Update on Enhanced Vapor Recovery (EVR) and In-Station Diagnostics (ISD) at Gasoline Dispensing Facilities

California Air Resources Board
Monitoring and Laboratory Division
August 2, 2007
Presented at San Joaquin Valley APCD
Fresno, CA

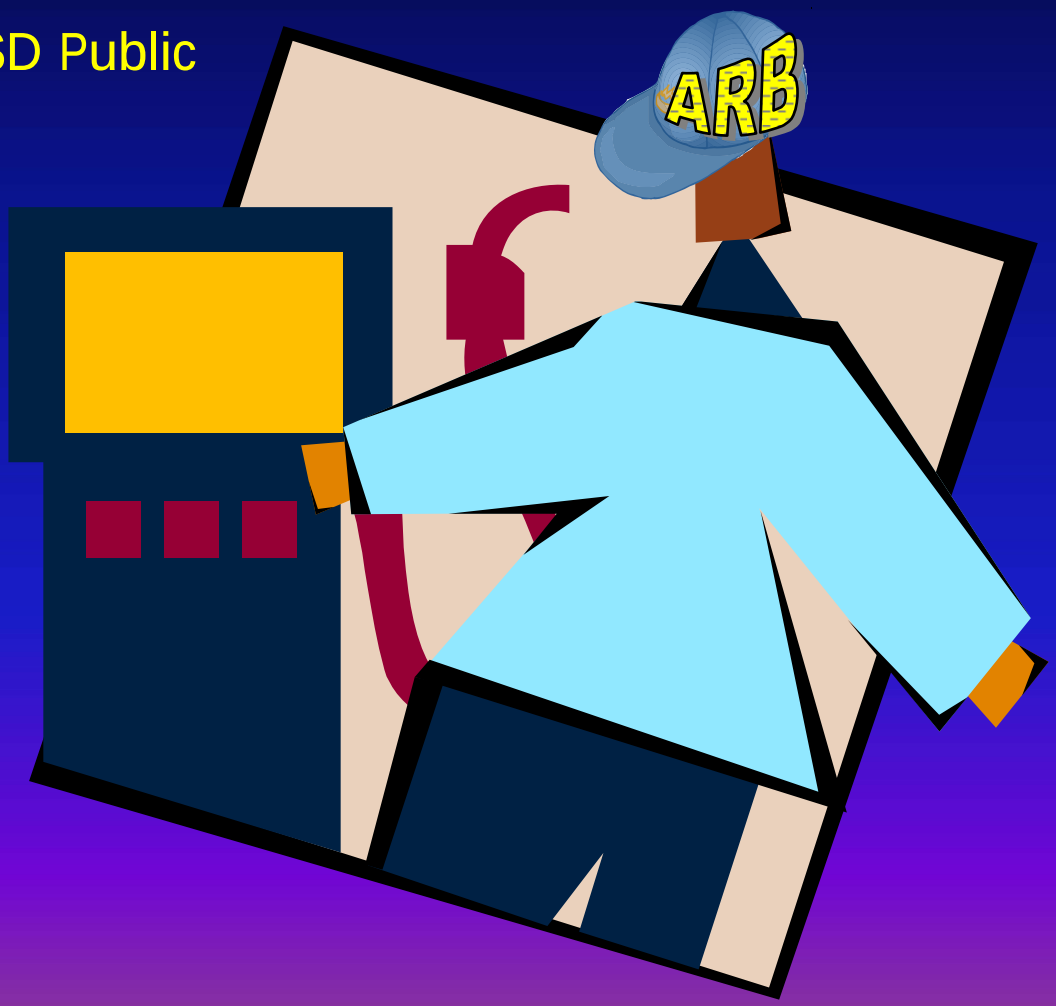
Agenda

- Introduction by SJVAPCD
- EVR General Update
- EVR Phase II Deadline
- EVR Certification Update
- Franklin/Healy EVR Phase II System
- In-Station Diagnostics
- Question and Answer Session

Enhanced Vapor Recovery Update

Presented at the EVR/ISD Public Information Meeting

August 2, 2007

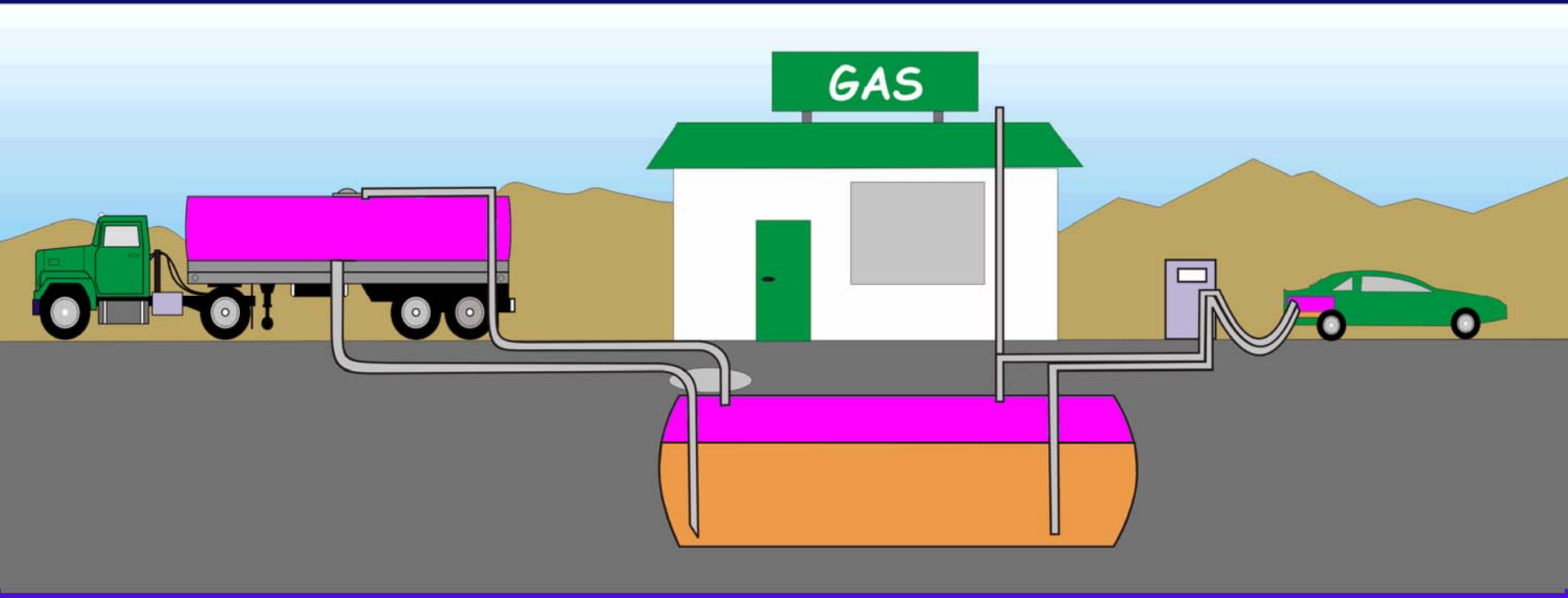


Cindy Castronovo
Air Resources Board
Cal-EPA

Outline

- EVR Applicability
- EVR Timeline
- ORVR and Phase II Interaction
- USEPA ORVR “Widespread Use” Determination
- E85 Compatible Equipment Status
- New Exam for Vapor Recovery Installers

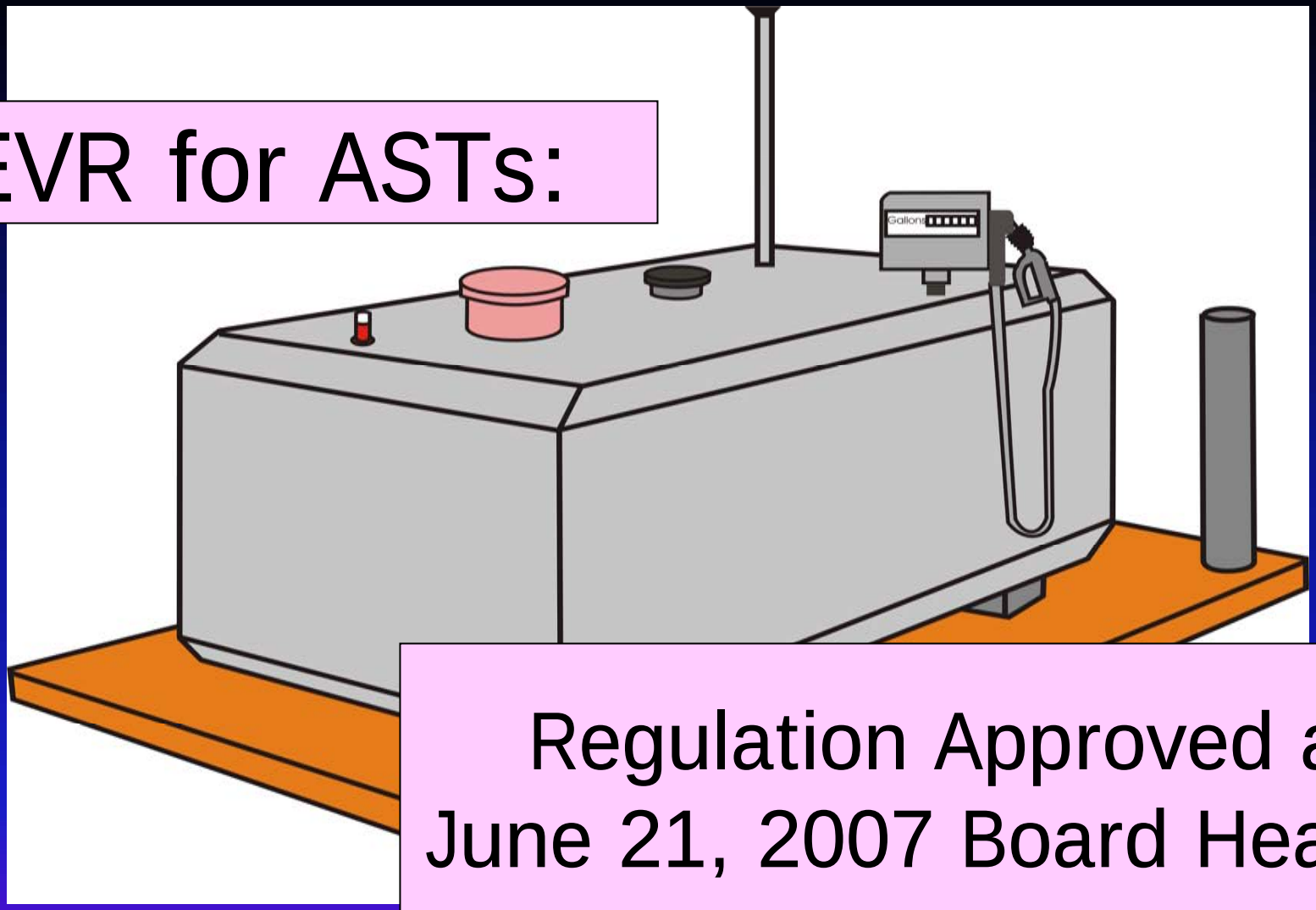
Vapor Recovery at Service Stations



Phase I

Phase II

EVR for ASTs:

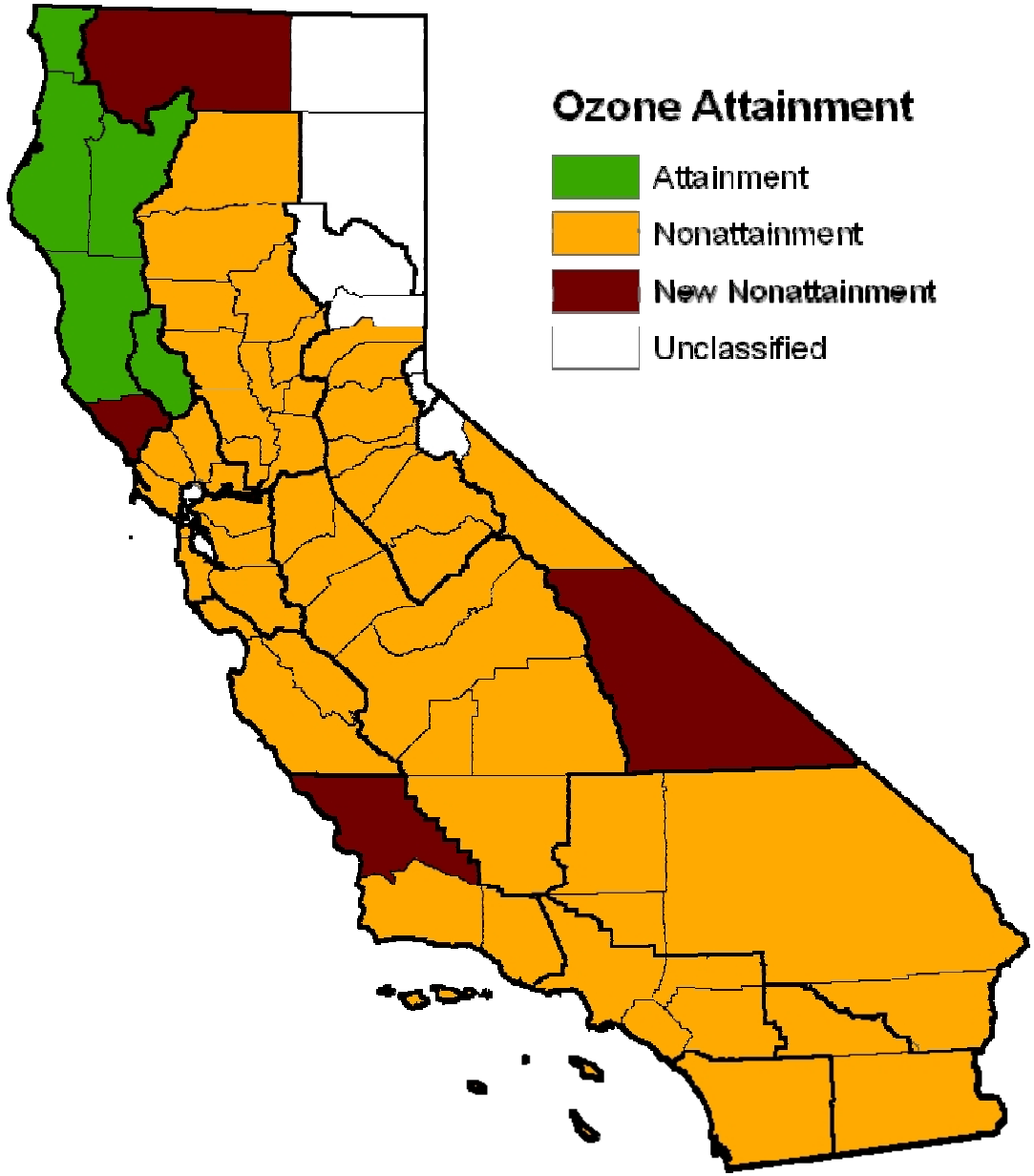


Regulation Approved at
June 21, 2007 Board Hearing
Effective January 2009

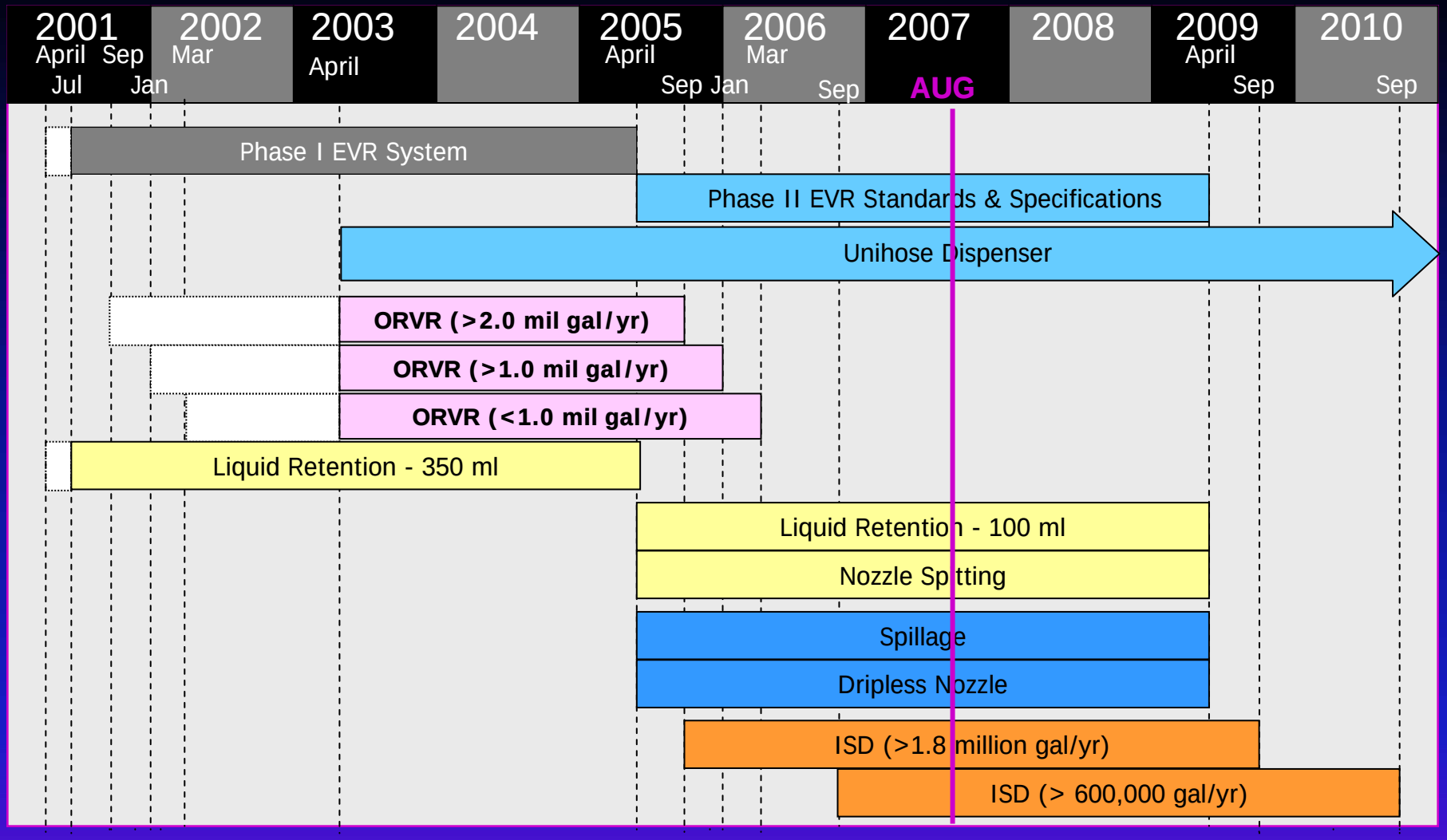
Partial EVR Exemption for Districts in Attainment with State Ozone Standards

- Exempt existing sites from all EVR modules except ORVR compatibility
- ORVR compatibility to minimize benzene exposure
- New and modified stations must comply

2006 Changes to Ozone Attainment Designations



EVR Timeline (updated June 2006)



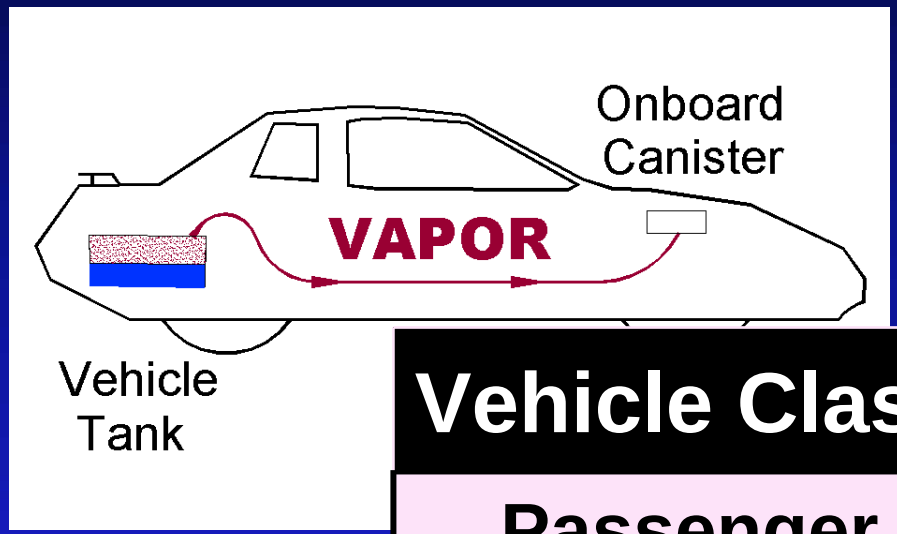
Dotted box: time between start of 4-year clock and operative date

Start of solid bar: date required for new or modified facilities (operative date)

End of solid bar: date required for existing facilities (installed before start of bar)

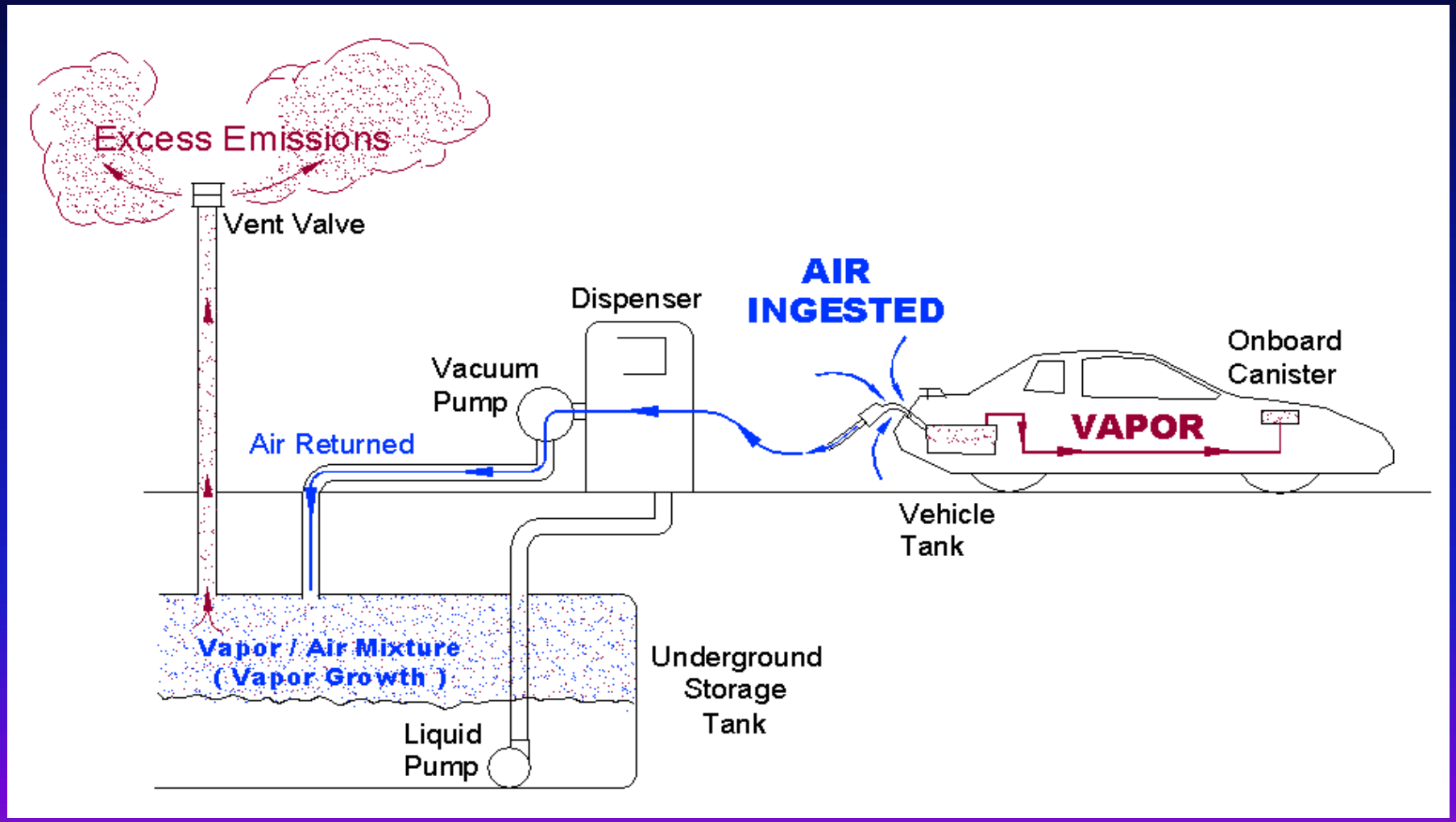
Not required for dispensers installed before April 2003

Onboard Refueling Vapor Recovery or "ORVR"



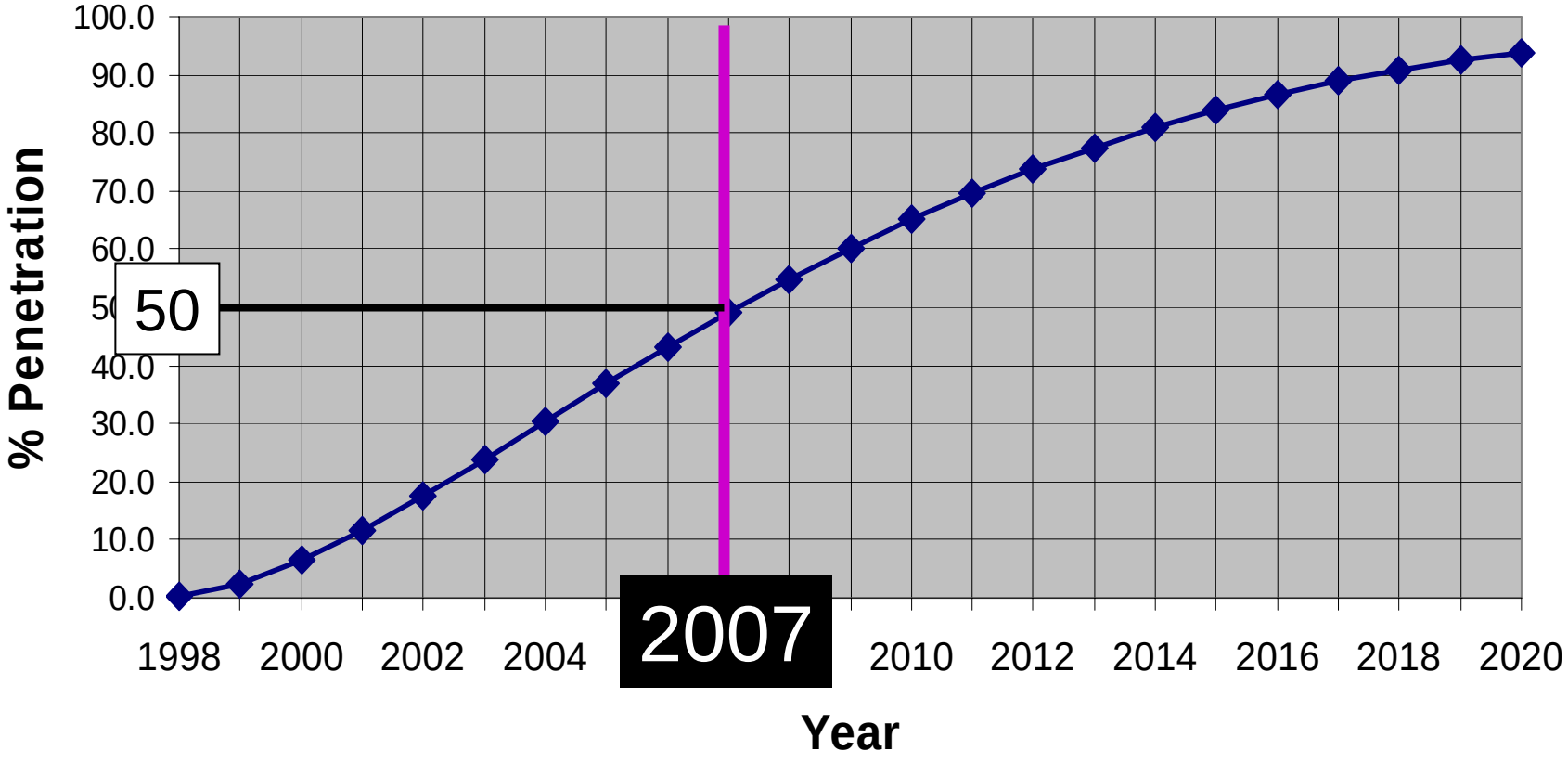
Vehicle Class	40%	80%	100%
Passenger	1998	1999	2000
LD Trucks & MDV (up to 6000 lb)	2001	2002	2003
MDV & HDV (6001 – 10,000 lb)	2004	2005	2006

ORVR - Phase II Incompatibility



ORVR Vehicle Penetration

(vehicle miles traveled - VMT)



US EPA “widespread use” of ORVR Vehicles

- Phase II systems are required by federal, state and local agencies
- US EPA may allow removal of Phase II vapor recovery systems in next 10 years
- CA expects to keep Phase II systems until 2020 or longer to maintain emission reductions

Limited “Widespread Use” Designations

- US EPA 12/12/06 memo
  - Initial fueling of new vehicles at automobile assembly plants
  - Refueling of rental cars at rental car facilities
  - Refueling of flexible fuel vehicles at E85 dispensers

Status of E85 Dispensing in California

- Currently, no certified vapor recovery (VR) systems for E85
- Seven E85 R&D facilities in California
- Phase II VR for E85
  - Districts evaluating USEPA Phase II waiver
- Phase I VR for E85
  - ARB staff evaluating Phase I E85 compatible components
- UL Update
  - certification to begin fourth quarter 2007

EVR Installation Training

- Manufacturer’s training plan is part of ARB certification requirements
- Executive Orders require that installers be trained
- Districts will check contractor certification
- Warranty may be conditioned upon use of trained installers

Number of Trained EVR Contractors in California

	Franklin/ Healy	Veeder-Root (ISD)
Number of Certified **Individuals**	**435**	**411**
Number of Certified **Companies**	**142**	**100**

ICC Vapor Recovery System Installer Exam

- ICC = International Code Council
- Maintain exams for UST program
- Vapor Recovery Installer Exam now available
- May be required by district rule or permit condition
- Vapor recovery tester exam under development

EVR Phase II Deadline

Phase II EVR April 2009 Deadline

- **13,000 GDFs have 20 months to upgrade to EVR Phase II systems!**
  - Obtain permits
  - Purchase equipment
  - Install using certified contractor
- Potential contractor shortage if wait until last minute
- See Advisory 359

Estimated Phase II EVR Costs (without ISD)

	Number of Dispensers			
	2	4	6	12
Dispenser Equipment	$7,240	$14,480	$21,720	$43,440
Dispenser Equipment Installation*	$600	$1,200	$1,800	$3,600
Clean Air Separator	$7,245	$7,245	$7,245	$7,245
CAS Installation*	$2,000	$2,000	$2,000	$2,000
TOTAL	$17,240	$24,925	$32,765	$56,285

*** Assumes installation labor cost of $75/hr**

Estimated ISD Costs

	Number of Dispensers			
	2	4	6	12
Equipment*	$12,300	$14,000	$15,900	$21,300
Installation**	$1,300	$2,500	$3,800	$7,600
TOTAL	**$13,600**	**$16,500**	**$19,700**	**$28,900**

*** Includes purchase of TLS-350 (retrofits will cost less)**

**** Assumes installation labor cost of $135/hr**

Total Estimated Cost for EVR Phase II and ISD

	Number of Dispensers			
	2	4	6	12
EVR Phase II	$17,240	$24,925	$32,765	$56,285
ISD	$13,600	$16,500	$19,700	$28,900
TOTAL (rounded to nearest $100)	**$30,800**	**$41,400**	**$52,500**	**$85,200**

Does not include cost to replace dispensers, obtain permits, install electrical lines or conduct start-up tests

RUST program

- Small business assistance to comply with SB 989
- Also covers Enhanced Vapor Recovery and electronic monitoring system (ISD)
- Grants: $3,000 to $50,000
- Loans: $10,000 to $750,000
- www.waterboards.ca.gov/cwphome/ustcf/rust.html

Trouble Getting EVR Equipment or EVR Trained Contractor?

- Let ARB know!
- Form to document unavailability of vapor recovery equipment or certified contractor at www.arb.ca.gov/vapor/vapor.htm

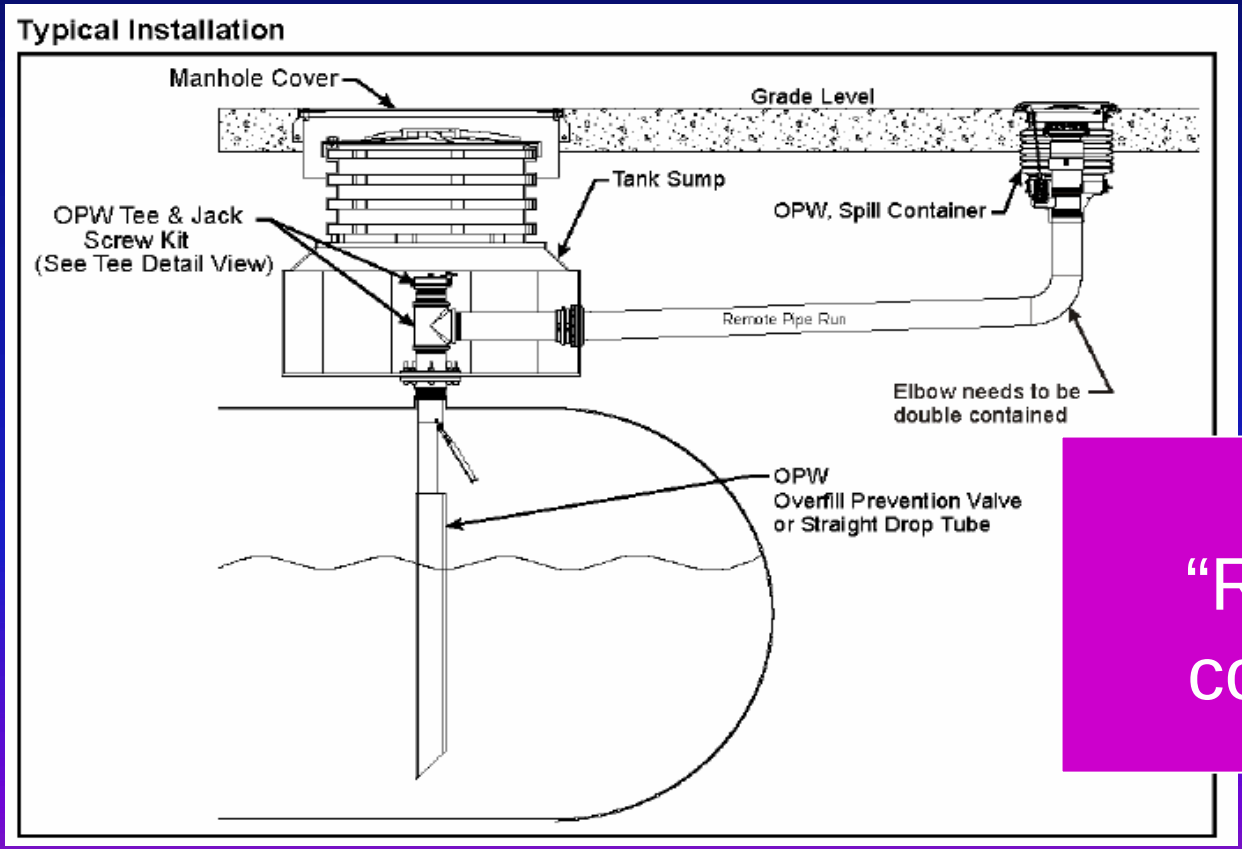
EVR Deadline Outreach

- Frequent Advisories
- Regular public information meetings
- Local outreach events
- Provide information at contractor training facilities
- New website planned for local permitting agencies

EVR Certification Update

Phase I EVR Certification Update

OPW Executive Order VR-102-H signed May 23, 2007



Includes "Remote-Fill" configuration

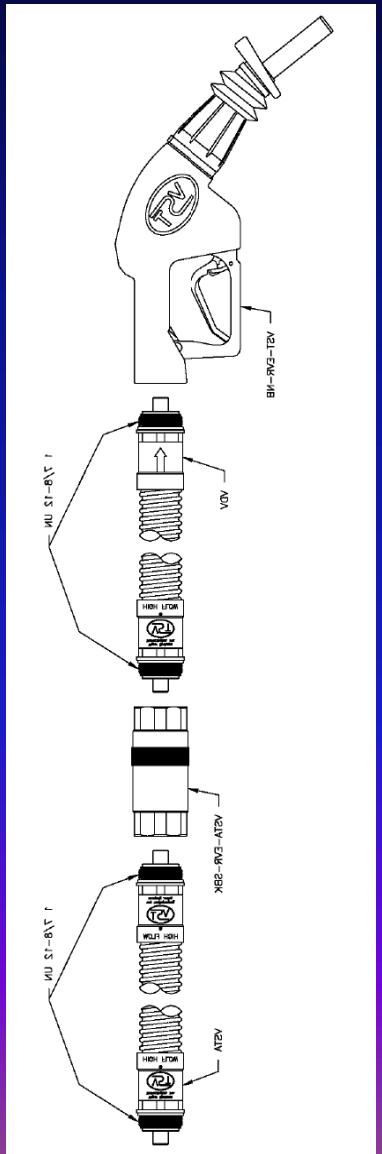
OPW VR-102-H

Example of Remote Fill: Placerville, CA.

Other Phase I EVR Revisions

- All Phase I EVR Executive Orders
  - Remove ball floats / extractors from Exhibit 1 and maintenance requirements.
  - Revise P/V vent valve positive cracking pressure to +2.5 to +6.0 in H_2O.
  - EO's completed: OPW, Phil Tite, & Emco Wheaton.
  - EO's pending: EBW and CNI.

Phase II EVR Certification Update



Status of the Balance System?

- One balance system (with processor) has successfully completed ARB field testing
- Executive Order VR-203-A (without ISD) expected September 2007.
- Executive Order VR-204-A (with ISD) expected December 2007.

Phase II EVR Certification Update

- Additional Balance Systems?
  - Four other balance system applications received, all include processors.
  - Prototype equipment currently installed at “test sites” in Sacramento.
  - None have been “sealed” by ARB to begin field testing.
  - “Test sites” are GDFs with a minimum of 10 fueling points & 150K gallon throughput per month.

Replacement Parts
(per section 19.1, CP-201)

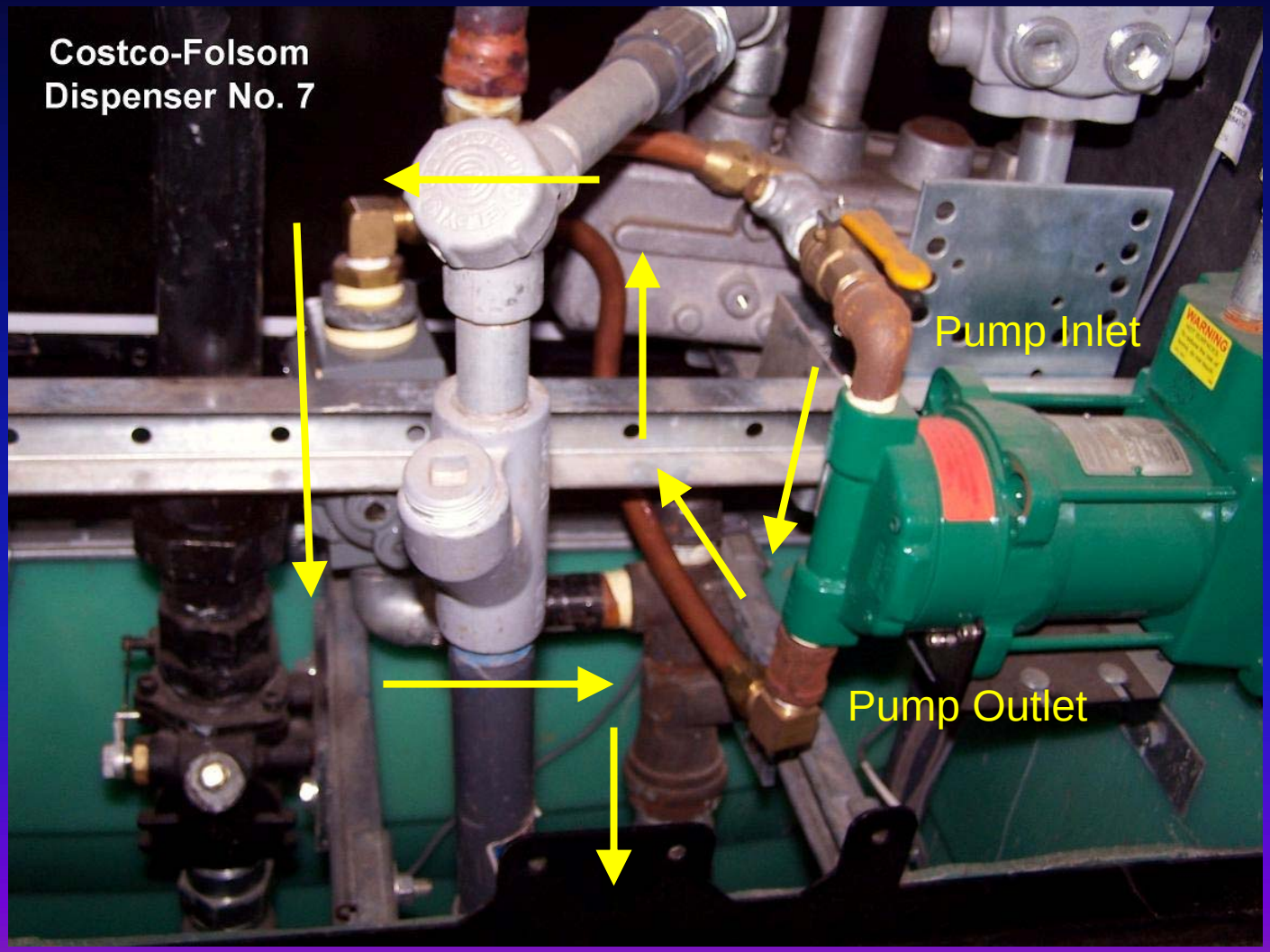
- EVR certified components <u>can be used</u> (optional) as pre-EVR replacement parts if determined compatible by ARB.

- EVR certified components <u>shall be used</u> (mandatory) as pre-EVR replacement parts if determined compatible <u>and</u> commercially available by ARB.

Franklin Fueling Systems /Healy Phase II EVR System

- Executive Orders VR-201-C and VR-202-C signed May 9, 2007.
- Includes a new “Universal Dispenser Manual”, any existing dispenser can be upgraded to Healy EVR
- Allows for flexibility in component installation as along as system passes performance tests.
- Negative slope in dispenser piping is allowable if necessary.

Negative Slope in Dispenser Piping



FFS/ Healy Phase II System (cont..)

- Flushing Procedure for Dispenser Piping?
  - There is no FFS approved flushing procedure. If rotor/vanes need cleaning, follow cleaning procedure in the IOM.
  - “VP-1000 Vane & Rotor Service & Replacement Guide” page 61 of Installation, Operation and Maintenance Manual (IOM).

Healy Clean Air Separator in Stock

FFS/ Healy Phase II System (cont.)

- Contractor Training
  - 142 Healy certified contracting companies .
  - Contractor list available at: www.franklinfueling.com/pdfs/HealyCerts.pdf
  - For training, contact:
    Steve Langlie
    800-225-9787
    langlie@franklinfueling.com

FFS/ Healy Phase II System (cont.)

- Veeder Root ISD System Training
- 100 certified contracting companies.
- For training contact Dave Emmington @ demmington@veeder.com.
- Contractor list available at:

  www.veeder.com/cfusion/veeder/ascsearch/index.cfm

Questions?

Visit our Web Page @

http://www.arb.ca.gov/vapor/vapor.htm

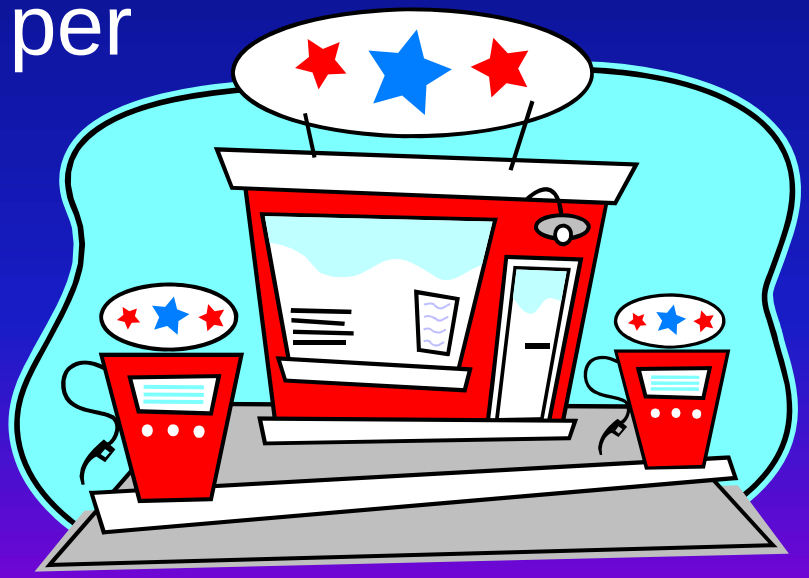
In-Station Diagnostics Update

ISD Implementation

> 1.8 million gallons/yr	600,000 – 1.8 million gallons/yr	≤ 600,000 gallons/yr
New and Major Mod Sites: **Sept. 2005** Existing Sites: **Sept. 2009**	New and Major Mod Sites: **Sept. 2006** Existing Sites: **Sept. 2010**	**Exempt From ISD**

Gasoline Dispensing Facilities with ISD

- About 450 ISD sites in operation statewide per Veeder-Root
- 77 operating in SCAQMD

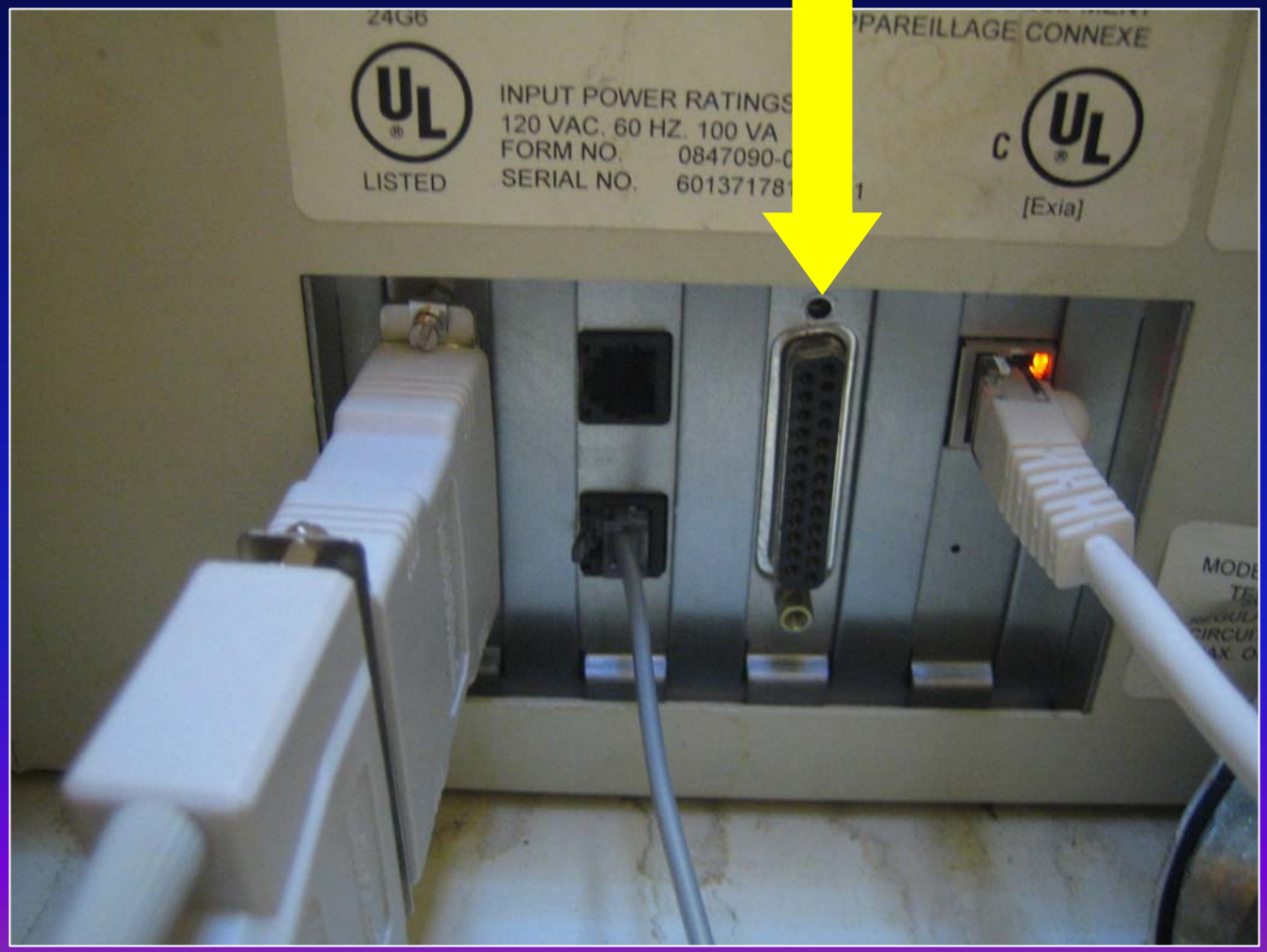


Vapor Recovery Advisory No. 355
October 10, 2006

In-Station Diagnostic Systems
Electronic Access: Availability of an RS 232 Port

- Requires that a vacant RS 232 port must always be available to electronically download reports.
- If no vacant RS 232 port exists, Gasoline Dispensing Facility owners must install an additional RS 232 port that remains vacant for Certified Veeder-Root Technicians and District staff to access daily and monthly reports.

Illustration of an available RS 232 port



Vapor Recovery Advisory No. 357
December 15, 2006

In-Station Diagnostic Systems Version 1.01 Software Upgrade

- Version 1.00 contains command sequence that can delete stored data
- Version 1.01 should be installed as soon as practicable by certified technician
- Manufacturer rebates are available

ISD Contractor Training

- Alpha Petroleum Inc. - Dixon
  - www.alphapetro.com
- Banks and Co. - Fresno
  - www.banks-co.com/training.htm
- Northwest Pump - San Diego
  - www.nwpump.com
- CE Thomas – Los Angeles
  - www.charlesethomas.com

Three ISD Activities

- ISD Enforcement Policy
  - interim policy established June 2006
- ISD In-Use Evaluation
  - See if ISD sites in five districts perform as expected
- ISD Cost-Effectiveness Review
  - Due 18 months after first ISD certification as per 2002 Board resolution

ISD Enforcement Policy

- ARB Policy
  - ISD output not currently appropriate for enforcement
  - No response by station operator to ISD failure signal <u>is</u> enforceable
- CAPCOA recommended policy (6/27/06) posted on ARB website

ISD 18-Month Field Study

To determine whether installed systems perform similar to ISD system tested in certification. Monthly tests include:

- Vapor Flow Meter Operability Test
- Vapor to Liquid (V/L) Ratio Testing
- Identification of Onboard Refueling Vapor Recovery (ORVR) equipped Vehicles
- Pressure Sensor Verification
- Vapor Pressure Sensor Ambient Reference Test

Status of ISD Field Study

- ISD working as expected
- Data from the first nine months of the study are posted at

www.arb.ca.gov/vapor/isdtestdata.pdf

- Data collection completed by January 2008

ISD Cost Analysis Update

Resolution 02-35

December 12, 2002 EVR Technology Review

BE IT FURTHER RESOLVED that the Board directs the Executive Officer and Board staff to assess, following the initial certification of the first EVR Phase II system with in-station diagnostics (ISD), the ***capital cost impacts*** *of ISD on smaller through-put GDFs. The Executive Officer and Board staff are directed to complete the assessment within 18 months after the initial certification of an ISD equipped system.*

2006 vs. 2002 ISD Costs
using CARB methodology

	GDF 1	GDF 2	GDF 3	GDF 4	GDF 5
Number of Dispensers	1	1.5	3	4.5	6
Tech Rev Oct 2002 (2006 dollars)	$11,324	$12,454	$14,485	$16,849	$19,218
2006 Estimate	$10,660 - $12,625	$11,451 - $14,371	$13,824 - $16,379	$16,187 - $19,202	$18,470 - $22,015

ISD Cost Survey Results

GDF Survey ID	A	B	C	D	E
GDF Category	GDF2	GDF3	GDF4	GDF5	GDF5
TOTAL 2006 SURVEY Permit, Equip., Install, Testing Costs	**$13,596**	**$11,553**	**$21,742**	**$13,935**	**$27,060**
TOTAL 2002 Equipment, Installation & Testing Cost Estimate	**$12,454**	**$14,485**	**$16,849**	**$19,218**	**$19,218**
Difference Between 2006 Survey Cost and 2002 Estimate	**+ 1,142**	**- $2,932**	**+ $4,893**	**- $5,283**	**+ $7,842**
Percent Difference from 2002 Estimates	**+ 9.2 %**	**- 20 %**	**+ 29 %**	**- 27 %**	**+ 41 %**

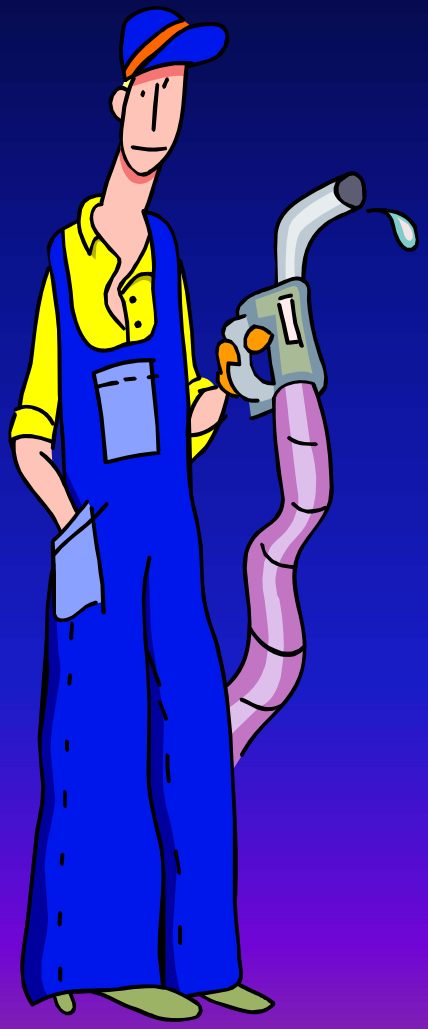
"Lower Throughput"

Conclusion

- Final cost analysis report sent to Executive Office at end of April
- Hold the course on ISD implementation

EVR Contacts

- **EVR Regulations** - Cindy Castronovo
  - ccastron@arb.ca.gov (916) 322-8957
- **EVR Certification** - Pat Bennett
  - pbennett@arb.ca.gov (916) 322-8959
- **ISD and AST certification** - Joe Guerrero
  - jguerrer@arb.ca.gov (916) 324-9487
- **In-Use Vapor Recovery** - Ranjit Bhullar
  - rbhullar@arb.ca.gov (916) 322-0223

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

Questions?