

# 2020+ MY Small Spark-Ignited Engines (SSIE)

EVAPORATIVE CERTIFICATION WORKSHOP

October 4, 2019





# Agenda

- Amendments to the Evaporative Regulations
- New Bond Requirements
- Certification Application for  $\leq 80$  cc
- Certification Application for  $> 80$  cc
  - Performance-Based Certification
  - Design-Based Certification
- Component Certification
- Post Certification Reporting



# Amendments to Evaporative Regulations

Applicable to both  $\leq 80$  cc and  $> 80$  cc Evap Families





# Amendments to Evaporative Regulations Title 13 CCR 2750 et seq.

- California Air Resources Board adopted amendments on November 17, 2016
- Amended certification and test procedures required for 2020 MY
- Updated regulatory documents posted on SSIE certification website:

<https://ww2.arb.ca.gov/sore-current-regulations-and-regulatory-history>



# New Bond Requirements

Applicable to both  $\leq 80$  cc and  $> 80$  cc Evap Families





# 2020+ MY Bond Requirements - 13 CCR 2774

## Applicable to SSIE Evap System Mfrs

- All mfrs must fill in bond worksheet and submit to DMS before submitting the first certification application  
<https://www.arb.ca.gov/msprog/mailouts/ecars1904/ecars1904-attach2.xlsx>
- Refer to Mail-out #19-04 for bond guidance at the link below:  
<https://www.arb.ca.gov/msprog/mailouts/ecars1904/ecars1904.pdf>
- Two ways to meet bond requirements
  - Asset holders
  - Bond holders



# Asset Holder - Requirements

- Asset holders not required to post a bond if:
  - Long-term Assets  $\geq$  \$10 million, or
  - Long-term Assets  $\geq$  \$3 million if no non-compliance in each of the preceding 10 years
- What must asset holders include in the bond worksheet?
  - Asset holders must include the values and location of long term assets for the whole company, including any parent or subsidiary companies.  
*(Title 13 CCR Section 2774(c))*



# Bond Holder - Requirements

- Required Bond Value:
  - Fill out the bond worksheet listing all evap families and their California-directed production volume to determine bond value
  - \$500 per unit or
  - Minimum bond value = \$500,000 (If fewer than 1000 units, small volume provisions apply (Title 13 CCR 2774(d)(3))
  - Must submit copy of the bond to DMS



# Affirming Compliance with Bond Requirements in the Cert Application

- In addition, mfrs must indicate they meet the requirements in the cert application
  - *On Page 1 item 9 in certification applications*

**9. Bond Requirement:**

Has the manufacturer submitted bond worksheet demonstrating compliance with the bond requirements of 13 CCR Section 2774 and associated bond if applicable? Yes/No \_\_\_\_\_



# 2020+ MY Certification Application Template

CP-901 amended September 18, 2017

≤ 80 cc Evap Families





# Evap Emission Control System (ECS) Must Be Described In Detail

## Page 2, Item 10

- Mfr must provide detailed description of the evap emission control system  
(e.g. fuel tank types and fuel line types used, including a schematic diagram of the various evap components)
- Mfr must specify fuel tank material
- Mfr must provide criteria for selecting worst-case fuel tank model  
(e.g. ratio of the internal surface area to volume; seam length)
  - *On Page 2 item 10*

### 10. Evaporative Emission Control System

- a) Describe the evaporative emission control system, including description of fuel tank types and fuel line types used (refer to CP-901 amended September 18, 2017, Section 7 for the list of items to be submitted). Include a diagram of the evaporative emission control system.
- b) Fuel tank material (e.g. Metal, Coextruded, HDPE):
- c) Specify the criteria for selecting worst-case fuel tank model.

- Refer to CP-901 amended September 18, 2017, Section 7 for guidance



# New 2020+ Component EOs (LEV III)

## Page 3, Items 20-21

- Mfrs must provide new 2020+ component EOs for fuel tanks and fuel lines
  - Component EOs must be based on LEV III fuel testing
  - Verify validity of component EOs in the web link below before submitting:  
<https://ww2.arb.ca.gov/our-work/programs/small-road-engines-sore/sore-evaporative-component-executive-orders>
  - On page 3 items 20-21*

**Model Summary Sheet**

(In  1, identify the fuel tank model exhibiting the highest permeation rate relative to the applicable permeation emission standard.)

11. Worst Case (Check One)	12. Model	13. Sales Codes (Check all appropriate)		14. Fuel Tank Volume (Liters)		15. Fuel Tank Internal Surface Area (m <sup>2</sup> )	16. Fuel Line Type (e.g. Single or Multi- Layer)	17. Fuel Line Length (mm)	18. Fuel Line Internal Diameter (mm)	19. Exhaust Family	20. Fuel Tank Component Executive Order*	21. Fuel Line Component Executive Order*
		Calif. Only	50- State	Total	Nominal							



# QA/QC Protocols Must Be Described

## Page 6, Item 32

- On  $\leq 80$  cc cert application template:
  - *Page 6 item 32*

### **32. Quality Assurance/Quality Control Protocols**

Provide a description of any Quality Assurance/Quality Control (QA/QC) protocols used to ensure your production fuel tanks and fuel lines in the evaporative family comply with the applicable emission standards throughout their useful life.

- For example: Describe how fuel tanks and fuel lines are functionally checked for leaks after final assembly. (see FAQ #4-16)



# Top Certification Issues for $\leq 80$ cc That May Lead to Potential Delays or Rejection

- Failure to submit bond worksheet and copy of bond (if applicable)
- Continued use of 2019 and older MY component EO numbers for fuel tanks and fuel lines
- Listing uncertified/incorrect evap components in the cert application  
(e.g. listing fuel tank component EO certified for  $> 80$  cc)



# Top Certification Issues for $\leq 80$ cc (cont.)

## That May Lead to Potential Delays or Rejection

- Failure to provide a detailed description and diagram of the evap ECS  
(e.g. fuel tank material and fuel line types used, including a schematic layout of the evap system components)
- Failure to provide emission warranty statement that meets the regulatory requirements. Mfrs must submit:
  - Mfrs' warranty statement
  - The CARB warranty statement (verbatim as required in regulations)
  - A valid warranty service #



# 2020+ MY Certification Application Template

CP-902 amended September 18, 2017

> 80 cc Evap Families





# Mfrs Must Use Updated Evap Family Naming Convention

## Page 1, Item 3

- Use updated naming convention for evap family name
  - *On page 1 item 3*

**3. Evaporative Family Name** (Use updated naming convention in Attachment 1 in CP-902 amended September 18, 2017):

- Evap family name should begin with U.S. EPA 3-character manufacturer code and include the evap family code per CP-902, Attachment 1

<b>Venting Control</b>		<b>Tank Barrier</b>	
<u>Type</u>	<u>Code</u>	<u>Type</u>	<u>Code</u>
Canister	C	Metal	M
Sealed Tank	S	Treated HDPE or PE	P
		Coextruded Selar	C
		Nylon	L
		Acetal	N
			A
Other	O	Other	O

- For example:

EPA mfr code “**ABC**” + Evap family code “**CM**” + add'l characters “**1**” = **ABCCM1**



# QA/QC Protocols Must Be Described

## Page 12, Item S22

- Describe the process on page 12 item S22

S22. QUALITY ASSURANCE/QUALITY CONTROL PROTOCOLS

Provide a description of any Quality Assurance/Quality Control (QA/QC) protocols used to ensure your production evaporative emission control system complies with the applicable emission standards throughout their useful life.

- For example: Fuel lines securely connected and tested according to ANSI testing requirements. (see FAQ #4-16)



# Performance-Based Certification

> 80 cc Evap Families





# Performance-Based Certification

## Page 3, Item 5f

- Emissions testing must be performed using CA LEV III fuel
- No carry across of data
- Hot soak emissions must be measured and reported (even though no emissions standard)
  - Refer to FAQ #3-10 for guidance – TP-902 Section 5.5 describes calculation
  - *On page 3 item 5f*

### 5. Certification Data

a. Test Equipment ID	b. Test No.	c. Engine or Equipment Model	d. Type (Certification CTG or Confirmatory RTG)	e. Fuel Tank Nominal Capacity (L)	f. Hot Soak Test Mass (g)	Official 24-Hour Diurnal Test Results <sup>(1)</sup>		
						g. Test Completion Date	h. Diurnal Certification Test Result (g organic material hydrocarbon equivalent-day)	i. Diurnal Standard (g organic material hydrocarbon equivalent-day)



# Performance-Based Certification (cont.)

## Page 9, Item S14

- Mfr must provide carbon canister working capacity (in g/L) for each model
- Check that it meets the requirements of TP-902 section 2.2
  - At least 1.4 g/L of fuel tank nominal capacity for tanks  $\geq$  3.78L
  - At least 1.0 g/L of fuel tank nominal capacity for tanks  $<$  3.78L
  - *On page 9 item S14*

### MODEL SUMMARY

S1. Worst Case (Check One)	S2. Model	S3. Sales Codes (check all appropriate)		S4. Engine Class (I or II)	S5. Fuel System (FI or CARB)	S6. Fuel Tank Volume (Liters)		S7. Fuel Tank Internal Surface Area (m <sup>2</sup> )	S8. Fuel Line Type (e.g. Single or Multi-layer)	S9. Nominal Fuel Line Length <sup>(1)</sup> (mm)	S10. Fuel Line Inside Diameter (mm)	S11. Engine Family	S12. Fuel Tank Executive Order	S13. Fuel Line Executive Order	S14. Carbon Canister (or Working Capacity (g/L))/ Other Venting Control Executive Order	
		CA Only	50-State			Total	Nominal									



# Design-Based Certification

> 80 cc Evap Families





# Design-Based Certification

## Page 9, Items S12-S14

- Mfrs must provide new 2020+ component EO numbers (LEV III)
  - Verify validity of component EOs in the web link below before submitting:  
<https://ww2.arb.ca.gov/our-work/programs/small-road-engines-sore/sore-evaporative-component-executive-orders>
  - On page 9 items S12-S14*

### MODEL SUMMARY

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		CA Only	50-State			Total	Nominal								



# Limited Use of Previously Certified Evap Components for 2020 MY Applications

- Mfrs must include *both* the new (2020+ MY) and the old (2019 and earlier) component EO #s in application
- For fuel lines: Equipment may include fuel lines with the old EO #
- For fuel tanks and carbon canisters: Equipment must have a secondary label showing the new component EO #



# Top Certification Issues > 80 cc That May Lead to Potential Delays or Rejection

- Failure to submit bond worksheet and copy of bond (if applicable)
- Failure to use updated naming convention for evap family name
- Failure to provide a detailed description and schematics of the evaporative emission control system
  - Running loss control description and approval #
  - Include a schematic layout of how the evap system components are configured



# Top Certification Issues > 80 cc (cont.)

## That May Lead to Potential Delays or Rejection

- Failure to provide emission warranty statement that meets the regulatory requirements. Mfrs must submit:
  - Mfrs' warranty statement
  - The CARB warranty statement (verbatim as required in regulations)
  - A valid warranty service #



# Top Certification Issues > 80 cc (cont.)

## That May Lead to Potential Delays or Rejection

- Performance-based Certification Issues
  - Failure to measure and report hot soak emissions
  - Carbon canister does not meet TP-902 (minimum working capacity)
  - Failure to report carbon canister working capacity in grams/Liter (not in grams)
  - Carrying across emissions test data from another evap family (because carry across no longer allowed)



# Top Certification Issues > 80 cc (cont.)

## That May Lead to Potential Delays or Rejection

- Design-based Certification Issues
  - Continued use of 2019 and older MY component EO numbers
  - Listing uncertified evap components in the cert application
  - Carbon canister undersized for fuel tank volume
    - Check fuel tank limits specified on canister component EO
    - e.g. Maximum nominal fuel tank volume specified in carbon canister EO is 4L, but mfr using a fuel tank with nominal volume of 5L.



# SORE Component Certification





# Certification Process

- Executive Officer may approve components
- Review for completeness within 30 days
- Once complete, approval or disapproval within 90 days
- Executive Orders (EO) are valid for four years



# Application Requirements

- Authorization letter (if using a third-party consultant)
- Letter of intent
- CAD drawing
- Component model(s) and specification(s)
- Worst-case untested production sample
- Fuel certificate of analysis
- Installation and maintenance instructions
- Limits of proper functioning
- Warranty statements
- All emission-related test data



# Data Requirements

- Reference the test procedure
- Durability testing
- Preconditioning testing
- Instrument calibration records
- Time-stamped tabulated test temperature data
- Permeation test data from all samples
- All problems encountered throughout the certification process



# Working Capacity Standard

- TP-902, section 2.2

Fuel tank nominal capacity (liters)	Minimum working capacity (grams/liter)
< 3.78	1.0
≥ 3.78	1.4



# Test Procedures

Component Type	Test Procedure
Fuel Tank	<ul style="list-style-type: none"><li>• TP-901 Amended May 6, 2019</li></ul>
Carbon Canister	<ul style="list-style-type: none"><li>• TP-902 Amended May 6, 2019</li></ul>
Fuel Hose	<ul style="list-style-type: none"><li>• SAE J1737 Stabilized May 2013</li><li>• SAE J30 Revised February 2012</li><li>• SAE J1527 Revised February 2011</li><li>• SAE J2996 Issued January 2013 (only for fuel hoses with inner diameter 4.75 mm or less)</li></ul>



# How to Apply

- Applications are sent via email to the certification staff
  - Michele Dunlop: [Michele.Dunlop@arb.ca.gov](mailto:Michele.Dunlop@arb.ca.gov)
  - Chris Burford: [Chris.Burford@arb.ca.gov](mailto:Chris.Burford@arb.ca.gov)
  - Jenna Ostad: [Jenna.Ostad@arb.ca.gov](mailto:Jenna.Ostad@arb.ca.gov)



# Certification Renewal

- Certification can be renewed after the four year period as long as no changes have been made
- Submit a declaration signed by an authorized representative



# Helpful Documents

- SORE Evaporative Emission Control System Certification FAQ
- Specific component application guidelines will be posted on the website soon



# Post Certification Reporting

Applicable to both  $\leq 80$  cc and  $> 80$  cc Evap Families





# Reporting Requirements - 13 CCR 2761

Applicable to both  $\leq 80$  cc and  $> 80$  cc

- Annual Production Volume Report (PVR)
  - End-of-year report due within 90 days of the end of the model year
  - Final report due within 270 days of the end of the model year
- Must report production volume for each equipment type by engine family and fuel tank volume within each evaporative family for the model year
- May estimate California production volume through market analysis (Title 13 CCR 2752(a)(22))
- Manufacturers must submit reports into DMS (in Excel format)
  - CARB MAIL-OUT ECARS #18-05
  - <https://www.arb.ca.gov/msprog/mailouts/ecars1805/ecars1805.pdf>



# 2020+ MY Evap Certification Application Templates & FAQs

- 2020+ MY Certification Application for  $\leq 80$  cc
  - Final template has been posted in the link below:  
<https://www.arb.ca.gov/msprog/mailouts/ecars1904/ecars1904-attach3.doc>
- 2020+ MY Certification Application for  $> 80$  cc
  - Final template has been posted in the link below:  
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- FAQs have been posted at the following link:
  - <https://ww3.arb.ca.gov/msprog/offroad/sore/soreevapfaq08212019.pdf>



**QUESTIONS?**

