California Environmental Protection Agency

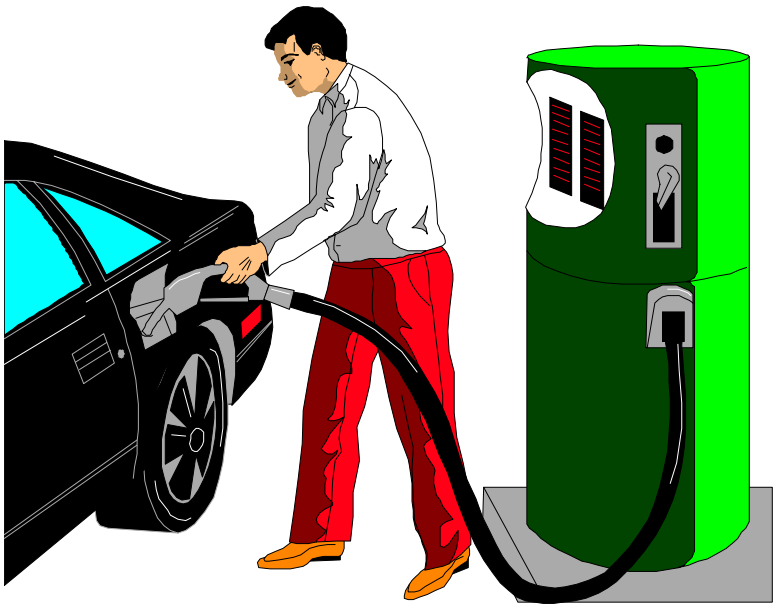
Air Resources Board

HEARING NOTICE AND STAFF REPORT

Vapor Recovery Equipment Defects Title 17 Update

INITIAL STATEMENT OF REASONS FOR PROPOSED AMENDMENTS TO TITLE 17 CALIFORNIA CODE OF REGULATIONS, SECTION 94006 - DEFECTS SUBSTANTIALLY IMPAIRING THE EFFECTIVENESS OF VAPOR RECOVERY SYSTEMS USED IN MOTOR FUELING OPERATIONS

September 28, 2001



TITLE 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER AMENDMENTS TO TITLE 17 OF THE CALIFORNIA CODE OF REGULATIONS, SECTION 94006 - DEFECTS SUBSTANTIALLY IMPAIRING THE EFFECTIVENESS OF VAPOR RECOVERY SYSTEMS USED IN MOTOR FUELING OPERATIONS

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider amendments to section 94006 of title 17 of the California Code of Regulations (CCR), otherwise known as the Vapor Recovery Equipment Defects List. The Defects List is comprised of those equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants. Such defects are sufficiently egregious that, when found, the fueling point is immediately removed from service until the defect is repaired.

DATE: November 15, 2001

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Auditorium, Second Floor
1001 “I” Street
Sacramento, CA 95814

This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., November 15, 2001 and may continue at 8:30 a.m., November 16, 2001. This item may not be considered until November 16, 2001. Please consult the agenda for the meeting, which will be available at least 10 days before November 15, 2001, to determine the day on which this item will be considered.

This facility is accessible to persons with disabilities. If accommodation is needed, please contact Clerk of the Board at (916) 322-5594 or TDD (916) 324-9531 or (800) 700-8326 for TDD calls from outside the Sacramento area by November 1, 2001, to ensure accommodation.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW

Sections Affected: Proposed amendments to section 94006, title 17, California Code of Regulations (CCR), Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations, by eliminating the current defects list (sections 94006(a) through (j)) and incorporating the document “Vapor Recovery Equipment Defects List Title 17 Update Modified August 21, 2001” (Staff Report Appendix 2) into the regulation.

Background: The California Health and Safety Code (HSC) section 41960.2 requires the ARB to identify and list equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants and to update the list to reflect changes in equipment technology or performance. Amendments to title 17 of the California Code of Regulations, section 94006; Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations (section 94006) are being proposed in this regulatory action in order to improve the effectiveness of the vapor recovery program. Gasoline vapor emissions, which are a significant contributor to the formation of photochemical ozone, or smog, are controlled during two types of gasoline transfer. Phase I vapor recovery collects vapors when a tanker truck is loaded at the bulk terminal and when it fills the service station underground tank. Phase II vapor recovery collects vapors during consumer vehicle refueling at a gasoline dispensing facility (GDF). The vapor recovery collection efficiency during these transfers is required to comply with ARB regulations and is monitored and enforced through certification of vapor recovery systems. When a vapor recovery system is certified, an executive order is issued to the system manufacturer by the ARB that specifies the conditions of use.

ARB is required to identify and list defects in the vapor recovery equipment that impair the effectiveness of the vapor recovery system in collecting the gasoline vapors. The list is contained in section 94006, title 17, California Code of Regulations. Simply stated, the specified defects in the specified vapor recovery equipment components substantially increase emissions by not functioning as certified. Health and Safety Code section 41960.2(c)(2) requires the ARB to periodically update the list contained in section 94006 after reviewing the list at a public workshop.

Previously, some of these equipment defects were listed in the individual executive orders. However, ARB staff believe that amending section 94006 to include all of the defects in one regulatory document will enhance the ability of enforcement personnel and GDF operators to identify and repair those defects that could significantly impact the effectiveness of the vapor recovery system. When a component on the section 94006 list is found by an inspector to contain a listed defect, the equipment must be removed from service until it has been replaced, repaired, or adjusted and reinspected by air pollution control district personnel (HSC section 41960.2 (d)). If a component is not in good working order but does not contain a listed defect, the local air pollution control district has other enforcement options (HSC section 41960.2(e)). Being on the list requires that the defective component be “tagged out” (removed from service).

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

The ARB staff has prepared a Staff Report which includes the initial statement of reasons (ISOR) for the proposed action, and a summary of the potential and economic impacts of the proposal.

Copies of the ISOR and full text of the proposed regulatory language, in underline and strike-out format to allow for comparison with the existing regulations, may be obtained from the ARB's Public Information Office, Environmental Services Center, 1001 "I" Street, First Floor, Sacramento, California 95814, (916) 322-2990, at least 45 days prior to the scheduled hearing (November 15, 2001).

Upon its completion, the Final Statement of Reason (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on the web site listed below.

Inquiries concerning the substance of the proposed regulations should be directed to Ranjit Bhullar, Manager, Certification and Vapor Recovery In-Use Compliance, Surveillance Branch, Compliance Division, at (916) 323-7370 or R. Neil Nipper, Air Resources Engineer, Certification and Vapor Recovery In-Use Compliance, Surveillance Branch, Compliance Division, at (916) 324-7343.

Further, the agency representative and designated back-up contact persons to whom non-substantive inquiries concerning the proposed administrative action may be directed are Artavia Edwards, Manager, Board Administration & Regulatory Coordination Unit, (916) 322-6070, or Amy Whiting, Regulations Coordinator, (916) 322-6533. The Board has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

If you are a person with a disability and desire to obtain this document in an alternative format, please contact the Air Resources Board ADA Coordinator at (916) 323-4916, or TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

This notice, the ISOR, and all subsequent regulatory documents, including the FSOR, when completed, are available on the ARB Internet site for this rulemaking at http://www.arb.ca.gov/regact/vrdef01/vrdef01.htm.

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred in reasonable compliance with the proposed regulations are presented below.

The Executive Officer has determined that the proposed regulatory action will not create costs or savings, as defined in Government Code section 11346.5(a)(6), to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other nondiscretionary savings to local agencies.

The Executive Officer has made an initial determination that adoption of the proposed regulatory action 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. This determination is based on the fact that all requirements identified by the proposed regulatory action exist now. The proposed regulatory action combines existing defects into one document.

In accordance with the California Administrative Procedure Act section 11346.3(b), the Executive Officer has determined that adoption of the proposed regulatory action should have no impact on the creation or elimination of jobs within the State of California, the creation of new business or elimination of existing business within California, or the expansion of business currently doing business in California.

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.

The Executive Officer has determined that adoption of the proposed regulatory action does affect small business.

The Board must determine that no reasonable alternative considered by the ARB or that has otherwise been identified and brought to the attention of the ARB would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

SUBMITTAL OF COMMENTS

The public may present comments relating to this matter orally or in writing at the hearing, and in writing or by e-mail before the hearing. To be considered by the Board, written submissions not physically submitted at the hearing must be received no later than **12:00 noon, November 14, 2001**, and addressed to the following:

Postal Mail is to be sent to:

Clerk of the Board
Air Resources Board
1001 "I" Street, 23rd Floor
Sacramento, California 95814

Electronic mail is to be sent to: vrdef01@listserv.arb.gov and received at the ARB by no later than **12:00 noon, November 14, 2001.**

Facsimile submissions are to be transmitted to the Clerk of the Board at (916) 322-3928 and received at the ARB no later than **12:00 noon, November 14, 2001.**

The Board requests, but does not require, 30 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing so that ARB staff and Board Members have time to fully consider each comment. The ARB encourages members of the public to bring any suggestions for modification of the proposed regulatory action to the attention of staff in advance of the hearing.

STATUTORY AUTHORITY

This regulatory action is proposed under that authority granted in California Health and Safety Code sections 39600, 39601, and 41960.2(c)(1) and (2). This action is proposed to implement, interpret, and make specific HSC sections 41960.2(c)(1) and (2) and section 41960.2(d).

The public hearing will be conducted in accordance with the California Administrative Procedure Act, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340) of the Government Code.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340) of the Government Code. Following the public hearing, the ARB may adopt the regulatory language as originally proposed or with nonsubstantial or grammatical modifications. The ARB may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language as modified could result from the proposed regulatory action. In the event that such modifications are made, the full regulatory text, with the modifications clearly indicated, will be made available to the public for written comment at least 15 days before it is adopted. The public may request a copy of the modified regulatory text from the ARB's Public Information Office, Environmental Services Center, 1001 "I" Street, First Floor, Sacramento, California 95814, (916) 322-2990.

CALIFORNIA AIR RESOURCES BOARD

Signed Copy on File

Michael P. Kenny
Executive Officer

Date: September 18, 2001

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs see our Web-site at www.arb.ca.gov.

California Environmental Protection Agency

Air Resources Board

STAFF REPORT:

INITIAL STATEMENT OF REASONS FOR PROPOSED AMENDMENTS TO TITLE 17 CALIFORNIA CODE OF REGULATIONS, SECTION 94006 - DEFECTS SUBSTANTIALLY IMPAIRING THE EFFECTIVENESS OF VAPOR RECOVERY SYSTEMS USED IN MOTOR FUELING OPERATIONS

Date of Release: September 28, 2001
Scheduled for Consideration: November 15, 2001

Location:
Sacramento, California

Air Resources Board
P. O. Box 2815
Sacramento, California 95812

This report has been prepared by the staff of the California Air Resources Board. Publication does not signify that the contents reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Acknowledgments

The ARB staff extends their appreciation to the members of the CAPCOA Vapor Recovery and Enforcement Managers Committees for providing multiple suggestions on improvements to the vapor recovery program as well as technical assistance. Moreover, we thank the Western States Petroleum Association and the California Independent Oil Marketers Association for facilitating discussions with their members. We thank all the air pollution control districts who provided their input to the Vapor Recovery Equipment Defects List Title 17 Update. We appreciate the expertise shared by Reza Mahdavi of the ARB's Economic Studies Section. A special thank-you to the staff and student assistants from the Compliance Division as well as the offices of Legal Affairs of the ARB for their assistance in preparing this report.

This report and proposed amendments to Title 17, California Code of Regulations, Section 94006: Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations were developed by the following Air Resources Board Staff:

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Initial Statement of Reasons for Proposed Amendments to Title 17 California Code of Regulations, Section 94006. Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations

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Volume I:

EXECUTIVE SUMMARY AND INTRODUCTION

I. Executive Summary

The Air Resources Board is proposing amendments to Title 17 of the California Code of Regulations, section 94006 - Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations in order to improve the effectiveness of the gasoline vapor recovery program. Gasoline vapor emissions are controlled during two types of gasoline transfer operations. Phase I vapor recovery collects vapors when a tanker truck is loaded at the bulk terminal and when it fills the service station underground tank. Phase II vapor recovery collects vapors during consumer vehicle refueling at gasoline dispensing facilities (GDF). The vapor recovery collection efficiency during these transfers is set forth in regulations adopted by the ARB in accordance with HSC section 41950 et seq. and is implemented through certification of vapor recovery systems by the Executive Officer in response to applications by the equipment manufacturers.

Defects in the vapor recovery equipment that substantially impair the effectiveness of the vapor recovery system are required by law to be identified and listed for each certified system (HSC section 41960.2(c)). The ARB has listed the defects in section 94006 of Title 17 of the California Code of Regulations. Simply stated, the ARB has identified defects in vapor recovery equipment components which increase emissions by not functioning as certified. Health and Safety Code (HSC) section 41960.2(c)(2) requires the Air Resources Board (ARB or Board) to periodically update the list contained in section 94006 to reflect changes in equipment technology and performance.

Local air pollution control districts and air quality management districts (district(s)) are responsible for enforcing vapor recovery violations involving equipment defects and performance test failures (HSC sections 40752 and 41960.2(d) and (e)). When a component district determines that a component contains a defect specified on the section 94006 list, the district must remove the equipment from service until it has been replaced, repaired, or adjusted. If a component is not in good working order but is not degraded to the extent specified on the list or is malfunctioning in a manner not listed, the district has other enforcement options (see HSC section 41954(i) and 41960.2(e)). That is, being on the list requires that the defective component be “tagged out” (removed from service).

The certification procedures combined with joint inspections conducted by ARB and district staff revealed a variety of defects in vapor recovery equipment in currently installed systems that are serious enough to warrant listing. While some of these equipment defects are currently listed in the individual executive orders certifying the vapor control systems, the staff believes that amending section 94006 to include all of the defects in one location will enhance the ability of both GDF operators and district enforcement personnel to identify, and repair or replace those defects that could significantly impact the effectiveness of the vapor recovery system.

Staffs of local districts, representatives of manufacturers, and trade associations representing gasoline-dispensing facilities have collaborated with ARB staff on the development of the update to section 94006. The local districts have provided valuable suggestions regarding inspection techniques and the identification of common defects that substantially impair the efficiency of vapor recovery systems.

The proposed amendments to the vapor recovery defects list are based on two goals. The first is to provide clear direction concerning proper equipment operation and maintenance to the owners and operators of the dispensing facilities, and the second goal is to provide clear direction to the local districts concerning enforceable inspections of dispensing facilities.

The proposed amendments affect a multitude of stakeholders. These include the vapor recovery equipment manufacturers, gasoline marketers who purchase this equipment, contractors who install and maintain vapor recovery systems, and the inspectors at air pollution control districts who enforce vapor recovery rules. In addition, California certified systems are required by most other states and many countries.

There are no new emission reductions associated with the amendments to section 94006 of Title 17 of the California Code of Regulations, because the emissions reductions associated with the vapor recovery program have already been accounted for in the State Implementation Plan (SIP). However, listing the defects in one easily accessible document will enhance compliance by GDF operators and enforcement by the districts, making it more likely that the promised reductions will, in fact, occur.

Staff recommends that the Board approve the proposed amendments to Title 17 of the California Code of Regulations, section 94006 - Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations, by incorporating the document “Vapor Recovery Equipment Defects List Title 17 Update” (Appendix 2) into the regulation.

II. Introduction

A. Background

Significant strides have been made in improving California's air quality. Nonetheless, most regions throughout California continue to exceed health-based State and federal air quality standards. Areas exceeding the State and federal 1-hour ozone standard include the South Coast Air Basin, the San Francisco Bay area, San Diego County, the San Joaquin Valley, the Southeast Desert, the broader Sacramento area and Ventura County. As the new federal eight-hour ozone standard is implemented, more areas of the State may be designated as nonattainment for ground-level ozone.

Created by the photochemical reaction of reactive organic gases (ROG) and oxides of nitrogen (NOx), ozone causes harmful respiratory effects including lung damage, chest pain, coughing, and shortness of breath. Ozone is particularly harmful to children, the elderly, athletes, and persons with compromised respiratory systems. Environmental effects of ozone exposure include substantial damage to crops, buildings, materials, and other structures.

Emission controls have been placed on both mobile and stationary sources of ROG and NOx. Some of the earliest and most successful measures for ROG are vapor recovery controls for petroleum marketing operations. The emission reductions attributable to vapor recovery from service stations alone are projected to be 118 tons per day in the year 2010 in the South Coast Air Basin, more than the reductions for low emission vehicles and cleaner burning gasoline. Statewide, the emission reductions associated with the rigorous implementation and enforcement of the vapor recovery program afforded in part by these amendments to Title 17, coupled with the implementation of the Enhanced Vapor Recovery (EVR) program adopted by the ARB in April, 2000, are expected to provide the emission reductions assumed from gasoline transfer applications in the 1994 SIP by 2005 at the latest.

Even with current controls, petroleum product transfers result in significant emissions. According to the 1995 inventory, petroleum-marketing operations (which include emissions at service stations and cargo tank loading facilities) emit 77 tons/day of ROG statewide. This is about 10% of the total ROG of 740 tons per day from all stationary sources combined. About half of the 77 tons are emitted in the South Coast Air Basin. These emission totals assume that the vapor recovery systems at the more than 11,250 service stations in the State are operating at a minimum of 90% efficiency.

B. History

Vapor recovery systems have been used in California to control ROG, and specifically hydrocarbon (HC) emissions, for over twenty years. The feasibility of the first vapor recovery systems was studied at the district level, particularly in the San Diego and Bay Area districts, in the early 1970s. State law enacted in 1975 requires 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 that are reasonable and necessary to achieve or maintain any applicable ambient air quality standard" (Health and Safety Code section 41954(a)).

Under State law, the ARB is directed to certify vapor recovery systems so that all systems meet minimum standards (HSC section 41954(c)). To comply with State law, the Board adopted the certification and test procedures found in Title 17, California Code of Regulations (CCR), section 94000 et seq. Included in the system certification procedures is the identification of defects that have the potential to substantially impair the effectiveness of the system (see HSC section 41960.2(c)). Section 94006 of Title 17 of the CCR lists those defects.

After certification, a system may be installed at a gasoline dispensing facility (GDF) anywhere in the State. The local districts are charged with inspecting the GDF to ensure the system is operating as certified. Part of the inspection procedure is to verify that the system is being operated free from the substantial equipment defects listed in Title 17. The purpose of these amendments is to set forth the major equipment defects in one location in order to enable both the district inspectors and GDF maintenance personnel to use their time more efficiently while inspecting the GDF.

The GDF operator can use this comprehensive list as a daily inspection tool to verify that the system is operating free from the listed defects as well as spot and correct potential problems.

Because each gasoline transfer leads to displaced vapors, the use of efficient vapor recovery equipment is essential throughout the gasoline marketing chain. Vapor recovery systems are divided into separate but dependant phases that are independently certified, as described below.

1. <u>Phase I Vapor Recovery</u>

As illustrated in Figure 1, Phase I vapor recovery is applied to gasoline transfer operations involving a cargo tank truck. The first transfer occurs when the cargo tank is filled with petroleum product at the loading rack of a refinery terminal or a bulk plant. While the cargo tank is filled, gasoline vapor from the cargo tank is recovered.

Phase I vapor recovery also includes the transfer from the cargo tank to the gasoline dispensing facility, or service station. Phase I vapor recovery is required throughout California and in most states.

2. Phase II Vapor Recovery

Phase II vapor recovery controls ROG emissions resulting from gasoline transfer operations at the GDF to vehicles. This is the vapor recovery equipment that many of us operate routinely when filling up our cars. The two main types of Phase II vapor recovery systems are “balance” and “vacuum assist.”

The balance systems can be identified by the long bellows or boot on the nozzle. The end of the bellows must make a good seal when the nozzle is dispensing fuel into the vehicle to ensure the vapor pushed out while filling the vehicle tank is routed back through the nozzle to the underground vapor space.

Assist system nozzles, in contrast, are often “bootless”. The vapors are collected through a series of holes in the spout, which vacuum up the vapors during a refueling. This requires use of an active vapor pump. Some assist systems also have processors to manage the underground vapor space pressure. Two currently certified systems operate with burners on or near the vent pipe in order to reduce emissions.

The proposed regulatory changes deal only with Phase I and Phase II vapor recovery systems at gasoline dispensing facilities.

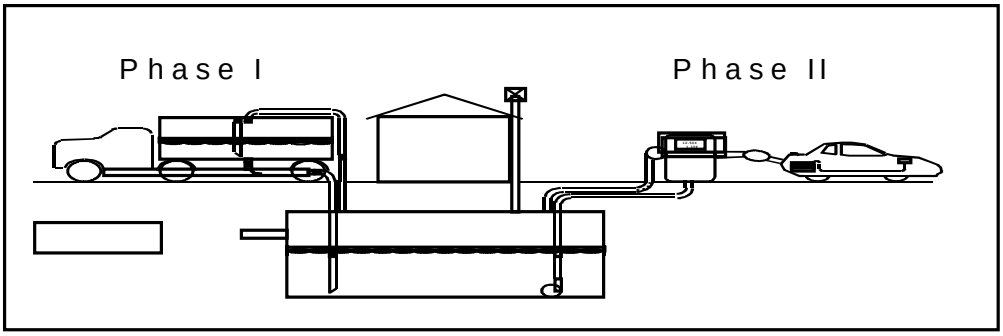


Figure 1: Phase I and Phase II Operations

The approximate ratio of balance to assist systems for some districts is given below:

Table II-1. Balance/Assist Stations by Air Pollution Control District
October 1998 District Survey

District	Number of Balance Stations	Number of Assist Stations
Amador	19	1
Bay Area	1747	600
Butte	1	3
Colusa	9	3
El Dorado	35	17
Feather River	41	14
Mendocino	26	19
Monterey Bay	180	66
North Coast	45	28
San Diego	867	72
San Joaquin	2426	197
San Luis Obispo	73	21
South Coast	2150	2150
Tuolumne	23	5
Ventura	243	93
Yolo-Solano	118	39
Totals:	5853	1178

As can be seen from this comparison, the ratio of assist to balance systems is five to one. Notably, the more expensive assist systems tend to be installed at higher throughput stations.

C. Proposed Amendments

Since 1982 the ARB has certified vapor recovery equipment and listed the significant defects associated with each of the systems in the Executive Order (E.O.) certifying the system. A number of significant defects that generally apply to all vapor recovery systems, regardless of manufacturer, have been set forth in section 94006 of Title 17 of the CCR. As directed by Assembly Bill 1164, which is set forth in its entirety in Appendix 3, the ARB has reviewed all current E.O.s in order to identify all of the defects that substantially impair the effectiveness of the systems in collecting gasoline vapors for inclusion into Title 17 CCR, section 94006. Several workshops and discussions were held to solicit input from air districts, manufacturers, and GDF operators on the proposed list. The proposed list of defects is titled “Vapor Recovery Equipment Defects List Title 17 Update”, which appears in Appendix 2 of this document. With the exception of the defects listed as applying to “All Systems/any E.O.” on the first page, each defect is system specific, unlike the existing 12 general defects presently in section 94006.

III. Recommendations

Staff recommends that the 12 defects now listed in Title 17 CCR, section 94006 be repealed from the regulation and the document titled “Vapor Recovery Equipment Defects List Title 17 Update” be adopted in their place. Also, due to the enormous amount of change expected in the vapor recovery field as pre-EVR systems are decertified and new EVR certification E.O.s are approved, staff recommends that the Board affirm its intent that the Executive Officer make changes to the section 94006 list as appropriate in accordance with the procedures specified in section 41960.2(c) of the HSC.

Volume II:

TECHNICAL SUPPORT DOCUMENT

I. Introduction

A. Overview

This Technical Support Document (TSD) contains the Air Resources Board (ARB or Board) staff's proposal for amending the regulation that lists Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Vehicle Fueling Operations, Title 17, California Code of Regulations (CCR), section 94006. This TSD contains the following information:

- Rationale for the proposed amendments
- Development of proposed amendments
- Emissions of vapor recovery equipment
- Proposed amendments
- Description of equipment defects
- Environmental impacts
- Economic impacts
- Future activities

These amendments update the section 94006 vapor recovery equipment defects list. The air quality management districts and air pollution control districts (districts) use section 94006 as guidance for enforcement actions against gasoline dispensing facility (GDF) operators with defective equipment. If a component exhibits a listed defect, the district is required to remove the defective vapor recovery equipment component from service (HSC 41960.2(d)) and may also issue a citation to the operator. Equipment that is not in good working order, but that does not exhibit a listed defect, may be repaired in seven days by the GDF operator (HSC 41960.2(e)).

B. Background

Vapor recovery systems have been used in California to control ROG, and specifically hydrocarbon (HC) emissions, for over twenty years. The feasibility of the first vapor recovery systems was studied at the district level, particularly in the San Diego and Bay Area districts, in the early 1970s. State law enacted in 1975, Health and Safety Code section 41954, requires the ARB to certify gasoline vapor recovery systems utilized for the control of vehicle refueling emissions at service stations. To accomplish this, the Board adopted the certification and test procedures set forth in Title 17, CCR, section 94000 et seq. Additionally, ARB must identify and list equipment defects that substantially impair the effectiveness of these systems and periodically update the list as appropriate (HSC sections 41960.2(c) and (d)). The defects have been encountered by the district inspectors and the ARB during the certification procedure or from field testing of equipment at service stations. The listed defects result in the generation of substantial excess emissions during the refueling process. For this reason, the districts are required to remove from service all equipment that has been determined to contain a listed defect or any equipment affected by defective equipment.

In 1982, the ARB compiled a list of defects for vapor recovery equipment and incorporated the list into Title 17 of the California Code of Regulations, section 94006. Despite the fact that the designs of the vapor recovery systems have changed significantly, this original list has never been revised. Equipment defects that the ARB has determined are significant and has identified subsequently are contained in the certification Executive Orders for each vapor recovery system, rather than being set forth in Title 17. As the technology of vapor recovery equipment has advanced since the 1982 defects list was developed, the number and complexity of the defects has increased such that the section 94006 list alone is no longer a useful comprehensive tool. Although there are currently almost 200 individual system certifications with up to 18 defects each, no central list of vapor recovery equipment defects exists. This rulemaking action will update and consolidate the defects list into one useful document, enhancing compliance efforts by the GDF operators and district enforcement.

C. Enabling Legislation

In 1999 the legislature adopted Assembly Bill 1164 requiring the ARB to update the list of equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants to reflect changes in equipment technology or performance. According to the sponsor, the Chevron Oil Corporation, the bill is intended to focus enforcement efforts for gasoline vapor control systems on significant defects and to result in more uniform enforcement of vapor recovery requirements. Updating the list will provide everyone involved in motor vehicle refueling vapor recovery with more accurate and current information regarding vapor recovery equipment defects.

AB 1164 also requires that at least once every three years the ARB shall review the list at a public workshop to determine whether a list update is necessary to reflect changes in equipment technology or performance (HSC 41960.2(c)(2)). Finally, AB 1164 authorizes the ARB Executive Officer to initiate public review of the list upon a written request regardless of the three-year time frame (HSC 41960.2(c)(3)). The request must demonstrate, to the Executive Officer's satisfaction, that such a review is needed, and if the Executive Officer determines that the list should be updated, the update must be completed within 12 months of the determination.

AB 1164 and other State laws pertaining to ARB’s responsibility to identify equipment defects for components used in vapor recovery systems are contained in Appendices 3 and 4, respectively.

II. Development of Proposed Amendments

A. Public Workshops

The Air Resources Board conducted three public workshops to review the defects list and to determine the need to update it. Workshop dates and locations are listed below:

Table II-1. Vapor Recovery Equipment Title 17 Update Public Workshops

Workshop Date	Location
December 13, 2000	Sacramento
May 22, 2001	Sacramento
August 16, 2001	Sacramento

1. Summary of the December 13, 2000 Workshop

The purpose of this meeting was to determine whether Title 17 needed updating to reflect changes in technology or performance and, if necessary, to list any defects not currently specified. Attendance included local regulatory agencies, California Air Pollution Control Officers Association (CAPCOA) representatives, equipment manufacturers, petroleum suppliers, and ARB staff.

A preliminary list of defects was presented at the workshop. This list included the defects already set forth in Title 17 and the Executive Orders. These defects fall into two categories: equipment not operating as certified and/or equipment not configured as certified. Because Title 17 was last updated in 1982 and does not reflect changes in technology or performance since that time, the ARB decision to augment the defects list was endorsed without opposition.

The remainder of the discussion addressed which defects met the statutory criterion of "substantial impairment of the effectiveness of the vapor recovery system in reducing air contaminants" to warrant inclusion on the list. After considerable deliberation, it was agreed that everyone with comments should submit them in writing by February 16, 2001.

2. Summary of the May 22, 2001 Workshop

Attendance at this second workshop included local regulatory agencies, California Air Pollution Control Officers Association (CAPCOA) representatives, equipment manufacturers, petroleum suppliers, and ARB staff. Further refinement of the vapor recovery equipment defects list was the goal.

The participants decided that the list should have a verification procedure for each defect, as a means of identifying the defect. A committee was formed to refine the list.

The question of whether or not Phase I equipment should be included on the defect list was raised. The existing regulation includes some Phase I components. Because Phase I components, when defective, can substantially impair the effectiveness of the vapor recovery system in controlling vapors resulting from motor vehicle fueling operations, the ARB determined that defects in Phase I components could be appropriately included on the list.

3. Summary of the August 16, 2001 Workshop

The drafted list of defects was presented by the ARB to representatives of local regulatory agencies, CAPCOA representatives, equipment manufacturers, and petroleum suppliers. Each page of the list was reviewed and suggestions were made to clarify language, measurements, and references. The "ring test" was added under "All Systems/any E.O." for all nozzles.

B. Meetings with Districts and Other Agencies

The Air Resources Board held presentations at five CAPCOA committee meetings on the vapor recovery equipment defects list update. CAPCOA committee titles, dates, and locations are listed below:

Table II-2. CAPCOA Vapor Recovery Equipment Title 17 Update Presentations

CAPCOA Committee	Date	Location
Vapor Recovery Committee	January 25, 2001	Monterey
Enforcement Managers Committee	April 12, 2001	Sacramento
Vapor Recovery Committee	April 26, 2001	Santa Barbara
Vapor Recovery Committee	July 23 & 24, 2001	Diamond Bar
Enforcement Managers Committee	July 23, 2001	San Luis Obispo

1. Summary of the January 25, 2001 CAPCOA Presentation

A copy of the draft list of the vapor recovery defects being considered for inclusion in section 94006 of Title 17 was presented to the CAPCOA Vapor Recovery Committee (government and industry). The list was essentially the same as the one presented at the December 13, 2000 workshop. Districts and industry professed that many of the problems listed as substantial defects did not warrant shutting down a fuel dispensing point. While the ARB agreed and explained that this list was preliminary and that many of the items on the list may be removed, the ARB made it clear that the districts and industry needed to take a proactive approach to determining which defects should or should not be listed based on the statutory criterion that any defect listed in section

94006 would be serious enough to engender the shut down of any fuel dispensing point until the defect was repaired (HSC 41960.2(d)).

2. Summary of the April 12 and 26, 2001 CAPCOA Presentations

A copy of the draft list of the vapor recovery defects was presented to the CAPCOA Enforcement Managers Committee meeting on April 12, 2001 and to the CAPCOA Vapor Recovery Committee meeting on April 26, 2001. This was a modified version of the list that was presented at the ARB workshop on December 13, 2000. The list incorporated comments made at the December 13, 2000 workshop; January 25, 2001 CAPCOA presentation; and subsequent letters, e-mail, and telephone calls. A major purpose of the discussion was to explain the changes to the list and to solicit additional district comments. In response, the districts requested a test procedure or other means of identifying each defect to be included each defect listed.

3. Summary of the July 23 and 24, 2001 CAPCOA Presentations

A copy of the draft list of the vapor recovery equipment defects was presented to the CAPCOA Enforcement Managers Committee meeting and to the CAPCOA Vapor Recovery Committee (government and industry) meeting on July 23 & 24, 2001. This was a slightly modified version of the list that was presented at the ARB workshop on May 22, 2001. A discussion was held at the CAPCOA meetings to explain the changes to attendees. Comments were solicited for inclusion prior to the August 10, 2001 list posting. ARB staff announced a third public workshop scheduled for mid August.

Other district meetings are listed below:

Table II-3. Other Local District Meetings

Title	Date	Location
Defects List Committee	June 22, 2001	Sacramento
Defects List Committee	June 26, 2001	Sacramento
APC/AQMD Districts	July 9, 2001	Diamond Bar

4. Summary of the July 9, 2001 APCD/AQMD District Meeting

On July 9, 2001 a working meeting was held with the South Coast Air Quality Management District (SCAQMD) and the San Diego Air Pollution Control District (SDAPCD). (The Bay Area Air Quality Management District (BAAQMD) and the Monterey Bay Unified Air Pollution Control District (MBUAPCD) were not able to attend as scheduled.) The purpose of this meeting was to sit down with the local districts to work on the defects list language. Because the districts are responsible for enforcing vapor recovery performance and maintenance requirements, they have a unique

working field knowledge in this area. Their practical experience was utilized to add a level of pragmatic conformity to the existing language.

At the May 22, 2001 workshop, a Defects List Committee was formed to meet at intervals between the public workshops to address comments and refine the defects list. Districts represented on the Committee were the BAAQMD, MBUAPCD, SCAQMD, and SDAPCD.

5. Summary of the June 22, and June 26, 2001 Defects List Committee Meetings

The latest draft list of the vapor recovery equipment defects was discussed by the Defects List Committee formed at the May 22, 2001 workshop. The committee includes ARB, AQMD/APCD representatives, equipment manufacturers, and trade groups representatives. The list was a modified version that was presented at the workshop. A verification procedure (means of identifying each defect) was included with each defect listed. Each defect and verification procedure was discussed in detail. Several verification procedures were changed to more accurately describe the best method of identifying specific defects. Defects that are not clearly a “taggable” violation (i.e. those justifying removal of the fueling point from service in accordance with HSC 41960.2(d)) were removed. Several defects were also moved from the general section to individual E.O.s because they are more system specific. And some wording was changed for clarity.

Telephone calls, e-mail, and person-to-person conversations have occurred between ARB staff and district staff. Recognizing the usefulness of an effective defects list, the ARB has tried to include district concerns, ideas, and solutions to the greatest extent possible.

C. Meetings with Industry Groups and Equipment Manufacturers

The inclusion of local enforcement/district staff has not been at the expense of the exclusion of vapor recovery industry groups and equipment manufacturers. Industry representatives were active members of the Defects List Committee and were invited to participate at the January 25, July 23, and July 24, 2001 CAPCOA Vapor Recovery Committee meetings.

Each faction of industry with interests in vapor recovery was represented at these CAPCOA meetings. They were given abundant opportunity to voice their concerns, which were heard and responded to. Industry was also invited, and did participate on the Defects List Committee. In fact, more committee members represented the vapor recovery industry than State and local government.

III. Proposed Amendments to CCR, Title 17 Section 94006

A. Introduction

In this section we describe the ARB's proposal to amend CCR, Title 17 Section 94006: Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Vehicle Fueling Operations.

Section 94006 as adopted in 1982 has ten defects listed 94006(a) through 94006(j). There are two subsections for 94006(c) and 94006(d). This designates a maximum total of 12 defects for all vapor recovery systems; even though, there are now two types of systems, which are fundamentally different. The two system types are balance and vacuum assist (sometimes referred to as vac-assist).

Since 1982 the ARB has certified vapor recovery equipment and listed the defects associated with these systems in the Executive Order (E.O.) certifying the system. As directed by Assembly Bill 1164, the ARB has reviewed all current E.O.s and listed the defects for inclusion into CCR, Title 17 Section 94006. As vapor recovery technology has changed since 1982, defects have become increasingly more system dependant, so that now it is not practical to list many defects for all systems. Detailed descriptions of each defect are described in section IV. of this document: Defect Description and Impact on Systems Efficiency.

B. Proposed Changes

Staff proposes to amend Section 94006 by replacing it with the document titled: "Vapor Recovery Equipment Defects List Title 17 Update". The defects from the original list adopted in 1982 are listed with the All Systems/any E.O. section or are relisted with their specific E.O. section. As the name implies, All Systems/any E.O. is for both balance and vacuum assist systems.

With the exception of the All Systems/any E.O. section, each part of the list describes defects for a specific system. Each defect listed in these parts is from the E.O. certifying the system. Each part is titled with the number of the E.O. certifying the system and the system's name.

New to section 94006 is a procedure for verifying each defect. On the last page of the Vapor Recovery Equipment Defects List Title 17 Update document is a list of each of these procedures and the full title of the method associated with the procedure.

IV. Defect Description and Impact on Systems Efficiency

A. Background

Section 41960.2 (c) (1) of the California Health and Safety Code (HSC) states, in pertinent part:

> "The executive officer of the state board shall identify and list equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants."

In addition section 41960.2 (d) of the HSC states:

> "When a district determines that a component contains a defect specified pursuant to subdivision (c), the district shall mark the component "Out of Order." No person shall use or permit the use of the component until the component has been repaired, replaced, or adjusted, as necessary, and the district has reinspected the component or has authorized use of the component pending reinspection."

Thus, any vapor recovery equipment that exhibits a defect on the Title 17, section 94006 list is a "taggable" condition, providing justification for the affected equipment to be removed from service. In addition, a district inspector may also issue a citation to the station operator and impose monetary penalties. (For defective equipment not listed in section 94006, enforcement actions proceed in accordance with HSC section 41960.2(e); see also, HSC section 41954 (i) regarding violations pertaining to vapor recovery efficiency.)

B. Description of Phase I and Phase II Vapor Recovery Systems

1. Phase I Vapor Recovery Systems

There are two basic types of gasoline vapor recovery systems. Phase I systems control the vapors generated by the fueling of underground storage tanks. The first Phase I systems were developed by the industry to prevent fires caused by gasoline deliveries to service stations. The heavier-than-air vapors displaced during fueling of storage tanks migrated along the ground and occasionally contacted an ignition source. In order to prevent this, tight fit fill connections were developed and the displaced vapors were dispersed through tall vent pipes. With the development of tight fit vapor connections, it became possible to return these vapors to the delivery truck. When the truck refuels at the loading rack, these vapors are again displaced to a process unit where they are condensed or incinerated. Tests of Phase I vapor recovery systems in

service stations have shown that a performance standard of 95 percent control during filling of the tanks can be met or exceeded.

The vapor recovery system of a cargo tank includes hoses, valves, piping, connectors and the tank itself, all of which are more subject to damage than the fixed facilities at terminals, bulk plants and service stations. State law requires the certification of all cargo tanks annually. In order to be certified, a cargo tank must pass three tests to show that it meets certain leak-rate criteria: a pressure test, a vacuum test, and a test of the internal vapor valve.

2. Phase II Vapor Recovery Systems

Phase II vapor recovery systems control vapors generated during the refueling of vehicle tanks. Unlike the tight-fit connectors typical of Phase I systems, Phase II systems must work effectively with a variety of vehicle fillpipes. The vapors generated during refueling are captured by the nozzle and flow through a vapor passage in the nozzle into a vapor hose and then through system plumbing back to the underground storage tank. The gasoline withdrawn from the storage tank creates a void in the tank, which is filled by these returned vapors.

The Phase II vapor recovery systems used in California today have been certified to be at least 95 percent effective in controlling emissions generated by vehicle refueling (see HSC 41954). The two basic types of Phase II vapor recovery systems are known as “balance” and “vacuum assist”. Balance systems use the pressure created in the vehicle tank by the incoming liquid gasoline to force vapors through the nozzle bellows, through the vapor passage and into the underground storage tank. For the balance system to work effectively, it is important that a tight seal be created at the nozzle/fillpipe interface to minimize vapor leakage to the atmosphere. Vacuum assist systems use a vacuum generating device to draw vapors from the vehicle tank fillpipe into the nozzle and then through the vapor passage into the underground storage tank. Assist systems capture vapors without the need for a tight seal at the nozzle/fillpipe interface because the vapors are pulled rather than pushed into the system. Because a tight seal is not necessary with vacuum assist systems, the nozzles are generally easier to insert into the fillpipe.

Within these system types, there are many components that may be used with different systems within a particular system type and/or within the different types of Phase II systems. The defects for these components are the same for all system types. As a matter of expediency, the component defects that are common to all system types and/or are common within a particular system type will be addressed first. Those defects that are specific to particular Executive Orders shall be addressed separately.

C. System Defects - For All Phase II Vapor Recovery Systems

1. Absence of or Disconnection of Any Component Required to be Used in the Executive Order(s) of That Certified System

All vapor recovery systems are a collection of different components, which work in conjunction to collect and contain gasoline vapors generating during motor vehicle refueling operations. The absence or disconnection of any component can compromise the systems ability to efficiently collect and/or contain these vapors.

2. Installation or Use of Any Uncertified Component

Vapor recovery systems are certified using specific equipment which has met or exceeded performance specifications and standards during certification testing. The use of uncertified components may compromise a vapor recovery system's efficiency by not meeting these performance standards and specifications.

3. Exceeding Vapor Return Line Backpressure Limits

Vapor recovery systems have vapor return lines to provide a pathway for vapors to flow between the nozzles and the gasoline storage tanks. Through these lines gasoline vapors are contained and transferred. Backpressure or resistance to flow in these lines inhibits a vapor recovery system's ability to effectively collect gasoline vapors. If the backpressure exceeds the pressure limits for the system by a factor of two or more, the vapor recovery efficiency of the system can fall below allowable limits.

4. Gasoline Flow Rates Outside Range Specified in the Executive Order or Less than 5 GPM, Whichever Is Greater

Phase II gasoline Vapor recovery systems are certified at a specified flow rate range. Vapor recovery efficiency is adversely affected when flow rates fall below the range specified in the Executive Order.

5. Gasoline Flow Rates Greater Than 10.0 GPM

Gasoline flow rates greater than 10.0 GPM increase the possibility of splashback and spillage during motor vehicle fueling. This adversely affects the overall efficiency of gasoline vapor recovery because any amount of fuel spilled on the ground or on the side of a motor vehicle creates vapors which cannot be captured or contained.

D. Nozzle Defects

1. Defects For All Nozzle Types

Automatic Liquid Shut-off Mechanism Malfunction

The automatic liquid shut-off mechanism prevents overfilling of a vehicle fuel tank by sensing fuel rising up in the fill pipe as the liquid level of the gasoline reaches the top of the tank during dispensing and shutting the nozzle off before liquid reaches the fillpipe opening. Failure of the automatic shut-off mechanism can result in a vehicle fuel tank being overfilled, resulting in liquid gasoline being spilled onto the vehicle and the ground. Evaporation of the liquid results in increased hydrocarbons in the atmosphere.

Ring Test Failure

Code of Federal Regulation 40, Subpart B - Controls and Prohibitions, § 80.22, (2) states the following:

Each nozzle from which unleaded gasoline is dispensed into motor vehicles shall be equipped with a nozzle spout that meets the following specifications:

(i) The outside of the terminal end shall not be greater than 0.84 inches:
(ii) The terminal end shall have a straight section of at least 2.5 inches in length; and
(iii) The retaining spring shall terminate 3.0 inches from the terminal end.

The "Ring Test" refers to the use of an aluminum or stainless steel ring with an inside diameter of 0.84 inches. The ring is placed over the terminal end of the spout and must be able to traverse the entire length of the terminal end of the spout, a minimum of 2.5 inches in length. Any nozzle not capable of meeting this specification shall be tagged out of order.

2. Balance Type Vapor Recovery Nozzle Defects

Damage to Nozzle Boot or Faceplate

Balance nozzles have a flexible bellows (boot) and a semi-rigid rubber faceplate, which makes a seal with the vehicle fillneck opening during refueling. This seal is necessary for a balance system to operate efficiently during vehicle refueling operations. Damage to either the boot or the faceplate, such as rips, tears, and holes, compromise the seal between the nozzle and the vehicle fillneck opening resulting in a loss of gasoline vapor to the atmosphere and a lower overall system efficiency.

Insertion Interlock Mechanism Failure

All balance type nozzles are equipped with insertion interlocks. Insertion interlocks are an integral part of bellows-equipped nozzles and they prohibit the dispensing of fuel unless the bellows is compressed. This in turn helps ensure that the nozzle faceplate makes a seal with the vehicle fuel neck opening prior to gasoline being dispensed. Failure of the insertion interlock mechanism can result in the dispensing of fuel into a vehicle fillneck without the proper seal being established. This can result in gasoline vapors escaping to the atmosphere during fueling or the accidental discharge of liquid gasoline if the nozzle trigger is engaged prior to the nozzle being inserted into the vehicle fillneck opening.

Defective Nozzle Vapor Check Valve

Balance type vapor recovery nozzles are equipped with internal vapor check valves. The internal vapor check valve opens as the nozzle is inserted into the vehicle fillneck opening and allows vapor to flow through the nozzle and back into the underground storage tank (UST). As the nozzle is removed from the vehicle fillneck opening the internal vapor check valve closes preventing the captured vapor from escaping to atmosphere. Failure of the nozzle check valve can result in the gasoline storage tanks venting vapors to atmosphere through the nozzle thereby lowering the system's overall vapor collection efficiency.

3. Vacuum Assist Type Vapor Recovery Nozzle Defects

Defective Nozzle Vapor Check Valve

Most vacuum assist type vapor recovery nozzles are equipped with internal vapor check valves. The internal vapor check valve opens as fueling is initiated by squeezing the nozzle trigger. The internal vapor check valve prevents vapor captured during refueling from escaping to atmosphere. Failure of the nozzle check valve can result in the gasoline storage tanks venting vapors to atmosphere through the nozzle thereby lowering the system's overall vapor collection efficiency.

Blocked Vapor Holes On Nozzle Spout

Some vacuum assist type vapor recovery nozzles use coaxial spouts through which gasoline is dispensed into vehicle fuel tanks through the center fuel tube in the spouts. Vapors are collected through a series of holes in the outer spout diameter and returned to the refueling facility's storage tanks. For each vacuum assist system type utilizing coaxial spouted nozzles, there are a minimum number of unblocked vapor holes allowed for each specific model of nozzle used for that system. Blockage of the vapor holes on the nozzles restricts the amount of vapors the nozzles are able to collect during refueling operations and lower the overall efficiency of the Phase II system.

Damaged, Torn or Missing Miniboots

Most vacuum assist type nozzles have small miniboot type devices that are mounted near the base of the nozzle spout. These miniboots are referred to by different names according to different manufacturers: Efficiency Compliance Device (ECG), Vapor Escape Guard (VEG), or Miniboot. The miniboot helps contain vapors within the nozzle spout/vehicle fillneck interface during refueling which allows the vacuum assist system to more readily collect them. Miniboots damaged or torn to various degrees or miniboots that are missing can allow vapors to escape to atmosphere before the vacuum assist system can capture them, thereby lowering the overall collection efficiency of the system.

E. Standard Coaxial Hoses: Description and Defects

Standard coaxial hoses consist of an inner hose though which gasoline flows and an outer hose that transfers vapors from the vehicle back to the gasoline storage tanks. Standard coaxial nozzles are required on all balance type vapor recovery systems and a few vacuum assist type systems. The design of the hose provides a large unrestricted path for vapors to flow from the nozzle faceplate/vehicle fillneck interface back to the storage tank.

1. Holes, Rips and Tears

Any hole, rip, or tear in a standard coaxial hose, compromises the vapor integrity of the overall Phase II vapor recovery system by allowing vapors to escape directly to atmosphere, thereby reducing the overall efficiency of the system.

2. Greater Than 100 ml of Liquid in the Vapor Path

Liquid in the vapor path of a standard coaxial hose increases the backpressure through the hose during refueling events and lowers the overall system efficiency through the buildup of this pressure. Instead of returning to the storage tank, vapors escape to atmosphere.

F. General Vacuum Assist Defects

1. A/L Ratio Failure

Air-to-Liquid (A/L) ratio for a vacuum assist system is the ratio between the amount of gasoline dispensed to the amount of air/vapor the system pulls back during dispensing. An A/L ratio of 1.0 means that for every gallon of gasoline dispensed, a gallon of air/vapor is collected and returned to the storage tanks.

Each vacuum assist system is certified with an A/L ratio of a certain range. For most systems, this range is approximately 0.90 to 1.10. A measured A/L ratio that is below the range certified for a system may indicate that the fueling point is not collecting all of the vapors generated during refueling and these vapors are possibly escaping to atmosphere. On the other side of the range, a measured A/L ratio that is higher than the range certified with the system may indicate that the fueling point is drawing back more air than necessary which could lead to pressurization of the gasoline storage tanks and an increase in fugitive emissions.

G. System Specific Failures

1. G-70-7-AD Hasstech VCP-2 and VCP-2A

Collection Unit Inoperative Concurrent With Dispensing

The Hasstech VCP-2 and VCP-2A systems use a central vacuum source, which generates the necessary vacuum to maintain the proper A/L ratio for the system. If the collection unit is inoperative there will be no vapor collection occurring during dispensing.

Dispensing When Processing Unit is Disabled or Inoperative

The Hasstech VCP-2 and VCP-2A systems use a processor to destroy, by burning, the collected vapors from vehicle refueling operations. If the processor is inoperative, the collected vapors will increase the gasoline storage tank ullage pressure and lead to fugitive emissions.

Processor Emissions Which Exceed Ringelmann ½ or 10% opacity

The Ringelmann chart is a tool used to measure the opacity of emissions to the atmosphere. A Ringelmann number greater than ½ is an indication that the processor is operating incorrectly and needs repair.

2. G-70-164-AA Hasstech VCP-3A

Collection Unit Inoperative Concurrent With Dispensing

The Hasstech VCP-3A systems use a central vacuum source, which generates the necessary vacuum to maintain the proper A/L ratio for the system. If the collection unit is inoperative there will be no vapor collection occurring during dispensing.

Vacuum Measured at Collection Unit Inlet Less than 30 inches water column When Unit is Operating

Vacuum levels less than 30 inches water column at the collection unit inlet are an indication that the system does not have sufficient vacuum to maintain the correct A/L ratio at the nozzles during dispensing.

Dispensing When Processing Unit is Disabled or Inoperative

The Hasstech VCP3A systems use a processor to destroy, by burning, the collected vapors from vehicle refueling operations. If the processor is inoperative, the collected vapors will increase the gasoline storage tank ullage pressure and lead to fugitive emissions.

Processor Emissions Which Exceed Ringelmann ½ or 10% Opacity

The Ringelmann chart is a tool used to measure the opacity of emissions to the atmosphere. A Ringelmann number greater than ½ is an indication that the processor is operating incorrectly and needs repair.

20 Consecutive Unsuccessful Attempts to Ignite the Processor

This would be an indication that the processor is malfunctioning.

Ratio of Process Unit /Solenoid Valve Time Less Than 0.90

This would be an indication that the processor is malfunctioning.

3. <u>G-70-165 Healy Model 600</u>

Dispensing With Central Vacuum Unit Disabled

The Healy Model 600 System utilizes a central vacuum device to generate the required vacuum to collect vapors. If dispensing occurs while this unit is disabled, there will be no vapor collection occurring during dispensing.

Vacuum Levels Outside Specified Range for More that 15 Seconds Measured During Dispensing

Vacuum levels outside the specified range during dispensing can be an indication of a problem with either the central vacuum pump or a problem with the hi-vacuum portion of the vapor return lines. This can lead to increased emission.

Dispensing While Any In-line Ball Valve Is Closed

All Healy central vacuum systems have in-line ball valves mounted in the hi-vacuum portion of the vapor return lines. These ball valves are closed only during testing of the system. If a ball valve is closed during dispensing, no vapor recovery will take place.

4. G-70-177-AA Hirt VCS400-7

Dispensing When Processing Unit Is Disabled or Inoperative

The Hirt VCS400-7 system uses a processor to create a vacuum on the underground storage tanks and vapor return lines. This vacuum provides the necessary driving force for the system to collect refueling vapors. If the processor is inoperative, there is no vacuum for the system to collect vapors and there will be an increase in emissions during vehicle refueling.

5. G-70-186 Healy Model 400 ORVR

Dispensing With Central Vacuum Unit Disabled

The Healy Model 400 ORVR System utilizes a central vacuum device to generate the required vacuum to collect vapors. If dispensing occurs while this unit is disabled, there will be no vapor collection occurring during dispensing.

Vacuum Levels Outside Specified Range for More than 15 Seconds Measured During Dispensing.

Vacuum levels outside the specified range during dispensing can be an indication of a problem with either the central vacuum pump or a problem with the hi-vacuum portion of the vapor return lines. This can lead to increased emissions during vehicle refueling.

6. G-70-187 Healy 400 ORVR AGT

Vacuum Levels Outside Specified Range For Given Conditions Measured During Dispensing.

Vacuum levels outside the specified range during dispensing can be an indication of a problem with either the central vacuum pump or a problem with the hi-vacuum portion of the vapor return lines. This can lead to increased emissions during vehicle refueling.

7. G-70-192 Healy Model 400 ORVR for Existing AGT

Less than 2 100 Jet Pumps per Nozzle for the Healy 400 ORVR Nozzles

The Healy Model 400 ORVR for existing above ground tank installations requires a minimum of 2 Healy 100 Jet pumps to provide enough vacuum for the nozzle to collect vapors efficiently.

8. G-70-193 Hill-Vac

Dispensing When Either Jet Pump is Disabled

Two Healy 100 jet pumps are required to provide enough vacuum for the nozzle to collect vapors efficiently.

Vacuum Levels Outside Specified Range For Given Conditions Measured During Dispensing

Vacuum levels outside the specified range during dispensing can be an indication of a problem with either the central vacuum pump or a problem with the hi-vacuum portion of the vapor return lines. This can lead to increased emissions during vehicle refueling.

Dispensing While Any In-line Ball Valve is Closed

If any in-line ball valve is closed during dispensing, there is no vapor recovery.

V. Environmental Impacts

A. Summary of Environmental Impacts

This section contains the ARB staff's assessment of the potential environmental impacts that would result from adoption of the proposed amendments to the regulation pertaining to Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Fueling Operations Section. Both the California Environmental Quality Act (CEQA) and Board policy require ARB to consider the potential adverse environmental impacts of proposed regulations. ARB staff evaluated the potential environmental impacts of the regulation, including its impact on ground-level ozone, particulate matter, toxicity, global warming, stratospheric ozone depletion, water quality, and solid waste disposal. We also evaluated the impact on the emission reduction commitments contained in the State Implementation Plan (SIP) for ozone. In addition, the ARB will respond in writing to all significant environmental points raised by the public during the public review period or at the Board hearing. These responses will be available prior to final adoption of the regulation and will be set forth in the Final Statement of Reasons for the modifications to this regulation.

To summarize the results of the assessment, ARB staff found that the proposed amendments should not result in an increase or decrease excess emissions. No adverse environmental impacts are expected to result from the proposed amendments to CCR, Title 17, section 94006. Because no potential adverse impacts are expected, the focus of the following analysis will be on benefits.

B. Legal Requirements for Assessing the Environmental Impacts

Public Resources Code section 21159 (Analysis of Methods of Compliance) requires that the environmental impact analysis conducted by ARB for new regulatory requirements include the following:

- an analysis of the reasonably foreseeable environmental impacts of the methods of compliance (Section C);
- an analysis of reasonably foreseeable feasible mitigation measures (Section D); and,
- an analysis of reasonably foreseeable alternative means of compliance with the rule or regulation (Section E).

C. Potential Environmental Impacts

1. Impact on Ground-Level Ozone and Water Quality

The proposed amendments would have a minimal to slightly beneficial impact on ground level ozone and water quality. The defects being added to the list in Title 17 CCR, section 94006 are currently contained in the existing regulatory provision or in Executive Orders (E.O.s) certifying vapor recovery systems, and as such are already enforceable. By combining the defects into a single list enforcement should be strengthened and compliance should become less difficult.

Consistent enforcement may help identify components with short lifecycles and discourage their use. This should have some effect in the replacement of inferior products and provide manufacturers with an incentive to raise quality. Improved equipment, through increased compliance and stronger enforcement, should decrease emissions.

2. Impact On Global Warming and Stratospheric Ozone Depletion

The use of vapor recovery equipment does not alter carbon dioxide, CFC type, or related compounds emissions; therefore, no impact on global warming or stratospheric ozone depletion is expected.

3. Impact on Particulate Matter (Aerosols)

The proposed amendments are not likely to cause an increase in the formation of particulate matter (PM), particularly secondary organic aerosols. Secondary organic

aerosols are usually formed from the photo-oxidation of organic compounds with carbon numbers equal to seven or more.

4. Impact on Toxic Air Contaminants

Any impact the proposed amendments would have on emissions of toxic air contaminants (TACs) should be favorable to a reduction of TACs. This is because the defects list facilitates enforcement of vapor recovery requirements. In accordance with the requirements of section 41960.2 (d) of the HSC, Title 17, CCR, section 93101(d) states:

> No owner or operator shall use or permit the use of any Phase II system or any component thereof containing a defect identified in Title 17, California Code of Regulations, section 94006 until it has been repaired, replaced, or adjusted, as necessary to remove the defect, and, if required under Health and Safety Code Section 41960.2, district personnel have reinspected the system or have authorized its use pending reinspection.

The use of improved and better-maintained equipment, with increased compliance and stronger enforcement, should decrease TAC emissions.

5. Impact On Solid Waste Disposal

The impact on solid waste disposal should be somewhat favorable at best or minimal at worst. If improved enforcement and increased compliance causes manufacturers raise product quality and durability, fewer defective parts will make their way into landfills. Manufacturers now reuse parts of many components. With more durable products this practice should increase, leading to even less material being discarded.

D. Mitigation Measures

ARB staff has not identified any adverse environmental impact that would result from the proposed amendments. No mitigation measures are necessary.

E. Evaluation of Alternatives

An alternative to updating the defects list in section 94006 is to do nothing. This has been the approach used since the adoption of the original regulation in 1982 and led to the passage of Assembly Bill 1164. This lack of action perpetuated the decentralization of defects specification (i.e. in the myriad of Executive Orders) making both compliance and enforcement more difficult and inconsistent among the air districts.

Section 41960.2(c)(2) of the Health and Safety Code, states:

> On or before January 1, 2001, and at least once every three years thereafter, the list required to be prepared pursuant to paragraph (1) shall be reviewed by the

executive officer at a public workshop to determine whether the list requires an update to reflect changes in equipment technology or performance.

At the December 13, 2000 workshop, after the participants discussed the “no-action” alternative, there was unanimous agreement that the list needed to be updated.

The first update draft defects list was overinclusive, and included anything that might be considered a defect whether or not it substantially impaired the effectiveness of the vapor recovery systems in reducing HC emissions. From this first list a number of successive alternatives have been developed. Each alternative list has been evaluated by multiple public and private meetings. The list presented to the Board is based on these progressive evaluations of options.

F. Impact on the State Implementation Plan for Ozone

1. Background

The 1994 SIP for Ozone is California’s master plan for achieving the federal ozone standard in six areas of the State by 2010. The SIP includes State measures to control emissions from motor vehicles and fuels, consumer products and pesticide usage, local measures for stationary and area sources, and federal measures for sources under exclusive or practical federal control. The U.S. EPA approved the 1994 SIP in September 1996 (62 Federal Register 1150-1201 (January 8, 1997)).

Once U.S. EPA approved the 1994 SIP, the emission inventories and assumptions used in it are frozen until the SIP is formally amended. That is, evaluations of the impacts on the 1994 SIP of new measures or modifications to existing measures must use the same emission inventories and assumptions used in developing the 1994 SIP. As ARB has implemented the SIP over the last five years, some measures have delivered more reductions than anticipated, while other measures have delivered fewer reductions, due to technological, economic, social, and other contingencies associated with the implementation of a regulatory plan or program.

2. SIP Lawsuit Settlement

In 1997, a lawsuit was filed against the South Coast Air Quality Management District, ARB, and U.S. EPA by three Los Angeles based environmental groups for failure to implement specific measures contained in the 1994 SIP (Coalition for Clean Air v. South Coast Air Quality Management District). In January 1999, the Board approved a settlement regarding ARB’s portion of the SIP litigation. The lawsuit settlement addresses near-term emission reduction shortfalls of 42 tpd of ROG and 2 tpd of NOx in the South Coast Air Basin in 2010. ARB must implement programs over the next few years to achieve the specific emission reduction goals outlined in the lawsuit settlement agreement.

3. Impacts of Proposed Amendments

The proposed amendments should be beneficial to the vapor recovery effort by enhancing compliance and enforcement. The emissions reductions attributed to the vapor recovery program are currently set forth in the SIP and are not being amended. By combining the defects into a single list strengthening enforcement and increasing the ability to comply, meeting the existing SIP commitments should be more achievable in practice.

VI. Economic Impacts

A. Background

In general, economic impact analyses are inherently imprecise, especially given the unpredictable behavior of companies in a highly competitive market such as gasoline marketing and distribution. Some projections are necessarily qualitative and based on general observations and facts known about the gasoline marketing and distribution industry. This impacts analysis, therefore, serves to provide a general picture of the economic impacts typical businesses might encounter in light of the compliance and enforcement repercussions of the proposed amendments. We recognize that individual companies may experience different (or no) impacts than projected in this analysis.

Overall, the proposed amendments are not expected to impose an unreasonable cost burden on gasoline dispensing equipment manufacturers, component suppliers, or gasoline dispensing facilities (GDF). Most of the major manufacturers are located outside of California although some may have small operations in the State. GDFs are local business by nature, and all affected GDFs are California-based.

B. Potential Impact on Business

The ARB expects no significant adverse impacts on manufacturers' profitability, employment in California, the status of California businesses, or competitiveness of California businesses with businesses in other states. Most of the GDFs in California are subject to an annual compliance inspection by the district. The proposed amendments are mainly a listing of known equipment defects identified by ARB in existing executive orders and currently enforceable by the districts. A concise reference for detection of vapor recovery equipment defects ensures uniform enforcement across the State and provides preventative maintenance guidance for service station operators. A greater understanding of the defects for vapor recovery systems will reduce the need for more stringent standards in the future, thereby lowering the compliance costs to California operators. Given these projections, the Executive Officer has determined that adoption of the proposed regulatory action does affect small business, but beneficially.

In accordance with the California Administrative Procedure Act section 11346.3 (b), the Executive Officer has determined that adoption of the proposed regulatory action should have no impact on the creation or elimination of jobs within the State of California, the creation of new business or elimination of existing business within California, or the expansion of business currently doing business in California.

C. Cost to State Agencies and Local Government

The proposed regulatory action will not create any fiscal impacts or mandate to any local governmental agency or school district whether or not reimbursable by the State pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other non-discretionary savings to local agencies, nor will the proposed regulatory action create costs or savings to any State agency. Programs are currently in place to identify vapor recovery equipment defects as systems are certified. Resources are also available for completing future reviews and revisions of the list.

VII. Future Activities

A. AB1164 Requirements

In 1999, Assembly Bill 1164 amended Health and Safety Code Section 41960.2 (c)(2) to require the Executive Officer of the ARB to review the California Code of Regulations (CCR), Title 17, Section 94006 (vapor recovery equipment defects) at a public workshop at least once every three years to determine whether a list update is necessary to reflect changes in equipment technology or performance. It also authorizes the executive officer to initiate public review of the list upon a written request. The request must demonstrate, to the Executive Officer's satisfaction, that such a review is needed. Also, if the Executive Officer determines that the list should be updated, the update must be completed within 12 months of the determination. Because of the rapid technological change in vapor recovery equipment, ARB staff anticipate these update requirements will generate changes to the defects listed every three years if not more often.

B. Decertification of Pre-EVR Systems

In March of 2000, the ARB adopted new standards for vapor recovery equipment certification. The new standards are referred to collectively as Enhanced Vapor Recovery (EVR). Each Executive Order (E.O.), with the exception of VR-101-A (the Phil-Tite Phase I E.O.), listed in the proposed new amendments is scheduled to be decertified by April 1, 2007. VR-101-A is the first EVR E.O. As the old equipment components in the E.O.s are decertified, any defect listed will no longer be applicable and should be removed from section 94006, Title 17, CCR.

C. EVR Executive Orders with Defects Listed

Just as there are a number of substantial equipment defects listed with the existing pre-EVR systems, a number of defects associated with the newly certified EVR systems will need to be added to Title 17 as the new components are certified. These new defects will initially be listed in each E.O. and will require periodic amendments to section 94006 of Title 17, CCR. ARB staff is requesting the Board to direct the Executive Officer to keep the list current and periodically update Title 17 as necessary.

LIST OF REFERENCES

1. Determination (by Volume Meter) of Air to Liquid (A/L) Volume Ratio of Vapor Recovery Systems of Dispensing Facilities, Adopted April 12, 1996 (TP201.5)

2. Determination of Dynamic Pressure Performance of Vapor Recovery Systems of Dispensing Facilities (TP201.4)

3. Determination of Two-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities (TP201.3)

4. Bag Test for Multi-Nozzle Vacuum Assist Systems (GDF-01)

5. Pressure Integrity Performance Verification for Vacuum Assist Systems (Squeeze Bulb Test - GDF-03)

6. 40 Code Federal Regulations Part 60 Appendix A: Reference Method 9/EPA Section 3.12 Visible Determination of the Opacity of Emissions from Stationary Sources (Method 9)

7. 40 Code Federal Regulations Part 80 Section 80.22 (f)(2) (Ring Gage Test Specifications)

8. G-70-186-187 Exhibit 5 Fillneck Vapor Pressure Regulation Fueling Test

9. EPO No. 26-F-1 Vapor Recovery Systems Field Compliance Testing

10. Pressure Integrity of Drop Tube/Drain Valve Assembly (TP201.1C)

11. Static Torque of Rotatable Phase I Adapters (TP201.1B)

APPENDIX 1: PROPOSED AMENDMENTS TO THE CALIFORNIA CODE OF REGULATIONS

PROPOSED REGULATION ORDER

Note: The text of the proposed amendments is shown in underline to indicate additions and in ~~strikeout~~ to indicate deletions.

Amend section 94006, title 17, California Code of Regulations, to read as follows:

§94006. Defects Substantially Impairing the Effectiveness of Vapor Recovery Systems Used in Motor Vehicle Fueling Operations.

For the purposes of Section 41960.2 of the Health and Safety Code, the following constitute equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations which substantially impair the effectiveness of the systems in reducing air contaminants:

(a) Incorporated by reference: Vapor Recovery Equipment Defects List Title 17 Update Dated August 21, 2001. ~~Absence or disconnection of any component required to be used in the Executive Order(s) that certified the system.~~

~~(b) A vapor hose which is crimped or flattened such that the vapor passage is blocked, or the pressure drop through the vapor hose exceeds by a factor of two or more the requirements in the system certified in the Executive Order(s) applicable to the system.~~

~~(c) A nozzle boot which is torn in one or more of the following manners:~~
~~(1) Triangular-shaped or similar tear 1/2 inch or more to a side, or hole 1/2 inch or more in diameter or,~~
~~(2) Slit 1 inch or more in length.~~

~~(d) Faceplate or flexible cone which is damaged in the following manner:~~
~~(1) For balance nozzles and for nozzles for aspirator and eductor assist type systems, damage shall be such that the capability to achieve a seal with a fill pipe interface is affected for 1/4 of the circumference of the faceplate (accumulated).~~
~~(2) For nozzles for vacuum assist-type systems, more than 1/4 of the flexible cone missing.~~

~~(e) Nozzle shutoff mechanisms which malfunction in any manner.~~

~~(f) Vapor return lines, including such components as swivels, anti-recirculation valves and underground piping, which malfunction or are blocked, or restricted such that pressure drop through the lines exceeds by a factor of two or more requirements specified in the Executive Order(s) that certified the system.~~

~~(g) Vapor processing unit which is inoperative or severely malfunctioning.~~

~~(h) Vacuum producing device which is inoperative or severely malfunctioning.~~

~~(i) Pressure/vacuum relief valves, vapor check valves, or dry breaks which are inoperative.~~

~~(j) Any equipment defect which is identified in an Executive Order certifying a system pursuant to the Certification Procedures incorporated in Section 94001 of Title 17, California Administrative Code, as substantially impairing the effectiveness of the system in reducing air contaminants.~~

~~All nozzles affected by the above defects are to be considered defective.~~

Authority cited: Sections 39600, 39601 and 41960.2, Health and Safety Code.
Reference: Sections 41954 and 41960.2, Health and Safety Code.

APPENDIX 2: VAPOR RECOVERY EQUIPMENT DEFECTS LIST
TITLE 17 UPDATE
MODIFIED AUGUST 21, 2001

Vapor Recovery Equipment Defects List Title 17 Update
Modified August 21, 2001

All Systems/any E.O.		
equipment	defects	verification procedure
general	any equipment defect which is identified in an Executive Order (E.O.) certifying a system pursuant to the Certification Procedures incorporated in Section 94001 of Title 17, California Administrative Code	as per applicable E.O.
	absence or disconnection of any component required to be used in the E.O.(s) that certified the system	direct observation
	installation or use of any uncertified component	direct observation
	dispensing rate greater than ten gallons per minute (10.0 gpm) or less than the greater of five (5.0) gpm or the limit stated in the E.O. measured at maximum fuel dispensing	direct measurement for 60 seconds minimum
	phase I vapor poppet inoperative	direct observation
nozzles	nozzle automatic liquid shutoff mechanisms which malfunction in any manner	EPO No. 26-F-1/direct observation
	spout does not meet roundness specifications described in 40 CFR, Part 80, Section 80.22 (f)(2)	ring gage test/direct measurement

G-70-7 series Hasstech VCP-2 and VCP-2A		
equipment	defects	verification procedure
system	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	defective vapor valve	GDF-01/GDF-03
hoses	any coaxial hose with a perforation exceeding one-eighth (0.13) inch diameter	direct measurement/ observation
	any coaxial hose with slits or tears in excess of one-fourth (0.25) inch in length	direct measurement/ observation
processing unit	three consecutive unsuccessful attempts to ignite the incinerator which occur at least two hours after a bulk delivery	direct measurement/ observation/system monitor observation
	unit does not activate when the system pressure reaches or exceeds two (2.0) inches water column and occurs at least two hours after a bulk delivery	direct measurement using storage tank pressure device
	emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery	Method 9
	vapor processing unit inoperative	direct observation
collection unit	vacuum producing device inoperative	direct observation

G-70-14 series Red Jacket	G-70-17 series Emco Wheaton	G-70-23 series Exxon
G-70-25 series Atlantic Richfield	G-70-33 series Hirt	G-70-36 series OPW
G-70-38 series Texaco	G-70-48 series Mobil	G-70-49 series Union
G-70-52 series Red Jacket, Hirt	G-70-53 series Chevron	G-70-78 series EZ-flow rebuilds
G-70-107 series Rainbow rebuilds	G-70-125 series Husky Model V	G-70-127 series OPW 111V
G-70-134 series EZ-flow rebuilds	G-70-170 series EZ-flow rebuilds	

equipment	defects	verification procedure
nozzles	any nozzle boot torn in one or more of the following manners: a triangular-shaped or similar tear one-half (0.50) inch or more on any side, or hole one-half (0.50) inch or more in diameter, or slit one (1.0) inch or more in length	direct measurement/ observation
	any faceplate or flexible cone damaged in the following manner: for balance nozzles and for nozzles for aspirator and eductor assist type systems, damage such that the capability to achieve a seal with a fill pipe interface is affected for one-fourth (0.25) of the circumference of the faceplate (accumulated)	direct measurement/ observation
	flexible cone damaged in the following manner: for booted type nozzles for vacuum assist-type systems, more than one-fourth (0.25) of the flexible cone missing	direct measurement/ observation
	insertion interlock mechanism which will allow dispensing when the bellow is uncompressed	direct observation
hoses	any coaxial balance hose with 100 ml or more liquid in the vapor path	direct measurement
	any hose with a visible opening	direct observation
processing unit	vapor processing unit inoperative	direct observation
vapor return lines	pressure drop through the vapor path exceeds by a factor of two or more requirements specified in the Executive Order(s) that certified the system	TP201.4 or equivalent

G-70-118 series Amoco V-1		
equipment	defects	verification procedure
system	defective vapor valve	GDF-01/GDF-03
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
Husky V-1 nozzle	efficiency compliance device (ECD) damaged such that at least one eighth (0.13) of the diameter is missing	direct measurement/ observation
	less than two unblocked vapor holes	direct observation
OPW 11-VAA nozzle	any ECD damaged such that a slit from the outer to inner edge exists	direct measurement/ observation
	less than three unblocked vapor holes	direct observation

G-70-150 series Marconi (Gilbarco)Vapor Vac		
equipment	defects	verification procedure
system	pressure drop through the system exceeds one-half (0.50) inches water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	defective vapor valve	GDF-01/GDF-03
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	both booted and unbooted nozzle types connected to the same vapor pump	direct observation
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
Catlow ICVN nozzle	less than three unblocked vapor holes	direct observation
	efficiency compliance device slit from base to the rim	direct observation
Emco Wheaton A4505 nozzle	less than three unblocked vapor holes	direct observation
	one-eighth (0.13) of vapor guard circumference missing	direct measurement/ observation
Emco Wheaton A4500 nozzle	less than three unblocked vapor holes	direct observation
Husky V34 6250 nozzle	a one and one-half (1.5) inch slit in vapor splash guard	direct measurement/ observation
	any hole greater than three-eighths (0.38) inch in vapor splash	direct measurement/ observation
Husky V3 6201 nozzle	all vapor holes blocked	direct observation
OPW 11VAI nozzle	less than four unblocked vapor holes	direct observation
OPW12VW nozzle	all vapor holes blocked	direct observation
	vapor escape guard with three-fourths (0.75) of the circumference missing	direct measurement/ observation

G-70-153 series Dresser/Wayne Vac		
equipment	defects	verification procedure
system	any splash guard that interferes with the operation of a vapor escape guard (VEG) or vapor splash guard (VSG) unit	direct measurement/ observation
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	defective vapor valve	GDF-01/GDF-03
OPW 11VAI and Husky V34 6200-4 nozzles	less than two unblocked vapor holes	direct observation
	any VEG damaged such that at least one-eighth (0.13) of the circumference is missing	direct measurement/ observation
Husky V34 6200 nozzle	less than two unblocked vapor holes	direct observation
Husky V34 6200 and V34 6250 nozzles	any VSG damaged such that at least a one and one-half (1.5) inch slit has developed	direct measurement/ observation
	any VSG flange portion that does not make contact with or cover the entire fill-pipe opening	direct measurement/ observation
	any VSG with a hole greater than three-eighths (0.38) inch	direct measurement/ observation
Emco Wheaton A4505 nozzle	less than three unblocked vapor holes	direct observation
	any vapor guard (VG) damaged such that at least one-eighth (0.13) of the circumference is missing	direct measurement/ observation
Catlow ICVN and Richards Astrovac nozzles	less than three unblocked vapor holes	direct observation
	any efficiency compliance device damaged with a slit from the base to the rim	direct observation
OPW 12VW nozzle	all vapor holes blocked	direct observation
	any VEG damaged such that at least three-quarters (0.75) of the circumference is missing	direct measurement/ observation

G-70-154 series Tokheim MaxVac		
equipment	defects	verification procedure
nozzles	defective vapor valve	GDF-01/GDF-03
OPW 11VAI and Husky V34 6200-5 nozzles	efficiency compliance device (ECD) damaged such that at least one-fourth (0.25) of the circumference is missing	direct measurement/ observation
Husky V34 6200 and V34 6250 nozzles	less than two unblocked vapor holes	direct observation
	vapor splash guard (VSG) damaged such that at least a one and one-half (1.5) inch slit has developed	direct measurement/ observation
	VSG damaged such that greater than a three-eighths (0.38) inch hole has developed	direct measurement/ observation
Emco Wheaton A4505	less than seven unblocked vapor holes	direct observation
Catlow ICVN and Richards Astrovac	less than four unblocked vapor holes	direct observation
	any nozzle with an ECD damaged with at least one-fourth (0.25) of the circumference missing	direct measurement/ observation
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-159 series Saber nozzle for Gilbarco (Marconi) Vapor Vac and WayneVac		
equipment	defects	verification procedure
nozzles	a fill guard damaged such that at least one-fourth (0.25) of the outer edge of the guard is missing	direct measurement/ observation
	less than four unblocked vapor holes on the Gilbarco (Marconi) systems	direct observation
	less than two unblocked vapor holes on the WayneVac systems	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-163 series OPW Vapor EZ		
equipment	defects	verification procedure
nozzles	efficiency compliance device damaged such that at least one-eighth (0.13) of the diameter is missing	direct measurement/ observation
	less than three unblocked vapor holes	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-164 series Hasstech VCP-3A		
equipment	defects	verification procedure
system	defective vapor valve	GDF-01/ GDF-03
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
OPW 11VAI steel spout	less than six unblocked vapor holes	direct observation
OPW 11VAI aluminum spout	less than four unblocked vapor holes	direct observation
Husky V3 6201 nozzle	all vapor holes blocked	direct observation
Husky V34 6200-8 nozzle	all vapor holes blocked	direct observation
Emco Wheaton A4500 nozzle	any visible puncture or tear of the vapor guard/vapor seal assembly	direct observation
	less than three unblocked vapor holes	direct observation
collection unit	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	normal operating level at the inlet of the collection unit less than thirty (30) inches water column vacuum	direct measurement/ observation
processing unit	emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery	Method 9
	twenty (20) consecutive unsuccessful attempts to ignite the process unit	direct measurement/ observation/ system monitor observation
	dispensing when the process unit is disabled	direct measurement/ observation/system monitor observation
	processing unit inoperative	direct observation
ECS-1 electronic control and status panel	ratio of process unit/solenoid valve time less than nine tenths (0.90)	direct measurement/ observation

G-70-165 series Healy Model 600		
equipment	defects	verification procedure
nozzles	any nozzle with a vapor guard damaged such that a slit from the outer edge of the open end flange to the spout anchor clamp	direct observation
	any nozzle which has fewer than four unblocked vapor collection holes	direct observation
	defective vapor valve	GDF-01/GDF-03
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
system	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
central vacuum unit	dispensing when the central vacuum unit is disabled	direct measurement/ observation/system monitor observation
	vacuum level outside of the range specified in G-70-165 for more than fifteen (15) seconds (Approval Letter 97-20), measured while dispensing is occurring	direct measurement/ observation/system monitor observation
	product dispensed when the vapor return line valve is closed	direct measurement/ observation/TP201.5

G-70-169 series Franklin Electric Intellivac		
equipment	defects	verification procedure
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	defective vapor valve	GDF-01/ GDF-03
OPW 11VAI nozzle	efficiency compliance device damaged such that at least one-fourth (0.25) of the circumference is missing	direct measurement/ observation
	fewer than two unblocked vapor collection holes	direct observation
Husky V34 6250 nozzle	any nozzle with a vapor splash guard (VSG) damaged such that at least one and one-half (1.5) inch slit has developed	direct measurement
	any VSG damaged such that greater than a three-eighths (0.38) inch hole has developed	direct measurement

G-70-175 series Hasstech VCP-3A		
equipment	defects	verification procedure
system	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
Emco Wheaton A4500 nozzle	fewer than three unblocked vapor collection holes	direct observation
	any visible puncture or tear of the vapor guard/vapor seal assembly	direct observation
Husky V34 6200-8	all vapor collection holes blocked	direct observation
dispenser	defective vapor valve	GDF-01/ GDF-03
collection unit	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	dispensing when the collection unit is disabled	direct observation
processing unit	twenty consecutive unsuccessful attempts to ignite the processing unit	direct observation/ system monitor observation
	emissions which exceed Ringelmann one-half (½) or ten percent (10%) opacity and not attributable to a bulk delivery	Method 9
	dispensing when the processing unit is disabled	direct observation/ system monitor observation
	processing unit inoperative	direct observation

G-70-177 series Hirt VCS400-7		
equipment	defects	verification procedure
system	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	processing unit inoperative	direct observation
OPW 11VA-29 nozzle	defective vapor valve	GDF-01/ GDF-03
	less than five unblocked vapor collection holes	direct observation
hoses	any visible puncture or tear equivalent to a diameter of 0.136 inches or greater	direct measurement/ observation

G-70-179 series Catlow ICVN-VI		
equipment	defects	verification procedure
nozzles	efficiency compliance device damaged such that at least three-fourths (0.75) of the diameter is missing	direct measurement/ observation
	any nozzle which has less than four unblocked vapor collection holes	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-183 series Healy/Franklin Vac Assist		
equipment	defects	verification procedure
nozzles	a vapor guard damaged such that a slit exists from the outer edge of the open end flange to the spout anchor clamp	direct observation
	any nozzle which has less than four unblocked vapor collection holes	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-186 series Healy Model 400 ORVR		
equipment	defects	verification procedure
nozzles	operating pressure range at the nozzle boot/fill-pipe interface less than one-half (0.50) inches water column vacuum or greater than one-fourth (0.25) inches water column pressure	EO G-70-186 Exhibit 5
	dispensing when the central vacuum unit is disabled	direct measurement/ observation/ system monitor observation
	defective vapor valve	GDF-01/GDF-03
system	system not operating within the vacuum level range as per G-70-186	direct measurement/ observation/ system monitor observation
	product dispensed when the central vacuum unit is inoperative	direct measurement/ observation/TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-187 series Healy 400 ORVR AGT		
equipment	defects:	verification procedure
nozzles	any operating pressure at the nozzle boot/fill-pipe interface less than –one-half (0.50) inch or greater than one-fourth (0.25) inch water column	EO G-70-187 Exhibit 5 test
	nozzle boot tears greater than one-half (0.50) inch in length	direct measurement/ observation
central vacuum unit	system vacuum less than sixty-five (65) inches or greater than eighty-five (85) inches water column	direct measurement/ observation
	system does not achieve an operating vacuum of sixty-five (65) inches water column within fifteen (15) seconds after the system is energized	direct measurement/ observation
	system does not achieve an operating vacuum of sixty-five (65) inches water column for three consecutive dispensing episodes	direct measurement/ observation
	system does not achieve an operating vacuum of sixty-five (65) inches water column within a one hour period for any single dispensing episode	direct measurement/ observation
	vacuum level dropping below sixty (60) inches water column for more than three seconds after the system has reached sixty-five (65) inches water column, while dispensing is occurring	direct measurement/ observation
	vacuum level above ninety (90) inches water column while dispensing is occurring	direct measurement/ observation
	product dispensing when the non-restrictive ball valve installed in the vapor return line is closed	direct measurement/ observation
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
Phase II system	any venting through system monitor vent in excess of ten hours in any calendar day not attributable to a Phase I fuel delivery	direct measurement/ observation/ system monitor observation

G-70-188 series Catlow ICVN w/Gilbarco (Marconi) VaporVac System		
equipment	defects	verification procedure
nozzles	ECD damaged such that at least three-fourths (0.75) of the diameter is missing	direct measurement/ observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-191 series Healy ORVR		
equipment	defects	verification procedure
nozzles	any nozzle with a vapor collection boot which has one-half (0.50) of the mini-boot faceplate or greater missing	direct measurement/ observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard	TP201.5 or equivalent
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent

G-70-193 series Hill-Vac		
equipment	defects	verification procedure
system	fillpipe gauge pressure less than negative one (–1.0) inch or greater than two (2.0) inches water column	direct measurement/ observation
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	pressure drop through the system exceeds one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
nozzles	a boot with any tear exceeding one-half (0.50) inch	direct measurement/ observation
	faceplate damage such that the fillpipe interface is adversely affected for twenty-five percent (25%) or more of the circumference of the faceplate	direct measurement/ observation
jet pump	dispensing of gasoline when either jet pump is disabled	direct observation
	failure to achieve operating vacuum of thirty-five (35) inches water column within five seconds after the system is activated, for three consecutive dispensing episodes	direct measurement/ observation
	a vacuum level below fifteen (15) inches water column for more than three seconds after the system has reached thirty-five (35) inches water column while dispensing	direct measurement/ observation
	a vacuum level above eighty-five (85) inches water column measured while dispensing to non-ORVR vehicles	direct measurement/ observation
	product dispensing when any ball valve installed at the vapor return line connection to each Healy Model 100 jet pump is closed	direct measurement/ observation
liquid drop out pot	opening drain valve at anytime other than when repair operations are underway	direct observation
	product dispensing when any ball valve installed at the liquid drop pot in the liquid removal line is closed	direct measurement/ observation

G-70-196 series SaberVac		
equipment	defects	verification procedure
Husky 605104 nozzle	vapor splash guard (VSG) with a one and one-half (1.5) inch or larger slit	direct measurement/ observation
	VSG with a three-sixteenths (0.19) inch or larger hole	direct measurement/ observation
	the VSG flange portion doesn't make contact with entire fillpipe opening	direct observation
	defective vapor valve	GDF-01/GDF-03
system	any grade of a fueling point not capable of demonstrating an air to liquid ratio compliance with its performance standard as described in G-70-196	as described in G-70-196
	any fueling point associated with a vapor line disconnected and open to the atmosphere, including all fueling points at the facility if vapor lines are manifolded	direct observation
	system not in compliance with the static pressure decay test criteria	TP201.3 or equivalent
	underground storage tank gauge pressure greater than two inches water column over an extended period as defined by E.O. G-70-196 Exhibit 2	direct measurement/ observation
	pressure drop through system exceeding one-half (0.50) inch water column at sixty standard cubic foot per hour (60 SCFH)	TP201.4 or equivalent
	dispensing of product from any fueling point associated with a disconnected vapor line	direct measurement/ observation

VR-101 series Phil-Tite Phase I		
equipment	defects	verification procedure
drop tube/drain valve assembly	system not able to maintain pressure integrity as specified in Executive Order VR-101-A	TP201.1C
rotatable Phase I adapters	adapter does not rotate 360 degrees with less than 108 pound-inch average static torque	TP201.1B

Defect Identification Methods Used In the Verification Procedure Column

1. TP201.5: Determination (by Volume Meter) of Air to Liquid (A/L) Volume Ratio of Vapor Recovery Systems of Dispensing Facilities, Adopted April 12, 1996

2. TP201.4: Determination of Dynamic Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

3. TP201.3: Determination of Two-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

4. GDF-01: Bag Test for Multi-Nozzle Vacuum Assist Systems

5. GDF-03: Pressure Integrity Performance Verification for Vacuum Assist Systems [Squeeze Bulb Test]

6. Method 9: 40 Code Federal Regulations Part 60 Appendix A: Reference Method 9/ EPA Section 3.12 Visible Determination of the Opacity of Emissions from Stationary Sources

7. Ring Gage Test Specifications: 40 Code Federal Regulations Part 80 Section 80.22 (f)(2)

8. G-70-186-187 Exhibit 5: Fillneck Vapor Pressure Regulation Fueling Test

9. EPO No. 26-F-1: Vapor Recovery Systems Field Compliance Testing

10. TP201.1C: Pressure Integrity of Drop Tube/Drain Valve Assembly

11. TP201.1B: Static Torque of Rotatable Phase I Adapters

12. Storage Tank Pressure Device: described and shown in TSD Appendix 6

APPENDIX 3: AB1164

AB 1164, Aanestad. Gasoline vapor recovery control systems.

Existing law requires the State Air Resources Board to identify equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations, as specified.

This bill would require the executive officer of the state board to identify and list those defects. The bill would also require the executive officer to review that list at a public workshop on or before January 1, 2001, and at least once every 3 years thereafter, to determine whether the list requires updating, as provided. The bill would authorize the executive officer to initiate a public review of the list upon a written request that demonstrates the need for the review, as specified.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 41960.2 of the Health and Safety Code is amended to read:

41960.2. (a) All installed systems for the control of gasoline vapors resulting from motor vehicle fueling operations shall be maintained in good working order in accordance with the manufacturer' s specifications of the system certified pursuant to Section 41954.

(b) Whenever a gasoline vapor recovery control system is repaired or rebuilt by someone other than the original manufacturer or its authorized representative, the person shall permanently affix a plate to the vapor recovery control system that identifies the repairer or rebuilder and specifies that only certified equipment was used. In addition, a rebuilder of a vapor control system shall remove any identification of the original manufacturer if the removal does not affect the continued safety or performance of the vapor control system.

(c) (1) The executive officer of the state board shall identify and list equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants. The defects shall be identified and listed for each certified system and shall be specified in the applicable certification documents for each system.

(2) On or before January 1, 2001, and at least once every three years thereafter, the list required to be prepared pursuant to paragraph (1) shall be reviewed by the executive officer at a public workshop to determine whether the list requires an update to reflect changes in equipment technology or performance.

(3) Notwithstanding the timeframes for the executive officer's review of the list, as specified in paragraph (2), the executive officer may initiate a public review of the list upon a written request that demonstrates, to the satisfaction of the executive officer, the need for such a review. If the executive officer determines that an update is required, the update shall be completed no later than 12 months after the date of the determination.

(d) When a district determines that a component contains a defect specified pursuant to subdivision (c), the district shall mark the component "Out of Order." No person shall use or permit the use of the component until the component has been repaired, replaced, or adjusted, as necessary, and the district has reinspected the component or has authorized use of the component pending reinspection.

(e) Where a district determines that a component is not in good working order but does not contain a defect specified pursuant to subdivision (c), the district shall provide the operator with a notice specifying the basis on which the component is not in good working order. If, within seven days, the operator provides the district with adequate evidence that the component is in good working order, the operator shall not be subject to liability under this division.

APPENDIX 4: CALIFORNIA HEALTH AND SAFETY CODE, SECTION 41960.2

California Health and Safety Code

H&S 41960.2 Maintenance of Installed Systems

41960.2. (a) All installed systems for the control of gasoline vapors resulting from motor vehicle fueling operations shall be maintained in good working order in accordance with the manufacturer's specifications of the system certified pursuant to Section 41954.

(b) Whenever a gasoline vapor recovery control system is repaired or rebuilt by someone other than the original manufacturer or its authorized representative, the person shall permanently affix a plate to the vapor recovery control system that identifies the repairer or rebuilder and specifies that only certified equipment was used. In addition, a rebuilder of a vapor control system shall remove any identification of the original manufacturer if the removal does not affect the continued safety or performance of the vapor control system.

(c) (1) The executive officer of the state board shall identify and list equipment defects in systems for the control of gasoline vapors resulting from motor vehicle fueling operations that substantially impair the effectiveness of the systems in reducing air contaminants. The defects shall be identified and listed for each certified system and shall be specified in the applicable certification documents for each system.

(2) On or before January 1, 2001, and at least once every three years thereafter, the list required to be prepared pursuant to paragraph (1) shall be reviewed by the executive officer at a public workshop to determine whether the list requires an update to reflect changes in equipment technology or performance.

(3) Notwithstanding the timeframes for the executive officer's review of the list, as specified in paragraph (2), the executive officer may initiate a public review of the list upon a written request that demonstrates, to the satisfaction of the executive officer, the need for such a review. If the executive officer determines that an update is required, the update shall be completed no later than 12 months after the date of the determination.

(d) When a district determines that a component contains a defect specified pursuant to subdivision (c), the district shall mark the component "Out of Order." No person shall use or permit the use of the component until the component has been repaired, replaced, or adjusted, as necessary, and the district has reinspected the component or has authorized use of the component pending reinspection.

(e) Where a district determines that a component is not in good working order but does not contain a defect specified pursuant to subdivision(c), the district shall provide the operator with a notice specifying the basis on which the component is not in good working order. If, within seven days, the operator provides the district with adequate evidence that the component is in good working order, the operator shall not be subject to liability under this division.

(Amended by Stats. 1999, Ch. 501, Sec. 1.)

References at the time of publication (see page iii):

Regulations: 17, CCR, sections 94006, 94010, 94011

APPENDIX 5: WORKSHOP NOTICES

Air Resources Board

Winston H. Hickox
Agency Secretary

Alan C. Lloyd, Ph.D.
Chairman
2020 L Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov

Gray Davis
Governor

Vapor Recovery Defects List Workshop Notification

Vapor Recovery Defects List Workshop

Date: Wednesday, December 13, 2000

Time: 8:30am to 12:00pm

Location: Board Hearing Room
2020 L Street
Sacramento, California, 95814-2828

Background:

Existing law requires the State Air Resources Board (ARB) to identify equipment defects in systems for the control of gasoline vapors resulting from motor vehicles fueling operations. Assembly Bill 1164 further requires the ARB Executive Officer (E.O.) to list those defects, and to review that list at a public workshop on or before January 1, 2001. The bill authorizes the E.O. to initiate a public review of the list.

Workshop Information:

To facilitate a public review of the list, ARB is holding a workshop to discuss the equipment defects presently identified. This meeting is open to federal, state, and local agencies; equipment manufacturers and their associations; wholesale and retail petroleum suppliers; installation, testing, and maintenance contractors; and any party interested in the vapor recovery equipment defects review process.

A preliminary defects list is attached to this notification. The purpose of this list is to provide you with an idea of the formatting, organization, and general scope of the vapor recovery equipment defects list that will be presented at the workshop.

If you have any questions about the workshop or need additional information, please telephone Ranjit Bhullar at (916) 323-7370 or Neil Nipper at (916) 324-7343.

Sincerely,

Signed Copy on File

James J. Morgester, Chief
Compliance Division

Attachments

Air Resources Board

Winston H. Hickox
Agency Secretary

Alan C. Lloyd, Ph.D.
Chairman
2020 L Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov

Gray Davis
Governor

Vapor Recovery Draft Defects List Workshop Notification

Vapor Recovery Draft Defects List Workshop II

Date: Tuesday, May 22, 2001

Time: 9:00am to 12:00pm

Location: Training 1 East and West Room
1001 I Street
Sacramento, California, 95814-2828

Background:

Existing law requires the State Air Resources Board (ARB) to identify equipment defects in systems for the control of gasoline vapors resulting from motor vehicles fueling operations. Assembly Bill 1164 requires the ARB Executive Officer (E.O.) to list those defects. The bill also authorizes the E.O. to conduct a public review of the list.

Workshop Information:

To facilitate a public review of the list, ARB held a workshop on December 13, 2000. Since that time, the the list has been expanded to include all E.O.s and the 100 ml. liquid criterion for balance hoses. This meeting is open to federal, state, and local agencies; equipment manufacturers and their associations; wholesale and retail petroleum suppliers; installation, testing, and maintenance contractors; and any party interested in the vapor recovery equipment defects review process.

A draft defects list is attached to this notification. The purpose of this list is to provide you with an idea of the formatting, organization, general scope of the vapor recovery equipment defects list that will be presented at the workshop, and a tool to direct your comments. You may notice that in addition to the inclusion of all current Phase I and II E.O.s and above ground tank E.O.s, changes have been made based on comments received. Some of the items being removed from the list are shown in strikethrough formatting.

There is limited public parking at the 1001 I Street building. A list of some of the public parking lots in the vicinity of the building is attached.

If you have any questions about the workshop or need additional information, please telephone or email Ranjit Bhullar at (916) 323-7370/rbhullar@arb.ca.gov or Neil Nipper at (916) 324-7343/rnipper@arb.ca.gov.

Sincerely,

Signed Copy on File

James J. Morgester, Chief
Compliance Division

Attachments

Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman
1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov

Gray Davis
Governor

Vapor Recovery Defects List Workshop Notification

Vapor Recovery Defects List Workshop

Date: Thursday, August 16, 2001

Time: 9:00am to 12:00pm

Location: Sierra Hearing Room
Second Floor
1001 I Street
Sacramento, California

Workshop Information:

Air Resources Board (ARB) staff has drafted an update to the vapor recovery equipment defects list contained in section 94006 of Title 17 California Administrative Code. The proposed list will be presented to the Board for adoption in November.

ARB staff is holding this workshop to discuss the equipment defects presently identified and the upcoming Board hearing. The latest version of the list will be available for review on August 10th at the following web address: www.arb.ca.gov/vapor/title17/title17.htm.

This meeting is open to federal, state, and local agencies; equipment manufacturers and their associations; wholesale and retail petroleum suppliers; installation, testing and maintenance contractors; and any party interested in the vapor recovery equipment defects review process.

If you have any questions about the workshop or need additional information, please telephone Ranjit Bhullar at (916) 323-7370 or Neil Nipper at (916) 324-7343.

APPENDIX 6: VERIFICATION PROCEDURES

Defect Identification Methods Used for Verification Procedures

1. TP201.5: Determination (by Volume Meter) of Air to Liquid (A/L) Volume Ratio of Vapor Recovery Systems of Dispensing Facilities, Adopted April 12, 1996

2. TP201.4: Determination of Dynamic Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

3. TP201.3: Determination of Two-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

4. GDF-01: Bag Test for Multi-Nozzle Vacuum Assist Systems

5. GDF-03: Pressure Integrity Performance Verification for Vacuum Assist Systems [Squeeze Bulb Test]

6. Method 9: 40 Code Federal Regulations Part 60 Appendix A: Reference Method 9/ EPA Section 3.12 Visible Determination of the Opacity of Emissions from Stationary Sources

7. Ring Gage Test Specifications: 40 Code Federal Regulations Part 80 Section 80.22 (f)(2)

8. G-70-186-187 Exhibit 5: Fillneck Vapor Pressure Regulation Fueling Test

9. EPO No. 26-F-1: Vapor Recovery Systems Field Compliance Testing

10. TP201.1C: Pressure Integrity of Drop Tube/Drain Valve Assembly

11. TP201.1B: Static Torque of Rotatable Phase I Adapters

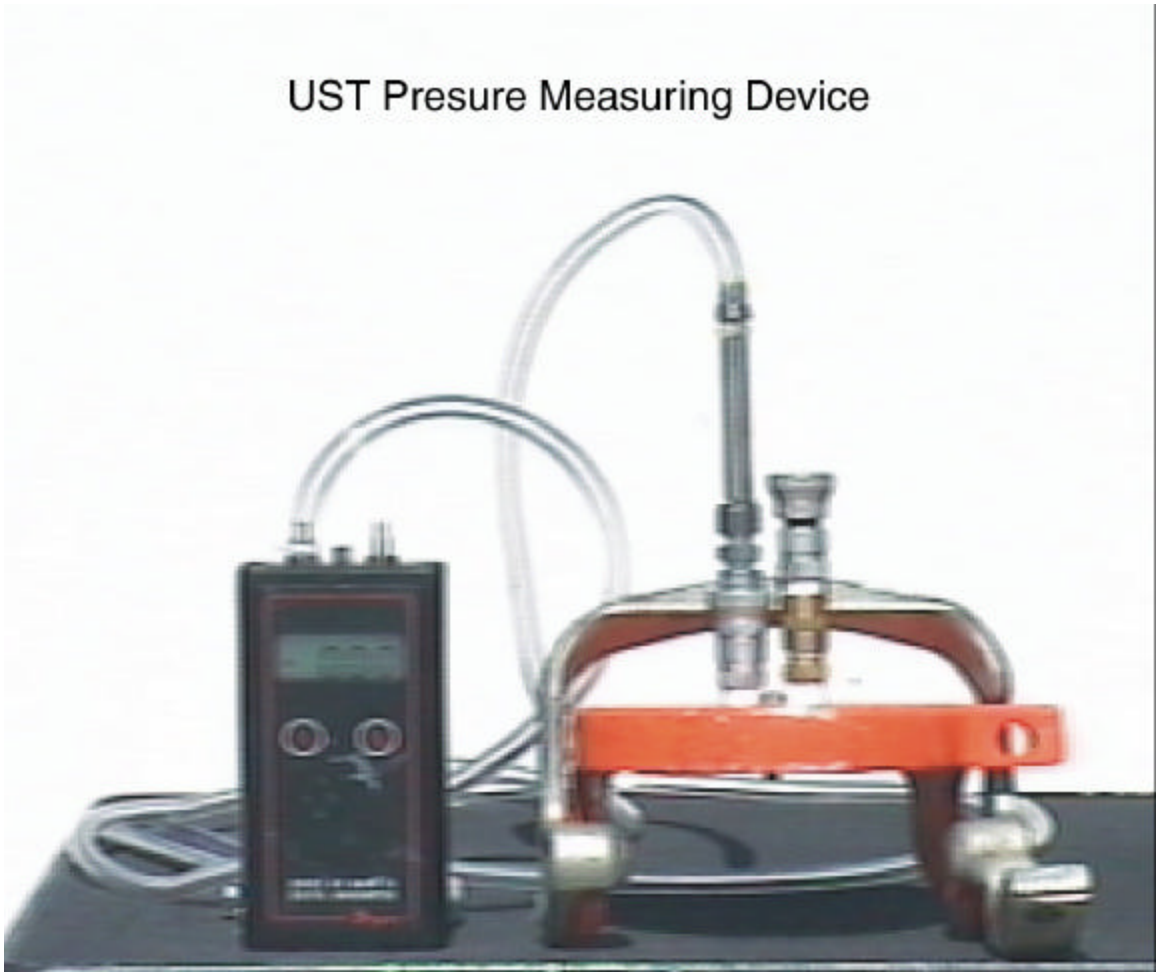
12. Storage Tank Pressure Device

UST Pressure Measuring Device

Manometer
Dwyer Series 475 Mark III Digital Manometer
Range 0.00 - 4.00 inches water column

4" Vapor Poppet Dust Cap Assembly

1 ea	Universal Valve Vapor Dust Cap Mod ## 7 31 -4FT
2 ea.	Swagelock 1/4" Quick disconnect female/ 1/4" male NPT pipe thread
1 ea	3/16" X 2" Stainless Steel bolt
1 roll	1/2" wide teflon tape

1) Drill and tap a hole in the center of the dust cap for the 3/16" Bolt
2) Drill and tap 2 holes on a 1" radius of the dust cap for the 1/4" NPT male Swagelock fittings.
3) Wrap both Swagelock 1/4" male ends and thread into the top of the dust cap.
4) Wrap 3/16" diameter bolt with teflon tape and thread all the way down through the top of the dust cap until the bolt bottoms out onto the top of the dust cap. When finished, the 2" bolt should protrude approximately 1-1/4" through the bottom of the dust cap. This bolt holds the vapor poppet open when the dust cap is installed on the Phase I Vapor riser and allows the tester to take pressure readings of the storage tank.

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