State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

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

PUBLIC HEARING TO CONSIDER THE ENHANCED VAPOR RECOVERY TECHNOLOGY REVIEW AND ADOPTION, AMENDMENT AND REPEAL OF REGULATIONS REGARDING CERTIFICATION PROCEDURES AND TEST PROCEDURES FOR GASOLINE VAPOR RECOVERY SYSTEMS

Public Hearing Dates: December 12, 2002
Agenda Item No.: 02-9-6

I. Introduction

On December 12, 2002, the Air Resources Board (the "Board" or the "ARB") conducted a public hearing to consider the amendment of ten certification and test procedures and the adoption of five new test procedures. This regulatory action is called Enhanced Vapor Recovery (EVR) Technology Review.

At the December 12 public hearing, the Board adopted Resolution 02-35 approving the amendment of regulations that incorporate by reference the new and revised certification and test procedures. The revised regulations are title 17, California Code of Regulations (CCR), sections 94010, 94011, 94163, 94164 and 94165. The incorporated amended certification and test procedures are:

Method D-200	Definitions for Vapor Recovery Procedures
Method CP-201	Certification Procedure for Vapor Recovery Systems at Gasoline Dispensing Facilities
Method TP-201.1	Volumetric Efficiency for Phase I Systems
Revised Title:	Volumetric Efficiency for Phase I Vapor Recovery Systems
Method TP-201.1B	Static Torque of Rotatable Phase I Adaptors
Method TP-201.1C	Pressure Integrity of Drop Tube/Drain Valve Assembly
Revised Title:	Leak Rate of Drop Tube/Drain Valve Assembly

Method TP-201.1D	Pressure Integrity of Drop Tube Overfill Protection Devices
Revised Title:	Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves
Method TP-201.2	Efficiency and Emission Factor for Phase II Systems
Method TP-201.2B	Pressure Integrity of Vapor Recovery Equipment
Revised Title:	Flow and Pressure Measurement of Vapor Recovery Equipment
Method TP-201.2D	Post Fueling Drips from Nozzle Spouts
Revised Title:	Post Fueling Drips from Nozzles
Method TP-201.2F	Pressure Related Fugitive Emissions

The Board approved further amendment to section 94011 and adoption of new sections 94166 and 94167, title 17, CCR, which incorporate five new test procedures by reference. The new methods are:

Method TP-201.1E	Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves
Method TP-201.2G	Bend Radius Determination for Underground Storage Tank Vapor Return Piping
Method TP-201.2I	Test Procedure for In-Station Diagnostic Systems
Method TP-201.2J	Pressure Drop Bench Testing of Vapor Recovery Components
Method TP-201.7	Continuous Pressure Monitoring

After consideration of formal comments received during the 45-day public comment period prior to the hearing, the Board directed staff to modify the regulations and provide a further 15-day period for public comment on these modifications. The modified regulations were made available to the public for comment between May 9, 2003, and May 27, 2003, pursuant to Government Code Section 11346.8(c). The “Notice of Public Availability of Modified Text” was mailed by May 9, 2003, as required by title 1, CCR, section 44. Additional revisions prompted by the May 2003 comment period were made available to the public for comment between July 17, 2003 and August 1, 2003.

A Staff Report was prepared as the Initial Statement of Reasons for the proposed rulemaking. The Staff Report was released on October 25, 2002, and is incorporated by reference herein. The Final Statement of Reasons updates the Staff Report by explaining

why the proposed test methods were modified, as well as summarizing the public comments received and presenting the Board's responses to the comments.

Fiscal Impacts. The Board has determined that this regulatory action will not create costs, as defined in Government Code section 11346.5(a)(6), to any state or local agency or in federal funding to the State. The Board has also determined, pursuant to Government Code section 11346.5(a)(6), that these amendments will not create costs or impose a mandate upon any local agency or school district, whether or not it is reimbursable by the State pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code; or affect other non-discretionary savings to local agencies. The Board has also determined, pursuant to Government Code section 11346.3, that the regulation will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

In preparing the regulatory proposal, the ARB staff considered the potential economic impacts on California business enterprises and individuals. The ARB is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

Consideration of Alternatives. The amendments proposed in this rulemaking were the result of extensive discussions and meetings involving staff and representatives of the affected equipment suppliers, gasoline dispensing facilities (GDFs), and local and state agencies. Staff seriously considered all of the alternatives proposed by industry and adopted many of their proposals. In short, staff's final proposal to the Board, and the modifications to that proposal made by the Board, account for numerous alternatives provided by both stakeholders and the ARB staff's proposal.

As described in the ISOR (section VIII. p.35), the EVR Technology Review revealed that the technology-forcing post-fueling drip standard could not be met as adopted and an alternative standard representing best available technology was approved.

II. Changes to the Originally Proposed Certification and Test Procedures

At the hearing the staff presented, and the Board approved, modifications to the regulations originally proposed in the Staff Report released on October 25, 2002, in response to comments received and continuing review since the Staff Report was published. The modifications affect the text of certification and test procedures D-200, CP-201, TP-201.1C, TP-201.1D, TP-201.1E, TP-201.2D and TP-201.2F. The modifications are set forth in the Notice of Availability of Modified Text dated May 9, 2003. Additional modifications resulting from comments received on the May 9, 2003 changes are set forth in the Notice of Availability of Modified Text dated July 17, 2003.

Modifications to the Text of the Proposed Regulations and Detailed Statement of Reasons

Modifications to D-200

D-200 provides definitions and acronyms of vapor recovery terms used in the certification and test procedures.

Gasoline dispensing facilities that significantly modify vapor recovery equipment, i.e., undergo a “major modification” are considered “new installations” and must comply with all the operative vapor recovery requirements. The definition of “major modification” was modified to clarify that certain upgrades required by ARB and State Water Resources Control Board regulations do not constitute a “major modification” and thus do not make the facilities subject to the same requirements as a new facility. Specifically, the definition of “major modification” has been changed to clarify that Phase II upgrades to add ORVR compatibility or install under-dispenser containment at installed GDFs are not considered “major modifications” and do not require the installed GDFs to implement operative standards or specifications in advance of the dates provided in CP-201 section 19.

As originally noticed, “multi-product dispenser” was defined as a dispenser of multiple products with two or more hoses per dispenser side. As unihose dispensers can also be multi-product dispensers, this definition has been corrected to be a dispenser with one or more hoses per dispenser side.

As originally noticed, “unihose dispenser” dispenser was missing the word “one”, as in “only one hose and nozzle per dispenser side”. This definition has been corrected to include the word “one”.

The acronym for “NPT” which means “national pipe threads” has been added as this acronym is used in the test procedures.

Modifications to CP-201

CP-201 is the certification procedure that contains the Phase I and Phase II standards and specifications and references the test procedures to be used during the certification of vapor recovery systems.

Section 1.1 has been modified to clarify the identification of the Office of the State Fire Marshall.

As originally noticed, section 2.4.4 provides an exemption for most EVR standards for existing facilities located in districts in attainment with state ozone standards. Section 2.4.4 has been revised to identify that ARB makes the determination of whether the district meets the ozone standard and clarify that the exemption is available to such identified districts. Additional language provides that exempted facilities in districts that are

reclassified from attainment to non-attainment will have four years to comply with EVR requirements.

Table 2-1 provides the operative and effective dates for the vapor recovery requirements. Table 2-1 has been modified to reflect the change in effective and operative dates for ISD and Phase II standards and specifications from April 1, 2003 to April 1, 2004. The modification of the operative dates for the ISD and Phase II standards was adopted by emergency regulation, last filed with the Office of Administrative Law (OAL) on July 1, 2003 and approved by OAL on July 3, 2003. This is necessary to allow sufficient time to certify EVR Phase II systems and will provide for the Phase II standards and specifications to be phased-in more uniformly on April 1, 2004. The effective and operative date for ISD at stations with throughputs greater than 600,000 gallons per year and less than 1.8 million gallons per year has been changed to April 1, 2005 to allow a phase-in of ISD as originally intended. The nozzle criteria requirement has been changed to conform the Table to the amendment of the post-refueling drops ("dripless nozzle") standard from 1 to 3 drops. Table 2-1 has been revised to change the ISD exemption throughput from 160,000 to 600,000 gallons/year to include service stations in the GDF2 category as requested by districts. The appropriateness of the GDF2 exemption level will be addressed in the ISD implementation review to be completed within 18 months after certification of the first ISD system as directed by the Board in Resolution 02-35. The unihose requirement has been added to Table 2-1 as the operative date for the unihose specification is now different from other Phase II standards and specifications. There is no effective date for the unihose requirement, as the unihose requirement does not apply to GDFs installed before April 1, 2003.

Section 3 contains requirements for Phase I systems. The word "relief" has been removed from references to "pressure/vacuum relief valves" in Table 3-1 and section 3.5 to conform to the title change of TP-201.1E. Figures 3A and 3B that depict the dimensional requirements for Phase I adaptors have been corrected by replacing the word "standard" with "specification." The cross-referenced title of TP-201.1D has been amended to reflect the amended title of the method.

Table 4-1 provides a summary of the Phase II performance standards and specifications applicable to all Phase II system types. Column three for the ORVR compatibility standard has been corrected to reference "4.4", as well as "4.1". The description of the requirement is amended for consistency with the amended section 4.4.

Section 4.1.1 describes the determination of the Phase II emission factor and efficiency. As originally noticed, the last sentence of section 4.1.1 provides that the efficiency is only calculated for vehicles identified as "non-ORVR". This sentence was not marked as an amendment in the October 25, 2002 version, although the change was discussed on page 17 of the ISOR. The sentence is now identified as an amendment, as it was in both the first and second 15-day notices of the availability of modified text.

Section 4.4 describes the ORVR compatibility standard requirements. As originally

noticed, section 4.4.1 required that refueling of ORVR vehicles shall not cause the system to exceed the Phase II emission factor and/or efficiency. This is incorrect as exceeding the efficiency standard is acceptable. The language has been further revised to clarify that ORVR fuelings shall not cause the system to fail the Phase II emission factor and/or efficiency standards prescribed in section 4.1. The same modifications are made in Table 4-1, which summarizes the requirements of section 4.

Section 4.11 discusses the unihose dispenser requirement. As originally adopted, the unihose requirement does not apply to "facilities installed prior to the effective date of this procedure." This is confusing as CP-201 is updated regularly and it is not clear when the requirement is to be operative. Section 4.11 has been revised to conform with section 19.1.5 to state that the unihose exemption can be claimed by facilities installed prior to April 1, 2003. Language has been added to section 4.11 to clarify that facility modifications that meet the definition of "major modification" for a Phase II system in D-200 trigger the unihose requirement as the facility is considered a "new installation".

As originally noticed, Section 8 described Phase II performance standards and specifications for assist systems using processors. As processors may be used on both assist and balance systems, the references to "assist" have been removed from section 8.

Section 10 describes the requirements for in-station diagnostics systems. Section 10.1.1 has been revised to conform with the ISD exemption throughput change to 600,000 gallons per year in Table 2-1.

Section 10.1.8 discusses the requirements for the ISD electronic archive. The requirements have been revised to require storage of monthly reports for a period of 12 months and daily reports for the last rolling 365 days, rather than storage of monthly reports for 24 months and daily reports for the last rolling 30 days. This change was requested by an ISD manufacturer to reduce costs related to data storage.

As originally noticed, section 10.1.11 provides for limited repairs during the certification operational test if the failure was detected by the ISD system and is included in the system maintenance manual. In the first 15-day notice, the word "maintenance" had been substituted for "failure" to better represent allowed equipment repairs. Section 10.1.11 is now deletion so that no ISD-detected maintenance will be allowed during the certification operational test.

Section 10.2.1 describes the ISD Air/Liquid (A/L) ratio monitoring requirements. The word "ratio" has been substituted for "range" to clarify the correct A/L value to be used.

Section 10.2.2 has been revised to remove the word "flow" from "vapor collection flow performance" and additional language has been added to clarify the establishment of a baseline and that the vapor collection performance can be monitored using various means.

Section 10.2.4(d) provides the ISD malfunction criteria for pressure integrity. Section

10.2.4(d) has been revised to clarify that the requirement is a minimum value and to provide a reference to the leak rate standard in section 4.2.

Section 10.3 has been revised to clarify the required information for the ISD reports.

Sections 10.8 and 10.9 have been merged into section 10.8 and renamed “Electronic Access.” Duplicative language on ISD report requirements has been deleted.

Section 13.4 describes failure mode testing. Revisions to section 13.4.1 conform to the changes made in section 4.4 regarding ORVR compatibility requirements.

Section 19.1.5 has been corrected by replacing “reminder of useful life” with “remainder of useful life.”

Section 19.2 allows installation of systems with terminated certifications if systems meeting the operative standards are not commercially available. Modifications have been made to section 19.2 to clarify requirements for systems that may be installed under these circumstances. The final revisions allow adjustment of effective dates for standards and specifications so that pre-EVR systems installed under circumstances where EVR systems are not commercially available may be used for up to four years after the determination of commercial unavailability.

Modifications to TP-201.1C

TP-201.1C measures the leak rate of the Phase I drop tube/drain valve assembly. This procedure is used both for certification and compliance testing. As originally noticed, the proposed changes to TP-201.1C were focused on the use of the procedure for compliance purposes and deleted some aspects of the procedure necessary for certification use. The final modifications described below include changes to make TP-201.1C appropriate for use as both a certification and compliance procedure.

The term “pressure measuring device” has been replaced with the more common “pressure gauge” throughout the test procedure.

Section 1 discusses the purpose and applicability of the test procedure. Modifications have been made to section 1 to clarify the equipment tested and delete references that the procedure can verify the zero leak limit of drop tube seals and threaded components.

Section 2 provides the principle and summary of the test procedure. This section has been rewritten for clarity.

Figure 1 has been modified to show the placement of the bladder in the drop tube.

Section 3 provides information on biases and interferences. Section 3.1 notes that Phase I component leaks could contribute to the total leak rate measured. As originally noticed,

section 3.1 suggested testing the Phase I components for leaks before conducting the test. Section 3.1 has been revised to suggest checking the Phase I components only in the event of a test failure. As originally noticed, renumbered section 3.2 included a low product level which failed to completely submerge the drop tube as a bias. This section has been deleted, as the bladder used in the drop tube eliminates this bias. The revisions to the renumbered section originally noticed as section 3.3 have been changed to return to the original adopted language regarding leak checks of the test equipment.

Section 4 discusses the sensitivity, range and precision of the test procedure. Section 4.1 has been revised to provide specific requirements for the flowmeter necessary to meet the required precision. Similarly, section 4.2 has been modified to more completely describe the required pressure gauge.

Section 5 provides a listing of the equipment needed to conduct the test. The originally noticed section 5.1 has been deleted and replaced with new sections 5.2 and 5.7. Sections 5.2 and 5.3 has been renumbered to sections 5.1 and 5.2 respectively, and revised to conform to section 4. The word “inert” has been removed from the description of nitrogen in renumbered section 5.3 as unnecessary. The accuracy of the stopwatch in renumbered section 5.4 has been changed from 0.2 to 0.10 seconds to improve accuracy. Section 5.7 regarding traffic cones and caution tape has been removed as not necessary for conducting the test procedure. Section 5.8 regarding use of the tank gauging stick has been deleted as the product level is not pertinent to this test. New sections 5.6 and 5.7 provide requirements for the inflatable bladder and product adaptor test cap.

Section 6 describes the pre-test procedures. The calibration requirements for the pressure gauge have been added to section 6.1, and section 6.2 has been deleted. Section 6.3 regarding traffic cones and caution tape has been removed as not necessary for conducting the test procedure. Renumbered section 6.2 has been modified to clarify the inspection of the drain valve configuration. The original section 6.5 has been deleted as verification of product level is not necessary for this test. A new section 6.3 has been added to direct the tester to inspect the Phase I product adaptor before conducting the test.

Figure 3 has been added to illustrate the product adaptor test cap.

Section 7 discusses the test procedure. The changes to this section are rearrangement and clarification of the steps to conduct the test. The originally noticed sections 7.1 through 7.4 have been clarified in new sections 7.1 through 7.5. These new sections have eliminated the reference to 2.00 inches H_2O and instead reference the pressure specified in CP-201.

Section 8 provides the post-test procedures. The originally noticed sections 8.1 through 8.3 have been clarified in new sections 8.1 and 8.2.

Section 9 describes the calculation of the test results. Section 9.1 has been revised to

conform the calculations to the pressure specified in CP-201, rather than 2.00 inches H_2O. New section 9.2 provides common flow rate conversions as an aide to the tester.

Modifications to TP-201.1D

TP-201.1D measures the leak rate of drop tube overfill prevention devices (OPDs) and spill container drain valves. The title of TP-201.1D has been revised to clarify that both OPD and drain valve leak rates are determined by this test procedure.

The term “pressure measuring device” has been replaced with the more common “pressure gauge” throughout the test procedure.

Section 1 sets forth the purpose and applicability of the test procedure. Section 1 has been modified to clearly identify which drain valves may be tested using this procedure. Other revisions have been made to simplify the applicability of the procedure to show compliance with the specifications in the certification procedure.

Section 2 describes the principle and summary of the test procedure. As originally noticed, TP-201.1D assumed a steady-state pressure of 2 inches H_2O for all components tested. Section 2 has been revised to reference the specifications in CP-201, rather than a specific pressure. The reference to a “plumber’s bladder” has been modified to allow other types of bladder devices. Section 2.2 has been deleted and similar language has been added to the end of Section 2 to clarify that the leak rate of the drain valve must be determined in order to quantify the leak rate of the OPD.

Section 3 provides information on biases and interferences. Section 3.1 notes that Phase I component leaks could contribute to the total leak rate measured. As originally noticed, section 3.1 suggested testing the Phase I components for leaks before conducting the test. Section 3.1 has been revised to suggest checking the Phase I components only in the event of a test failure. As originally noticed, section 3.4 stated that positive pressures in the storage tank headspace could provided a bias toward compliance. Section 3.4 has been modified to note that both negative and positive pressures can bias the test.

Section 4 discusses the sensitivity, range and precision of the test procedure. Section 4.1 has been revised to provide specific requirements for the flowmeter necessary to meet the required precision. Similarly, section 4.2 has been modified to more completely describe the required pressure gauge.

Section 5 provides a listing of the equipment needed to conduct the test. The originally noticed section 5.1 has been deleted and replaced with new sections 5.2 and 5.8 for clarity. Section 5.2 has been renumbered and revised to conform to section 4. Section 5.6 has been revised to remove language not pertinent to the equipment description and to remove reference to the vapor poppet. Section 5.7 has been renumbered and modified to allow other bladders, as well as a plumber’s bladder for isolation of the drain valve from the OPD. Section 5.8 has been renumbered and revised to acknowledge that the tank

gauging stick may or may not be required to ascertain that the drop tube opening is completely submerged.

Section 6 describes the pre-test procedures. Section 6.2 has been revised to remove language regarding quantifying Phase I adaptor leaks, which is not the intent of the test procedure. Section 6.5 has been modified to clarify the inspection of the drain valve configuration. Section 6.6 has been added to discuss how to bring the ullage space to zero gauge pressure.

Renumbered Figure 2, Inflatable Bladder Installation, has been revised to provide a generic depiction of the bladder that may be used.

Section 7 discusses the test procedure. The changes to this section are rearrangement and clarification of the steps to conduct the test. Sections 7.1 and 7.2 have been replaced with the new section 6.6 as described above. As originally noticed, section 7.3 allowed measurement of the combined leak rates of the drain valve and OPD. This section has been deleted and similar language is now in section 7.8. New section 7.1 alerts the tester to proceed directly to section 7.8 if the drain valve does not drain into the drop tube. New sections 7.2 through 7.4 describe the steps to test the drain valve alone and replace the original section 7.5. The renumbered section 7.5 has been revised to eliminate the reference to 2.00 inches H_2O and instead reference the pressure specified in CP-201. Section 7.6 has been rewritten to clarify recording of flow rate and pressure data. New section 7.7 describes removal of the bladder. New sections 7.8 through 7.11 describe the steps to test the entire drop tube assembly.

Section 8 provides the post-test procedures. Section 8.2 has been deleted as it is duplicative of new section 7.7. Section 8.4 has been deleted as it is duplicative of language in section 9.1.

Section 9 describes the calculation of the test results. Section 9.1 has been revised to conform the calculations to the pressure specified in CP-201, rather than 2.00 inches H_2O. Section 9.2 has been modified to clarify the calculation of the leak rate of both components. Equation 9.2 has been added for the calculation described in section 9.2. New section 9.3 provides common flow rate conversions to aid the tester.

Section 10 describes reporting of results. Modifications to section 10 clarify how to report the test results.

Section 11 provides the mechanism for use of alternate procedures. Section 11 has been revised to clarify the reference to CP-201.

Modifications have been made to Form 1, Drop Tube/Drain Valve Assembly Data Sheet, to conform to changes in the test procedure.

Modifications to TP-201.1E

Staff discovered that some test equipment in the proposed TP-201.1E, Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves, has limitations when used to test pressure/vacuum vent valves (P/V valves) at or above maximum allowable leak rate. Therefore, staff had proposed to withdraw the proposed TP-201.1E and revert to the previously adopted TP-201.2B Appendix. Two manufacturers submitted comments favoring TP-201.1E over the TP-201.2B Appendix. Based on these comments, the ARB is retaining TP-201.1E with the following changes.

The title of TP-201.1E has been modified to refer to "Pressure/Vacuum Vent Valves" as more correct than "Pressure/Vacuum Relief Vent Valves."

Section 2 sets forth the principle and summary of the test procedure. As originally proposed, section 2 discussed measurement of flowrates but did not mention measurement of cracking pressure. Language has been added to clarify that the procedure includes measurement of positive and negative valve cracking pressures. Additional language is proposed to emphasize that P/V valves are to be tested on a test stand, rather than installed on the vent pipe at a gasoline dispensing facility. An exception is made for certification tests conducted by the ARB Executive Officer.

Section 4 relates to sensitivity, range and precision of the test procedure. Revisions are proposed to the specifications of flow meters to conform to the flow meters used in other vapor recovery procedures.

Section 5 outlines the equipment necessary to conduct the test procedure. As originally proposed, section 5 references specific equipment by manufacturer. The manufacturer references have been removed to clarify that any equipment meeting the required specifications may be used. Language has been added to section 5.6 to require use of a bypass valve on the test stand. The bypass valve allows the tester to set the flow without pressurizing the P/V valve. Revisions to section 5.6 also clarify that P/V valves may be isolated for testing by the ARB Executive Officer at the certification test site.

Section 6 contains the pre-test procedure. Section 6.4 has been revised to include the test assembly used for certification tests and add language to clarify that equipment is leak tight when no bubbles are observed.

Section 7 describes the steps to conduct the test measurements. As originally proposed, section 7.2 referred to a leakrate measurement at 2 inches water column (WC). Section 7.2 has been revised to reference the leak rate at the positive pressure stated in CP-201 section 3, which may differ from 2 inches WC. As originally proposed, section 7.4 referred to a leakrate measurement at – 4 inches WC. Section 7.4 has been modified to reference the leak rate at the negative pressure stated in CP-201 section 3, which may differ from – 4 inches WC. The time required to ensure steady state flow has been changed from thirty to ten seconds for both sections 7.2 and 7.4 as 10 seconds has been found to be sufficient in tests conducted by staff. Sections 7.3 and 7.5 have been revised to reflect use of the

bypass valve in establishing test flowrates for cracking pressure as well as to reference CP-201 section 3 for the positive and negative cracking pressure settings.

Section 10 discusses reporting of test results. Minor changes are proposed to section 10.1 to conform with revisions to Form 1. Figure 1 has been modified to show the addition of the bypass valve to the test stand. Modifications to Form 1 are made to conform to the revisions in the test procedure.

Modifications to TP-201.2D

The Board has withdrawn the proposed amendments to TP-201.2D dated October 25, 2002 and has modified TP-201.2D as adopted February 1, 2001 as follows.

TP-201.2D determines post-fueling drips from nozzles. The title of the test procedure has been modified to correctly reflect that the procedure determines drips from any part of the nozzle, not just the nozzle spout. The term "refueling" has been replaced with the more common terms, "fueling" or "dispensing", throughout the test procedure.

Section 1 sets forth the purpose and applicability of the test procedure. Both the introduction and section 1.1 have been revised to clarify the reference to CP-201. Section 1.2 has been added to clarify that the terms "drip" and "drop" may be used interchangeably.

As originally adopted, section 2.1 required that nozzles be inspected and verified to be in good working order, as specified in CCR, title 17, section 94006. Section 2.1 has been removed as TP-201.2D is only applicable for system certification tests, not for compliance testing. The original section 2.2 has been renumbered as section 2.1 and revised to simplify the summary of the test procedure. The original section 2.3 has been renumbered as section 2.2 and revised to clarify the determination of compliance with the standard.

Section 3 provides details on identified biases and interferences for the test procedure. Section 3.2 regarding CCR Title 17 defects has been deleted to conform to the removal of section 2.1. The original section 3.3 has been renumbered as section 3.2 and revised to clarify the data from runs with spitback may be excluded only if the spitback was due to a vehicle fillpipe which does not conform to the requirements of title 13, CCR, section 2235. Section 3.3 has been added to specify that gasoline that exits the nozzle as a trickle, rather than distinguishable drips that can be counted, will be reported as 2.5 drops where the total gasoline collected for that run is less than 0.3 ml. Section 3.4 has been added to recognize that the conversion of 1 ml to 20 drips may underestimate the actual volume, due to variations in gasoline composition.

The sensitivity and precision of TP-201.2D have been clarified in section 4.2.

Section 5 describes the equipment requirements for conducting the test procedure. Section 5.1 has been revised to clarify that more than just the number of drips is recorded

for each fueling on the Field Data Sheet. Section 5.2 has been added to reference the new nozzle data sheet. The original section 5.2 regarding stopwatch specifications has been renumbered to section 5.3 and revised to reference a timing device as a stopwatch is not necessary. The language suggesting use of the stopwatch split function has been removed. Sections 5.4 through 5.9 have been added to specify additional equipment needed to conduct the test procedure.

Section 6 contains the pre-test procedures. Section 6.1 has been modified to describe how to mark the nozzle horizontal position, as well as to delete language relating to title 17 to conform with changes to sections 2.1 and 3.2. Section 6.2 has been added to direct the tester to record data on the nozzle data sheet.

As originally adopted, Figure 1 depicts nozzle orientation. Figure 1 has been replaced with a new Figure 2. The new Figure 1 shows how to mark and observe nozzle attitude in order to verify that the nozzle is pointing downward during the fueling. The new Figure 2 clarifies how to determine nozzle orientation.

Section 7 has been revised to clarify each step of the test run. The original section 7.1 has been deleted as the vehicle survey ID has been replaced with a “time of day” entry on Form 1 to identify a test run. The original section 7.2 has been renumbered to section 7.1 with editorial changes. A new section 7.2 has been added to describe use of the graduated cylinder and funnel. Section 7.3 has been modified to clarify the position of the nozzle during the fueling. A new section 7.4 discusses determination of the nozzle attitude during the fueling to verify the spout is pointing downward. The original section 7.4 has been renumbered to section 7.5 and revised to clarify that the nozzle shall be set on high clip during the fueling and correct the reference to the stopwatch. The original section 7.5 has been renumbered as section 7.6 and revised to remind the tester to verify that at least 4.5 gallons are dispensed and to wait for 10 seconds before removing the nozzle. Sections 7.6.1 and 7.6.2 have been modified to clarify the removal of the nozzle from the fillpipe and the counting of the drips. New section 7.6.3 gives instructions on how to record gasoline that exits the nozzle as a trickle, rather than discrete drips. Modifications to Section 7.7 clarify the total number of runs required and data collection procedures.

The original section 8, Post-Test Procedures, has been deleted as it is duplicative of language in the original section 9. The original section 9 has been renumbered to section 8 and describes calculation of results. The equations in section 8 have been revised for clarity. New language has been added to section 8.2 to account for the conversion of measured milliliters to drips.

The original section 10, Reporting Results, has been renumbered to section 9. Modifications have been made to clarify the information required to report final test results.

The original Form 1 has been replaced with two new forms to simplify the data collection for the tester. The new Form 1, Field Data Sheet, lists data collected from the actual fuelings and measurement of drips. Form 2, Nozzle Data Sheet, summarizes the nozzle

and facility information.

Modifications to TP-201.2F

TP-201.2F is used to calculate the pressure-related fugitive emissions during certification of Phase II systems. As originally noticed, the flowrate at each observed pressure is calculated using an equation taken from TP-201.3 (TP-201.2F Equation 9.1.1). Based on comments that the TP-201.3 equation can overestimate the flowrate at low pressures (< 1 inch WC), a series of empirically-derived equations have replaced Equation 9.1.1 for calculation of flowrate at observed pressures.

Section 3 discusses possible biases and interferences that may affect test results. Section 3.2 has been modified to allow pressure measurements at points other than the vent pipe. The pressure measurement location must be pre-approved by the Executive Officer.

Section 5 provides equipment specifications. Revisions to sections 5.1, 5.2 and 5.3 to remove references to specific manufacturers for pressure transducers and data acquisition systems to allow use of any equipment that meets the required specifications.

Section 6 contains the pre-test procedures. Section 6.7 has been corrected to refer to a "flow meter" instead of a "flow restrictor".

Section 8 sets forth the post-test procedures. Section 8.9 has been revised to reflect the revisions to section 9, described below.

Section 9 describes how to calculate the test results. Section 9.1 has been revised to reference Appendix A for determination of the empirical flow versus pressure (Q vs. P) equations and remove language relating to deleted equation 9.1.1. Section 9.2 has been modified to reference the empirical Q vs. P equations for calculation of flow rates relating to each observed pressure interval. Equations 9.2.1, 9.2.2 and 9.3.1 have been revised to conform to use of the empirical flow versus pressure equations.

Section 12 provides an example calculation for determination of pressure-related fugitives. The calculations have been modified to be consistent with the changes made to section 9.

Appendix 1 has been added to provide information on how to generate the empirical Q vs. P equation.

Minor Editorial Corrections

Throughout the Certification Procedure and the Test Procedures clarifying cross-references have been added and terminology, numbering and grammar have been corrected.

III. Summary of Comments and Testimony Received in Response to 45-Day Notice and Received at Hearing and Agency Responses

List of Comments Received (written comments unless otherwise noted)

#	STAKEHOLDER	AUTHOR	DATE	COMMENT TOPICS
1	American Petroleum Institute (API)	Prentiss Searles (oral & written)	12/11/02 12/12/02	EVR exemption, EVR schedule, Tech Review, CP-201, TP-201.2F
2	ARID Technologies	Tedmund Tiberi	12/11/02	UST pressures
3	California Independent Oil Marketers Association (CIOMA)	Sandra Duval (oral & written)	12/12/02	ISD-detected failures, No EVR systems without ISD
4	California Air Pollution Control Officer's Assoc. (CAPCOA)	Doug Quetin (oral only)	12/12/02	Supports proposal, ISD exemption throughput, ISD cost
5	James Loop	James Loop	12/4/02	TP-201.3
6	Northern Sonoma APCD	Barbara Lee (oral only)	12/12/02	Supports proposal, ISD exemption throughput
7	San Diego County APCD	Chuck Williams	11/19/02	TP-201.2B
8	South Coast AQMD	Barry Wallerstein (oral only)	12/12/02	Supports proposal
9	Western States Petroleum Association (WSPA)	Steven Arita (oral & written)	12/11/02 12/12/02	EVR exemption, EVR schedule, ISD certification

The individual comments and staff responses are grouped by topic below. The topics are organized as follows:

General Comments
EVR Exemption for Ozone Attainment Areas
EVR Certification
EVR Implementation Schedule
EVR Technology Review
In-Station Diagnostics
Test Procedures

General Comments

1. Comment by SCAQMD

SCAQMD is in full support of the staff's proposal and states that EVR is necessary for ozone and air toxics control.

2. Comment by No. Sonoma

No. Sonoma is in full support of the staff's proposal and appreciates report (ISOR).

Response

We appreciate the involvement and support of the Northern Sonoma County APCD and the SCAQMD in developing and implementing EVR.

EVR Exemption for Ozone Attainment Areas

3. Comment by API

API requests revisions to section 2.4.4, which provides an exemption from most EVR requirements for districts in attainment areas, to include an exemption for in-station diagnostics.

Response

The suggested change has been made.

4. Comment by API

API requests modifications to both section 2.4.4 and the definition of "major modification" in D-200 to ensure that upgrades to equipment to achieve ORVR compatibility does not trigger Phase II EVR.

Response

Language has been added to the definition of "major modification" to state that "Phase II system upgrades to make the systems ORVR compatible do not constitute a major modification." Changes were not made to section 2.4.4 in order to stay consistent with any future changes to the definition of "major modification".

5. Comment by API

API suggests modifications to section 2.4.4 to allow time for facilities in attainment areas that are subsequently reclassified as non-attainment areas to meet EVR requirements.

Response

The suggested changes have been made.

6. Comment by WSPA

WSPA requests that the phrase "may be exempted" be changed to "are exempted"

if the district is determined to be in attainment with the ozone standards.

Response
The suggested change has been made.

EVR Implementation Schedule

7. Comment by API
API notes that staff agrees that the April 3, 2003 deadline for certifying an EVR system will not be met. API requests that any time extension be noted in Table 2-1 of CP-201 and all effective dates should be adjusted to dates where CARB can guarantee that EVR Phase II systems are commercially available.

Response
The effective dates in Table 2-1 have been adjusted to reflect dates when certified EVR Phase II systems are expected to be available. The dates will be adjusted again if necessary. Delays due to commercial availability can be handled under amended section 19, specifically under section 19.2 of CP-201.

8. Comment by WSPA
WSPA supports staff's recommendation to adjust the effective and operative dates for EVR Phase II and ISD systems. WSPA requests that the final compliance dates also be adjusted to maintain the four-year period for installation. WSPA remains concerned that there will not be a sufficient number of EVR-certified systems available to ensure that its members will have a selection of EVR certified equipment from which to choose from and install only once.

Response
Staff has modified the effective, operative and final compliance dates for the Phase II and ISD modules to maintain a four-year period. It is expected that several EVR Phase II systems will be certified within the next two years.

9. Comment by WSPA
WSPA recommends an EVR timeline check in early 2004 to assess the availability of certified EVR Phase II and ORVR-compatible systems, the ability of operators to install systems by the EVR deadlines and evaluate the need to adjust the EVR schedule if necessary. WSPA requests that the timeline process check be included in the Board resolution.

Response
As directed by the Board in Resolution 02-35, staff will assess, following the initial certification of the first EVR Phase II system, the adequacy of the lead time to install complying certified EVR Phase II systems prior to the deadline for complying with the ORVR compatibility requirements. It is the intent of the Board that the assessment determine the adequacy of lead time in order to minimize the necessity

that existing gasoline dispensing facilities will need to upgrade equipment more than once in order to meet all EVR requirements. As directed, the staff will consult with the Districts, WSPA and other stakeholders in preparing the assessment and to report the findings to the Board within three months of the initial certification of the first EVR Phase II system.

EVR Certification

10. Comment by API

The term "and/or efficiency" was specifically added in section 4.4.1 of CP-201 at the same time the same term was removed from Section 4.1.1. For ORVR vehicles, Phase II systems need only demonstrate compliance with an emissions factor, per the last sentence in Section 4.1.1. Thus, to avoid confusion the phrase "and/or efficiency" in Section 4.4.1 should be deleted. Left in, it appears to contradict the response to comment #6 in the EVR Technology Review Report where it is acknowledged that EVR systems should not be required to control refueling emissions from ORVR-equipped vehicles by 95%.

Response: ARB agrees that calculation of efficiency using TP-201.2 is not appropriate for ORVR vehicles. That is why the term "and/or efficiency" was removed in section 4.1.1 of CP-201 as proposed in the October 25, 2002, staff report. However, the use of the term "and/or efficiency" remains appropriate for section 4.4.1 which deals with the ORVR compatibility standard as illustrated in the following example.

Phase II System XYZ is seeking certification and will conduct their testing using winter fuel. Section 4.1.1 allows the option of meeting the emission factor OR the efficiency for winter fuel as it is recognized that uncontrolled emission factor will likely be higher under winter fuel conditions. System XYZ is certified as meeting 95% efficiency, although it was found to exceed the emission factor of 0.38 lbs/1000 gallons in section 4.1. System XYZ must also demonstrate ORVR compatibility in accordance with section 4.4. Since system XYZ is not subject to the emission factor limit in this case, it is evident that the system must demonstrate that fueling ORVR vehicles will not adversely affect the efficiency of the Phase II system in fueling conventional vehicles.

However, there is an error in the proposed language in that it would penalize the system for exceeding 95% efficiency. Thus, staff proposes an additional modification to section 4.4.1 as follows:

> *Refueling vehicles equipped with onboard refueling vapor recovery (ORVR) systems shall not cause the system to exceed the Phase II emission factor and/or reduce the efficiency as specified in section 4.1.*

11. Comment by ARID

Ted Tiberi of Arid Technologies submitted technical comments related to pressure monitoring for balance systems and suggests that the pressure vs. time profile for

balance stations requires further analysis.

Response
ARB appreciates the data submitted by Mr. Tiberi and will continue to evaluate vapor recovery system performance. The future certification of EVR balance systems will include close monitoring of vent and fugitive emissions to ensure standards are met.

12. Comment by CIOMA
CIOMA is concerned that the proposed allowance for limited failures identified by ISD will relax the operational test requirements for EVR Phase II systems.

Response
Staff agrees that EVR systems must undergo rigorous certification tests with no allowed equipment failures. The proposed section 10.1.11 has been withdrawn.

13. Comment by CIOMA
CIOMA is concerned that the only certified EVR Phase II systems will require ISD and there will be no "ISD-less" system available for low volume stations making the ISD exemption for low volume stations meaningless.

Response
CIOMA is referring to staff comments from the September 9, 2002 EVR Amendments Workshop regarding certification policy. As outlined in slide 37 from the workshop presentation, if during certification, ISD-detected failures are identified as part of a system's maintenance then the Phase II system certification will require the use of the ISD as an integral part of the system. The removal of the ISD-detected maintenance clause in section 10.1.11 resolves this concern (see comment 12).

EVR Technology Review

14. Comment by API
Module 2 in the updated EVR cost spreadsheets shows an unrealistically low processor cost of $7,500 – $9,000. Given that market prices for processors are $18,000 - $21,000 (see for example the Vaporsaver processor from OPW Dispensing Products, http://www.opw-fc.com/products/vap_saver.pdf), how does CARB justify its estimate of less than half this amount?

Response
As stated on page 78 of the EVR staff report published on February 4, 2000, the processor costs for Module 2 are based on "actual as-applied costs that we obtained from GDFs in California". These costs were not modified during the EVR tech review as staff did not receive information during the four EVR tech review comment periods that suggested that these processor costs should be updated.

Staff expect that EVR vapor processors will be certified that will cost less than the $18,000 to $21,000 as projected for the OPW membrane processor. The following capital cost estimates for vapor processors provided by Wolf Koch in the February/March 2001 issue of Petroleum Equipment and Technology:

Vapor Recovery Equipment Manufacturer	Capital Cost for Vapor Processor
ARID Technologies	*$20,000*
VST	*$12,000*
OPW	*$12,000*
Hirt	*<$5,000*

15. Comment by API

As noted in our original EVR Technology Review comment #61 (API, June, 2002), VOC emission reductions have not been calculated using summertime gasoline. VOC emissions in control regulations and for the State Implementation Plan (SIP) are typically expressed in units of tons per **summer** day, rather than tons per **average annual** day, which is the measure CARB uses in the cost-effectiveness calculations for all Modules. This fact should be stated clearly. For example, Module 1 emission reductions are based upon an annual average uncontrolled emissions factor of 8.4 lb/1000 gal, rather than a summertime uncontrolled emissions factor of 7.6 lb/1000 gal, a fact that is noted in the response to our original comment #61. CARB should document this fact more clearly in the cost sections of the EVR Technology Review Report, which include Section III and Appendix 4.

Response: Ozone State Implementation Plan measures may use different bases for emission factors, which include tons/summer day or tons/day as averaged over the year. The ARB methodology for gasoline dispensing facilities uses annual average emission factors that are multiplied by annual gasoline throughputs to determine VOC emissions. The correction of the Phase I emission reductions to use the annual average emission factor is mentioned on page 42 in Section III of the EVR Technology Review Report. The report was finalized in October 2002 and will not be updated.

16. Comment by API

In EVR Technology Review comment #18 (API, September, 2002), CARB addressed two of our comments together. In the first, CARB addressed our comment that the calculation of excess emissions only considers the increase in emissions due to ORVR at the UST and not the simultaneous decrease in emissions at the fill-neck. ARB's response included the statement that "Recent field tests of ORVR fuelings show that fill-neck emissions, although lower, do occur for

ORVR fuelings. Additional tests would need to be conducted to verify if the reduction ... would offset the increase in fugitive emissions". Since some data obviously exist showing a reduction in fill-neck emissions, but those data were not used by ARB in the recent revision to Module 3, it seems clear that the 'excess emissions' from ORVR, and hence the reduction credited to Module 3, are exaggerated. API recently requested a copy of the "recent field test of ORVR fuelings" including all fill-neck emissions and CARB's own calculation of the extent to which emissions at the nozzle/fill-pipe interface are reduced by ORVR.

Response: The emission reductions credited to ORVR compatibility are reduction of pressure-related fugitive emissions. We have characterized pressure-related fugitive emissions as "excess emissions" because fugitive emissions are not included in the efficiency calculation for pre-EVR Phase II systems. In contrast, the emissions released at the fill-neck interface during vehicle fueling are NOT excess emissions, because these emissions, together with the UST vent emissions, are quantified during certification testing. There is no assumption in the ORVR compatibility calculations that there is a reduction in fill-neck or UST vent emissions beyond the 95% efficiency requirement.

Limited field data from recent Phase II EVR certification applications confirms that there are less uncontrolled emissions available for collection from ORVR vehicles, and that controlled fill-neck emissions are about an order of magnitude lower for ORVR fuelings, than for non-ORVR fuelings. API suggests that the existing calculation for ORVR emission reductions should be adjusted to reflect these lower fill-neck emissions. This adjustment is not appropriate as the fill-neck emissions are not "excess emissions", but allowable emissions under the Phase II efficiency requirement. Also, even though emissions are reduced at the fill-neck, there may be an increase in UST vent emissions that will offset any ORVR fill-neck emission decrease. The emission calculations for Module 3 are independent of the emissions calculations for a Phase II system meeting 95% efficiency, which assumes that 5% of the uncontrolled vapors are released either at the fill-neck or at the vent. The only way to credit the lower fill-neck emissions suggested by API would be to modify the Phase II emission factor and efficiency standards to be more stringent than 0.38 lbs/1000 gallons and 95% efficiency respectively. At this time, staff recommends no changes to the Phase II emission and efficiency standards and no changes to the calculation of ORVR compatibility emission reductions.

17. Comment by API

The fact that A/L was out of spec during the field tests of excess emissions (as well as increasing, from the time that the baseline tests were conducted to the time that the ORVR simulations were conducted) was included in API comment #18 of the EVR Technology Review. Staff's response noted that the acceptable A/L range for some of the older Gilbarco systems was 1.05-1.25 instead of 1.00-1.20, and overall (for all of the dispensers) A/L did not seem to increase. The response does not adequately answer the concern raised about methodology. Calculated fugitive

emissions for the UST are very sensitive to small changes in the A/L range. CARB's own calculations (of the effect of a mini-boot on the Gilbarco system) show a reduction in the A/L range of just 0.1 produces a 50% reduction in fugitive emissions. By that token, we believe CARB should investigate the prevalence of lower A/L Gilbarco systems throughout the State, and those contributions should be quantified and reflected in the excess emissions calculations for ORVR incompatibility. Also, the data in the field test report reveal that A/L after an ORVR simulation was markedly higher than before; we believe that something in the simulation of an ORVR vehicle artificially increased the A/L. Now that there are real ORVR vehicles readily available, a definitive study should be done to accurately quantify any ORVR incompatibility. API believes these errors need to be fixed in the methodology that underpins Module 3.

Response: The update to the methodology for Module 3 requested by API is beyond the scope of the EVR Technology Review. The EVR emission and cost analysis is intended to compare the vapor recovery program as it existed in 1999 to the proposed EVR amendments to support the March 2000 rulemaking. No further updates are planned to the Module 3 methodology.

ARB agrees that lowering the ingestion of air into the UST will reduce emissions; the purpose of the requirement for ORVR compatibility is to reduce the emissions. It is also why the EVR resolution issued in March 2000 specifically requested staff to facilitate the certification of the lower A/L range for Gilbarco systems. Staff will continue to evaluate ORVR-Phase II system interaction as part of the certification of EVR Phase II systems, but suggest API conduct their own study if interested in pursuing further collection of ORVR incompatibility data.

18. Comment by API

With respect to comment #22 (API, September, 2002) regarding quantification of uncontrolled submerged-fill emissions from transfers to USTs, CARB responded that their emissions factor of 8.4 lb/1000 gal was based upon submerged-fill and that documentation for the factor could be found in Appendix A, Emission Factors for Gasoline Stations of the 'Gasoline Service Station Industry-wide Risk Assessment Guidelines' at http://www.arb.ca.gov/ab2588/riskassess.htm#list. API down-loaded this Appendix; although the emissions factor was footnoted as being for submerged fill, there is no documentation as to how it was calculated, only a citation for "BAAQMD continuous testing from 1/5/93-1/25/93 and from 2/11/93-2/22/93." We were able to obtain UST pressures and temperatures monitored during the January 1993 timeframe from BAAQMD, but it is not clear how these data were used to calculate the emissions factor. BAAQMD only supplied CARB with data, and CARB calculated the emissions factor.

CARB did not respond adequately to Comment #22. In our earlier memo, we clearly identified how EPA's AP-42 publication shows that splash filling of USTs and refueling of motor vehicles produce essentially equivalent uncontrolled emission

factors (see AP-42 Section 5.2.2.2, Table 5.2-7), and that submerged filling of USTs has a significantly lower (37% lower) uncontrolled emission factor compared to splash filling. API had contacted CARB and learned that the 8.4 lb/1000 gal factor was for splash filling and was derived from testing done by BAAQMD showing emissions comparable to those for vehicle refueling. Finally, we submitted data from EPA's TANKS model, which predicted working losses of only 3.5-4.5 lb/1000 gallons during the ozone season when an underground tank is filled with RVP 7.0 fuel. (If CARB wants to calculate average annual emissions, this can also be done with TANKS, which allows for modeling of several different gasoline volatilities and provides monthly output data.) Given the preponderance of evidence that the 8.4 lb/1000 gal emissions factor is too high (and therefore that EVR emissions reductions in Module 1 are overstated, and costs per ton are understated), we reiterate our comment that CARB should either lower the emissions factor to one that is reduced by 37% or supported by EPA TANKS modeling, or provide complete justification of why they believe the 8.4 lb/1000 gal value is more appropriate.

Response

The 8.4lbs/1000 gallons is the uncontrolled Phase I and Phase II emission factor for the current ARB vapor recovery emission inventory. Because ARB rulemakings directly affect the State Implementation Plan, it is important that our EVR emission reductions correspond to the information in the ARB emission inventory. As mentioned previously, the EVR Technology Review report has been finalized and no updates to the Module 1 calculations will be made.

We do not have complete documentation of the calculations used to derive the 8.4 value. However, staff can provide 1993 speciation data of gasoline vapors collected by the Bay Area Air Quality Management district which is believed to have been used together with volume measurements from Phase I efficiency tests to calculate the 8.4 lbs/1000 gallons number. The BAAQMD data represents gasoline vapor samples taken at the nozzle, dry break, vent bottom and vent top over a period of several days. There is no evidence that the gasoline vapor samples are associated with a "splash filling" event.

Efforts are underway to develop better vapor recovery emission factors that are representative of current fuels. ARB staff and several California air pollution control districts have collected field data over the last two years. Preliminary calculations of the new emission factors is under agency review and is expected to be available for public comment later in 2003.

The preliminary results indicate that the uncontrolled emission factor for Phase I is accurately estimated by the following equation from USEPA's AP-42 manual, section 5.2-4 (Rev.1/95):

$$L_L = 12.48 \frac{SP_I M}{T_I}$$

Where, L_L = loading loss, lbs/1000 gallons of liquid loaded.
M = molecular weight of vapors initially in storage tank, lb/lb-mole. See Table 2 on page 4.
P_I = true vapor pressure of gasoline initially in the storage tanks, psia
T_I = temperature of gasoline initially in the storage tanks, ^oR.
S = the saturation factor, which equals 1.0.

The uncontrolled annual Phase I emission factor for USTs was calculated to be 8.3 lbs/1000 gallons based on the California recent field studies. This is a combination of the summer and winter gasoline values. Again, these are preliminary numbers, but would seem to support the current value of 8.4 lbs/1000 gallons.

Staff believes that use of AP-42 equation is more appropriate than the TANKS model developed by API. The TANKS model is better suited for large aboveground tanks, not the underground storage tanks present at gasoline dispensing facilities. For example, we disagree with the statement on page 4-8 of the "User's Guide to TANKS" Version 4.0 dated September 30, 1999 where "Underground storage tanks are assumed to have no breathing losses, since the insulation of the earth limits diurnal temperature change". Contrary to this statement, our field data shows that emissions associated with tank breathing do occur in service station USTs and such emissions are routinely included in gasoline dispensing facility emission inventories.

In-Station Diagnostics

19. Comment by CAPCAO

CAPCOA remains concerned with the cost-effectiveness analysis, especially for ISD. CAPCOA is pleased with the increase in the ISD exemption throughput to 600,000 gallons/year and believes this change should bring the cost-effectiveness numbers to within acceptable ranges.

20. Comment by No. Sonoma

Northern Sonoma is pleased with the higher ISD exemption threshold.

Response to Comments 19 and 20

ARB appreciates Districts' support for the modification to the proposal. Several adjustments to the EVR cost analysis reflect real world costs in response to district comments as part of the EVR tech review.

21. Comment by WSPA

Several of the specifications in section 10.2 of CP-201 are based upon non-ORVR fuelings, which means that the ISD system must be able to differentiate between an ORVR and non-ORVR vehicle. WSPA is concerned about how an ISD system will categorize the dispensing of fuel into portable containers, motorcycles, vehicles that do not conform to the CARB specifications for fill pipes and openings of motor vehicle fuel tanks, etc. WSPA requests that the role of ISD with respect to these refueling scenarios be clarified and addressed during certification testing.

Response

ISD systems are not required to differentiate between an ORVR and non-ORVR vehicle, but rather must be able to issue a correct assessment of the fueling point on a daily basis. While the ISD system could inaccurately assess an individual fueling, a daily "pass" or "fail" determination must be accurately make with a 95% confidence while issuing only 1% false alarms. As part of the certification testing, a minimum of 1800 assessments will be made, which will include varying penetrations of ORVR vehicles. In addition, challenge mode testing will be performed as part of the certification process.

Fueling portable containers, motorcycles, and vehicles with non-conforming fill pipes would represent a small amount of the overall fuelings. Those fuelings should operate very similar to non-ORVR fuelings for the vacuum assist systems and would return a passing A/L. While the assist systems are required to detect A/Ls 25 percent out of range, the balance systems are required to detect a 50 percent reduction of normal flow, thus the limited fueling of motorcycles, portable containers and non-conforming fill pipes should have little impact in accurately issuing the daily assessment.

Test Procedures

TP-201.2B Flow and Pressure Measurement of Vapor Recovery Equipment

22. Comment by San Diego

Chuck Williams of the San Diego County Air Pollution Control District notes the style and wording of TP-201.2B, Flow and Pressure Measurement of Vapor Recovery Equipment could be restated in language commonly used by test contractors. Mr. Williams also suggests a separate test procedure for each component type, such as nozzles, and the addition of graph paper to facilitate plotting pressure vs. flow readings.

Response

We agree with Mr. Williams in that the test procedure could be clarified, however, the TP-201.2B amendments are focused on the applicability and purpose of TP-201.2B. Instead of pursuing a complete rewrite of TP-201.2B, which describes a general test approach, staff intends to develop separate test procedures for each

component, as suggested by Mr. Williams. These future test methods will be geared toward the tester and contain forms needed to report the data results.

TP-201.2F Pressure Related Fugitive Emissions

23. Comment by API

CARB did not respond to the concerns raised in Comment #15 (API, September, 2002) that the proposed version of TP-201.2F greatly over-predicts fugitive emissions, nor did CARB modify the equations to correct this bias. In addition, the request for documentation supporting Equation 9.1.1 in TP201.2F (reprinted as equation 2 in our original comment) was not answered. For the reasons detailed in comments 1A – 1C below, API requests: (1) that Equation 9.1.1 be changed so that the actual ullage and final pressure values are utilized; (2) that Equation 9.1.1 be reworked in a quadratic form to match the functional form shown by the empirical data in the ARB June, 1999 preliminary test report; and (3) that the corrected equation 9.1.1 be used wherever it affects Modules 2, 3, and 6 where the pressure reductions and emission calculations are developed in the staff's EVR Technology Review Report.

Response: ARB agrees that the TP-201.2F, as proposed on October 24, 2002, provides a "worst-case" calculation of pressure-related fugitive emissions. ARB has modified the TP-201.2F equations as suggested by API to better represent the actual fugitive emissions quantified during the certification process.

The EVR Technology Review Report as published on October 25, 2002 is a final document, and the emission reduction calculations will not be modified further. Note that the calculation of pressure-related fugitives for both the baseline and ORVR simulation modes in the 1999 field studies did use the empirical data suggested by API. This field data was the basis for the EVR emission reduction calculations.

TP-201.3 Determination of 2 Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

24. Comment by Loop

James Loop provided comments on pressure testing of vapor recovery systems and on TP-201.3. Mr. Loop maintains that TP-201.3 is technically inadequate to assess vapor recovery system performance and that the test procedure should be replaced because it is incompatible with the EVR program.

Response

The comments on TP-201.3 are outside the scope of this rulemaking as TP-201.3

is not one of the test procedures proposed for amendment. The comment letter and attachment were treated as a petition for amendment of the regulations, which was denied. A copy of the denial is included in the rulemaking file.

However, staff acknowledges that there are shortcomings with TP-201.3 and is currently working towards developing and eventually adopting a test procedure to replace it.

VI. Summary of Comments Received in Response to the First "15-Day" Notice

EVR 1st "15-DAY" COMMENT LETTERS

(Comment period ending May 27, 2003)

#	COMPANY	AUTHOR	DATE	AFFECTED PROCEDURES
1	API	Prentiss Searles	5/21/03	TP-201.2F Pressure-related fugitives
2	Bay Area Air Quality Management District	Ken Kunaniec	5/27/03	CP-201 ISD for balance systems
3	California Independent Oil Marketers Ass.	Sandra Duvall	5/27/03	ISD allowed failures Commercial availability
4	Husky	Art Fink	5/22/03	TP-201.2D Post-fueling nozzle drips TP-201.1E P/V valve testing
5	California Citizen	Mark Kravis	5/23/03	D-200, CP-201 Unihose, major modification conversion to balance
6	OPW	Donald Leininger	5/27/03	CP-201 ORVR Compatibility, pressure decay equations TP-201.1E P/V valve testing
7	Shell Oil	Edward Dinkfeld	5/27/03	D-200, CP-201 unihose, major modification, conversion to balance dispensers
8	WSPA	Steven Arita	5/23/03	D-200, CP-201 (ISD Phase I delivery, unihose, major modification, conversion to balance dispensers)

The individual comments and staff responses are grouped by topic below. The topics are organized as follows:

Major Modification Definition
Unihose Requirement
In-Station Diagnostics
Certification Procedure CP-201
EVR System Commercial Availability
EVR Emission Reductions
Test Procedures
- TP-201.1E: Vent P/V valve testing
- TP-201.2F: Pressure related fugitives

TP-201.2D: Post-fueling drips from nozzles

Major Modification Definition

25. Comment by Shell Oil and WSPA

Shell Oil and WSPA support the change to the D-200 "major modification" definition: "Phase II system upgrades to make the system ORVR compatible do not constitute a major modification." However, because "major modification" is defined a "the modification of an existing GDF that makes it subject to the same requirements to which a new installation is subject, and the fact that new installations require unihose dispensers, local air districts are requiring installation of unihose dispensers if a GDF undergoes a "major modification". This is contrary to the intent of the application of the D-200 definition. Shell Oil and WSPA suggest adding a sentence to D-200 such as " A major modification will not trigger the requirement to install unihose dispensers at existing non-unihose sites".

Response

Under the proposed revisions, Phase II system changes to make the systems ORVR compatible are exempt from the "major modification" definition and do not necessarily trigger the unihose upgrade. The requirements governing unihose dispenser upgrades are addressed in CP-201 section 4.11. Language has been added to both the definition of "major modification" in D-200 and section 4.11 of CP-201 to clarify the unihose requirements. See comments 26 - 28 below.

26. Comment by Shell Oil and WSPA

The proposed "major modification" definition does not address voluntary upgrades and mandatory upgrades by local UST agencies, of vapor recovery piping when sites are opened up for product piping upgrades, repairs or required SWRCB upgrades. GDFs should be able to comply with the request of the local agency or voluntarily upgrade the vapor recovery piping when the piping is exposed, without being subject to the "major modification" trigger. The added expense of being a "major modification" discourages voluntary vapor recovery piping upgrades and other work on a site. WSPA suggests adding a sentence to the D-200 definition such as "Upgrading vapor recovery piping either voluntarily or at the request of the SWRCB or a local UST oversight agency does not constitute a major modification.

Response

The "major modification" requirements are triggered for Phase I systems upon "addition, replacement or removal of an underground storage tank, or modification that causes the tank top to be unburied." The "major modification" requirements are triggered for Phase II systems when "addition, replacement or removal of 50 percent or more of the buried vapor piping, or the replacement of dispensers" occurs. These represent sufficient changes to the existing facility to view the vapor recovery systems as "new installations" which are subject to the current operative requirements. The noticed 15-day changes to the definition added exemptions for

phase II system upgrades required by ARB's Certification Procedure CP-201 for ORVR compatibility and by the State Water Resources Control Board's regulations. Voluntary facility upgrades are intended to be within the scope of major modifications.

Unihose Requirement

27. Comment by Kravis

CP-201 section 4.11 describes the unihose requirement for gasoline dispensers. Section 4.11 requires conversion to unihose when dispenser modifications affect more than 50% of dispenser piping. The Executive Officer should clarify:

1. Does a balance conversion need a CARB approved piping kit?
2. Is it fair to allow other (non balance) systems to convert three hose dispensers to ORVR compatibility without forcing single hose conversions?

Mr. Kravis suggests that non-unihose configurations could be allowed when an EVR Phase II system is installed. This would lead to the emission benefits associated with EVR Phase II systems and allow retailers to continue use of their existing dispensers at a large cost saving.

Response

Section 19 of Certification Procedure CP-201 allows for the continued use of systems that no longer meet the operative standards and specifications by permitting the use of repair and replacement parts and components. The conversion of an assist system to a balance system does not qualify as the continued use of an assist system with repair or replacement parts or components. The conversion would constitute the installation of a new system that must meet all currently operative standards and specifications. New installations occurring after the operative date of the unihose specification (April 1, 2003) must comply with the operative standards and specifications. For this reason, ARB will not approve a "conversion piping kit." Non-unihose configurations may continue to be used for EVR phase II systems as provided in CP-201 sections 4.11 and 19.1.5. No change made.

28. Comment by Shell Oil

Upgrading to ORVR compatibility may require modifying more than 50% of the piping in the dispenser thus triggering the installation of unihose dispensers at non-unihose sites. An example is the conversion of an assist system to a balance system. Dispensers have a life cycle and will be replaced over time to the unihose configuration. An owner of a GDF should not be subject to the added expense of dispenser upgrades when meeting the ORVR requirement.

Response

See the above response to comment 27 (Kravis). No change made.

In Station Diagnostics

29. Comment by BAAQMD

CP-201 section 10.2.2 sets forth the ISD requirements for monitoring vapor collection flow performance for balance vapor recovery systems. However, low flow measurement may not be the best indicator of common problems with balance systems, such as liquid blockage. The BAAQMD suggests that monitoring of liquid blockage could be accomplished by other means, such as backpressure measurement.

Response

Changes have been made to section 10.2.2 to allow alternatives other than flow measurement for ISD monitoring of balance system vapor collection.

30. Comment by CIOMA

CIOMA wants to ensure that all EVR Phase II systems are robust and will meet air quality standards without excessive maintenance or repairs. CIOMA objects to the proposed section 10.1.11 of CP-201 that allows some system maintenance during the certification operational test if the malfunction is detected by ISD. If the only EVR Phase II system is certified with ISD-detected maintenance, then all installations of that EVR Phase II system will require ISD, even if the facility were qualified for the ISD exemption.

Response

ARB agrees that EVR Phase II systems should not be allowed to malfunction during the certification operational test. Staff has removed section 10.1.11 from CP-201.

31. Comment by OPW

OPW requests clarification of the vapor collection flow performance limit of 50% described in section 10.2.2. It is not clear what vapor flow should be used to define the 50% vapor flow. Does it mean 50% of what the vapor flow performance used to be; perhaps 50% of the liquid volume dispensed for a dispensing episode, or maybe 50% of the average volume over the last 15 non-ORVR dispensing episode?

Response

Modifications have been made to section 10.2.2 to clarify the basis for the vapor collection performance limit.

Certification Procedure CP-201

32. Comment by OPW

OPW suggests modifications to clarify sections 4.1.1 and 4.4.1 of CP-201 which

discuss the ORVR Compatibility and effect on system emission factor and efficiency.

Response
The suggested changes were made.

33. Comment by OPW
OPW notes an inconsistency in CP-201 regarding testing requirements to determine ORVR compatibility. Section 13.4.1 refers to "worst case conditions" for ORVR compatibility, but does not define them. Section 4.4.2 defines ORVR compatibility testing to "…worst case situations…up to and including 80% ORVR-equipped vehicles." OPW maintains that both Section 4.4.2 and 13.4.1 should refer to the same limiting value.

Response
The commenter has misread section 4.4.2. Section 4.4.2 does not define 80 percent ORVR-equipped vehicle testing as the worst case testing for compatibility. To state the criteria in reverse order, section 4.4.2 requires that compatibility shall be demonstrated for 1) vehicle populations up to and including 80% ORVR-equipped vehicles and 2) for typical and worst case situations. The worst case situations may be triggered by ORVR-equipped vehicle populations that exceed 80% or by other situations such as the simultaneous fueling of all ORVR-equipped vehicles at all fueling points. No changes made.

34. Comment by OPW
OPW questions the difference in formulas and permitted pressure decay between balance and assist vapor recovery systems as set forth in sections 4.2.2 and 4.4.3 of CP-201. OPW notes that the allowable decay for N=6 nozzles will be applied to three unihose dispensers rather than one sixpack dispenser. The three unihose dispensers could have three times as much piping, so OPW suggests that the "N" in the procedure represent the number of dispensers rather than the number of nozzles or hose points.

Response
The difference in pressure decay formulas is due to different allowable leakrates for balance and assist systems that existed when the static pressure performance standards were adopted. The total allowable leakrate is calculated by summing the allowable leakrates for components such as nozzle valves and vent P/V valves. There are no allowable leaks for vapor piping, so there is no difference in allowable leaks between one dispenser and three dispensers which have the same number of nozzles. No changes made.

EVR System Commercial Availability

35. Comment by CIOMA

CIOMA notes that only one Phase I EVR system was certified for over one year before a second system was certified. CIOMA believes that it could be even longer before a second Phase II EVR system is certified after the first. One certified system creates a government-mandated monopoly that could lead to equipment shortages and possibly high prices.

CIOMA proposes that at least two EVR systems be certified before mandating their use. If this is not done, CIOMA requests that determination of "commercial availability" include economic factors. This would allow a facility to install pre-EVR systems if the EVR system cost is prohibitively expensive due to lack of competition or shortage of equipment. If a pre-EVR system is installed under these conditions, the system should be allowed to be used for at least four years regardless of when it is installed. The local district should not be able to restrict the use of pre-EVR equipment under these circumstances.

Response

Staff agrees that ideally there should be a choice of EVR certified systems and are working with manufacturers to increase the number of certified systems. Requiring that more than one system to be certified before the regulations become effective will:

- provide an economic disincentive to vapor recovery equipment manufacturers to make an effort to comply first with EVR requirements with technology based solutions;

- affect the EVR implementation schedule by delaying anticipated emission reductions for a large emission source category to attain and maintain health-based federal and state ambient air quality standards.

The Board envisioned the possibility of supply shortages and price gouging when adopting the EVR regulation. Administrative remedies in the EVR regulations allow for the use of pre-EVR systems in documented instances of supply shortages and evidence of price gouging. In the EVR Phase I system situation, the single supplier met demand and prices for the equipment were reasonable.

If EVR Phase II system availability becomes an issue, staff will consider excessive cost as a factor in determining "commercial availability". Revisions have been made to section 19 of CP-201 to allow pre-EVR systems installed when no EVR systems are commercially available to be used for up to four years.

EVR Emission Reductions

36. Comment by Husky

Husky states that the 3-drip requirement has no effect on the total pollution reduction

when refueling automobiles because the drips are counted as spillage by TP-201.2C and can't be counted twice.

Response
We agree. Staff stated at the public hearing on December 12, 2002 that "The board adopted a separate requirement limiting the drops that occur after the act of vehicle refueling. Although the emissions from these drops is included in the spillage standard just discussed, we believe it is important to provide a more stringent requirement that reduces the chance of getting gasoline on clothes or shoes" (board transcript pp. 154-155).

Test Procedures

TP-201.1E Leak Rate and Cracking Pressure of Pressure/Vacuum Relief Vent Valves

37. Comment by Husky
Husky states that Appendix 1 of TP-201.2B should be removed and replaced by the better test procedure in TP-201.1E.

38. Comment by OPW
OPW objects to withdrawal of the proposed TP-201.1E. This would eliminate a test procedure that is easy to perform and yields repeatable results, which is not true of TP-201.2B. Good engineering practice indicates that the procedure capable of reliable and repeatable data would be the procedure of choice.

Response
Staff agrees to propose adoption of TP-201.1E, with additional revisions to alleviate deficiencies noted by staff. Staff also proposes removal of Appendix 1 of TP-201.2B.

TP-201.2D Post-Fueling Drips from Nozzles

39. Comment by Husky
Husky states that the 3-drip requirement is achievable if the test procedure, TP-201.2D is changed to better represent a typical refueling. TP-201.2D requires that the number of drops be counted with the nozzle spout pointed "straight down." Husky suggests replacing "straight down" with "pointed downward at a 15 degree angle." Without this change, the complicated mechanism that would be required in a nozzle would result in reduced life and possible failures that could cause an increase in spillage resulting in more, not less, pollution.

Response
The "straight down" position provides a repeatable "worst case" nozzle position.

Two manufacturers have demonstrated nozzles that meet the 3 drip standard using the “straight down” position. No change made.

TP-201.2F Pressure Related Fugitive Emissions

40. Comment by API

API states that the proposed revisions to TP-201.2F represent an improvement to the original proposal, but suggests two additional changes. First, API suggests that a minimum of four model curves of flow vs. pressure be developed to correspond to facilities with different numbers of nozzles. Second, API requests that equation 9.1.1 be changed so that the actual leakrate at the facility is used rather than the maximum allowable leakrate.

Response

Proposed TP-201.2F has been revised to include several model curves corresponding to different numbers of nozzles as suggested by API. However, no changes will be made to equation 9.1.1 for two reasons. First, the certification test sites where fugitive emissions are calculated have lower leakrates than a typical operating station. The maximum allowable leakrate for installed sites is reasonable for calculating the fugitive emissions expected for installed systems. Second, the use of the maximum allowable leakrate simplifies the certification testing by allowing the fugitives to be calculated using only pressure data from the certification test site. This reduces the cost of certification and inconvenience to the certification test site by reducing the number of pressure decay tests.

VII. Summary of Comments Received in Response to the Second "15-Day" Notice

EVR 2nd "15-DAY" COMMENT LETTERS
(Comment period ending August 1, 2003)

#	COMPANY	AUTHOR	DATE	AFFECTED PROCEDURES
1	ARID Technologies	Tedmund P. Tiberi	7/21/03	CP-201 (ISD for Phase I, ORVR), TP-201.2D, TP-201.2F
2	California Independent Oil Marketers Ass.	Jay McKeeman	7/25/03	CP-201 (Commercial availability & EVR timeline, ORVR & Phase II retrofits)
3	Husky	Arthur C. Fink, Jr.	8/1/03	TP-201.2D
4	OPW	Donald L. Leininger	8/1/03	CP-201 (pressure decay equations), TP-201.2F
5	Shell Oil	Edward Dinkfeld	8/1/03	D-200, CP-201 (unihose, major modification, ORVR & Phase II retrofits, EVR timeline)
6	WSPA	Steven Arita	8/1/03	D-200, CP-201 (EVR timeline, unihose, major modification, ORVR & Phase II retrofits)

The individual comments and staff responses are grouped by topic below. The topics are organized as follows:

Major Modification Definition
Unihose Requirement
In-Station Diagnostics
Certification Procedure CP-201
EVR Timeline
ORVR & EVR Phase II Retrofits
EVR System Commercial Availability
Test Procedures
- TP-201.2D: Post-fueling drips from nozzles
- TP-201.2F: Pressure related fugitives

Major Modification Definition

41. Comment by Shell Oil and WSPA
Shell and WSPA repeat previous comments objecting to voluntary piping upgrades being classified as major modifications.

Response
See response to Comment 26.

Unihose Requirement

42. Comment by Shell Oil and WSPA
Shell and WSPA repeat previous comments objecting to the requirement to upgrade to unihose dispensers while converting assist to balance dispensers for ORVR compatibility.

Response
See response to Comment 27.

In-Station Diagnostics

43. Comment by ARID
ARID requests that the requirement for ISD monitoring of Phase I vapor transfer remain in section 10.2.5 of CP-201. ARID states that monitoring pressure excursions during Phase I bulk deliveries provides valuable knowledge regarding the performance of the vapor processor and pressure integrity of the GDF. A trend of extremely high pressure excursions may help identify adverse logistics in the fuel delivery chain.

Response
The purpose of ISD is to alert the GDF operator to take immediate corrective action when a problem occurs. The Phase I vapor transfer requirement proposed for removal would trigger an alarm when a certain pressure was exceeded, which might occur even with a compliant fuel delivery. ISD requirements regarding monitoring of processor operation and pressure integrity of the GDF remain in CP-201. Staff agree that a trend of high pressure excursions during Phase I deliveries could signal a problem and could be included in a future update of ISD requirements.

Certification Procedure CP-201

44. Comment by ARID
ARID notes that section 13.4.1 references 4.4.1 which in turn references 4.1 and 4.1.2. ARID requests clarification whether Phase II systems seeking certification to the ORVR compatibility requirement are also subject to the limit for pressure-related fugitives?

Response:

The answer depends on whether the Phase II system is already certified. Pre-EVR certified Phase II systems may certify to the ORVR Compatibility standard under the provisions of section 19.1 of CP-201. Phase II systems that are not certified must meet all the EVR operative requirements to obtain certification.

45. Comment by OPW

OPW repeats their comments questioning different formulas for assist and balance vapor recovery systems in the calculation of the final pressure as described in sections 4.2.2 and 4.4.3.

Response

See response to Comment 34.

ORVR & EVR Phase II Retrofits

46. Comment by CIOMA, Shell Oil and WSPA

Gasoline marketers doubt whether an EVR Phase II system will be certified in time to be installed by the April 1, 2005 ORVR compliance date. Station operators cannot afford to retrofit stations twice, once to install equipment to meet the ORVR requirement and then retrofit again, once an EVR Phase II system becomes certified. Gasoline marketers recommend that CARB change the April 1, 2005 ORVR deadline to align with the final Phase II EVR deadline date of 2007. ARB resolution 02-35 directs staff to assess, following the initial certification of the first EVR Phase II system, the adequacy of lead time to install complying certified EVR Phase II systems prior to the deadlines for complying with the ORVR requirements. The intent is to minimize the need to upgrade vapor recovery systems more than once in order to comply with both the EVR Phase II standards and specifications and ORVR.

Response

ARB understands the concern regarding multiple retrofits of existing vapor recovery systems and will make every effort to have an EVR Phase II system certified by mid-2004. As stated in resolution 02-35, the Board has directed staff to work with gasoline marketers to evaluate the time available to install EVR Phase II systems before the April 1, 2005 ORVR deadline.

47. Comment by Shell Oil

ORVR compatible equipment has not been readily available. The SabreVac system is not available for sale. Prior to March 2003, the only other ORVR compatible systems were available from one manufacturer. It was only after March 2003, when balance systems were deemed ORVR compatible that a true choice of systems became available. As of this date, existing vac-assist systems have no choice but to go with the equipment of one manufacturer.

Response
The equipment and technology exist to provide additional ORVR compatibility options for existing installed assist systems, but the equipment must be certified with these assist systems. ARB staff continues to encourage gasoline marketers to work with vapor recovery equipment manufacturers in the certification process to increase choice of ORVR compatible systems before the April 2005 deadline.

48. Comment by Shell Oil
In 2002, CARB staff acknowledged that the calculated emission reductions from Module 3 (ORVR compatibility) were originally overestimated by 34%. In addition, approximately 60% of the existing vapor recovery systems have been deemed ORVR compatible.

Response
The original and revised ORVR emission reductions were based on assist systems only as it had always been suspected, though not confirmed until March 2003, that balance systems were ORVR compatible in their design. The ORVR emission reductions have been revised from 6.3 to 4.5 tons/day and represent significant emission savings. Module 3 cost-effectiveness, after the emission reduction change, is $1.74 per pound of ROG reduced.

EVR Timeline

49. Comment by ARID
Assume system "A" receives an ORVR compatibility certification in May 2004, and at that time no other system has earned a full EVR Phase II certification. If a new facility installs system A, how long can they use system A after another system receives full EVR Phase II certification? If an existing system retrofits with system A to meet the 2005 deadline, how long can they use system A if another system receives full EVR Phase II certification after they install system A and before 2007? What if no other system receives a full EVR Phase II certification by 2007?

Response
If no full EVR system is certified by May 2004, the proposed April 2004 EVR Phase II operative date will need to be modified or no new installations can occur. ORVR compatible Phase II systems installed before the operative date of EVR Phase II do not need to upgrade to full EVR Phase II requirements until the final compliance date, currently proposed to be April 2008.

50. Comment by WSPA
WSPA strongly supports the proposed delay for effective and operative dates for EVR Phase II to April 1, 2004, as well as all the proposed operative date changes proposed for Table 2-1 of CP-201.

Response
The operative date delays are necessary to allow time to certify an EVR Phase II system.

ARB appreciates WSPA's support.

EVR System Commercial Availability

51. Comment by CIOMA

CIOMA repeats the comment that the determination of "commercial availability" should include economic considerations.

Response

See response to Comment 35.

Test Procedures

TP-201.2D: Post-fueling drips from nozzles

52. Comment by ARID

ARID states that the 3 drop refueling standard is redundant to existing standards, including federal requirements outlined in 40 CFR 86.108-98(e)(5). ARID also argues that controlling nozzle drips is negligible compared to emission control achieved from ARID's technology. ARID has calculated emission savings of 21 lb/1000 gallons with the PERMEATOR technology, while reducing drops would save only 0.079 lb/1000 gallons. The cost/benefit ratio of the proposed post fueling drip requirement does not seem appropriate.

Response

ARB agrees that there is overlap between spillage and nozzle drip requirements as discussed on pp. 19-21 of the EVR Technology Review. No emission reductions are claimed for the nozzle drip requirements separately as these drips are also counted as spillage. The emission reductions attributed to Module 5 (spillage and "dripless nozzle") are 3.9 tons/day of ROG statewide with a cost-effectiveness of $0.50 per pound. An emission benefit of 0.16 tons/day statewide is realized if one post-fueling drip is eliminated for every California fueling. In addition, ARID emission savings calculations of 21 lb/1000 gallons are suspect as ARB estimates the uncontrolled emission factor for vapor recovery is on the order of 8.4 lbs/1000 gallons. No change made.

53. Comment by Husky

Husky suggests that section 7.6.1 be modified for consistency to read: "Tilt the spout tip such that the spout is pointing straight upward for 5 seconds."

Response

ARB agrees that no time is specified on how long to keep the spout pointing upward, but the intent of the procedure is to proceed immediately to next action in section 7.6.2 without

waiting as long as 5 seconds. Waiting 5 seconds in the upward position is not characteristic of a typical fueling. Clarification may be made in the next revision of TP-201.2D. No change made.

TP-201.2F: Pressure related fugitives

54. Comment by ARID

What is the recommended location for the pressure sensor? Have calculations been made by ARB to determine the impact of sensor location on observed pressure reading? For example, the pressure measured just below the P/V vent valve will be significantly different than the pressure measured underneath a dispenser. If the ISD system relies on a pressure sensor located beneath a dispenser, this pressure should be corrected using elevation difference and hydrocarbon concentrations to yield a more representative pressure at the P/V valve.

Response

The revisions to TP-201.2F provide flexibility to the tester for placement of the pressure sensor. Section 3.2 of TP-201.2F acknowledges that the location chosen to measure storage tank pressure may not represent the pressure that is present at every location of the vapor recovery system. As stated in section 3.2, the location used for monitoring storage tank pressure shall be pre-approved by the Executive Officer.

55. Comment by ARID

ARID objects to use of Equation 9.4.1 that assumes a GDF monthly throughput of 150,000 gallons per month. Using the higher actual throughput at ARID's test site would reduced the calculated fugitive emissions by more than half. ARID proposes that the actual monthly throughput be used. ARID states that ARB encourages applicants to choose high throughput sites to demonstrate robustness of vapor recovery systems, but the normalization of throughput to an arbitrary value of 150,000 gallons per month encourages the selection of test sites with lower monthly volumes.

Response

As stated on page 25 of the ISOR, staff considers the pressure-related fugitive emissions to be independent of facility throughput. However, the fugitive emissions must be translated to lbs/1000 gallons dispensed in order to calculate the total emissions from the Phase II system as described in TP-201.2. The calculated fugitive emissions in terms of lbs/1000 gallons dispensed will decrease as the facility throughput increases. The minimum certification test site throughput of 150,000 gallons/month was chosen to normalize the fugitives calculation so that a high throughput station would not underestimate the actual fugitives present at a lower throughput facility. Page 37 of the EVR Technology Review indicates that over 65% of facilities have a monthly throughput of less than 150,000 gallons per month. No change made.

56. Comment by OPW

It is not totally clear if the test is to be conducted by CARB and would then be used as a

"standard" for all Stage II certification testing or if the test is to be performed by the applicant for a specific Stage II system. Appendix 1 states the derived Q vs. P empirical fit will be used for "all certification sites." This would imply that the testing is to be conducted by CARB to develop a "standard." Clarification of the responsible party would be appreciated.

Response

OPW is correct in that the Q vs. P empirical equations derived by ARB will be used in the calculation of pressure-related fugitives for all certification sites. This is confirmed in sections 9.1 and 9.2. Section 9.1 states, "The flow versus pressure (Q vs. P) equations were generated by direct measurement of Q at various P using the steady-state flow method as described in Appendix A." Section 9.2 provides, "The equations provided in Table 9.1 shall be used unless other equations are approved by the Executive Officer." No change made.