State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

STAFF REPORT:
INITIAL STATEMENT OF REASONS FOR PROPOSED RULEMAKING
PUBLIC HEARING TO CONSIDER THE AMENDMENT AND ADOPTION OF CERTIFICATION AND TEST PROCEDURES FOR VAPOR RECOVERY SYSTEMS

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I. INTRODUCTION AND RECOMMENDATIONS

A. Introduction

The Air Resources Board (ARB or Board) staff proposes to revise 13 existing certification and test procedures and adopt 2 new test procedures for gasoline vapor recovery systems. These changes will improve and update the existing certification and test procedures, ultimately resulting in better vapor recovery system performance in the field.

Vapor recovery systems have been used in California to control hydrocarbon emissions for over twenty years. In 1975, the Legislature required the ARB to "adopt procedures for determining the compliance of any system designed for the control of gasoline vapor emissions during gasoline marketing operations, including storage and transfer operations, with performance standards which are reasonable and necessary to achieve or maintain any applicable ambient air quality standard." (Health and Safety Code Section 41954. (a)) The state laws pertaining to ARB's role in certifying vapor recovery systems are contained in Appendix 3.

Under state law, the ARB is directed to certify vapor recovery systems so that all systems meet minimum standards. To comply with state law, the Board adopted certification and test procedures which are referenced in Title 17, Code of Regulations, Section 94000 et seq. In addition, the test procedures, which are used to determine compliance with non-vehicular emission standards are referenced in Title 17, Code of Regulations, Section 94100 et seq.

Until recently, California air pollution control districts could require use of their own vapor recovery test methods for permitting and compliance testing purposes. This has changed with the revisions to Health and Safety Code Section 41954(h) which prohibits any local air pollution control district from requiring test procedures for testing performance of a gasoline vapor recovery system unless the procedures have been adopted by the ARB or found by the ARB to be equivalent to the state adopted methods.

B. Public Process

The proposed new and revised test methods are the result of two years of consultation with interested parties. We have conducted an extensive public outreach to those affected by our proposals. We have worked with the vapor recovery equipment manufacturers, the facilities using vapor recovery systems, the air pollution control districts and air quality management districts (Districts), the U.S. Environmental Protection Agency, and other states who rely on the ARB to test and certify equipment before they approve installations. We conducted a public workshop on October 30, 1997 for all of the proposed new and revised procedures. Based on responses to that workshop, we further revised the procedures; then we held another public workshop on January 15, 1998 to get further input on revisions to proposed procedures.

C. Recommendations

We recommend that the Board adopt the following:

(1) Amendments to the California Code of Regulations to incorporate the new and revised certification and test procedures by reference (as outlined in Appendix 1), and

(2) Amendments to the certification and test procedures (Appendix 2).

II. PROPOSED ADOPTION AND AMENDMENT OF CERTIFICATION AND TEST PROCEDURES

The proposal provides new procedures and updates the existing vapor recovery systems certification and test procedures. The proposal includes new procedures for (1) Onboard Refueling Vapor Recovery (ORVR), (2) airport refuelers, (3) a tie-tank test and (4) safety improvements.

(1) ORVR provides a new way to capture refueling vapors that occur when motor vehicles fill up with gasoline. Instead of routing the vapors back to the underground tank at a gasoline dispensing facility, such as a service station, as happens with conventional vapor recovery, with ORVR, the vapors are routed to a canister of activated charcoal onboard the vehicle. Because there are no vapors to capture, vacuum assist type service station vapor recovery systems will forcibly ingest air into the underground tanks when fueling ORVR vehicles. When air enters the vapor space underground, emissions can result from vapor growth. The new ORVR test procedures are designed to ensure that the vapor recovery system controls or minimizes vapor growth.

The vapor recovery equipment found at gasoline dispensing facilities (known as Phase II vapor recovery) must be certified by the Air Resources Board before sale in California. Certification involves a complete engineering evaluation of the system, a durability test and several tests to measure whether emission standards are achieved. The ORVR compatibility test is proposed to be added to this existing battery of certification tests.

The ORVR test will be applied only to new or modified systems seeking certification. This means that the existing, installed systems at an estimated 14,000 gasoline dispensing facilities are not subject to retrofit or replacement at this time. If data becomes available which indicates that the existing systems should be evaluated for ORVR compatibility, this will be addressed in a future proposal.

(2) Current certification procedures require an annual leak test to ensure that gasoline cargo tanks do not release vapors to the atmosphere. While the cargo tank must be free of vapors in order to safely conduct the leak test, current regulations prohibit purging vapors directly to atmosphere. Airport refuelers, defined as small airplane fuel cargo tanks, have difficulty preparing for the annual test for a number of reasons. These cargo tanks operate only at the airport and are not licensed for public roads. Airports do not have facilities to process purged vapors. Cargo tanks of less than 2,000 gallons capacity cannot qualify for a one day license in

order to travel to a vapor processor. Due to the relatively low emission impact (200 lbs. or 0.10 tons hydrocarbon vapors annually), a temporary exemption is proposed to allow airport refuelers to purge vapors to the atmosphere before the annual test.

This exemption will expire when at least two ARB-certified mobile vapor processors are available. These processors would travel to the airports and could thus be used to degas the airport refuelers of the vapors on-site.

(3) The tie-tank test is a proposed new test procedure to check for proper underground plumbing configurations at gasoline dispensing facilities. For example, the test can verify that a diesel underground storage tank is kept separate from the plumbing for the gasoline tanks. This procedure was requested by several air pollution control districts to assist with their permitting and inspection of gasoline dispensing facilities. The test is voluntary and may be used at district discretion.

(4) Several other minor changes are proposed to the remaining procedures. Safety improvements are part of the redesign of a test procedure which compares the volume of vapor returned to the underground tank with the volume of liquid dispensed to the vehicle tank. Under the current design, the tester is exposed to vapors vented from the test tank. In the proposed design, which plumbs the equipment differently, the vapor is returned to the underground tank. Other improvements include clarifications to the test procedures as requested by private testers, districts and ARB staff who use these procedures.

A. Need for Adoption of New and Amended Certification and Test Procedures

There are four primary reasons for these test method revisions.

First of all, a test procedure is needed which can test vacuum-assist type VRS for compatibility with ORVR vehicles at gasoline dispensing facilities (service stations). The current design of many such VRS will cause forcible ingestion of air into underground tanks when refueling ORVR vehicles. This can lead to vapor growth and emissions increases, unless the VRS is designed to prevent such emissions. Proposed TP-201.2D is needed to determine whether a VRS will prevent such emissions.

Secondly, an exemption is needed for cargo tanks which function as airport refuelers. The current procedures require that the gasoline or jet fuel vapors in the cargo tank must be purged to a control device before conducting the annual leak tests. Airport refuelers are not licensed for highway use, so many of them can not purge their last load of vapors into a control device prior to annual testing. Proposed amended CP-204 will alleviate this problem.

Thirdly, several districts have asked that the state adopt a tie-tank test procedure that districts can use at their discretion to check for proper underground vapor recovery piping at gasoline dispensing facilities.

Lastly, several improvements to the certification and test procedures are proposed. These changes run the gamut from clarification of the existing static pressure performance test for dispensing facilities (TP-201.3) to a new procedure for determining underground plumbing configurations (TP-201.3C) to editorial and typographic corrections to various existing

procedures.

B. Proposed Adoption of Two New Test Procedures

We propose that the following new test procedures be adopted:

TP-201.2D: Determination of Onboard Refueling Vapor Recovery (ORVR) Compatibility of Phase II Vapor Recovery Systems of Dispensing Facilities

TP-201.3C: Determination of Vapor Piping Connections to Underground Gasoline Storage Tanks (Tie-Tank Test)

C. Proposed Amendment of Existing Certification and Test Procedures with Revisions

We also propose that the following existing certification and test procedures be revised:

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

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

TP-201.5: Determination (by Volume Meter) of Air-Vapor to Liquid Volume Ratio of Vapor Recovery Systems of Dispensing Facilities

CP-202: Certification Procedure for Vapor Recovery Systems of Bulk Plants

TP-202.1: Determination of Emission Factor of Vapor Recovery Systems of Bulk Plants

CP-203: Certification Procedure for Vapor Recovery Systems of Terminals

TP-203.1: Determination of Emission Factor of Vapor Recovery Systems of Terminals

CP-204: Certification Procedure for Vapor Recovery Systems of Cargo Tanks

TP-204.1: Determination of Five Minute Static Pressure Performance of Vapor Recovery Systems of Cargo Tanks

TP-204.3: Determination of Leak(s)

CP-205: Certification Procedure for Vapor Recovery Systems of Novel Facilities

TP-205.1: Determination of Efficiency of Phase I Vapor Recovery Systems of Novel Facilities

TP-205.2: Determination of Efficiency of Phase II Vapor Recovery Systems of Novel

Facilities

The text of the proposed new and amended regulations is appended to this Staff Report in Appendix 1. The text of the proposed new and amended procedures, which the proposed regulations incorporate by reference, is appended to this Staff Report in Appendix 2.

III. ENVIRONMENTAL AND ECONOMIC IMPACTS

The proposal is expected to have minimal environmental impacts. Rather, the proper use of the new and revised certification and test procedures will help to reduce emissions from affected vapor recovery systems. The exception is for the airport refueler exemption. Additional emissions from airport cargo tank venting to atmosphere is estimated at 200 pounds or 0.01 tons per year. This is not a permanent exemption, it will expire when at least two venting control systems are certified by the ARB.

The economic impacts of this proposal and the alternatives considered are provided in Tables 1A through 2B. In general, the business community will benefit from the state-wide uniformity of the new and revised procedures. There will be some additional costs to equipment manufacturers to conduct the ORVR compatibility testing. The costs of the ORVR compatibility procedure have been minimized by applying the new test procedure only to new or revised certifications. Applying the ORVR test to existing certifications may result in decertification of systems currently installed at many of the 14,000 gasoline dispensing facilities statewide. The H&SC provides up to four years before facilities would have to replace or retrofit decertified system components which may result in significant costs.

IV. ALTERNATIVES CONSIDERED

The alternatives considered are compared in Tables 1A through 2B. In summary, not adopting the new and revised certification and test procedures would be detrimental for the following reasons:

(1) Delay in adopting the Onboard Refueling Vapor Recovery (ORVR) compatibility test procedure would allow certification of vapor recovery systems which could lead to major emission increases when fueling ORVR vehicles. The emissions will increase in subsequent years as the population of ORVR vehicles increases.

(2) Requiring airport refuelers to vent to a control device is not feasible at this time and forces airport refuelers to operate in violation of state law.

(3) Without adoption, the benefits of the field testing and development which has gone into the new and revised procedures would be lost, including reduced exposure to gasoline fumes for test personnel associated with TP-201.5.

Table 1A
ECONOMIC IMPACT ANALYSIS - ORVR TEST PROCEDURE

Alternative 1 - Apply ORVR procedures to new and modified certifications only

Stakeholder	Costs	Benefits
Public	Estimated low emission impacts until ORVR penetration increases in vehicle fleet.	No mark-up to fuel prices as dispensing facilities are not required to update existing vapor recovery equipment
State	One week additional staff time to include review and observation of new test as part of other certification test requirements. State law allows for recovery of State costs by billing applicant.	No new or redirected staff needed to allow recertification of all existing systems in 6 month time period. Allows time for emission and cost analysis impact analysis for existing systems.
Districts	Estimated low emission impacts until ORVR penetration increases in vehicle fleet	District staff can focus on other vapor recovery issues known to result in high efficiency losses.
Vapor Recovery Equipment Mfg	Additional testing costs estimated at $5,000 if choose to submit new or revised system certification application. Delays introduction of new and better systems if applicant chooses to avoid test.	Existing certifications not affected, so can continue to market current products.
Gasoline Dispensing Facilities	No negative impact on the estimated 14,000 service stations in the state, as can continue to use existing equipment.	Do not need to replace existing equipment within 4 years if existing system were decertified.
Industry Trade Associations (WSPA, API)	None, as can continue to use existing equipment.	Can participate in ARB working group to determine best approach to apply test to existing systems

Table 1B
ECONOMIC IMPACT ANALYSIS - ORVR TEST PROCEDURE

Alternative 2 - Apply ORVR procedures to new, modified and existing certifications.

Stakeholder	Costs	Benefits
Public	Estimated low emission impacts until all exisiting systems are evaluated for ORVR compatibility and decertified systems are replaced. Future fuel mark-ups likely at dispensing facilities forced to upgrade vapor recovery equipment.	Minimizes any potential emissions by requiring existing systems to be tested for new standard within 6 months of effective date.
State	New or redirected staff needed to allow recertification of all existing systems in 6 month time period. Does not allows time for emission and cost analysis impact analysis for existing systems	Minimizes any potential emissions by requiring existing systems to be tested for new standard within 6 months of effective date.
Districts	If existing systems are decertified, districts must monitor dispensing facility equipment upgrades, including permit modifications.	Minimizes any potential emissions by requiring existing systems to be tested for new standard within 6 months of effective date.
Vapor Recovery Equipment Mfg	Additional testing costs estimated at $5,000 for ten existing systems for a total of $50,000. Existing certifications must test within 6 months of effective date.	Provides level playing field asexisting systems are evaluated in same way as new certifications.
Gasoline Dispensing Facilities	Significant costs (up to $1500) expected for each affected dispensing facility to upgrade vapor recovery system if existing equipment is decertified.	Minimizes potential emissions due to evaluation of existing installed systems.

Stakeholder	Costs	Benefits
Industry Trade Associations (WSPA, API)	Significant costs expected for member facilites if required to upgrade certified equipment.	Minimizes potential emissions due to evaluation of existing installed systems.

Table 1C
ECONOMIC IMPACT ANALYSIS - ORVR TEST PROCEDURE

Alternative 3 - Do not adopt ORVR Compatibility Test Procedure

Stakeholder	Costs	Benefits
Public	Future expected emission increases are not controlled. Emissions are expected to increase as 1998 and newer vehicles enter the CA fleet.	No mark-up to fuel prices as dispensing facilities are not required to update existing vapor recovery equipment
State	ARB subject to criticism for taking no action when field studies of simulated ORVR fuelings indicate unacceptable efficiency losses. Subject to federal penalties for delay in attaining air standards. Forced to control other sources to make up for new emissions	No new or redirected staff needed to allow recertification of all existing systems in 6 month time period. Allows time for emission and cost analysis impact analysis for existing systems.
Districts	May control other sources unnecessarily in order to reach attainment of air quality standards.	District staff can focus on other vapor recovery issues known to result in high efficiency losses.
Vapor Recovery Equipment Mfg	No additional testing costs.	Can continue to market existing systems without penalty.

Stakeholder	Costs	Benefits
Gasoline Dispensing Facilities	No negative impact on the estimated 14,000 service stations in the state, as can continue to use existing equipment.	Do not need to replace existing equipment within 4 years if existing system were decertified.
Industry Trade Associations (WSPA, API)	None, as can continue to use existing equipment.	Can participate in ARB working group to evaluate if future action is desired.

Table 2A
ECONOMIC IMPACT ANALYSIS - AIRPORT REFUELER EXEMPTION

Alternative 1 - Revise to exempt airport refuelers from venting emission controls

Stakeholder	Costs	Benefits
Public	Estimated emissions of 0.01 tons of hydrocarbons annually until certified venting options are available.	Safe air travel as aviation fuels are not contaminated by diesel switch loading
State	None.	Airport refuelers no longer operate in violation of state procedures..
Districts	None.	Airport refuelers no longer operate in violation of state procedures..
Airport refueler businesses	None.	Can continue present operation until certified alternatives are available.

Stakeholder	Costs	Benefits
Industry Trade Associations (CTA)	None. Survey indicates that most cargo tank operators use available options to minimize venting emissions.	Provides relief to qualified subset of cargo tank operators.

Table 2B
ECONOMIC IMPACT ANALYSIS - AIRPORT REFUELER EXEMPTION

Alternative 2 - Do not exempt airport refuelers from venting emission controls

Stakeholder	Costs	Benefits
Public	Possibly subject to air travel safety hazards if fuel contamination should occur due to switch-fueling to comply with the existing regulation.	200 lbs/year emissions reductions if force airport refuelers out of business.
State	None.	200 lbs/year emissions reductions if force airport refuelers out of business.
Districts	Costs associated with either granting variances or processing violation notices where normal airport refuler operations continue.	200 lbs/year emissions reductions if force airport refuelers out of business.
Airport refueler businesses	Could be forced out of business.	None.
Industry Trade Associations (CTA)	None. Survey indicates that most cargo tank operators use available options to minimize venting emissions.	Maintains level playing field for all cargo tank operators.

V. SUMMARY OF PROPOSED NEW TEST PROCEDURES

In this section we have summarized each proposed new procedure. For each proposed procedure, the discussion includes background and the need for the ARB procedure. In addition, where appropriate, we include discussion of public input.

A. TP-201.2D: Determination of Onboard Refueling Vapor Recovery (ORVR) Compatibility of Phase II Vapor Recovery Systems of Dispensing Facilities

1. Background

This is a completely new test procedure designed to determine if additional emissions will result from a new kind of vehicle as it enters the vehicle fleet. These vehicles have a vapor recovery system (VRS) onboard the vehicle to capture vapors displaced as the vehicle fuel tank fills with liquid. Hence the name Onboard Refueling Vapor Recovery (ORVR). The proportion of light duty ORVR vehicles, by model year, entering the fleet will be 1998, 40%; 1999, 80%; and 2000 and after, 100%. Light duty trucks will also be subject to this requirement. At the May 1995 Board meeting, the ARB decided to participate in the federal ORVR program.

The possibility of incompatibility between certain Phase II system types and ORVR vehicles has been recognized by ARB staff for many years. In March, 1996, ARB Compliance Division staff coordinated the first meeting of the ORVR/PhaseII Vapor Recovery System Working Group to investigate ORVR/PhaseII interactions and resolve issues in advance of the introduction of the 1998 ORVR vehicles. ARB staff conducted several test programs to provide data for the Working Group. In 1997, field tests studying interactions between 10 PhaseII systems, 19 nozzles, and 17 ORVR prototypes identified three combinations which have problems in fueling of ORVR vehicles. Corrective actions were taken in advance of the ORVR vehicle introduction.

In an engineering analysis, ARB staff predicted that interaction of some Phase II systems with ORVR systems would result in emissions which would significantly decrease the vapor recovery efficiency. Field tests by ARB staff using ORVR simulated fuelings at both a balance and an assist gasoline dispensing facility supported the hypothesis that emissions would increase with certain assist systems. An ARB research contract was awarded to quantitate the emission changes for several vapor system types at different levels of ORVR fleet penetration. Field studies for this contract are currently in progress and preliminary results may be available at the Board hearing.

Based on these findings, ARB staff have prepared an ORVR Compatibility Test procedure to allow evaluation of Phase II systems currently seeking certification, as well as existing systems, if warranted.

2. Proposed Procedure

The ORVR Compatibility test procedure checks to see if a system can handle

ORVR fuelings without significant emission increases. We anticipate two strategies by which Phase II systems can maintain high control efficiencies and achieve ORVR compatibility: 1) inhibiting forced ingestion of air into the underground storage tank (UST), and 2) managing UST pressure. An example of the first approach is shutting off the Phase II system's vacuum assist pump when refueling ORVR vehicles. Examples of the second approach are routing excess vapors to an incinerator or controlling pressure using membrane technology.

Properly functioning balance systems with P/V valves, by their physical nature, passively succeed at the first strategy. Field tests by ARB staff at a balance system support this conclusion. (Interaction of Simulated Vehicular On-Board Vapor Recovery(ORVR) with Balance and Assist Phase II Vapor Recovery Systems, November 22, 1996) Vacuum assist systems, however, must demonstrate compatibility as described above, depending on the design of the system. Some systems may be subject to both types of demonstration, depending upon the means employed by the manufacturer to achieve ORVR compatibility.

3. Need for ARB Procedure

A standardized test procedure is needed to ensure that Phase II system when fueling ORVR vehicles will not result in excess emissions into the air, on a gasoline dispensing facility's vapor recovery system. This procedure provides standardized testing instructions for two types of testing scenarios: controlling forced ingestion of air into the underground storage tank (UST) and controlling emissions from the UST. One or both of these will provide an assessment of the emissions impact of ORVR vehicles refueling at a vapor recovery system type. This procedure will be applied only for new certifications of VRS.

4. Public Input

ARB staff logged 70 individual comments relating to this proposed test procedure including the following: distinguishing forced ingestion of air from conventional ingestion of air; why use 100% ORVR refuelings to test control of underground storage tank (UST) emissions; and what tests have shown that balance systems passively succeed at not forcibly ingesting air into the UST vapor space. Changes were made to clarify the procedures.

B. TP-201.3C: Determination of Vapor Piping Connections to Underground Gasoline Storage Tanks (Tie-Tank Test)

1. Background

Different types of vapor recovery systems at gasoline dispensing facilities require different underground piping configurations. In some cases, the underground storage tanks must be manifolded, and in others manifolding will defeat the vapor

recovery systems. Districts have requested that ARB adopt a test method to check for correct plumbing design, especially when new tanks or vapor recovery system changes are made. This test is completely new to the ARB, although it has been used by the San Diego County Air Pollution Control District (SDCAPCD) to check out new installations of vapor recovery systems. This procedure was requested by the California Air Pollution Control Officers' Association (CAPCOA) Vapor Recovery Technical Committee.

2. Proposed Revisions

The entire procedure is taken from SDCAPCD Draft Test Procedure TP-96-3, Tie-Tank Test Procedure for Determining Vapor Piping Connections to Underground Gasoline Storage Tanks. The procedure can be used in conjunction with TP-201.3 and TP-201.4 to check on proper manifolding of the underground storage tanks. This is done by the tester by opening dry break valves in a systematic manner specified in the procedures. The dry break valves are located in the pavement over the underground storage tanks.

3. Need for ARB Procedure

An ARB procedure is needed to promote statewide consistency in testing of new installations for proper plumbing. This test procedure has been requested by several districts, however, use of the procedure is at District discretion.

4. Public Input

Several districts have requested that this test procedure be added to ARB's certification and test procedures.

VI. SUMMARY OF PROPOSED EXISTING CERTIFICATION AND TEST PROCEDURES WITH REVISIONS

In this section we have summarized each existing procedure for which changes are proposed. The procedures are treated in order of public interest as gauged by comments received over the last two years. For each proposed procedure, the discussion includes background and the need for use of the ARB procedure. In addition, where appropriate, we include discussion of public input.

A. CP-204: Certification Procedure for Vapor Recovery Systems of Cargo Tanks

1. Background

The vapor recovery certification and test procedures are applicable to cargo tanks that transport gasoline and must be equipped for gasoline vapor recovery in accordance with air pollution control district rules. Whenever vapor recovery systems are required on cargo tanks, the cargo tanks must be tested annually with the ARB's

certification and test procedures.

Cargo tank vapor recovery certification procedure CP-204, Section 7.3.2.3, states on page 23, “Warning: Under no circumstances shall the vapors in any cargo tank be purged or vented directly to the atmosphere.” This provision was included in the test procedure in order to prevent cargo tank owner/operators and testers from purging gasoline vapors to the atmosphere prior to performing the certification test. If a cargo tank owner/operator or tester purges gasoline vapors to the atmosphere, they are subject to a violation notice and penalties. The test procedure requires that the cargo tank be purged prior to testing. Most cargo tanks that transport gasoline and deliver to service stations are loaded at bulk terminals. The cargo tanks can be purged by loading the cargo tank with diesel fuel at these bulk terminals and transferring the vapors into the terminal vapor processing system.

Some air pollution control districts have extended their rules to require vapor recovery systems on airport refueler cargo tanks. These are small cargo tanks which are not licensed for the highway, and which are loaded at the airport and then are used to refuel aircraft. However, when these airport refuelers are required to be vapor recovery tested, we have been advised by the owner/operators of these type cargo tanks that they cannot comply with the purging prohibition. At the present time, there is no methodology available to purge these cargo tanks and meet the requirements of ARB and aviation safety. So, for the time being, ARB staff recommends that airport refuelers be given an exception to purge to atmosphere. The airport refueler exception would terminate when there are two CARB-certified degassing vapor control systems which are appropriate for degassing airport refuelers.

Recently we became aware of requests by the California Trucking Association and some cargo tank carriers to eliminate the purging restriction for all cargo tanks of whatever size and service. They referenced safety, lack of available control equipment, and the lack of enforcement of purging violations as bases for eliminating the no venting requirement.

The ARB Compliance Division staff recently conducted a survey to determine the practice and availability of equipment to capture vent emissions from cargo tanks. Results from this study indicate that ___% of cargo tank operators are operating successfully under existing venting restrictions.

2. Proposed Revisions

Section 7.3.2.3 has the only proposed changes, and the changes occur inside a warning box. Currently the box reads:

> “Warning: Under no circumstances shall the vapors in any cargo tank be purged or vented directly to the atmosphere.”

The following additions are proposed:

> “... The only exception to this shall be for airport refuelers, which may purge or

vent directly to the atmosphere, so long as no safety or fire regulations are violated.

'Airport refueler' is defined as a cargo tank which: has a total capacity no greater than 2,000 gallons; exclusively transports avgas and jet fuel; and is not licensed for public highway use.

The airport refueler exception terminates when there are two CARB-certified degassing vapor control systems which are appropriate for degassing airport refuelers."

3. Need for ARB Procedure Revisions

The airport refueler exception is needed because for this relatively small cargo tank category, there is no other way to prepare for required annual testing. They need to purge their vapors to atmosphere because there is no control device at the airport and they are not licensed to drive on the highway to get to a control device.

The exemption is limited to cargo tanks of 2000 gallons or less. We understand that for airport refuelers greater than 2000 gallons, they can get a one day permit to drive on public highways to reach a control device.

4. Public Input

We have received several letters from airport refuelers detailing the practical and economic hardships involved in their degassing prior to a test, unless they are given a variance for venting to the atmosphere. One commenter emphasized the damage that could be caused if an airport refueler used a load of diesel as a way to purge. Even a small amount of residual diesel fuel in avgas can cause dangerous misfirings in airplane engines, according to this commenter.

California Trucking Association representatives expressed their unhappiness with recent enforcement of the venting prohibition for all cargo trucks. Numerous firms wrote to explain their inability to comply with the prohibition on purging to atmosphere, and to ask for an exemption. ARB staff's survey of the industry indicates that current requirements are being met by a majority of the cargo tank operators.

On a related issue, one commenter recommend that a check valve or tight-fitting cap be used as a back-up to the currently required internal vapor valve. Another commenter wanted the check valve or tight fitting cap in addition to the internal vapor valve to meet the daily tightness standard. We will not permit the check valve or cap as an alternative because the Federal Gasoline National Emission Standard for Hazardous Air Pollution (NESHAP) requires internal vapor valves to be present and to meet standards similar to those in CP-204.

B. TP-201.3: Determination of 2 Inch (WC) Static Pressure Performance of

Vapor Recovery Systems of Dispensing Facilities

1. Background

This procedure provides a leak check of the underground storage tank and associated vapor recovery system piping. The test procedure is based on the premise that the pressure integrity of the vapor space at a gasoline dispensing facility (GDF) can be characterized by the final pressure after 5 minutes starting from an initial pressure of 2 inches water column, gauge (2"WCg). The field work and data reduction for the development of this procedure was performed by the Bay Area Air Quality Management District (BAAQMD). The proposed revisions were requested by ARB and district staff.

We are replacing ARB's two-inch test with BAAQMD's two-inch test because BAAQMD's test has been adopted by several districts and this approach provides the greatest uniformity. Also, it handles the matter of whether dust caps are on or off more clearly. The dust cap issue involves tight-fitting caps on the vapor coupler and liquid couplers at the pavement level. These caps, which are off during each visit by a cargo tank, can cover leaks in the drop tubes which provide a path for emissions of vapors from the vapor space in the underground tank to the atmosphere. Only by leak testing with the caps off can the drop tubes be tested for leaks.

This test has become controversial due to changes in state law that prohibit use of district vapor recovery test procedures unless approved as equivalent by the ARB Executive Officer after January 1998. San Diego APCD prefers to use a 10 inch decay test, but this was denied equivalency by ARB staff in July 1997 as it is more stringent than the 2 inch test. San Diego APCD staff believe there are serious deficiencies with the 2 inch test which are discussed below.

2. Proposed Revisions

The entire procedure has been replaced by BAAQMD ST-30 with suitable edits to make it an ARB procedure. A summary of the procedure is as follows. To reduce interferences, Phase I gasoline deliveries to the facility are prohibited for three hours prior to the test and no dispensing to vehicles is allowed for thirty minutes prior to the test. Nitrogen is added to pressurize the vapor space of the facility until at least 2.2 inches of water, gauge. A stopwatch is used to start the test when the pressure has decreased to the starting pressure of 2.0 inches of water, gauge. After five minutes, the final system pressure is compared to the tabulated final pressures in the procedures to determine compliance status.

Proposed TP-201.3 provides an exception for specified VRS to be tested with dust caps on the couplers. The exception is set to terminate January 1, 2002 after which time all two point systems will be tested with fill and vapor caps removed.

Equation 9-3 has had its conversion factor changed from 1522 to 1980.

3. Need for ARB Procedure

This test procedure is needed to determine the pressure integrity of tanks and plumbing at a GDF in a consistent manner throughout the state. If these systems leak, the vapors recovered from vehicle fueling will be emitted, negating the value of the vapor recovery systems.

4. Public Input

San Diego County Air Pollution Control District insists that the 10"WCg is preferable to the 2"WCg test. The District stresses that the 10" test would be less biased by atmospheric pressure variations than the 2" test. Also, it would be easier to detect leaks with soap solution with the 10" test rather than the 2" test.To deal with the pressure bias, the District has issued a directive that TP-201.3 only be performed between a half-hour after sunset and a half-hour before sunrise.

ARB staff maintains that by monitoring atmospheric pressure prior to testing, the larger, more biasing atmospheric pressure fluctuations can be avoided and still allow daylight testing with the 2" test. Staff is collecting data to substantiate this position. Also, for most systems, 10" exceeds any pressure that actually occurs in normal operation. In fact, the 10" test can cause leaks that wouldn't normally occur. The 2" test is more consistent with the Executive Orders, which are written on the basis of the 2" test. The 2" test allows a test with the P/V valve intact. The two inch test causes less air pollution.

And finally, as it stands, the 2" test is sufficiently stringent and difficult to pass. ARB staff conducted a random survey of Sacramento gas stations and only 9% passed the 2" test of TP-201.3

San Diego and other district staff have proposed use of the 10 inch test to find and repair leaks that may not be identified during the 2" test. There is nothing in the test procedure that prohibits using 10" of pressure for diagnostic testing. Thus, there is no reason to revise the test procedure.

C. TP-201.5: Determination (by Volume Meter) of Air-Vapor to Liquid (A-V)/L Volume Ratio of Vapor Recovery Systems of Dispensing Facilities

1. Background

"Bootless" vapor recovery systems rely on vacuum holes in the nozzle, rather than a "boot", to capture refueling emissions. TP-201.5 is used to establish the (A-V)/L performance specification for a vacuum-assist type VRS. First, the vapor uptake holes in the nozzle are covered by a fitting connected to a hose which only allows air and vapor to enter the uptake holes. The tester then dispenses gasoline for a specified volume. The ratio of the volume of air and vapor divided by the volume of liquid gasoline is the characteristic air-vapor to liquid (A-V)/L ratio for the VRS.

We are replacing an ARB procedure with a BAAQMD procedure because the BAAQMD procedure reduces exposure to toxic fumes for the tester and it is already developed and field validated.

These revisions were requested by ARB and district staff.

2. Proposed Revisions

The entire procedure has been replaced by BAAQMD ST-39 with suitable edits to make it an ARB procedure. The existing TP-201.5 exposes the tester to a large amount of gasoline fumes. Using the same meter and test equipment, the proposed procedure reduces the exposure to fumes by plumbing the test equipment differently. In field tests, the proposed procedure obtained equivalent results to TP-201.5 for two system types while substantially reducing exposure to gasoline vapors for the tester. This equivalency was determined using EPA Method 301 applied to field data.

In addition, the three runs of 7.5 gallons on each nozzle currently required are proposed to be reduced to three runs of 4.5 gallons. Only one run at 4.5 gallons is proposed for cases where a significant failure is observed on the first run.

3. Need for ARB Procedure

The proposed TP-201.5 is needed to obtain equivalent results, relative to the existing TP-201.5, without exposure to a large amount of fumes.

4. Public Input

We have had numerous verbal comments supporting the revisions to TP-201.5.

D. CP-202: Certification Procedure for Vapor Recovery Systems of Bulk Plants

1. Background

CP-202 provides a set of requirements for certifying vapor recovery systems of bulk plants. These include details on the certification application, the performance standards, performance specifications, and test procedures for the proposed system, and the required evaluation and testing of the vapor recovery equipment, and finally documentation for certification, and certification, if all requirements are met.

These revisions were requested by ARB staff who conduct bulk plant certification tests.

2. Proposed Revisions

An additional note has been placed in the note box in Section 4.1.1.1 clarifying the difference between efficiency and emission factors.

3. Need for ARB Procedure Revisions

The proposed CP-202 is needed for certifying vapor recovery systems of bulk plants. The revision will notify the tester regarding the range of emission factors and efficiencies the tester may encounter.

4. Public Input

We have not had any public input on CP-202.

E. TP-202.1: Determination of Emission Factor of Vapor Recovery Systems of Bulk Plants

1. Background

TP-202.1 provides a set of requirements for testing vapor recovery systems of bulk plants. At a bulk plant (during loadings of cargo tanks and filling of the storage tanks), all possible points of emission shall be checked for vapor leaks. The volume of gasoline delivered from the bulk plant storage tanks to the cargo tanks is recorded, the volume of gasoline delivered to any storage tank(s) is recorded (as required), and the mass of the hydrocarbon vapors emitted from the system are measured. The mass emission of hydrocarbons is calculated from these determinations and is expressed in units of pounds per 1,000 gallons.

These revisions were requested by ARB staff who conduct bulk plant certification tests.

2. Proposed Revisions

Some of the major changes are paraphrased below.

The existing procedure does not specify the number of deliveries and the volume of each delivery. The revised language states, “There shall be a minimum of one delivery to the storage tank and one loading operation to the cargo tank. The minimum volume for each operation shall be 1000 gallons.”

The existing procedure assumes that the loading arm transfer rates are highly variable. The revised language states, “Challenge and failure mode testing on individual loading arm transfer rates shall only be required if the system is designed to operate at widely variable transfer rates.”

3. Need for ARB Procedure Revisions

TP-202.1, as modified, is needed for testing vapor recovery systems of bulk plants.

4. Public Input

We have not had any public input on TP-202.1.

F. CP-203: Certification Procedure for Vapor Recovery Systems of Terminals

1. Background

CP-203 provides a set of requirements for certifying vapor recovery systems of terminals. These include details on the certification application, the performance standards, performance specifications, and test procedures for the proposed system, and the required evaluation and testing of the vapor recovery equipment, and finally documentation for certification, and certification, if all requirements are met.

The proposed revisions were requested by ARB staff who conduct terminal certification tests.

At the workshops, the current standard of 0.29 pounds per thousand gallons was proposed to be changed to 0.08 pounds per thousand gallons to be consistent with the federal NESHAP. This proposed change was withdrawn after learning that not all terminals in the state may be subject to the more stringent limit. A sentence has been added to CP-203 alerting the reader that a district rule or the federal NESHAP may impose a more stringent standard.

2. Proposed Revisions

Some of the major changes are paraphrased below.

An additional note has been placed in the note box in Section 4.1.1.1 clarifying the difference between efficiency and emission factors.

3. Need for ARB Procedure Revisions

The proposed CP-203 is needed for certifying vapor recovery systems of terminals.

4. Public Input

We have not had any public input on CP-203.

G. TP-203.1: Determination of Emission Factor of Vapor Recovery Systems of Terminals

1. Background

TP-203.1 provides a set of requirements for testing vapor recovery systems of terminals. At a terminal (during loadings of cargo tanks and filling of the storage

tanks), all possible points of emission shall be checked for vapor leaks. The volume of gasoline delivered from the terminal storage tanks to the cargo tanks is recorded, the volume of gasoline delivered to any fixed roof storage tank(s) is recorded (as required), and the mass of the hydrocarbon vapors emitted from the system are measured. The mass emission of hydrocarbons is calculated from these determinations and is expressed in units of pounds per 1,000 gallons.

These revisions were requested by ARB staff who conduct terminal certification tests.

2. Proposed Revisions

Some of the major changes are paraphrased below.

The existing procedure does not require a sufficiently thorough search for leaks. The revised language states, “At a terminal (during loadings of cargo tanks and filling of the fixed roof storage tanks connected to the vapor recovery system) all probable and practically accessible points of emission shall be checked for vapor leaks.”

The existing procedure does not ensure that each exhaust will be measured. The revised language states, “Processing units which do not utilize an incinerator may have more than one exhaust. If so, each exhaust must be equipped so that mass emissions can be quantified.”

3. Need for ARB Procedure Revisions

TP-203.1, as modified, is needed for testing vapor recovery systems of terminals with improvements in specificity in some of its sections.

4. Public Input

We have not had any public input on TP-203.1.

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

1. Background

This procedure is used to determine the efficiency of Phase I vapor recovery systems of dispensing facilities with assist processors.

2. Proposed Procedure

We have briefly summarized below the the changes to this procedure for which we are proposing minor revisions.

In Section 8.2, General Sampling Parameters, strike “shown in hexagon outlines in

Figure 1."

3. Need for ARB Procedure

The procedure is needed to determine the efficiency of Phase I vapor recovery systems of dispensing facilities with assist processors.

4. Public Input

There have been no public comments to date regarding these changes.

I. TP-204.1: Determination of Five Minute Static Pressure Performance of Vapor Recovery Systems of Cargo Tanks

1. Background

TP-204.1 provides a set of requirements for testing static pressure decay of a cargo tank after taking it out of service.

2. Proposed Procedure

We have briefly summarized below the the changes to this procedure for which we are proposing minor revisions.

In Sections 9.2.1 and 9.2.2, the references should be to CP 204 Section 4.1.3.1 rather than Section 4.2.

3. Need for ARB Procedure Revisions

The revisions were requested by ARB staff who conduct and observe these tests. The procedure is needed for testing static pressure decay of cargo tanks.

4. Public Input

There have been no public comments to date regarding these changes.

J. TP-204.2: Determination of One Minute Static Pressure Performance of Vapor Recovery Systems of Cargo Tanks

1. Background

TP-204.2 provides a set of requirements for testing static pressure decay of cargo tanks without the need to empty the cargo tank and take it out of service.

2. Proposed Revisions

The requirement for keeping “75% of the length of a cargo tank in shade during testing” has been changed to “75% of the length of the vapor space of a cargo tank in shade during testing.”

3. Need for ARB Procedure Revisions

The revisions were requested by ARB staff who conduct and observe these tests.

The revisions are needed to make TP-204.2 more practically feasible to perform. Seventy-five percent of the length of the vapor space is less than seventy-five percent of the length of the whole truck. The revised procedure needs less shade for the cargo tank to comply.

4. Public Input

We have not had any public input on TP-204.2.

K. TP-204.3: Determination of Leak(s)

1. Background

TP-204.3 provides a set of requirements for testing leaks in specified vapor recovery equipment.

2. Proposed Revisions

The distance of the leak detection probe from the potential leak has been changed for a stationary source, such as the loading rack, to 1cm. The distance for leaks from a mobile source, such as a cargo tank, shall remain 2.5cm (one inch).

3. Need for ARB Procedure Revisions

The revisions were requested by ARB staff who conduct these tests.

The revisions are needed to make TP-204.3 consistent with EPA Methods 21 and 27.

4. Public Input

The California Trucking Association was concerned that the probe distance was to change from 2.5 cm. This will not occur for the cargo tanks, thus alleviating CTA’s concern.

L. CP-205: Certification Procedure for Vapor Recovery Systems of Novel Facilities

1. Background

CP-205 provides a set of instructions for certifying vapor recovery systems of novel facilities. These include details on the certification application, the performance standards, performance specifications, and test procedures for the proposed system, and the required evaluation and testing of the vapor recovery equipment, and finally documentation for certification, and certification, if all requirements are met.

2. Proposed Revisions

These revisions were requested by ARB staff who certify vapor recovery systems of novel facilities. Some of the major changes are paraphrased below.

The passages which follow are proposed new text from Section 3, "APPLICATION FOR CERTIFICATION." This new language helps to clarify the applicability of the procedures.

Section 3.1 General

The components used on the novel system must meet the same performance standards and specifications which were met during the previous certification under CP-201, CP-202, CP-203, or CP-204. Any exemptions to this requirement must be specifically requested by the applicant before testing begins and must be subject to an engineering evaluation and approval by the ARB Executive Officer before testing begins.

Section 3.2 Application for a System Previously Tested, But Not Certified

If the application is for a system previously tested, but not certified, the application shall include identification of the system components which have been changed; including all new physical and operational characteristics; together with any new test results obtained by the applicant.

If an unmodified system is retested, then the data from the new test and all valid data from previous tests shall be combined to determine compliance with the certification standards.

3. Need for ARB Procedure

CP-205, with proposed revisions, is needed for certifying vapor recovery systems of novel facilities. The proposed revisions will clarify the intended application of the procedure.

4. Public Input

We have not had any public input on CP-205.

M. TP-205.1: Determination of Efficiency of Phase I Vapor Recovery Systems of Novel Facilities

1. Background

TP-205.1 provides instructions for determining the Phase I efficiency of the vapor recovery systems of novel facilities. The purpose of this test procedure is to determine the percent vapor recovery efficiency for a vapor recovery system on a gasoline storage tank. During fuel delivery to the gasoline storage tank, the volume of gasoline delivered from the cargo tank to the gasoline storage tank is recorded and the concentration of gasoline vapor returning to the cargo tank is measured. During fuel delivery to a transport tank, the volume of gasoline delivered from the gasoline storage tank to the cargo tank is recorded and the concentration of gasoline vapor returning to the storage tank is measured. The weight of gasoline vapor discharged from the vent of the gasoline storage tank and, if applicable, from the vent of any secondary processing unit during the same period is determined. The percent vapor recovery efficiency is the percent of vapors displaced by fuel transfer which are recovered by a vapor recovery system rather than emitted to the atmosphere.

2. Proposed Revisions

These revisions were requested by ARB staff who test vapor recovery systems at novel facilities.

Some of the major changes are paraphrased below.

The existing procedure does not specify the calibration of the pressure transducers precisely enough. The new text states, “Calibrate pressure transducers prior to testing and immediately following the test with a static pressure calibrator for a range such that measured pressures fall within 10% to 90% of the range.”

The existing procedure does not specify the calibration of the temperature transducers precisely enough. The new text states, “Calibrate temperature transducers at the beginning and end of each week of testing using ice water and using ambient air, the temperature of which is determined by a NIST traceable mercury-glass thermometer.

3. Need for ARB Procedure Revisions

TP-205.1, with these revisions, is needed to determine the efficiency of Phase I vapor recovery systems at novel facilities.

4. Public Input

We have not had any public input on TP-205.1.

N. TP-205.2: Determination of Efficiency of Phase II Vapor Recovery Systems of Novel Facilities

1. Background

TP-205.2 provides instructions for determining the Phase II efficiency of the

vapor recovery systems of novel facilities. The purpose of this test procedure is to determine the percent vapor recovery efficiency for a vapor recovery system at a novel dispensing facility. The percent vapor recovery efficiency is the percent of vapors displaced by dispensing which are recovered by a vapor recovery system rather than emitted to the atmosphere.

2. Proposed Revisions

These revisions were requested by ARB staff who test vapor recovery systems at novel facilities.

Some of the major changes are paraphrased below.

In the existing procedure, the plumbing was not adequately specified. The new text states, “Drums shall have a three inch fill cap and a one inch vent plug. A line shall be attached between the 1" vent plug of the drum and the vehicle tank vent line connection on the fillpipe.”

The existing proceedure does not adequately specify the total refueling volume for a test. The new language states, “A minimum of 200 gallons of fuel must be dispensed to determine compliance with the performance standards.”

3. Need for ARB Procedure Revisions

TP-205.2, with these revisions, is needed to determine the efficiency of Phase II vapor recovery systems at novel facilities.

4. Public Input

We have not had any public input on TP-205.2.

VI. References:

1. ARB Stationary Source Test Methods, Volume 2, “Certification and Test Procedures for Vapor Recovery Systems”, April 12, 1996

2. Bay Area Air Quality Management District Test Method ST-30, “Static Pressure Integrity Test for Underground Storage Tanks”, November 30, 1983

3. Bay Area Air Quality Management District Test Method ST-39, “Gasoline Dispensing Facilities Air-Vapor to Liquid Volume Ratio, DRAFT March 26, 1996