

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

California Air Resources Board
Monitoring and Laboratory Division
May 9, 2007
Sacramento



Agenda

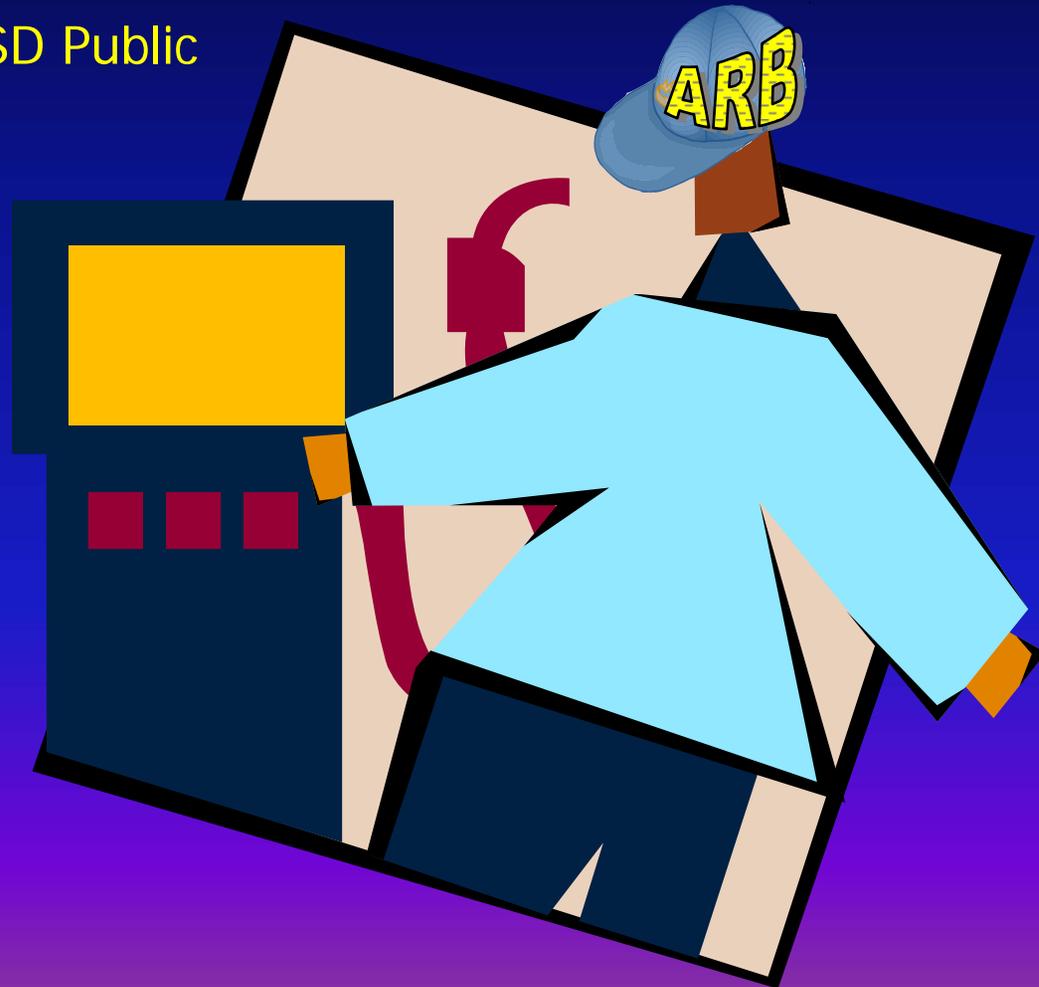
- EVR General Update
- EVR Phase II Deadline
- EVR Certification Update
- Franklin/Healy EVR Phase II System
- In-Station Diagnostics
- Question and Answer Session

Enhanced Vapor Recovery Update

Presented at the EVR/ISD Public
Information Meeting

May 9, 2007

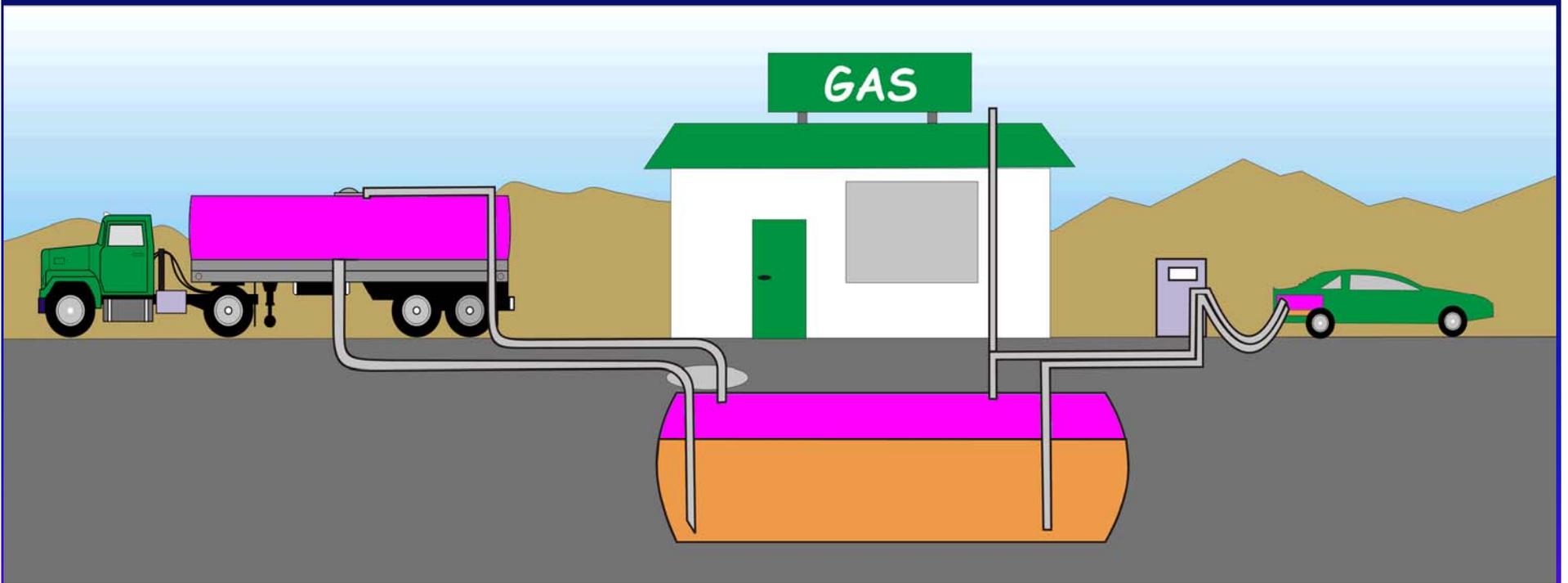
Cindy Castronovo
Air Resources Board
Cal-EPA



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

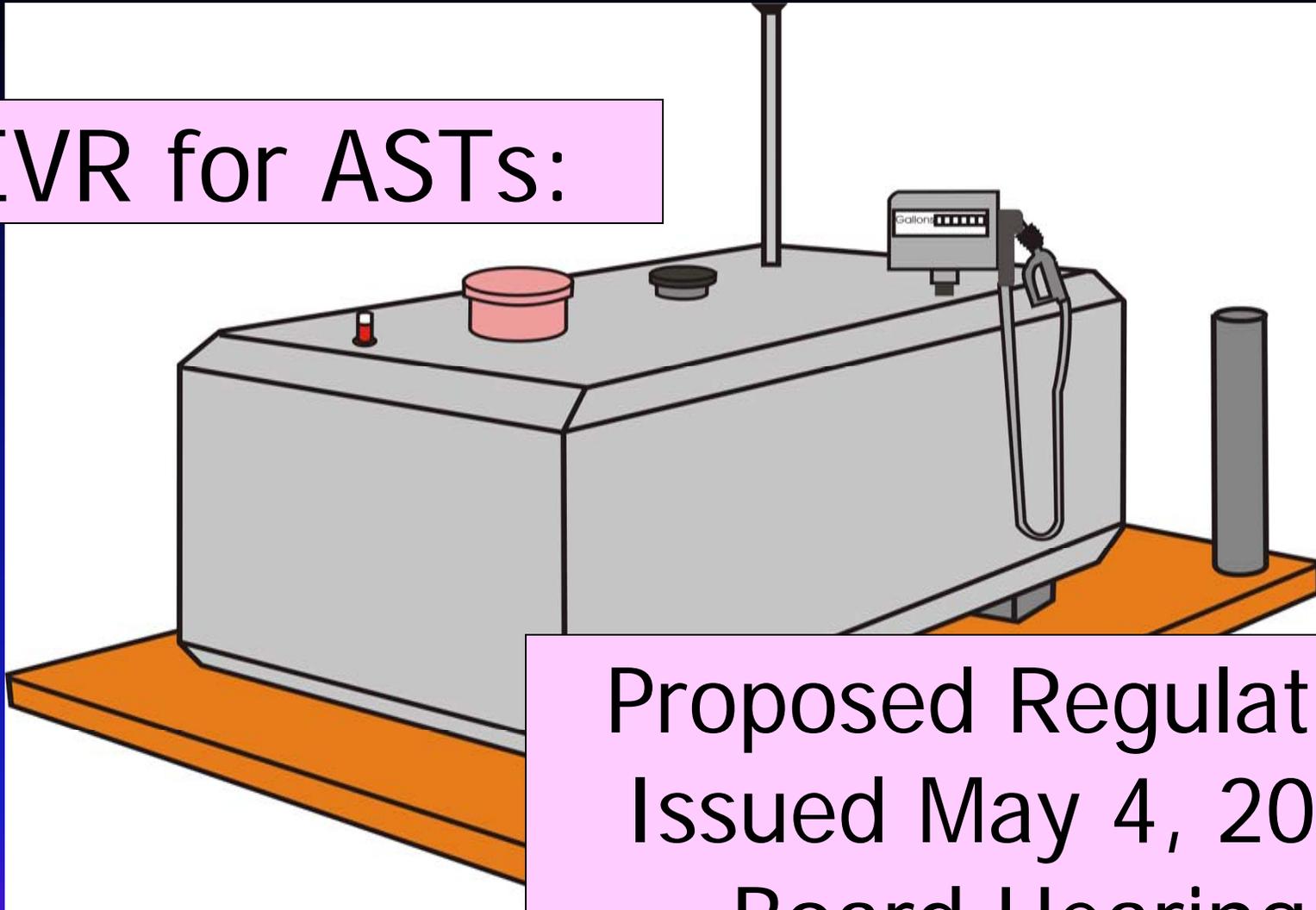
Vapor Recovery at Service Stations



Phase I

Phase II

EVR for ASTs:

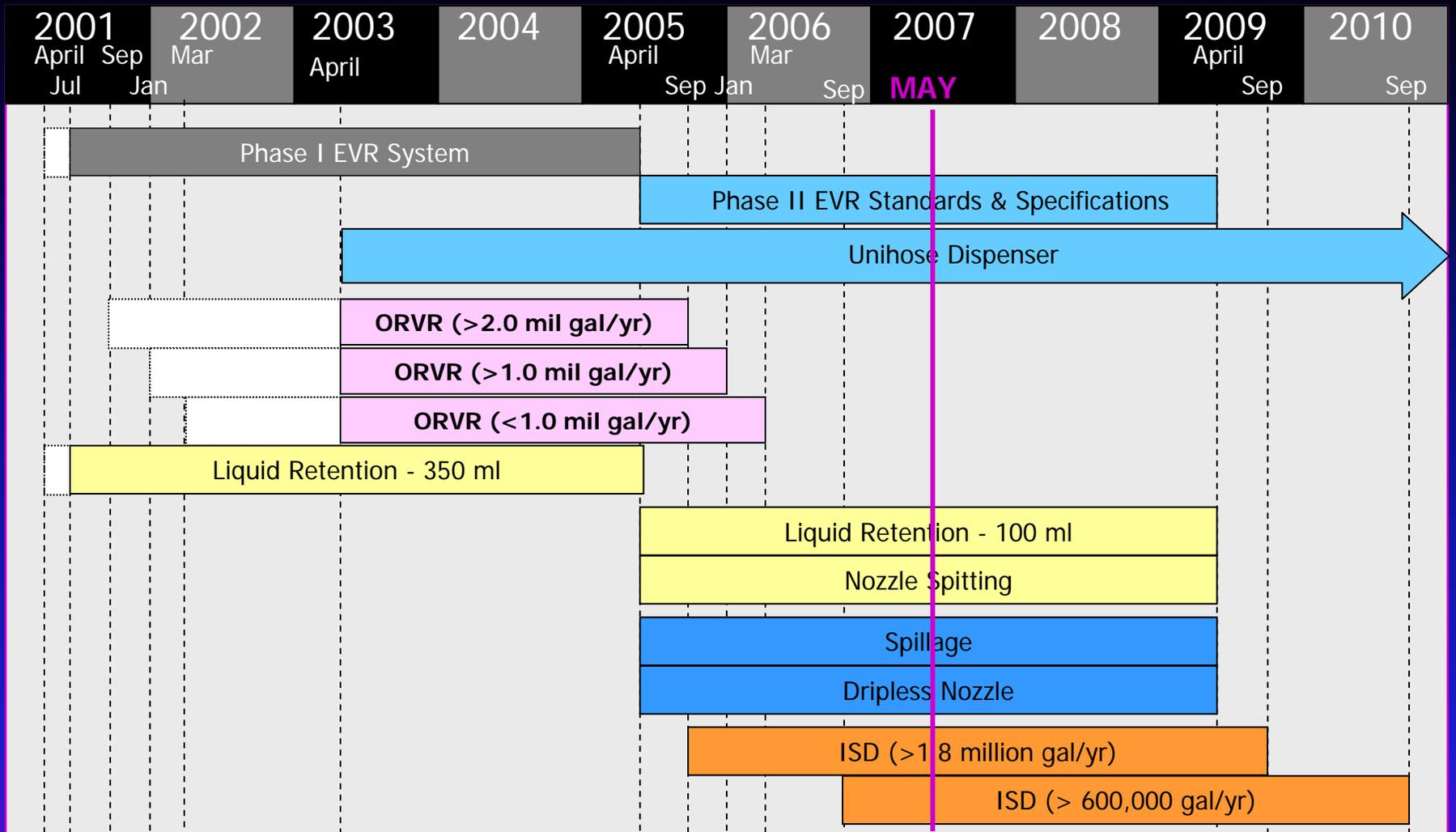


Proposed Regulation
Issued May 4, 2007
Board Hearing
June 21-22, 2007

Partial EVR Exemption for Districts in Attainment with State Ozone Standards

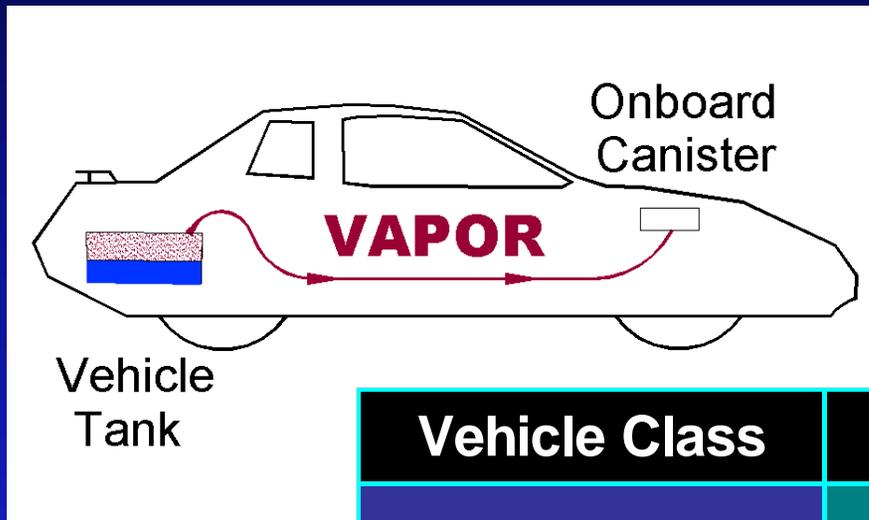
- Exempt existing sites from all EVR modules except ORVR compatibility
- ORVR compatibility to minimize benzene exposure
- New and modified stations must comply

EVR Timeline (updated June 2006)



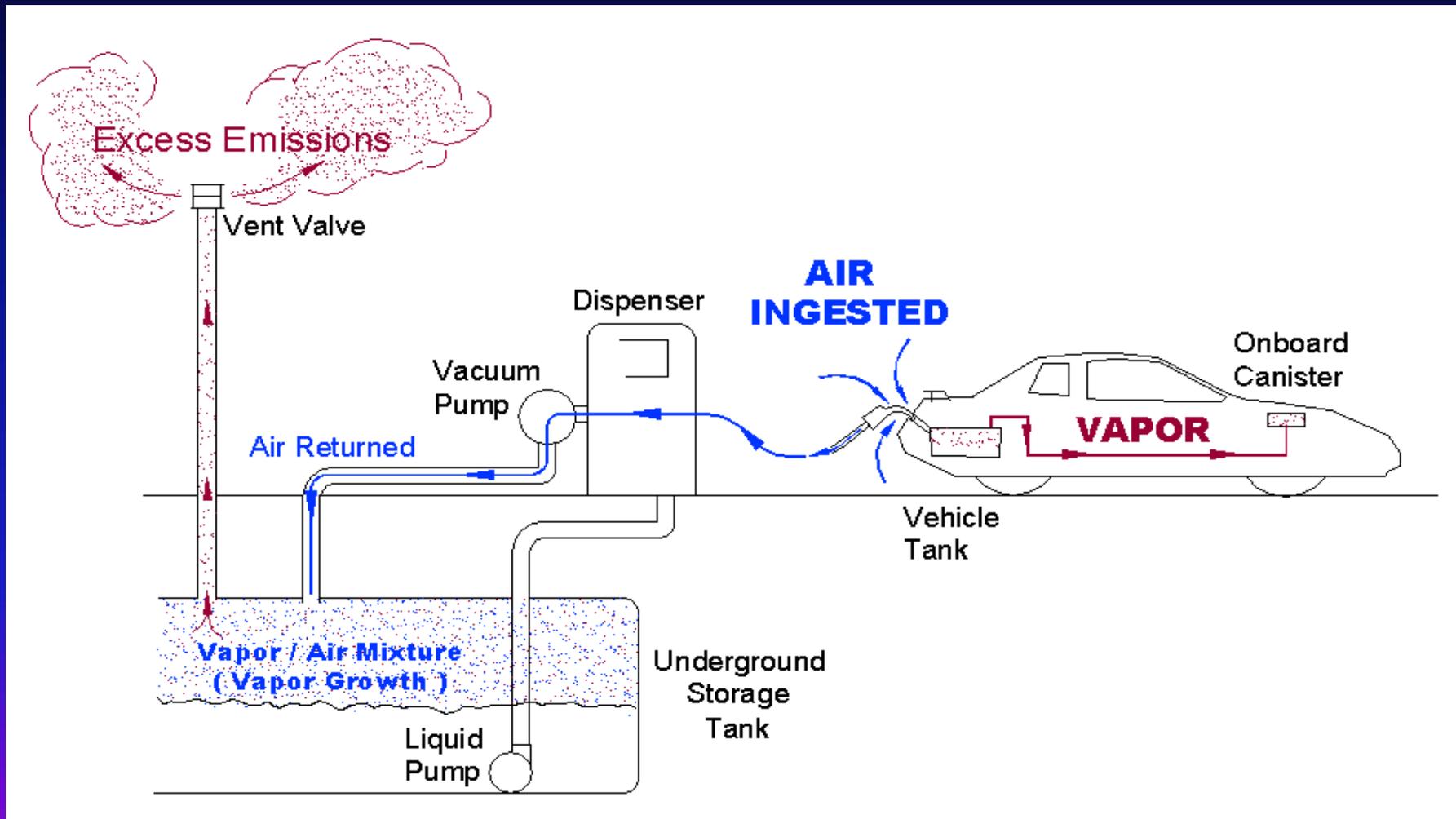
-  Dotted box: time between start of 4-year clock and operative date
-  Start of solid bar: date required for new or modified facilities (operative date)
-  End of solid bar: date required for existing facilities (installed before start of bar)
-  Not required for dispensers installed before April 2003

Onboard Refueling Vapor Recovery or "ORVR"



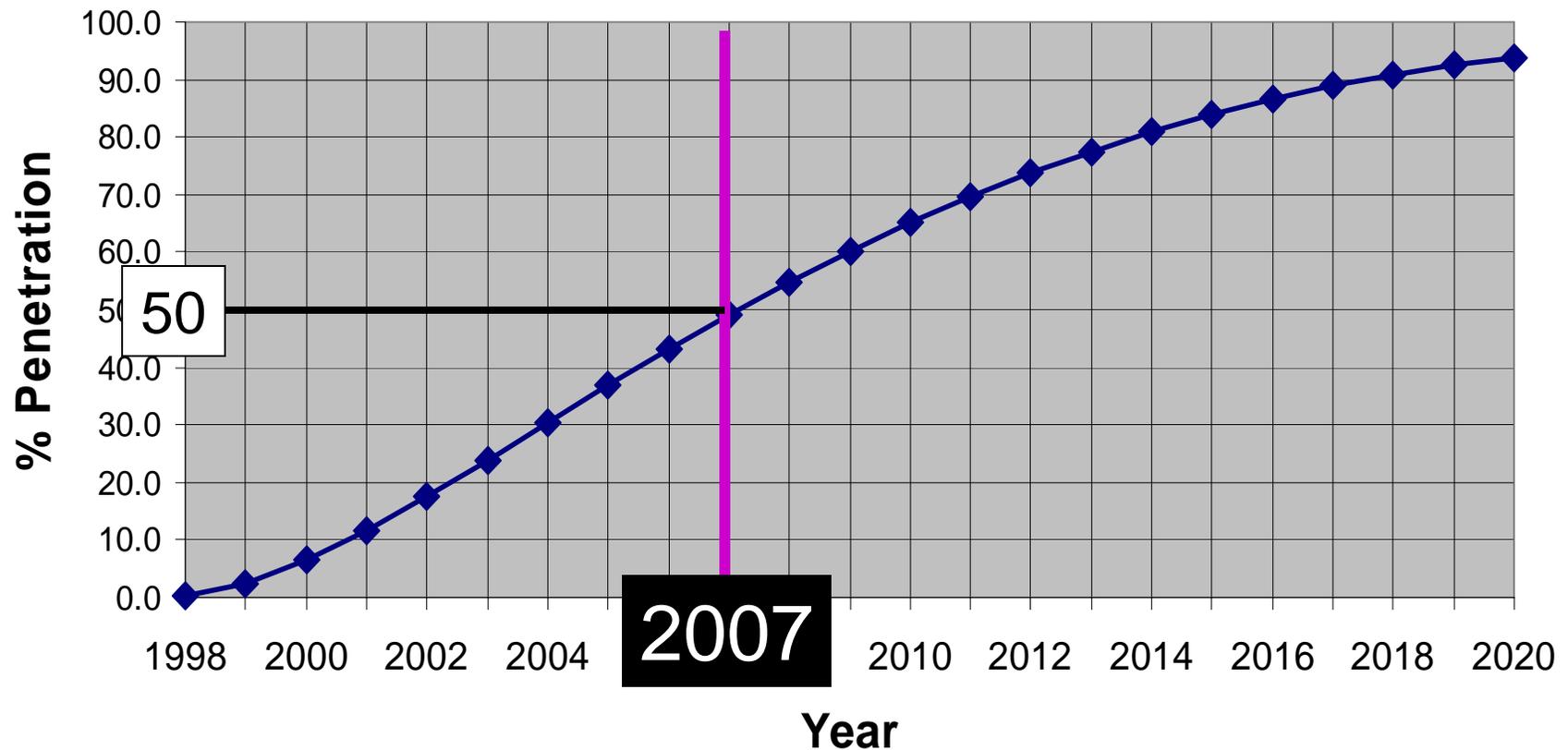
Vehicle Class	40%	80%	100%
Passenger	1998	1999	2000
LD Trucks & MDV (<6000 lbs)	2001	2002	2003
MD Vehicles (6001-8500 lbs)	2004	2005	2006

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	437	293
Number of Certified Companies	142	69

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 23 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 at www.arb.ca.gov/vapor/vapor.htm
- Form to document contractor availability to be posted soon

EVR Deadline Outreach

- Frequent Advisories
- Semi-annual public information meetings
- Local outreach events
- Provide information at contractor training facilities

EVR Certification Update



Phase I EVR Certification Update

- OPW “Remote-Fill” System
 - Field testing complete, Executive Order (VR-102-H) expected May 2007.



Phase I EVR Certification Update

- All Phase I Executive Orders
 - Removed ball floats / extractors from Exhibit 1 and maintenance requirements.
 - Revised P/V vent valve positive cracking pressure to +2.5 to +6.0 in H₂O.
 - Revised Executive Orders expected June 2007.

Phase II EVR Certification Update

- Balance Systems?
 - Four balance system applications received, all include processors.
 - One balance system has successfully completed ARB field testing.
 - System includes membrane processor.
 - Executive Order (without ISD) expected September 2007.
 - Executive Order (with ISD) expected December 2007.

Phase II EVR Certification Update

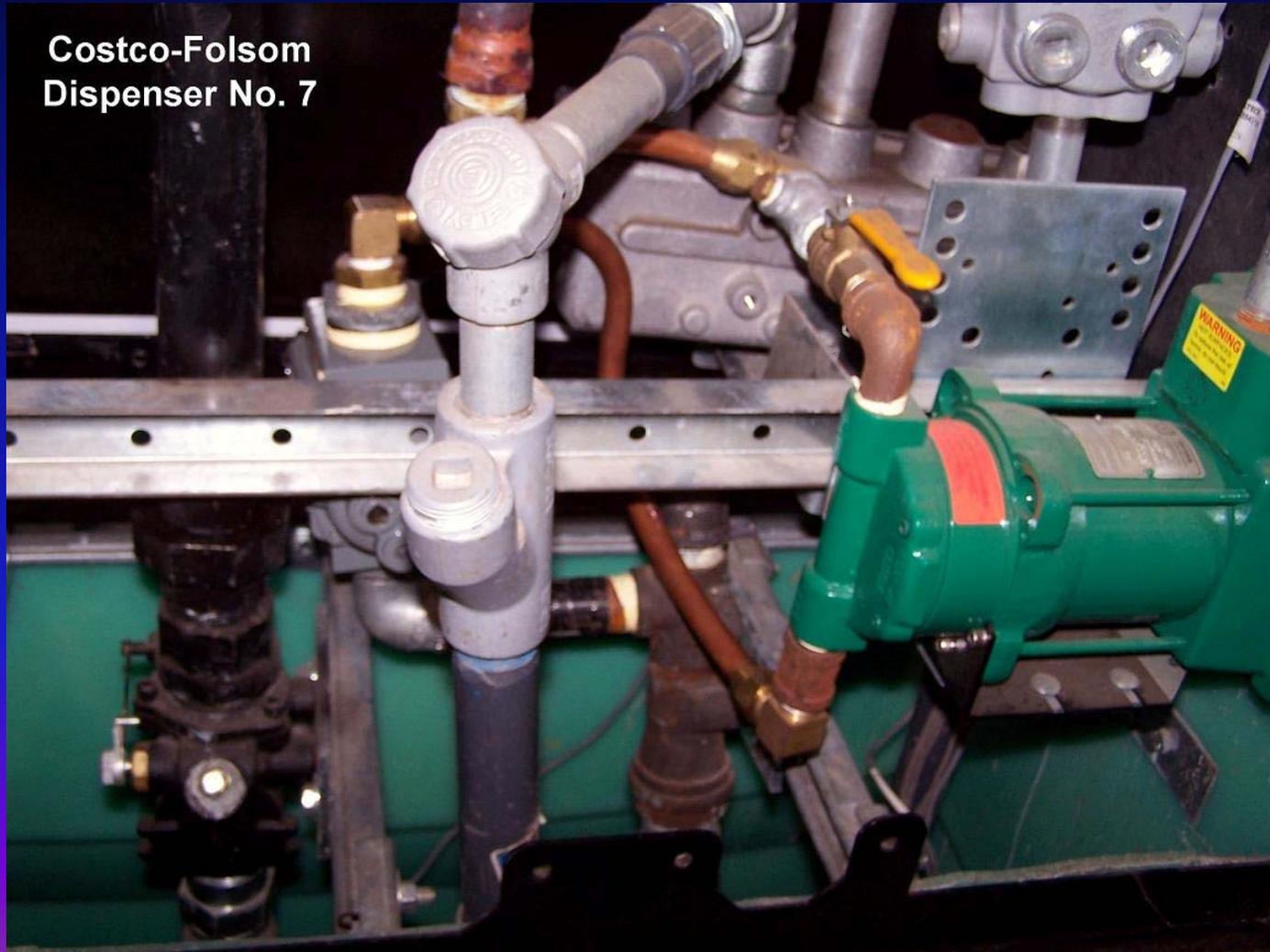
- Replacement Parts (per section 19.1, CP-201)
 - EVR certified components can be used (optional) as pre-EVR replacement parts if determined compatible by ARB.
 - EVR certified components shall be used (mandatory) as pre-EVR replacement parts if determined compatible and commercially available by ARB.

Phase II EVR Certification Update

- Franklin Fueling Systems / Healy Executive Order VR-201 and VR-202 Revision C
 - Universal Dispenser Manual.
 - Negative slope in dispenser piping is allowable if necessary (see figure).
 - Executive Order signed May 9th.

Negative Slope in Dispenser Piping

Costco-Folsom
Dispenser No. 7



Phase II EVR Certification Update

FFS/ Healy Phase II System (continued)

- Flushing Procedure for Dispenser Piping?
 - There is no FFS approved flushing procedure. If rotor/vanes need cleaning, follow cleaning procedure in the IOM.

Phase II EVR Certification Update

FFS/ Healy Phase II System (continued)

- Equipment Availability – not a problem according to Franklin/Healy
- FFS / Healy Contractor Training
 - 104 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

Phase II EVR Certification Update

FFS/ Healy Phase II System (continued)

- Veeder Root ISD System Contractors
- 69 certified contracting companies
- Contractor list available at:

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

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 150 ISD sites in operation statewide
- About 150 ISD permits pending statewide
- SCAQMD has most operating sites at approximately 50 facilities

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



ISD Data Download



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

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 is 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 six 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.

Change In Approach

- Return to original focus on cost impacts
 - not cost-effectiveness.
- Why??
 - cost-effectiveness review goes beyond mandate from Board
 - Difficult to measure/estimate emission benefit this early in ISD implementation
 - Report due 18 months after ISD certified
 - Need to focus ARB resources on EVR certification and implementation

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
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- **EVR Certification** - Pat Bennett
 - pbennett@arb.ca.gov (916) 322-8959
- **ISD and AST certification** - Joe Guerrero
 - jguerrerr@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?

