

ENHANCED VAPOR RECOVERY

An Update

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CONVEX2000

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California Environmental Protection Agency

Air Resources Board

www.arb.ca.gov/vapor/evr/evr.htm

EVR Overview

- ◆ Approved by CARB on March 23, 2000
- ◆ Most comprehensive revisions to vapor recovery procedures in over 20 years
- ◆ Affects all vapor recovery equipment certifications
- ◆ Equipment currently in use on the effective date may remain in use for remainder of the useful life or four years

CP-201 Certification Procedure

- ◆ Table 2-1 Operative and Effective Dates
- ◆ Table 3-1 Phase I Standards and Specs
- ◆ Table 4-1 Phase II Standards, Specs
- ◆ Table 5-1 Phase II Balance Stds, Specs
- ◆ Table 6-1 Phase II Assist Stds, Specs
- ◆ Table 7-1 Assist with Central Vacuum
- ◆ Table 8-1 Destructive Processors
- ◆ Table 8-2 Non-Destructive Processors

EVR Modules and CP Tables

| <u>Module</u> | <u>CP Table</u> |
|---------------------------------|---------------------------------|
| 1 Phase I vapor recovery | 3-1 |
| 2 Phase II vapor recovery | 4-1 thru 8-2 |
| 3 ORVR compatibility | 4-1 |
| 4 Liquid retention and spitback | 4-1 |
| 5 Spillage and dripless nozzles | 4-1 |
| 6 In-Station Diagnostics | 10 and Appendix ₄ |

Module 1

Phase I Vapor Recovery

- ◆ Increase Phase I transfer efficiency from 95% to 98%
- ◆ Improve equipment components
 - ◆ P/V valves
 - ◆ Phase I fittings
 - ◆ spillbox
 - drain valves



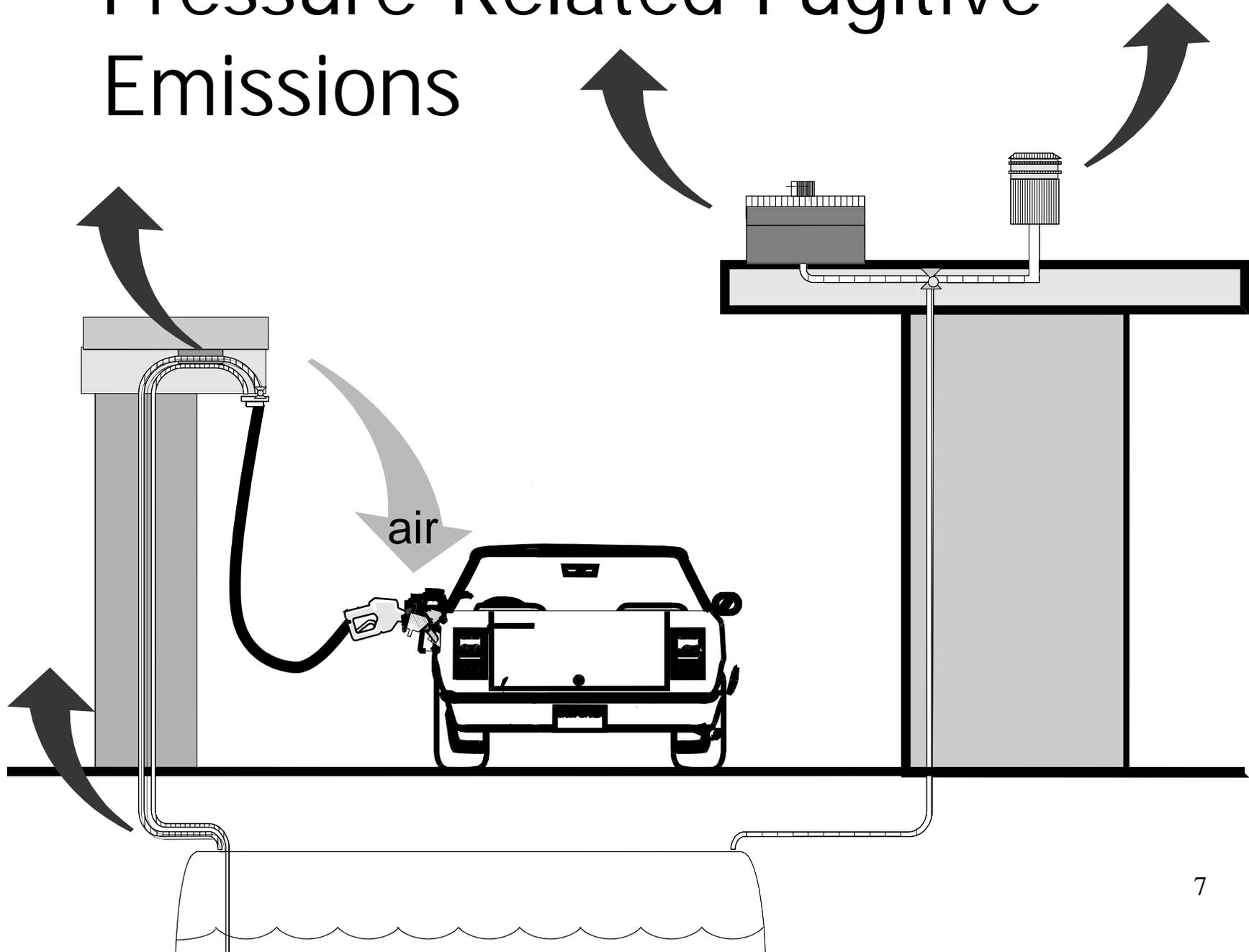
Module 2

Phase II Vapor Recovery

Numerous significant changes to certification process and standards

- ◆ vapor processors (incl. HAPS)
- ◆ pressure-related fugitives
- ◆ storage tank pressure limits
- ◆ component specifications

Pressure-Related Fugitive Emissions



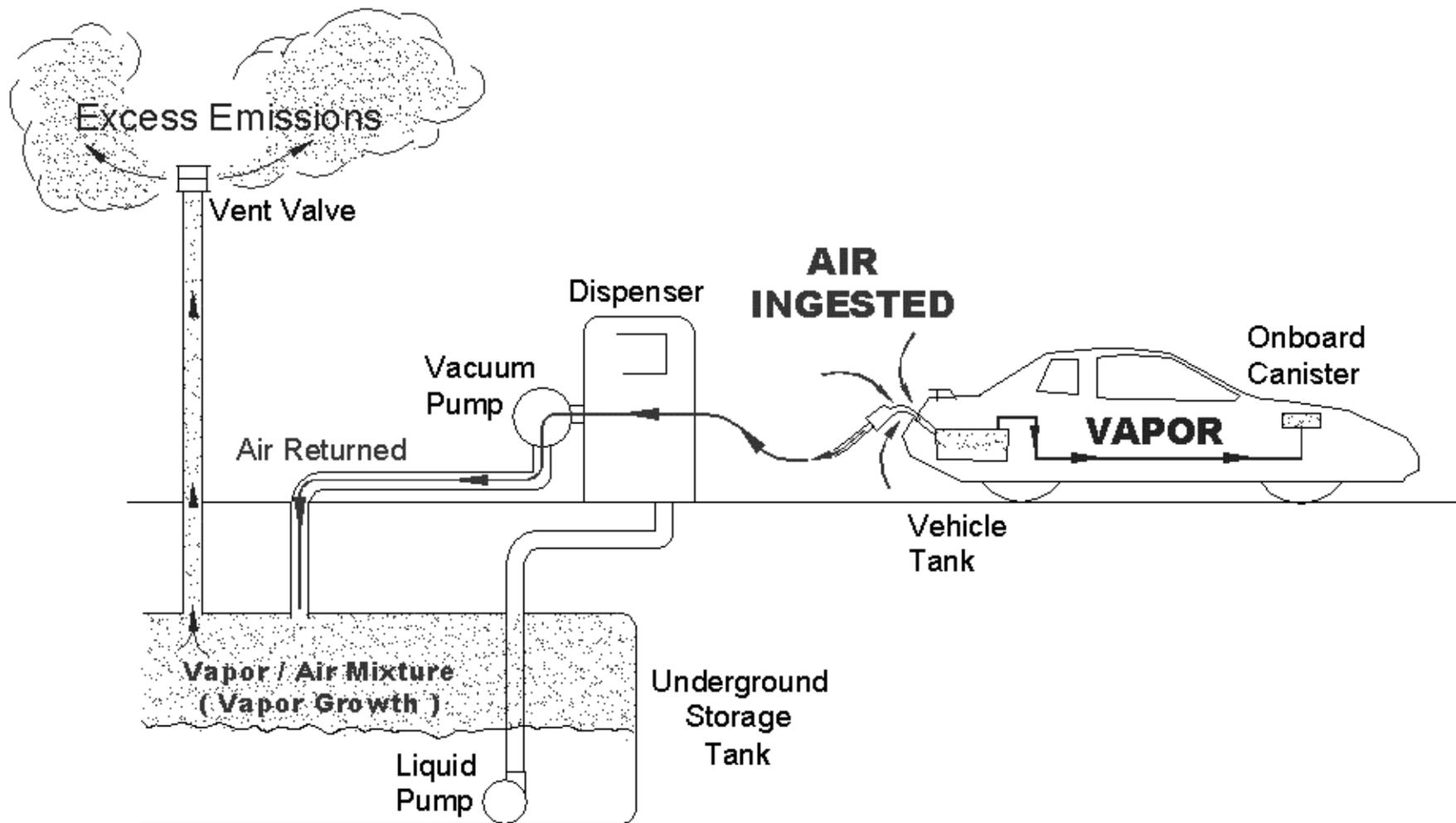
New Component Standards

- ◆ Pressure drop limits for individual balance system components
- ◆ Vapor check valves
- ◆ Unihose dispenser



Module 3

ORVR/Phase II Compatibility



Module 4 - Liquid Retention and Nozzle Spitting

- ◆ New emission category
- ◆ Liquid evaporates from nozzle and hose between fueling events (vapor valve in nozzle will eliminate losses from hoses)
- ◆ Proposed phase-in of limits
 - ◆ first liquid retention limit 350 ml/1,000 gal.
 - ◆ final liquid retention limit 100 ml/1,000 gal.
- ◆ spitting ≤ 1.0 ml per nozzle, per test

Module 5

Spillage & “Dripless” Nozzles

More stringent spillage standard

- ◆ Limits spillage to 0.24 lbs/1000 gals (previously 0.42 lbs/1,000 gals)
- ◆ Includes drips from “Dripless Nozzles” (required to be capable of reducing post-fueling drips from nozzles to no more than one drop per fueling event as per TP-201.2D).

Module 6 - In-Station Diagnostics

Record (and possibly prohibit dispensing) if failure is detected.

◆ All systems: pressure monitoring

◆ Balance system

◆ blockage in vapor return line

◆ Assist system

◆ vacuum source malfunction (A/L failure)

◆ Assist systems with processor

◆ processor operation

Other EVR Provisions

- ◆ Duration of Testing Increased
 - ◆ Operational test of **at least** 180 days
 - ◆ 200 vehicle test of Phase II effectiveness
- ◆ Limited Term Certification of Systems
- ◆ Certification of equivalent (or better) Non-System Components
- ◆ Technology Review in 2002
- ◆ Pilot program for maintenance tracking of equipment reliability

Effective and Operative Dates

- ◆ The **Effective Date**, unless otherwise specified, is the date on which the new regulations take effect. On this date:
 - ◆ New certifications and new installations must comply with the new requirements
 - ◆ Four year grace period begins.
- ◆ The **Operative Date**, when specified:
 - ◆ Sets a later date by which new certifications and installations must comply
 - ◆ Does not affect the four year grace period.

EVR Implementation (Table 2-1)

| Requirement | Effective | Operative |
|--------------------------|------------------|------------------|
| Phase I (Table 3-1) | 4-1-2001 | 7-1-2001 |
| ORVR Compat. | 4-1-2001 | 4-1-2003 |
| “Dripless” Nozzle | 4-1-2003 | 4-1-2004 |
| Liquid Retention | | |
| 350 ml/1,000 gals. | 4-1-2001 | 7-1-2001 |
| 100 ml/1,000 gals. | 4-1-2001 | 4-1-2004 |
| Phase II (4-1↔8-2) | 4-1-2003 | Same |
| ISD - GDF \geq 1.8 mil | 4-1-2003 | Same |
| ISD \geq 160,000 gal | 4-1-2004 | Same |

The Enhanced Vapor Recovery Timeline

July 2001 April 2002 April 2003 April 2004 April 2005 April 2006 April 2007 April 2008

← Existing Facility Phase-In →

Phase I EVR System

July 1, 2001 Deadline For First EVR Certified Phase I System

Liquid Retention (350ml)

July 1, 2001 Liquid Retention Requirement Implemented

100ml/1000gal

April 2004 New Liquid Retention Limit

**Technical
Review**

Spitting (<1ml)

April 2004 Spitting Requirement Implemented

Phase II EVR System

April 1, 2003 Deadline For First EVR Certified Phase II System

ORVR Compatibility

April 1, 2003 Deadline For ORVR Compatibility

In-Station Diagnostics (> 1.8 million gal/yr)

In-Station Diagnostics (>160,000 m gal/yr)

April 1, 2003 & April 2004 In Station Diagnostics Implemented

Spillage

Dripless Nozzle (<1 drop/fueling)

April 1, 2004 Dripless Nozzle Implemented (< 1 drop/fueling)

Bar Represents Time Remaining For Use of Installed Equipment Under California 4-Year Clock

* Start of Bar: Required For New Facilities

** End of Bar: Required For Existing Facilities (installed before start of bar)