaporative family. Meeting the diurnal emission standard does not exempt an evaporative family from meeting the minimum working capacity.

#### **4. Model Year 2020 Certification**

- 4-1. Can I use my alternative test procedure from 2019 or earlier for 2020 and later model year certification testing?

Response: No. No alternative test procedures have been approved under TP-901 (amended September 18, 2017) or TP-902 (amended September 18, 2017) to date for 2020 and later model year certification testing. Any testing that omits any portion of the procedure or deviates from the test procedure without the Executive Officer's approval may not be used to obtain certification.

- 4-2. Are we able to complete fuel cap cycles from TP-901 or TP-902 in house?

Response: Yes, fuel cap cycles may be completed by an applicant in their facility. If TP-902 is performed for certification, the results must be submitted per section 2753(b)(1), but there is no requirement for the test to be performed by an independent organization. Fuel cap installation cycles are optional in TP-901 section 8.4. Test reports should include documentation that the cycles were performed. For example, it could state the number of cycles, date and person who performed the cycles or equipment used to complete the cycles. The certification application also includes a place to indicate these cycles were performed.

- 4-3. If our fuel tanks will not be under pressure or vacuum in normal operation, will we need to complete pressure cycles per TP-901 or TP-902?

Response: If the tanks will not experience pressure or vacuum in normal operation or storage, the pressure tests do not have to be performed per TP-901 section 8.1 and TP-902 section 2.1(b), respectively. Data would have to be submitted that show the measured pressure in the tank during operation and storage to justify omitting this test from TP-902. If the pressure test is not performed and approval to omit the test is not granted by CARB, TP-902 testing would be considered incomplete.

The description of the pressure test in TP-902 includes the requirement “Determine the fuel tank system’s design pressure and vacuum limits under normal operating and storage conditions considering the influence of any associated pressure/vacuum relief components.” One way to determine these limits is by measuring the pressure during the following operating and storage conditions for a representative evaporative family that is expected to have the largest (although likely small) pressure changes:

- 1) One hour of operation under rated (100 percent) load – or the time to consume a full tank of fuel if less than one hour
- 2) One hour of operation under no load
- 3) A TP-902 test sequence starting with the 15-minute operation at maximum governed speed, continuing with the hot soak test, forced cooling and 24-hour diurnal test. If the engine is run under no load for this step, the one-hour run under no load can be omitted.

If these data for the representative family show no significant pressure changes, the pressure test would not be required for that family and any additional families that an applicant expects would not experience pressure changes greater than those experienced by the representative evaporative family.

For TP-901 testing that excludes the pressure test the fuel tank Executive Order of certification will include a statement such as, “Fuel tanks certified under this Executive Order X-XX-XXX must not be installed in any evaporative emission control system in a configuration which would cause the pressure in the fuel tank to deviate from ambient pressure during the life of the fuel tank.”

- 4-4. If our fuel tanks will not be exposed to direct sunlight, do we need to complete the UV durability test per TP-901/2?

Response: The UV radiation exposure portion of the durability demonstration in TP-902 applies to the whole test engine or equipment unit, not just the fuel tank. Section 2.1(e) of TP-902 allows an applicant to omit the UV exposure portion of

the durability demonstration if no part of the evaporative emissions control system will be exposed to light when installed on an engine in section 2.1(e). TP-901 includes a similar provision in section 8.3 to omit the UV exposure if no part of the fuel tank, including the filler neck and fuel cap, will be exposed to light when installed on an engine.

- 4-5. Would we be able to create an evaporative emission control system based on a bundle of CARB certified components? (i.e. canister certified to TP-902, tank certified to TP-901, certified hoses and no engine)

Response: Components of evaporative emission control systems must be certified if sold to ultimate purchasers separately from an engine or piece of equipment. Evaporative emission control systems must also be certified to be sold in California, and require testing in association with identified and certified engines in order to receive certification (see CP-901 section 1 and CP-902 section 1). Even if an evaporative emission control system were assembled from certified components and a certified engine, it could not be sold (by itself or installed in equipment) unless the evaporative emission control system were certified as a system. (See also section 2753(a) and (b)).

- 4-6. Is there any test procedure that would certify an evaporative emission control system without an engine?

No, there is no test procedure under CARB's regulations that may be used to certify an evaporative emission control system without an engine.

- 4-7. Can engines be sold to an ultimate purchaser without an evaporative emission control system?

Response: No. Section 2751(a) prohibits the sale to an ultimate California purchaser of an engine without a certified and labeled evaporative emission control system obtained pursuant to CARB's regulations. This has been the case since 2006 for SORE and since 2011 for LSI engines.

- 4-8. Can existing certified component inventory be used after 2019?

Response:

#### Fuel lines

Potentially. For performance-certified evaporative families (tested by TP-902 for certification), fuel lines are not required to be certified on their own because the whole system is required to meet the diurnal emission standard. Fuel lines used on performance-certified evaporative families may have either no EO number, an



EO number for model year 2019 and earlier, or an EO number for model year 2020 and later.

For design-certified evaporative families, fuel lines that were certified through 2019 may be used in model year 2020 and later evaporative emission control systems if recertified (with no changes that could affect evaporative emissions, under section 2767.1) and labeled with a new EO number according to section 2759. In addition, fuel lines that were certified through 2019 may be used in model year 2020 evaporative emission control systems without additional labeling if recertified (with no changes that could affect evaporative emissions, see section 2767.1). Applicants using recertified fuel lines must include both the new (2020 and later) EO number and the old (2019 and earlier) EO number on the certification application, with the old EO number in parentheses. Recertified fuel lines may not be used without additional labeling in model year 2021 or later design-certified evaporative families.

### Fuel Tanks

Potentially. For performance-certified evaporative families (tested by TP-902 for certification), fuel tanks are not required to be certified on their own because the whole system is required to meet the diurnal emission standard in the performance certification process. Fuel tanks used on performance-certified evaporative families may have either no EO number, an EO number for model year 2019 and earlier, or an EO number for model year 2020 and later.

For design-certified evaporative families, fuel tanks that were certified through model year 2019 may be used in model year 2020 and later evaporative emission control systems if recertified (with no changes that could affect evaporative emissions, see section 2767.1) and labeled with a secondary label that meets the labeling requirements of section 2759 and includes the new Executive Order number for model year 2020 and later. Applicants using recertified fuel tanks in this way must include both the new (2020 and later) EO number and the old (2019 and earlier) EO number on the certification application, with the old EO number in parentheses. If labels with 2020 and later EO numbers are not applied when the fuel tanks are made or before they leave the fuel tank manufacturers' custody, secondary labels meeting the requirements of section 2759 could be sent to evaporative emission control system EO Holders for the Holders to apply to the fuel tanks in their inventory.

### Carbon Canisters

Potentially. For performance-certified evaporative families, using certified canisters may provide some certainty that the working capacity of the canisters has been measured, but the canisters used on performance-certified evaporative families do not have to have a component Executive Order. The requirement in

TP-902 section 2.2 is for the canisters to have sufficient working capacity for the fuel tank used (1.0 or 1.4 g vapor storage capacity per liter of fuel tank nominal capacity, depending on the nominal capacity). Canisters certified for use through model year 2019 may be used on performance-certified evaporative families in 2020 and later model years, but not on design-certified evaporative families after 2019 unless they are recertified for subsequent model years as described below.

Canisters that were originally labeled for use through model year 2019 that are recertified for model year 2020 and later must have a secondary label that meets the labeling requirements of section 2759 and includes the new Executive Order number for model year 2020 and later if they are to be used on design-certified evaporative families after 2019. Applicants using recertified carbon canisters in this way must include both the new (2020 and later) EO number and the old (2019 and earlier) EO number on the certification application, with the old EO number in parentheses. If labels with 2020 and later EO numbers are not applied when the carbon canisters are made or before they leave the carbon canister manufacturers' custody, secondary labels meeting the requirements of section 2759 could be sent to evaporative emission control system EO Holders for the Holders to apply to the carbon canisters in their inventory.

- 4-9. Can a lawnmower manufacturer with low sales volume for model year 2020 go through the "Design Standard" in section 2754 or will they have to go through the whole TP-902 process?

Response: Walk-behind lawn mowers (definition below) with an engine displacement greater than 80 cc and less than 225 cc for model year 2007 and later are required to be performance-certified and undergo TP-902 testing for certification (section 2754) regardless of sales volume. No exemptions under section 2766 would apply to these mowers.

2752(a)(33) "Walk-Behind Mower" means a grass-cutting product which has:

- (A) A Class I vertical shaft engine that includes a blade brake mechanism that provides for compliance with ANSI B71.1 requirements; or
- (B) A horizontally fixed blade and/or string directly attached to the crankshaft of a vertical shaft engine.

If the mowers have engine displacement  $\geq 225$  cc, they can use design certification, which does not require TP-902 testing.

- 4-10. What durability requirements are necessary for a portable generator manufacturer that includes an already certified engine, fuel hoses, and fuel filler

neck? The generator manufacturer is only manufacturing the fuel tank which is made out of steel. Is the permeation test necessary?

Response: In this example, the generator manufacturer must certify the evaporative emission control system using design certification or performance certification. Fuel tank permeation testing (TP-901, for design certification) has different requirements than diurnal testing (TP-902, for performance certification), but both require preconditioning for all fuel tank types and materials.

For a complete evaporative emission control system to be certified, either design certification (certified components) or performance certification (diurnal test by TP-902) can be used. TP-902 section 2.1 describes the durability demonstration, which includes actuations, fuel cap installation cycles, a pressure test, slosh test, canister vibration exposure, canister thermal cycling, and ultraviolet radiation exposure. An evaporative emission control system must undergo all of TP-902 even if the generator was certified with a different evaporative emission control system. A permeation test is not necessary for a system undergoing diurnal testing.

4-11. How do the amendments to the SORE evaporative emission regulations affect LSI engines?

Response: Large spark-ignition (LSI) engines with displacement less than or equal to one liter that run on a volatile liquid fuel (such as gasoline) must meet the evaporative emission requirements for small off-road engines (see section 2433(b)(4)(B)). The certification and test procedures for these LSI engines are the 2004 versions (see section 2433(d)(2)). These LSI engines must meet the diurnal emission standards beginning in model year 2020, but the test fuel does not contain ethanol because they may continue to use the 2004 version of TP-902.

4-12. When is a Holder required to provide proof of meeting the bond requirements?

Response: The Holder must comply with the bond requirements in section 2774 before an EO will be issued for model year 2020 and later evaporative families (see section 2753(a)). This is true for all applicants, whether an applicant is required to post a bond or has U.S. assets meeting the applicable threshold. All applicants are required to submit a bond worksheet.

4-13. Is an importer required to meet the bond requirements of section 2774?

Response: Section 2774(j) describes importers' bond obligations:

(j) The following provisions apply to importers of engines or equipment for resale when the importer is not also the Holder:

- (1) The importer and the Holder are each responsible for compliance with the requirements of this Article. For example, the Executive Officer may require the importer to comply with the warranty requirements in section 2760.
- (2) The importer does not need to post bond if the importer or the Holder complies with the bond requirements in this section. The importer also does not need to post bond if the Holder complies with the asset requirements of this section and the warranty requirements in section 2760.

As described in question 4-12, Holders must meet the bond requirements before an EO will be issued, so importers will not have to meet the bond requirements when importing engines that are certified by an EO so long as the Holder has satisfied the bond requirements under section 2774.

- 4-14. Are equipment manufacturers relying on certified fuel tanks required to provide a:
- description of criteria (e.g., seam length, barrier and wall thickness, ratio of internal surface area to volume, presence of high-permeation materials, presence of accessories) used to determine which fuel tanks in the evaporative family exhibit the highest permeation emission rates relative to the applicable permeation emission standards?

Response: Section 7 of CP-901 requires this description for all evaporative families using engines with displacement less than or equal to 80 cc. This section lists some example criteria that may be used, but an applicant must specify all criteria, even if not listed in CP-901, used to determine which fuel tanks in the evaporative family exhibit the highest permeation emission rates relative to the applicable permeation emission standards. CARB will review the description, but will not approve or endorse it. An applicant relying on certified fuel tanks may consult with the fuel tank EO Holder in making the determination of the fuel tank with the highest permeation rate. Note that the model designated by the fuel tank EO holder as having the highest permeation emission rate of all fuel tanks produced under a given fuel tank EO may not necessarily be used in all evaporative families using fuel tanks from that EO.

- 4-15. Are equipment manufacturers relying on certified components (i.e., using design certification rather than performance certification, or diurnal emission testing) required to provide a:

description of criteria used to determine which models in the evaporative family exhibit the highest diurnal emission rates relative to the applicable diurnal emission standards?

Response: Section 6 of CP-902 requires this description for all evaporative families using engines with displacement greater than 80 cc. CARB will review the description, but will not approve or endorse it. An applicant relying on certified components may consult with the component EO Holders in making the determination of the model with the highest diurnal emission rate relative to the applicable diurnal emission standard, but must consider the entire evaporative emission control system in making the determination.

- 4-16. What is expected for describing Quality Assurance/Quality Control (QA/QC) protocols in a certification application?

Response: Section 7 of CP-901 and section 6 of CP-902 require an applicant to describe in a certification application “any Quality Assurance/Quality Control (QA/QC) protocols used by the applicant to ensure production” fuel tanks and fuel lines (CP-901) or evaporative emission control systems and their components (CP-902) comply with the applicable emission standards throughout their useful life. CARB will review these protocols, but will not approve, endorse, or reject them. They are provided for informational purposes. If an applicant has no QA/QC protocols to ensure compliance with the applicable emission standards, that can be noted where the protocols would otherwise be described.