

State of California  
CALIFORNIA AIR RESOURCES BOARD

**Final Statement of Reasons for Rulemaking,  
Including Summary of Comments and Agency Response**

**PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO ENHANCED VAPOR  
RECOVERY REGULATIONS TO STANDARDIZE GAS STATION NOZZLE SPOUT  
DIMENSIONS TO HELP ADDRESS STORAGE TANK OVERPRESSURE**

Public Hearing Date: October 25, 2018  
Agenda Item No.: 18-8-4

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## LIST OF ACRONYMS AND ABBREVIATIONS

#	number
AAM	Alliance for Automobile Manufacturers
ARID	ARID Technologies, Inc.
Board	California Air Resources Board
CFCA	California Fuels & Convenience Alliance
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CP	certification procedure
ECO nozzle	enhanced conventional nozzle
EOR	enhanced ORVR-vehicle recognition spout assembly
EVR	enhanced vapor recovery
FFS	Franklin Fueling Systems
FSOR	Final Statement of Reasons
GDF	gasoline dispensing facility
ISD	in-station diagnostic systems
ISOR	Initial Statement of Reasons (also called "Staff Report")
max	maximum
min	minimum
OP	overpressure
ORVR	on board refueling vapor recovery
P/V	pressure vacuum vent valve
PWD	pressure increase while dispensing
ROG	reactive organic gas
RVP	Reid Vapor Pressure
SAE	Society of Automotive Engineers
TIR	total indicator reading over seal surface
UST	underground storage tank
V/L	vapor to liquid ratio

## **I. GENERAL**

### **A. Action Taken in This Rulemaking**

The Staff Report: Initial Statement of Reasons for Rulemaking (Staff Report or ISOR), titled “Public Hearing to Consider Proposed Amendments to Enhanced Vapor Recovery Regulations to Standardize Gas Station Nozzle Spout Dimensions to Help Address Storage Tank Overpressure”, released September 4, 2018, is incorporated by reference herein. The Staff Report contains a description of the rationale for the proposed amendments. On September 4, 2018, all references relied upon and identified in the Staff Report were made available to the public. All documents associated with this rulemaking were made available to the public and are available on the California Air Resources Board’s (CARB or the Board) website:

<https://ww2.arb.ca.gov/rulemaking/2018/gas-station-nozzle-spout-dimensions-2018>

On October 25, 2018, following a 45-day comment period, the California Air Resources Board (CARB or Board) held a public hearing to consider the proposed regulation “Proposed Amendments to Enhanced Vapor Recovery Regulations to Standardize Gas Station Nozzle Spout Dimensions to Help Address Storage Tank Overpressure” described in the Staff Report and associated Notice of Public Hearing (45-Day Notice). The regulation requirements are set forth in California Code of Regulations, title 17, §§ 94010, 94011, 94016, and 94017.

Written comments were received from five organizations during the 45-day comment period. No oral comments nor written comments were presented by any individuals or organizations. At the conclusion of the hearing, the Board adopted Resolution 18-46, which approved the regulation for adoption.

Resolution 18-46 directed the Executive Officer to determine if additional conforming modifications to the regulations were appropriate. If so, the Executive Officer was directed to make the modified regulations (with the modifications clearly identified) and any additional documents or information relied upon available for a supplemental 15-day public comment period. The Executive Officer was directed to consider any comments on the modifications received during any supplemental 15-day public comment period. The Executive Officer was then authorized to: either (1) adopt the modified regulation as it was made available for public comment, with any appropriate additional modifications; or (2) make all additional modifications available for public comment for a period of at least 15 days and present the regulations to the Board for further consideration, if warranted.

After the October 25, 2018, public hearing, CARB staff proposed modifications to the originally proposed regulation in response to comments. CARB staff also proposed corrections and updates to the cost analysis in the Staff Report and added a document to the rulemaking record. The text of the proposed modifications to the regulations and Staff Report was made available for a 15-day public comment period by issuance of a “Notice of Public Availability of Modified Text” (15-Day Notice). The 15-day comment period started on April 8, 2019, and ended on April 23, 2019, at 5:00 pm.

When the 15-Day Notice and all attachments were posted on the internet, they were also electronically distributed to all persons that subscribed to the following CARB list-serve topics: “Board Meetings and Public Meeting Notices” and “Vapor Recovery Program”. The “Vapor Recovery Program” topic includes all persons who submitted comments during the comment period, or requested notification of any proposed changes, per section 44(a), title 1, California Code of Regulations, and Government Code section 11340.85.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text and Staff Report. The FSOR also contains a summary of the comments received during the formal rulemaking process by CARB on the proposed amendments or the process by which they were adopted, and CARB’s responses to those comments.

## **B. Mandates and Fiscal Impacts to Local Governments and School Districts**

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

## **C. Consideration of Alternatives**

Staff is required to consider alternatives to the proposed amendments for GDF nozzle spout dimensions. For the reasons set forth in the Staff Report and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective and less burdensome to affected private persons (e.g., gas station customers), or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board. In addition, the Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

As described in the Staff Report, the purpose of the proposed amendments is to:

- Preserve emission reductions and cost savings anticipated for GDF owners (the majority of which are small business owners) through implementation of the voluntarily improved vacuum assist nozzle, and
- Prevent further decline in GDF Phase II vapor recovery system efficiency by preventing the introduction of nozzle designs with dimensions known to result in a poor seal with vehicle fill pipes.

The rulemaking for the proposed amendments is needed as soon as possible to prevent further decline in system efficiency that could occur if an increasing number of vehicles are manufactured with fill pipes that do not form a good seal with vapor recovery nozzles. As noted in the Staff Report, CARB learned that vehicle manufacturers are willing to make changes to vehicle fill pipe designs to improve compatibility with nozzles. However, vehicle manufacturers indicated they need better defined, more constrained,

nozzle dimensions that will remain consistent into the future so that they can more effectively design compatible fill pipes.

As discussed in Chapter IX of the Staff Report, CARB evaluated the following alternatives to the proposed amendments:

- Make no change to the existing nozzle dimensional specifications;
- Require installation of compliant nozzles within four years of amendment effective date rather than allow existing GDFs to continue to use their nozzles until the end of the useful nozzle life;
- Delay the adoption of new nozzle dimensional specifications;
- Reduce the number of new nozzle dimensional specifications; and
- Adopt nozzle performance standards only, without prescriptive new nozzle dimensional specifications.

The Executive Officer evaluated two additional alternatives proposed in comment letters submitted to CARB during the 45-Day Notice comment period (see section IV.C of this FSOR) and determined they are beyond the scope of this rulemaking and are not reasonable alternatives to the rulemaking:

- Decommission California's EVR Phase II program; and
- Require all GDFs to install new, higher-capacity vapor processors.

## **II. MODIFICATIONS MADE TO THE ORIGINAL PROPOSAL**

### **A. Modifications Approved at the Board Hearing and Provided for in the 15-Day Comment Period**

Pursuant to Board direction provided at the October 25, 2018, hearing, CARB released a Notice of Public Availability of Modified Text and Availability of Additional Documents and Information (15-Day Notice) on April 8, 2019,<sup>1</sup> which presented additional modifications to the regulatory text, notified the public of additional documents added into the regulatory record, and provided minor corrections and updates to the Staff Report.

Substantive modifications to the original regulatory proposal and Staff Report and the staff rationale for proposing each are summarized below. The following summary does not include all modifications to correct typographical or grammatical errors, changes in numbering or formatting, nor does it include all of the non-substantive revisions made to

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<sup>1</sup> California Air Resources Board. Notice of Public Availability of Modified Text and Availability of Additional Documents and Information. Posted April 8, 2019. Available online at: <https://ww2.arb.ca.gov/rulemaking/2018/gas-station-nozzle-spout-dimensions-2018>

improve clarity. The text of the modified regulatory language for both substantive and non-substantive changes is shown in Attachments A through D of the 15-Day Notice and the updated text of the Staff Report is shown in Attachment E of the 15-Day Notice.

CARB made many of the modifications to the regulatory text in response to written comments submitted during the 45-Day Notice comment period. Such modifications are identified below with the associated comment number in Chapter IV of this FSOR, “Summary of Comments and Agency Response”.

The following summary identifies CARB staff’s proposed modifications to the following documents, which are incorporated in the regulation by reference in California Code of Regulations, title 17, §§ 94010, 94011, 94016, and 94017, respectively:

- D-200 – Definitions for Vapor Recovery Procedures
- CP-201 – Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities
- CP-206 – Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Aboveground Storage Tanks
- CP-207 – Certification Procedure for Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses for Use at Gasoline Dispensing Facilities

### ***Modifications to Regulatory Text***

1. CP-201 Table 4-2 footnote (c), CP-206 Table 5-2 footnote (c), and CP-207 Table 3-2 footnote (c), in the amendments approved by the Board at the October 2018 hearing all cited the following draft document in anticipation of its approval by the Society of Automotive Engineers:

Society of Automotive Engineers (SAE). Recommended Practice SAE J1140: Filler Pipes and Openings of Motor Vehicle Fuel Tanks. [Update to be issued.]

The Society of Automotive Engineers Fuel Systems J285/J1140 Taskforce (SAE Taskforce), which is comprised of nozzle, vehicle, and fill pipe manufacturers and CARB staff, recently completed updates to SAE J1140. However, the updates for SAE J1140 have not yet completed the full SAE approval process. Consequently, CARB staff proposes deleting the citation in footnote (c) for SAE J1140 and instead incorporating the relevant SAE J1140 material into CARB’s certification procedures in new sections and figures, which will now be referenced by footnote (c):

- CP-201: Section 4.7.4 and Figures 4C through 4G
- CP-206: Section 5.7.4 and Figures 5C through 5G
- CP-207: Section 3.5.3 and Figures 3C through 3G

Footnote (c) refers to the nozzle spout dimension “Bend Angle of Nozzle Spout” ( $S_{\alpha}$ , 19.5° to 26.0°) specified in the certification procedure tables in the amendments approved by the Board. The footnote approved by the Board provides an alternative to the bend angle range that allows additional design flexibility for nozzle manufacturers. The alternative provides vehicle fill pipe access zone templates and an assessment method for nozzle manufacturers to assess their nozzle spout, body, and handle insertion clearance when the nozzles have spout angles outside the 19.5° to 26.0° range. This nozzle insertion clearance is necessary for GDF customers to be able to use a nozzle to fill their tanks.<sup>2</sup> Both the SAE J1140 updates and CARB staff’s proposed amendment modifications include these templates and assessment method.

2. The following minor modifications and clarifications were made to nozzle spout and bellows dimensions, figure annotations, and definitions in response to comments submitted during the 45-day public review period prior to the October 2018 Board hearing and other SAE Taskforce deliberations.

These modifications are in CP-201 Table 4-2, CP-206 Table 5-2, and CP-207 Table 3-2:

- a. Changed minimum “Spout Outside Diameter” ( $D_1$ ) from 20.12 mm (0.792 in) to 20.5 mm (0.807 in). Per written comments from the automotive industry <Chapter IV comment #2>, if a new gasoline nozzle has a diameter as small as 20.12 mm, as it becomes worn with use it may become small enough for someone to unintentionally insert the nozzle into a urea-based selective catalytic reduction (urea-SCR) system<sup>3</sup> on vehicles with diesel engines. Urea/SCR systems are required to have devices that prevent nozzles larger than 20.0 mm from being inserted, such that gasoline nozzles cannot be accidentally inserted. All gasoline nozzles currently certified by CARB for use in California have spout diameters that are 20.5 mm or larger when new.

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<sup>2</sup> The SAE Taskforce determined that having a nozzle spout angle within the range of 19.5° to 26.0° ensures that the nozzle spout assembly, body, and handle can be inserted into the vehicle fill pipe access zone. The SAE Taskforce also determined that it is possible for some nozzles, including some nozzles currently certified by CARB for sale in California, to have nozzle spout bend angles outside this range and still be inserted into the vehicle fill pipe access zone. Therefore, to allow flexibility for current and future nozzle designs, the SAE Taskforce developed vehicle fill pipe access zone templates and an assessment method for use by nozzle manufacturers.

<sup>3</sup> Urea-SCR systems remove nitrogen oxide, a major air pollutant that contributes to smog, from diesel exhaust. Urea-SCR systems are required for most new diesel trucks, buses, cars, and sport utility vehicles manufactured in the United States after January 1, 2010. Diesel engines require the periodic addition of diesel exhaust fluid (DEF, a urea solution) to urea-SCR systems, usually from a bottle though some truck stops provide bulk DEF dispensers near diesel fuel pumps.

- b. Changed the dimensions for “Length of Anchor without Chamfer” ( $A_2$ ) from a range of 0.5 to 12.5 mm (0.020 to 0.500 in) to a maximum of 12.5 mm (0.500 in). Per nozzle manufacturers <Chapter IV comment #3>, recent voluntary improvements to spout anchor design incorporate a full-length chamfer to help obtain a more secure latch with the mating surface of the vehicle fill pipe (called the locking lip). For this improved design, a section of anchor length without chamfer is not desirable and could potentially compromise nozzle latch performance.
- c. Added a decimal place zero to the minimum range value for the “Aspirator Port Diameter” (P) to provide a consistent number of significant figures between the minimum and maximum values of the range.
- d. Changed the table footnote for “Anchor Latch Height” ( $A_H$ ) from “*Measurement of anchor latch height ( $A_H$ ) taken from spout to virtual sharp*” to “*Measurement of anchor latch height ( $A_H$ ) taken from anchor largest diameter to spout diameter.*” This modification improves clarity given the diameter of the anchor is offset from (not centered on) the spout of some nozzles.

These modifications are in CP-201 Figure 4A, CP-206 Figure 5A, and CP-207 Figure 3A:

- e. Changed the illustration of the “Clearance from Fuel Dispensing End to Spout Connection to Nozzle Body” ( $L_4$ ) so that the dimension line is drawn to the inner edge of the nut that attaches the nozzle spout to the nozzle handle, instead of the outer edge of the nut. This modification improves clarity and consistency of spout length measurements. This modification is shown in blue in the attachments.
- f. Deleted the “Virtual Sharp” text and line from the figures because the SAE Taskforce determined this phrase and line were not needed to define the measurement of  $A_H$  given other clarifying edits that had already been made.

These modifications are in CP-201 Table 4-2 and Figure 4B, and in CP-206 Table 5-2 and Figure 5B:

- g. Changed the dimension name “Nozzle Bellows Face Flatness” ( $B_3$ ) to “Nozzle Bellows Face Profile”, and the definition from “2.5 mm (0.098 in) total indicator reading (TIR) max over seal surface” to “2.5 mm (0.098 in) profile tolerance on seal surface”, to improve clarity and consistency with how nozzle manufacturers typically refer to this dimension <Chapter IV comment #5>.



- h. Changed the illustration of the “Nozzle Bellows Contact Angle” (B<sub>4</sub>) to show the angle drawn perpendicular to the spout to agree with dimension descriptions in the tables <Chapter IV comment #4>.
- i. In Figures 4B and 5B, added the word “spherical” to the phrase “Conical Nozzle Bellows Cross Section”. This is a minor clarification resulting from the SAE Taskforce deliberations.
- j. In Figures 4B and 5B, added the word “planar” to the phrase “Donut Nozzle Bellows Cross Section”. This is a minor clarification resulting from the SAE Taskforce deliberations.

These modifications are in CP-206 Table 5-2:

- k. Changed the dimension symbol from “A<sub>F</sub>” to “A<sub>H</sub>” to ensure consistency with proposed language contained in CP-201 and CP-207. This symbol should refer to “Anchor Latch Height” rather than “Anchor Latch Zone Flatness”.
- l. Changed the dimensional description “Anchor Latch Zone Flatness” to “Anchor Latch Height” to ensure consistency with proposed language in CP-201 and CP-207. The term “anchor latch zone flatness” was used in earlier draft versions of the documents but later refined to “anchor latch height” per SAE Taskforce deliberations.

This modification is in CP-207 Figure 3B:

- m. Changed the orientation of the line that defines the “Nozzle Bellows Face Outer Diameter” (B<sub>1</sub>) for the enhanced conventional (ECO) nozzle from straight up/down to parallel to the nozzle bellows face. The SAE Taskforce determined a parallel line orientation is the appropriate way to measure B<sub>1</sub> for ECO nozzles and is consistent with the B<sub>1</sub> measurement drawn for vapor recovery nozzles included in CP-201 Figure 4B and CP-206 Figure 5B.

These modifications are in CP-207 Table 3-2:

- n. Deleted the last row in the table referring to Symbol H, Calibration Hole and footnote “F”. Because ECO nozzles are used exclusively with ORVR equipped vehicles and do not collect displaced vapors from the vehicle fuel tank, there is no concern with premature shutoff that may occur with Phase II EVR nozzles. ECO nozzles do not form a leak tight seal with the vehicle fill pipe nor are they subject to vapor to liquid (V/L) ratio adjustment.

- o. Changed the dimensional description “Nozzle Bellows Face Outer Diameter” (B<sub>1</sub>) to “Insertion Interlock Face Outer Diameter”. Unlike Phase II EVR nozzles, ECO nozzles are not equipped with a nozzle bellows (nozzle boot) as defined in D-200 Definitions for Vapor Recovery Procedures. In order to meet CARB spillage requirements, ECO nozzles are equipped with an insertion interlock. This change is consistent with the language used in Figure 3B.

This modification is in D-200 sections 2 and 3:

- p. The term and acronym for “total indication reading (TIR)” were deleted, and the term for “profile tolerance” was added, for consistency with the changes made to the “Nozzle Bellows Face Flatness” term and definition described in part 4(g) above <Chapter IV comment #6>.
3. The Table of Contents (TOC) for CP-201, CP-206, and CP-207 were updated to reflect the proposed additions and deletions to text, tables, and figures, as well as formatting changes elsewhere in the document to improve page breaks for existing tables and figures. The TOCs are included in Attachments A, B, and C of the 15-Day Notice in their entirety and both the originally proposed modifications and the 15-Day modifications are shown. The originally proposed modifications were included in the originally proposed amendments during the 45-Day Notice public review period prior to the October 2018 Board hearing but were not shown in underline/strikethrough format.

### ***Modifications to Staff Report (ISOR)***

4. The following minor corrections, updates and clarifications were made to the cost analysis in the Staff Report. None of these modifications change the Staff Report conclusion that the costs are considered negligible. All of the modifications rely on information and documents already in the rulemaking record. Attachment E to the 15-Day Notice provides the text of the new deletions and additions to the Staff Report.
- a. Minor corrections: In the Economic Impact Statement in the original Staff Report, CARB staff identified that about 5,305 of the about 10,202 GDFs in California could be impacted by negligible increases in nozzle costs if nozzle manufacturers pass on new certification costs because about 5,305 GDFs may have existing nozzles that do not comply with the proposed amendments. However, all GDFs could be impacted if nozzle manufacturers pass on new certification costs, not only those GDFs with nozzles that do not meet all the dimensions specified in the proposed amendments. As stated in the Staff Report, if nozzle manufacturers were able to pass on all costs (\$20,520) along with an estimated 20 percent markup, this would result in \$24,624 ( $\$20,520 \times 1.2$ ) in costs to California businesses over the 11-year lifetime of the regulation. If all GDFs are impacted by passed-on costs, this could result in approximately \$2 in

additional cost per GDF ( $\$24,624 \div 10,202$  impacted GDFs = \$2.41 per GDF on average) over the 11-year lifetime, compared to the \$5 in additional cost per impacted GDF estimated in the original Staff Report ( $\$24,624 \div 5,305$  GDFs). CARB staff presented the corrected value during the October 25, 2018, Board Hearing. This correction does not change the Staff Report conclusion that this cost is considered negligible.

As detailed in the 15-Day Notice, changes were made to multiple pages in the Staff Report's Executive Summary and Chapter VIII Economics Impacts Assessment to reflect the correct number of GDFs (10,202) and the correct cost per GDF (\$2.41 over 11 years, on average).

- b. Update: In the original Staff Report, CARB staff identified the same estimated cost for a "small business" and a "typical business" in the Economic Impacts Assessment chapter because small businesses own the majority of GDFs in California. Since then, CARB staff updated the definition of a "typical business" to mean a non-small business, per common Department of Finance practice, and estimated average annual costs specific to different business size categories. If nozzle manufacturers were to pass on new certification costs to GDFs through nozzle price increases, CARB staff estimates average costs of about \$0.21 per year per business for the most common type of impacted California small business, single-GDF operators, and about \$1.26 per year for small businesses that own two to twelve GDFs. CARB staff estimates an average cost of about \$8.40 per year for the most common type of non-small business (independent businesses that own 10's to 100's of GDFs), and about \$4.20 and \$29.40 per year on average for other non-small business types (major oil companies and hypermarkets such as Costco and Sam's Club). These updates do not change the Staff Report conclusion that these business costs are considered negligible.

As detailed in the 15-Day Notice, changes were made to multiple pages in sections VIII.C and VIII.D of the Staff Report, and Table 4 "Cost Estimates" was expanded, to provide estimated annual costs for different size categories of businesses that own GDFs.

- c. Clarification: Explanatory text was added to Staff Report sections VIII.D and VIII.G.1 to clarify CARB staff assumptions about potential increases to certification costs for out-of-state nozzle manufacturers and how the certification cost increase estimate was used to estimate potential costs for businesses that own California GDFs. The same explanatory text was already provided in other sections (e.g., section VIII.G.2) of the original Staff Report.

## **B. Non-Substantial Modifications**

Subsequent to the 15-Day Notice public comment period mentioned above, staff identified the following additional non-substantive changes to the proposed regulatory amendments to D-200 Definitions for Vapor Recovery Procedures and certification procedures CP-201, CP-206, and CP-207:

- D-200: In the “compliance tests” definition, corrected “an” to “a” before “CARB Executive Order.”
- D-200: Deleted the acronym for Society of Engineers (SAE) because the proposed amendments no longer refer to SAE documents.
- Certification Procedures: Within the first sentence of section 2.4.8 of CP-201, the text “[Insert Amended Date]” was replaced with the text “the effective date”. The same change was made in section 2.4.10 of CP-206, and in section 2.3.5 of CP-207 (see explanation below).

The text [Insert Amended Date] in materials released during the public comment period refers to the date this rulemaking was adopted via Executive Order (in this case June 4, 2019). Inserting this date in the certification procedures could create confusion as to when compliance is in fact required. As already defined in D-200, the effective date is established *on the date when the first component is certified by CARB* to meet the new performance specifications. In other words, the effective date is a future date at which a nozzle is certified as meeting the revised certification procedures. Once the revised certification procedures are approved, nozzle manufacturers will seek CARB certification as prompted by the certification renewal process described in section 17 of CP-201, section 18 of CP-206, and section 11 of CP-207. This certification date cannot be predicted in advance because it is fully dependent upon activity initiated by the vapor recovery component or system manufacturer. Therefore using the term “the effective date” that is defined in D-200 adds clarity.

The above described modifications constitute non-substantial changes to the regulatory text because they more accurately reflect the final version of the proposed amendments and correct a spelling error, but do not materially alter the requirements or conditions of the proposed rulemaking action.

## **III. DOCUMENTS INCORPORATED BY REFERENCE**

The regulation adopted by the Executive Officer incorporate by reference the following documents:

- D-200 – Definitions for Vapor Recovery Procedures, amended June 4, 2019, incorporated by reference in 17 CCR, section 94010.
- CP-201 – Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities, amended June 4, 2019, incorporated by reference in 17 CCR, section 94011.

- CP-206 – Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Aboveground Storage Tanks, amended June 4, 2019, incorporated by reference in 17 CCR, section 94016.
- CP-207 – Certification Procedure for Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses for Use at Gasoline Dispensing Facilities, amended June 4, 2019, incorporated by reference in 17 CCR, section 94017.

These documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to publish them in the California Code of Regulations. In addition, some of the documents are copyrighted, and cannot be reprinted or distributed without violating the licensing agreements. The documents are lengthy and highly technical test methods and engineering documents that would add unnecessary additional volume to the regulation. Distribution to all recipients of the California Code of Regulations is not needed because the interested audience for these documents is limited to the technical staff at a portion of reporting facilities, most of whom are already familiar with these methods and documents. Also, the incorporated documents were made available by CARB upon request during the rulemaking action and will continue to be available in the future. The documents are also available from college and public libraries, or may be purchased directly from the publishers.

The proposed amendments to the certification procedures incorporated by reference in the regulation adopted by the Board during the October 25, 2018, hearing cite the following document:

Society of Automotive Engineers (SAE). Recommended Practice SAE J1140: Filler Pipes and Openings of Motor Vehicle Fuel Tanks. [Update to be issued.]

The reference was cited in CP-201 Table 4-2 footnote (c), CP-206 Table 5-2 footnote (c), and CP-207 Table 3-2 footnote (c), in anticipation of its approval by the Society of Automotive Engineers. However, as described in section II.A of this FSOR, the updates for J1140 have not yet completed the full SAE approval process. Consequently, in the 15-Day Notice, CARB staff proposed deleting the citation in footnote (c) for SAE J1140 and instead incorporating the relevant J1140 material into CARB's certification procedures in new sections and figures, which will now be referenced by footnote (c):

- CP-201: Section 4.7.4 and Figures 4C through 4G
- CP-206: Section 5.7.4 and Figures 5C through 5G
- CP-207: Section 3.5.3 and Figures 3C through 3G

As a result, the proposed amendments no longer incorporate the SAE document by reference.

#### IV. SUMMARY OF COMMENTS AND AGENCY RESPONSE

The Board received written comments during the 45-Day Notice comment period in response to the October 25, 2018, public hearing notice. No written nor oral comments were presented at the Board Hearing. In addition, the Board received written comments during the 15-Day Notice comment period in April 2019. Set forth below are the full text of each objection or recommendation specifically directed at the proposed regulation, together with an agency response. The comments have been grouped by topic whenever possible.

The following table lists the organizations and individuals that provided comments during the 45-Day Notice and 15-Day Notice comment periods:

Letter Date	Commenter	Affiliation (Abbreviation)
<b>2018</b>		
October 3	Zitkovic, Michael T.	Society of Automotive Engineers Fuel Systems Subcommittee Refueling Interface Taskforce (SAE Taskforce (2018))
October 8	Ambrozaitis, Giedrius	Alliance for Automobile Manufacturers (AAM)
October 19	Tiberi, Tedmund	ARID Technologies, Inc. (ARID)
October 22	Bayless, Sam	California Fuels & Convenience Alliance (CFCA)
October 22	Novak, James	Franklin Fueling Systems (FFS)
<b>2019</b>		
April 23	Zitkovic, Michael T.	SAE Taskforce (2019)

In a parallel rulemaking at the October 25, 2019, Board meeting, the Board adopted vehicle regulation amendments to improve the compatibility and seal at the vehicle fill pipe and nozzle interface (“fill pipe amendments”). In their October 8, 2018, letter, the Alliance of Automotive Manufacturers (AAM) provided comments for both the fill pipe amendments and the proposed amendments for nozzle spout dimensions in the vapor recovery regulations. The AAM comments for fill pipe amendments on pages 1 through 4 of their letter do not pertain to the nozzle amendments and are addressed in the FSOR for the fill pipe amendments. The FSOR and other rulemaking documents for the fill pipe amendments are available at the CARB website <https://ww2.arb.ca.gov/rulemaking/2018/california-specifications-fill-pipes-and-openings-motor-vehicle-fuel-tanks>.

#### A. Support for Amendments

- 1. Comment:** It has been great to get this cross-functional working group working towards the resolutions of the specification and regulations. As the Chairman of the Refueling Taskforce and the Fuel Systems Subcommittee, I personally have found that the relationships on a personal and business level with CARB, (Lou, Tahir,

Michelle, Sam, John, Gurj, and Jason) to be excellent and have seen this protean project of improving the interfaces well worthwhile. Thanks to all who have been involved to bring this series of regulations and specifications to the level of understanding the groups, have now. This comment letter will cover the areas that still have some need for clarification proposals for consideration: ...<see B. *Technical Comments #2 for clarification comment*> ... Thank you and your team for the participation in the SAE taskforce and the great work on development of these updated regulations. It has been a pleasure developing the relationships and working with your team. [SAE Taskforce (2018)]

**Agency Response:** CARB made no changes based on the received comments. CARB appreciates the support and efforts of the SAE Taskforce.

2. **Comment:** Thank you and your team for all of the work on this project to develop the changes to the regulations. With the development of new nozzle styles and further refinements to the existing EVR style nozzles the task was large. I have personally read the latest modification several times and found that this embodies what our team worked towards in the taskforce. I would also like to thank all outside parties that were involved to bring about the updates included in these updates as well as the initial rulemaking. Thank you and your team for the participation in the SAE taskforce and the great work on development of these updated regulations. Thank you for helping to bring the nozzle manufacturers into the newfound alignment with the automotive sector as well. With your team's involvement, further cooperation with the automotive sector and the dispenser side has been possible. It has been a pleasure developing the relationships and working with your team. [SAE Taskforce (2019)]

**Agency Response:** CARB made no changes based on the received comments. CARB appreciates the support and efforts of the SAE Taskforce in developing and reviewing the proposed modifications included in the 15-Day Notice.

## **B. Technical Recommendations**

3. **Comment:** CP-201 and CP-207 Regarding documentation of the nozzle specifications, the Alliance <SAE Taskforce<sup>4</sup>> suggests that the spout diameter range be adjusted to match with the current and sustained J285 dimensions of 20.5-21.34mm.
  - Reducing the range to 20.12mm can have detrimental consequences for developing a device to preclude Urea/SCR nozzles from opening a nozzle prevention device.

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<sup>4</sup> The SAE Taskforce and the Alliance of Automobile Manufacturers submitted the same comment virtually verbatim.

- ISO 22241 for Urea/SCR systems require devices to accept Urea/SCR nozzles as large as 20.0mm to be accepted.
- A Petrol nozzle this small with wear will fit into a Urea System.
- This would give 0.1mm of range for acceptance/rejection between the 2 styles of nozzles.” [AAM, SAE Taskforce]

**Agency Response:** CARB agrees with the suggestion and changed the minimum spout outside diameter to 20.5 mm in CP-201, CP-206, and CP-207 as part of the 15-Day Notice changes.

4. **Comment:** Franklin Fueling would like to recommend the following changes to the proposed amendments to the enhanced vapor recovery regulations.

Franklin Fueling recommends that the **A2 Anchor Length** that is currently specified as **0.5/12.5 mm (0.020/0.500in)** be changed to **12.5 mm (0.500 in) max**. The anchor length specification appears in table 4-2 in CP-201, Table 5-2 in CP-206, and Table 3-2 in CP-207. [FFS]

**Agency Response:** CARB agrees with the recommendation and changed the dimensions for anchor length from a range of 0.5 to 12.5 mm (0.020 to 0.500 in) to a maximum of 12.5 mm (0.500 in) in CP-201, CP-206, and CP-207 as part of the 15-Day Notice changes.

5. **Comment:** Franklin Fueling recommends that drawing for the **Nozzle Bellows Contact Angle** be updated to show the angle being taken perpendicular to the spout to agree with the text describing the drawing. This drawing appears in Figure 4B in CP-201 and Figure 5B in CP-206. [FFS]

**Agency Response:** CARB agrees with the recommendation and changed the drawing of the nozzle bellows contact angle in CP-201 and CP-206 as part of the 15-Day Notice changes.

6. **Comment:** Franklin Fueling recommends that the **B3 Nozzle Bellows Face Flatness** be changed to **Nozzle Bellows Face Profile**. In addition, Franklin Fueling recommends that the Dimension **2.5 mm (0.098 in) total indicator reading (TIR) max over seal surface** be changed to **2.5 mm (0.098 in) profile tolerance on seal surface**. The Nozzle Bellows Flatness specification appears in Table 4-2 and Figure 4B in CP-201 as well as Table 5-2 and Figure 5B in CP-206. [FFS]

**Agency Response:** CARB agrees with the recommendations and changed the terms in CP-201 and CP-206 as part of the 15-Day Notice changes.



7. **Comment:** Franklin Fueling recommends that the definition for **TIR** in D200 shown below:

**total indication reading (TIR)**

the difference between the maximum and minimum measurements, that is, readings of an indicator, on the planar, cylindrical, or contoured surface of a part such as the vapor recovery nozzle bellows, showing its amount of deviation from flatness, roundness (circularity), cylindricity, concentricity with other cylindrical features, or similar conditions. Also known as full indicator movement.

Be replaced with:

**Profile**

3-Dimensional tolerance zone existing of 2 parallel surface curves that follow the contour of the surface profile across the entire length of the surface that are the specified tolerance (2.5mm) apart. [FFS]

**Agency Response:** CARB agrees with the recommendation and replaced the TIR term and definition with the term “profile tolerance” and FFS’s recommended definition in D-200 as part of the 15-Day Notice changes.

**C. Program-Level Comments and Recommendations**

**(a) *Overarching Comment: EVR Phase II should be decommissioned in California***

8. **Comment:** The California Fuels and Convenience Alliance (CFCA) represents about 300 members, including nearly 90% of all the independent petroleum marketers in the state and about one quarter of the state’s 12,000 service stations. Our members are small, family- and minority-owned businesses that provide services to nearly every family in California. Additionally, CFCA members fuel local governments, law enforcement, city and county fire departments, ambulances/emergency vehicles, school district bus fleets, construction firms, marinas, public and private transit companies, hospital emergency generators, trucking fleets, independent fuel retailers (small chains and mom-and-pop gas stations) and California agriculture, among many others. CFCA appreciates the opportunity to submit comments on this issue.

In 1997, automakers began installing Onboard Refueling Vapor Recovery (ORVR) systems on new vehicles. This move began the process of making Enhanced Vapor Recovery (EVR) Phase II an old-fashioned and redundant system, at best. The California Air Resources Board (CARB) has conducted studies showing incompatibility between ORVR and EVR Phase II, creating overpressure situations. [CFCA]

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment.

The following response provides clarification to the CFCA comment about incompatibility between ORVR and EVR Phase II.

As explained in the Staff Report (page 6), in the mid 1990's, concerns regarding compatibility of Phase II and ORVR arose, in particular for previously certified vacuum assist systems that rely on active vacuum pumps to collect vapor at the vehicle fill pipe interface. With ORVR vehicles, there is very little vapor available for collection, therefore vacuum assist systems ingested excess fresh air into the storage tanks. The excess air volume increases as gasoline in the storage tanks evaporates to form an equilibrated saturated vapor. This vapor volume increase causes pressurization that leads to increased fugitive and vent emissions. This concern was addressed by vapor recovery equipment manufacturers in response to Enhanced Vapor Recovery requirements adopted in 2000, as described in section I.D of the Staff Report. Among the numerous EVR requirements were more stringent controls for Phase II systems such as ORVR vehicle compatibility and pressure management to control emissions lost from storage tank headspace through vent lines, vapor processor exhaust, and fugitive leak sources. Now, all EVR Phase II vapor recovery systems must demonstrate ORVR compatibility before they can be certified by CARB.

As further explained in the Staff Report (page 7), while several aspects of the EVR program have been highly successful, shortly after statewide implementation of Phase II EVR requirements in 2009, CARB staff became aware that certain GDFs were experiencing frequent in-station diagnostic (ISD) system overpressure alarms, primarily during the wintertime, which indicate exceedance of allowable storage tank headspace pressure criteria. CARB staff conducted nine field studies from 2013 to 2017 to better understand the magnitude of emissions, identify primary causes, and develop effective solutions to address overpressure. Chapter II of the Staff Report provides a review of the results of three of these studies and Appendix L provides a brief description of all nine studies. Key findings and conclusions include the following:

- The high volatility and evaporation rate of winter blend gasoline are the primary contributors to overpressure conditions.
- Excess air ingestion during vehicle refueling is another key contributor to overpressure, and changes in newer vehicle fill pipe designs result in a poor nozzle seal at the vehicle fill pipe interface, leading to excess air ingestion.
- CARB staff determined that refinement of existing vapor recovery nozzle and vehicle fill pipe dimension specifications are needed to reduce air ingestion and prevent further decline in Phase II vapor recovery system efficiency. These refinements are included in two rulemakings, the nozzle spout dimensions rulemaking that is the subject of this FSOR, and a parallel rulemaking approved by the Board at a

public hearing on October 25, 2018, for vehicle regulation amendments to improve the compatibility and seal at the vehicle fill pipe and nozzle interface.<sup>5</sup> As described in the staff report for the fill pipe amendments, CARB staff predicts that the combined benefits of the two amendments will substantially reduce overpressure emissions that result from a poor seal at the interface at many GDFs.

Please refer to the Agency Response to Comment #10 for a description of the continued need for California's Phase II program to protect California's residents, and how the program provides benefits that are not redundant with vehicle ORVR systems because unique Phase II elements provide emission reductions that go beyond those of federal Stage II<sup>6</sup> requirements and vehicle ORVR systems alone.

- 9. Comment:** In 2012, the Environmental Protection Administration published a final rulemaking determining that ORVR systems are in widespread use throughout the motor vehicle fleet and waived programs requiring Stage II gasoline vapor recovery systems. These systems are known as EVR Phase II in the State of California. Since 2012, nearly all areas in the United States have removed the EVR II requirements, leaving California and a short list of counties that still require the systems. California has required equipment updates that drive up costs for businesses, which are then passed on to consumers at the pump. California is no longer a leader on environmental protection under this policy, we are falling behind and undermining significant advancements in air quality protections for California's residents. [CFCA]

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment. CARB staff disagrees with CFCA's comment, "California is no longer a leader on environmental protection under this policy, we are falling behind and undermining significant advancements in air quality protections for California's residents." CFCA does not provide an explanation of how the EVR Phase II requirements undermine advancements in air quality protections. Please refer to the Agency Response to Comment #10 for a description of the continued need for California's Phase II program to protect California's residents, and how the program provides benefits that are not redundant with vehicle ORVR systems because of unique Phase II elements provide emission reductions that go beyond those of federal Stage II requirements and vehicle ORVR systems alone.

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<sup>5</sup> Please refer to the CARB staff report, *Initial Statement of Reasons for Rulemaking: Proposed Amendments to California Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks* (September 7, 2018), and associated rulemaking documents available at the CARB website <https://ww2.arb.ca.gov/rulemaking/2018/california-specifications-fill-pipes-and-openings-motor-vehicle-fuel-tanks>.

<sup>6</sup> The term Phase II, instead of Stage II, applies to the California vapor recovery program.

**10. Comment:** EVR Phase II has become a redundant system that pursues minute reductions at great cost to business and consumers, further amplified by CARB's equipment requirement changes. This rulemaking is no different. Instead of trying to fix incompatible systems in an attempt to capture a diminishing amount of emissions, CARB should be setting a course for removing EVR Phase II. There is no certainty that these changes will provide the small emissions reductions into the future or that the incompatibility problems identified by both the EPA and CARB will be solved by these new nozzle requirements. The only facts in this rulemaking are EVR Phase II and ORVR are incompatible by their nature and the percentage of non-ORVR vehicles on the road is decreasing. Combined with California's new vehicle assistance programs, these facts point to the reality that EVR Phase II is not effective and will not be needed in the near future, especially if CARB's projections of electric vehicle (EV) adoption are remotely accurate.

The California Fuels and Convenience Alliance urges CARB to follow the lead of the rest of the country in recognizing the shortcomings of EVR Phase II and begin the process of decommissioning this system. [CFCA]

**Agency Response:** CARB made no changes to the proposed amendments based on CFCA's concluding comments, "CARB should be setting a course for removing EVR Phase II" and "The California Fuels and Convenience Alliance urges CARB to ... begin the process of decommissioning this system", nor CFCA's supporting rationale. These comments go beyond the scope of this rulemaking and do not provide a viable alternative for the rulemaking.

**[A] Rulemaking scope.** As described in the Staff Report, the goals of the rulemaking for nozzle spout dimensions are to:

- Preserve emission reductions and cost savings anticipated for GDF owners through implementation of the voluntarily improved vacuum assist nozzle, and
- Prevent further decline in Phase II vapor recovery system efficiency by preventing the introduction of nozzle designs with dimensions known to result in a poor seal with vehicle fill pipes.<sup>7</sup>

The rulemaking goals focus on one element of the EVR Phase II regulations with the intent of preventing overpressure conditions and associated costs for GDFs from worsening. Consequently, CFCA's statement that CARB should instead begin the process of decommissioning EVR Phase II is beyond the scope of this rulemaking. In addition, as described in detail in the Staff

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<sup>7</sup> As mentioned previously, a companion rulemaking for vehicle fill pipe specifications will ensure compatibility at the nozzle-vehicle fill pipe interface.

Report and summarized later in part C of this response, implementation of the proposed amendments does not impose requirements for costly equipment changes.

**[B] Continued Need for, and Effectiveness of, California's EVR Phase II Requirements.** CARB staff conducted an analysis that identifies a number of concerns that would make removing the EVR Phase II requirements not a viable alternative for California in the near term. This analysis is provided in CARB's 2011 letter to the U.S. Environmental Protection Agency (U.S. EPA) responding to the U.S. EPA's Proposed Rule, *Air Quality: Widespread Use for Onboard Refueling Vapor Recovery and Stage II Waiver* [CARB, 2011], which was entered into the rulemaking record and made available for public review by the 15-Day Notice released on April 8, 2019. The following responses to CFCA's concluding comments and supporting points are based on material in this letter, as well as material in the Staff Report and 15-Day Notice for the nozzle spout dimensions rulemaking.

CARB staff's analysis illustrates how California's EVR Phase II program continues to be necessary to protect California residents and has benefits that go beyond emission reductions accomplished by vehicle ORVR systems. In spite of the growing share of ORVR-equipped vehicle refuelings, and growing number of electric and other zero-emission vehicles, CARB staff estimates that California's EVR Phase II program, in its current form, will continue to provide significant statewide emission reductions in future years.

As of 2018, approximately 83 percent of California's annual gasoline consumption (~12.5 billion gallons) is dispensed into ORVR equipped vehicles [CARB, 2013b, Table I-2, as cited in the Staff Report, page 6]. The remaining 17 percent (approximately ~2.6 billion gallons annually) is dispensed into conventional vehicles, also known as "non-ORVR vehicles." Due to this remaining population of conventional vehicles, EVR Phase II controls reduced emission reductions by about 30 tons of reactive organic gases (ROG) per day [Staff Report page 6]. CARB staff estimated that even when about 98 percent of gasoline in California will be dispensed to vehicles with ORVR (predicted to be about 2030 or later [Staff Report page 35), EVR Phase II controls will provide emission reductions of about nine tons per day [CARB, 2011]. The reasons these on-going benefits will exist are (a) our EVR Phase II program provides greater emission reductions than the federal Stage II requirements and, (b) the refueling emissions from the remaining non-ORVR-equipped vehicles are large in the absence of vapor recovery.

California's EVR standards that exceed federal requirements include:

- ORVR compatibility and pressure management to control emissions lost from the underground storage tanks through vent lines, vapor processor exhaust, and fugitive leak sources [please refer to Agency Response to

Comment #8 for additional review of EVR/ORVR compatibility requirements];

- In-station diagnostics requirements that help maintain in-use effectiveness;
- Stringent standards for specially designed nozzles that reduce emissions from liquid retention, drips, and spills; and
- Low permeation fuel hose standards.

We estimate that the effect of these unique program elements provides emission reductions that exceed those of federal Stage II requirements alone by approximately five tons per day. These reductions are unaffected by the increasing number of vehicle ORVR systems.

Despite great progress in achieving cleaner air, California still needs additional emission reductions. The air in many regions of our state still exceeds the federal and state ambient air quality standards for ozone and major urban centers continue in nonattainment of these health-protective standards. Removal of our EVR Phase II controls would result in a significant increase in emissions of ozone precursors at a time when we are searching for new control measures to reduce emissions. At this time, we cannot identify how we would make up for the lost emission reductions that would result from removal of EVR Phase II controls.

In addition, CARB's Airborne Toxic Control Measure (ATCM) for benzene requires Phase II vapor recovery even in ozone attainment areas. Benzene is a known carcinogen for which a mitigation plan for reducing the risk of human exposure by inhalation is required by regulation. Removal of Phase II vapor recovery would increase benzene exposure to individuals fueling older, non-ORVR equipped vehicles, and to those living near service stations. The health impacts from exposure to increased benzene emissions that would result from removal of Phase II vapor recovery controls are likely to be disproportionately more pronounced in communities of lower socio-economic status.

**(C) Benefits with Negligible Costs of Proposed Amendments for Nozzle Spout Dimensions.** This rulemaking has many benefits with negligible costs to business and consumers. The proposed amendments for nozzle spout dimensions will have negligible costs for nozzle manufacturers and GDFs for two key reasons. First, the proposed amendments do not require GDFs to replace their existing nozzles any sooner than they otherwise would. GDF operators are allowed to replace previously certified nozzles during routine nozzle replacement caused by normal wear and tear, catastrophic failures from drive-off or vandalism, and exceedance of useful life. Second, industry already voluntarily made improvements to nozzle designs that adhere to the proposed dimensions in this rulemaking.

In January 2018, industry voluntarily ceased production of nozzles that had a greater frequency of problems with forming a good seal with some newer vehicle fill pipes and therefore contributed to overpressure conditions. These proposed amendments codify nozzle spout dimensions proven to help address the overpressure problem. These dimensions provide certainty to manufacturers of nozzles and vehicle fill pipes, help ensure continued compatibility with new vehicle fuel pipes, and preserve emissions benefits by preventing the introduction of nozzle designs with dimensions known to result in a poor seal with fill pipes. Statewide implementation of the improved vacuum assist nozzle will result in a beneficial impact to air quality by reducing gasoline vapor (aka reactive organic gases, or ROG) emissions, which also contain benzene, by about one ton per day.

This rulemaking and the parallel rulemaking for vehicle fill pipes are designed to help address overpressure issues. CARB does not expect these rulemakings to resolve all overpressure issues at all gas stations. Even so, CARB field study results predict that use of the improved assist nozzle could reduce overpressure emissions and ISD alarm frequency at about 80% of the gas stations with vacuum assist vapor recovery systems. CARB staff found use of the improved vacuum assist nozzle reduced overpressure conditions and ISD overpressure alarm frequency at five of the six (80 percent) study sites; these five sites experienced an average alarm frequency reduction of approximately 46 percent [Staff Report pages 21-22 and Appendix G; CARB, 2018b]. The rulemaking for nozzle spout dimensions is designed to preserve such benefits.

All nozzle manufacturers are based outside of California and will incur minimal costs to comply with the proposed amendments. All nozzles that will be in production in 2020, when the proposed amendments are anticipated to become effective, are currently compliant, meaning manufacturers will incur no new costs for development or design of nozzles as a result of the proposed amendments. There will be minor costs to manufacturers to go through the CARB certification process with an increased number of nozzle dimensions to evaluate. These costs are billed directly to nozzle manufacturers by CARB and are estimated to be about \$20,520 through 2030. It is possible manufacturers could pass on the \$20,520 in certification costs to GDFs in California by increasing nozzle prices. If nozzle manufacturers were able to pass on all costs along with an estimated 20 percent markup, this would result in \$24,624 ( $\$20,520 \times 1.2$ ) in costs to California businesses over the 11-year lifetime of the regulation. This could result in approximately \$2 in additional cost per impacted business-owned GDF ( $\$24,624 / 10,202$  impacted GDFs = \$2.41 per GDF) through 2030 (11 years), which is considered to be negligible. An economic evaluation period end-date of 2030 is based on goals and predictions for increasing use of plug-in electric and fuel cell vehicles, reducing petroleum use in cars and

trucks, and increasing percentage of gasoline sold in California that will be dispensed to vehicles with ORVR systems [Staff Report pages 35-36].

In addition, reducing air ingestion at the nozzle is anticipated to substantially reduce the number of in-station diagnostic system overpressure alarms at many GDFs with vacuum assist vapor recovery systems. CARB staff estimates that installing the vacuum assist nozzle with the improved spout assembly will reduce alarm response-related GDF operating costs by about \$3.47 million. Further, improving compatibility between EVR and ECO nozzles and fill pipes also will make it easier for many customers to fuel their vehicles by reducing the effort needed to insert the nozzle in the fill pipe.

The proposed amendments will preserve the cost savings and other benefits while providing additional certainty to fill pipe and nozzle manufacturers. The nozzle dimensions included in the proposed amendments are the result of extensive deliberations of nozzle, vehicle, and fill pipe manufacturers who participated in a Society of Automotive Engineers Taskforce (SAE Taskforce). Standardization of nozzle spout and bellows dimensions will provide constraint needed by the automotive industry to more effectively design fully compatible fill pipes for future vehicle models. At the same time, all the proposed dimensions have a range of values, rather than a single value, to increase flexibility and allow for innovation among nozzle manufacturers.

To conclude, while we expect this rulemaking for nozzle spout dimensions won't solve all the overpressure problems, it will provide a significant benefit for many gas stations with little to no cost.

***(b) Overarching Comment: All gas stations should install higher-capacity vapor processors as alternative to improving nozzle spouts and vehicle fill pipes***

11. **Comment:** ARID Technologies develops and manufactures the PERMEATOR system that actively manages storage tank pressure while at the same time reducing emissions of VOC's and HAP's. As you know, our system recently passed the extremely challenging battery of tests at our sealed test site in the Sacramento area. These tests included compliance with stringent pressure and emissions standards while simulating pressure while dispensing or PWD for extended time periods at the GDF. We are awaiting issuance of an Executive Order in accordance with our system meeting all of the stated standards and requirements.

While the establishment of a cross-functional working group and encouragement of a cooperative working relationship with automobile, fuel system and nozzle manufacturers is a noble accomplishment, it seems that the overall goal of "addressing storage tank overpressurization" is a missing element in this effort.

If nozzle diameters, sealing surfaces, fixed and tapered zones and internal locking lip depths are completely optimized to yield a theoretically perfectly fitting nozzle boot with zero vapor leakage, it seems that EVR systems, operating in conjunction



with high ORVR vehicle populations, will simply reach the negative cracking pressure of the pressure/vacuum (P/V) valves sooner relative to nozzles which are not so tight at the vehicle/nozzle interface. The implication of this effect from the storage tank perspective is to draw in ambient air from the P/V vent valves during busy refueling periods. (For those unfamiliar with this impact; please consider 10 gallons of fuel dispensed to a vehicle; where 2 to 4 gallons of vapor are returned to the storage tank ullage with an EVR vacuum assisted system).

The dynamics within the combined storage tank ullage are determined by relative rates of air ingestion, fuel vaporization and liquid dispensing rate. The fuel dispensing rate “creates more space” within the ullage, while the air ingestion and fuel vaporization rates “occupy space” within the ullage. From ARB internal studies, it seems that the maximum liquid evaporation rates reach on the order of 450 gallons per hour, depending of course on many factors. For CA GDF dispensing fuel at average rates of 2,500 to 3,500 gallons per hour, it is clear that such sites will maintain negative pressures (vacuum) in their ullage space during “open hours”. Next, when such sites close at night (or pump much lower fuel volumes in the “off hours”), the air, which was previously ingested, will begin the resaturation process as liquid fuel evaporates to vapor phase fuel. The volume expansion is quite significant, as 1 gallon of liquid gasoline will expand to 520 gallons of vapor at 40% hydrocarbon concentration. This volume expansion is the root cause of the Overpressure (OP) problem at CA GDF. For these sites, the modified nozzle at the vehicle/automobile interface will have no impact on OP Alarms. What will have an impact is a vapor processor that actively manages the tank pressure. <sup>1</sup> [Footnote 1: ARID Presentation (attached) from the CAPCOA Quarterly meeting, 25 JULY 2018, San Diego, CA] [ARID] <sup>8</sup>

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment. The following response provides clarification for several of ARID’s points within the above comment.

**[A] CARB certification process.** ARID’s comments about CARB’s certification process for ARID’s new vapor processor are beyond the scope of this rulemaking. CARB’s certification process for new technologies that can be installed at California GDFs is a separate process from CARB’s rulemaking process, and the certification process for ARID’s processor does not rely on this rulemaking. Once the Executive Order has been issued, the ARID vapor processor can be installed at California GDFs without needing to be included in a CARB rulemaking action. Moving forward with the CARB rulemaking for improved nozzle spout dimensions does not preclude GDF

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<sup>8</sup> The 60-page presentation attachment to ARID’s letter is available in CARB’s online rulemaking record comment log:

<https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=gdfnozzles2018>

owners from considering other CARB-certified technologies to address their site-specific overpressure conditions.

**[B] Rulemaking goals and factors that contribute to overpressure.** ARID states “it seems that the overall goal of “addressing storage tank overpressurization” is a missing element in this effort”. The following response provides clarification about how the proposed amendments for nozzle spout dimensions help address overpressure conditions, and meet the goals of the rulemaking to:

- Preserve emission reductions and cost savings anticipated for GDF owners through implementation of the voluntarily improved vacuum assist nozzle, and
- Prevent further decline in Phase II vapor recovery system efficiency by preventing the introduction of nozzle designs with dimensions known to result in a poor seal with fill pipes.

ARID seems to conclude in the above comment that overpressure conditions at all California GDFs are caused by the same factor and require the same solution (a new, higher-capacity vapor processor). However, as described in the following paragraphs, CARB staff studies found that the scenario ARID describes may be true for the very high throughput GDFs that comprise about 3 percent of all California GDFs, but that other factors can be more important at other GDFs throughout California and efforts to reduce air ingestion at the nozzle are warranted. This rulemaking is designed to help address overpressure problems by meeting the above-stated goals, but we do not expect this rulemaking to resolve all overpressure issues at all gas stations in California. As noted in the Staff Report, in 2020 CARB staff plans to propose for the Board’s consideration a more comprehensive menu of potential solutions to address overpressure problems remaining after improved nozzles are installed.

CARB studies found the causes of overpressure are complex and are the result of a number of factors rather than a single variable [CARB, 2017d]. While winter blend gasoline (high Reid Vapor Pressure) is the primary cause of overpressure issues, CARB staff identified at least 20 factors that can affect the severity of overpressure conditions, including GDF operating hours, monthly throughput, excess air ingestion at the nozzle (due to poor seal at the nozzle-vehicle fill pipe interface), and site-specific factors. CARB staff conducted nine field studies from 2013 to 2017 at variety of GDF types to better understand the magnitude of emissions, identify primary causes, and identify effective solutions to address overpressure. CARB staff found that not all GDFs may need the same solution (e.g., a new, higher-capacity vapor processor) to address overpressure conditions. Chapter II of the Staff Report summarizes the results of three of these studies and Appendix L provides a

brief description of all nine studies. The technical reports for these studies are included in the rulemaking record.

ARID noted, "...it seems that the maximum liquid evaporation rates reach on the order of 450 gallons per hour ..." To clarify, CARB studies found the vapor generation rates are on the order of 450 gallons per hour, while the liquid evaporation rates are on the order of 1 gallon per hour. Also, ARID stated, "...This volume expansion is the root cause of the Overpressure (OP) problem at CA GDF. For these sites, the modified nozzle at the vehicle/automobile interface will have no impact on OP Alarms." CARB staff studies found that this statement, and in general the scenario ARID describes, may be true for very high throughput GDFs (e.g., >600,000 gallons per month), which we refer to as "hypermarkets" in the Staff Report (e.g., Costco and Sam's Club sites). As described in Staff Report section VIII.C.2, CARB staff estimates about 3 percent of retail GDFs in California are hypermarkets.<sup>9</sup> In addition, CARB studies found that, due to the high throughput of these GDFs, overnight pressure driven emissions reduce Phase II vapor recovery efficiency by less than 1 percent<sup>10</sup> [CARB, 2017c]. However, for the majority of GDFs in California that have lower throughput (e.g., ~150,000 gallons per month) and longer operating hours ("typical throughput GDFs"), which were the subject of several CARB studies, CARB staff found that excess air ingestion during vehicle refueling can be a key contributor to overpressure. Efforts to reduce air ingestion at the nozzle are warranted for these GDFs because they do not generate anywhere near the amount of ullage space as created by hypermarkets.

Further, pressure increase while dispensing (PWD) emissions are most prone to occur at typical throughput GDFs (CARB, 2018b). CARB staff found that changes in newer vehicle fill pipe designs result in a poor nozzle seal at the vehicle fill pipe interface, leading to excess air ingestion. [Please refer to the documents for the parallel rulemaking for vehicle regulation amendments for a description of fill pipe specification changes designed to reduce air

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<sup>9</sup> In 2014, the California Energy Commission estimated that about 4 percent of retail GDFs in California dispense  $\geq 350,000$  gallons per month and 2 percent dispense  $\geq 600,000$  gallons per month [CEC, 2016]. About 4 percent of GDFs were owned by hypermarkets in a 2013/14 CARB field survey of 396 GDFs selected to be representative of statewide GDFs [CARB, 2017d, Appendix 5]. Based on this information, CARB staff assumes about 3 percent of GDFs are hypermarkets.

<sup>10</sup> As indicated in CARB Technical Staff Report Number VR-OP-A6 [CARB, 2017c], for facilities with a monthly throughput of approximately 750,000 gallons, the wintertime pressure driven emission factor was determined to be 0.0874 pounds per 1,000 gallons. With an uncontrolled wintertime emission factor of 9.4 pounds per 1,000 gallons, this equates to an increase of less than one percent.

ingestion.<sup>11]</sup> CARB staff found that use of an assist nozzle with an improved spout assembly reduced overpressure emissions and ISD overpressure alarm frequency at five of the six (80 percent) study sites; these five sites experienced an average alarm frequency reduction of approximately 46 percent [Staff Report pages 21-22 and Appendix G; CARB, 2018b]. These results indicate many GDFs with vacuum assist vapor recovery systems that have less severe overpressure conditions may not require the installation of a new, higher-capacity vapor processor once the improved assist nozzles are installed. Note, industry already made voluntary improvements to the assist nozzle, so manufacturers will incur no new costs for development or design of improved nozzles.

In addition, the nozzle rulemaking and parallel vehicle fill pipe rulemaking are needed as soon as possible to prevent further decline in Phase II vapor recovery system efficiency that could occur if an increasing number of vehicles are manufactured with fill pipes that do not form a good seal with vapor recovery nozzles. As noted in the Staff Report, through the SAE Taskforce meetings, CARB learned that vehicle manufacturers are willing to make changes to vehicle fill pipe designs to improve compatibility with nozzles. However, vehicle manufacturers indicated they need better defined, more constrained, nozzle dimensions that will remain consistent into the future so that they can more effectively design compatible fill pipes.

Consequently, requiring all GDFs to install a new, higher-capacity vapor processor is not a reasonable alternative to the rulemaking for improved nozzle spout dimensions, and there is no need to delay this rulemaking until the ARID vapor processor completes the CARB certification process with issuance of an Executive Order.

- 12. Comment:** The ARB documents related to this proposed rulemaking note “unexpected pressure driven emissions cause GDF vapor recovery systems not to achieve the performance standards and emission reductions anticipated when EVR regulations were adopted”.<sup>2</sup> [Footnote 2: Staff Report, Initial Statement of Reasons (ISOR), 4 September 2018, page 1] We can clearly state that such emissions are not unexpected; they are the result of air ingestion via the nozzle/automobile interface or via the P/V vent line. If air ingestion is artificially limited at the nozzle/automobile interface, the P/V vent line will simply make up the difference and provide an alternate route for the air to enter the combined ullage space of the storage tanks. Again, this is the root cause of the OP problem at CA GDF. [ARID]

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<sup>11</sup> Please refer to the CARB staff report, *Initial Statement of Reasons for Rulemaking: Proposed Amendments to California Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks* (September 7, 2018), and associated rulemaking documents available at the CARB website <https://ww2.arb.ca.gov/rulemaking/2018/california-specifications-fill-pipes-and-openings-motor-vehicle-fuel-tanks>.

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment. The following response provides clarification for several of ARID's points within the above comment.

Primarily due to site specific operating parameters, the severity of pressure driven emissions varies considerably throughout California's GDF population equipped with Phase II EVR systems. The causes of overpressure are complex and are the result of a number of factors rather than a single variable [CARB, 2017d]. While winter blend gasoline (high Reid Vapor Pressure) is the primary cause of overpressure issues, CARB staff identified at least 20 factors that can affect the severity of overpressure conditions, including GDF operating hours, monthly throughput, and excess air ingestion at the nozzle (due to poor seal at the nozzle-vehicle fill pipe interface). The occurrence of air ingestion at the P/V vent line as described in ARID's above comment typically only occurs at high throughput GDFs (e.g., hypermarkets), which make up only a small portion of all GDFs in California. As stated in prior responses, hypermarkets comprise approximately 3% of the California's GDF population. The remaining 97% of GDF with moderate to lower throughputs do not experience air ingestion at the PV vent line, rather, excess air ingestion occurs when the nozzle does not make a good seal with the vehicle fill pipe. For 97% of the GDF population, improvement to the nozzle and vehicle fill pipe is warranted to reduce excess air ingestion.

With regard to greater than expected pressure driven emissions, CARB staff did not anticipate the occurrence of vapor to liquid ratios (V/L<sup>12</sup>) greater than 0.5 at GDFs with the current ORVR vehicle population. Based on the results of certification evaluation conducted a decade ago, upon statewide implementation of Phase II EVR, CARB staff expected V/L to be 0.5 or less with balance systems and 0.35 or less with assist systems. Had those assumptions held true, the underground storage tank (UST) headspace would have stayed at neutral or negative pressure throughout the operating day. Positive pressure within the UST headspace, if it occurred at all, would be mainly limited to high throughput sites that shut down for extended hours overnight (mainly hypermarkets such as Costco and Sam's Club). Further, we did not expect overpressure problems to be so widely distributed, nor the introduction of capless fill pipes with open path to atmosphere and other fill pipe designs on ORVR vehicles that result in particularly high V/L ratios. (Please refer to Staff Report section II.A.1 for additional descriptions of such fill pipe designs and their effect on GDF V/L and overpressure.)

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<sup>12</sup> Please refer to Staff Report section II.A.1 for an explanation of how V/Ls at GDFs vary and interactions with ORVR systems.

With regard to severity of pressure driven emissions, emission estimates show a small effect (less than 5% loss) on efficiency when viewed on an annual statewide basis [CARB, 2017c]. If all ORVR fueling events occurred with a V/L less than 0.5, PWD would be greatly reduced or eliminated and the efficiency loss would be even less.

- 13. Comment:** For other CA GDF pumping at lower rates, PWD would not be expected until dispensing rates approach approximately 700 gallons per hour. For such lower pumping sites; without modified nozzles, perhaps PWD could be seen at pumping rates of 1,000 gallons per hour. In addition, the average hydrocarbon concentration of the PWD emissions tend to be much lower than the average hydrocarbon concentration of the off-hours emissions, since the vapors vented during closed (or slower pumping periods) have had ample time to reach higher levels of saturation.<sup>3</sup> [Footnote 3: ARID Presentation (attached) from the CAPCOA Quarterly meeting, 25 JULY 2018, San Diego, CA, Slide #37] The net effect is a significantly increased mass emission rate from the off-hours emissions in comparison to PWD emission rates.

Can you please explain how the extensive nozzle improvement initiative impacts the above dynamics? [ARID]<sup>13</sup>

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment. The following paragraph responds to ARID's question and provides clarification for, and identifies concerns with, several of ARID's points within the above comment.

CARB staff studies identified 20 parameters that can affect UST pressure profiles and how they can vary based on facility, geographic region, and temporal factors (hourly, daily, seasonally, or yearly) [Table IV-1 in CARB, 2017d]. CARB staff does not agree with ARID's isolation of dispensing rate as a sole predictor of whether or not PWD will occur and therefore disagrees with the premise of their request to "explain how the extensive nozzle improvement initiative impacts the above dynamics?" For example, high V/L ratios due to a poor seal at the vapor recovery nozzle and vehicle fill pipe interface or leaks within the dispenser plumbing can lead to positive pressure conditions even at high throughput sites. ARID has not provided data or analysis to show the significance of the 700 gallon per hour and 1,000 gallon per hour dispensing rates with regard to PWD.

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<sup>13</sup> The 60-page presentation attachment to ARID's letter is available in CARB's online rulemaking record comment log:

<https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=gdfnozzles2018>

With regard to average hydrocarbon concentrations observed at PWD sites compared to high throughput sites that shut down at night, the information contained on slide number 37 of the ARID presentation is unclear and therefore inconclusive. Upon review of the chart in the upper section of slide, the horizontal axis appears to be time of day and the vertical axis appears to be hydrocarbon concentration at the UST vent line. According to this chart, the hydrocarbon concentration varies between 20% and 60% throughout the day. Additionally, it appears that hydrocarbon concentrations remained elevated from 1100 to 1600 hours which are in the middle of typical operating day, not during shutdown. Further, because the chart and slide lack a title and other pertinent details, it is not clear if they pertain to a PWD site or a high throughput site with nightly shut down.

For pressure driven emission estimates, CARB calculations [Equation III-4 in CARB, 2017c] assume a fixed vapor concentration of 44.2% for summer blend gasoline and a fixed vapor concentration of 49.4% for winter blend gasoline. Using these fixed concentrations, rather than variable concentrations (as indicated on Slide 37 of the ARID presentation) results in a more conservative, health protective emission calculation.

- 14. Comment:** ARB documents seem to stress the importance of reducing ISD Alarm response costs with implementation of modified nozzles. However, has ARB quantified the level of vapor recovery efficiency gain at the vehicle/nozzle interface possible with such nozzles in conjunction with use of ORVR? [ARID]

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment. The following response attempts to clarify and answer ARID's technical question.

If what ARID is asking refers to Phase II collection efficiency testing using the assist nozzle with the improved spout assembly, called the "enhanced ORVR-vehicle recognition" (EOR) spout assembly, then the answer is no. We have not compared the measured efficiency of an EOR nozzle to non-EOR nozzle. To do so we would need identical GDF conditions and an identical vehicle fleet during both tests. This kind of effort is not warranted for two primary reasons. First, industry has already voluntarily made the assist nozzle improvements, and all nozzles that will be in production in 2020, when the proposed amendments are anticipated to become effective, are currently compliant, meaning manufacturers will incur no new costs for modifying nozzles as a result of the proposed amendments. Second, there are negligible costs for GDFs associated with implementing the proposed amendments because the amendments do not accelerate turnover of equipment (i.e., they do not require GDFs to replace equipment before the end of useful life). As described in the 15-Day Notice, CARB staff estimates average costs of about \$0.21 per year per business for the most common

type of affected California small business, single-GDF operators, and about \$29.40 per year on average for a business that owns 60 hypermarket GDFs. These costs are considered negligible for GDFs and would occur only if nozzle manufacturers were to pass on to GDFs through nozzle price increases any new CARB certification costs associated with evaluating a greater number of nozzle spout dimensions.

Further, as described in the Staff Report, CARB staff found that use of the EOR nozzle reduced PWD by 55 percent and reduced average site V/L and improved the ORVR identification rate by approximately 14 percent at the six GDFs where EOR spout assemblies were installed. In addition, CARB staff found use of the EOR nozzle reduced ISD overpressure alarm frequency at five of the six (80 percent) study sites; these five sites experienced an average alarm frequency reduction of approximately 46 percent [Staff Report pages 21-22 and Appendix G; CARB, 2018b]. The rulemaking for nozzle spout dimensions is designed to preserve such benefits.

- 15. Comment:** Next, relative to such potential improvement on collection efficiency, what is the negative impact on vent and fugitive emissions during the off-hours repressurization of the ullage space? Has ARB quantified these impacts as a function of zero leakage nozzle boots? It seems that the net effect on mass emissions should be quantified and compared to the costs incurred in modifying the nozzles. Such an analysis might incorporate low, moderate and high throughput GDF to help Stakeholders understand the sensitivity to the various GDF segments. [ARID]

**Agency Response:** This comment does not request a change to the proposed amendments. CARB made no changes based on the comment. The following response attempts to clarify and respond to ARID's technical questions and recommendations for additional cost evaluations.

CARB staff are unable to identify any physical or chemical mechanism that would produce higher fugitive and vent line emissions during off hours as the result of lowering the amount of air ingested during fuel dispensing. In other words, for typical throughput GDFs, there is no negative impact by reducing excess air ingestion. Based on our EOR nozzle studies, there is no emission increase caused by improving ORVR recognition; we were able to quantify an emission benefit.

For GDFs that do not experience PWD during hours of operation, the total amount of air entering the system is not greatly influenced by relatively small changes in the V/L ratio. The amount of air entering the system will be virtually unchanged. As monthly throughputs exceed 350,000 gallons, the amount of space created within the UST by dispensing gasoline to ORVR-equipped vehicles exceeds the expected wintertime evaporation rate [CARB, 2017d Figure V-3]. As such, facilities with a throughput of greater



than 350,000 gallons per month do not exhibit PWD. Only the ratio of the volume of air entering through the nozzles to the volume of air entering through the P/V valve would change substantially and this would not affect the severity of overpressure during nightly shutdown.

In addition, ARID's suggested cost analysis is not needed for this nozzle spout dimensions rulemaking because, as noted in Agency Response to Comment #11, requiring all GDFs to install a new vapor processor is not a reasonable alternative to the nozzle dimensions rulemaking. Further, the cost to implement the proposed amendments for nozzle spout dimensions is negligible. As described in the Staff Report (ISOR), industry already made voluntary improvements to nozzle spout designs. All nozzles that will be in production in 2020, when the proposed amendments are anticipated to become effective, are currently compliant, meaning manufacturers will incur no new costs for modifying nozzles as a result of the proposed amendments. There will be minor costs to manufacturers to go through additional certification review. These costs are billed directly to nozzle manufacturers by CARB and are estimated to be about \$20,520 through 2030. CARB staff assumes nozzle manufacturers will absorb this cost without any increase to nozzle prices for their customers (GDFs, parts distributors and service contractors).

If passed on with a 20 percent markup, this would result in \$24,624 in costs to California GDFs over about 11 years. There are estimated to be 10,202 GDFs throughout California that might be affected. The overall cost per GDF is on the order of \$2 over 11 years ( $\$24,624 \div 10,202$  GDFs), which is considered to be negligible. As described in the 15-Day Notice, CARB staff estimates average costs of about \$0.21 per year per business for the most common type of affected California small business, single-GDF operators, and about \$29.40 per year on average for a business that owns 60 hypermarket GDFs. These costs are considered negligible for GDFs.

Further, the amendments do not accelerate turnover of equipment because they do not require GDFs to replace equipment before the end of useful life. At the same time, without the amendments there would be no guarantee that problematic nozzles are not introduced in the future, which would increase ROG and benzene emissions. The amendments preserve and guarantee the reductions in emissions that will be accomplished by industry's voluntary nozzle spout improvements.

- 16. Comment:** We are disappointed that ARB documents refer to some future "Comprehensive Menu of Overpressure Solutions" being available in 2020<sup>4</sup>; we have a commercially robust and proven system available immediately, and we are frustrated that issuance of an Unconditional EO seems to be delayed by ARB. [Footnote 4: Staff Report, Initial Statement of Reasons (ISOR), 4 September 2018, page 4] We are bewildered not only by ARB failing to mention anything about

relative merits of vapor processing in comparison to the nozzle modification, but also by ARB lacking a sense of urgency in issuing ARID a timely Unconditional EO to mitigate the significant problem of VOC and HAP emissions at California GDF.

As a certified program under Section 21080.5 of CEPA <sic>, ARB is obligated, under its own regulations, to consider all alternatives to a proposed regulation and to select the one, which achieves the purposes of the regulation in a manner that has the least adverse impact on the environment.<sup>5</sup>

[Footnote 5: California Code of Regulations, Section 60006, states: Any action or proposal for which significant adverse environmental impacts have been identified during the review process shall not be approved or adopted as proposed if there are feasible mitigation measures or feasible alternatives available which would substantially reduce those impacts. (Emphasis added)

[ARID]

**Agency Response:** CARB made no changes based on the comment. ARID's comments about CARB's certification process for ARID's new vapor processor are beyond the scope of this rulemaking. CARB's certification process for new technologies that can be installed at California GDFs is a separate process from CARB's rulemaking process, and the certification process for ARID's processor does not rely on this rulemaking. Once the certification Executive Order has been issued, the ARID vapor processor can be installed at California GDFs without needing to be included in a CARB rulemaking action. Moving forward with the CARB rulemaking for improved nozzle spout dimensions does not preclude GDF owners from considering other CARB-certified technologies, including vapor processors, to address their overpressure conditions.

CARB staff disagrees with ARID's assertion that CARB is obligated to consider and to select an alternative that requires all California GDFs to install a new, higher-capacity vapor processor instead of amending nozzle spout dimension requirements. ARID's proposed alternative goes beyond the scope of the rulemaking. The scope of the rulemaking for nozzle spout dimensions is to preserve emission reductions and cost savings anticipated for GDF owners through implementation of the voluntarily improved vacuum assist nozzle, and to prevent further decline in Phase II vapor recovery system efficiency by preventing the introduction of nozzle designs with dimensions known to result in a poor seal with fill pipes. The goal of this rulemaking is to help prevent overpressure conditions and associated emissions from worsening, not to resolve all overpressure concerns at all gas stations in California.

In addition, the rulemaking can be implemented without any adverse physical changes to the existing environment, and is an action taken by a regulatory agency for the protection of the environment. As explained in the Staff Report's Environmental Analysis (Chapter VI), CARB determined the

proposed regulatory amendments for nozzle spout dimensions are categorically exempt from the requirements of the California Environmental Quality Act (CEQA) under the “Class 8” exemption (14 CCR 15308) because they are actions taken by a regulatory agency for the protection of the environment:

“... Compliance with the proposed regulatory amendments does not require the construction of any new nozzle manufacturing facilities nor replacement of existing nozzle components before the end of their useful life. Consequently, compliance with the proposed regulatory amendments does not involve or result in any adverse physical changes to the existing environment, such as new development, modifications to existing buildings or facilities, or new land use designations. It is not reasonably foreseeable that there will be any adverse impacts on the environment because the proposed requirements would not require any action by regulated parties that could affect these resources.

The proposed actions are designed to protect the environment and CARB staff found no substantial evidence indicating the proposal could adversely affect air quality or any other environmental resource area, or that any of the exceptions to the exemption applies (14 CCR 15300.2). Therefore, this activity is exempt from CEQA.

Please refer to the Agency Response to Comment #11 for additional explanation of why requiring all GDFs to install a new vapor processor is not a reasonable alternative to the nozzle spout dimensions rulemaking, and why the rulemaking should occur as quickly as possible (i.e., not be delayed until the ARID vapor processor completes the CARB certification process with issuance of an Executive Order).

## **V. PEER REVIEW**

Health and Safety Code Section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. Here, CARB determined that the rulemaking at issue does not contain a scientific basis or scientific portion subject to peer review, and thus no peer review as set forth in Section 57004 was or needed to be performed.

## VI. REFERENCES

These documents are included in the rulemaking record and were made available for public review through the 45-Day Notice and 15-Day Notice.

CARB. 2011. California Air Resources Board's Response to U.S. Environmental Protection Agency's Proposed Rule, *Air Quality: Widespread Use for Onboard Refueling Vapor Recovery and Stage II Waiver* (EPA-HQ-OAR-2010-1076-0001). Letter from James N. Goldstene, Executive Officer, California Air Resources Board (CARB), September 8, 2011.

CARB. 2017c. Estimate of Pressure Driven Emissions Occurring at GDF Equipped with the Assist Phase II Enhanced Vapor Recovery System, Report Number VR-OP-A6. Overpressure Study Technical Support Document prepared by staff of the Vapor Recovery and Fuel Transfer Branch, Monitoring and Laboratory Division, California Air Resources Board (CARB). December 7, 2017. Available at: <https://www.arb.ca.gov/vapor/op/studies/assist/vropa6.pdf>

CARB. 2017d. 2013/2014 Field Study to Determine the Extent of the Overpressure Issue Occurring at California Gasoline Dispensing Facilities, Report Number VR OP-G2. Overpressure Study Technical Support Document prepared by staff of the Vapor Recovery and Fuel Transfer Branch, Monitoring and Laboratory Division, California Air Resources Board (CARB). December 7, 2017. Available at: <https://www.arb.ca.gov/vapor/op/studies/gdf/vropg2.pdf>

CARB. 2018b. Evaluation of Healy Model 900 Assist Vapor Recovery Nozzle with Enhanced On-Board Refueling Vapor Recovery (ORVR) Vehicle Recognition Feature during the Winter of 2016/2017, Report Number VR-OP-A7. Overpressure Study Technical Support Document prepared by staff of the Vapor Recovery and Fuel Transfer Branch, Monitoring and Laboratory Division, California Air Resources Board (CARB). June 10, 2018. Available at: <https://ww2.arb.ca.gov/resources/documents/overpressure-studies-and-technical-support-documents>

CEC. 2016. ARB Data Request for 2014 CEC-A15 Gasoline Throughput. Microsoft Excel spreadsheet provided by California Energy Commission (CEC), Energy Assessment Division, on August 24, 2016.