

State of California
AIR RESOURCES BOARD

Notice of Public Availability of Modified Text

PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE VAPOR RECOVERY
CERTIFICATION AND TEST PROCEDURE REGULATIONS FOR
ENHANCED VAPOR RECOVERY

Public Hearing Date: March 23, 2000
Public Availability Date: September 29, 2000
Deadline for Public Comment: October 27, 2000

At its March 23, 2000, public hearing, the Air Resources Board (the "Board") approved the amendment of sections 60030, 94010, 94011, 94148, 94149 and 94154, title 17, California Code of Regulations (CCR), adoption of section 94163, title 17, CCR, and repeal of section 94155, title 17, CCR, which incorporate by reference the following certification and test procedures for vapor recovery systems. The amended procedures are:

D-200 Definitions for Certification Procedures and Test Procedures
for Vapor Recovery Systems

Revised Title: Definitions for Vapor Recovery Procedures

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

TP-201.1 Determination of Efficiency of Phase I Vapor Recovery
Systems of Dispensing Facilities without Assist Processors

Revised Title: Volumetric Efficiency for Phase I Systems at Dispensing
Facilities

TP-201.1A Determination of Efficiency of Phase I Vapor Recovery
Systems of Dispensing Facilities with Assist Processors

Revised Title: Emission Factor for Phase I Systems at Dispensing Facilities

TP-201.2 Determination of Efficiency of Phase II Vapor Recovery
Systems of Dispensing Facilities

Revised Title:	Emission Factor for Phase II Systems
TP-201.2A	Determination of Vehicle Matrix for Phase II Vapor Recovery Systems of Dispensing Facilities
Revised Title	Determination of Vehicle Matrix for Phase II Systems
Method TP-201.2B	Determination of Flow versus Pressure for Equipment in Phase II Vapor Recovery Systems of Dispensing Facilities
Revised Title:	Pressure Integrity of Vapor Recovery Equipment
Method TP-201.2C	Determination of Spillage of Phase II Vapor Recovery Systems of Dispensing Facilities
Revised Title:	Spillage from Phase II Systems
Method TP-201.5	Determination (by Volume Meter) of Air to Liquid Volume Ratio of Vapor Recovery Systems of Dispensing Facilities

The adopted procedures are:

TP-201.2D	Post Fueling Drips from Nozzle Spouts
TP-201.2E	Gasoline Liquid Retention in Nozzles and Hoses
TP-201.2F	Pressure-Related Fugitive Emissions
TP-201.2H	Determination of Hazardous Air Pollutants from Vapor Recovery Processors
TP-201.2O	Pressure Integrity of Drop Tube Overfill Protection Devices

The repealed procedure is:

TP-201.3A	Determination of 5 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities
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At the hearing the staff presented, and the Board approved, modifications to the regulations originally proposed in the Staff Report released on February 4, 2000 in response to continuing review and comments received since the Staff Report was published. The modifications affect the text of certification and test procedures D-200, CP-201, TP-201.1, TP-201.1A, TP-201.2, TP-201.2B, TP-201.2C, TP-201.2D, TP-

201.2E, TP-201.2F, TP-201.2H, TP-201.2O and TP-201.5. TP-201.2A is not being modified.

Modifications to D-200

Definitions have been added for "effective date," "Executive Order," "existing installations," "leak detection solution," "major modifications," "new installations," "operative date," "portable fuel container," "summer fuel," "vapor recovery system for a gasoline dispensing facility (GDF)," and "winter fuel." CARB (California Air Resources Board), CFR (Code of Federal Regulations), CT# (cargo tank number), EO (Executive Order), ID (internal diameter), ID# (identification number), LDS (leak detection solution) and N₂ (nitrogen) were added to the acronyms section.

Modifications to CP-201

As originally noticed, CP-201 section 2.4 and Table 2-1 described the effective and operative dates for all performance standards and specifications. Many changes have been made in the effective and operative dates to allow for a more orderly certification process and reasonable implementation of the new requirements. The amended CP-201 section 2 clarifies that the effective date of adoption for all performance standards and specification shall be April 1, 2001 except as otherwise specified in Table 2-1. Table 2-1 has been revised to amend the operative dates for Phase I systems, ORVR compatibility, spillage, the 350 ml liquid retention limit and the 100 ml liquid retention limit. Revised Table 2-1 changes the effective date for nozzle post-fueling drips and assist nozzle vapor valves. Requirements relating to in-station diagnostics (ISD) have been amended to require a phase-in of ISD based on station throughput. Stations with throughputs of less than 160,000 gallons/year are exempt from ISD requirements. As originally noticed, Table 2-1 required monitoring of dispenser-based vacuum pump failure, central vacuum unit failure and A/L ratios of zero. These three requirements have been incorporated in the ISD monitoring section in the amended CP-201. As originally noticed, CP-201 required phase-in of liquid retention requirements in three stages: 350 ml/1000 gallons, 200 ml/1000 gallons and 100 ml/1000 gallons. The 200 ml/1000 gallon requirement has been eliminated, and the operative date for the 100 ml/1000 gallon requirement has been modified from April 1, 2003 to April 1, 2004. Requirements for leak-tightness of connectors and fittings that were present in CP-201 text as originally noticed, have been added to Table 2-1 in the revised CP-201.

CP-201, Table 3-1 summarizes the Phase I performance standards and specifications. As originally noticed, pressure settings and leak rate requirements for underground storage tank vent pipe pressure/vacuum relief valves were listed as standards, these requirements have been revised to specifications. Similarly, the containment box requirements have been changed from standards to specifications. Table 3-1 and corresponding section 3.7 have been modified to clarify that vapor, not liquid, connections and fittings are subject to the leakrate requirements.

As originally noticed, section 3.1 specified two standards (98% efficiency and 0.15 lbs per 1000 gallons) which are not always equivalent. Section 3.1 has been modified to clarify that the emission factor of 0.15 lbs/1000 gallons applies only to systems with processors.

As originally noticed, section 3.3 did not specify a test procedure to determine compliance with the allowable leak rate for drop tubes with overflow protection devices. Section 3.3 has been modified to reference TP-201.2O for this purpose.

Section 3.5 has been changed to clarify the leakrate requirements for pressure/vacuum (P/V) valves and specify TP-201.2B as the test procedure for determining compliance with the leak rate limits.

Section 3.6 has been revised to reference TP-201.2B to determine drain valve leak rates. Section 3.6.4 has been modified to clarify when an alternative means of evacuating fuel from a containment box is required.

Changes to section 3.7 clarify that vapor connections and fittings, which are not certified with an allowable leak rate, shall not leak.

CP-201, Table 4-1 has been revised to be consistent with the modifications to sections 4.1 through 4.12 as described below. As originally noticed, fifteen of the sixteen requirements in Table 4-1 were listed as standards. Nine of the fifteen are now designated as specifications, as compliance with the requirements is based on engineering evaluation.

As originally noticed, section 4.1 provided a Phase II system emission factor limit of 0.38 lbs per 1000 gallons dispensed. This standard has been modified as it is recognized that this emission factor limit is more stringent when testing using higher volatility winter fuels. However, efficiency limits for both summer and winter fuel should be comparable. The new standard provides that tests using summer fuel shall meet 95% efficiency and the 0.38 lbs/1000 gallons emission factor. Tests using winter fuel shall meet 95% or the 0.38 lbs/1000 gallon emission factor. Throughout section 4, the requirements reflect this modification to the standard. Language has also been added to section 4.1.1 to clarify that the entire 200-vehicle test matrix, the ORVR portion of the test matrix and the non-ORVR portion of the test matrix must meet these requirements.

As originally noticed, section 4.2.1 referred to TP-201.3 to determine the static pressure performance standard. This conflicts with the goal to incorporate all the standards in the certification procedure. The test procedure (TP-201.3) should not contain the standard, but provide a means to determine compliance with the standard. The amended section 4.2.1, as modified, thus includes equations to determine the appropriate standard for various balance and vacuum assist systems.

Section 4.6 provides underground storage tank pressure criteria. As originally noticed, section 4.6 provided that Phase II systems that cause fugitive emissions to exceed 50% of the allowable emission factor could not be certified. Amended section 4.6 provides that systems having the potential to emit fugitives greater than 50% of the emission factor may not be certified. As originally noticed, section 4.6.1 provided an exclusion for time periods associated with Phase I operations. The revised section 4.6.1 allows exclusion only of non-compliant Phase I operations. Section 4.6.2, which provided for calculation of hourly and daily pressures, has been removed.

A new section 4.7.3 has been added to specify required spout dimensions.

Section 4.8 specifies liquid retention requirements. Language regarding testing parameters has been deleted so as not to conflict with TP-201.2E.

Section 4.11 requires the unihose configuration for gasoline dispensers. Based on comments received as to the considerable cost to upgrade existing dispensers to meet this requirement, the amendments allow that dispensers installed before the effective date of this requirement are exempt, unless the facility makes a modification that affects the dispenser piping or replaces the dispensers. Amended section 4.11 also allows that dispensers that are damaged may be replaced with the previously installed type of dispenser.

Section 4.12 provides requirements for vapor return piping. A new section 14.12.1 has been added to specify that the vapor return path shall be free of liquid blockage. The subdivisions have also been renumbered. Section 4.12.3 has been revised to include the float vent valve, if applicable, in the piping required to have a 3-inch minimum nominal internal diameter. Section 4.12.4 has been revised to require that vapor recovery piping consist of rigid piping, be contained in rigid piping, or equivalent, to ensure that proper slope is achieved and maintained. Section 4.12.5 has been added to parallel the requirement in Table 4-1 that the Executive Officer is to establish the maximum allowable length of vapor return piping.

Table 5-1 summarizes the performance standards and specifications for balance vapor recovery systems. The proposed standard for balance nozzles to have an insertion interlock and be equipped with a vapor check valve has been revised to a proposed specification. The vapor check valve leakrate has also been revised from a performance standard to a performance specification. Table 6-1, which lists the performance standards and specifications for assist systems has mirrors these changes for assist nozzles. New section 6.1.4 clarifies that the nozzle pressure drop specifications for assist nozzles will be established during certification.

Section 5.2 contains dynamic pressure drop criteria for balance systems. Language

specifying requirements for installed systems has been removed as it is not pertinent to system certification.

Section 6.1 has been rearranged to form two sections. Language has been added to clarify that assist nozzle pressure drop shall be specified by the applicant and verified during certification. A reference to TP-201.5 has been added to determine air-to-liquid ratio range.

Section 7.1 has been modified to clarify that the operating range of a vacuum unit shall be specified in the application and verified during certification.

Tables 8-1 and 8-2 summarize the performance standards and specifications applicable to Phase II assist systems using destructive and non-destructive processors. Amendments to Tables 8-1 and 8-2 are consistent with the revisions to sections 8.1 through 8.3 as follows. The emission factor for benzene has been recalculated based on a risk assessment analysis. Section 8.1.1, as originally noticed, provided for a benzene emission limit of 0.01 lbs/1000 gallons. The revised limit is 7.2 lbs/year. Section 8.1.2, as originally noticed, provided emission limits for carbon monoxide and oxides of nitrogen. This section has been removed. The emission factors for 1,3-butadiene, formaldehyde and acetaldehyde for destructive processors have been recalculated based on a risk assessment analysis. Section 8.2, as originally noticed, required that hazardous air pollutants (HAPs) created by the processor shall not increase health risk by more than one in one million and that the 1,3-butadiene emissions shall not exceed 0.04 lbs/year. The revised section 8.2 provides HAP emission limits of 1.2 lbs per year for 1,3-butadiene, 36 lbs per year for formaldehyde and 84 lbs per year for acetaldehyde. Table 8-1, as originally noticed, limited the maximum hydrocarbon rate to the processor to 1.9 lbs/1000 gallons, but there was no corresponding limit in the text of the procedure. Section 8.3 has been added to limit the maximum hydrocarbon feedrate to the process and the limit has been increased to 3.8 lbs/1000 gallons. Section 8.5 has been added to parallel the requirement in Tables 8-1 and 8-2 that processor operation time is to be established during certification.

Section 9.3.1 requires system manuals that contain requirements for proper installation, maintenance and inspection procedures. Section 9.3.1 has been revised to allow the Executive Officer to require inclusion of additional procedures in the manuals.

As originally noticed, section 10 provided requirements for in-station diagnostics. This section has been revised to be consistent with the detailed new appendix on in-station diagnostics (ISD), which is described later in this notice, and to reflect that ISD is not required for gasoline dispensing facilities that dispense less than 160,000 gallons per year.

Section 11 described the application process for vapor recovery system certification.

As originally noticed, section 11 required that test results demonstrating that the primary performance standard can be met must be included in the system application. New language has been added which expands the scope of the test results required to be included in the system application to all applicable performance standards and specifications. This includes test results for an operational test of at least 30 days and a test of at least 50 vehicles or equivalent verification that the system can meet certification requirements.

Section 11.1.6 has been modified to require test data in the application be submitted in common spreadsheet format where applicable. Information regarding in-station diagnostics originally noticed in section 11.2 has been revised and placed in the Appendix.

As originally noticed section 11.8 required that the request for test-site designation include information about the site, including as-built drawings. Section 11.8.4 has been added to expand upon the requirement.

Section 11.9 has been added to reflect a requirement adopted in an earlier rulemaking (filed with the Secretary of State on June 12, 2000). This provision requires applicants to notify the certification holder when seeking to add equipment to an existing certification, and to notify all other equipment manufacturers when forming a new system for certification.

Section 13.1 provides requirements for the certification test site. Language has been added to Section 13.1 to allow test site designation for the purposes of conducting the testing to obtain data for the preliminary certification application. The revised 13.1 also states that the Executive Officer may require that the system be installed in more than one facility for testing purposes. As originally noticed, section 13.1.1 required a minimum throughput of 200,000 gallons/month. The revised section 13.1.1 requires a minimum throughput of 150,000 gallons/month, but provides that the Executive Officer may, for good cause, approve a test station with a lower throughput, as long as it is at least 100,000 gal/month. As originally noticed, section 13.1.3 contained information regarding compliance of test sites which was unclear. Section 13.1.3 has been deleted, leading to renumbering of the following sections. As originally noticed, section 13.1.5 (now 13.1.4) provided that uncertified equipment be removed within sixty days if test status is terminated for any reason. Revised section 13.1.4 allows that the Executive Officer may extend this time, as long as it is a written extension. Originally noticed section 13.1.6 (now 13.1.5) has been revised to clarify that all test data shall be made available to the Executive Officer within 15 working days and that the Executive Officer may specify the format for the data submittal. Section 13.1.6 has been added to allow for designation of test sites for system evaluation (i.e. not certification testing) subject to Executive Officer approval.

Section 13.3 contains the requirement for the operational test of at least 180 days. The vapor recovery system under evaluation must meet all performance standards and specifications during this test. Section 13.3.2 has been revised to provide an exception if the failure to meet the pressure decay standard is caused by a non-system-specific component and if Executive Officer determines that the period of the failure can be excluded without compromising the validity of the test. As originally noticed, section 13.3.4 provided that the pressure in the underground storage tank be monitored and recorded continuously throughout the operational test. The revised section 13.3.4 also requires that pressure integrity testing be conducted throughout the operational test at intervals not to exceed thirty days. Only data collected during periods of pressure integrity shall be deemed valid. Section 13.3.5, as originally noticed, required that a 3% change in performance tests over the operational test period could result in termination of the operational test. The revised 13.3.5 provides that test results which indicate performance degradation when extrapolated during the warranty period may result in extension or termination of the operational test.

Section 13.4 specifies failure mode testing requirements. Minor changes have been made to make the language consistent with the change in the primary standard. Section 13.4.2 has been revised to be consistent with the CP-201 Appendix for ISD.1

Section 13.6 discusses the vehicle matrix requirements for certification testing. A new section 13.6.3 provides that vehicles failing to meet vehicle fillpipe specifications may be excluded from the test matrix. Section 13.6.5 has been modified to delete unnecessary explanation of the provision providing for testing of additional vehicles after the vehicle test matrix is filled. Section 3.6.6 has been changed to clarify which vehicles can be deleted from the test matrix based on efficiency/emission factor determinations.

As originally noticed, CP-201 was silent on the applicability of the proposed requirements on certification of above-ground tank vapor recovery systems. Although aboveground tank systems are certified under CP-205 for novel facilities, CP-205 refers directly to Phase I and Phase II systems certified by CP-201. Section 13.7 has been added to clarify that systems evaluated and certified for use with underground storage tanks shall not be installed with aboveground storage tanks unless the system has been specifically evaluated and certified for use with aboveground tanks. Evaluation and testing shall include verification that, with reasonable maintenance during the operational test, the Phase I and Phase II systems operate properly, the integrity of the system can be maintained and that the system does not exceed the pressure-related fugitive emission limit.

The text of section 15 has been included in section 17 (as renumbered), "Documentation of Certification." As originally noticed, the section required preparation of a certification process summary. Language has been added to clarify that the items

listed shall be included in the summary, but that additional items not listed may also be required.

Section 15 (renumbered from 16) provides that vapor recovery certifications are not transferable. As originally noticed, the certification was to expire as of the date of transfer if the ownership control of the certification holder were to change. Comments received indicated that this was not fair to the certification holder or the customers who had purchased the system. The revised section 15.2 allows the expiration date of the certification to remain unchanged after a certification transfer. However, the system may not be sold or installed until the system is recertified under the new ownership.

Table 16-2 (renumbered from 17-2) lists the non-system specific components that may be evaluated under abbreviated testing as compared to system specific components. Dispenser vapor piping for balance system dispensers has been added to Table 16-2 as a non-system specific component.

As originally noticed, section 18 (renumbered from 19) provided the duration and conditions of certification. Section 18.3 has been revised to clarify that significant deficiencies, rather than merely deficiencies, be documented and brought to the attention of the equipment manufacturer.

Section 19 (renumbered from 20) provides restrictions on equipment which may be used for systems for which certification has been terminated. The revisions to section 19 clarify that the section is applicable to systems that may remain in use pursuant to Section 41956.1 of the Health and Safety Code. Clarifications are made to Section 20.1.2 as to allowable use of system components.

ISD Appendix to CP-201

The criteria for in-station diagnostics (ISD) has been removed from section 10 of CP-201 and placed in the appendix to CP-201. The ISD appendix contains the modified requirements for vapor recovery monitoring systems.

The provisions have been significantly expanded and include general requirements, monitoring requirements, an implementation schedule, and requirements for records, tampering protection, readiness/function code, stored vapor recovery system conditions, description of GDF vapor recovery ISD system, monitoring system demonstration, failure mode testing, and signal access.

All systems are required to monitor underground storage tank pressure to assess pressure integrity. ISD will monitor the air-to-liquid (A/L) ratio for assist systems and the vapor collection flow performance for balance systems. For vapor recovery

systems with processors and/or central vacuum units, ISD is required to monitor additional parameters: vacuum at one-minute intervals and processor functioning.

Modifications to TP-201.1

The title of this procedure was originally noticed as "Volumetric Efficiency for Phase I Systems at Dispensing Facilities." It has been revised to "Volumetric Efficiency for Phase I Systems."

As originally noticed, section 3.3 noted that unusual cargo headspace volumes could bias the test results, but did not define acceptable headspace conditions. Revised section 3.3 requires that the cargo tank headspace volumes be between 3.0 and 10.0 % of total cargo tank capacity prior to delivery.

Section 5.6 specifies the barometer for ambient pressure measurement. As originally noticed, the accuracy requirements for the barometer was 5 ml (0.2 inches) of mercury. The accuracy requirements have been tightened to 1 ml (0.04 inches) of mercury.

Minor changes have been made to Equation 9.2 to clarify equation terms.

Section 11.1 has been added to provide terms for approval of alternate procedures.

Modifications to TP-201.1A

Section 1 has been revised to clarify the applicability of the test procedure and describe the purpose of the test.

As originally noticed, TP-201.2 had a warning box near the beginning of the procedure to generally alert the tester of the hazards of working near gasoline vapor. This warning has been removed and specific warnings have been imbedded in the steps of the test procedure, which should be more helpful to the tester.

Section 2 provides the principle and summary of the test procedure. This section has been condensed and unnecessary explanations have been removed.

Section 5 provides test equipment specifications. As originally noticed, section 5 provided information of the operation of various hydrocarbon analyzers. The revised section 5.1 eliminates this background information and simply defines the hydrocarbon analyzer specifications needed to conduct the test. Similarly, specifications for other pollutant analyzers, volume meters and other test equipment have been condensed in the revised section 5.

Section 5.11 has been added to describe requirements for calibration gases. Section 5.12 has been added to specify an acceptable gas dilution system. Section 5.13 has

been added to require a data acquisition system or data recorder.

Section 6 provides the equipment calibration requirements. Section 6.1 has been revised to conform to the analyzer calibration requirements of ARB Method 100, "Procedures for Continuous Gaseous Emission Stack Sampling" (title 17, California Code of Regulations, section 94114). Section 6.2 has been added to specify calibration gas requirements. The revised section 6.3 provides a calibration alternative for volume meters. The revised section 6.4 changes the calibration requirements for pressure measurement devices. Section 6.5 has been condensed to focus on periodic calibration of the temperature measurement devices. Field checks of temperature measurement devices have been relocated to section 8.

As originally noticed, Section 7 provided information on the test site location, as well as specification of test, challenge and failure modes. These sections have been removed as these requirements are already set forth in the certification procedure, CP-201 and are not necessary in the determination of the Phase I emission factor.

As originally noticed, section 8 contained the steps of the testing procedure. As modified, the steps of the testing procedure are reorganized in various sections, principally sections 8, 9, and 10. Sections 8.1.1 through 8.1.3 have been deleted as these sections deal with challenge mode testing and alternative test procedures. Alternatives will be evaluated on a case by case basis as per section 13. As originally noticed, section 8.1.2.3 provided simplifying assumptions for incinerator testing. Section 8.1.2.3 has been deleted to ensure testing consistency. As originally noticed, section 8.1.2.4 contained requirements for visual emissions. Section 8.1.2.4 has been deleted as visible emissions are not included in the Phase I emission factor.

As originally noticed, section 9 contained information on quality assurance and quality control. Similar information is now found in sections 6 and 8 of revised TP-201.1A. In addition, sampling system bias checks have been added in section 8.2 and 10.1.

As originally noticed, Section 10 provided data recording methods. The revised TP-201.1A section 5.13 refers to a data acquisition system as described in ARB Method 100, title 17, CCR, section 94114.

As originally noticed, sections 10 and 12 discussed chain-of-custody, necessary and sufficient data, reconciliation of reported results to recorded data and permanent records. These criteria are now described only in section 12.

Section 13 regarding alternative procedures has been revised to be consistent with the other vapor recovery test procedures and the Certification Procedure CP-201.

Modifications to TP-201.2

TP-201.2 has been completely revised for several reasons. First, the change in the primary emission standard for Phase II systems to allow both emission limit and efficiency determination for summer fuel necessitated a rewrite of the test procedure. Second, several sections of TP-201.2 as noticed were found to be in conflict with the certification procedure, CP-201. Also, TP-201.2 as noticed contained numerous testing alternatives that defeat the goal of a standard test approach. These alternatives have been removed, however, modifications on an as-needed basis may be used if approved by the Executive Officer. TP-201.2 has also been reformatted to be consistent with the other vapor recovery test procedures.

The title of TP-201.2 has been changed to reflect the revised Phase II standard. As originally noticed, the title of TP-201.2 was "Emission Factor for Phase II Systems." The revised TP-201.2 title is "Efficiency and Emission Factor for Phase II Systems."

As originally noticed, TP-201.2 had a warning box near the beginning of the procedure to generally alert the tester of the hazards of working near gasoline vapor. This warning has been removed and specific warnings have been imbedded in the steps of the test procedure, which should be more helpful to the tester.

Section 2 provides the principle and summary of the test procedure. This section has been condensed and unnecessary explanations have been removed.

Section 3 discusses biases and interferences that may affect the test results. This section has also been condensed to remove unnecessary explanations. As originally noticed, section 3.1.2(4) excluded vehicle fuelings of less than four gallons. In the revised TP-201.2, section 3.5 excludes vehicle fuelings of less than six gallons. As originally noticed, section 3.1.2(6) excluded vehicles equipped with ORVR vehicles. The revised TP-201.2 requires that ORVR vehicles be included as defined in the 200-car vehicle test matrix as defined in TP-201.2A.

Section 4 sets forth the sensitivity, range and precision of the test procedure. As originally noticed, Section 4 did not provide values for these parameters. The revised Section 4 provides values for sensitivity, range and precision.

Section 5 provides test equipment specifications. As originally noticed, section 5 provided information of the operation of various hydrocarbon analyzers. The revised section 5.1 eliminates this background information and simply defines the hydrocarbon analyzer specifications needed to conduct the test. Similarly, specifications for other pollutant analyzers, volume meters and other test equipment have been condensed in the revised section 5. As originally noticed, section 5 did not allow a combination of flame ionization detector (FID) and non-dispersive infrared (NDIR) instruments unless it could be demonstrated that differences in analyzer response did not bias the test

results. The revised section 5 specifies a combination of FID and NDIR detectors, which are checked in the field to assure no bias occurs.

As originally noticed, section 5.8.2 required measurement of balance nozzle bellows pressure during fueling episodes. This measurement has been deleted in the revised TP-201.2 as there is no corresponding standard in CP-201.

Section 6 provides the equipment calibration requirements. Section 6.1 has been revised to conform to the analyzer calibration requirements of ARB Method 100, "Procedures for Continuous Gaseous Emission Stack Sampling" (title 17, California Code of Regulations, section 94114). Section 6.2 has been added to specify calibration gas requirements. The revised section 6.3 provides a calibration alternative for volume meters. The revised section 6.4 changes the calibration requirements for pressure measurement devices.

As originally noticed, Section 7 provided information on the test site location, specification of test, challenge and failure modes, limits on V/L ratios, limits on nozzle operations for systems with processors, specifications for vapor piping, evaluation of ORVR vehicles, Phase I delivery requirements, system pressure integrity and damage to nozzle components. These sections have been removed as these requirements are already set forth in the certification procedure, CP-201 and are not necessary in determination of the emission factor or efficiency of Phase II systems.

Section 7, pre-test requirements, has been revised to include pressure integrity testing, equipment set-up at each test point and documentation of test site vapor recovery equipment.

As originally noticed, section 8 contained the steps of the testing procedure. As modified, the steps of the testing procedure are reorganized in various sections, principally sections 8, 9, 10 and 11. Section 8.1.1 described three vehicle leak check alternatives. The revised TP-201.2, section 9.3, contains one vehicle leak check procedure for consistent measurement. As originally noticed, section 8.1.6 provided instructions for idle nozzle emission measurement for when the nozzle is not being used for dispensing gasoline. Measurement of idle nozzle emissions have been removed, however, data will be collected immediately after a refueling episode to ensure all vapors associated with a vehicle fueling are collected (see section 9.4.3)

As originally noticed, section 8.2 provided alternatives for measurement of fugitive emissions. TP-201.2 has been revised to reference only TP-201.2F for pressure-related fugitive emission measurement. Information in section 8.4 regarding vapor processor testing has been condensed and portions removed which are already addressed in the certification procedure. Section 8.6, as originally noticed, identified the vapor return line as an optional test point. In the revised TP-201.2, this test point is

required for calculation of vapor recovery system efficiency. As originally noticed, section 8.6.2 directed testing for balance nozzle bellows pressure. This section has been removed as there is no corresponding standard in CP-201.

As originally noticed, section 9 contained information on quality assurance and quality control. Similar information is now found in sections 6 and 8 of revised TP-201.2. In addition, sampling system bias checks have been added in section 8.3.

As originally noticed, Section 10 provided data recording methods. The revised TP-201.2 section 5.2 refers to a data acquisition system as described in ARB Method 100. The sections dealing with calculation of results have been updated to be consistent with the revised emission factor and efficiency standards.

Modifications to TP-201.2B

Section 13 regarding alternative procedures has been revised to be consistent with the other vapor recovery test procedures and the Certification Procedure CP-201.

Modifications to TP-201.2B, Appendix 1

Section 2.1 has been revised to clarify that determination of the valve “cracking pressure(s)” is the goal of this procedure. Section 2.1.1 and 2.1.2 have been interchanged.

Section 5 has been revised to include equipment specifications for mechanical pressure gauges, P/V valve weight and nitrogen source supply. Minor changes have been made to section 6 to clarify the pre-test procedure. Section 7 has been modified to clarify the steps involved in testing the P/V valve. Section 9 has been added to illustrate calculation of test results.

Modifications to TP-201.2C

Section 2.1, as originally noticed, required that the vapor recovery nozzles and associated hardware be inspected and found in good working order pursuant to section 41960.2 of the Health and Safety Code. This language has been revised to refer instead to the defect list in title 17, CCR, section 94006.

Section 3.5 notes that the specific weight of gasoline may vary due to temperature and compositional differences and thus could bias the test results. As originally noticed, section 3.5 suggested that the tester measure the specific weight of the dispensed gasoline to eliminate the bias. This was seen as overly burdensome to the tester to correct a slight bias, so the revised section 3.5 directs the tester to use 6.28 as the specific weight of gasoline unless otherwise directed by the Executive Officer.

As originally noticed, section 4.1 contained information to show that single drops of gasoline spilled during refueling lead to significant aggregate emissions. This information has been deleted as it is not pertinent to the test procedure.

Section 4.2 has been revised to include the sensitivity and precision of the test procedure. As originally noticed, Section 4.3.2 contained a reference to large spills reported in an API study. The API study reference has been removed.

As originally noticed, section 5.4 specified a non-sparking tape measure as equipment needed for the test, but was silent on what was being measured. The revised section 5.4 clarifies that tape measure is used to quantify the spill areas and the calibration pour height.

Section 6.1.1 has been revised to clarify that only applicable facilities are subject to the test procedure. Section 6.2.1 has been revised to remove unnecessary instructions. Section 6.3.5 has been revised to correct the omission of the 10 ml pour.

Section 6.4.4 has been renumbered to make the number sequential and revised similar to section 2.1 to refer to the defect list in CCR 94006. Section 7.8.2 has been revised to clarify the recording of the nozzle orientation during fueling. Section 9.1 has been revised to alert the tester that the portion of the spill event quantified as drops is not subject to calculation of the spill area.

Section 11.1 has been added to provide terms for approval of alternate procedures.

Modifications to TP-201.2D

Section 1 sets forth the purpose and applicability of the test procedure. Section 1.1 has been revised to clarify that this procedure is intended for use during the certification process to determine compliance with the allowable nozzle drips standard as defined in CP-201.

As originally noticed, section 2.1 required that the nozzle's shut-off mechanism is in good working order. The revised section 2.1 clarifies that this is the nozzle's primary shut-off mechanism. Section 2.2 has been revised to note that the number of drips of gasoline is quantified while the nozzle is inverted for a period of five seconds.

As originally noticed, TP-201.2D did not specify the number of test runs required to determine compliance with the standard. The new section 2.3 states that compliance with the performance standard specified in CP-201 shall be determined using the combined average result of the ten test runs for each nozzle tested. Section 2.3 also provides that a minimum of ten nozzles shall be tested for certification.

As originally noticed, TP-201.2D did not include nozzle spitback as a possible bias. Section 3.3 has been added to alert the tester that spitback may bias the test towards noncompliance and spitback occurrences should be noted on the field data sheet.

As originally noticed, section 4.1 contained information to show that single drops of gasoline spilled during refueling lead to significant aggregate emissions. This information has been deleted as it is not pertinent to the test procedure.

The sensitivity and precision of TP-201.2D have been included in section 4.2. Section 4.3 has been added to limit the applicability of the test to refueling events of at least 4.5 gallons. Section 5.2 has been revised to clarify the stopwatch requirements.

As originally noticed, the test procedure description in section 7 was unclear. Section 7 has been revised to clarify the nozzle orientation and use of stopwatch during the test. Section 7.7 has been added to establish that ten test runs per nozzle are required. Figure 1 has been added to illustrate nozzle orientation terminology.

Sections 8 and 9 have been revised to clarify how test results are averaged. Section 10 has been updated to make reporting of results consistent with data calculations.

Section 11.1 has been added to provide terms for approval of alternate procedures

Modifications to TP-201.2E

Section 1 sets forth the purpose and applicability of the test procedure. Section 1.1 has been revised to clarify that this procedure is intended for use during the certification process to determine compliance with the liquid retention standard as defined in CP-201.

As originally noticed, TP-201.2E did not specify the number of test runs required to determine compliance with the standard. The revised section 2.1 states that compliance with the performance standard specified in CP-201 shall be determined using the combined average result of all applicable nozzles under test.

As originally noticed, TP-201.2E did not include "topping off" as a possible bias. Section 3.3 has been added to alert the tester that "topping off" may bias the test towards noncompliance and test runs where topping off occurs should be noted on the field data sheet, but not included in the calculation of average liquid retention.

As originally noticed, TP-201.2E did not include information on sensitivity, range and precision. Section 4 has been added with this information. A stopwatch has been added to the equipment list in section 5.4.

Section 6.5.4 has been added to establish that ten test runs shall be conducted for each nozzle and the average of all applicable nozzles under test shall be used for compliance determination.

Calculations relating to calculation of mass and efficiency loss have been deleted as these calculations are not pertinent to the standard. Section 8 contains the new calculations necessary to determine the liquid retain in terms of ml per 1000 gallons dispensed. The instructions on reporting results in have been updated to be consistent with the revised calculations in section 9.

Section 11.1 has been added to provide terms for approval of alternate procedures

Modifications to TP-201.2F

As originally noticed, TP-201.2F was silent on whether the test method was to be used for certification, compliance testing, or both. Section 1.1 has been revised to clarify that the procedure is applicable to certification testing.

As originally noticed, TP-201.2F referenced the pressure decay procedure set forth in TP-201.3. As several modifications have been made to the common pressure decay test, the reference to TP-201.3 has been removed and details of the pressure decay testing are instead included in TP-201.2F to avoid confusion. Section 2.1.1 has been added to require monthly pressure decay tests during the operational test to allow data collection for fugitive emission determination. Additional pressure decay tests are required before and after conducting TP-201.2 as specified in section 2.1.2. Section 2.2.3 has been added to specify that the initial pressure for the decay test is 2.00 inches water and the test duration is 20 minutes. Section 2.2.4 has been added to require measurement of ambient temperature to ensure pressure decay measurements are not masked by atmospheric changes over the test.

Section 3 lists the biases and interferences that may affect the test results. Section 3.1 has been modified to clarify that hydrocarbon concentration should be measured at the top of the underground storage tank. Section 3.4 has been added to emphasize that because pressure integrity may vary, the average of the pre- and post-TP-201.2 pressure decay tests is used to calculate the fugitive emissions.

Section 4 sets forth the sensitivity, range and precision of the test procedure. Section 4.1 has been revised to remove language which is more appropriate for equipment specifications and add the pressure measurement sensitivity. Section 4.3 has been updated to include the sensitivity of the flowmeter.

Section 5 provides the equipment requirements. Section 5.4 has been revised to

indicate which equipment will check vapor growth rate prior to test. As originally noticed, section 5.7 specified a flame ionization detector (FID) for hydrocarbon concentration measurement. Section 5.7 has been modified to allow both FID and non-dispersive infrared (NDIR) measurement options. Section 5.9 has been added to specify a tank gauging stick to measure underground storage tank liquid levels. Section 5.10 has been added to specify an ambient temperature measurement device.

Section 6 contains the pre-test procedures. Minor edits have been made to clarify activities that take place before the test. As originally noticed, section 6.2 required that product dispensing not take place during the thirty minutes immediately prior to a test. The revised section 6.2 increases the thirty minutes to sixty minutes. As originally noticed, section 6.3 required a minimum ullage of 25% of the tank capacity, or 500 gallons, whichever is greater. The revised section 6.3 requires a minimum ullage of 2000 gallons. Section 6.4 has been modified to remove the unnecessary reference to TP-201.3. Section 6.4.2 has been revised to clarify how to check liquid level in the drop tube. Section 6.10 has been added to instruct the tester to not place the ambient temperature measurement device in the shade.

Section 7 describes the test procedure itself. Minor edits have been made to clarify the steps of the test procedure. Section 7.2.1 has been added to check whether vapor growth is occurring in the underground storage tank before conducting the decay test. Section 7.4 has been revised to allow bleeding off pressure if necessary to reach 2.00 inches water initial starting pressure. Section 7.5 has been modified to reflect the change in the test duration from five minutes to 20 minutes and add the requirement to record ambient temperature. Section 7.8 has been added to invalidate the test in the ambient temperature changes more than five degrees Fahrenheit during the twenty minute test period.

Section 9 provides equations for calculating results. Changes have been made in the equations to make them consistent with a twenty minute, rather than a five minute, pressure decay test.

Section 11 has been added to provide terms for approval of alternate procedures.

Section 12 provides an example calculation of the test results. The equations in section 12 have been updated to make them consistent with a twenty minute, rather than a five minute, pressure decay test. Similarly, Form 1 has been revised to be consistent with a twenty minute test.

Modifications to TP-201.2H

Several sections have been updated to identify citations for the various methods referenced.

As originally noticed, section 2.2 contained several undefined acronyms referring to sample analysis. Changes to section 2.2 have been made to define the analytical acronyms.

Section 3.4 as originally noticed stated that particulate matter biases have not been investigated. As this bias has not been investigated for any of ARB stack testing methods, this sentence has been removed. Section 3.8 has been modified to clarify acceptable sample size for bag sampling.

Section 4 has been changed to clarify sensitivity, range and precision. Section 4.2, as originally noticed, stated that the precision of the method has not been determined. This sentence has been removed as information on precision is not likely to be available due to the large number of sample runs needed to calculate statistical measures of precision.

Section 5 contains the equipment specifications. Section 5.1.2 has been modified to clarify the type of hydrocarbon analyzer recommended for the inlet measurement. Section 5.2 describes the sampling for benzene and 1,3-butadiene measurement. Minor changes have been made to the sampling procedure to clarify the requirements for sampling using Tedlar bags or canisters.

Section 7 provides the pre-sampling procedures. New sections have been added to check the pressure integrity of the vapor recovery system within 24 hours before collecting the exhaust samples. Section 7.1.2 describes a leak check procedure for systems that operate under negative pressure. Section 7.2 requires that air to liquid volume ratio tests be conducted within 72 hours prior to collecting exhaust samples.

Section 8 describes the sampling procedure. Section 8.7 has been modified to show that sampling should begin at the start of the processor fan or pump, rather than by rising stack temperature. Section 8.7.3 (renumbered from 8.1.3) has been changed to require use of a chain-of-custody sample record as well as a sample log.

Section 12 provides the test calculations. Section 12.5 has been changed to subtract the ambient concentration from the exhaust concentration if the ambient concentration is greater than or equal to 10% of the exhaust concentration.

Section 14 sets forth the criteria for use of alternative procedures. This language has been changed to be consistent with the other vapor recovery procedures.

Section 15 discusses the test method references. A new section 15.2 describes where to find ARB methods 1002, 1003 and 1004.

Section 16.3 and 16.4 have been added to list figures for the chain-of-custody sample record and the chain-of-custody sample log.

Figures 3 and 4 have been added to depict the chain-of-custody sample record and the chain-of-custody sample log.

Modifications to TP-201.20

Section 3 lists possible biases and interferences that can affect test results. Section 3.2 has been revised to disallow any bulk deliveries during the test. Section 3.4 has been added to require that liquid levels in the drop tube should be below the location of the overflow device. A new section 3.5 warns that leaks in the test equipment may bias the test and requires use of leak detection solution during the test.

Section 4 has been revised to clarify the sensitivity, range and precision of the test procedure.

Section 5 provides test equipment specifications. Section 5.1 has been revised to limit the flowmeter range to 1.0 cubic feet per hour (CFH). Section 5.8 has been added to describe the tank gauging stick used to verify underground storage tank liquid levels.

Section 6 describes pre-test procedures. Section 6.1 has been revised to reference the ARB calibration methodology for flowmeters. Section 6.5 has been amended to reflect that a tank gauging stick is used to verify tank liquid levels.

Section 7 presents the steps of the test procedure. Section 7.2 has been revised to clarify that underground storage tank should be at atmospheric pressure at the start of the test. Section 7.3 has been modified to add a leak check of the test equipment. Section 7.4.2 clarifies that the tester should wait ten seconds for the pressure to reach steady-state conditions.

Section 9 contains equations for calculating results. Section 9.1 has been revised to clarify how to calculate the leakrate of the drop tube assembly.

Section 11.1 has been added to provide terms for approval of alternate procedures.

Modifications to TP-201.5

The title of TP-201.5 has been shortened from “Determination (by Volume Meter) of Air to Liquid Volume Ratio of Vapor Recovery Systems of Dispensing Facilities” to “Air to Liquid Volume Ratio”.

Section 1 has been modified to clarify that all nozzles which are compatible with the

test procedure may be tested, regardless of nozzle design. Revisions to section 2.1 replace the “rotary gas meter” with a “volume gas meter”. Section 2.2 clarifies that the tester should make sure there are no leaks at the P/V valve if the P/V valve is reinstalled after the test.

Section 3 lists biases and interferences that can affect the test results. Modifications to section 3.2 clarify the required dispensing rates are necessary for compliance A/L testing, but not certification A/L testing. Section 3.5 has been revised to delete the requirement to automatically remove a nozzle from service if the nozzle introduces liquid into the test equipment. Section 3.8 has been added to address proper maintenance of adaptor O-rings.

Section 5 provides the testing equipment specifications. Minor changes have been made to clarify equipment requirements.

Section 6 outlines the pre-test procedures. Section 6.5 has been modified to clarify requirements for O-ring lubrication. Section 6.6 has been revised to more clearly explain the A/L adaptor leak check procedure. Figure 4, which depicts the A/L adapter leak test assembly has been revised to be consistent with the text changes.

Section 7 provides the test procedure. Section 7.9 has been modified to clarify the acceptable A/L range for conducting one test run. Section 7.11, which required that the A/L test be conducted on each nozzle at a facility, has been deleted.

Section 8 discusses the post-test procedures. Section 8.2 has been changed to allow mixing of graded in the portable tank assembly if approved by the facility owner. Section 8.2.1 clarifies that if the P/V valve must be removed, the P/V valve is replaced after the last A/L run is completed.

Section 11 has been added to provide terms for approval of alternative procedures.

Reconsideration of Repeal of TP-201.3A

As originally noticed, TP-201.3A, known as the 5 inch pressure decay test, was proposed for repeal as it is no longer in use for vapor recovery systems used with underground storage tanks. However, comments received indicate that this procedure is needed to determine compliance with aboveground tank pressure integrity requirements. Therefore, TP-201.3A is now proposed to be retained.

Editorial Corrections

Throughout the Certification Procedure CP-201 and each of the Test Procedures corrections to wording, grammar and numbering have been made to improve the clarity

of the regulations. Cross-references have been added and corrected to improve clarity.

Board Resolution 00-9 sets forth the Board's action approving changes to Title 17, California Code of Regulations, sections 60030, 94010, 94011, 94148, 94149 and 94154, 94155 and 94163, and approving the amendment of the incorporated certification and test procedures for vapor recovery systems, D-200, CP-201, TP-201.1, TP-201.1A, TP-201.2, TP-201.2A, TP-201.2B, TP-201.2C, TP-201.5, TP-201.2D, TP-201.2E, TP-201.2F, TP-201.2H and TP-201.2O, as modified. The Resolution and the text of the regulations and incorporated certification and test procedures, as modified, are available on the Board's Web site at <http://www.arb.ca.gov/regact/march2000evr/march2000evr.htm>. Copies of these documents can also be obtained by contacting Mr. George Lew at (916) 327-0900. Test methods and standard operating procedures incorporated into the certification and test procedures are also available from Mr. Lew.

In accordance with section 11346.8 of the Government Code, the Board directed the Executive Officer to adopt sections 60030, 94010, 94011, 94148, 94149 and 94154, 94155 and 94163, Title 17, California Code of Regulations, and the incorporated certification and test procedures for vapor recovery systems, D-200, CP-201, TP-201.1, TP-201.1A, TP-201.2, TP-201.2A, TP-201.2B, TP-201.2C, TP-201.5, TP-201.2D, TP-201.2E, TP-201.2F, TP-201.2H and TP-201.2O, as modified, after making them available to the public for comment for a period of at least 15 days. The Board further provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make such modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if warranted.

Written comments on the modifications approved by the Board must be submitted to the Clerk of the Board, Air Resources Board, P.O. Box 2815, Sacramento, California 95812, no later than October 27, 2000, for consideration by the Executive Officer prior to final action. Only comments relating to the above-described modifications to the regulations shall be considered by the Executive Officer.