

State of California
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO ENHANCED VAPOR RECOVERY REGULATIONS FOR GASOLINE DISPENSING FACILITIES

Staff Report: Initial Statement of Reasons

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ACRONYMS

Air Districts	Air Pollution Control Districts and Air Quality Management Districts
AST	aboveground storage tank
ATCM	Air Toxic Control Measure
BAU	business as usual scenario
Board	California Air Resources Board
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
DOSH	Department of Industrial Relations, Division of Occupational Safety and Health
DMS	Department of Food and Agriculture, Division of Measurement Standards
EA	environmental analysis
ECO nozzle	enhanced conventional nozzle
EF	emission factor
EO	executive order
EVR	enhanced vapor recovery
FSOR	Final Statement of Reasons
GDF	gasoline dispensing facility
GHG	greenhouse gas
HCVP	High capacity vapor processor
ISD	in-station diagnostic systems
ISOR	Initial Statement of Reasons (this report)
max	maximum
min	minimum
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
ORVR	on board refueling vapor recovery
P/V vent valve	pressure/vacuum vent valve
ppm	part per million

ACRONYMS, *continued*

ROG	reactive organic gas
RVP	Reid vapor pressure
SAE	Society of Automotive Engineers, International
SFM	Department of Forestry and Fire Protection, Office of the State Fire Marshall
SIP	State Implementation Plan
SLC	standing loss control
SWRCB	State Water Resources Control Board, Division of Water Quality
TPD	tons per day
TPY	tons per year
U.S. EPA	United States Environmental Protection Agency
USB	universal serial bus, an external serial bus (circuit) interface standard for connecting peripheral devices to a computer
UST	underground storage tank

UNITS OF MEASURE

°	degrees
#	number
%	percent
"WC	inches water column
in	inch
kgal	thousand gallons
lbs	pounds
mm	millimeter
TPD	tons per day
TPY	tons per year

EXECUTIVE SUMMARY

State law requires the California Air Resources Board (CARB or Board) to adopt procedures to certify and test vapor recovery systems or components used at gasoline dispensing facilities (GDFs). CARB Vapor Recovery Program staff are proposing regulatory amendments to the certification and test procedures that would:

- Improve the cost-effectiveness of GDF vapor recovery systems;
- Preserve emission reductions from the superior performance accomplished by current nozzle equipment manufacturers; and
- Clarify and improve the certification and test procedures for better regulatory certainty and enforceability.

Since 1975, CARB has had a program in place to regulate air pollutant emissions from GDFs. Gasoline vapors contain reactive organic gases that, in the presence of sunlight, can react with other air pollutants to form ozone, a criteria air pollutant, and lead to smog formation. Gasoline vapors also contain benzene, which is a toxic air contaminant, as defined by CARB under Title 17 § 93001. In March 2000, CARB approved Enhanced Vapor Recovery (EVR) regulations for GDFs equipped with an underground storage tank (UST). In June 2007, CARB approved EVR regulations for GDFs equipped with an aboveground storage tank (AST). EVR regulations established new standards for gasoline vapor recovery systems to reduce gasoline vapor emissions during storage and transfer of gasoline from the cargo tanker to the storage tank (Phase I EVR) and from the storage tank to the vehicle (Phase II EVR), and to increase reliability of vapor recovery components. EVR regulations apply to both new and existing GDFs. Phase-in of EVR standards for GDFs with USTs started in 2001 and completed in 2010. For GDFs equipped with ASTs, phase-in of EVR standards started in 2009 and will be completed in 2024.

CARB has made continual improvements to the EVR regulations to refine requirements and improve practicality and efficiency of the program. EVR regulation amendments completed between 2001 and 2019 improved test procedures for gasoline vapor recovery system certifications, modified applicability requirements for GDFs, modified performance standards and implementation dates to reflect evolving technology, clarified dimension requirements for nozzles and vehicle fill pipes, and improved cost effectiveness for system upgrade requirements.

The Vapor Recovery Program has been very successful at reducing emissions over the last 40 years, and in the last decade GDF operators have experienced substantial costs to install upgraded systems to obtain more emission reductions. CARB staff is now proposing a suite of regulatory amendments that would continue to refine the Vapor Recovery Program to provide financial benefits and better regulatory certainty and enforceability with no increase in existing gasoline vapor emissions. The proposed amendments to certification and test procedures would:

1. Eliminate in-station diagnostics (ISD) overpressure alarm criteria because:
 - a. The alarms are not effective at identifying repairable vapor recovery equipment problems;
 - b. GDF owners incur alarm response costs with no concomitant air pollutant emission reductions; and
 - c. Ineffective alarms can lead to operator complacency and accidental clearing of other ISD alarms that are effective at identifying repairable vapor recovery equipment problems, potentially leading to increased emissions.
2. Add other ISD improvements to make stored information more useful in identifying potential issues, specifically:
 - a. Store and be able to download at least 14 days of UST pressure and ullage volume data;
 - b. Generate a monthly informational report for UST pressure data and store at least 12 monthly reports; and
 - c. Improve report format and content so daily reports identify the month and year, and reported pressure values have a minimum of two decimal places.
3. Allow modern, readily available options for ISD communication ports such as USB or Bluetooth, rather than continue to require the antiquated RS-232 port.
4. Make the nozzle spillage standard more stringent to preserve the superior performance accomplished by current manufacturers and avoid backsliding.
5. Require vapor recovery equipment manufacturers to provide a physical sample of the system or components that successfully comply with applicable performance standards or specifications.
6. Revise Phase I drop tube compliance test procedures to accommodate remote fill configurations for GDFs equipped with USTs.
7. Make various administrative changes to clarify and improve the certification and test procedures for better regulatory certainty and enforceability.

CARB staff estimates net cost-savings of about \$31.8 million to \$97.9 million for GDF owners during 2024-2030 from installing updated ISD software that eliminates overpressure alarms and associated alarm response costs. CARB staff estimates ISD manufacturers would have some net cost-savings and revenue increases, and other equipment manufacturers would have some costs, resulting from the other proposed amendments. If manufacturers were to pass on these costs and savings to California businesses (retail and other types of GDFs), these could result in approximately \$1.53 in additional cost to approximately \$14.76 in cost-savings per impacted GDF through 2030, depending on the type of vapor recovery system installed. These potential passed-through costs and savings are considered to be negligible.

Recommendation: Staff recommends that the Board adopt amendments to the California Code of Regulations (Appendix A) that incorporate by reference the amendments to the definitions, certification procedures, and test procedures (Appendices B through H).

I. INTRODUCTION AND BACKGROUND

State law requires the California Air Resources Board (CARB or Board) to adopt procedures to certify and test vapor recovery systems or components used at gasoline dispensing facilities (GDFs). The certification procedures contain the performance standards and specifications that must be met by equipment manufacturers to obtain CARB certification in the form of an Executive Order. CARB adopted the first certification and test procedures for vapor recovery systems installed at GDFs on December 9, 1975. Since then, CARB has periodically updated the certification procedures to reflect improvements in vapor recovery technologies, to modify requirements for existing installations to achieve additional emission reductions, and to improve cost-effectiveness.

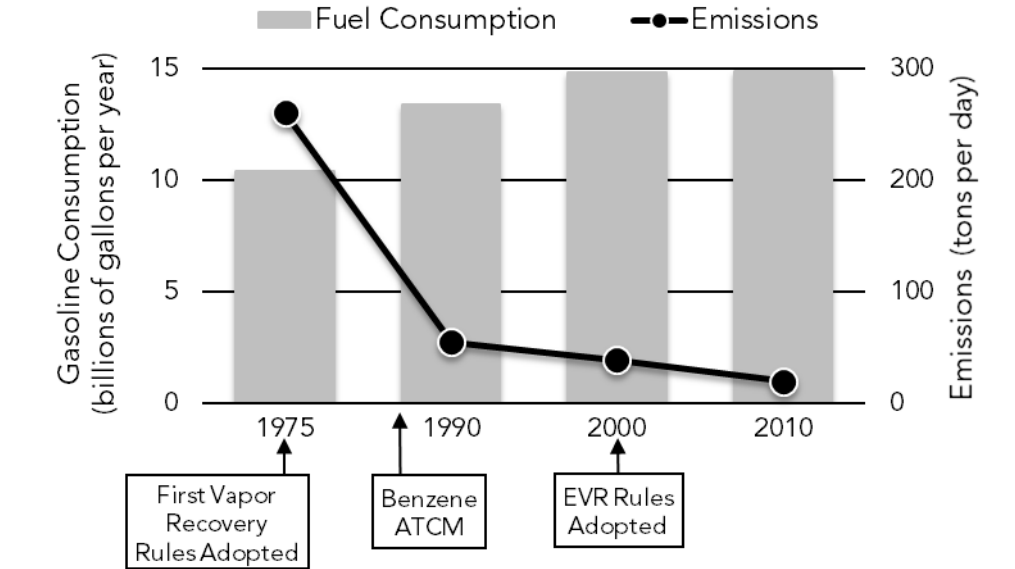
CARB Vapor Recovery Program staff are now proposing a suite of regulatory amendments to the certification and test procedures that would:

- Improve the cost-effectiveness of GDF vapor recovery systems;
- Preserve emission reductions from the superior performance accomplished by current nozzle equipment manufacturers; and
- Clarify and improve the certification and test procedures for better regulatory certainty and enforceability.

The proposed regulatory amendments are intended to refine some parts of the certification and test procedures. The Vapor Recovery Program has been very successful at reducing emissions over the last 40 years. The adoption of the first vapor recovery rules in 1975 and the Benzene Airborne Toxic Control Measure (ATCM) in 1988, along with the beginning of Enhanced Vapor Recovery (EVR) standards implementation in 2001, reduced emissions by more than 90 percent even as gasoline consumption was increasing. For example, the implementation of vapor recovery requirements for USTs reduced emissions from approximately 260.4 tons per day (TPD) in 1975, to 19.5 TPD in 2010, as illustrated in Figure 1 [next page; CARB, 2016a]. In 2007, CARB approved EVR regulations for ASTs and made continual improvements to the EVR regulations for USTs and ASTs since then to refine requirements and improve practicality and efficiency of the program, and GDF operators have spent substantial money to install upgraded systems to obtain more emission reductions.

This chapter provides an overview of the California Vapor Recovery Program and its history, describes CARB's legal authority to amend the vapor recovery regulations, and describes the proposed regulatory amendments and their applicability. The remainder of this staff report provides the rationale for the proposed regulatory amendments, summarizes the regulatory development process, and describes the potential environmental and economic benefits and impacts of the proposed amendments and their alternatives.

Figure 1: Reducing gasoline emissions with vapor recovery controls



A. California's Vapor Recovery Program

1. Overview

Approximately 15 billion gallons of gasoline are consumed annually in California. As gasoline moves through the marketing network it may be transferred between storage tanks and delivery tanks several times and there is a final transfer from the GDF storage tank to the motor vehicle fuel tank. With each transfer there is a potential to emit gasoline vapors. The reactive organic gases (ROG) contained in gasoline vapors contribute to air pollution. In the presence of sunlight, ROGs combine with the oxides of nitrogen, another air pollutant that comes primarily from fuel combustion, to form ground level ozone. Ozone is a strong irritant that damages human lung tissue and plant leaves and is a criteria air pollutant that leads to smog formation.

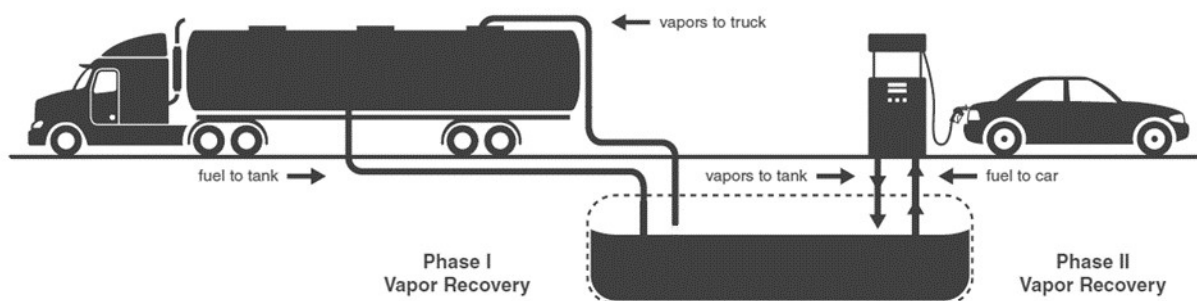
The Vapor Recovery Program was first developed for GDFs in the early 1970s to prevent the formation of ozone and was later expanded to control benzene. Benzene is a constituent of gasoline identified by CARB in 1985 as a toxic air contaminant, as defined by CARB under Title 17 § 93001, and known carcinogen. In 1988, CARB adopted the Benzene ATCM, which requires the installation of Phase I and II vapor recovery systems for retail GDFs to reduce public exposure to benzene [CARB, 1988]. Per State law, air pollution control and air quality management districts (Air Districts) are required to adopt regulations that are equal to or more stringent than CARB's ATCM and are responsible for determining acceptable health risk for benzene at GDFs. All Air Districts adopted such rules by the early 1990s.

In California, gasoline vapor emissions are controlled during the transfer of gasoline from storage tanks at terminals, or bulk plants, to tanker trucks (cargo tanks) that deliver fuel to a GDF, from which gasoline is then transferred into vehicles. Cargo

tanks are tested annually to ensure that they do not exceed an allowable leak rate. At a typical GDF, gasoline vapor emissions are controlled during two types of gasoline transfer. Phase I vapor recovery collects vapors when a cargo tank fills the GDF storage tank. The gasoline vapor displaced from filling the storage tank is captured and transferred to the tanker truck instead of being released to the atmosphere. The gasoline vapor inside the tanker truck is recovered at the terminal or bulk plant when a new load of gasoline fills the tanker.

Phase II vapor recovery collects vapors during vehicle refueling. There are two types of Phase II vapor recovery systems in California: balance systems and vacuum assist systems (assist systems). Assist systems use a nozzle with a dedicated vapor return pathway and a dispenser-mounted vacuum pump to collect vapor from the vehicle fuel tank as gasoline is dispensed from the facility storage tank. Balance systems use nozzles with a dedicated low resistance vapor return pathway and rely on direct displacement to pull vapor from the vehicle fuel tank to the GDF storage tank. Additional controls are designed to contain the vapor in the storage tank by managing storage tank headspace pressure and to limit the volume of liquid spillage from the nozzle during the vehicle refueling process. The vapor recovery collection efficiency during both Phase I and Phase II transfers is determined through certification of vapor recovery systems. In-station diagnostic (ISD) systems provide real-time monitoring of critical vapor recovery system components and activate alarms that alert GDF operators/owners of potential vapor recovery system failures so that corrective action can be taken.

Figure 2: Phase I and Phase II vapor recovery systems at GDFs with USTs



CARB and the Air Districts share implementation of the Vapor Recovery Program. State law (Health and Safety Code § 41954 et seq.) requires that throughout California only CARB-certified systems be offered for sale, sold, and installed. The vapor recovery certification process requires the establishment of test sites (typically at fully operational retail GDFs) at which prototype Phase I and Phase II vapor recovery systems are evaluated for a minimum of 180 days. If the system passes all applicable certification test procedures and other regulatory requirements, CARB provides certification documentation in the form of an Executive Order. In accordance with the Executive Order, Air District staff inspects and tests the vapor recovery system upon installation during the permit process and conducts regular inspections to check that systems are operating as certified.

Gasoline dispensing facilities include retail service stations as well as nonretail fueling facilities owned by businesses, government agencies, and non-profit organizations. The vapor recovery requirements affect a variety of stakeholders. These include the vapor recovery equipment manufacturers, GDF owners and gasoline marketers who purchase this equipment, contractors who install, maintain, and test vapor recovery systems, Air Districts that enforce vapor recovery rules, and the public at large who refuel vehicles or live near a GDF. California's vapor recovery and certification requirements also have implications for many other states and countries that have rules requiring or allowing the use of CARB-certified systems at their GDFs.

The following sections summarize some key elements of the Vapor Recovery Program's history.

2. Introduction of ORVR Vehicles

During the refueling process, onboard refueling vapor recovery (ORVR) systems capture displaced gasoline vapors into a carbon canister within the vehicle. These vapors would otherwise be emitted at the fill pipe and nozzle interface. In 1990, the federal Clean Air Act required the United States Environmental Protection Agency (U.S. EPA) to adopt performance standards for vehicle ORVR systems. As a result, U.S. EPA adopted regulations that mandated the phase-in of ORVR according to the schedule shown in Table 1. Initially, CARB staff considered seeking a waiver to the federal ORVR requirements because California had already implemented Phase II vapor recovery controls. At the June 1995 Board hearing, CARB decided to adopt the federal ORVR requirements and phase-in schedule to promote consistent vehicle design for all 50 states and to reduce the burden for vehicle manufacturers.

Table 1: ORVR phase-in schedule for vehicle manufacturing

Vehicle Class	40% of Vehicles Manufactured	80% of Vehicles Manufactured	100% of Vehicles Manufactured
Passenger	1998	1999	2000
Light Duty & Medium Duty Vehicles ≤6,000 lbs GVWR	2001	2002	2003
Medium Duty Vehicles 6,001–8,500 lbs GVWR	2004	2005	2006

In the mid 1990's, concerns regarding compatibility of Phase II and ORVR were raised, in particular for previously certified 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 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, as described in the next section.

3. Enhanced Vapor Recovery Regulations

CARB approved Enhanced Vapor Recovery (EVR) regulations for GDFs equipped with USTs in March 2000 and for GDFs equipped with ASTs in June 2007. CARB enacted the EVR regulations to achieve additional emission reductions and to increase equipment reliability. EVR regulations established 80 new standards and test procedures for vapor recovery systems to reduce emissions during storage and transfer of gasoline and to increase reliability by increasing testing requirements. Among the numerous EVR requirements were more stringent controls for Phase II systems such as:

- Compatibility with newer vehicles that capture gasoline vapors during vehicle refueling using on board refueling vapor recovery (ORVR) systems;
- Pressure management to control emissions lost from storage tank headspace through vent lines, vapor processor exhaust, and fugitive leak sources;
- In-Station Diagnostic (ISD) systems to help maintain in-use effectiveness by identifying problems early so that repairs are done more quickly; and
- Standards designed to control the release of liquid gasoline at the nozzle, such as liquid retention, post fueling drips, and spillage.

California's EVR Phase II regulations have benefits that go beyond emission reductions accomplished by vehicle ORVR systems. As of 2018, approximately 83 percent of California's annual gasoline consumption is dispensed into ORVR equipped vehicles [CARB, 2013b, Table I-2]. The remaining 17 percent is dispensed into conventional (non-ORVR) vehicles. Due to this remaining population of non-ORVR vehicles, EVR Phase II vapor recovery controls approximately 30 tons per day of hydrocarbon emissions. The population of ORVR equipped vehicles will continue to increase as conventional cars reach the end of their useful life. 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 [CARB, 2013b and 2019a]), 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) the 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. Over the next decade, CARB staff will continue to assess the effectiveness of Phase II controls in terms of maintaining ambient air quality standards and protecting public health by limiting exposure to benzene.

Since their initial approval, CARB has made several amendments to the EVR regulations to refine requirements and improve practicality and efficiency of the program. Appendix N provides a brief summary of these amendments.

B. Legal Authority

1. State Law

The proposed amendments are a revision of CARB's vapor recovery regulations to improve cost effectiveness, preserve the current level of air quality benefits, and clarify and improve the certification and test procedures for better regulatory certainty and enforceability. The benefits of the proposed amendments are the result of air quality goals developed by CARB based on explicit statutory authority in the Health and Safety Code § 41954 (Appendix I) and following, as well as CARB's general authority to carry out its air quality mandates.

State law directs CARB to adopt procedures and performance standards for controlling gasoline vapor emissions from gasoline marketing operations, including transfer and storage operations, to achieve and maintain ambient air quality standards. This section also authorizes CARB, in cooperation with Air Districts, to certify gasoline vapor recovery systems that meet the performance standards and specifications. Health and Safety Code § 39607(d) requires CARB to adopt test procedures to determine compliance with CARB's and Air Districts' non-vehicular standards. Health and Safety Code § 41954 also requires Air Districts to use CARB test procedures for determining compliance with performance standards and specifications established by CARB.

To comply with State law, the Board adopted the certification and test procedures for GDFs with USTs and ASTs, bulk plants, terminals, and cargo tanks found in California Code of Regulations, §§ 94010 to 94017. The regulations reference procedures for certifying gasoline vapor recovery systems and test procedures for verifying compliance with performance standards and specifications. These certification and test procedures serve to control gasoline vapor emissions from gasoline marketing operations, including transport and storage.

2. Federal Requirements

There are no federal regulations that certify the use of gasoline vapor recovery systems for GDFs; however, the U.S. EPA has promulgated federal regulations to control the release of gasoline vapors at certain GDFs in certain areas outside of California. Accordingly, some GDFs are required to install and maintain vapor recovery systems. The intent of the federal regulations is to reduce emissions associated with the storage and transfer of gasoline during marketing operations, which is consistent with the intent of California's EVR program. Although not explicitly required by federal regulations, some other states and countries require the installation of vapor recovery systems that are certified by CARB. Thus, changes to CARB EVR certification requirements may have a national and international effect on the reduction of gasoline vapors.

C. Applicability of Proposed Regulatory Amendments

The proposed regulatory amendments consist of amendments to vapor recovery definitions, certification and test procedures applicable to vapor recovery equipment used at GDFs in the State of California. California's gasoline Vapor Recovery Program is of interest to a variety of stakeholders including GDF owners, vapor recovery equipment manufacturers, installers, testers, maintenance contractors, Air Districts, and entities generally concerned with air quality and its impact on public health.

The proposal consists of amendments to California Code of Regulations, Title 17 §§ 94010, 94011, 94016 and 94017. These amendments would be incorporated in the following documents, which are referenced in aforementioned Title 17 sections, respectively:

- CARB D-200, Definitions for Vapor Recovery Procedures (D-200),
- CARB Certification Procedure 201, Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities (CP-201),
 - CARB Test Procedure 201.1C, Leak Rate of Drop Tube/Drain Valve Assembly (TP-201.1C),
 - CARB Test Procedure 201.1D, Leak Rate of Drop Tube Overfill Protection Devices and Spill Container Drain Valves (TP-201.1D),
 - CARB Test Procedure 201.2I, Test Procedure for In-Station Diagnostic Systems (TP-201.2I),
- CARB Certification Procedure 206, Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities using Aboveground Storage Tanks (CP-206), and
- CARB Certification Procedure 207, Certification Procedure for Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses at Gasoline Dispensing Facilities (CP-207).

1. New Definition and Terms for D-200

The proposed amendments add one new definition and two terms related to vapor recovery. The new definition is for remote fill Phase I configurations and relates to the proposed amendments to the test procedures TP-201.1C and TP-201.1D. The new terms point to existing definitions related to vapor recovery nozzles.

2. Revisions to CP-201, TP-201.1C, TP-201.1D, and TP-201.2I

The proposed amendments revise CP-201 to accomplish the following:

- Eliminate ISD overpressure alarm criteria because they are not effective at identifying repairable vapor recovery equipment problems and cause alarm response costs for GDF owners without reducing air pollutant emissions;

- Add other ISD improvements to make stored information more useful in addressing potential issues and to reflect modern technologies, specifically:
 - Store and be able to download at least 14 days of UST pressure and ullage volume data;
 - Generate a monthly informational report for UST pressure data and store at least 12 monthly reports;
 - Improve report format and content so daily reports identify the month and year, and reported pressure values have a minimum of two decimal places; and
 - Allow more options for ISD communication ports such as USB or Bluetooth, by removing the specific requirement for an RS-232 port.
- Accommodate remote fill configurations in Phase I test procedures for GDFs equipped with USTs.

In addition, the proposed amendments revise three test procedures used to certify and determine compliance of components with performance specifications and requirements outlined in CP-201. The amendments to TP-201.1C and TP-201.1D increase the maximum amount of time for system pressurization to account for fill pipes of greater distances from the UST. The amendments to TP-201.2I incorporate the removal of ISD overpressure alarms and their required responses.

3. Revisions to CP-201, CP-206, and CP-207

The proposed amendments revise CP-201, CP-206, and CP-207 to accomplish the following:

- Make the EVR and ECO nozzle spillage standards more stringent to preserve the superior performance accomplished by current manufacturers and avoid backsliding.
- Require equipment manufacturers to provide a physical sample of the system or components that successfully comply with applicable performance standards or specifications.
- Make various administrative changes to clarify and improve the certification and test procedures for better regulatory certainty and enforceability.

In addition, the proposed amendments incorporate by reference the following documents:

Society of Automotive Engineers (SAE). Surface Vehicle Recommended Practice SAE J285: Dispenser Nozzle Spouts for Liquid Fuels Intended for Use with Spark Ignition and Compression Ignition Engines. Revised April 2019.

Society of Automotive Engineers (SAE). Recommended Practice SAE J1140: Filler Pipes and Openings of Motor Vehicle Fuel Tanks. Revised October 2019.

Incorporating these documents by reference would shorten the certification procedures by 10 pages of text, tables, and figures that are identical to material in the two SAE documents and are relevant for only approximately six manufacturers. As described in the next chapter, incorporating these SAE documents by reference would not introduce any new regulations nor change any existing regulations.

II. THE PROBLEMS THAT THE PROPOSED REGULATORY AMENDMENTS ARE INTENDED TO ADDRESS

This chapter provides a description of the problems that the proposed amendments to the certification and test procedures for vapor recovery systems at GDFs are intended to address, along with descriptions of how the proposed amendments resolve the problems. Chapter III provides detailed descriptions of the underlying purpose and rationale for each specific proposed amendment and Appendices B through H provide the full text of the proposed regulatory amendments.

A. ISD Overpressure Alarms

CARB certification procedure CP-201 [CARB, 2019d] requires GDFs that dispense more than 600,000 gallons per year to be equipped with an ISD system. CARB first adopted ISD requirements in 2001 as part of the EVR regulations for GDFs equipped with USTs. ISD requirements were fully implemented throughout the state by 2010. An ISD system is comprised of one housing console per site, one vapor pressure sensor per site, one vapor flow meter per dispenser, one liquid gauging sensor per storage tank, and the certified ISD system software. ISD systems are installed at approximately 7,800 GDFs across the state [CARB, 2020a; CEC, 2019]. An ISD system continuously monitors the collection and containment of gasoline vapors within the UST and issues warning and failure alarms when regulatory thresholds listed in Section 9 of CP-201 are exceeded. The purpose of the alarms is to provide an early indicator of vapor recovery equipment malfunctions that need repair so that GDF operators can better maintain in-use effectiveness of vapor recovery systems. In addition, the ISD software generates and stores reports required by CP-201. The ISD system maintains an electronic archive of monthly and daily reports that can be accessed to verify the vapor recovery system is operating within set parameter limits.

Among the parameters monitored by ISD is the pressure within the headspace or ullage of the UST. Currently, if the pressure within the UST ullage exceeds a set threshold, the ISD triggers an overpressure warning alarm that notifies the GDF operator of a potential vapor recovery system problem that may require maintenance. CARB certification procedure CP-201 requires ISD software to have two overpressure alarm criteria:

- Malfunction Criteria – Gross Failure
The GDF vapor recovery ISD system shall assess, on a weekly basis, when the UST ullage pressure exceeds 1.5 inches water column gauge ("WCG) for at

least 5 percent of the time, shall activate a warning alarm, and shall record the event.

- **Malfunction Criteria – Degradation**

The GDF vapor recovery ISD system shall assess, on a monthly basis, when the UST ullage pressure exceeds 0.50" WCG for at least 25 percent of the time, shall activate a warning alarm, and shall record the event.

The basis for these alarms is that when storage tank pressure is above atmospheric pressure and exceeds a certain threshold for a defined period of time, pressure driven emissions will increase. When an ISD overpressure alarm is triggered, the GDF operator will typically schedule a contractor for troubleshooting and repair service. When responding to the ISD overpressure alarm, the contractor conducts recommended testing and troubleshooting per the ISD Installation, Operation, and Maintenance Manuals contained within CARB Executive Order VR-202 [CARB, 2019c] or VR-204 [CARB, 2018a]. If the GDF operator ignores an ISD warning alarm and the overpressure condition persists, an ISD failure alarm is triggered, leading to a shutdown of GDF dispensing operations. ISD systems also have warning and failure alarms for vapor collection and leaks; these alarms have been effective at identifying potential vapor recovery equipment malfunctions and are not subject to the proposed amendments.

1. The Problem

The purpose of the ISD system is to alert GDF operators of potential repairable vapor recovery equipment problems and allow them to take timely corrective action. ISD alarms are effective at accomplishing this purpose with one exception, overpressure alarms. Shortly after statewide implementation of Phase II EVR requirements in 2009, CARB staff became aware that some GDFs were experiencing frequent ISD system overpressure alarms, primarily during the wintertime, which indicate exceedance of UST pressure criteria. In September 2009, CARB staff, in cooperation with the California Air Pollution Control Officers Association (CAPCOA), issued Advisory 405,¹ which allows GDF operators to clear ISD overpressure alarms during the winter fuel period [CARB, 2016b]. The advisory was envisioned as a temporary mechanism to provide GDF operators with relief from the cost and inconvenience of responding to winter fuel period ISD overpressure alarms and to provide CARB staff the necessary time to collect and analyze field data to assess potential regulatory solutions.

CARB staff collaborated with industry and staff members from the CAPCOA Vapor Recovery Subcommittee to conduct a series of preliminary investigations between

¹ Since being issued in 2009, Advisory 405 has been amended and reissued four times. Advisory 405-D was issued on September 28, 2016 and will remain in effect until formally rescinded by CARB.

2009 and 2012, followed by ten comprehensive field studies from 2013 to 2019.² The goals of the studies were to identify the primary causes of the excessive ISD overpressure alarms and better characterize the magnitude of pressure driven emissions, in order to evaluate alternatives for reducing or eliminating the excessive ISD overpressure alarms. Chapter IX provides an evaluation of regulatory alternatives based on the studies' results.

In summary, CARB staff investigations and field studies revealed that, in an overwhelming majority of instances, the ISD overpressure alarms are not associated with any vapor recovery system malfunctions. The ISD overpressure alarms are mainly attributed to the high volatility and evaporation rate of winter blend gasoline,³ and changes in newer ORVR vehicle fill pipe designs that result in a poor seal between the nozzle and vehicle fill pipe interface. A poor seal at the fill pipe interface increases air ingestion at the nozzle, which increases the evaporation rate of gasoline within the GDF UST headspace and results in excess pressure driven emissions. These are factors that GDF owners and operators cannot control. As noted in Appendix N, CARB approved regulatory amendments in 2018 for nozzle dimension requirements in vapor recovery certification procedures and fill-pipe requirements in vehicle regulations designed to reduce air ingestion at the nozzle and associated ISD overpressure alarms and pressure driven emissions [CARB, 2018c and 2018d]. In addition, CARB staff analyses indicate that remaining pressure driven emissions do not significantly impact regional and statewide efforts to attain ozone standards [CARB, 2020c]. However, CARB staff expects that the high volatility of winter blend gasoline and site-specific factors such as variation in monthly gasoline throughput and limited operating hours (e.g., shut down at night and on holidays, or reduced weekend hours) can cause some GDFs to continue to have ISD overpressure alarms.

As described in Appendix J, CARB staff's analysis of 1,032 overpressure alarm responses found the majority (87 percent) of contractor responses to ISD overpressure alarms occur during the November through February winter season. CARB staff found only 46 responses resulted in repairs that would have eliminated an overpressure alarm that caused excess pressure-driven emissions. During the winter fuel period, 96.7 percent of all contractor responses resulted in 'no trouble found'. During the summer fuel period, when the gasoline volatility is controlled, the 'no trouble found'

² See Appendix J and CARB staff reports that describe the studies and their results: CARB, 2016c, 2017a through 2017h, 2018b, and 2020b through 2020g. Chapter XII (References) provides the full citations for these staff reports, and the staff reports are available in the rulemaking record and on CARB's Vapor Recovery Program webpage at: <https://ww2.arb.ca.gov/our-work/programs/vapor-recovery-overpressure>.

³ California's Phase 2 Reformulated Gasoline (CaRFG2) and Phase 3 Reformulated Gasoline (CaRFG3) regulations require refiners to produce gasoline that meets eight specifications to reduce air pollution from the gasoline used in motor vehicles. One of the eight specifications is a standard for Reid Vapor Pressure (RVP) that is designed to reduce evaporative emissions during the summer months when ambient temperatures are their highest. During the wintertime (typically November through February), gasoline RVP is uncontrolled. This is also commonly the time during which "winter blend gasoline" is distributed.

rate decreased approximately nine percent but was still relatively high. This analysis found that, on a yearly average, a contractor repair response to an overpressure alarm is only effective approximately 4.5 percent of the time, and that other ISD alarms, routine inspections, and compliance testing would find the equipment problems that could cause excess overpressure emissions. The analysis indicates that the ISD overpressure alarms are not effective at detecting vapor recovery equipment malfunctions and therefore do not accomplish the purpose of ISD alarms envisioned when CARB adopted the EVR regulations. The ISD overpressure alarms are causing response costs for GDF owners without reducing air pollutant emissions. Further, the analysis indicates the ISD overpressure alarms can be eliminated—the ISD overpressure alarm criteria requirements for ISD software can be removed from CP-201—without any impact on GDF emissions.

As described more in Chapter VIII (Economic Impacts Assessment) and Appendix L (Estimated Costs), statewide ISD overpressure alarm response costs are substantial given how many GDFs experience ISD overpressure alarms and the alarm frequency. CARB field surveys of approximately 300 retail GDFs throughout the state found that, over a recent three-year period (November 2015 through October 2018), approximately 68 percent of retail GDFs average one or more ISD overpressure alarms per year, and approximately 27 percent average ten or more ISD overpressure alarms per year [CARB, 2020b]. Because there are approximately 7,800 GDFs with ISD systems, these findings indicate more than 5,000 GDFs experience ISD overpressure alarms that can cause response costs for GDF owners without reducing air pollutant emissions.

Another potential consequence of the ineffective ISD overpressure alarms is accidental clearing of data used for vapor leak alarm and vapor collection alarm assessments. Advisory 405 currently allows GDF operators to clear ISD overpressure alarms during the winter fuel period [CARB, 2016b], but does not allow the clearing of the other ISD alarms. In addition, anecdotal accounts indicate the presence of an ineffective alarm that is routinely ignored can lead to operator complacency towards remaining ISD alarms. GDF operators who regularly clear wintertime overpressure alarms may become accustomed to ignoring and clearing other alarms as well. Accidental clearing of other ISD alarms and complacency are problematic because the remaining ISD alarms are effective at identifying repairable vapor recovery equipment problems that can lead to increased emissions.

For these reasons, CARB staff recommends removing the ISD overpressure alarm criteria from CP-201 and TP-201.21. At the same time, there are ongoing needs for UST ullage pressure data, including but not limited to the following:

- Pressure data can be used to identify sites that exhibit prolonged pressure excursions leading to increased pressure driven emissions.
- Pressure data can be used to evaluate trends in GDF pressure driven emissions. For example, the magnitude of pressure driven emissions is expected to decrease with (1) implementation of recently adopted regulations to improve

the compatibility between GDF nozzle spout and bellows dimensions and newer motor vehicle fill pipes, (2) increases in the population of vehicles equipped with ORVR systems, and (3) anticipated reductions in gasoline consumption [CARB, 2018c and 2018d]. CARB staff may conduct future statewide ISD surveys to assess whether the magnitude of pressure driven emissions decreases as predicted.

- Pressure data may be used as one of several parameters to conduct certification renewal evaluations of Phase II Enhanced Vapor Recovery systems. Renewal evaluations are conducted once every four years and if system deficiencies are found, they must be resolved to the satisfaction of the CARB Executive Officer.
- Pressure data could be used to evaluate site-specific pressure driven emission factors needed to support Air District permitting requirements for GDFs.

However, to accomplish these uses, ISD systems need to store enough pressure data to adequately characterize longer-term conditions at a given GDF. CARB certification procedures do not have requirements for the amount of pressure data that must be stored by ISD. There are currently two CARB-certified ISD systems. The INCON ISD system saves pressure data every minute for a 2-week period while the Veeder-Root ISD system saves pressure data every 20 seconds for a 30-hour period. The Veeder-Root system is installed at more than 90 percent of GDFs subject to ISD requirements throughout California. To obtain 2 weeks of pressure data at these GDFs, Air Districts and CARB staff must currently either conduct daily site visits to download 30 hours of pressure data per visit or install and maintain an external data-logging computer with proprietary software that is directly connected to the ISD console.

To identify potential ISD pressure report alternatives that can identify GDFs with pressure driven emissions that are elevated for long periods, CARB staff evaluated headspace pressure data for 30-hour (short-term), 2-week, and monthly (long-term) periods, and monthly pressure driven emission estimates, at study sites throughout California [CARB, 2020g]. The evaluation findings indicate the majority of GDFs throughout California have ISD systems that do not store enough pressure data to adequately characterize long-term conditions at a given GDF. As previously mentioned, more than 90 percent of California GDFs with ISD systems have ISD systems that save only 30 hours of pressure data. However, the findings indicate that 30 hours of pressure data cannot characterize long-term conditions due to the variability in the daily pressures at a given GDF. This finding is not a surprise because several processes can cause short-term pressure increases that are not associated with equipment malfunctions, including but not limited to the following:

- The bulk delivery of fuel can cause a short-term pressure excursion that may be related to differences in fuel properties between the delivered fuel and the fuel already in the UST.
- Pressure excursions can result from faulty Phase I components on the cargo tank or a failure of the cargo tank driver to follow standard operating procedures during the bulk fuel delivery process.

- Variations in traffic patterns and GDF operating hours throughout the week.
- Customer behavior during refueling operations.

As described in the next section, CARB staff identified simple enhancements to the currently certified ISD software that would improve the ability to identify GDFs that might have prolonged periods of elevated UST ullage pressure and associated pressure driven emissions.

2. The Proposed Solution

As described in the prior section, available information indicates more than 5,000 GDFs experience ISD overpressure alarms that can cause response costs for GDF owners without reducing air pollutant emissions. At the same time, there is an ongoing need for more detailed UST ullage pressure data storage and reporting. To address these problems, CARB staff proposes to replace the requirements in Section 9 of CP-201 for ISD overpressure alarm requirements with requirements for more detailed informational reports. Specifically, staff recommends the following amendments to CP-201 requirements for ullage pressure vapor containment monitoring and reporting:

- Remove the following existing alarm criteria:
 - Malfunction Criteria – Gross Failure
The GDF vapor recovery ISD system shall assess, on a weekly basis, when the UST ullage pressure exceeds 1.5 inches water column gauge ("WCG) for at least 5 percent of the time, shall activate a warning alarm, and shall record the event.
 - Malfunction Criteria – Degradation
The GDF vapor recovery ISD system shall assess, on a monthly basis, when the UST ullage pressure exceeds 0.50"WCG for at least 25 percent of the time, shall activate a warning alarm, and shall record the event.
- Require GDF vapor recovery ISD systems to store and make available for download, at a minimum, the 14 most recent days of UST ullage pressure and UST ullage volume data.

- Require GDF vapor recovery ISD systems to calculate the percentage of UST ullage pressure data in different pressure ranges as defined below and generate a monthly ullage pressure data report available for download in the following format:

UST ullage pressure \leq 0.00 inches H ₂ O ⁴	__%
0.00 inches H ₂ O < UST ullage pressure	__%
0.00 inches H ₂ O < UST ullage pressure \leq 0.30 inches H ₂ O	__%
0.30 inches H ₂ O < UST ullage pressure \leq 1.30 inches H ₂ O	__%
1.30 inches H ₂ O < UST ullage pressure \leq 2.50 inches H ₂ O	__%
UST ullage pressure > 2.50 inches H ₂ O	__%

- Require the ISD system to maintain an electronic archive of the monthly ullage pressure data report for a period of at least 12 months.

ISD manufacturers would be required to remove the ISD overpressure alarm criteria from their ISD software, and add the additional pressure report and storage capability, the next time they seek CARB certification.

After CARB certification of the updated ISD software, the new ISD software would be required for all installations at new GDFs and major modifications at existing GDFs. CARB staff proposes amendments to CP-201 that would allow GDF owners and operators of existing GDFs to install the updated ISD software on a voluntary basis. Existing GDFs would have the option of continuing to operate with the current CARB-certified ISD system for the remainder of its useful life, or updating to the new system software. GDF owners and operators would be allowed to choose whether to install the updated ISD software based on their site-specific assessments of potential cost savings and business priorities. For example, by making the ISD software update voluntary, owners and operators of existing GDFs could choose to not upgrade the ISD software if their GDFs do not experience ISD overpressure alarms or if the upgrade cost exceeds the cost of responding to ISD overpressure alarms.

Based on discussions with ISD manufacturers, CARB staff expects the updated ISD system software to be certified one to two years after the effective date of the amended regulation. CARB staff recommends that CARB and the Air Districts rescind Advisory 405⁵ approximately four years after CARB certification of the upgraded ISD

⁴ Inches water column gauge is expressed as "inches H₂O" in CARB's vapor recovery certification and test procedures, many of which were first published decades ago, and as "WCG" in more recent technical documents, because in certain cases it is important to distinguish between gauge pressure and absolute pressure. Absolute pressure is the sum of gauge pressure and barometric pressure.

⁵ Advisory 405 currently allows operators to clear wintertime overpressure alarms. Once CARB rescinds Advisory 405, operators would be required to respond to overpressure alarms if they do not make the decision to voluntarily install the upgraded ISD software.

software. Such a schedule would allow time for existing GDF owners and operators to assess site-specific alarm trends and evaluate the cost-effectiveness of installing the updated ISD software. Rescinding Advisory 405 does not require a rulemaking action and therefore is not included in the proposed amendments.

In summary, CARB staff's proposal to eliminate the ineffective ISD overpressure alarms would:

- Eliminate alarm response costs that do not reduce emissions, which improves the cost-effectiveness of implementing EVR regulations.
- Provide flexibility for existing GDF owners/operators by making the ISD software upgrade voluntary; owners/operators of existing GDFs with no overpressure alarms, or those GDFs where the operators/owners determine that it is more costly to install upgraded software than to respond to ISD overpressure alarms, could choose to not upgrade their ISD software.
- Reduce overpressure alarm response costs at more than 5,000 existing GDFs if they choose to install upgraded ISD software.
- Reduce accidental clearing of and operator complacency toward responding to the remaining ISD alarms that effectively indicate repairable vapor recovery equipment problems by eliminating the ineffective overpressure alarms.

In addition, the improved UST ullage pressure reports and data storage would provide several benefits to GDF operators, service contractors, CARB, and Air Districts, including:

- Easily accessible monthly pressure reports with long-term data would help service contractors conduct more effective trouble shooting to identify equipment problems (e.g., vapor leaks and inoperable vapor processors) and their causes. The additional data and reports could reduce the need for multiple site visits and time-consuming pressure data analysis. Reducing time needed for site visits and data analysis would reduce costs for GDF operators.
- Storage of at least two weeks of pressure data would reduce the number of site visits, and therefore costs, for future studies. Currently, to obtain adequate pressure data to characterize long-term conditions at GDFs with ISD systems that store only 30 hours of pressure data, Air Districts and CARB staff must either conduct daily site visits for several weeks to download 30 hours of pressure data per visit, or install an external data-logging computer with proprietary software to store longer periods of data and conduct site visits approximately every 14 days.

The above benefits are achievable without installing new hardware; an ISD system software upgrade is all that is required to implement this solution.

As previously mentioned, there are currently two CARB-certified ISD systems, and one already saves two weeks of pressure data. CARB staff seeks to adopt uniform

standards for all certified systems, when possible, and the benefits of additional pressure data would help identify only those GDFs where additional mitigation measures may be necessary to protect public health.

In addition, both ISD systems currently provide reports with weekly and monthly pressure summaries to compare to the two overpressure alarm criteria currently required by CP-201. The monthly percentage calculations used to generate the current ISD summaries are similar to the pressure percentage calculations needed to generate the above ISD report proposed by CARB staff. This demonstrates the feasibility of ISD systems to generate and store the proposed pressure report.

Both ISD system manufacturers have informed CARB staff that the manufacturers can modify the ISD software to provide at least two weeks of pressure data and the proposed pressure report using the certified ISD systems already installed at the GDFs.

CARB staff recommends that improved ISD pressure reports should be used as a screening tool to identify GDFs that may warrant further investigation. Examples of further investigation may include vapor recovery equipment troubleshooting and repair to establish baseline operating conditions and, if the overpressure conditions persist, the installation of continuous monitoring equipment to more accurately measure site-specific pressure driven emissions over a longer period.

Lastly, TP-201.2I is the certification test procedure used by CARB staff to determine whether the requirements specified in Section 9 of CP-201 are met when evaluating a new or modified ISD system [CARB, 2012]. Although there are two ISD systems currently certified by CARB, it is possible that additional ISD equipment manufacturers will seek certification in the future. CARB staff recommends that applicable sections of this test method pertaining to validation of UST ullage pressure A) gross failure response and B) degradation failure response, be removed in order to be consistent with removal of the same requirements within Section 9 of CP-201.

B. Other ISD Report Improvements

1. The Problem

The daily ISD reports are generated and stored by currently certified ISD systems as required by Section 9.3.3 of CP-201. However, their current format requirement is not descriptive enough. Depending upon which ISD software version is installed, the daily report data are not adequately labeled, on both the print out and downloaded electronic versions, to identify the month and year to which the report pertains, which makes reading old reports and record keeping difficult.

In addition, Section 9.3.3 of CP-201 does not specify the number of decimal places the daily reports should include for UST ullage pressure data and pressure percentile calculations. Current ISD software reports pressure values with only one decimal

place. CARB staff conducted a statistical evaluation that compared pressure percentile values to estimates of pressure driven emissions to determine the effect of increasing the number of decimal places [CARB, 2020g]. CARB staff found that pressure values with only one decimal place in ISD reports have significantly more rounding and accuracy issues that reduce the ability to use the pressure values to identify sites that may have elevated pressure driven emissions, compared to pressure values with two decimal places.

2. The Proposed Solution

To address the issue of inadequate date formats on the daily ISD reports, CARB staff proposes to amend CP-201 to specifically require the desired formatting. Staff proposes amendments to Section 9.3.3 of CP-201 to require that the date be represented in either "MM/DD/YY" or "MM/DD/YYYY" formatting to improve clarity and to ensure that the reports can be correctly and easily identified. In addition, to improve the accuracy of values reported in the daily reports, CARB staff proposes that pressure values be required to be reported to two (2) decimal places. The ISD system manufacturers have assured CARB staff that the required changes to the ISD software can be easily accomplished and done at the same time as the proposed changes to the ISD overpressure criteria described in Section II.A.2.

C. Alternative Communication Ports for ISD System Consoles

Currently, the language within sections 9.1.3 and 9.8 of CP-201 requires that all ISD systems be equipped with an RS-232 port to remotely access ISD status information using standardized software. The RS-232 port allows access for contractors and regulators (e.g., Air Districts and CARB staff) to download ISD reports using a standard serial cable connected between the ISD system console and a laptop computer.

1. The Problem

The RS-232 port is antiquated technology. The RS-232 was originally introduced in 1960 and the most current version was introduced in 1997. The RS-232 was once a commonly used external communication serial port for connecting and exchanging data between electronic devices. However, the RS-232 port is becoming obsolete, as indicated by laptop technology migration from RS-232 to USB technology. Most new computers and laptops have only standard USB⁶ ports, so contractors and regulators need to purchase additional equipment, such as adapters or more than one cable type, to be able to connect to the ISD console. In addition, during long data downloads, adapters often lose communication during the download. Also, ISD manufacturers have reported difficulty in procuring RS-232 communication modules and, when found, they prove to be costly.

⁶ USB: 'universal serial bus', an external serial bus (circuit) interface standard for connecting peripheral devices to a computer, as in USB port and USB cable.

Industry requested that CARB revise the Phase II EVR ISD remote access port requirement in sections 9.1.3 and 9.8 of CP-201 to allow design flexibility to include modern technologies. CARB staff agrees that the CP-201 requirement for all ISD consoles to have a RS-232 port puts unnecessary costs on ISD manufacturers, contractors, and regulators, and that amendments to CP-201 to allow flexibility are warranted.

2. The Proposed Solution

To address the problem of the antiquated RS-232 port, CARB staff proposes to replace the CP-201 requirement for a RS-232 port to be installed in all ISD consoles with a requirement for a “readily available communications port” approved by the CARB Executive Officer. During the certification process, ISD manufacturers will be able to request Executive Officer approval to install a communications port of their choosing so long as the port type and associated cables are commonly utilized by, and available to, industry, contractors, and regulators for the downloading of ISD reports and status information. Examples of potential alternatives to the RS-232 communication port include Bluetooth, USB, and Ethernet. The proposal is intended to improve the cost-effectiveness of GDF vapor recovery systems.

D. Nozzle Spillage Standard

Liquid gasoline spillage associated with motor vehicle refueling at gasoline dispensing facilities (GDF) has been controlled since the inception of the vapor recovery program. State law (Health and Safety Code § 41954(b)) requires CARB to adopt performance standards to control gasoline vapors for motor vehicle refueling that do not cause excessive liquid gasoline spillage. Spillage occurs when liquid gasoline releases happen before, during, and after refueling events between a dispensing nozzle and vehicle fuel tank. As the liquid gasoline evaporates, vapor emissions are created.

The implementation of Enhanced Vapor Recovery (EVR) and Enhanced Conventional (ECO) nozzle standards and the installation of Phase II EVR equipment brought greater controls for nozzle spillage. Among the numerous EVR requirements were more stringent controls for Phase II systems such as standards designed to control the release of liquid gasoline at the nozzle, including liquid retention, spitting, post fueling drips, and spillage.

When adopting the first EVR nozzle spillage standard for certification procedure CP-201 for vapor recovery systems at GDFs with USTs [CARB, 2000 and 2019d], CARB sought additional emission reductions from spillage by reducing the limit (‘spillage performance standard’) from 0.42 pounds/1,000 gallons (lbs/kgal) to 0.24 lbs/kgal [CARB, 2000]. In 2007, CARB adopted the same spillage performance standard of 0.24 lbs/kgal for nozzles in certification procedure CP-206 for vapor recovery systems at GDFs with ASTs [CARB, 2007 and 2019e].

In April 2015, CARB approved new performance standards and specifications for Enhanced Conventional (ECO) nozzles [CARB, 2015]. ECO nozzles are designed for use at non-retail GDFs that have been exempted by Air Districts from requirements to control displacement emissions from refueling vehicles. Such non-retail GDFs are exempt because they fuel a captive fleet of newer vehicles that capture gasoline vapors during vehicle refueling using on board refueling vapor recovery (ORVR) systems. Examples of exempt GDFs include rental car facilities and new car dealerships. CARB adopted a lower spillage performance standard of 0.12 lbs/kgal for ECO nozzles in CP-207 [CARB, 2015 and 2019f]

In their 2015 evaluation, CARB staff found that the lower spillage performance standard for ECO nozzles was easily achievable by the three CARB-certified EVR nozzles. CARB staff committed to reevaluating the spillage performance standard in CP-201 and CP-206, and reported to the Board that they would likely return with a recommendation to lower the standard in CP-201 and CP-206 to improve accuracy in reporting emissions and provide consistency between the certification procedures [CARB, 2015].

CARB staff have since compiled and evaluated mass emission factors for nozzle spillage based on CARB certification test data for five nozzles certified since the Board adopted EVR and ECO nozzle regulations [CARB, 2020h]. Staff found that the mass emission factors based on certification data for all five nozzles are substantially lower than CARB performance standards. This demonstrates nozzles are performing much better than predicted for EVR implementation at the time CARB adopted the EVR regulations. The highest mass emission factor observed for any of the three EVR nozzles (0.026 lbs/kgal) is only approximately a tenth of the EVR performance standard (0.24 lbs/kgal). The highest mass emission factor observed for the two ECO nozzles (0.027 lbs/kgal) is only a quarter of the ECO performance standard (0.12 lbs/kgal).

1. The Problem

Based on the results of the nozzle spillage evaluation [CARB, 2020h and 2020i], CARB staff identified three problems with the spillage standards in CP-201, CP-206, and CP-207:

- Actual GDF emissions might increase if nozzle spillage performance standards are not amended. Currently certified nozzles are performing much better than CARB certification standards and result in lower emissions than predicted for EVR implementation at the time CARB adopted the EVR regulations. However, if the performance standards are not amended to preserve this superior performance, manufacturers would be allowed to introduce new nozzles that perform less efficiently and result in higher emissions while still complying with current performance standards. To prevent the potential for increased emissions, the performance standards need to be lowered to reflect the performance of currently certified nozzles.

- Standards that do not reflect the performance of currently certified nozzles can cause inaccurate GDF emission estimates for Statewide Implementation Plan (SIP) emission inventories and Air District permits. CARB and Air Districts use estimates of GDF emissions combined with estimates for other emission sources to assess potential local and regional impacts on air quality and public health. CARB and most Air Districts use emission factors published by CARB in 2013 to estimate the emissions from GDFs based on the annual gasoline throughput of the GDFs [CARB, 2013a and 2013b]. CARB's 2013 publication includes a nozzle spillage emission factor of 0.24 lbs/kgal. This emission factor is nearly ten times higher than the highest mass emission factor observed for any of the five certified nozzles. As a result, GDF emission estimates for SIP emission inventories and Air District permits could be substantially over-estimated. The CARB 2013 emission factors indicate spillage comprises about half of total GDF emissions. If CARB were to update the 2013 spillage emission factor, estimates of total GDF emissions used in SIP emission inventories and Air District permits might be reduced by about a third or more. For example, if the 2013 spillage emission factor were updated to 0.05 lbs/kgal (twice the maximum observed spillage emission factor), the estimate of total statewide, annualized GDF emissions would decrease by approximately 4.0 tons per day (TPD), from 10.3 to 6.3 TPD [CARB, 2020h, Table 2]. However, the superior nozzle spillage performance is not reflected in the current nozzle spillage certification standards and CARB staff cannot claim emission reductions that are not required by law or regulation. We cannot assume that the superior nozzle spillage performance will continue into the future if that performance is not preserved in the regulations. Therefore, CARB cannot update the spillage emission factor for use in emission inventories and permits until the Board formally amends the certification standards through the rulemaking process.
- There is no need to have a spillage performance standard for EVR nozzles that is different from the standard for ECO nozzles. Currently, there is a disparity between the spillage performance standards amongst the certification procedures. CP-201 and CP-206 require a performance standard of 0.24 lbs/kgal, while CP-207 has a more stringent standard of 0.12 lbs/kgal. The certification test results indicate both types of nozzles have superior performance and have nearly identical emission factors for each of the evaluation scenarios. Having the same standard for all nozzle types would reduce confusion for those nozzle manufacturers that have brought forward both EVR and ECO nozzles to be certified by CARB. Further, more gasoline will be dispensed through ECO nozzles in the future as more non-retail captive fleets are replaced with ORVR-equipped vehicles and their GDFs are no longer required to install Phase II EVR systems. Having the same standard for all nozzle types would prevent the potential for emission increases when EVR nozzles are replaced with ECO nozzles.

2. The Proposed Solution

CARB staff recommends the Board consider lowering the nozzle spillage performance standards in CP-201, CP-206, and CP-207. Increasing the stringency of the standard would preserve emission reductions that are already occurring and prevent emissions from increasing. CARB staff proposes a revised spillage performance standard of 0.05 lbs/kgal for both EVR and ECO nozzles. This more stringent standard of 0.05 lbs/kgal is both feasible and necessary to ensure that the superior performance of current nozzles will be present in any new nozzle designs certified in the future. This will help safeguard public health benefits by preventing manufacturers from requesting the certification of less efficient nozzles that would lead to emission increases. Further, the proposed standard provides consistency between the certification procedures.

The proposed spillage performance standard is about 75% lower than the current standard for EVR nozzles, and about 50% lower than the current standard for ECO nozzles. Although it is substantially more stringent, the proposed standard of 0.050 lbs/kgal is about double the highest emission factor calculated for the different evaluation scenarios. Staff proposes the higher value of 0.05 lbs/kgal as the standard, rather than the maximum observed value, to provide a margin for potential variability in customer behavior at retail GDFs and to allow flexibility and innovation among nozzle manufacturers.

Because the currently certified nozzles already meet this proposed standard, implementation of the proposed standard would not require manufacturers to change the design of the currently certified nozzles. Further, an abbreviated administrative procedure (with no additional testing required) can be used to re-certify the nozzles as compliant with the proposed standard once it is adopted because CARB certification test data already demonstrate compliance. Additionally, as the currently certified nozzles meet the proposed nozzle spillage standard, GDF owners can continue to use their currently installed nozzles until the end of useful life. Compliance with the proposed amendments would not require GDF owners to replace installed nozzles. As a result, potential implementation costs to the regulated community would be negligible.

CARB staff is currently conducting certification testing for two manufacturers seeking addition to the next revision of CARB Executive Order NVR-1-E for each one of their ECO nozzle designs. Data submitted by the manufacturers for both prototype nozzles indicate the nozzles could achieve the proposed spillage performance standard. Even so, ECO nozzles currently under evaluation and testing will be certified per the current spillage performance standard of 0.12 lbs/kgal, assuming the certification evaluation process is completed before any proposed changes to spillage performance standards become effective. Once the new spillage standard becomes effective, CARB cannot certify any ECO nozzles not meeting the new standard. ECO nozzle manufacturers with nozzles not meeting the new standard and certified before the effective date of new standard will have up to four years to comply with the new standard.

E. Require Physical Samples of Certified Vapor Recovery Equipment

CARB staff proposes amendments to CP-201, CP-206, and CP-207 to require equipment manufacturers to provide CARB with physical samples of new systems and/or components once they have successfully demonstrated they meet applicable performance standards or specifications. The physical samples will be stored in a CARB equipment archive that can be used to identify and document possible undisclosed changes to equipment in the future.

1. The Problem

CARB certification procedures currently do not require manufacturers to submit physical samples of certified systems and components for CARB to archive. In recent years, manufacturers have voluntarily submitted samples upon CARB staff's request, but samples have not been requested for all certifications. Without archived physical samples of certified components, it has been difficult for CARB to enforce requirements, or hold manufacturers accountable, when undisclosed changes were made. Undisclosed changes made to component materials or dimensional specifications can negatively affect compliance with performance standards.

2. The Proposed Solution

CARB staff proposes amendments that require manufacturers to submit samples for first-time certifications and renewal certifications of systems or components that have design or material changes. Beginning on January 1, 2022, manufacturers would be required to submit one physical, intact and working sample of a system or component once it has successfully complied with applicable performance standards or specifications. In addition, the applicants would be required to submit a statement attesting that the submitted system or components are identical to those that were tested or evaluated by CARB staff. If requested by the CARB Executive Officer, manufacturers also would be required to provide cut-aways of certain components such as hanging hardware (nozzle, breakaway, etc.) in addition to the fully intact component requested above. The intent of the cut-away is to help visualize and explain the intricacies and operation of critical sub-parts by showing inner compartments' materials and dimensions. In lieu of submitting a complete system or component, in order to reduce costs where feasible, the CARB Executive Officer may request submission of sub-parts or sub-assemblies that are crucial in controlling emissions.

Nearly all manufacturers have submitted samples during the last four years, which CARB staff maintain in secure storage, so this proposed amendment has little actual impact on current practices and costs. However, requiring the submission of all newly certified systems and components, and systems and components with material or design changes, will improve the certification procedures for better enforceability. Maintaining samples of certified equipment allows for later comparison to systems or components that may be experiencing problems or complaints from end-users in the

field (GDF owners and operators). If issues or questions arise in the future, the archived physical samples can be examined.

F. Amend Test Procedures for Remote Fill Phase I System Configurations

Test Procedures TP-201.1C, *Leak Rate of Drop Tube/Drain Valve Assembly* and TP-201.1D, *Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves*, are the test procedures used to quantify the leak rate of spill container drain valve assemblies and overfill prevention devices located within the Phase I product drop tube on two-point Phase I systems. TP-201.1C and TP-201.1D are used to determine the compliance of components with the performance specifications for the maximum allowable leak rate as defined in CP-201, and were adopted by the Board on February 1, 2001, and last amended on October 8, 2003 [CARB, 2003a and 2003b]. According to both TP-201.1C and TP-201.1D, if while conducting the tests, the pressure gauge does not indicate the specified pressure within five minutes, the components do not comply with the maximum allowable leak rate specification.

1. The Problem

When TP-201.1C and TP-201.1D were adopted, the only certified Phase I EVR systems included direct fill drop tubes, where the fill and drop tube are located directly over the top of the UST openings. The five-minute maximum pressurization time was more than adequate for the length of these drop tubes. In 2007, a Phase I EVR remote fill configuration was certified, allowing for fill pipes and drop tubes to be located greater distances from the top of the UST. Within this certification process no maximum distance was specified in the CARB executive order. The five minutes allowed by the test procedures was adequate only until the remote fill systems reached a distance so great that the volume became too much to pressurize within the maximum time allowed.

In 2018, the South Coast Air Quality Management District (SCAQMD) encountered an issue where a permitted GDF with a remote fill Phase I configuration located approximately 120 feet from the UST tank top openings failed to meet the pressure-up time prescribed in TP-201.1D. In other words, when the length of the pipe increases, it creates more volume to pressurize during testing, which in turn may take greater than five minutes to pressurize. When allowed additional time to pressurize, the drop tube and drain valve assembly proved to be leak tight. At this particular GDF, it became evident that TP-201.1C and TP-201.1D (both developed when the length of remote fill configuration was no greater than 50 feet) are not designed to take into account fill pipes of greater than 50 feet in length. SCAQMD and other Air Districts have indicated that they may be permitting future GDFs with remote fill Phase I configurations with lengths greater than 50 feet; consequently, the inadequate maximum time allowed to pressurize in the test procedures will create additional instances where GDFs without leaks in their fill pipes fail without cause.

2. The Proposed Solution

CARB staff investigated, performed an engineering evaluation, conducted field and laboratory testing, and wrote a technical support document that described the results and identified a solution to address the issue [CARB, 2020j]. From this effort, CARB staff developed an equation derived from the theoretical equation, Boyle's Law, with listed practical assumptions, to equate the volume of nitrogen needed to fill the drop tube system. Applying the volume of nitrogen to the flow rate allows for the determination of time needed to pressurize the drop tube of specific lengths.

CARB staff proposes to amend both test procedures, TP-201.1C and TP-201.1D, to include a process for determining the length of the drop tube and conducting the testing in a way that accounts for the additional time needed to pressurize the length of piping, and to amend D-200 [CARB, 2019g], to include a definition for "remote fill". Maximum pressure-up time, if a system is remote fill, would be based upon ranges of fill piping length, as shown in Table 2.

Table 2: Time to pressurize GDF equipped with remote fill pipe configuration by length

Horizontal Length of Remote Fill Pipe (feet)	Time to Pressurize* (minutes)
≤ 50	5
$51 \leq 100$	10
$101 \leq 150$	15
$151 \leq 200$	20
$201 \leq 250$	25

* Time is based on a 4-inch diameter pipe and a flow rate of 200 cubic centimeters per minute.

The proposal to amend the test procedures will accommodate remote fill Phase I system designs as they become more common. The amended test procedures will be able to accommodate the longer remote fill piping runs, thereby preventing false indications of system leaks and improving the test procedures for better regulatory certainty.

G. Correct the Phase II EVR Upgrade Dates in CP-206

In 2019, staff presented to the Board amendments addressing the requirement for existing ASTs to delay their upgrade to Phase II EVR based upon their attainment status with the U.S. Environmental Protection Agency as being in nonattainment with the federal 8-hour ozone standard and their annual gasoline throughput. On July 25, 2019, the Board adopted these amendments, granting existing ASTs in

nonattainment areas that have an annual gasoline throughput of 480,000 gallons and less until the end of useful life of their existing pre-EVR Phase II systems before they are required to upgrade to Phase II EVR. The intent of the amendments was to grant all existing ASTs this delay in order to prevent costly upgrades before their current systems needed to be replaced. Additionally, the emission and cost estimates provided by the Initial Statement of Reasons (2019 Staff Report) [CARB, 2019b] and presented to the Board included all existing ASTs.

1. The Problem

When drafting the regulatory text for CP-206 to give existing ASTs at and below the throughput threshold additional time to upgrade to Phase II EVR, CARB staff inadvertently left in a date that was part of a prior draft alternative proposal. In three sections of CP-206, § 2.4.4, § 2.4.6, and § 2.4.7, amended in 2019, the date of March 13, 2015, signifies the initiation of the Phase II EVR requirement for new installations, and everything installed prior is an existing installation. March 13, 2015, is the date the first Phase II EVR system for ASTs was certified. After that date, all new ASTs meeting the configuration requirements to install the Phase II system were required to do so, and existing ASTs with the required configuration had until March 13, 2019, to upgrade.

The deadline for existing ASTs to upgrade to Phase II EVR requirements was March 13, 2019. Because the regulations to change the March 13, 2019, deadline happened after, CARB and Air District staff were concerned with inadvertently creating populations of existing ASTs that may not meet the Executive Order's definition of existing, but be a new installation when compared to the amended date of CP-206. Through agreement between CARB and Air District staff, using the Board Hearing date of July 25, 2019, as the date to determine whether an AST facility requiring Phase II vapor recovery is existing would reduce confusion and remove the possibility of a grey area for enforcement at the Air District level. Therefore, all AST facilities installed before July 25, 2019, are considered existing in regards to the Phase II EVR deadline. ASTs installed prior to this date, located in a nonattainment area, with an annual gasoline throughput of 480,000 gallons or less, will be granted until the end of useful life of their existing Phase II systems before they must upgrade to Phase II EVR.

By inadvertently maintaining the prior draft's date, March 13, 2015, CARB staff inadvertently created a population of existing ASTs, installed between March 13, 2015, and July 25, 2019, which regardless of annual throughput, would be required to upgrade to Phase II EVR. While compiling data and analyzing impacts and costs of the proposed 2019 amendments, CARB staff had assumed that these ASTs in the above timeframe were existing. The cost and emission estimates included in the 2019 Staff Report included these ASTs in the group of ASTs granted additional time to upgrade to Phase II EVR.

2. The Proposed Solution

To rectify the inadvertent use of the incorrect date, CARB staff proposes to replace the date, March 13, 2015, in three sections of CP-206, § 2.4.4, § 2.4.6, and § 2.4.7, with the date of the Board Hearing, July 25, 2019. By changing the “existing” date to July 25, 2019, the regulations would ensure that all the ASTs installed prior to that date would receive temporary cost relief by allowing additional time to upgrade. This amendment will restore the intent of the prior rulemaking, preventing costly early upgrades and a loss in the use of their currently installed system. All costs and emissions estimates associated with the 2019 AST Phase II EVR amendments assumed that existing ASTs were those installed prior to the July 25, 2019, Board Hearing and were included in the Staff Report for that rulemaking [CARB, 2019b]. By amending CP-206 to use the intended date of July 25, 2019, CARB staff will correct an oversight that will prevent confusion and inadvertent Phase II EVR upgrades by a population that was always intended to be granted additional upgrade time.

H. Various Administrative Changes

1. Effective and Operative Dates for ECO Nozzles in CP-207

In CP-207, *Table 2-1: Effective and Operative Dates for ECO Nozzle and Low Permeation Conventional Hose Performance Standards and Specifications* lists the operative dates for specific standards and specifications. For nozzle criteria, liquid retention, nozzle spitting, and insertion interlock, “Date when first applicable ECO Nozzle is certified” is listed under both the effective and operative dates.

a. The Problem

When the Board adopted CP-207 on April 23, 2015, no ECO nozzle had yet to be tested and certified by CARB staff. Therefore, the placeholder text “Date when first applicable ECO Nozzle is certified” was used instead of specific dates in Table 2-1 under both the Effective Date and Operative Date for nozzle spillage, post fueling drips, liquid retention, nozzle spitting, and insertion interlock. Now that CARB has certified an ECO nozzle, the placeholder text could be confusing for users (e.g., nozzle manufacturers who intend to apply for CARB certification or certification renewal).

b. The Proposed Solution

As of March 1, 2019, CARB certified an ECO nozzle as complying with the following CP-207 performance standards: nozzle spillage, post fueling drips, liquid retention, nozzle spitting, and insertion interlock. CARB staff proposes that under the Effective and Operative Date columns in Table 2-1, the placeholder language “Date when first applicable ECO Nozzle is certified” be replaced with “March 1, 2019”.

CARB staff’s proposal does not introduce any new requirements, and instead removes placeholder language written before the first nozzle was certified, to clarify that there is now an effective and operative date. The proposal is intended to improve CP-207 for better regulatory certainty and to reduce confusion.

2. Performance Standard versus Performance Specification in CP-207

Section 2 of CP-207 defines the terms “performance standard” and “performance specification”. Section 2 also describes the establishment of compliance deadlines when standards and specifications are amended, and identifies via Table 2-1 the effective and operative dates for ECO nozzle and low permeation conventional hose performance standards and specifications. In Section 3 of CP-207, Table 3.1 identifies three performance standards and five performance specifications applicable to ECO nozzles and low permeation conventional hoses:

**Table 3-1
ECO Nozzle and Low Permeation Hose Standards and Specifications**

Performance Type	Requirement	Sec.	Std. Spec.	Test Procedure
Spillage Including Drips from Spout	≤ 0.12 pounds/1,000 gallons	3.1	Std.	TP-201.2C
Post-Fueling Drips	≤ 3 Drops/Refueling	3.2	Spec.	TP-201.2D
Liquid Retention Nozzle “Spitting”	≤ 100 ml/1,000 gallons ≤ 1.0 ml per nozzle per test	3.3	Std.	TP-201.2E and Eng. Eval
Insertion Interlock	Verification of No Liquid Flow Prior to Interlock Mechanism Compression	3.4	Spec.	Testing and Eng. Eval.
Nozzle Spout and Insertion Interlock Dimensions:	Comply with dimensions specified in section 3.5.2.	3.5	Spec.	Direct Measurement
Nozzle/Dispenser Compatibility	Hold-open Latch Disengaged When Hung	3.6	Spec.	Testing and Eng. Eval.
Hose Permeation	≤ 10.0 g/m ² /day as Determined by UL 330 (7 th ed)	3.7 and 14	Std.	UL 330 (7 th ed)
Connectors and Fittings	No Indication of Liquid Leaks	3.8	Spec.	Visual

CP-207 was adopted on April 23, 2015. According to the 2015 Initial Statement of Reasons (2015 Staff Report) [CARB, 2015] regarding structure and content of CP-207, it was CARB’s intention to make the majority of content, including Section 2 pertaining to performance standards and specifications, substantially the same as CP-201, *Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities*. The following paragraph is an excerpt from the 2015 Staff Report:

“For simplicity and consistency, the certification process and performance standards specified in CP-207 are based on existing CP-201, which apply to EVR systems for UST. Staff intends that the certification process for ECO Nozzles should be essentially the same as the current process used for EVR systems. Table VIII-3 lists the sections of CP-207 that are substantially the same as existing sections within CP-201. Changes in those sections are limited to substituting the term “Phase I EVR” or “Phase II EVR” with “ECO Nozzle” and, in some cases, amending language slightly to address the fact that CP-207 focuses on certifying only two components (ECO Nozzles and low permeation hoses) rather than a complete vapor recovery system.”

a. The Problem

In 2018, the Board approved amendments to CP-207 to include more detailed ECO nozzle spout and insertion interlock dimensions to ensure compatibility with motor vehicle fill pipes [CARB, 2018c]. The amendments added text to CP-207 Section 2 in order to better align its language with Section 2 of CP-201. The amendments added five new paragraphs (sections 2.3.1 through 2.3.5) to describe how compliance deadlines are established when the standards and specifications are amended. In addition, the amendments included a new table (Table 2.1) that lists the operative and effective dates for the various ECO and low permeation conventional hose requirements. Although these edits improved the clarity and consistency of CP-207 with CP-201, the word “specification” remained inadvertently incorrectly placed within two locations of the first paragraph of Section 2.3. In addition, the definitions for “performance standard” and “performance specification” were both missing clarifying words that are included in the definitions in CP 201.

b. The Proposed Solution

CARB staff proposes amendments to make the language in Section 2 of CP-207 consistent with the language in Section 2 of CP-201. This action is needed to provide clarity and consistency for those seeking CARB certification or for other stakeholders seeking to understand how compliance deadlines are established when amendments to either performance standards or specifications are made. The amended text better explains the distinction between standards and specifications. The distinction is needed for determining compliance deadlines for existing GDFs when the regulation is amended to include new requirements. CARB staff’s proposal does not introduce any new requirements, and instead clarifies CP-207 for better regulatory certainty.

3. Title Change for CP-201 to Include Underground Storage Tanks

The Board adopted CP-201, *Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities*, on December 9, 1975, and has since amended CP-201 nineteen times. The Board approved the first EVR regulations incorporated into CP-201 in 2000. While CP-201 was intended for vapor recovery systems at GDFs with USTs, early on many of the requirements were applied to ASTs as well. Once the Board adopted CP-206, *Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities with Aboveground Storage Tanks*, on May 2, 2008, CP-201 became exclusively used to regulate GDFs with USTs.

a. The Problem

The title of CP-201 does not specify that it regulates only GDFs with USTs. Stakeholders have indicated to CARB staff that the lack of specificity has created confusion about the applicability of CP-201, particularly because only one paragraph in the entire document (Section 1, General Information and Applicability), explicitly states that the certification procedure applies to facilities equipped with USTs.

b. The Solution

To address this problem, CARB staff recommends amending the title of CP-201 to include the text “with Underground Storage Tanks” at the end of the title:

Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities with Underground Storage Tanks

This proposal is intended to reduce stakeholder confusion about the applicability of CP-201. The amendment would make the CP-201 title content mirror the content of the CP-206 title:

Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities with Aboveground Storage Tanks

CARB staff’s proposal does not introduce any new requirements, and would amend only the CP-201 title to clarify the applicability of CP-201 for better regulatory certainty.

4. Nozzle Dimension References to SAE J285 and J1140

In October 2018, the Board approved amendments to CP-201, CP-206, and CP-207, to standardize EVR and ECO nozzle spout and bellows dimensions to improve compatibility with newer motor vehicle fill pipes. This compatibility was necessary to reduce air ingestion at the nozzle, which is intended to help reduce pressure driven emissions caused by evaporation of gasoline within the GDF storage tank headspace. The amendments consist of 10 pages of text, figures, and tables that define the dimension specifications.

CARB staff worked with the Society of Automotive Engineers (SAE) Fuel Systems J285/J1140 Task Force (SAE Task Force) to develop and test the new dimension specifications [CARB, 2018a and 2018b]. The SAE Task Force was comprised of nozzle, vehicle, and fill pipe manufacturers. The SAE Task Force intended to complete the development effort and publish the new nozzle dimension specifications in 2018 as revised versions of these two documents:

- Surface Vehicle Recommended Practice SAE J285: Dispenser Nozzle Spouts for Liquid Fuels Intended for Use with Spark Ignition and Compression Ignition Engines. Revised April 2019.
- Recommended Practice SAE J1140: Filler Pipes and Openings of Motor Vehicle Fuel Tanks. Revised October 2019.

CARB staff initially intended to propose amending the certification procedures to incorporate the nozzle spout and bellows dimension specifications by reference to the revised versions of SAE J285 and SAE J1140, rather than including an additional 10 pages of identical materials in CP-201, CP-206, and CP-207 [CARB, 2018c]. Both nozzle manufacturers and automotive industry representatives endorsed this option because they prefer to have dimension requirements consolidated in standards

document(s) from one source [CARB, 2018c, page 22]. In addition, CARB staff endorsed this option because the 10 pages of text, tables, and figures make the certification procedures more cumbersome to navigate and yet are relevant for only about six nozzle manufacturers.

However, although the SAE Task Force completed the dimensions development effort in mid-2018, there was a delay in publication of the revised versions of SAE J285 and SAE J1140 [SAE, 2019a and 2019b]. As a result, the Board adopted the dimensions as part of the certification procedures in October 2018, and the California Office of Administrative Law approved the regulations in 2019.

CARB staff committed in the 2018 Initial Statement of Reasons to propose amendments to the certification procedures to incorporate the dimensions by reference to SAE J285 and SAE J1140 once the revisions are published [CARB, 2018c]. SAE has since published the revised versions of the two standards documents, SAE J285 in April 2019, and SAE J1140 in September 2019. CARB certification engineers compared the nozzle spout and bellows dimensions included in the certification procedures to the dimensions included in revised versions of SAE J285 and SAE J1140 and confirmed that the dimensions in the certification procedures are identical to the dimensions in SAE J285 and SAE J1140.

a. The Problem

CP-201, CP-206, and CP-207 each contain 10 pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in two SAE standards documents, J285 and J1140. These additional ten pages add complexity and length to already lengthy certification procedures, and yet are relevant primarily for only about six nozzle manufacturers. Both nozzle manufacturers and automotive industry representatives prefer to have dimension requirements consolidated in standards document(s) from one source. Otherwise, they need to complete detailed comparisons of the certification procedures and the SAE standards documents to cross-reference and ensure that they are using the correct (most restrictive) dimensions. This adds time and complicates their efforts to design new nozzle prototypes and prepare CARB certification applications.

b. The Proposed Solution

CARB staff proposes to incorporate SAE J285 (April 2019) and SAE J1140 (September 2019) by reference into the sections of CP-201, CP-206, and CP-207 related to nozzle criteria. These amendments would decrease the length of the certification procedures by ten pages of text, figures and tables. The amendments would reference specific sections, figures, and tables in SAE J285. The amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with SAE standards documents and reduce the chance for mistakes.

Incorporating the SAE documents by reference into the certification procedures would not introduce any new regulations nor change any existing regulations. The proposal is intended to improve the certification procedures for better regulatory certainty and cost-effectiveness.

5. Operative Date Language in Table 2-1 of CP-206

In CP-206, *Table 2-1: Effective and Operative Dates for Standing Loss Control, Phase I, and Phase II Vapor Recovery Performance Standards of § 2. Performance Standards and Specifications* lists the effective and operative dates for the standards and specifications for each requirement for ASTs. When no vapor recovery system has yet been certified that meets the requirements listed in Table 2-1, the placeholder text “when first system is certified” is used instead of specific dates. It is common CARB practice that once CARB certifies a system or component, then the date of certification is included the next time the certification procedure is amended.

a. The Problem

Table 2-1 in CP-206 contains placeholder language in two places instead of specific effective dates, even though a system has been certified as in compliance with CP-206 requirements. In the rows for “ORVR Compatibility,” “Nozzle Criteria,” “Liquid Retention Nozzle Spitting,” and “All other Phase II Standards and Specifications”, there is placeholder language, even though a Phase II EVR system was certified on March 13, 2015, that meets the requirements. The placeholder text could be confusing for users (e.g., equipment manufacturers who intend to apply for CARB certification or certification renewal).

b. The Proposed Solution

As of March 13, 2015, CARB certified a Phase II EVR system as complying with requirements in Table 2-1 for “ORVR Compatibility,” “Nozzle Criteria,” “Liquid Retention Nozzle Spitting,” and “All other Phase II Standards and Specifications”. CARB staff proposes that the placeholder language be replaced with date the first system was certified, “March 13, 2015”.

CARB staff’s proposal does not introduce any new requirements, and instead removes placeholder language written before the first system was certified, to clarify that there is now an effective date. The proposal is intended to improve CP-206 for better regulatory certainty and to reduce confusion.

III. THE SPECIFIC PURPOSE OF AND RATIONALE SUPPORTING EACH ADOPTION, AMENDMENT, OR REPEAL

This chapter provides the specific purpose of each proposed amendment and the rationale for CARB staff’s determination of why the proposed amendments are reasonably necessary to carry out the purpose of the provisions of law they are

implementing and to address the problems described in Chapter II. Appendices A through H provide the full text of the proposed regulatory amendments.

A. California Code of Regulations Title 17, Division 3, Chapter 1, Subchapter 8, Article 1

This section provides a summary and rationale for proposed amendments to §§ 94010, 94011, 94016 and 94017, which incorporate by reference CARB's vapor recovery definitions, certification procedures, and test procedures. Appendix A provides the full proposed regulatory language of these sections.

§ 94010. Definitions

Summary and Purpose of § 94010 Amendment. Section 94010 incorporates by reference the definitions listed in D-200, *Definitions for Vapor Recovery Procedures*, which describe common terms and acronyms used in the certification and test procedures specified in §§ 94011, 94016, and 94017. The proposed amendments change the last amended date to the proposed amendment date (likely to be in 2021).

Rationale for § 94010 Amendment. This change is necessary to incorporate by reference administrative changes and a new definition proposed by CARB staff, which would provide necessary clarification for applicability of the definitions and for performing Test Procedures TP-201.1C and TP-201.1D.

§ 94011. Certification of Vapor Recovery Systems at Gasoline Dispensing Facilities

Summary and Purpose of § 94011 Amendments. Section 94011 incorporates by reference CARB's CP-201, *Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities*. The proposed amendments add "Using Underground Storage Tanks" to the end of the § 94011 title and CP-201 title and change the last amended date for CP-201, TP-201.1C, TP-201.1D, and TP-201.2I to the proposed amendment date (likely to be in 2021).

Rationale for § 94011 Amendments. The change to the date is necessary to incorporate by reference the amended sections of CP-201, TP-201.1C, TP-201.1D, and TP-201.2I that pertain to the ISD overpressure alarms, ISD report format, ISD communication ports, nozzle spillage standard, test procedures for remote fill Phase I system configurations, physical sample requirements for vapor recovery equipment manufacturers, and various administrative changes.

§ 94016. Certification of Vapor Recovery Systems at Gasoline Dispensing Facilities Using Aboveground Storage Tanks

Summary and Purpose of § 94016 Amendments. Section 94016 incorporates by reference CARB's CP-206, *Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Aboveground Storage Tanks*. The proposed

amendments change the last amended date for CP-206 to the proposed amendment date (likely to be in 2021).

Rationale for § 94016 Amendments. The change to the date is necessary to incorporate by reference the amended sections of CP-206 that contain the nozzle spillage standard and various administrative changes.

§ 94017. Certification of Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses for Use at Gasoline Dispensing Facilities

Summary and Purpose of § 94017 Amendments. Section 94017 incorporates by reference CARB's CP-207, *Certification Procedure for Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses for Use at Gasoline Dispensing Facilities*. The proposed amendments change the last amended date to the proposed amendment date (likely to be in 2021).

Rationale for § 94017 Amendments. The change to the date is necessary to incorporate by reference the amended sections of CP-207 that contain the spillage standard for ECO nozzles and various administrative changes such as including the effective and operative dates for standards and specification for the ECO nozzle as the date that the first nozzle was certified.

B. CARB D-200, Definitions for Vapor Recovery Procedures

Summary and Purpose of D-200 Amendments. The following is a summary of the specific regulatory amendments that are proposed for D-200. The proposed amendments include changes to the first sentence of Section 1 (Applicability) to add "using Underground and Aboveground Storage Tanks", and delete "and Aboveground Storage Tanks" from the end of the sentence. The proposed amendments also add two terms and a definition used in respect to vapor recovery nozzle components and performance of Test Procedures TP-201.1C and TP-201-1D. Appendix B provides the full proposed regulatory language of D-200, shown in strike and underline format.

Rationale for D-200 Amendments. The changes to Section 1 are necessary to clarify applicability of definitions. The added terms and definition are necessary to clarify and define terms used in CP-201, SAE J285 and SAE J1140 (incorporated by reference in CP-201, CP-206, and CP-207), and proposed amendments to TP-201.1C and TP-201.1D.

Bellows (boot) – This term is proposed to be added to D-200 solely to point the reader to an existing term and definition for "nozzle bellows (nozzle boot)." The proposed term is less specific than the existing term, but is commonly used and interchangeable with the existing term. Including the proposed term improves clarity for the end user.

Calibration holes - This term is proposed to be added to D-200 solely to point the reader to an existing term and definition for “nozzle bellows calibration holes.” The proposed term is less specific than the existing term, but is commonly used and interchangeable with the existing term. Including the proposed term improves clarity for the end user.

Remote fill – This term and definition are proposed to improve clarity of the proposed amendments to the test procedures, TP-201.1C and TP-201.1D. The proposed term and definition describe a Phase I system configuration addressed in proposed amendments to the test procedures that are intended to allow for more time for system pressurization upon conducting the test, based on length of the fill pipe at storage tank installations where the fill adaptor is not located directly over the gasoline storage tank. Remote fill is defined as the transfer of gasoline to a gasoline storage tank where the product and vapor pathways (including product and vapor adaptors) are offset some horizontal distance from the vertical product and vapor risers on the storage tank top.

C. CARB Certification Procedure 201 – Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities

The following is a summary of the specific regulatory amendments proposed for CP-201 and associated test procedures incorporated by reference. Appendix C provides the full proposed regulatory language of CP-201, shown in strike and add format.

Title Page and First Page of Regulatory Text of Certification Procedure

Title of CP-201, Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities

Summary and Purpose for Title Amendment. The title of the certification procedure is intended to indicate the specific systems to which the certification procedure is applicable. CP-201 was adopted on December 9, 1975, for use on GDFs with USTs; however, the title never specifically mentioned USTs. In the subsequent decades, CARB adopted additional certification procedures for bulk plants, terminals, cargo tanks, novel facilities, and ASTs, all of which indicate these systems in their titles. Staff proposes two administrative changes within CP-201 as follows:

- Within the title page of CP-201, staff proposes the addition of “Using Underground Storage Tanks” to the end of the document title. With this change, the title of the document would change from “Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities” to “Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Underground Storage Tanks”.
- Within the heading of page one of CP-201, staff proposes the addition of “Using Underground Storage Tanks” to the end of the heading title. With this change, the heading would change from “Certification Procedure for Vapor

Recovery Systems at Gasoline Dispensing Facilities” to “Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Underground Storage Tanks”.

Rationale for Title Amendment. The changes to the title of CP-201 are administrative and are intended to provide clarity for vapor recovery equipment manufacturers seeking CARB certification, and for Air District staff or any stakeholders that are seeking to familiarize themselves with system requirements, or for those interested in the certification process. As currently written, the title of CP-201 does not specify that it regulates only GDFs with USTs. Stakeholders have indicated to CARB staff that the lack of specificity has created confusion about the applicability of CP-201, particularly because only one paragraph in the entire document (§ 1, General Information and Applicability), explicitly states that the certification procedure applies to facilities equipped with USTs. The proposed amendments to the title are intended to reduce stakeholder confusion about the applicability of CP-201.

§ 1. General Information and Applicability

Summary and Purpose of § 1 Amendment. Section 1 describes the purpose and applicability of CP-201 in evaluating and certifying Phase I and Phase II vapor recovery systems, and components, used at GDF with USTs. The proposed amendment to the second paragraph of § 1 is an administrative change to add the phrase “using underground storage tanks” to clarify the purpose and to mirror both the amendment to the title described directly above and the existing sentence structure of the first paragraph.

Rationale for § 1 Amendment. The change to § 1 is an administrative change intended to provide clarity for vapor recovery equipment manufacturers seeking CARB certification, and for Air District staff or any stakeholders that are seeking to familiarize themselves with system requirements, or for those interested in the certification process. Amending the second paragraph to include the phrase “using underground storage tanks” clarifies the applicability of the certification procedure, provides an important distinction between similarly titled certification procedures, and aligns the language with the amendments to the title as described above.

§ 2. Performance Standards and Specifications

§ 2. Performance Standards and Specifications, Table 2-1: Effective and Operative Dates for Phase I and Phase II Vapor Recovery Performance Standards and Specifications

Summary and Purpose of Table 2-1 Amendments. Section 2 provides all the performance standards and specifications for the certification and operation for any EVR system certified for use at GDFs with USTs in California. Table 2-1 is intended to be used as a reference for the effective and operative dates for various standards and specifications for each Phase I, Phase II, and ISD requirement. There are four proposed amendments to Table 2-1:

- The first proposed amendment removes the reference to Table 4.2 in the row for "Nozzle Spout Assembly Dimensions Including Nozzle Bellows." Per an additional proposed change described later in this section (for § 4.7.3), the dimensions would be incorporated by reference to two SAE documents (SAE J285 and SAE J1140) in § 4.7.3 and therefore the reference to Table 4.2 is now unnecessary.
- The second amendment modifies columns two, four and five in row ten for Spillage. Per an additional proposed change described later in this section (for § 4.3), the spillage requirement in column two is changed from 0.24 to 0.05 lbs/kgal. The amended standard resets the need for new effective and operative dates once a nozzle is certified or its certification renewed. Therefore, the columns for effective and operative dates are changed from April 1, 2005 to "Date when first nozzle type is certified."
- The third proposed amendment to Table 2-1 is to include the new row for "Ullage Pressure Vapor Containment Monitoring," which calls out "As specified in § 9.2.4(a) and § 9.2.4(b)" as the requirement, "9.2" as the section, and "Date when first ISD type is certified" as the effective and operative dates. This is a new proposal described later in this section (for § 9.2), which necessitates its addition to Table 2-1 for effective and operative dates.
- The fourth proposed amendment to Table 2-1 is to include the effective and operative date for the last row for "Low Permeation Hoses." A low permeation hose meeting the standard was certified for the assist system on September 24, 2014, and the columns for the dates are updated to reflect the change.

Rationale for Table 2-1 Amendments. The rationales for the proposed administrative amendments to Table 2-1 are as follows:

- The first proposed change to Table 2-1, to remove the reference to Table 4.2 in the seventh row, is an administrative change required to reflect another amendment described later in this section (for § 4.7.3) where the nozzle assembly and bellows dimensions have been incorporated by reference and Table 4-2, which lists the dimensions, is to be deleted. The deletion of Table 4-2 therefore requires the deletion of its reference in Table 2-1 to provide clarity and consistency for vapor recovery equipment manufacturers seeking CARB certification.
- The second proposed change to Table 2-1 is required to update the reference in Table 2-1 to § 4.3 (described later in this section), where the performance standard for nozzle spillage is lowered from 0.24 to 0.05 lbs/kgal. CARB staff's proposal to change the spillage standard in § 4.3 requires the reference for the effective and operative dates in Table 2-1 for spillage to be changed to "Date when first nozzle type is certified." An amended standard necessitates a new effective and operative date for when the first nozzle is certified or renewed to meet the new standard. This change provides clarity and consistency between sections of CP-201 for nozzle manufacturers.

- The third proposed change to Table 2-1 is the inclusion of a new row for “Ullage Pressure Vapor Containment Monitoring.” This change is required to indicate the proposed language in § 9.2.4 (a) and (b) (described later in this section) as to how it pertains to the effective and operative dates for Table 2-1. The amended requirement necessitates new effective and operative date for when the first ISD system is certified or renewed that meets the new requirement. This change provides clarity and consistency between sections of CP-201 for ISD system manufacturers.
- The fourth proposed change to Table 2-1 is for the inclusion of the effective and operative dates for the last row, “Low Permeation Hoses.” This change is required to indicate the date when a low permeation hose meeting the standard was certified for assist systems, and to improve clarity and ease of use for manufacturers and end users.

§ 2.4.8 in § 2.4 Additional or Amended Performance Standards or Performance Specifications

Summary and Purpose for § 2.4.8 Amendment. The proposed change to § 2.4.8 clarifies the intent of the section by rearranging language related to the nozzle’s end of useful life.

Rationale for § 2.4.8 Amendment. This administrative change is necessary to clarify the intent of the section for the end user by correcting grammatical mistakes.

§ 2.4.9 in § 2.4 Additional or Amended Performance Standards or Performance Specifications

Summary and Purpose for § 2.4.9 Amendment. The new § 2.4.9 is proposed to explicitly specify that existing GDFs that operate on or before the effective date for the proposed amendments to the ullage pressure vapor containment system requirements (as described below for § 9.2.4) shall not be required to replace their ISD systems until the end of useful life of that system. [In contrast, all replaced ISD systems must comply with the requirements of § 9.2.4.]

Rationale for § 2.4.9 Amendment. This proposed amendment is necessary to explicitly specify for GDF owners and operators their upgrade requirements once an ISD system is certified as complying with the requirements of the proposed § 9.2.4. The proposed amendment allows GDF owners and operators to maintain their current ISD systems until the end of useful life. As described in section II.A.2 of Chapter II (pages 16-19), the proposed amendments to § 9 are intended to eliminate overpressure alarm response costs that do not reduce emissions, which improves the cost-effectiveness of implementing EVR regulations. The proposed amendment to § 2.4.9 is needed to provide flexibility for existing GDFs by making the installation of updated ISD software voluntary so that owners/operators of existing GDFs with no overpressure alarms, or those GDFs where the operators/owners determine that it is

more costly to install upgraded software than to respond to ISD overpressure alarms, could choose to not upgrade their ISD software.

§ 4. Phase II Performance Standards and Specifications Applicable to All Phase II Vapor Recovery Systems

§ 4. Phase II Performance Standards and Specifications Applicable to All Phase II Vapor Recovery Systems, Table 4-1

Summary and Purpose of Table 4-1 Amendment. Section 4 provides a list of the performance standards and specifications for the certification and operation of Phase II vapor recovery systems certified for use on GDFs with USTs in California. Table 4-1 summarizes the standards and specifications for Phase II vapor recovery systems and the test procedures to which they are tested. The proposed amendment changes the nozzle spillage performance standard in column two, row three, from 0.24 to 0.05 lbs/kgal, for consistency with the proposed amendment to § 4.3 described below.

Rationale for Table 4-1 Amendment. The proposed administrative change to Table 4-1 is required for consistency with the proposed amendment to the spillage standard in § 4.3 described below.

§ 4.1.2 of § 4.1 Phase II Emission Factor/Efficiency

Summary and Purpose of § 4.1.2 Amendment. Section 4.1 provides the method for the determination of the Phase II emission factor and efficiency. The proposed amendment removes an acronym (UST) that is not necessary for the understanding of the subsection because the full phrase (underground storage tank) is already included.

Rationale for § 4.1.2 Amendment. The change to §4.1.2 is administrative and provides clarity while removing excess language not necessary for the understanding of the subsection.

§ 4.3.1, 4.3.2, and 4.3.3 in § 4.3 Spillage

Summary and Purpose of § 4.3 Amendment. Section 4.3 provides the performance standard for the certification of vapor recovery nozzles in order to prevent excessive liquid gasoline spillage during customer fueling events. The proposed changes include:

- Removing an extra space in the second sentence of § 4.3.1 for administrative clarity;
- Changing the nozzle spillage standard requirement listed in § 4.3.1 from 0.24 to 0.05 lbs/kgal to preserve emission reductions that are already occurring and prevent emissions from increasing; and
- Correcting the numbering for § 4.3.2 and § 4.3.3, for administrative clarity.

Rationale for § 4.3 Amendment. The changes to § 4.3 are necessary because:

- Removing extraneous spaces in the second sentence of § 4.3.1 fixes grammar and improves clarity for the end user.
- The proposal to lower the performance standard for spillage from 0.24 to 0.05 lbs/kgal in §4.3.1 is necessary to preserve the superior performance accomplished by all of the currently certified nozzles, which all achieve the proposed standard. As described in more detail in section II.D of Chapter II (pages 22-23), CARB staff compiled and evaluated mass emission factors for nozzle spillage based on CARB certification test data for five nozzles certified since the Board adopted EVR and ECO nozzle regulations [CARB, 2020h]. Staff found that the mass emission factors based on certification data for all five nozzles are substantially lower than CARB performance standards. The highest mass emission factor observed for any of the three EVR nozzles (0.026 lbs/kgal) is only approximately a tenth of the current EVR performance standard (0.24 lbs/kgal in CP-201 and CP-206). The highest mass emission factor observed for the two ECO nozzles (0.027 lbs/kgal in CP-207) is only a quarter of the current ECO performance standard (0.12 lbs/kgal). If the performance standards are not amended to preserve this superior performance, manufacturers would be allowed to introduce new nozzles that perform less efficiently and result in higher emissions while still complying with current performance standards. To prevent the potential for increased emissions, the performance standards need to be lowered to reflect the performance of currently certified nozzles. Also, as described in more detail in sections II.D.1 and II.D.2 (pages 22-24), the proposed standard provides consistency between the certification procedures (CP-201, CP-206, and CP-207) and enables more accurate GDF emission estimates for Statewide Implementation Plan emission inventories and Air District permits.
- The proposed change to correct the numbering of §4.3.2 and §4.3.3 fixes a numbering error and is necessary to improve readability for the end user.

§ 4.7.3 in § 4.7 Nozzle Criteria

Summary and Purpose of § 4.7.3 Amendments. Section 4.7.3 provides the reference to Table 4-2 for the Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows where all the dimensions and their descriptions are listed in detail. The proposed amendments to § 4.7.3 remove the reference to the table (proposed removal of Table 4-2 described below) and instead incorporates by reference the dimensions specified in Table 2 (page 9), Figure 2 (page 16), and Figure 3 (page 17) of SAE J285 (Rev APR2019).

Rationale for § 4.7.3 Amendments. The proposed change is necessary to decrease the length of the certification procedures by ten pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in SAE J285 and SAE J1140. The proposed amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with

SAE standards documents and reduce the chance for mistakes. As described more in section II.H.4 of Chapter II (pages 32-33), both nozzle manufacturers and automotive industry representatives endorsed incorporating the dimensions by reference to the two SAE documents because they prefer to have dimension requirements consolidated in standards document(s) from one source [CARB, 2018c, page 22]. In addition, CARB staff endorsed this option because the 10 pages of text, tables, and figures make the certification procedures more cumbersome to navigate and yet are relevant for only about six nozzle manufacturers. CARB certification engineers compared the nozzle spout and bellows dimensions included in the certification procedures to the dimensions included in revised versions of SAE J285 and SAE J1140 and confirmed that the dimensions in the certification procedures are identical to the dimensions in SAE J285. Incorporating specific sections, tables, and figures in the SAE documents by reference into the certification procedures would not introduce any new regulations nor change any existing regulations.

Table 4-2, Phase II Nozzle Spout Assembly Dimension Including Nozzle Bellows and corresponding Figures 4A and 4B

Summary and Purpose of Table 4-2 and Figures 4A and 4B Amendment. Table 4-2 provides the dimension ranges, with a description, for the nozzle spout assembly and nozzle bellows dimensions developed in collaboration with the SAE Task Force. (See section II.H.4 in Chapter II for a description of the SAE Task Force and rulemaking history of the nozzle spout and bellow dimensions). Figures 4A and 4B provide illustrations to correspond to the dimensions listed in Table 4-2. The proposed change would delete Table 4-2 and Figures 4A and 4B from CP-201 and instead incorporate the same information by reference to SAE J285 (described above).

Rationale for Table 4-2 and Figures 4A and 4B Amendment. The proposed change is necessary to decrease the length of the certification procedures by ten pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in SAE J285 and SAE J1140. As described more above, the proposed amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with SAE standards documents and reduce the chance for mistakes. Incorporating specific sections, tables, and figures in the SAE documents by reference into the certification procedures would not introduce any new regulations nor change any existing regulations.

§ 4.7.4 in § 4.7 Nozzle Criteria

Summary and Purpose of § 4.7.4 Amendment. Section 4.7.4 references Table 4-2 for the Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows and describes specific geometries for nozzle dimensions in § 4.7.4 (a) through (g). The proposed change to § 4.7.4 would delete the reference to Table 4-2, which is proposed for deletion above, and would delete the geometries listed in § 4.7.4 (a) through (g). All deleted text would be incorporated by reference to SAE J285 and J1140 per the addition of this proposed language: "Table 2 (page 9) of SAE J285 (Rev APR2019)" and "Method 3, Section 3.10 (pages 10-13) and Figure 1 (Method 3,

page3), Figure 7 (page 10), Figure 8 (page11), Figure 9 (page 12), and Figure 10 (page 13) of SAE J1140 (Rev OCT2019).”

Rationale for § 4.7.4 Amendment. The rationale for the deletion of the reference to Table 4-2 and the specific geometries and their incorporation by reference to specific sections, tables, and figures of SAE J285 (Rev APR2019) and SAE J1140 (Rev OCT2019) is the same as described for the deletion of Table 4-2 and Figures 4A and 4B above. Incorporating the same information by reference reduces CP-201 page length, improves clarity, saves end users time, and does not introduce any new regulations nor change any existing regulations.

Figures 4C through 4G in § 4.7 Nozzle Criteria

Summary and Purpose of Figures 4C through 4G Amendment. Figures 4C through 4G provide illustrations for nozzle geometries described in § 4.7.4 (a) through (g). The proposed amendment above removes (a) through (g) of § 4.7.4 and therefore the figures referenced in (a) through (g) should be removed for consistency. All information in Figures 4C through 4G are incorporated by reference per the proposed language for § 4.7.4 described above.

Rationale for Figures 4C through 4G Amendment. The rationale for deleting Figures 4C through 4G is the same as that for the proposed deletion of (a) through (g) in § 4.7.4 described above. All information found in Figures 4C through 4G will be incorporated by reference per the proposed language for § 4.7.4 (described above) and is redundant to include in CP-201.

§ 9. In-Station Diagnostic Systems

§ 9.1.3 of § 9.1 General Requirements

Summary and Purpose of § 9.1.3 Amendment. Section 9.1.3 describes the requirement for ISD systems to be equipped with an RS-232 port to remotely access ISD status information using standardized software. The RS-232 port allows access for contractors and regulators to download ISD reports using a standard serial cable connected between the ISD system console and a laptop computer. The proposed changes would modify the language that requires the RS-232 port to be equipped in all ISD consoles to instead allow ISD manufacturers to install an alternative communication port, so long as it is readily available and approved by the Executive Officer.

Rationale for § 9.1.3 Amendment. As described more in section II.C.1 (page 20), the RS-232 port is antiquated technology and becoming obsolete, as indicated by laptop technology migration from RS-232 to USB technology. Most new computers and laptops have only standard USB ports, so contractors and regulators need to purchase additional equipment, such as adapters or more than one cable type, to be able to connect to the ISD console. In addition, during long data downloads, adapters often lose communication during the download. Also, ISD manufacturers have reported difficulty in procuring RS-232 communication modules and, when found, they prove to

be costly. The proposed amendment allows manufacturers to install modern communication ports, which would reduce costs for manufacturers and improve the access and quality of downloaded data from the ISD system for GDF contractors, Air District inspectors, and CARB staff.

§ 9.1.7 of § 9.1 General Requirements

Summary and Purpose of § 9.1.7 Amendment. Section 9.1.7 requires that the ISD system include self-testing that is verified in the certification process by CARB staff. The proposed addition and deleting of text in § 9.1.7 clarifies the intent of the section.

Rationale for § 9.1.7 Amendment. The change to § 9.1.7 is required to clarify the intent of the section and improves its grammar.

§ 9.1.10 of § 9.1 General Requirements

Summary and Purpose of § 9.1.10 Amendment. Section 9.1.10 provides Executive Officer responsibilities during ISD certification testing. The proposed text deletion is of an extra space between sentences one and two.

Rationale for § 9.1.10 Amendment. The change to § 9.1.10 is required to correct the grammatical error of unnecessary extra space between sentences.

§ 9.2.4 of § 9.2 Monitoring Requirements

Summary and Purpose of § 9.2.4 Amendments. Section 9.2.4 sets forth the ullage pressure vapor containment monitoring requirements for ISD systems. The proposed text additions and deletions include:

1. In § 9.2.4 (a) the proposed text defines the minimum amount of UST ullage pressure and ullage volume data (the 14 most recent days) that must be stored and available for download from the ISD system.
2. The text of the existing § 9.2.4 (b) that requires gross failure malfunction criteria for USD ullage pressure is proposed to be deleted.
3. The text of the existing § 9.2.4 (b) is to be replaced with proposed new text that describes the requirements for a new UST ullage pressure report.
4. The text of the existing § 9.2.4 (c) that requires degradation malfunction criteria for USD ullage pressure is proposed to be deleted.
5. The subsection numbering for § 9.2.4 (d) would change to “§ 9.2.4 (c)” because of the proposed deletion of the degradation malfunction criteria. The proposed amendments also include a correction to capitalization.

Rationale for § 9.2.4 Amendments. The rationale for the changes to § 9.2.4 are as follows:

1. The proposed text changes to § 9.2.4 (a) are required because, as described in detail in section II.A in Chapter II (pages 14-15), CARB staff’s evaluation found

the majority of GDFs throughout California have ISD systems that do not store enough pressure data to adequately characterize long-term conditions at a given GDF [CARB, 2020g]. More than 90 percent of California GDFs subject to ISD requirements have ISD systems that save only 30 hours of pressure data, and less than 10 percent have ISD systems that save 14 days. However, the findings indicate that 30 hours of pressure data cannot characterize long-term conditions (e.g., monthly pressure driven emissions) due to the variability in the daily pressures at a given GDF. The evaluation found that 14 days of pressure data significantly improves long-term emission estimates and understanding of site conditions.

2. The existing § 9.2.4 (b) gross failure malfunction criteria are proposed to be deleted because, as described in detail in section II.A.1 in Chapter II (pages 13-14), the criteria and associated ISD overpressure alarms do not accomplish the purpose of the ISD system, which is to alert GDF operators of potential repairable vapor recovery equipment problems and allow them to take timely corrective action. ISD overpressure alarms are causing response costs for many GDF owners without reducing air pollutant emissions. The analysis presented in Appendix J found that more than 95 percent of overpressure alarms are not associated with any repairable vapor recovery equipment problem, and that other ISD alarms, routine inspections, and compliance testing would find the equipment problems that could cause excess pressure driven emissions. The findings indicate the ISD overpressure alarms can be eliminated—the gross failure and degradation alarm criteria requirements for ISD software can be removed from CP-201—without any impact on GDF emissions. Removing the gross failure and degradation alarm criteria requirements for ISD software could eliminate overpressure alarm response costs for more than 5,000 GDFs throughout California and reduce accidental clearing of and operator complacency toward responding to the remaining ISD alarms, which are effective at identifying repairable vapor recovery equipment problems that can lead to increased emissions. The alternatives analysis in Chapter IX (pages 100-104) explains why deleting the gross failure and degradation malfunction criteria is the most reasonable way to improve cost-effectiveness for GDF owners and operators, based on the results of comprehensive field studies conducted by CARB staff in collaboration with industry and Air Districts.
3. The text of the existing § 9.2.4 (b) is proposed to be replaced with proposed requirements for a new UST ullage pressure data report because, as described in section II.A.1 (pages 14-16), there are multiple ongoing needs for more detailed UST ullage pressure informational reports. For example, easily accessible monthly pressure reports with long-term data would help service contractors conduct more effective trouble shooting to identify equipment problems (e.g., vapor leaks and inoperable vapor processors) and their causes. The additional data and reports could reduce the need for multiple site visits and time-consuming pressure data analysis. Reducing time needed for site visits and data analysis would reduce costs for GDF operators.

4. The existing § 9.2.4 (c) degradation malfunction criteria are proposed to be deleted for the same reasons described above for deleting the gross failure malfunction criteria.
5. Changing the subsection numbering for § 9.2.4 (d) to “§ 9.2.4 (c)” maintains the correct numbering sequence of subsections, and the correction to capitalization improves grammar, both of which are needed to prevent confusion for end users.

§ 9.3.3 of § 9.3 Records

Summary and Purpose of § 9.3.3 Amendment. Section 9.3.3 provides the requirements of what information, and its format, for the daily report provided by the ISD system. The proposed text requires reported UST ullage pressure values to be reported with a minimum of two decimal places, requires the report daily event dates to be in a specific format that identifies the year, clarifies that daily measured values for (f) are A/L ratios, and deletes incorrect text and punctuation.

Rationale for § 9.3.3 Amendment. The proposed amendments for reported decimal places are necessary because CARB staff analysis found that pressure values with only one decimal place in ISD reports have significantly more rounding and accuracy issues that reduce the ability to use the pressure values to identify sites that may have elevated pressure driven emissions [see section II.B in Chapter II (page 19); CARB, 2020g]. The addition of a specific date format is necessary because, depending upon which ISD software version is installed, the daily report headers and rows are not adequately labeled on the downloaded electronic versions to identify the month and year to which the report pertains. The daily reports also do not adequately identify the year, which makes reading old reports and record keeping difficult. Specifically calling out measured values as air to liquid (A/L) ratios in subsection (f), and the deletion of excess text and punctuation, are necessary to reduce confusion and uncertainty for the end user; these proposed changes do not introduce new requirements nor change existing requirements.

§ 9.8 Electronic Access

Summary and Purpose of § 9.8 Amendment. Section 9.8 provides the requirements that all ISD reports shall always be accessible electronically with standardized software, through an RS-232 serial communication port on the ISD system console. Consistent with the proposed amendments for § 9.1.3 described earlier, the proposed amendments to § 9.8 would modify the language that requires the RS-232 port to instead allow ISD manufacturers to install an alternative communication port, so long as it is readily available and approved by the Executive Officer, for downloading the reports.

Rationale for § 9.8 Amendment. The rationale for these proposed changes to § 9.8 are the same as the rationale for the proposed changes to § 9.1.3 described earlier.

§ 16 Duration and Conditions of Certification

§ 16.8 Compliance Enforcement

Summary and Purpose of § 16.8 Amendments. Section 16.8 sets forth the requirement that the Executive Officer may cause the review, inspection, and/or testing of any component certified under CP-201 to determine ongoing compliance with certification procedure requirements and standards. The proposed amendments create a new § 16.8.1 that requires manufacturers beginning on January 1, 2022, to submit one physical, intact/working sample of a system or component once it has successfully complied with applicable performance standards or specifications, along with a statement attesting that the submitted system or components are identical to those that were tested or evaluated by CARB staff. If requested by the CARB Executive Officer, manufacturers also would be required to provide cut-aways of certain components such as hanging hardware (nozzle, breakaway, etc.) in addition to the fully intact item requested above. In lieu of submitting a complete system or component, in order to reduce costs where feasible, the CARB Executive Officer may request submission of only sub-parts or sub-assemblies that are crucial in controlling emissions. The proposed requirements of this new section do not apply to renewal certifications for systems or components that have no change to designs or materials. The current text of §16.8 will become a new subsection §16.8.2.

Rationale for § 16.8 Amendments. The proposed amendments are necessary because without archived physical samples of certified components, it has been difficult for CARB to enforce requirements, or hold manufacturers accountable, when undisclosed changes were made. Undisclosed changes made to component materials or dimensional specifications can negatively affect compliance with performance standards. Cut-aways are sometimes necessary to help visualize and explain the intricacies and operation of critical sub-parts by showing inner compartments' materials and dimensions. Maintaining samples of certified equipment allows for later comparison to systems or components that may be experiencing problems or complaints from end-users in the field. CARB staff does not recommend archive samples be required for re-certifications of systems or components that have no change to designs or materials because doing so would cause an unnecessary cost. Nearly all manufacturers have voluntarily submitted samples during the last four years, which CARB staff maintains in secure storage. In addition, CARB staff recommends the CARB Executive Officer have discretion to identify when sub-parts or sub-assemblies that are crucial in controlling emissions can be submitted in lieu of complete systems or components, and to identify when cut-aways are required, to avoid unnecessary expenses for equipment manufacturers. These amendment attributes minimize material and storage resources, and associated potential environmental impacts (Chapter VI, pages 73-75), so that compliance with the proposed amendments has no significant impacts on the environment.

Test Procedure 201.1C – Leak Rate of Drop Tube/Drain Valve Assembly

The following is a summary of the specific regulatory amendments proposed for TP-201.1C. Appendix F provides the full proposed regulatory language of TP-201.1C, shown in strike and add format.

§ 1 Purpose and Applicability

Summary and Purpose of Header and § 1 Amendments. Section 1 provides the purpose and applicability of Test Procedure TP-201.1C to determine compliance with the performance specification for maximum allowable leak rate as defined in CP-201. The proposed amendment to the header corrects the full name of the California Air Resources Board. The proposed amendment to § 1 adds “Using Underground Storage Tanks” to the end of the title of CP-201.

Rationale for § 1 Amendment. The proposed amendments to the header and § 1 are administrative and do not add any new test requirements or change existing requirements. They are necessary to provide clarity on the applicability of TP-201.1C for contractors and regulators who perform testing, and to provide consistency with proposed amendments to the CP-201 title described earlier.

§ 3.3 and § 3.4 of § 3 Biases and Interferences

Summary and Purpose of § 3.3 and § 3.4 Amendment. Section 3 provides the biases and interferences that may occur while performing TP-201.1C. The new proposed subsections identify the biases and interferences for remote fill Phase I configurations.

Rationale for § 3.3 and § 3.4 Amendment. The addition of § 3.3 and § 3.4 is required to identify potential biases and interferences that may occur when performing the newly proposed steps while testing UST systems with remote fill configurations, which is explained further below.

§ 5.8 and § 5.9 of § 5 Equipment

Summary and Purpose of § 5.8 and § 5.9 Amendment. Section 5 describes the equipment needed to perform TP-201.1C. The proposed new subsections identify the additional equipment needed when testing UST systems with remote fill Phase I configurations.

Rationale for § 5.8 and § 5.9 Amendment. The addition of § 5.8 and § 5.9 is required to identify additional equipment necessary for contractors and regulators to perform the newly proposed steps for testing UST systems with remote fill configurations, which is explained further below.

§ 6.4 of § 6 Pre-Test Procedures

Summary and Purpose of § 6.4 Amendment. Section 6 describes the procedures to take place prior to testing. The proposed new § 6.4 requires the length of the product remote fill pipe to be measured and recorded on the field data sheet.

Rationale for § 6.4 Amendment. The addition of § 6.4 is required to be able to determine the maximum amount of time a specific GDF system is allowed for pressurizing the remote fill pipe, which will vary based upon length of the fill pipe. The proposed subsection reduces the bias towards failure for those systems with greater remote fill pipe lengths.

§ 7 Test Procedure

Summary and Purpose of § 7 Amendments. Section 7 lists the steps required to perform the test procedure. The proposed new language notifies the reader (contractors and regulators who perform the test) that there is a <new> test procedure section specifically for remote fill systems and makes minor grammatical edits to improve clarity.

Rationale for § 7 Amendment. The proposed amendments to § 7 are required to identify that there is a new section added to TP-201.1C for the test procedure for remote fill configurations and to correct minor grammatical errors. The proposed amendments are necessary to improve clarity and readability of the test procedure.

§ 8 Test Procedure (Remote Fill) and Table 1

Summary and Purpose of § 8 and Table 1 Amendment. The proposed new § 8, including Table 1, lists the steps required to perform the test procedure for remote fill configurations. Most of the newly proposed language is identical to the procedure for testing a non-remote system (§ 7); a key difference is the reference to the proposed Table 1, which identifies the maximum time allowed to pressurize the system based on horizontal length of the remote fill pipe.

Rationale for § 8 and Table 1 Amendment. The newly proposed § 8 and Table 1 are necessary to identify the new steps in the test procedure for TP-201.1C, specifically that additional time is allowed for pressurizing GDFs with remote fill configurations. Due to space constraints at some GDFs, the product fill may be located at some horizontal distance from the top openings of the UST (i.e., 'remote fill'), a configuration that was no longer than 50 feet when CARB adopted TP-201.1C and TP-201.1D. The proposed amendments are needed to accommodate remote fills that are longer than 50 feet, as they become more common. As described in more detail in section II.F of Chapter II (pages 25-27), the test procedure steps added by the proposed amendments will be able to accommodate the longer fill piping runs, thereby preventing false indications of system leaks and improving the test procedures for better regulatory certainty.

§ 11 Alternative Procedures

Summary and Purpose of § 11 Amendment. Section 11 describes requirements for alternative procedures to TP-201.1C. The proposed amendment to § 11 is administrative and adds "Using Underground Storage Tanks" to the end of the cited title for CP-201.

Rationale for § 11 Amendment. The proposed amendment to § 11 is necessary to provide consistency with the proposed amendment to the title of CP-201 described earlier.

Figure 4

Summary and Purpose of Figure 4 Amendment. The proposed Figure 4 provides a visual representation of the remote fill product and vapor lines for a UST.

Rationale for Figure 4 Amendment. The proposed Figure 4 is necessary to provide a visual representation of the remote fill configuration and is intended to supplement the textual descriptions in order to help reduce confusion for contractors and regulators who conduct testing.

Form 1

Summary and Purpose of Form 1 Amendment. The proposed amendment to Form 1 provides a space for contractors to record the length of the fill product run for remote fill configurations.

Rationale for Form 1 Amendment. The proposed amendment to Form 1 is necessary to provide contractors and regulators a space to record the length of the remote fill product line. This length is necessary to be able to use Table 1 to identify the maximum amount of time allowed to pressurize a specific GDF.

Test Procedure 201.1D – Leak Rate of Drop Tube Overfill Prevention Devices

The following is a summary of the specific regulatory amendments proposed for TP-201.1D. Appendix G provides the full proposed regulatory language of TP-201.1D, shown in strike and add format.

Header and § 1 Purpose and Applicability

Summary and Purpose of Header and § 1 Amendments. The proposed amendment to the header corrects the full name of the California Air Resources Board. The proposed amendment to § 1 adds “Using Underground Storage Tanks” to the end of the title of CP-201.

Rationale for Header and § 1 Amendments. The proposed amendments to the header and § 1 are administrative and do not add any new test requirements or change existing requirements. They are necessary to provide clarity on the applicability of TP-201.1D for contractors and regulators who perform testing, and to provide consistency with proposed amendments to the CP-201 title described earlier.

§ 3.8 and § 3.9 of § 3 Biases and Interferences

Summary and Purpose of § 3.8 and § 3.9 Amendment. Section 3 provides the biases and interferences that may occur while performing TP-201.1D. The new proposed subsections identify the biases and interferences for remote fill Phase I configurations.

Rationale for § 3.8 and § 3.9 Amendment. The addition of § 3.8 and § 3.9 is required to identify potential biases and interferences that may occur when performing the newly proposed steps while testing UST systems with remote fill configurations, which is explained further below.

§ 5.9 of § 5 Equipment

Summary and Purpose of § 5.9 and § 5.11 Amendment. Section 5 describes the equipment needed to perform TP-201.1D. The proposed new subsections identify the additional equipment needed when testing UST systems with remote fill Phase I configurations.

Rationale for § 5.9 and § 5.11 Amendment. The addition of § 5.9 and § 5.11 is required to identify additional equipment necessary for contractors and regulators to perform the newly proposed steps for testing UST systems with remote fill configurations, which is explained further below.

§ 6.6 of § 6 Pre-Test Procedures

Summary and Purpose of § 6.6 Amendment. Section 6 describes the procedures to take place prior to testing. The proposed new § 6.6 requires the length of the product remote fill pipe to be measured and recorded on the field data sheet.

Rationale for § 6.6 Amendment. The addition of § 6.6 is required to be able to determine the maximum amount of time a specific GDF system is allowed for pressurizing the remote fill pipe, which will vary based upon length of the fill pipe. The proposed subsection reduces the bias towards failure for those systems with greater remote fill pipe lengths.

§ 7 Test Procedure

Summary and Purpose of § 7 Amendments. Section 7 lists the steps required to perform the test procedure. The proposed amendments add new language to notify the reader (contractors and regulators who perform the test) that there is a new test procedure section for remote fill systems, changes the order of the steps taken during testing, and makes administrative and grammatical edits to improve clarity.

Rationale for § 7 Amendment. The first proposed amendment to § 7 is necessary to identify that there is a new section added to TP-201.1D for the test procedure for remote fill configurations. The proposed amendment to the steps of the test procedure is necessary to prevent repetitive testing in the case that components are leak tight. These two amendments, with the administrative and grammatical amendments to correct minor grammatical errors, are necessary to improve clarity and readability of the test procedure, and to save time for contractors and regulators who perform the testing.

§ 8 Test Procedure (Remote Fill) and Table 1

Summary and Purpose of § 8 and Table 1 Amendment. The proposed new § 8, including Table 1, lists the steps required to perform the test procedure for remote fill configurations. Most of the newly proposed language is identical to the procedure for testing a non-remote system (§ 7); a key difference is the reference to the proposed Table 1, which identifies the maximum time allowed to pressurize the system based on horizontal length of the remote fill pipe.

Rationale for § 8 and Table 1 Amendment. The newly proposed § 8 and Table 1 are necessary to identify the new steps in the test procedure for TP-201.1D, specifically that additional time is allowed for pressurizing Phase I drop tubes at GDFs with remote fill configurations. Due to space constraints at some GDFs, the product fill may be located at some horizontal distance from the top openings of the UST (i.e., 'remote fill'), a configuration that is not longer than 50 feet when CARB adopted TP-201.1C and TP-201.1D. The proposed amendments are needed to accommodate remote fill Phase I system designs that are longer than 50 feet. As described in more detail in section II.F of Chapter II (pages 26-27), the test procedure steps added by the proposed amendments will be able to accommodate the longer fill piping runs, thereby preventing false indications of system leaks and improving the test procedures for better regulatory certainty.

§ 12 Alternative Procedures

Summary and Purpose of § 12 Amendment. Section 12 describes requirements for alternative procedures to TP-201.1D. The proposed amendment to § 12 adds "Using Underground Storage Tanks" to the end of the cited title for CP-201.

Rationale for § 12 Amendment. The proposed amendment to § 12 is necessary to provide consistency with the proposed amendment to the title of CP-201 described earlier.

Figure 4

Summary and Purpose of Figure 4 Amendment. The addition of Figure 4 provides a visual representation of the remote fill product and vapor lines for a UST.

Rationale for Figure 4 Amendment. The proposed Figure 4 is necessary to provide a visual representation of the remote fill configuration and is intended to supplement the textual descriptions in order to help reduce confusion for contractors and regulators who conduct testing.

Form 1

Summary and Purpose of Form 1 Amendment. The proposed amendment to Form 1 provides a space for contractors to record the length of the fill product run for remote fill configurations.

Rationale for Form 1 Amendment. The proposed amendment to Form 1 is necessary to provide contractors and regulators a space to record the length of the remote fill product line. This length is necessary to be able to use Table 1 to identify the maximum amount of time allowed to pressurize a specific GDF.

Test Procedure 201.2I – Test Procedure for In-Station Diagnostic Systems

The following is a summary of the specific regulatory amendments proposed for TP-201.2I. Appendix H provides the full proposed regulatory language of TP-201.2I, shown in strike and add format.

§ 8.6 and § 8.7 of § 8 Statistical Calculations

Summary and Purpose of § 8.6 and § 8.7 Amendments. Section 8 lists the various statistical calculations needed to determine whether ISD system requirements are met. The proposed amendments remove two alarm criteria, UST Ullage Pressure Gross Failure and UST Ullage Pressure Degradation, from § 8.6 and § 8.7.

Rationale for § 8.6 and § 8.7 Amendment. The proposed amendments to § 8.6 and § 8.7 are necessary to provide consistency with the proposal to remove the ISD gross failure and degradation criteria from CP-201 described earlier.

§ 9.9 and § 9.10 of § 9. Testing Proper ISD System Operation Including Generation of Automatic Alarms and Actions

Summary and Purpose of § 9.9 and § 9.10 Amendment. Section 9 describes the testing needed to verify the proper operation of the ISD system, including the generation of automatic alarms and resulting actions. The proposed amendments remove testing steps for two alarm criteria, UST Ullage Pressure Gross Failure and UST Ullage Pressure Degradation, from § 9.9 and § 9.10.

Rationale for § 9.9 and § 9.10 Amendment. The proposed amendments to § 9.9 and § 9.10 are necessary to provide consistency with the proposal to remove the ISD gross failure and degradation criteria from CP-201 described earlier.

D. CARB Certification Procedure 206 – Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities using Aboveground Storage Tanks

The following is a summary of the specific regulatory amendments proposed for CP-206. Appendix D provides the full proposed regulatory language of CP-206, shown in strike and add format.

§ 2. Performance Standards and Specifications

Table 2-1: Effective and Operative Dates for Standing Loss Control, Phase I, and Phase II Vapor Recovery Performance Standards of § 2. Performance Standards and Specifications

Summary and Purpose of Table 2-1 Amendments. Section 2 provides all the performance standards and specifications for the certification and operation for any EVR system certified for use at GDFs with ASTs in California. Table 2-1 is intended to be used as a reference for the effective and operative dates for various standards and specifications for each Standing Loss Control, Phase I, and Phase II requirement. There are three proposed amendments to Table 2-1:

- The first proposed amendment removes the reference to Table 5.2 in the row for "Nozzle Spout Assembly Dimensions Including Nozzle Bellows." Per a proposed change described later in this section (for § 5.7.3), the dimensions would be incorporated by reference to two SAE documents (SAE J285 and SAE J1140) in § 5.7.3 and therefore the reference to Table 5.2 is now unnecessary. In addition, the proposed amendments replace the "Date when first nozzle type is certified" text in the Operative Date column with "Same as effective date" text that mirrors the text for other performance types in Table 2-1.
- The second proposed amendment modifies the effective date column for the rows for "ORVR Compatibility," "Nozzle Criteria," "Liquid Retention..." and "All other Phase II Standards..." to the date that the Phase II EVR system, which utilized hanging hardware and nozzles certified in UST Phase II EVR systems, was certified.
- The third proposed amendment modifies column two in row seven for Spillage. Per a proposed change described later in this section (for § 5.3), the nozzle spillage standard in column two is changed from 0.24 to 0.05 lbs/kgal.

Rationale for Table 2-1 Amendments. The rationale for the proposed administrative amendments to Table 2-1 are as follows:

- The first proposed change to Table 2-1, to remove the reference to Table 5-2, in the fifth row is an administrative change required to reflect another proposed amendment described later in this section (for § 5.7.3) where the nozzle assembly and bellows dimensions have been incorporated by reference and Table 5-2, which lists the dimensions, is to be deleted. The deletion of Table 5-2 therefore requires the deletion of its reference in Table 2-1 to provide clarity and consistency for vapor recovery equipment manufacturers seeking CARB certification.
- The second proposed change to Table 2-1 is administrative and necessary to indicate the proper effective date for the above-mentioned rows to provide clarity and consistency for GDF owners and operators.
- The third proposed change to Table 2-1 is required to update the reference in Table 2-1 to § 5.3 (described later in this section), where the performance

standard for nozzle spillage is changed from 0.24 to 0.05 lbs/kgal nozzle manufacturers.

§ 2.4.4, § 2.4.6, and § 2.4.7 of § 2.4. Additional or Amended Performance Standards or Performance Specifications

Summary and Purpose of § 2.4.4, § 2.4.6, and § 2.4.7 Amendments. Section 2.4 sets forth the requirements when performance standards or specifications are added or amended. Section 2.4.4, § 2.4.6, and § 2.4.7 refer to the upgrade requirements for existing AST Phase II systems. Amendments were made to these sections at the July 25, 2019, Board Hearing where the upgrade requirement was amended based upon whether the AST was located in an area classified by the U.S. Environmental Protection Agency as being in nonattainment with the federal 8-hour ozone standard and having a gasoline throughput greater than 480,000 gallons a year. The intent of the amendments was to grant ASTs with smaller throughput more time to upgrade. Staff inadvertently used the expiration date when the first Phase II EVR system was certified, and not the Board Hearing date, as intended, for the date establishing existing ASTs. The proposed amendments to § 2.4.4, § 2.4.6, and § 2.4.7 would insert the correct date into these sections.

Rationale for § 2.4.4, § 2.4.6, and § 2.4.7 Amendments. The changes to § 2.4.4, § 2.4.6, and § 2.4.7 are necessary to correct a mistake made by CARB staff when amending the sections in 2019 during the AST Phase II EVR rulemaking. It was never staff's intent to create a small population of existing ASTs that were not subject to the amendments to grant them more time to upgrade to Phase II EVR and all emissions and cost analysis performed by staff in the 2019 Staff Report (ISOR) were performed with these ASTs being included in the group being granted additional time. The proposed changes will prevent certain AST owners from performing unnecessary and costly upgrades before the end of useful life of their existing systems.

§ 2.4.13 of § 2.4. Additional or Amended Performance Standards or Performance Specifications

Summary and Purpose of § 2.4.13 Amendment. Section 2.4 sets forth the requirements when performance standards or specifications are added or amended. The proposed change to § 2.4.13 clarifies the intent of the section by rearranging the existing language regarding the nozzle's end of useful life.

Rationale for § 2.4.13 Amendment. This administrative change is necessary to clarify the intent of the section for the end user by correcting grammatical mistakes.

§ 2.5 Reference to CP-201

Summary and Purpose of § 2.5 Amendment. Section 2.5 sets forth the use of the appropriate applicable performance standards and specifications of CP-201 in the implementation of CP-206. The proposed amendments add the text "Using

Underground Storage Tanks” to the end of the CP-201 title to clarify that CP-201 is for GDFs with USTs.

Rationale for § 2.5 Amendment. The proposed change to § 2.5 is administrative and is necessary to provide consistency with the proposed amendment to the CP-201 title described in section B earlier in this chapter.

§ 5. Phase II Performance Standards and Specifications Applicable to AST Phase II Vapor Recovery Systems

§ 5. Phase II Performance Standards and Specifications Applicable to AST Phase II Vapor Recovery Systems, Table 5-1

Summary and Purpose of Table 5-1 Amendment. Section 5 sets forth the performance standards and specifications for the certification and operation of Phase II vapor recovery systems certified for use on GDFs with ASTs in California. Table 5-1 is intended for use as a reference for the effective and operative dates for various standards and specifications for each Standing Loss Control, Phase I, and Phase II system requirement. The proposed amendment changes the nozzle spillage performance standard in row three, column two, from 0.24 to 0.05 lbs/kgal, for consistency with the proposed amendment to §5.3 described below.

Rationale for Table 5-1 Amendment. The proposed administrative change to Table 5-1 is required for consistency with the proposed amendment to the spillage standard in § 5.3 described below.

§ 5.3.1 of § 5.3. Spillage

Summary and Purpose of § 5.3.1 Amendment. Section 5.3 provides the performance standard for the certification of vapor recovery nozzles to prevent excessive liquid gasoline spillage during customer fueling events. The proposed amendment changes the nozzle spillage standard requirement from 0.24 to 0.05 lbs/kgal to preserve emission reductions that are already occurring and prevent emissions from increasing.

Rationale for § 5.3.1 Amendment. The proposed amendment that lowers the performance standard for spillage from 0.24 to 0.05 lbs/kgal in § 5.3.1 is necessary to preserve the superior performance accomplished by all of the currently certified nozzles, which all achieve the proposed standard. If the performance standards are not amended to preserve this superior performance, manufacturers would be allowed to introduce new nozzles that perform less efficiently and result in higher emissions while still complying with current performance standards. To prevent the potential for increased emissions, the performance standards need to be lowered to reflect the performance of currently certified nozzles. The rationale to lower the nozzle spillage performance standard in CP-206 is the same as the rationale to lower the nozzle spillage performance standard in CP-201 (section III.C of this chapter, pages 41-42) and supporting study results are described in section II.D of Chapter II (pages 22-23).

§ 5.7.3 of § 5.7. Nozzle Criteria

Summary and Purpose of § 5.7.3 Amendments. Section 5.7.3 references Table 5-2 for the Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows where all the dimensions and their descriptions are listed in detail. The proposed amendments for § 5.7.3 remove the reference to Table 5-2 (proposed removal of Table 5-2 described below) and instead incorporate by reference the dimensions specified in Table 2 (page 9), Figure 2 (page 16), and Figure 3 (page 17) of SAE J285 (Rev APR2019).

Rationale for § 5.7.3 Amendments. The proposed change is necessary to decrease the length of the certification procedures by ten pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in SAE J285 and SAE J1140. The proposed amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with SAE standards documents and reduce the chance for mistakes. The rationale for this proposed change is the same as the rationale to incorporate the dimensions by reference in CP-201 (section III.C of this chapter, pages 42-44) and supporting information is provided in section II.H.4 of Chapter II (pages 32-33).

Table 5-2, Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows and Figures 5A and 5B

Summary and Purpose of Table 5-2 and Figures 5A and 5B Amendments. Table 5-2 provides the dimension ranges, with a description, for the nozzle spout assembly and nozzle bellows dimensions developed in collaboration with the SAE Task Force. (See section II.H.4 in Chapter II for a description of the SAE Task Force and rulemaking history of the nozzle spout and bellow dimensions). Figures 5A and 5B provide illustrations that correspond to the dimensions listed in Table 5-2. The proposed change would delete Table 5-2 and Figures 5A and 5B from CP-206 and instead incorporate the same information by reference to SAE J285 (described above).

Rationale for Table 5-2 and Figures 5A and 5B Amendments. The proposed change is necessary to decrease the length of the certification procedures by ten pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in SAE J285 and SAE J1140. As described earlier in this report (section III.C of this chapter, pages 42-44, and section II.H.4 of Chapter II, pages 32-33), the proposed amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with SAE standards documents and reduce the chance for mistakes. Incorporating specific sections, tables, and figures in the SAE documents by reference into the certification procedures would not introduce any new regulations nor change any existing regulations.

§ 5.7.4 in § 5.7 Nozzle Criteria

Summary and Purpose of § 5.7.4 Amendment. Section 5.7.4 references Table 5-2 for the Phase II Nozzle Spout Assembly Dimensions Including Nozzle Bellows and

describes specific geometries for nozzle dimensions in § 5.7.4 (a) through (g). The proposed change to § 5.7.4 deletes the reference to Table 5-2, which is proposed for deletion above, and deletes the geometries listed in § 5.7.4 (a) through (g). All deleted text is incorporated by reference to SAE J285 and J1140 per the addition of this proposed language: "Table 2 (page 9) of SAE J285 (Rev APR2019)" and "Method 3, Section 3.10 (pages 10-13) and Figure 1 (Method 3, page3), Figure 7 (page 10), Figure 8 (page11), Figure 9 (page 12), and Figure 10 (page 13) of SAE J1140 (Rev OCT2019)."

Rationale for § 5.7.4 Amendment. The rationale for the deletion of the reference to Table 5-2 and the specific geometries, and their incorporation by reference to specific sections, tables, and figures of SAE J285 (Rev APR2019) and SAE J1140 (Rev OCT2019), is the same as described for the deletion of Table 5-2 and Figures 5A and 5B above. Incorporating the same information by reference reduces CP-206 page length, improves clarity, saves end users time, and does not introduce any new regulations nor change any existing regulations.

Figures 5C through 5G in § 5.7 Nozzle Criteria

Summary and Purpose of Figures 5C through 5G Amendment. Figures 5C through 5G provide illustrations for nozzle geometries listed in § 5.7.4 (a) through (g). The proposed amendment above removes (a) through (g) of § 5.7.4 and therefore the figures referenced in (a) through (g) should be removed for consistency. All information in Figures 5C through 5G is incorporated by reference per the proposed language for § 5.7.4 described above.

Rationale for Figures 5C through 5G Amendment. The rationale for deleting Figures 5C through 5G is the same as that for the proposed deletion of (a) through (g) in § 5.7.4 described above. All information found in Figures 5C through 5G will be incorporated by reference per the proposed language in § 5.7.4 (described above) and is redundant to include in CP-206.

§ 17. Duration and Conditions of Certification

§ 17.8 Compliance Enforcement

Summary and Purpose of § 17.8 Amendments. Section 17.8 sets forth the requirement that the Executive Officer may cause the review, inspection, and/or testing of any component certified under CP-206 to determine ongoing compliance with certification procedure requirements and standards. The proposed amendments create a new § 17.8.1 that requires manufacturers beginning on January 1, 2022, to submit one physical, intact/working sample of a system or component once it has successfully complied with applicable performance standards or specifications, along with a statement attesting that the submitted system or components are identical to those that were tested or evaluated by CARB staff. If requested by the CARB Executive Officer, manufacturers also would be required to provide cut-aways of certain components such as hanging hardware (nozzle, breakaway, etc.) in addition to the fully intact item requested above. In lieu of submitting a complete system or

component, in order to reduce costs where feasible, the CARB Executive Officer may request submission of only sub-parts or sub-assemblies that are crucial in controlling emissions. The proposed requirements of this new section do not apply to renewal certifications for systems or components that have no change to designs or materials. The current text of § 17.8 will become a new subsection § 17.8.2.

Rationale for § 17.8 Amendments. Without archived physical samples of certified components, it has been difficult for CARB to enforce requirements, or hold manufacturers accountable, when undisclosed changes were made. Undisclosed changes made to component materials or dimensional specifications can negatively affect compliance with performance standards. The rationale for different attributes of these proposed amendments is identical to the rationale for the same amendments proposed for CP-201 described earlier in this chapter (section III.C, page 48).

E. CARB Certification Procedure 207 – Certification Procedure for Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses for Use at Gasoline Dispensing Facilities

The following is a summary of the specific regulatory amendments proposed for CP-207. Appendix E provides the full proposed regulatory language of CP-207, shown in strike and add format.

§ 2. Performance Standards and Specifications

§ 2.1, § 2.2, and § 2.3

Summary and Purpose of § 2.1, § 2.2 and § 2.3 Amendment. Section 2 provides performance standards and specifications for systems and components certified under CP-207, and defines the terms “performance standard” and “performance specification”. When CP-207 was amended in 2019, the amendments inadvertently left out a couple of clarifying words from § 2.1 and § 2.2 that are included in the definitions in CP-201, and the word “specifications” was inadvertently placed incorrectly in the first sentence of § 2.3. The proposed amendments to § 2.1, § 2.2, and § 2.3 correct these mistakes.

Rationale for § 2.1, § 2.2 and § 2.3 Amendment. The proposed amendments to § 2.1, § 2.2, and § 2.3 are necessary to correct the oversight during the 2019 rulemaking and make the sections consistent with equivalent sections in CP-201. This action is needed to provide clarity and consistency for those seeking CARB certification or for other stakeholders seeking to understand how compliance deadlines are established when amendments to either performance standards or specifications are made. The amended text better explains the distinction between standards and specifications. The distinction is needed for determining compliance deadlines for existing GDFs when the regulation is amended to include new requirements. In addition, as explained in more detail in section II.H.2 in Chapter II (pages 29-31), when CP-207 was adopted in 2015, CARB intended to make the majority of CP-207 content, including

§ 2, substantially the same as CP-201. CARB staff's proposal does not introduce any new requirements or change existing requirements.

§ 2.3.5 of § 2.3. Additional or Amended Performance Standards or Performance Specifications

Summary and Purpose of § 2.3.5 Amendment. Section 2.3 sets forth the requirements when performance standards or specifications are added or amended. The proposed change to § 2.4.13 clarifies the intent of the section by rearranging the existing language regarding the nozzle's end of useful life.

Rationale for § 2.3.5 Amendment. This administrative change is necessary to clarify the intent of the section for the end user by correcting grammatical mistakes.

Table 2-1: Effective and Operative Dates for ECO Nozzle and Low Permeation Conventional Hose Performance Standards and Specifications of § 2

Summary and Purpose of Table 2-1 Amendment. Section 2 provides all the performance standards and specifications for the certification and operation of ECO nozzles and low permeation conventional hoses certified for use in California. Table 2-1 lists the standards and specifications for each requirement, and provides their effective and operative dates. There are three proposed amendments to Table 2-1:

- The first proposed amendment modifies column two in row two for Spillage. Per a proposed change described later in this section (for § 3.1), the nozzle spillage standard in column two is changed from 0.24 to 0.05 lbs/kgal. [Note, Table 2-1 incorrectly states the nozzle spillage standard as 0.24 lbs/kgal when it is correctly stated as 0.12 lbs/kgal in § 3.1.]
- The second proposed amendment replaces the "Date when first applicable ECO Nozzle is certified" text in the Effective Date and Operative Date columns in rows three through six for Nozzle Criteria, Liquid Retention, Nozzle Spitting, and Insertion Interlock with "March 1, 2019" (the date that the first ECO nozzle was certified).
- The third proposed amendment removes the reference to Table 3-2 in the row for "Nozzle Spout Assembly Dimensions Including Nozzle Bellows." Per a proposed change described later in this section (for § 3.5.2), the dimensions would be incorporated by reference to two SAE documents (SAE J285 and SAE J1140) in § 3.5.2 and therefore the reference to Table 3-2 is now unnecessary.

Rationale for Table 2-1 Amendment. The rationale for the proposed administrative amendments to Table 2-1 are as follows:

- The first proposed change to Table 2-1 is required to update the reference in Table 2-1 to § 3.1 (described later in this section), where the performance standard for nozzle spillage is changed from 0.12 to 0.05 lbs/kgal. This change

provides clarity and consistency between sections of CP-206 for nozzle manufacturers.

- The second proposed change to Table 2-1, to insert March 1, 2019, for the Effective Date and Operative Date for rows three through six is an administrative change required to reflect the date the first applicable ECO nozzle was certified meeting those requirements and to provide clarity and consistency for GDF owners and operators.
- The third proposed change, to remove the reference to Table 3-2, is an administrative change required to reflect another proposed amendment described later in this section (for § 3.5.2) where the nozzle assembly and bellows dimensions have been incorporated by reference and Table 3-2, which lists the dimensions, is to be deleted. The deletion of Table 3-2 therefore requires the deletion of its reference in Table 2-1 to provide clarity and consistency for vapor recovery equipment manufacturers seeking CARB certification.

§ 3. Performance Standards and Specifications Applicable for ECO Nozzles and Low Permeation Hoses

Table 3-1: ECO Nozzle and Low Permeation Hose Standards and Specifications of § 3

Summary and Purpose of Table 3-1 Amendment. Section 3 sets forth the performance standards and specifications for the certification and operation of ECO nozzles and low permeation hoses certified for use in California. Table 3-1 summarizes the standards and specifications for these components. The proposed amendment changes the nozzle spillage performance standard in column two, row one, from 0.12 to 0.05 lbs/kgal, for consistency with the proposed amendment to §3.1 described below.

Rationale for Table 3-1 Amendment. The proposed administrative change to Table 3-1 is required for consistency with the proposed amendment to the spillage standard in § 3.1 described below.

§ 3.1.1 of § 3.1 Spillage

Summary and Purpose of § 3.1.1 Amendment. Section 3.1 provides the performance standard for the certification of vapor recovery nozzles to prevent excessive liquid gasoline spillage during customer fueling events. The proposed amendment changes the nozzle spillage standard requirement from 0.12 to 0.05 lbs/kgal to preserve emission reductions that are already occurring and prevent emissions from increasing.

Rationale for § 3.1.1 Amendment. The proposed amendment that lowers the performance standard for spillage from 0.12 to 0.05 lbs/kgal in § 3.1.1 is necessary to preserve the superior performance accomplished by all of the currently certified nozzles, which all achieve the proposed standard. If the performance standards are

not amended to preserve this superior performance, manufacturers would be allowed to introduce new nozzles that perform less efficiently and result in higher emissions while still complying with current performance standards. To prevent the potential for increased emissions, the performance standards need to be lowered to reflect the performance of currently certified nozzles. The rationale to lower the nozzle spillage performance standard in CP-207 is the same as the rationale to lower the nozzle spillage performance standard in CP-201 (section III.C of this chapter, pages 41-42) and supporting study results are described in section II.D of Chapter II (pages 22-24).

§ 3.5.2 of § 3.5. Nozzle Criteria

Summary and Purpose of § 3.5.2 Amendment. Section 3.5.2 references Table 3-2 for ECO Nozzle Spout and Insertion Interlock Dimensions, where all the dimensions and their descriptions are listed in detail. The proposed amendments for § 3.5.2 would remove the reference to Table 3-2 (proposed removal of Table 3-2 described below) and instead incorporate by reference the dimensions specified in Table 3 (page 10), Figure 2 (page 16), and Figure 4 (page 17) of SAE J285 (Rev APR2019).

Rationale for § 3.5.2 Amendment. The proposed change is necessary to decrease the length of the certification procedures by ten pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in SAE J285 and SAE J1140. The proposed amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with SAE standards documents and reduce the chance for mistakes. The rationale for this proposed change is the same as the rationale to incorporate the dimensions by reference in CP-201 (section III.C of this chapter, pages 42-44) and supporting information is provided in section II.H.4 of Chapter II (pages 32-33).

Table 3-2: ECO Nozzle Spout and Insertion Interlock Dimension and Figures 3A and 3B

Summary and Purpose of Table 3-2 and Figures 3A and 3B Amendments. Table 3-2 provides the dimension ranges, with a description, for the nozzle spout and insertion interlock dimensions developed in collaboration with the SAE Task Force. (See section II.H.4 in Chapter II for a description of the SAE Task Force and rulemaking history of the nozzle dimensions). Figures 3A and 3B provide illustrations that correspond to the dimensions listed in Table 3-2. The proposed change would delete Table 3-2 and Figures 3A and 3B from CP-207 and instead incorporate the same information by reference to SAE J285 (described above).

Rationale for Table 3-2 and Figures 3A and 3B Amendments. The proposed change is necessary to decrease the length of the certification procedures by ten pages of text, figures, and tables that define nozzle spout and bellows dimensions that also are included in SAE J285 and SAE J1140. As described earlier in this report (section III.C of this chapter, pages 42-44, and section II.H.4 of Chapter II, pages 32-33), the proposed amendments would reduce the time needed for nozzle manufacturer engineers to cross-reference CARB certification procedures with SAE standards

documents and reduce the chance for mistakes. Incorporating specific sections, tables, and figures in the SAE documents by reference into the certification procedures would not introduce any new regulations nor change any existing regulations.

§ 3.5.3 in § 3.5 Nozzle Criteria

Summary and Purpose of § 3.5.3 Amendment. Section 3.5.3 references Table 3-2 for the ECO Nozzle Spout and Insertion Interlock Dimensions describes specific geometries for nozzle dimensions in § 3.5.3 (a) through (g). The proposed change to § 3.5.3 deletes the reference to Table 3-2, which is proposed for deletion above, and deletes the geometries listed in § 3.5.3 (a) through (g). All deleted text is incorporated by reference to SAE J285 and J1140 per the addition of this proposed language: “Table 2 (page 9) of SAE J285 (Rev APR2019)” and “Method 3, Section 3.10 (pages 10-13) and Figure 1 (Method 3, page3), Figure 7 (page 10), Figure 8 (page11), Figure 9 (page 12), and Figure 10 (page 13) of SAE J1140 (Rev OCT2019).”

Rationale for § 3.5.3 Amendment. The rationale for the deletion of the reference to Table 3-2 and the specific geometries, and their incorporation by reference to specific sections, tables, and figures of SAE J285 (Rev APR2019) and SAE J1140 (Rev OCT2019), is the same as described for the deletion of Table 3-2 and Figures 3A and 3B above. Incorporating the same information by reference reduces CP-207 page length, improves clarity, saves end users time, and does not introduce any new regulations nor change any existing regulations.

Figures 3C through 3G in § 3.5 Nozzle Criteria

Summary and Purpose of Figures 3C through 3G Amendment. Figures 3C through 3G provide illustrations for nozzle geometries listed in § 3.5.3 (a) through (g). The proposed amendment above removes (a) through (g) of § 3.5.3 and therefore the figures referenced in (a) through (g) should be removed for consistency. All information in Figures 3C through 3G is incorporated by reference per the proposed language for § 3.5.3 described above.

Rationale for Figures 3C through 3G Amendment. The rationale for deleting Figures 3C through 3G is the same as that for the proposed deletion of (a) through (g) of § 3.5.3 described above. All information found in Figures 3C through 3G will be incorporated by reference per the proposed language in § 3.5.3 (described above) and is redundant to include in CP-207.

§ 6. Evaluation of the Application

§ 6.3 Evaluation of ECO Nozzle Design

Summary and Purpose of § 6.3 Amendment. Section 6.3 sets forth evaluation requirements for ECO nozzle design. The proposed amendment to § 6.3 inserts a word, “including”, that was inadvertently left out when CP-207 was adopted.

Rationale for § 6.3 Amendment. The proposed amendment to § 6.3 is necessary to correct a grammatical error made during the 2015 rulemaking. The correction clarifies the intent of the section and improves readability for the end user. The proposed change is administrative, and does not add any new requirements nor change any existing requirements.

§ 10. Duration and Conditions of Certification

§ 10.7. Compliance Enforcement

Summary and Purpose of § 10.7 Amendments. Section 10.7 sets forth the requirement that the Executive Officer may cause the review, inspection, and/or testing of any component certified under CP-207 to determine ongoing compliance with certification procedure requirements and standards. The proposed amendments create a new § 10.7.1 that requires manufacturers beginning January 1, 2022, to submit one physical, intact and working sample of a system or component once it has successfully complied with applicable performance standards or specifications, along with a statement attesting that the submitted system or components are identical to those that were tested or evaluated by CARB staff. If requested by the CARB Executive Officer, manufacturers also would be required to provide cut-aways of certain components such as hanging hardware (nozzle, breakaway, etc.) in addition to the item requested above. In lieu of submitting a complete system or component, in order to reduce costs where feasible, the CARB Executive Officer may request submission of only sub-parts or sub-assemblies that are crucial in controlling emissions. The proposed requirements of this new section do not apply to renewal certifications for systems or components that have no change to designs or materials. The current text of §10.7 will become a new subsection § 10.7.2.

Rationale for § 10.7.1 Amendments. The proposed amendments are necessary because without archived physical samples of certified components, it has been difficult for CARB to enforce requirements, or hold manufacturers accountable, when undisclosed changes were made. Undisclosed changes made to component materials or dimensional specifications can negatively affect compliance with performance standards. The rationale for different attributes of these proposed amendments is identical to the rationale for the same amendments proposed for CP-201 described earlier in this chapter (section III.C, page 48).

IV. BENEFITS ANTICIPATED FROM THE REGULATORY ACTION, INCLUDING THE BENEFITS OR GOALS PROVIDED IN THE AUTHORIZING STATUTE

The proposed amendments are a revision of CARB's vapor recovery regulations to improve cost effectiveness, preserve the current level of air quality benefits, and clarify and improve the certification and test procedures for better regulatory certainty and enforceability. The benefits of the proposed amendments are the result of air quality goals developed by CARB based on explicit statutory authority in the Health and

Safety Code § 41954. State law (Health and Safety Code § 41954(a)) directs CARB to adopt procedures for determining the compliance of any system designed for the control of gasoline vapor emissions during gasoline marketing operations, including storage and transfer operations, with performance standards that are reasonable and necessary to achieve or maintain any applicable ambient air quality standard.

The Vapor Recovery Program has been very successful at reducing emissions over the last 40 years. The proposed suite of regulatory amendments would continue to refine the Vapor Recovery Program to provide financial benefits and better regulatory certainty and enforceability with no increase in existing gasoline vapor emissions. The following sections provide a general overview of health benefits to Californians and specific benefits provided by each of the proposed amendments.

A. Health Benefits to Californians

Gasoline vapor emissions from GDFs can lead to increased health risk through two primary mechanisms. First, gasoline vapors contain reactive organic gases (ROG) that lead to the formation of ground level ozone, which can cause adverse health effects, particularly in children and individuals with respiratory conditions. Second, gasoline vapors contain benzene, which is a toxic air contaminant and known carcinogen. Reducing ROG emissions benefits the health and welfare of California residents by reducing ambient ground level ozone and benzene exposure. Reducing ROG emissions from GDFs is an integral part of California's plan for reaching its goal of attaining and maintaining federal and State ozone standards. Reducing benzene emissions is critical for reducing exposure to people who live and work near GDFs and to GDF customers who refuel vehicles.

The proposed amendments to the vapor recovery regulations are designed to fine-tune the regulations to further ensure no increase in existing gasoline vapor emissions occurs. For example, the proposal to make the nozzle spillage performance standards more stringent would preserve emission reductions that are already occurring from CARB-certified nozzles, which perform better than current standards. This will help safeguard public health benefits by preventing manufacturers from requesting the certification of less efficient nozzles that would lead to emission increases. Another example is the proposal to require equipment manufacturers to submit physical samples of as-certified components for CARB to archive. This archive will enable CARB to better identify if undisclosed changes are made to component materials or designs that might negatively affected compliance with performance standards and potentially increase emissions. In addition, the proposal to remove the gross failure and degradation failure ISD alarm criteria requirements would reduce accidental clearing of and operator complacency toward responding to the remaining ISD alarms, which are effective at identifying repairable vapor recovery equipment problems that can lead to increased emissions.

B. Financial Benefits to California Businesses

As described more in the following sections and Chapter VIII, the proposed amendments to the vapor recovery regulations would minimize new implementation costs and provide some savings for equipment manufacturers, and could provide substantial cost savings for business-owned GDFs. Throughout California, businesses own approximately 5,890 GDFs that had one or more ISD overpressure alarms during the prior three years and California small businesses⁷ own more than 60 percent of these GDFs. CARB staff estimates that, in the absence of Advisory 405, business-owned GDFs that install updated ISD software would have cost-savings of approximately \$780 to \$17,000 per year per GDF by avoiding 1 to 22 overpressure alarm responses per year.

C. Benefits from Each Proposed Amendment

1. Replace overpressure alarm criteria in ISD software with informational reports:

Available information indicates more than 5,000 GDFs experience ISD overpressure alarms that can cause response costs for GDF owners without reducing air pollutant emissions. At the same time, there is an ongoing need for improved UST ullage pressure data storage and reporting. To address these problems, the proposed amendments would replace the requirements in Section 9 of CP-201 for overpressure alarm requirements in ISD software with requirements for improved informational reports and UST ullage pressure data storage. The proposed amendments would provide several benefits:

- Flexibility. The proposed amendments provide flexibility for existing GDFs by making the ISD software upgrade voluntary. New GDFs would be required to install updated ISD software after it is certified by CARB and available for sale in California. However, existing GDFs would have the option of continuing to operate with the current CARB-certified ISD system software for the remainder of its useful life, or updating to the new system software. GDF owners and operators would be allowed to choose whether to install the updated ISD software based on their site-specific assessments of potential cost savings and business priorities. By making the ISD software update voluntary for existing GDFs, GDFs that do not experience ISD overpressure alarms, or those GDFs where the operators/owners determine that it is more costly to install upgraded software than to respond to ISD overpressure alarms, would not be required to implement updated software that does not reduce their operating expenses.
- Statewide cost savings. Installation of updated ISD software would eliminate overpressure alarm response costs at existing GDFs owned by businesses and government agencies that choose to install updated ISD software and new GDFs required to install updated software. CARB staff estimates installation of

⁷ For the purpose of undertaking an economic impact assessment, Government Code § 11346.3, subdivision (a)(4)(B), defines a small business as a business that is all of the following: (i) independently owned and operated; (ii) not dominant in its field of operation; and (iii) has fewer than 100 employees.

updated ISD software may be cost-effective for about 4,600 existing GDFs and an additional 85 GDFs that staff estimates will be constructed between the baseline year (2018) and the date the updated software is available.⁸ CARB staff estimates about 570 new GDFs will be constructed after the updated ISD software is available and therefore will be required to install the updated software. As described in Chapter VIII, installation of updated ISD software at these existing and new GDFs could provide net cost savings of about \$31.8 million to \$97.9 million for GDF owners during 2024-2030 by eliminating overpressure alarm response costs in the absence of Advisory 405.

- Regulatory solution. Currently, Advisory 405 provides some relief from overpressure alarm response cost and inconvenience by allowing GDF operators to clear ISD overpressure alarms during the winter fuel period [CARB, 2016b]. However, Advisory 405 does not provide relief for overpressure alarms that occur during the summer. In addition, Advisory 405 is a temporary mechanism, not a regulation, and therefore cannot remain indefinitely. The proposed regulatory amendments provide a comprehensive solution.
- No impact on current emission reduction benefits. Eliminating overpressure alarms would have no effect on Vapor Recovery Program emission reductions for two reasons. First, more than 95 percent of overpressure alarms are not associated with any repairable vapor recovery equipment problem. Second, other ISD alarms, routine inspections, and compliance testing can find the equipment problems that cause excess overpressure emissions.
- Improved cost effectiveness. Eliminating alarm response costs that do not reduce emissions improves the overall cost-effectiveness of implementing the EVR regulations.
- Reduced complacency. Eliminating ineffective ISD overpressure alarms would reduce accidental clearing of and operator complacency toward responding to the remaining ISD alarms (for example, nozzle vapor collection, processor operation, and vapor leak detection) that effectively indicate repairable vapor recovery equipment problems.
- Improved understanding of site-specific conditions. Approximately 90 percent of the ISD systems installed in California are the Veeder-Root system, which stores only 30 hours of pressure data. The proposed amendments would require future ISD systems to store at least 14 days of UST pressure and ullage volume data, to generate a monthly informational report for UST pressure data, and to store at least 12 monthly reports. The updated software would improve the characterization of long-term conditions at a lower cost for the many GDFs anticipated to voluntarily install the software.
- More effective trouble shooting. Easily accessible monthly pressure reports with long-term data would help service contractors conduct more effective

⁸ CARB staff estimated the number of GDFs and cost-savings using methods described in Chapter VIII and Appendix L.

trouble shooting to identify equipment problems (e.g., vapor leaks and inoperable vapor processors) and their causes. The additional data and reports could reduce the need for multiple site visits and time-consuming pressure data analysis. Reducing time needed for site visits and data analysis would reduce costs for GDF owners/operators.

- Reduced costs for future studies. Storage of two weeks of pressure data (versus the 30 hours of pressure data stored by more than 90 percent of installed ISD systems) would reduce the number of site visits, and therefore costs, for future studies. Long-term pressure data can be used to evaluate trends in GDF pressure driven emissions, evaluate vapor recovery equipment certification renewals, evaluate site-specific pressure driven emission factors needed to support Air District permitting requirements for GDFs. Currently, to obtain adequate pressure data to characterize long-term conditions at GDFs with ISD systems that store only 30 hours of pressure data, Air Districts and CARB staff must either conduct daily site visits for several weeks to download 30 hours of pressure data per visit, or install an external computer with proprietary software to store longer periods of data and conduct site visits approximately every 14 days to manually download the data files and verify communication remains intact.

These benefits are achievable without installing new hardware; an ISD system software upgrade is all that is required.

2. Improve ISD reports: CARB staff proposes to amend CP-201 to require the daily ISD reports to include the report date with year, and to require pressure values to be reported to two (2) decimal places. The proposed amendments would benefit GDF owners and operators, service contractors, and regulators by ensuring the reports can be correctly and easily identified, and by improving the accuracy and usefulness of reported pressure values. The ISD system manufacturers have assured CARB staff that the proposed changes to the ISD software can be easily accomplished and can done at the same time as the proposed changes to the ISD overpressure criteria described above.

3. Allow alternative communication ports for ISD system consoles: The proposed amendments would allow manufacturers to install modern, readily available communication ports in ISD consoles, instead of the currently-required antiquated RS-232 communication port, with CARB Executive Officer approval. The proposed amendments would provide benefits in the form of cost-savings of about \$31,000 for ISD manufacturers during 2021-2030, and would improve the access and quality of downloaded data from the ISD system for GDF contractors, Air District inspectors, and CARB staff.

4. Make the nozzle spillage performance standard more stringent: CARB certification testing results for EVR and ECO nozzle spillage demonstrate the currently certified nozzles are performing much better than predicted at the time CARB adopted the

EVR and ECO nozzle spillage performance standards. The proposed amendments would lower the current spillage performance standards for EVR and ECO nozzles (0.24 and 0.12 lbs/kgal, respectively) to 0.05 lbs/kgal to reflect and preserve this superior performance. The proposed amendments would preserve emission reductions that are already occurring and prevent emissions from increasing. This will help safeguard public health benefits by preventing manufacturers from requesting the certification of less efficient nozzles that would lead to emission increases.

In addition, the proposed standard provides consistency between three certification procedures (CP-201, CP-206, and CP-207), and enables more accurate GDF emission estimates for Statewide Implementation Plan emission inventories and Air District permits. For example, if the nozzle spillage emission factor used for inventory estimates were updated to reflect the proposed standard, which more accurately portrays actual nozzle spillage emissions, the estimate of total statewide, annualized GDF emissions would decrease by about a third (~4.0 tons per day (TPD)), from 10.3 to 6.3 TPD (CARB, 2020h, Table 2). However, current nozzle spillage certification standards do not reflect the superior performance of currently certified nozzles and CARB staff cannot claim emission reductions that are not required by law or regulation. We cannot assume that the superior nozzle spillage performance will continue into the future if that performance is not preserved in the regulations. Therefore, CARB cannot update the spillage emission factor for use in emission inventories and permits until the Board formally amends the certification standards through the rulemaking process.

Another benefit is the proposed amendments have minimal implementation costs—about \$700 total over the next four years for nozzle manufacturers—because all five of the currently CARB-certified nozzles achieve the proposed standard, and initial data for nozzle prototypes under certification testing indicate they too achieve the proposed standard.

Lastly, as the currently certified nozzles all meet the proposed nozzle spillage standard, GDF owners can continue to use their currently installed nozzles until the end of useful life. Adoption of and compliance with the proposed amendments will not require GDF owners to replace installed nozzles.

5. Require physical samples of certified vapor recovery equipment: CARB staff proposes amendments to CP-201, CP-206, and CP-207 to require equipment manufacturers to provide CARB with physical samples of new systems and/or components once they have successfully complied with applicable performance standards or specifications. Because nearly all manufacturers have voluntarily submitted samples during the last 4 years, the proposed requirement applies only to first-time certifications and renewal certifications of systems or components that have design or material changes. The proposed amendments benefit CARB and equipment users (GDF owners and operators) by providing an archive of as-certified components available for comparison should problems or complaints arise in the future. Without archived physical samples of certified components, it has been difficult for CARB to

enforce requirements, or hold manufacturers accountable, when undisclosed changes were made. Undisclosed changes made to component materials or dimensional specifications can negatively affect compliance with performance standards.

6. Amend test procedures for remote fill Phase I system configurations: When TP-201.1C and TP-201.1D were adopted, the only certified Phase I EVR systems were designed as “two point”, direct fill configurations, where the product and vapor return pathways are located directly over the tank top openings of the UST. Since then, CARB certified a remote fill Phase I system configuration, allowing the product and vapor return pathways to be offset from the conventional direct fill pathways. The remote fill configuration allows the bulk delivery of gasoline to occur at an alternative location, at greater distances from the tank top openings of the UST. When the remote fill configuration was initially certified, no maximum offset distance was specified in the CARB Executive Order. The five-minute maximum pressurization time in the test procedures is adequate for direct fill configurations but may be inadequate for remote fill configurations with piping runs longer than 50 feet. The proposed amendments set forth a process for determining the additional time needed to pressurize the product pathway as a function of pipe length. The proposed amendments benefit owners and operators of GDFs with remote configurations, service contractors, and Air Districts by preventing false indications of system leaks and improving the test procedures for better regulatory certainty.

7. Correct the Phase II EVR upgrade dates for GDFs with ASTs: Amendments were made to CP-206 upgrade requirements for existing AST Phase II systems at the July 25, 2019, Board Hearing based upon whether an AST was located in an area classified by the U.S. Environmental Protection Agency as being in nonattainment with the federal 8-hour ozone standard and having an annual gasoline throughput of 480,000 gallons or less. The intent of the amendments was to grant such ASTs with more time to upgrade. Staff inadvertently used the expiration date when the first Phase II EVR system was certified, and not the Board Hearing date, as intended, for the date establishing existing ASTs. Additionally, the incorrect date currently in CP-206 creates confusion for Air District enforcement staff as they conduct inspection and costs them time to research the date and ultimately contact CARB staff for clarification. The proposed amendments would insert the correct date into these sections. The proposed changes will alleviate the confusion of Air District staff and prevent certain AST owners from performing inadvertent and costly upgrades before the end of useful life of their existing systems.

8. Make administrative changes to improve clarity and consistency: As described in Chapters II and III, the proposed amendments include several administrative changes. Some of these were requested by industry, such as the proposal to incorporate by reference the 10 pages of text, tables, and figures for nozzle dimension requirements in three certification procedures that are redundant with dimensions depicted in SAE J285 and J1140. Others were recommended by Office of Administrative Law and CARB legal counsel, such as clarifying the definitions of performance standard and performance specification in CP-207. As described in Chapter VIII, there are benefits

in the form of some cost savings for manufacturers, Air Districts, and CARB associated with reducing confusion (and time needed to seek clarification from CARB staff) and reducing time needed to cross-reference multiple standards documents. The primary benefit of the proposed administrative changes is clarifying the certification and test procedures for better regulatory certainty and enforceability.

V. AIR QUALITY

State law requires the operation of proper vapor recovery devices for USTs and ASTs and directs CARB to adopt procedures and performance standards for controlling gasoline vapor emissions from gasoline marketing operations, including transfer and storage operations, to achieve and maintain ambient air quality standards. The proposed amendments are not anticipated to have direct air quality impacts due to the nature of the proposed changes. The proposed amendments would preserve the emission reductions accomplished under the existing vapor recovery regulations and would assist in maintaining the targeted emission reductions.

As described in Chapter II (section D), the proposal to make the nozzle spillage performance standards more stringent would preserve emission reductions that are already occurring from CARB-certified nozzles that perform better than current standards. This will prevent manufacturers from requesting certification of less efficient nozzles that would lead to emission increases while still complying with current performance standards. Also, as described in Chapter II (section F), the proposal to require equipment manufacturers to submit physical samples of as-certified components for CARB to archive will enable CARB to better identify if undisclosed changes are made to component materials or designs that might negatively affected compliance with performance standards and potentially increase emissions.

The proposal to replace the ISD overpressure alarm criteria with informational reports would have no effect on pressure driven emissions, and therefore no impact on efforts to achieve and maintain ambient air quality standards. The analysis presented in Appendix J found that more than 95 percent of overpressure alarms are not associated with any repairable vapor recovery equipment problem, and that other ISD alarms, routine inspections, and compliance testing would find the equipment problems that could cause excess pressure driven emissions. The findings indicate the ISD overpressure alarms can be eliminated without any impact on GDF emissions.

The other proposed amendments are designed to improve the test procedures, clarify and simplify the certifications procedures for better regulatory certainty and enforceability, and improve cost-effectiveness, all with no impact on GDF emissions.

VI. ENVIRONMENTAL ANALYSIS

A. Introduction

This chapter provides the basis for CARB's determination that the proposed amendments to the vapor recovery regulations are exempt from the requirements of CEQA. A brief explanation of this determination is provided in section C below. CARB's regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code § 21080.5 of the California Environmental Quality Act (CEQA) (14 CCR 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Staff Report prepared for a proposed action to comply with CEQA (17 CCR 60000-60008). If the proposed amendments are finalized, a Notice of Exemption will be filed with the Office of the Secretary for the Natural Resources Agency.

B. Analysis of Proposed Amendments

CARB has determined that the proposed amendments are exempt from CEQA under the general rule or "common sense" exemption (14 CCR 15061(b)(3)). CEQA Guidelines state "the activity is covered by the common sense exemption that CEQA applies only to projects, which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." The proposed amendments are also categorically exempt from CEQA under the "Class 8" exemption (14 CCR 15308) because they are actions taken by a regulatory agency for the protection of the environment.

CARB staff is proposing a suite of regulatory amendments that would continue to refine the vapor recovery regulations to provide financial benefits and better regulatory certainty and enforceability with no increase in existing gasoline vapor emissions. The proposed amendments to certification and test procedures would:

1. Eliminate in-station diagnostics (ISD) overpressure alarm criteria. The alarms are not effective at identifying repairable vapor recovery equipment problems, which results in GDF owners incurring alarm response costs with no concomitant air pollutant emission reductions. In addition, ineffective alarms can lead to operator complacency and accidental clearing of other ISD alarms that are effective at identifying repairable vapor recovery equipment problems, potentially leading to increased emissions. This proposed amendment would require the two ISD manufacturers to remove the overpressure alarm criteria from their ISD software the next time they seek CARB certification renewal. Compliance with the proposed amendment does not require any changes to

the ISD housing console, vapor flow meters, or UST pressure sensors, nor require the construction of any new manufacturing facilities.

2. Add other ISD report improvements to make stored information more useful in identifying potential issues. Specifically, store and be able to download at least 14 days of UST pressure and ullage volume data; generate a monthly informational report for UST pressure data and store at least 12 monthly reports; and improve report format and content so daily report headers identify the month and year, and reported pressure values have a minimum of two decimal places. This proposed amendment would require the two ISD manufacturers to add the improvements to their ISD software the next time they seek CARB certification renewal. This amendment would be implemented concurrently with amendment number 1 and similarly would require changes only to the ISD software.
3. Allow more options for ISD communication ports such as USB or Bluetooth, and no longer require that the antiquated RS-232 port be installed on all ISD consoles. This proposed amendment would allow manufacturers to install modern, readily available communication ports instead of the RS-232 port on a voluntary basis. Modern alternatives require less metal, plastic, and other manufacturing materials, as demonstrated by a comparison of their typical connector weights: 0.32 ounces for RS 232 (9 pins); 0.02 ounces for USB; and 0.11 ounces for Ethernet. The proposed amendment does not require existing GDFs to replace their ISD consoles.
4. Make the nozzle spillage standard more stringent to preserve the superior performance accomplished by current manufacturers' certified nozzles and prevent emissions from increasing. Because the currently certified nozzles already meet this proposed standard, implementation of this proposed amendment would not require manufacturers to change the design of the currently certified nozzles, and would not require GDF owners to replace installed nozzles. GDF owners could continue to use their currently installed nozzles until the end of useful life.
5. Require vapor recovery equipment manufacturers to provide a physical sample of the system or components that successfully comply with applicable performance standards or specifications. This proposed requirement applies only to first-time and renewal certifications of systems or components with design or material changes, and allows the Executive Officer to request the sub parts or sub-assemblies that are crucial in controlling emissions.
6. Revise Phase I drop tube compliance test procedures to better accommodate for remote fill configurations (longer piping runs) for GDFs equipped with USTs. This proposed amendment would help prevent false indications of system leaks during testing. The proposed amendment has no effect on GDF vapor recovery equipment nor equipment needed by service contractors and regulators to conduct the test procedures.

7. Make various administrative changes to clarify and improve the certification and test procedures for better regulatory certainty and enforceability.

Chapters II and III of this Staff Report provide detailed descriptions of these proposed amendments.

CARB staff assessed the potential for significant impacts using the resource areas from the CEQA Guidelines Environmental Checklist as a framework (17 CCR 60005(b)). Compliance with the proposed amendments would 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. None of the proposed amendments would increase emissions over 2018 levels (which constitute the CEQA baseline) and therefore would not involve or result in any adverse impacts to air quality. Three of the proposed amendments (numbers 1, 4, and 5) are designed specifically to prevent emission increases, and all of the proposed amendments support the goal of vapor recovery regulations to attain and maintain air quality standards.

With respect to number 5 specifically, Appendix K (Tables K.3, K.4, and K.5) describes the type and number of vapor recovery systems and components that CARB staff anticipates receiving during 2021-2030 for first-time certifications and renewal certifications that may have design or material changes. CARB staff bases these estimates on the number of new and modified certification applications submitted during the past 10 years and informal discussions with manufacturers. Total archive storage volume for these anticipated components sums to only 3.27 cubic feet, which is negligible. Equipment no longer needed in the archive is returned to the manufacturer for reuse or recycling.

Therefore, it can be seen with certainty that there is no possibility that these proposed amendments may result in a significant adverse impact on the environment. Further, the proposed actions are designed to protect the environment and CARB 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). These activities are exempt from CEQA.

VII. ENVIRONMENTAL JUSTICE

State law defines environmental justice as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code § 65040.12, subdivision (e)(1)). Environmental justice includes, but is not limited to, all of the following: (A) The availability of a healthy environment for all people. (B) The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not

disproportionately borne by those populations and communities. (C) Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision making process. (D) At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions (Gov. Code, § 65040.12, subd. (e)(2)). The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of State law (CARB 2001). These policies apply to all communities in California, but are intended to address the disproportionate environmental exposure burden borne by low-income communities and communities of color. Environmental justice is one of CARB's core values and fundamental to achieving its mission.

The proposed amendments would preserve the ROG and benzene emission reductions accomplished under the existing vapor recovery regulations and would assist in maintaining the targeted emission reductions. Reducing ROG emissions is an integral part of California reaching its goal of attaining and maintaining federal and State ozone standards. Reducing benzene emissions is critical for reducing exposure to people who live and work near GDFs, who tend to belong to lower-income communities. Consequently, all communities, including disadvantaged low-income communities and communities of color, would benefit from the proposed amendments. Alternatives to the proposed amendments, such as not implementing the proposed amendments, would affect all communities throughout California.

The proposed amendments are consistent with CARB's environmental justice policy of reducing exposure to air pollutants and reducing adverse health impacts from toxic air contaminants in all California communities.

VIII. ECONOMIC IMPACTS ASSESSMENT

This chapter provides an economic impact assessment for the proposed regulatory amendments. CARB staff estimates the proposed amendments could result in net cost-savings of about \$31.8 million to \$97.9 million for business-owned GDFs that install updated ISD software that eliminates ISD overpressure alarm response costs over the regulatory lifetime. The proposed amendments could result in net costs of about \$290,000 to \$3.0 million for vapor recovery equipment manufacturers, which are anticipated to be fully passed on to GDF owners and operators who purchase their equipment. The proposed amendments could have a negative indirect impact on service contractors as an increasing number of GDFs no longer require ISD overpressure alarm responses by the contracted service technicians. Staff estimates fiscal impacts over regulatory lifetime that include net cost-savings of about \$57,300 for local agencies that operate GDFs, net costs of about \$2,900 for other local permitting agencies, and net cost-savings of about \$2,000 for state agencies.

Appendix L provides the background information, calculation methods, and assumptions for assessing potential economic impacts and benefits associated with each of the proposed amendments. The next chapter provides an evaluation of alternatives to the proposed amendments, and Appendix L provides additional information needed to assess their potential costs and cost-savings.

All costs and cost-savings associated with the proposed amendments are estimated as though Advisory 405 were not in place. Advisory 405 is not a regulation. Therefore, the economic effects of Advisory 405—such as cost relief for GDF owners and reduced revenue for service contractors—are not considered as part of baseline (business as usual, BAU) cost estimates for comparison to costs and cost-savings associated with the proposed amendments. Once CARB rescinds Advisory 405, GDF operators would be required to respond to overpressure alarms if they do not install the upgraded ISD software. Chapter II section A.2 provides additional information about Advisory 405.

A. Legal Requirements

Government Code §§ 11346.2, 11346.3, and 11346.5 require state agencies to assess the potential adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. In addition to providing estimates of the dollar amounts of costs and savings associated with complying with the regulatory proposal, the assessment must assess whether and to what extent the regulatory proposal would affect:

- The creation or elimination of jobs within the state;
- The creation of new businesses or the elimination of existing businesses within the state;
- The expansion of businesses currently doing business within the state; and
- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

State agencies are also required to estimate the costs and savings to any state or local agency and school districts in accordance with instructions adopted by the Department of Finance. This estimate is to include any nondiscretionary costs or savings to local agencies and the costs or savings in federal funding to the state.

Health and Safety Code § 57005 requires CARB to perform an economic impact analysis of submitted alternatives to a proposed regulation before adopting any major rule. A major rule is defined as a rule that will have a potential cost to California business enterprises in an amount exceeding ten million dollars in any single year. The proposed regulatory amendments do not exceed this threshold. Therefore, this proposal is not a major regulation as defined by Health and Safety Code § 57005. Nonetheless, a review of potential costs of key alternatives is provided in Appendix L because the costs affected CARB staff's selection of a preferred option. Attendees of the May 2020 public workshop and earlier workshops and meetings did not propose

any alternatives to those that CARB staff identified. Chapter IX provides a description of alternatives and Chapter XI provides a description of the public workshops.

B. Lifetime of Proposed Regulatory Amendments

CARB staff must estimate the lifetime of the proposed regulatory amendments to be able to estimate the total costs and cost-savings associated with their implementation.

CARB staff anticipates the lifetime of the proposed regulatory amendments to extend about ten years, from 2020 through 2030. This 10-year lifetime was selected to encompass potential impacts of the proposed amendments through the likely timeframe of amendments to the regulation. This lifetime is based on two assumptions:

- Start Date. The start date will be the amendment effective date, which is the date that CARB adopts the proposed amendments, which is expected to be before the end of 2020.
- End Date. Phase II vapor recovery regulations and associated requirements for gas station ISD systems and vapor recovery nozzles will remain in place until no longer needed on a widespread basis to achieve statewide emission reductions. CARB staff estimated 2030 as a potential end date for widespread use based on several state goals, regulations, and predictions that indicate there may be a substantial reduction in the amount of gasoline dispensed in California and associated GDF emissions by 2030. CARB staff expects to evaluate the Phase II vapor recovery regulations during the mid-2020s after assessment of the progress towards these goals and predictions:
 - In his January 2015 inaugural address, Governor Brown identified six key climate change strategy “pillars” for furthering the vision of California's Global Warming Solutions Act (Assembly Bill 32) and meeting the 2030 greenhouse gas (GHG) emissions target. One of the pillars includes reducing petroleum use in cars and trucks by up to 50 percent [CARB, 2016d].
 - CARB’s zero-emission vehicle (ZEV) regulations require that 22 percent of new cars sold in California by 2025 be plug-in electric or fuel cell vehicles (CCR § 1962.2(b)(1)(A)). State agencies are pursuing nearly 200 actions to support the electric car market, as identified in the Governor’s 2016 ZEV Action Plan (GIWG-ZEV, 2016). CARB’s *Midterm Review of Advanced Clean Cars Program* report’s evaluation of the California passenger vehicle market and current zero-emission vehicle technology found that the GHG emission standards currently in place for light-duty vehicle model years 2022-2025 are readily feasible at or below the costs estimated in 2012, when the regulations were adopted [CARB, 2017i].
 - CARB staff estimates that by 2030 approximately 95 percent of gasoline sold in California will be dispensed to vehicles equipped with an on

board refueling vapor recovery system (ORVR) [CARB, 2013b, Table I-2]. At that time, CARB may consider selectively decommissioning Phase II vapor collection at certain gas stations in areas where emissions do not pose unacceptable health risks. However, any decommissioning of Phase II vapor recovery systems would require modification of the Benzene ATCM and would likely require replacement of Phase II nozzles with ECO nozzles and installation of low permeation hoses.

C. Description of Businesses

Businesses that own and operate GDFs and vapor recovery equipment manufacturers are the regulated entities under the proposed amendments and could be impacted by new costs and cost-savings. There are more than 12,000 business-owned GDFs in California that are required to have either some type of vapor recovery system or ECO nozzles and low permeation hoses. These GDFs are operated by a variety of businesses that vary in size, revenue, and types of operations. Table 3 on the next page provides their general classifications and NAICS codes.

A total of 2,721 businesses that own GDFs are expected to be affected by the proposed amendments, of which 2,662 businesses or about 98 percent are California small businesses. These businesses are considered to be small because they are independently owned and operated, are not dominant in their field of operations, and have 100 or fewer employees (H&SC 11346.3(b)(1)). According to U.S. Census Bureau statistics, California retail gas stations have on average 9 employees [USCB, 2020a]. Therefore, a small GDF business could have up to 11 GDFs.

Also affected are 16 manufacturers that either produce equipment already certified by CARB for sale in California, have submitted applications for certification, or have discussed submitting an application. Of these 16 manufacturers, two are California based and one of them is small business. These companies can be generally classified as manufacturers of industrial process furnaces and ovens (NAICS code 333994), industrial valves (NAICS code 332911), measuring, dispensing, and other pumping equipment (NAICS code 333914), motors and generators (NAICS code 33512), and all other miscellaneous manufacturing (NAICS code 339999).

The proposed amendments, therefore, are likely to affect a total of 2,737 businesses (i.e., 2,721 businesses that own GDFs + 16 vapor recovery equipment manufacturers). Of 2,721 businesses that own GDFs, about 2,711 are California based and 2,662 are small business. One manufacturer is also considered to be small business. Therefore, a total of 2,663 affected businesses or 97 percent are California small business.

In addition, the proposed amendments are likely to indirectly affect 121 service contractors that respond to ISD alarms and install ISD software. About 110 of these contractors are considered to be small business. These companies can be classified under multiple NAICS categories, most typically "commercial and institutional building

construction” (NAICS code 236220) and “all other specialty trade contractors” (NAICS code 238990).

Table 3: GDF business classifications by vapor recovery system type

Statewide Number and Percentage of GDFs by Classification (NAICS Codes)	USTs & EVR ^[a]	ASTs & Phase I EVR	ASTs & Phase II EVR	ECO nozzles & low permeation hoses
Estimated # of business-owned GDFs:	10,235	2,040	58	145
Agriculture (111335, 111920, 112120, 115114, 115116, 424480)	0.1%	3%	21%	-
Entertainment: Amusement Parks, Racetracks, Leisure, Resorts, Golf, Marinas/Boating (711212, 713110, 611620, 713930, 713910, 721110)	0.3%	28%	10%	-
Auto Sales / Rental (441110, 532111, 532120)	2.1%	11%	7%	100%
Aviation Services (481190)	0.8%	3%	-	-
Cardlock Gas Stations (447190)	2.3%	12%	28%	-
Cemeteries (812220)	-	3%	-	-
Concrete/Cement/Aggregate (327310)	1.0%	-	-	-
Construction (236220)	0.3%	10%	-	-
Education (611710)	-	2%	-	-
Equipment Rental (532490)	-	10%	-	-
Fuels and Energy, Gas and Electricity (211120, 213111, 926130)	0.7%	4%	7%	-
Manufacturing (333611)	-	2%	3%	-
Retail Gas Stations (447110, 447190)	88.4%	8%	17%	-
Trucking / Transport (483111, 484110)	1.9%	5%	7%	-
Waste Management (924110)	0.7%	-	-	-
All Others	1.2%	-	-	-

[a] Assumed distribution based on CARB staff's review of ownership information for all USTs likely to have GDFs (not just those with EVR) [CERS, 2018; CARB, 2020o].

D. Estimated Costs for Businesses

1. Total Statewide Costs that California Businesses May Incur

Costs and cost-savings are analyzed beginning 2021 through 2030. This 10-year lifetime was selected to encompass potential impacts of the proposed amendments through the likely timeframe of amendments to the regulation. The proposed amendments are estimated to have direct costs of approximately \$379,000 to

\$14.1 million over its 10-year lifetime for business-owned GDFs and vapor recovery equipment manufacturers, when both required and voluntary actions are considered in the absence of Advisory 405. This estimate does not include cost-savings under the proposed amendments. Cost savings to businesses are described separately in section VIII.E, as required by the State Administrative Manual 6603. Tables 4a and 4b present a summary of the direct costs and cost-savings that businesses active in California could incur under the proposed amendments from 2021 to 2030.

Table 4a: Estimated difference in direct costs of proposed amendments compared to the current regulation ^[a] for California businesses, including only required actions

Year	Business-Owned GDFs		Equipment Manufacturers		TOTAL ^[b]	
	Costs Only	Cost-Savings Only	Costs Only	Cost-Savings Only	Costs Only	Cost-Savings Only
2021	\$0	\$0	\$81,428	(\$717)	\$81,428	(\$717)
2022	\$0	\$0	\$144,791	(\$860)	\$144,791	(\$860)
2023	\$1,802	\$0	\$12,579	(\$4,627)	\$14,380	(\$4,627)
2024	\$3,603	(\$1,143,303)	\$12,551	(\$4,617)	\$16,154	(\$1,147,920)
2025	\$5,396	(\$2,281,633)	\$12,333	(\$4,067)	\$17,728	(\$2,285,700)
2026	\$7,179	(\$3,419,963)	\$12,277	(\$4,047)	\$19,455	(\$3,424,010)
2027	\$8,962	(\$4,558,293)	\$12,277	(\$4,047)	\$21,238	(\$4,562,340)
2028	\$8,943	(\$5,696,623)	\$12,277	(\$4,047)	\$21,220	(\$5,700,670)
2029	\$8,925	(\$6,834,953)	\$12,277	(\$4,047)	\$21,201	(\$6,839,000)
2030	\$8,916	(\$7,964,256)	\$12,249	(\$4,037)	\$21,164	(\$7,968,293)
Total:	\$53,725	(\$31,899,024)	\$325,035	(\$35,113)	\$378,759	(\$31,934,137)

[a] Costs under the current regulation (economic baseline, BAU) must be estimated as though Advisory 405 is not in place because Advisory 405 is not a regulation.

[b] Net difference between costs and cost-savings:

Business-owned GDFs: = \$53,725 costs - \$31,899,024 savings = \$31,845,299 net cost-savings

Equipment Manufacturers: = \$325,035 costs - \$35,113 savings = \$289,922 net costs

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Table 4b: Estimated difference in direct costs of proposed amendments compared to the current regulation for California businesses, including required and voluntary actions

Year	Business-Owned GDFs		Equipment Manufacturers		TOTAL ^[a]	
	Costs Only	Cost-Savings Only	Costs Only	Cost-Savings Only	Costs Only	Cost-Savings Only
2021	\$0	\$0	\$81,428	(\$717)	\$81,428	(\$717)
2022	\$0	\$0	\$144,791	(\$860)	\$144,791	(\$860)
2023	\$553,680	\$0	\$693,592	(\$4,627)	\$1,247,271	(\$4,627)
2024	\$1,106,645	(\$4,647,849)	\$694,445	(\$4,617)	\$1,801,090	(\$4,652,466)
2025	\$1,659,602	(\$9,290,725)	\$694,227	(\$4,067)	\$2,353,828	(\$9,294,792)
2026	\$2,211,835	(\$13,933,601)	\$691,528	(\$4,047)	\$2,903,363	(\$13,937,648)
2027	\$2,213,618	(\$18,561,767)	\$12,277	(\$4,047)	\$2,225,895	(\$18,565,814)
2028	\$1,661,722	(\$19,700,097)	\$12,277	(\$4,047)	\$1,673,998	(\$19,704,144)
2029	\$1,110,539	(\$20,838,427)	\$12,277	(\$4,047)	\$1,122,816	(\$20,842,474)
2030	\$559,366	(\$21,967,730)	\$12,249	(\$4,037)	\$571,614	(\$21,971,767)
Total:	\$11,077,006	(\$108,940,196)	\$3,049,087	(\$35,113)	\$14,126,093	(\$108,975,309)

[a] Net difference between costs and cost-savings:

Business-owned GDFs: = \$11,077,006 costs - \$108,940,196 savings = \$97,863,190 net cost-savings

Equipment Manufacturers: = \$3,049,087 costs - \$35,113 savings = \$3,013,974 net costs

2. Costs for a Small Business

The proposed amendments will potentially affect 2,662 California small businesses that own GDFs, of which approximately 741 businesses are required to install updated ISD software that eliminates ISD overpressure alarms at the time of new GDF construction or major modification of an existing GDF. The updated software would be included with the purchase of the new ISD console that would already be part of the major modification or new construction. Assuming that vapor recovery equipment manufacturers are able to pass on their compliance costs entirely to GDFs, a GDF small business could experience an additional initial cost of about \$23 for the updated software and loan interest⁹ for a new GDF or a major modification of an existing GDF, as a result of the proposed amendments.

CARB staff estimates that approximately 14 percent or a maximum of two (i.e., 11 GDFs x 0.14) retail GDF owned by a small business could be required to install updated ISD software between 2023 and 2030 either at the time of construction (for new GDFs) or at the time of major modification (for existing GDFs). Since a small GDF business can own 11 or less GDFs and most small business owned GDFs likely will not

⁹ CARB staff assumes the additional cost for updated software will be included in the overall purchase of a new ISD console at the time of major modification or new GDF construction, and GDF owners will have a five-year loan with five percent interest for equipment costs and installation.

be required to install updated ISD software, the initial costs to a small GDF business can range from zero to \$46 (i.e., \$23 per GDF x 2 GDFs).

The installation of updated ISD software, however, will eliminate overpressure alarm response costs. Based on average overpressure alarm frequencies observed statewide [CARB, 2020b and 2020n], CARB staff estimates a statewide average cost-savings of about \$3,500¹⁰ per year per GDF that is required to install updated ISD software and would experience overpressure alarms without the updated ISD software. GDFs that do not experience any ISD overpressure alarms would have no cost-savings after installation of the updated ISD software. Therefore, a small GDF business that installs updated software at two GDFs may experience annual ongoing cost-savings of zero to \$7,000.

In addition, the proposed amendments could affect approximately 1,921 small businesses that decide to voluntarily install updated ISD software in an existing GDF's ISD console based on their site-specific assessment of cost-effectiveness from eliminating ISD overpressure alarm response costs. CARB staff estimates small business owners could decide to voluntarily install updated ISD software at about 47 percent of their GDFs¹¹ or up to 5 GDFs (i.e., 11 GDFs x 0.47) between 2023 and 2026 based on their site-specific assessment of cost-effectiveness from eliminating ISD overpressure alarm response costs. There could be an initial cost per GDF of approximately \$3,600 for permit fees, ISD software update, installation, and loan interest.¹² Therefore, the initial costs to a small GDF business that voluntarily installs ISD software can range from \$3,600 to \$18,000 (i.e., \$3,600 per GDF x 5 GDFs).

Based on average ISD overpressure alarm frequencies observed statewide [CARB, 2020b and 2020n], CARB staff estimates a statewide average cost-savings of about \$4,600 per year per small business owned GDF that experiences enough overpressure alarms to be cost-effective to voluntarily install updated ISD software. Therefore, a small GDF business that voluntarily installs updated ISD software at 1 to 5 GDFs may experience annual ongoing cost-savings of \$4,600 to \$23,000.

3. Costs for a Typical Business

The typical business affected by the proposed amendments, not including small businesses, is a business that owns 12 or more retail GDFs. Based on a review of California Environmental Reporting System (CERS) database UST ownership records

¹⁰ CARB staff estimates that, in the absence of Advisory 405, small businesses that install updated ISD software would have cost savings of approximately \$780 to \$17,000 per GDF per year by avoiding 1 to 22 overpressure alarm responses per year.

¹¹ This estimate is based on a statewide survey of ISD overpressure alarm frequencies [CARB, 2020b], alarm response cost estimates, and input from the ISD manufacturers and GDF owners. Appendix L describes the estimate methodology.

¹² CARB staff assumes the GDF owners will have a five-year loan with five percent interest for costs for software update, installation, and permit fees.

[CERS, 2018], CARB staff estimates there are about 45 California-based businesses, and 12 businesses headquartered outside of California, that own from 12 to nearly 600 retail GDFs each. The most common types of business are mid-sized independent retail businesses that own an average of about 14 GDFs, and large independent retail businesses that own an average of about 79 GDFs. Assuming that vapor recovery equipment manufacturers are able to pass on their compliance costs entirely to GDFs, the proposed amendments could result in an additional initial cost of about \$23 per GDF for new and existing GDFs required to install updated ISD software compared to the cost of ISD software under the current regulation.

The initial and ongoing cost to a typical California business for updated ISD software installations required under the proposed amendments depends on the number and timing of major modifications at its existing GDFs or construction of new GDFs. CARB staff estimates that approximately 73 percent of retail GDFs not owned by small business¹³ could be required to install updated ISD software between 2023 and 2030 either at the time of construction (for new GDFs) or at the time of major modification (for existing GDFs). This indicates that a mid-sized independent retail business required to install updated ISD software at up to 10 GDFs (i.e., 14 GDFs x 0.73) could have initial costs that range from \$23 to \$230 (i.e., \$23 per GDF x 14 GDFs x 0.73), depending on how many of its GDFs have a major modification in the same year. A large independent retail business required to install updated ISD software at up to 58 GDFs (i.e., 79 GDFs x 0.73) could have initial costs that range from \$23 to \$1,300 (i.e., \$23 per GDF x 58 GDFs). These estimates assume that vapor recovery equipment manufacturers are able to pass on their compliance costs entirely to GDFs.

Based on average ISD overpressure alarm frequencies observed by a statewide survey [CARB, 2020b and 2020n], CARB staff estimates a statewide average cost-savings of about \$3,500 per year for a mid-sized or large business-owned GDF that is required to install the updated ISD software and would experience overpressure alarms without the updated ISD software. The statewide survey indicates about 65 percent of affected mid-sized or large business-owned GDFs experience one or more ISD overpressure alarms per year. A typical mid-sized business required to install updated ISD software at 10 GDFs (i.e., 14 GDFs x 0.73) could have cost-savings of about \$23,000 (i.e., \$3,500 cost-savings per GDF x 10 GDF modifications x 0.65) per year, and a large business required to install updated ISD software at 58 GDFs (i.e., 79 GDFs x 0.73) could have cost-savings of about \$132,000 (i.e., \$3,500 cost-savings per GDF x 58 GDFs x 0.65) per year.

In addition, CARB staff estimates mid-sized and large business owners could decide to voluntarily install updated ISD software at about 19 percent of their GDFs between 2023 and 2026 based on their site-specific cost-effectiveness assessment of eliminating ISD overpressure alarm response costs. There could be a total cost per GDF of approximately \$3,600 for permit fees, ISD software, installation, and loan

¹³ This estimate is based on input from the ISD manufacturers and GDF business owners. Appendix L describes the estimate methodology.

interest. Therefore, a mid-sized GDF business that voluntarily installs updated ISD software at up to 3 GDFs (i.e., 14 GDFs x 0.19) could experience initial costs that range from \$3,600 to \$10,800 (i.e., \$3,600 x 3 GDFs). A large GDF business that voluntarily installs updated ISD software at up to 15 GDFs (i.e., 79 GDFs x 0.19) could experience an initial costs that range from \$3,600 to \$54,000 (i.e., \$3,600 x 15 GDFs).

Based on average overpressure alarm frequencies observed statewide [CARB, 2020b and 2020n], CARB staff estimates a statewide average cost-savings of about \$4,000 per year per GDF owned by a mid-sized or large business that experiences enough overpressure alarms to be cost-effective to voluntarily install updated ISD software. A typical mid-sized business that voluntarily installs updated ISD software at 3 GDFs (i.e., 14 GDFs x 0.19) could have cost-savings of about \$12,000 (i.e., \$4,000 cost-savings per GDF x 3 GDFs) per year, and a large business that voluntarily installs updated ISD software at 15 GDFs (i.e., 79 GDFs x 0.19) could have cost-savings of about \$60,000 (i.e., \$4,000 cost-savings per GDF x 15 GDFs) per year.

4. Share of Cost by Industry

Table 5 summarizes the share of total cost increases for affected industries between 2021 and 2030.

Table 5: Share of cost increases for industries potentially affected by the proposed amendments from both required and voluntary actions

Industry	Cost Increases	Share of Total Cost Increase
Gas Dispensing Facilities	\$11,077,006	78%
Vapor Recovery Equipment Manufacturers	\$3,049,087	22%
Total:	\$14,126,093	100%

5. Potential Impact on Business Creation or Elimination, Jobs, and Business Competitiveness

Business Creation or Elimination

No businesses are expected to be created or eliminated in response to the proposed amendments.

Staff assumed the direct costs imposed on equipment manufacturers would be fully passed on to GDF owners and operators who purchase their equipment and therefore would have no net impact on equipment manufacturers.

The proposed amendments for overpressure alarm criteria in ISD software would result in an additional cost of about \$23 for new and existing GDFs required to install updated ISD software, not including any cost-savings from avoidance of overpressure alarm response costs. This \$23 cost per GDF is considered to be negligible and would

not lead to the creation or elimination of any business. For GDF business owners who decide to voluntarily install updated ISD software, there could be an initial cost per GDF of approximately \$3,600 for permit fees, ISD software update, and installation. CARB staff estimates that, in the absence of Advisory 405, businesses that install updated ISD software at GDFs that currently experience ISD overpressure alarms would have cost savings of approximately \$780 to \$17,000 per GDF per year by avoiding 1 to 22 overpressure alarm responses per year, which would result in long-term net cost-savings compared to the cost for the updated software. Such savings are not expected to create new GDF business.

If manufacturers were to pass on the costs and savings that may result from the other proposed amendments to businesses that own GDFs, these could result in approximately \$1.53 in additional cost to approximately \$14.76 in cost-savings per impacted GDF through 2030, depending on the type of vapor recovery system installed. These potential passed-through costs and savings are considered to be negligible.

The proposed amendments may have a short-term, positive impact on service companies with technicians that install ISD software updates at GDFs but a long-term, negative impact as an increasing number of GDFs no longer require overpressure alarm responses. Currently, Advisory 405 provides some relief from overpressure alarm response cost and inconvenience by allowing GDF operators to clear ISD overpressure alarms during the winter fuel period. The proposed amendments would allow GDF operators to install updated ISD software that eliminates ISD overpressure alarms and associated service company alarm responses costs during both the winter and the summer, which would have an indirect and negative impact on service company revenue. The impact is not expected to eliminate any business because the companies will continue to respond to ISD vapor collection and vapor leak alarms, and provide services for a variety of AST and UST systems, not just ISD systems at GDFs with USTs. The California Environmental Reporting System database indicates that in all there are about 14,000 USTs and about 16,000 ASTs throughout California.

Jobs Creation or Elimination

The proposed amendments are expected to result in overall cost-savings to GDFs while reducing service contractor revenue as an increasing number of GDFs no longer require overpressure alarm responses by the contracted service technicians. This could result in creation or elimination of some jobs at GDFs and service companies. This analysis provides a general approximation of potential job gains and losses at GDFs and service contractor companies based on a reduction in average revenue per employee caused by the proposed amendments. Based on economic census data compiled by the U.S. Census Bureau, GDFs have an average revenue of \$915,682 per employee [USCB, 2020b] and "other specialty trade contractors" (NAICS 238990) have an average revenue per employee of \$173,261 in California [USCB, 2020c].

To estimate the potential number of statewide jobs created and eliminated for GDFs in the absence of Advisory 405, CARB staff multiplied the total annual estimate of net costs (or net cost-savings) estimated for business-owned GDFs by the mark-up factor of 1.11¹⁴ to estimate revenue equivalent for GDFs. The GDF revenue equivalent and revenue changes for service companies, under the proposed amendments, was divided by their respective average revenue per employee. As shown in Table 2, the proposed amendments may result in creation of maximum of 26 jobs at GDFs by 2030, when both required and voluntary actions are considered. The proposed amendments may result in creation of about 6 jobs in 2023 at service contractor businesses as GDF owners begin to hire service technicians to install updated ISD software, and elimination of maximum of 122 jobs by 2030 as an increasing number of GDFs no longer require overpressure alarm responses by the contracted service technicians. This estimate is based on the assumption that service companies will not increase their charges to these and other gas stations for other services. To the extent that the service companies would be able to increase these service charges, the employment impact would be less than estimated here.

Table 6: Estimated statewide number of jobs potentially created and eliminated under the proposed amendments by required and voluntary actions by GDF owners

Year	Direct Impacts to Business-Owned GDFs		Indirect Impacts to Service Contractors ^[c]	
	Estimated statewide net revenue (equivalent) impacts ^[a] from proposed amendments	Estimated # of GDF Jobs Created (+) or Eliminated (-) ^[b]	Estimated statewide net revenue impacts from proposed amendments	Estimated # of GDF Jobs Created (+) or Eliminated (-) ^[b]
2021	\$0	0	\$0	0.0
2022	\$0	0	\$0	0.0
2023	\$614,584	-0.7	(\$1,059,010)	+6.1
2024	(\$3,930,736)	+4.3	\$3,413,299	-19.7
2025	(\$8,470,547)	+9.3	\$7,887,296	-45.5
2026	(\$13,011,160)	+14.2	\$12,361,878	-71.3
2027	(\$18,146,445)	+19.8	\$17,872,900	-103.2
2028	(\$20,022,597)	+21.9	\$18,972,002	-109.5
2029	(\$21,897,956)	+23.9	\$20,068,329	-115.8
2030	(\$23,763,284)	+26.0	\$21,154,251	-122.1

[a] Parentheses indicate net revenue increases.

¹⁴ According to Bizminer (a financial data provider), the average gross margin for gas stations in California was about 10% from 2015 thru 2019. This translates to a mark-up of 11.11%, using this conversion formula: Mark-up = [gross margin ÷ (1 – gross margin)] x 100.

- [b] To estimate the number of GDF jobs created or eliminated each year, annual net revenue impact is divided by an average revenue per employee of \$915,682 for business-owned GDFs and by an average revenue per employee of \$173,261 for service contractors.
- [c] Service companies can be contracted by both business- and government-owned GDF owners. Statewide service contractor revenue values in this table reflect required and voluntary actions by both business- and government-owned GDFs.

Business Competitiveness

The proposed amendments are expected to have no quantifiable effect on the ability of California businesses to compete with businesses in other states.

6. Potential Costs and Benefits to Individuals

CARB is not aware of any cost impacts that a representative private person would necessarily incur in reasonable compliance with the proposed amendments. Information provided by the Air Districts indicates no individuals, only businesses and government agencies, own GDFs directly affected by the proposed amendments.

In addition, no noticeable indirect or induced costs or benefits for individuals, such as costs or savings being passed on to consumers, are anticipated. Cost-savings are anticipated for many retail GDFs; consequently, no cost increases are expected to be passed on to GDF customers. As described in Appendix L (section A and Tables L-24 and L-25), cost-savings could vary substantially from one retail GDF to the next and, on a statewide basis, CARB staff does not anticipate a noticeable reduction in the price of gasoline at the pump for customers.

E. Estimated Benefits for Businesses

1. Benefits of the Regulation

The Vapor Recovery Program has been very successful at reducing emissions over the last 40 years. The proposed suite of regulatory amendments would continue to refine the Vapor Recovery Program to improve cost effectiveness and provide better regulatory certainty and enforceability with no increase in existing gasoline vapor emissions. The following two sub-sections describe non-monetized benefits and section E.2 describes monetized benefits.

Health and Welfare of California Residents, Worker Safety, and the State's Environment

As described in Chapter IV, the proposed amendments will preserve the emission reductions achieved by implementation of emission controls at GDFs. Reducing ROG emissions benefits the health and welfare of California residents and worker safety by reducing ambient ground level ozone and benzene exposure. Reducing ambient ground level ozone also helps to reduce smog, which is a benefit for the state's environment.

Additional Benefits:

As described in more detail in Chapter IV, the proposed amendments would provide several other unquantified benefits:

- The proposed amendments to ISD software to improve pressure data summaries and data storage would benefit GDF owners and operators, service contractors, and regulators by ensuring the reports can be correctly and easily identified, and by improving the accuracy and usefulness of reported pressure values. Easily accessible monthly pressure reports with long-term data would help service contractors conduct more effective trouble shooting to identify equipment problems (e.g., vapor leaks and inoperable vapor processors) and their causes. The ISD system manufacturers have assured CARB staff that the proposed changes to the ISD software can be easily accomplished with negligible costs and can be done at the same time as the proposed changes to the ISD overpressure criteria.
- Industry requested that CARB revise the ISD remote access port requirement in CP-201 to allow design flexibility to include modern technologies. CARB staff agrees that amending the current requirement for all ISD consoles to have a RS-232 port relieves an unnecessary cost for ISD manufacturers. In addition, installing modern ports such as USB ports would improve the access and quality of downloaded data from the ISD system for GDF contractors, Air District inspectors, and CARB staff.
- The proposed amendments to the nozzle spillage standards enables more accurate GDF emission estimates for Statewide Implementation Plan emission inventories and Air District permits.
- The proposed amendments to the test procedures for remote fill Phase I system configurations (TP-201.1C and TP-201.1D) benefit owners and operators of GDFs with remote configurations, service contractors, and Air Districts by preventing false indications of system leaks and improving the test procedures for better regulatory certainty.
- The proposed amendments to correct the Phase II EVR upgrade date for GDFs with ASTs in CP-206 will prevent time-consuming confusion and eliminate the potential for some AST owners to inadvertently perform costly upgrades that the Board did not intend when they adopted updates to the Phase II EVR requirements in 2019.
- The proposed administrative changes provide benefits in the form of some cost savings for manufacturers, Air Districts, and CARB associated with reducing confusion and reducing time needed to cross-reference multiple standards documents. The primary benefit of the proposed administrative changes is clarifying the certification and test procedures for better regulatory certainty and enforceability.

2. Total Statewide Benefits

The proposed amendments would generate approximately \$32 million to \$109 million in cost savings over its 10-year lifetime for business owners who implement required and voluntary installations of updated ISD software that eliminates ISD overpressure alarm response costs at their GDFs (Tables 4a and 4b, in the absence of Advisory 405).

F. Fiscal Effect on Local Government

Local agencies that operate GDFs are the regulated entities under the proposed amendments and could be impacted by new costs and cost-savings. The proposed amendments also could result in new costs and cost-savings for local agencies—Air Districts and Certified Unified Program Agencies—that issue and enforce permits for GDF activities and participate in the certification process for vapor recovery equipment.

Fiscal impacts to local government are analyzed for the fiscal year the proposed regulatory amendments will become effective (FY2021/22), the two following years, and the regulatory lifetime (through December 2030). This 10-year lifetime was selected to encompass potential impacts of the proposed amendments through the likely timeframe of amendments to the regulation. When only non-reimbursable and non-recoverable direct costs are summed statewide for both required and potential voluntary actions under the proposed amendments, local agencies across the state may experience a net cost in some years, a net cost-savings in other years, and a lifetime net savings statewide. Table 7 provides a summary of statewide costs and cost-savings estimated for local government and identifies non-reimbursable costs.

Because the proposed amendments apply equally to all regulated entities and unique requirements are not imposed on local agencies, the proposed amendments would impose no costs on local agencies that are required to be reimbursed by the State pursuant to part 7 (commencing with § 17500), division 4, title 2 of the Government Code, and would not impose a mandate on local agencies that is required to be reimbursed pursuant to § 6 of Article XIII B of the California Constitution. Further, the proposed amendments would not create costs to any school district reimbursable by the state pursuant to Part 7 (commencing with § 17500), division 4, title 2 of the Government Code.

Table 7: Estimated difference in direct costs of proposed amendments compared to the current regulation (BAU) for local government, including potential required and voluntary actions

Period / Agency	Costs Only	Cost-Savings Only	Net	Net: Only Non-reimbursable and Non-recoverable Costs
Local agencies that operate gasoline dispensing facilities: ^[a]				
FY2021/22:	\$0	\$0	\$0	\$0
FY2022/23:	\$0	\$0	\$0	\$0
FY2023/24:	\$0	\$0	\$0	\$0
Lifetime:	\$6,200 ^[a]	(\$63,500)	(\$57,300)	(\$57,300)
Air Districts: ^[a]				
FY2021/22:	\$7,200	(\$115)	\$7,100	(\$115)
FY2022/23:	\$4,000 ^[a]	(\$115)	\$3,900	\$3,900
FY2023/24:	\$18,700	(\$115)	\$18,600	(\$115)
Lifetime:	\$86,000	(\$1,100)	\$85,00	\$2,900
Certified Unified Program Agencies: ^[a]				
FY2021/22:	\$0	\$0	\$0	\$0
FY2022/23:	\$0	\$0	\$0	\$0
FY2023/24:	\$221,000	\$0	\$221,000	\$0
Lifetime:	\$886,000	\$0	\$886,000	\$0
All Local Agencies: ^[a]				
FY2021/22:	\$7,200	(\$115)	\$7,100	(\$115)
FY2022/23:	\$4,000	(\$115)	\$3,900	\$3,900
FY2023/24:	\$239,700	(\$115)	\$239,600	(\$115)
Lifetime:	\$978,200	(\$64,600)	\$913,600	(\$54,400)

[a] Approximately \$4,000 in costs for Air Districts cannot be recovered from manufacturers and GDF owners applying for permits nor reimbursed by the State, and about \$6,200 in costs for local agencies that operate GDFs are not reimbursable. All other costs for Air Districts and CUPAs are fully recovered from GDF owners applying for permits because Air Districts and CUPAs have legal authority under state law to recover related costs by imposing fees. Of the total statewide costs of \$978,200, \$968,000 are recoverable through permit fees. As a result, the proposed amendments result in a net statewide cost-savings of about \$54,400 over its 10-year lifetime (i.e., \$10,200 costs + \$64,600 cost-savings = \$54,400 net savings).

1. Local Agencies That Operate Gasoline Dispensing Facilities

The proposed amendments affect business- and government-owned GDFs throughout California in different ways based on their types of vapor recovery systems. There are about 1,600 local government-owned GDFs in California that are required to have either some type of vapor recovery system or ECO nozzles and low permeation hoses. These local government-owned GDFs are operated by a variety of organizations that vary in size, revenue, and types of operations. Table 8 provides their general classifications and NAICS codes.

The proposed amendment for ISD software to eliminate overpressure alarms would directly affect local agency owners and operators of GDFs with ISD systems. A recent survey of Air District permitting programs indicates there are approximately four GDFs with ISD systems owned by local agencies. As shown in Table 7, CARB staff estimated the combination of required and voluntary installations of updated ISD software could result in 10-year lifetime costs of about \$6,200, cost savings of about \$63,500, and net cost-savings of about \$57,300, for the local agencies that operate these GDFs. Net savings from this program are expected to be re-allocated to other aspects of the agency programs and would have no fiscal impact for local agencies. All of these estimated costs and savings are expected to occur after FY2023/24 because GDF owners cannot install updated ISD software until ISD manufacturers and state agencies complete the testing and review process to certify the software.

Several of the other proposed amendments can indirectly affect local government-owned GDFs due to the potential to incur pass through costs from vapor recovery equipment manufacturers that are directly impacted by the amendments. While most of these manufacturers are located outside of California, staff assumed the direct costs imposed on these manufacturers, as well as potential cost-savings, would be fully passed on to GDF owners and operators who purchase their equipment. If manufacturers were to pass on their new certification costs and other costs and cost-savings under the proposed amendments to business-and government-owned GDFs, these could result in approximately \$1.53 in additional cost to approximately \$14.76 in cost-savings per impacted GDF through 2030, depending on the type of vapor recovery system installed. These potential passed-through (indirect) costs and cost-savings are considered to be negligible.

Table 8: Local government-owned GDF industry classifications by vapor recovery system type

Statewide Number and Percentage of GDFs by Classification (NAICS Codes)	USTs & EVR [a]	ASTs & Phase I EVR	ASTs & Phase II EVR	ECO nozzles & low permeation hoses
Estimated # of GDFs:	350	1,022	82	148
Aviation (481190)	3%	NA	NA	NA
Education (485410, 611210)	15%	14%	14%	14%
Fire Department (922160)	19%	5%	5%	5%
Irrigation District (221310)	0.2%	12%	12%	12%
Parks ^[b] (712190)	1.9%	NA	NA	NA
Police Protection (922120)	14%	2%	2%	2%
Ports, Harbors & Beaches (488310)	1.4%	5%	5%	5%
Public Works ^[c] (221122, 2213, 221310, 221320, 237310, 811111)	34%	52%	52%	52%
Transit Agency (485210)	8%	10%	10%	10%
All Other	3.5%	NA	NA	NA

[a] Assumed distribution based on CARB staff's review of CERS database ownership information for all USTs likely to have GDFs (not just those with EVR) [CERS, 2018; CARB, 2020o].

[b] Includes one park operated by a non-profit organization.

[c] Includes fleet services, general services, corporation yards, service/maintenance yards, and highway and street construction.

2. Air Districts

The proposed amendments would require the two current ISD manufacturers to remove the ISD overpressure alarm criteria from their ISD software, and add the additional pressure report and storage capability, the next time they seek CARB certification. Air Districts participate in the certification process by issuing research and development (R&D) permits for certification test sites and by providing review of CARB staff's draft certification Executive Orders. Based on Air District survey responses [CARB, 2020a], the proposed amendments could result in Air District R&D permitting costs of about \$7,200 in FY2021/22.

In addition, under the proposed amendments, from 0 to 3,088 GDFs owned by up to about 2,721 businesses may voluntarily install updated ISD software between 2023 and 2026, and from 0 to 4 government-owned GDFs may voluntarily install updated software. These actions could have an impact on some Air District permitting

programs. Of the 11 Air Districts that responded to a CARB 2020 survey and 4 additional Districts that responded to a 2014 survey [CARB, 2020a], only 1 Air District (San Luis Obispo Air District) requires GDF owners and operators to obtain a permit to install ISD software updates with a permit fee of \$220. The other 14 Air Districts that responded encompass more than 89 percent of GDFs statewide and do not require a permit for ISD software updates. This indicates that up to about 11 percent of GDFs that voluntarily install updated ISD software may require Air District permits, assuming such GDFs are evenly distributed across the state. This could equate to as many as 340 additional permit applications (i.e., $0.11 \times (3,088 \text{ business-owned GDFs} + 4 \text{ government-owned GDFs})$). Assuming the affected Air Districts have similar fee rates as the Air District that responded to the survey, the proposed amendments could generate new permitting revenue for Air Districts up to about \$74,800 between FY2022/23 through FY2026/27 (i.e., $340 \text{ GDF permit applications} \times \$220 \text{ per application}$). This permitting revenue is expected to fully pay for Air District related costs. As a result, the proposed amendments would have no net fiscal impact on Air Districts.

Typically, 5 to 10 Air Districts provide written comments on CARB staff's draft certification Executive Orders and meet with CARB staff to discuss the comments. Based on February 2020 Air District survey responses, CARB staff estimates a statewide average Air District engineer hourly wage and benefit rate of \$125 [CARB, 2020a]. Assuming the Air Districts spend a total of about 16 hours per draft Order, and there are two Orders, the proposed amendments could result in about \$4,000 total review costs in FY2022/23 (i.e., $16 \text{ hours per draft Order} \times 2 \text{ Orders} \times \$125/\text{hour}$). These costs are not recoverable from manufacturers nor reimbursable by the State because State law (Health and Safety Code § 41954(e)) specifies which agencies can charge a fee for certification costs, not to exceed actual costs, and has no provisions for Air Districts to charge a fee or be reimbursed for time spent on reviewing and commenting on certification Executive Orders.

Finally, the proposed amendment to correct the effective date of upgrade requirements for existing AST Phase II systems could result in cost savings for Air District enforcement programs by reducing time spent researching effective dates for equipment and contacting CARB staff for clarification. As shown in Table 7, CARB staff estimated the proposed amendment could result in statewide cost-savings for Air Districts of about \$115 per year in FY2021/22 through FY2023/24 and about \$1,100 over the 10-year regulatory lifetime (through December 2030). Savings are expected to be re-allocated to other aspects of the Air District enforcement programs with no fiscal impact on Air Districts.

3. Certified Unified Program Agencies (CUPAs)

Under the proposed amendments, CARB staff estimates up to 3,088 business-owned GDFs and up to 4 government-owned GDFs may voluntarily install updated ISD software between 2023 and 2026. These actions could have an impact on some CUPA permitting programs. Of the twelve CUPAs that responded to a CARB 2020 survey

[CARB, 2020], only four require permits for ISD software updates: San Diego County (\$1,501), Ventura County (\$1,137), Bakersfield (fee amount not provided)), and Santa Fe Springs (\$800). These four CUPAs regulate about 1,010 GDFs. The other eight CUPAs that responded to the survey do not require permits for ISD software updates; these CUPAs regulate about 3,323 GDFs and include the Counties of Alameda, Los Angeles, Orange, Riverside, Sacramento, San Joaquin, and Solano, and the City of Anaheim.

The survey results indicate that about a fourth of GDFs [$1,010 \text{ GDFs} \div (1,010 \text{ GDFs} + 3,323 \text{ GDFs})$] that voluntarily install updated ISD software under the proposed amendments may require CUPA permits, assuming such GDFs are evenly distributed across the state, and CUPA costs per permit could average about \$1,146. This could equate to as many as about 773 additional permit applications (i.e., $0.25 \times (3,088 \text{ business-owned GDFs} + 4 \text{ government-owned GDFs})$). Because CUPAs have legal authority to recover related costs by imposing fees, new permitting fees could generate revenue of about \$886,000 for CUPAs during FY2022/23 through FY2026/27 (i.e., $773 \text{ GDF permit applications} \times \$1,146 \text{ cost per permit}$). This permitting revenue is expected to fully pay for CUPAs' related costs. As a result, the proposed amendments would have no net fiscal impact on CUPAs.

G. Fiscal Effect on State Government

State agencies that operate GDFs are the regulated entities under the proposed amendments and could be impacted by new costs and cost-savings. The proposed amendments also could result in new costs and cost-savings for CARB and other state agencies that participate in the certification process for vapor recovery equipment.

Fiscal impacts to state government are analyzed for the fiscal year the proposed amendments will become effective (FY2021/22), the two following years, and the 10-year regulatory lifetime (through December 2030). When only non-recoverable direct costs are summed statewide under the proposed amendments, state agencies may experience a net cost in some years, a net cost-savings in other years, and a lifetime net savings statewide. Table 9 provides a summary of statewide costs and cost-savings estimated for state government.

Table 9: Estimated difference in direct costs of proposed amendments compared to current regulation for state government ^[a]

Period / Agency	Costs Only	Cost-Savings Only ^[b]	Net	Net: Only Non-recoverable Costs
California Air Resources Board: ^[a]				
FY2021/22:	\$2,530	(\$370)	\$2,160	(\$210)
FY2022/23:	\$64,410	(\$230)	\$64,180	(\$210)
FY2023/24:	\$300	(\$230)	\$70	(\$210)
Lifetime:	\$68,510	(\$2,320)	\$66,190	(\$1,990)
Department of Forestry and Fire Protection SFM:				
FY2021/22:	\$0	\$0	\$0	\$0
FY2022/23:	\$170	\$0	\$170	\$0
FY2023/24:	\$0	\$0	\$0	\$0
Lifetime:	\$170	\$0	\$170	\$0
Department of Industrial Relations DOSH:				
FY2021/22:	\$0	\$0	\$0	\$0
FY2022/23:	\$480	\$0	\$480	\$0
FY2023/24:	\$0	\$0	\$0	\$0
Lifetime:	\$480	\$0	\$480	\$0
All State Agencies:				
FY2021/22:	\$2,530	(\$370)	\$2,160	(\$210)
FY2022/23:	\$65,060	(\$230)	\$64,820	(\$210)
FY2023/24:	\$300	(\$230)	\$70	(\$210)
Lifetime:	\$69,160	(\$2,320)	\$66,840	(\$1,990)

[a] CARB is the only state agency anticipated to have non-recoverable costs under the proposed amendments (i.e., costs of \$22/year and cost-savings of \$230/year, for a net cost-savings (rounded) of \$210/year).

[b] Parentheses indicate cost-savings.

1. State Agencies That Operate Gasoline Dispensing Facilities

The proposed amendments affect state government-owned GDFs throughout California in different ways based on their types of vapor recovery systems. There are about 496 state government-owned GDFs in California that are required to have either some type of vapor recovery system or ECO nozzles and low permeation hoses. These state government-owned GDFs are operated by a variety of organizations that

vary in size, revenue, and types of operations. Table 10 provides their general industry classifications and NAICS codes.

The proposed amendments for ISD software to eliminate overpressure alarms would directly affect owners and operators of GDFs with ISD systems. A recent survey of Air District permitting programs [CARB, 2020a] indicates no state agencies own or operate any GDFs with ISD. Consequently, the proposed amendments directly impact only state agencies that participate in the ISD software certification process.

Several of the other proposed amendments may indirectly affect state government-owned GDFs due to the potential to incur pass through costs from vapor recovery equipment manufacturers that are directly impacted by the amendments. While most of these manufacturers are located outside of California, staff assumed the direct costs imposed on these manufacturers, as well as potential cost-savings, would be fully passed on to GDF owners and operators who purchase their equipment. If manufacturers were to pass on their new certification costs and other costs and cost-savings under the proposed amendments to GDFs, these could result in approximately \$1.53 in additional cost to approximately \$14.76 in cost-savings per impacted GDF through 2030, depending on the type of vapor recovery system installed at each of the 496 potentially-affected state-owned GDFs. These potential passed-through costs and cost-savings are considered to be negligible. These costs or cost-savings do not impose any fiscal impacts because they are not unique to government and affect private and public sectors equally.

**Table 10: State government-owned GDF classifications
by vapor recovery system type**

Statewide Number and Percentage of GDFs by Classification (NAICS Codes)	USTs & EVR ^[a]	ASTs & Phase I EVR ^[b]	ASTs & Phase II EVR	ECO nozzles & low permeation hoses ^[b]
Estimated # of GDFs:	44	384	39	29
Correctional Institutes (922140)	NA	-	10%	-
Colleges & Universities (611310)	4%	-	NA	-
Fleet Services & General Services (921190)	4%	-	NA	-
Police Protection (922120)	75%	-	55%	-
Transportation (926120)	17%	-	25%	-
Water Resources (221310)	NA	-	10%	-

[a] Assumed distribution based on CARB staff's review of CERS database ownership information for all USTs likely to have GDFs (not just those with EVR).

[b] Classification information is not available for GDFs with ASTs and Phase I EVR nor GDFs with ECO nozzles and lower permeation hoses. Classifications are likely similar to those of GDFs with ASTs

and Phase II EVR. Per EO-VR-501, Phase II EVR cannot be installed on an AST that does not have Phase I EVR, so CARB staff assumes classification their distributions are similar. Per discussions with Air District staff and CARB staff observation, ECO nozzles and low permeation hoses are installed at ORVR fleet facilities, many of which have ASTs.

2. State Agencies That Participate in the Certification Process

The proposed amendments would require the two current ISD manufacturers to remove the ISD overpressure alarm criteria from their ISD software, and add the additional pressure report and storage capability, the next time they seek CARB certification. State law requires CARB to coordinate certification procedures with:

- Department of Food and Agriculture, Division of Measurement Standards (DMS)
- Department of Forestry and Fire Protection, Office of the State Fire Marshall (SFM)
- Department of Industrial Relations, Division of Occupational Safety and Health (DOSH)
- State Water Resources Control Board (SWRCB), Division of Water Quality

Prior to certification of the vapor recovery system by the CARB Executive Officer, the manufacturers are required to submit plans and specifications for their system or component to each of these agencies. These agencies may conduct certification review and testing concurrently with CARB certification testing; however, the approval of the SFM, DMS, DOSH, and a determination by the SWRCB are a precondition to certification by CARB. Manufacturers are responsible for providing documentation of these approvals and determinations to CARB.

Based on past certification processes for ISD software updates and other vapor recovery equipment, these estimates assume DMS and SWRCB will not conduct reviews of the two certifications for updated ISD software because: (a) DMS does not conduct reviews for ISD systems and other equipment not related to gasoline metrology (accuracy of measurements of how much gasoline is dispensed through the nozzles); and (b) SWRCB does not conduct reviews for ISD systems and other Phase II equipment that is above ground.

California Air Resources Board

Several of the proposed amendments directly affect certification costs for CARB's Vapor Recovery Program. During FY2021/22 through FY2024/25, the proposed amendments for ISD software requirements, nozzle spillage performance standards, and equipment archive could increase certification process costs for CARB by about \$64,100, while the proposed amendments to ISD communication port requirements could decrease certification costs by about \$143. These agency costs are fully recovered from the manufacturers seeking certification because CARB has legal

authority to charge fees to recover the costs of certification.¹⁵ As a result, the proposed amendments would have no net fiscal impact on CARB.

In addition, CARB staff estimated the proposed amendment to require submission of certified vapor recovery equipment could result in costs of about \$3,500 to CARB during regulatory lifetime (FY2021/22 through December 2030). These costs are for equipment and supplies that need to be purchased in FY2021/2022 to archive equipment with rubber or other degradable parts (\$2,200); CARB staff time needed each year to prepare and deliver equipment for storage (\$110 per FY), and warehouse storage costs (\$20 per FY). Existing regulations enable the cost of staff time to be invoiced to manufacturers seeking certification. In addition, the costs for equipment and supplies are recovered via certification equipment usage fees and supply invoices. As a result, these certification costs would have no net fiscal impact on CARB. However, the recovery of long-term warehouse storage costs requires the proper apportionment of the cost based on the area occupied by the stored equipment. Since such apportionment is not currently possible, staff assumes the warehouse storage costs are not recoverable.

The other proposed amendments could result in regulatory lifetime cost-savings of about \$2,200 for CARB. In total, as shown in Table 7, all costs and savings under the proposed amendments sum to a net cost-savings of about \$2,000 for CARB. Savings are expected to be re-allocated to other aspects of the Vapor Recovery Program with no fiscal impact on CARB.

Office of the State Fire Marshall

The proposed amendments to ISD software requirements could result in one-time costs of about \$200 in FY2022/23 for Office of the State Fire Marshall (SFM) staff to review updated ISD software and issue an approval letter. State law requires CARB to coordinate certification procedures with SFM and CARB cannot complete the certification process for each manufacturer's updated ISD software without receipt of an SFM approval letter. SFM has legal authority under the Health and Safety Code § 41961 to charge fees to recover the costs of certification. As a result, the review costs would have no net fiscal impact on SFM.

Division of Occupational Safety and Health

The proposed amendments to ISD software requirements could result in one-time costs of about \$500 in FY2022/23 for DOSH staff to review updated ISD software and issue an approval letter. State law requires CARB to coordinate certification procedures with DOSH and CARB cannot complete the certification process for each manufacturer's updated ISD software without receipt of a DOSH approval letter. DOSH has legal authority under the Health and Safety Code § 41961 to charge fees to

¹⁵ Health and Safety Code § 41954(e) states that CARB may charge a reasonable fee for certification of a gasoline vapor control system or a component thereof, not to exceed the actual cost.

recover the costs of certification. As a result, the review costs would have no net fiscal impact on DOSH.

IX. EVALUATION OF REGULATORY ALTERNATIVES

Government Code § 11346.2, subdivision (b)(4) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. This chapter describes alternatives evaluated and provides reasons why these alternatives were not included in the proposal. As explained below, no alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing law. CARB staff has not identified any reasonable alternatives that would lessen any adverse impact on small business. CARB staff considered all the alternatives proposed by attendees of the May 2020 public workshop and earlier workshops and meetings. See Chapter XI for a description of the public workshops and other stakeholder meetings.

A. Address ISD Overpressure Alarms

As described in earlier chapters, more than 5,000 GDFs experience ISD overpressure alarms that can cause response costs for GDF owners without reducing air pollutant emissions. At the same time, there is an ongoing need for improved UST ullage pressure data storage and reporting. To address these problems, the proposed amendments would replace the requirements in Section 9 of CP-201 for overpressure alarms in ISD software with requirements for improved informational reports and UST ullage pressure data storage to make stored information more useful, specifically:

- Store and be able to download at least 14 days of UST pressure and ullage volume data; and
- Generate a monthly informational report for UST pressure data and store at least 12 monthly reports.

The proposed amendments provide the most cost-effective and straightforward means of reducing ISD overpressure alarm response costs with the least adverse impact on small business, while achieving the purpose of the EVR regulations. Staff considered four alternatives based on comments received during public workshops and other meetings. None of the alternatives are less burdensome nor equally effective in achieving the purposes of the EVR regulations in a manner that ensures full compliance with the authorizing statutes.

Alternative 1 – No action. CARB staff considered not adopting any new amendments, such that ISD overpressure alarm criteria would remain as they are in the certification and test procedures. There would be no requirement for ISD manufacturers to modify the ISD software to remove overpressure alarms, nor for new GDFs and existing GDFs with major modifications to install ISD systems with updated

software. Under Alternative 1, GDFs would continue to experience ISD overpressure alarms and incur response costs that do not reduce emissions. This risks operator complacency toward, and accidental clearing of, remaining ISD alarms that are effective at identifying repairable vapor recovery equipment problems that can lead to increased emissions. CARB staff rejected the No Action alternative because it is not as effective as the proposed amendments in maintaining emission reductions due to the risks of complacency and accidental clearing of effective ISD alarms. In addition, as described in Chapter VIII, this alternative is more burdensome—costly and inconvenient—for GDF owners and operators than the proposed amendments.

Many stakeholders have asked why CARB cannot simply leave Advisory 405 in place indefinitely as a no-action option. Advisory 405 was issued in 2009 to allow GDF operators to clear ISD overpressure alarms during the winter fuel period [CARB, 2016b]. The advisory was intended to be a temporary means to provide GDF operators with relief from the cost and inconvenience of responding to ISD overpressure alarms while CARB staff completed studies needed to assess potential regulatory solutions. Advisories are temporary mechanisms, not regulations, and therefore cannot remain indefinitely. A regulatory solution is necessary. Also, even if advisories could be left in place indefinitely, Advisory 405 does not address the risk of emission increases that could continue due to accidental clearing of, and complacency toward, the remaining ISD alarms that are effective at identifying repairable vapor recovery equipment problems.

The proposed amendments provide a regulatory solution. Also, as described in Chapters I and II and the following sections, CARB staff have now completed a suite of studies that indicate the proposed amendments provide the simplest, most cost-effective means to eliminate the ineffective overpressure alarms without any impact on GDF emissions.

Alternative 2 – ISD informational reports with pressure driven emission rates.

CARB staff considered replacing the current ISD overpressure alarms with an informational report that provides site-specific pressure driven emission rates, instead of including an informational report with pressure data summaries, as would be required by the proposed amendments. As with the proposed amendments, under Alternative 2 updated ISD software would be required for new GDFs and existing GDFs with major modifications, and would be voluntary for existing GDFs. However, under Alternative 2, GDFs that install the updated ISD software also would need to install a zero-leak pressure vacuum (P/V Zero) vent valve to enable calculation of site-specific pressure driven emission rates. Installation of a P/V Zero vent valve allows calculation of vented volume to atmosphere (vent line) emissions, once the positive pressure in the UST headspace reaches the positive cracking pressure set point, based on pressure and ullage data generated by ISD sensors. There are two other vent valves certified by CARB but they do not allow for the vent line calculation.

ISD reports with site-specific emission rates would provide a more direct method of identifying sites with elevated pressure driven emissions than the pressure summaries

required by the proposed amendments. However, this alternative would require more complex ISD algorithms that would likely require several more years for field studies and engineering time to develop and for certification testing at multiple sites and, as described in Appendix L, would result in a higher cost for the software update. Also, Alternative 2 would have higher start-up costs for GDF owners and operators than the proposed amendments because of the higher cost of the updated ISD software and the cost to purchase and install a P/V Zero vent valve. CARB surveys conducted in 2013, 2015, and 2018 indicate only about four percent of GDFs with ISD systems currently have P/V Zero vent valves installed [CARB, 2020b]. This means most existing GDFs that would install the updated ISD software also would need to install the P/V Zero vent valve for an additional cost. CARB staff rejected Alternative 2 for these reasons.

Alternative 3 – Require all new and existing GDFs to install updated ISD software.

Alternative 3 has the same informational pressure summary report and pressure data storage requirements for ISD software as the proposed amendments but would require all new and existing GDFs—about 8,545 GDFs by 2030—to install updated ISD software. In comparison, the proposed amendments would require only new GDFs and existing GDFs with major modifications to install the updated ISD software, about 3,098 GDFs by 2030. If voluntary installations based on cost-effectiveness are included, a total of about 5,322 GDFs may install the updated software under the proposed amendments. Requiring the updated ISD software for all GDFs with ISD (Alternative 3) would enable more widespread availability of the improved pressure summaries and pressure data storage, which could reduce some of the time needed by service contractors and Air Districts to identify problems that may warrant further investigation and further reduce costs for future studies compared to the proposed amendments.

CARB staff does not recommend Alternative 3 for several reasons. First, current ISD overpressure alarm reports already act as a screening tool for identifying GDFs with particularly persistent and elevated overpressure conditions. CARB staff recommends replacing the overpressure alarm criteria with the new information pressure report requirements as a means to reduce unnecessary costs for GDF owners while still including a useful screening tool. Further, under baseline (Alternative 1, no action) and the proposed amendments, the option is already available for sites that have particularly persistent and elevated overpressure conditions to install continuous monitoring equipment to more accurately measure site-specific pressure driven emissions over a longer period, and Air Districts already have the authority to require changes during the permit renewal process, including more stringent throughput limits and stricter performance standards (e.g., provided by Health and Safety Code § 41954(g) and (h)). Therefore, it is not necessary to require all GDFs to install updated ISD software as those that are most likely to experience overpressure issues would be expected to install updated software under the proposed amendments.

Also, CARB staff estimated that Alternative 3 could have initial costs that are about \$12.9 million more than the proposed amendments (Appendix L, Table L-33). These

include costs of about \$4.9 million for nearly 1,400 GDFs that may not experience any ISD overpressure alarms. Requiring these existing GDFs to install updated ISD software would require a cost burden with no reduction in emissions and no cost savings for the GDF owner/operators (from foregone alarm response costs). CARB staff rejected Alternative 3 because of the economic burden it would place on these GDFs, about 85 percent of which are owned by small businesses.

Alternative 4 – Require all new and existing GDFs to install high capacity vapor processors. CARB staff evaluated an alternative proposed by stakeholders to require all existing and new GDFs with ISD—about 8,545 GDFs by 2030—to install high capacity vapor processors (HCVP), rather than ISD software updates, as a means of eliminating the occurrence of the ineffective ISD overpressure alarms. One-time costs to purchase and install an HCVP can range from about \$32,000 to \$101,000 per GDF for equipment, installation, and permitting fees. The costs vary based on the type of vapor recovery system and location of the GDF because permit fees vary by CUPA and Air District. Also, as summarized in Table L-41 in Appendix L, maintenance and operational costs can range from a net positive savings for fuel savings for some GDFs with very high gasoline throughput, to net costs higher than \$600 per year for many GDFs.

One of the two currently certified HCVP manufacturers informed CARB staff that if all GDFs with ISD were required to install HCVPs, the equipment purchase cost could be substantially reduced, e.g., from about \$15,000 to \$3,500 for one of the processor models, which could decrease the total cost to as low as approximately \$20,500 (including permitting fees and installation). In addition, depending on the type of processor installed, GDFs with high annual gasoline throughput may experience annual fuel savings by installing a high capacity vapor processor.

However, such equipment cost reductions and fuel savings do not lower the total cost of an HCVP to less than the cost of installing updated ISD software as a means of eliminating ISD overpressure alarm response costs on a statewide basis. As described in Chapter XIII and Appendix L, installing updated ISD software under the proposed amendments has a one-time cost of about \$20 per GDF for the estimated 3,098 GDFs required to install the updated software at the time of new construction and major modifications, and a one-time cost of about \$3,100 per GDF for as many as 3,088 GDFs that CARB staff estimates might voluntarily install updated ISD software. Therefore, even if equipment costs for HCVPs are substantially reduced, installing updated ISD software is a more cost-effective way for GDFs to reduce ISD overpressure alarm response costs on a statewide basis.

CARB staff estimated that Alternative 4 could have initial costs of about \$541 million for existing and new business-owned GDFs, with about \$333 million incurred by small businesses. These initial costs are about \$530 million greater than the proposed amendments, with about \$324 million of that difference (61 percent) incurred by small businesses (Appendix L, Table L-42). Furthermore, about \$80 million of the total costs under Alternative 4 would be incurred by nearly 2,100 GDFs that may not experience

any ISD overpressure alarms (Table L-43). Requiring these existing GDFs to install HCVPs would be a cost burden with no corresponding reduction in emissions and no cost savings for the GDF owner/operators (from foregone alarm response costs), and they could incur ongoing maintenance and operational costs that can range from about \$200 to higher than \$600 per year.

In addition, even if HCVP installation were to cost less than installation of updated ISD software, CARB staff would continue to propose amendments to remove the overpressure alarm criteria from ISD software requirements. Because the current overpressure alarm criteria are not effective at their intended purpose—identify repairable vapor recovery equipment problems—they should not remain in the current regulations. The proposed amendments to the ISD software requirements described in Chapters II and III would require only owners of new GDFs and existing GDFs undergoing major modifications to install updated ISD software. Owners of other existing GDFs would be allowed to choose whether to install the updated ISD software. If, based on their site-specific assessments of potential cost savings and business priorities, owners find that installation of one of the CARB-certified HCVPs would be more beneficial than installation of an ISD software update, the proposed amendments would allow them to do so.

CARB staff rejected Alternative 4 because of the economic burden it would place on GDFs, many of which are owned by small businesses.

B. Improve ISD Reports

CARB staff proposes to amend CP-201 to require the daily ISD reports to include the year within the report date format, and to require pressure values to be reported to two (2) decimal places. The proposed amendments would benefit GDF owners and operators, service contractors, and regulators by ensuring the reports can be correctly and easily identified, by improving the accuracy and usefulness of reported pressure values, and by providing a consistent report format among manufacturers. The ISD system manufacturers have assured CARB staff that the proposed changes to the ISD software can be easily accomplished and can be done at the same time as the proposed changes to the ISD overpressure criteria described above.

Alternative 1 – No action. The alternative to CARB staff’s proposal to improve usefulness of ISD reports is to not amend the certification procedures to require the manufacturers of ISD equipment to modify the ISD report format. Under Alternative 1, daily ISD reports would maintain their current format. CARB staff rejected this alternative because, given the need for other changes to the software described in subsection 1, there would be negligible costs to make the format changes at the same time and further improve the usefulness of the daily pressure reports.

C. Alternative Communication Ports for ISD

The proposed amendments would allow manufacturers to install modern, readily available communication ports in ISD consoles, instead of the antiquated RS-232 communication port, with CARB Executive Officer approval. The proposed amendments would provide benefits in the form of net cost-savings of about \$30,000 for ISD manufacturers during 2021-2030, and would improve the access and quality of downloaded data from the ISD system for GDF contractors, Air District inspectors, and CARB staff.

Alternative 1 – No action. Under Alternative 1, there would be no change and the RS-232 port would continue to be required in all ISD consoles. CARB rejected this alternative because it does not address the problems associated with the RS-232 port, for example: during long data downloads, adapters often lose communication during the download; and ISD manufacturers have reported difficulty in procuring RS-232 communication modules and, when found, they prove to be costly. Industry requested that CARB revise the Phase II EVR ISD remote access port requirement in sections 9.1.3 and 9.8 of CP-201 to allow design flexibility to include modern technologies. CARB staff agrees that the CP-201 requirement for all ISD consoles to have a RS-232 port puts unnecessary costs on ISD manufacturers, contractors, and regulators, and that amendments to CP-201 to allow flexibility are warranted.

Alternative 2 – Remove requirement for specific communication port. CARB staff considered removing all requirements for a specific communication port. However, there is a need for some level of standardization to ensure GDF contractors, Air District inspectors, and CARB staff can reliably download ISD system reports on-site. For this reason, the proposed amendments include the requirements that manufacturers must install “readily available” communication ports and must obtain CARB Executive Officer approval. CARB staff rejected this alternative because it is not as effective as the proposed amendments in achieving the purposes of the EVR regulations in a manner that ensures full compliance with the authorizing law.

Alternative 3 – Specify CARB-preferred communication port. CARB staff considered amendments that would identify a specific communication port to provide a more certain level of standardization to ensure GDF contractors, Air District inspectors, and CARB staff can reliably download ISD system reports. However, modern technologies continue to evolve at a rapid pace and it is not possible to predict what future technology will become standardized. Therefore, a more flexible approach is warranted to better enable ongoing cost-effectiveness for manufacturers and reliable access by GDF contractors, Air District inspectors, and CARB staff, without the need for frequent rulemaking actions to update the port requirements. CARB staff rejected this alternative because it is not as effective as the proposed amendments in achieving the purpose of the rulemaking action to address requirements for an antiquated port.

D. Nozzle Spillage Standards

CARB certification testing results for EVR and ECO nozzle spillage demonstrate the currently certified nozzles are performing much better than predicted at the time CARB adopted the EVR and ECO nozzle spillage performance standards. The proposed amendments would lower the current spillage performance standards for EVR and ECO nozzles (0.24 and 0.12 lbs/kgal, respectively) to 0.05 lbs/kgal to reflect and preserve this superior performance. The proposed amendments would preserve emission reductions that are already occurring and prevent emissions from increasing. In addition, the proposed standard provides consistency between three certification procedures (CP-201, CP-206, and CP-207), and enables more accurate GDF emission estimates for Statewide Implementation Plan emission inventories and Air District permits.

Alternative 1 – No action. CARB staff considered not adopting any new amendments to the nozzle spillage standards amongst the three certification procedures. CP-201 and CP-206 would retain the spillage standard of 0.24 lbs/kgal while CP-207 would retain the more stringent spillage standard of 0.12 lbs/kgal. Alternative 1 would continue to allow unnecessary inconsistency between the three certification procedures and would not prevent the increase of emissions if manufacturers introduce inferior nozzles that comply with current performance standards. CARB staff rejected this alternative because it is not as effective as the proposed amendments in achieving a key goal of the rulemaking action: to prevent emissions from increasing.

Alternative 2 – Align spillage standard in certification procedures to lowest current standard. Alternative 2 would focus solely on aligning nozzle spillage performance standards in the three certification procedures. Alternative 2 would lower the nozzle spillage standard in CP-201 and CP-206 from 0.24 lbs/kgal to 0.12 lbs/kgal to align with the nozzle spillage standard listed in CP-207. This alternative would improve the consistency between the three certification procedures and lower the nozzle standard in two of the certification procedures. Alternative 2 would cost slightly less to implement than the proposed amendments because no additional CARB certification staff time would be needed during the next ECO nozzle certification renewals. However, a 0.12 lbs/kgal nozzle spillage standard is substantially higher than the performance capability of currently certified nozzles and would not prevent the increase of emissions if manufacturers introduce inferior nozzles, while still complying with the proposed 0.12 lbs/kgal standard. CARB staff rejected this alternative because it is not as effective as the proposed amendments in achieving a key goal of the rulemaking action: to prevent emissions from increasing.

E. Require Physical Samples of Certified Vapor Recovery Equipment

CARB staff proposes amendments to CP-201, CP-206, and CP-207 to require equipment manufacturers to provide CARB with physical samples of new systems and/or components once they have successfully complied with applicable performance standards or specifications. The proposed requirement applies only to first-time

certifications and renewal certifications of systems or components that have design or material changes that occur on or after January 1, 2022. In addition, the applicants would be required to submit a statement attesting that the submitted system or components are identical to those that were tested or evaluated by CARB staff. If requested by the CARB Executive Officer, manufacturers also would be required to provide cut-aways of certain components such as hanging hardware (nozzle, breakaway, etc.) in addition to the fully intact item requested above. In lieu of submitting a complete system or component, in order to reduce costs where feasible, the CARB Executive Officer may request submission of sub-parts or sub-assemblies that are crucial in controlling emissions. The physical samples will be stored in a CARB equipment archive that can be used to identify and document certified design and provide enforcement tools for uncertified design or material changes that may occur.

Industry, Air Districts, and CARB staff proposed a number of alternatives during the public workshops and other meetings. These are included here for completeness. None are less burdensome and equally effective in achieving the purposes of the EVR regulations in a manner that ensures full compliance with the authorizing statutes.

Alternative 1 – No Action. Under Alternative 1, no regulatory amendments would be made to require physical samples of components as certified. CARB staff rejected this alternative because the continued lack of a complete archive would leave CARB vulnerable to enforcement and legal problems if undisclosed changes are made to component materials or dimensional specifications that could negatively affect compliance with performance standards.

Alternative 2 – Require entire CARB-certified system or component. Under the Proposed Regulations, in lieu of submitting a complete system or component, in order to reduce costs where feasible, the Executive Officer may request submission of only sub-parts or sub-assemblies that are crucial in controlling emissions. Under Alternative 2, the manufacturer would be required to submit the entire system or component; there would be no CARB Executive Officer discretion to require submission of only sub-parts or sub-assemblies determined to be crucial in controlling emissions. CARB staff rejected Alternative 2 because it would not avoid unnecessary material and storage resources, and therefore be less cost-effective for manufacturers and CARB.

Alternative 3 – Require submission of all CARB certified systems and components. Alternative 3 would require manufacturers to submit all systems and components certified in the future and systems and components resulting from the certification renewal process, not just those systems or components that have design or material changes. However, nearly all manufacturers have voluntarily submitted samples during the last 4 years, which CARB staff maintains in secure storage. CARB staff rejected this alternative because requiring archive samples for re-certifications of systems or components that have no change to designs or materials would cause unnecessary materials costs for manufacturers and unnecessary storage costs for CARB, especially requiring the submission of certified components or parts that are not currently

manufactured. In addition, staff rejected this alternative because some certified systems may include parts no longer made but the certification remains valid.

Alternative 4 – Require “off the shelf purchase” of component samples. CARB staff considered purchasing certified systems and components “off the shelf” for the proposed archive instead of requiring that they be submitted directly by the manufacturer immediately after certification with statement attesting that the submitted system or components are identical to those that were tested or evaluated by CARB staff. CARB staff rejected this alternative because off-the-shelf purchases might not represent as-certified conditions if material or design changes occur after certification testing.

Alternative 5 – CARB retains tested components after certification. CARB staff considered retaining tested systems and components after they have successfully completed certification testing as a way to reduce costs to manufacturers. CARB staff rejected this alternative for the following reasons. Because most vapor recovery systems and components come in physical contact with gasoline or gasoline vapors, storage of such items would create safety risks and additional storage costs. In addition, in many cases there could be greater nuisance or cost for manufacturers to remove items from a test site than submitting an unused system or component. Another problem is that certain rubber or synthetic rubber components exposed to gasoline or gasoline vapor may shrink or become brittle during storage.

F. Amend Test Procedures for Remote Fill Phase I System Configurations

To address the issue of GDFs with remote fill Phase I system configurations, without cause, failing to meet the pressure-up requirements of TP-201.1C and TP-201.1D, CARB staff recommends amending the test procedures to allow for more time to introduce nitrogen and pressurize the system based on the length of the product fill piping.

Alternative 1 – No action. CARB staff considered not adopting any new amendments to TP-201.1C and TP-201.1D. Under Alternative 1, remote fill drop tubes that are longer than 50 feet, but still vapor leak tight, would continue to fail testing under TP-201.1C and TP-201.1D, resulting in unnecessary trouble-shooting, repairs, and a loss of business when refueling the UST is no longer allowed per Air District rules. CARB staff rejected this alternative because of the cost burden it places on GDFs with remote fill configurations without any reductions in emissions.

Alternative 2 – Decertify remote drop tube configurations. Alternative 2 would decertify remote drop tube configurations entirely. Decertifying remote drop tube and fill configurations would make it impossible for some existing, permitted GDFs to operate without major modifications, resulting in a loss of business and the capital investment associated with constructing the GDF, without any resulting improvement for emission reductions. Such action would be considered prescriptive and would not be consistent with state law that encourages design flexibility of vapor recovery

systems (Health and Safety Code §§ 41954(b) and 41958). CARB staff rejected this alternative because there is no technical or emission-based need to decertify remote drop tube configurations, and doing so is not a reasonable alternative to amending the test procedures.

G. Correct the Phase II EVR Upgrade Dates in CP-206

Amendments were made to CP-206 upgrade requirements for existing AST Phase II systems at the July 25, 2019, Board Hearing based upon whether an AST was located in an area classified by the U.S. Environmental Protection Agency as being in nonattainment with the federal 8-hour ozone standard and having an annual gasoline throughput of 480,000 gallons or less. The intent of the 2019 amendments was to grant ASTs with smaller throughput more time to upgrade. Staff inadvertently used the expiration date when the first Phase II EVR system was certified, and not the Board Hearing date, as intended, for the date establishing existing ASTs. The proposed amendments would insert the correct date into these sections. The proposed changes will prevent certain AST owners from performing inadvertent and costly upgrades before the end of useful life of their existing systems.

Alternative 1 – No action. CARB staff considered not adopting any new amendments to correct the upgrade date but rejected this alternative because it would incorrectly require some AST owners to perform inadvertent and costly upgrades before the end of useful life of their existing systems. Alternative 1 acts against the intent of the 2019 amendment, which was to grant all existing ASTs with Phase II vapor recovery additional time to upgrade to Phase II EVR. Additionally, the emissions and cost estimates for all existing ASTs meeting the upgrade delay requirements, were accounted for and provided by the 2019 Staff Report that was presented to the Board. Alternative 1 was rejected because it would continue to create confusion for Air District enforcement staff and may result in some ASTs owners incurring unnecessary cost by having to upgrade to Phase II if the current regulations are interpreted literally.

H. Administrative Changes

As described in prior chapters, the proposed amendments include several administrative changes:

1. Replace placeholder language with actual dates for effective and operative dates for ECO nozzles in CP-207;
2. Make language describing performance standards and performance specifications in CP-207 consistent with language in CP-201;
3. Amend the title of CP-201 to include the text “with Underground Storage Tanks” at the end of the title;
4. Decrease the length of CP-201, CP-206, and CP-207 by ten pages of text, figures and tables by incorporating nozzle dimensions by reference to SAE J285 and SAE J1140 documents; and

5. Replace placeholder language with the actual date for effective dates in Table 2-1 in CP-206.

Some of these proposed amendments were requested by industry, such as the proposal to incorporate by reference the 10 pages of text, tables, and figures for nozzle dimension requirements in three certification procedures that are redundant with dimensions depicted in SAE J285 and J1140. Others were recommended by Office of Administrative Law and CARB legal counsel, such as clarifying the definitions of performance standard and performance specification in CP-207. As described in Chapter VIII, there are benefits in the form of some cost savings for manufacturers, Air Districts, and CARB associated with reducing confusion (and time needed to seek clarification from CARB staff) and reducing time needed to cross-reference multiple standards documents. The primary benefit of the proposed administrative changes is clarifying the certification and test procedures for better regulatory certainty and enforceability. CARB staff rejected the “No Action” alternative for each of these amendments because not amending the EVR regulations to provide better regulatory certainty and enforceability is not as effective in achieving the purposes of the EVR regulations.

I. Health and Safety Code § 57005 Major Regulation Alternatives

CARB estimates the proposed regulation will not have an economic impact on the state’s business enterprises of more than \$10 million in one or more years of implementation, therefore the proposal is not a major regulation as defined in Health and Safety Code section 57005. Nonetheless, a review of potential costs of key alternatives is provided in Appendix L because the costs affected CARB staff’s selection of a preferred option, and for completeness.

X. JUSTIFICATION FOR ADOPTION OF REGULATIONS DIFFERENT FROM FEDERAL REGULATIONS

California Health and Safety Code § 41954 requires CARB to adopt procedures and performance standards for controlling gasoline vapors from gasoline marketing operations, including transfer and storage operations to achieve and maintain ambient air quality standards. Government Code § 11346.2(b)(6) requires CARB to (a) describe its efforts to avoid unnecessary duplication and conflicts with federal regulations contained in the Code of Federal Regulations that address the same issues and (b) justify the adoption of any regulations that differ from existing federal regulations. There are no specific federal regulations or programs comparable to California’s EVR Program. California’s existing EVR regulations already exceed federal requirements; as described in Chapter I and II of this document, such California-specific regulations include:

- ORVR compatibility and pressure management to control emissions lost from storage tank headspace through vent lines, vapor processor exhaust, and fugitive leak sources;
- In-Station Diagnostics requirements that help maintain in-use effectiveness;

- Stringent standards for specially designed nozzles, such as the ECO nozzle, that reduce emissions from liquid retention, drips, and spills; and
- Further emission reductions from low permeation fuel hose standards.

Although not explicitly required by federal regulations, some other states and countries require the installation of vapor recovery systems that are certified by CARB. Thus, changes to CARB EVR certifications may have a national and international impact.

XI. PUBLIC PROCESS FOR DEVELOPMENT OF THE PROPOSED REGULATORY AMENDMENTS (PRE-REGULATORY INFORMATION)

In developing any regulation, members of the public, local Air Districts, and affected industries play an important role in shaping regulatory proposals. CARB staff has made efforts to have an open process and to provide opportunity for input by all parties. Consistent with Government Code § 11346, subdivision (b), and § 11346.45, subdivision (a), and with the Board's long-standing practice, CARB staff held public workshops and had other meetings with interested persons during the development of the proposed regulatory amendments. These informal pre-rulemaking discussions provided staff with useful information that they considered during development of the regulatory amendments that are now being proposed for formal public comment.

A. Public Workshops

On May 5, 2020, CARB staff held a public workshop to present the proposed regulatory amendments. Appendix M provides the notice for the workshop, which was released more than a month before the workshop. Two weeks prior to the workshop, CARB staff provided the draft proposed amendments to the certification and test procedures for informal public review, and four days before the workshop, staff provided the workshop staff presentation slides. The notice, draft documents, and slides were posted on the Vapor Recovery webpage and access was announced and provided via the "GovDelivery" vapor recovery program email subscriber list.

The May 2020 workshop was available through remote access, with the public able to participate via a teleconference line and webinar. CARB staff presented a brief history of the problems to be solved by each proposal, a description of the draft regulatory amendments, and a summary of the potential economic impact on vapor recovery equipment manufacturers and the regulated community. Participants were able to submit comments and questions by email (vapor@arb.ca.gov) during the workshop so that staff could respond and answer their questions at the conclusion of the staff presentation. The teleconference service logged 125 participants and the webinar service logged 105 participants. Workshop participants included representatives of Air Districts; GDF owners and operators; equipment manufacturers; service

contractors and consultants; environmental consultants; and industry representatives. Participants were requested to provide informal comments on staff proposals by May 20, 2020.

Between 2012 and 2018, CARB staff held eleven public workshops in northern and southern California about the ISD overpressure alarms, their potential causes, study designs and results, and potential solutions:

- 2012 – October 31 (Sacramento), November 2 (Diamond Bar), and November 7 (Fresno): Early concepts for potential regulatory solutions;
- 2013 – September 20 (Sacramento): Planning for statewide data collection project;
- 2014 – March 7 (Sacramento) and March 14 (Diamond Bar): Results of statewide data collection project, preliminary emission estimates;
- 2015 – November 6 (Sacramento) and November 10 (Diamond Bar): Results of nozzle related field studies, plan for second statewide data collection project;
- 2017 – December 12 (Diamond Bar) and December 13 (Sacramento): Results of second statewide data collection project, proposed menu of options, including potential changes to GDF nozzle and vehicle fill pipe specifications; and
- 2018 – May 23 (Diamond Bar): Specific proposed regulatory amendments to GDF nozzle and vehicle fill pipe specifications.

These workshops provided useful information for study design, interpretation of results, and alternatives to consider, which supported development of both the 2018 regulatory amendments to GDF nozzle and vehicle fill pipe specifications and the proposed amendments to ISD alarm criteria and reports described in this staff report.

B. Draft Technical Support Documents

Between 2016 and 2018, CARB staff posted draft versions of ten overpressure study technical support documents to the Vapor Recovery Program webpage for public review and input [CARB, 2016c, 2017a through 2017h, and 2018b]. In addition, between April and June 2020, CARB staff posted draft versions of six additional technical support documents [CARB, 2020b, c, d, g, h, and j] and a draft version of Appendix J, *ISD Overpressure Alarm No Trouble Found Analysis*, to the Vapor Recovery Program webpage for early public review and input before release of this staff report. CARB staff made supporting data compilations and spreadsheet calculations [CARB, 2020e, f, and i] cited in these technical documents available via email.

C. Webpage and Internet Availability

To facilitate public outreach during development of this rulemaking, staff used the existing Vapor Recovery Program webpage to post the workshop notice, draft

amendments to the regulatory language, and technical support documents. Stakeholders included on the CARB vapor recovery email subscriber list were notified whenever new documents and other information were posted. As of July 2, 2020, there are 4,898 subscribers to the vapor recovery subscriber list.

D. Other Outreach Efforts

Staff sent multiple emails that provided early notification and summary of anticipated regulatory amendment development efforts, announcements to upcoming workshops, and contact information for relevant staff. CARB staff also notified stakeholders by email when preliminary draft versions of the proposed regulatory amendments and draft technical support documents were available for informal public review via the CARB website.

In addition, CARB staff consulted with a variety of stakeholders throughout development of the proposed regulatory amendments in an effort to obtain additional insight, build consensus, and minimize areas of disagreement. CARB staff regularly met with representatives of the California Air Pollution Control Officers Association (CAPCOA) Vapor Recovery Subcommittee and provided regular updates to the CAPCOA Enforcement Managers, Engineering Managers, and Board. CARB staff also met and corresponded with other state agencies that regulate GDFs, equipment manufacturers, GDF owners and operators, and representatives of industry groups, such as the California Fuels and Convenience Alliance (CFCA),¹⁶ to discuss feasibility and cost of the proposed amendments.

XII. REFERENCES

The following documents are the technical, theoretical, or empirical studies, reports, or similar documents relied upon in proposing these regulatory amendments, identified as required by Government Code, section 11346.2, subdivision (b)(3).

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¹⁶ CFCA is the industry's California trade association representing the needs of independent wholesale and retail marketers of gasoline, diesel, lubricating oils and other petroleum products; transporters of those products; and retail convenience store operators. The majority of CFCA's members are small and family owned businesses.

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XIII. APPENDICES

Appendices are available in separate Adobe Acrobat files.

- A. Proposed Regulation Order to Adopt Amended Certification Procedures for Vapor Recovery Systems at Gasoline Dispensing Facilities
- B. Proposed Amendments to D-200: Definitions for Vapor Recovery Procedures
- C. Proposed Amendments to CP-201: Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities
- D. Proposed Amendments to CP-206: Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities Using Aboveground Storage Tanks
- E. Proposed Amendments to CP-207: Certification Procedure for Enhanced Conventional (ECO) Nozzles and Low Permeation Conventional Hoses at Gasoline Dispensing Facilities
- F. Proposed Amendments to Test Procedure 201.1C: Leak Rate of Drop Tube/Drain Valve Assembly
- G. Proposed Amendments to Test Procedure 201.1D: Leak Rate of Drop Tube Overfill Protection Devices and Spill Container Drain Valves
- H. Proposed Amendments to Test Procedure 201.2I: Test Procedure for In-Station Diagnostic Systems
- I. Regulatory Authority: Vapor Recovery Health and Safety Code Statutes
- J. ISD Overpressure Alarm No Trouble Found Analysis
- K. Tables for the Environmental Analysis
- L. Estimated Costs for Proposed Amendments and Alternatives
- M. Notice for the May 2020 Public Workshop
- N. Summary of Past Enhanced Vapor Recovery Rulemaking Activity