

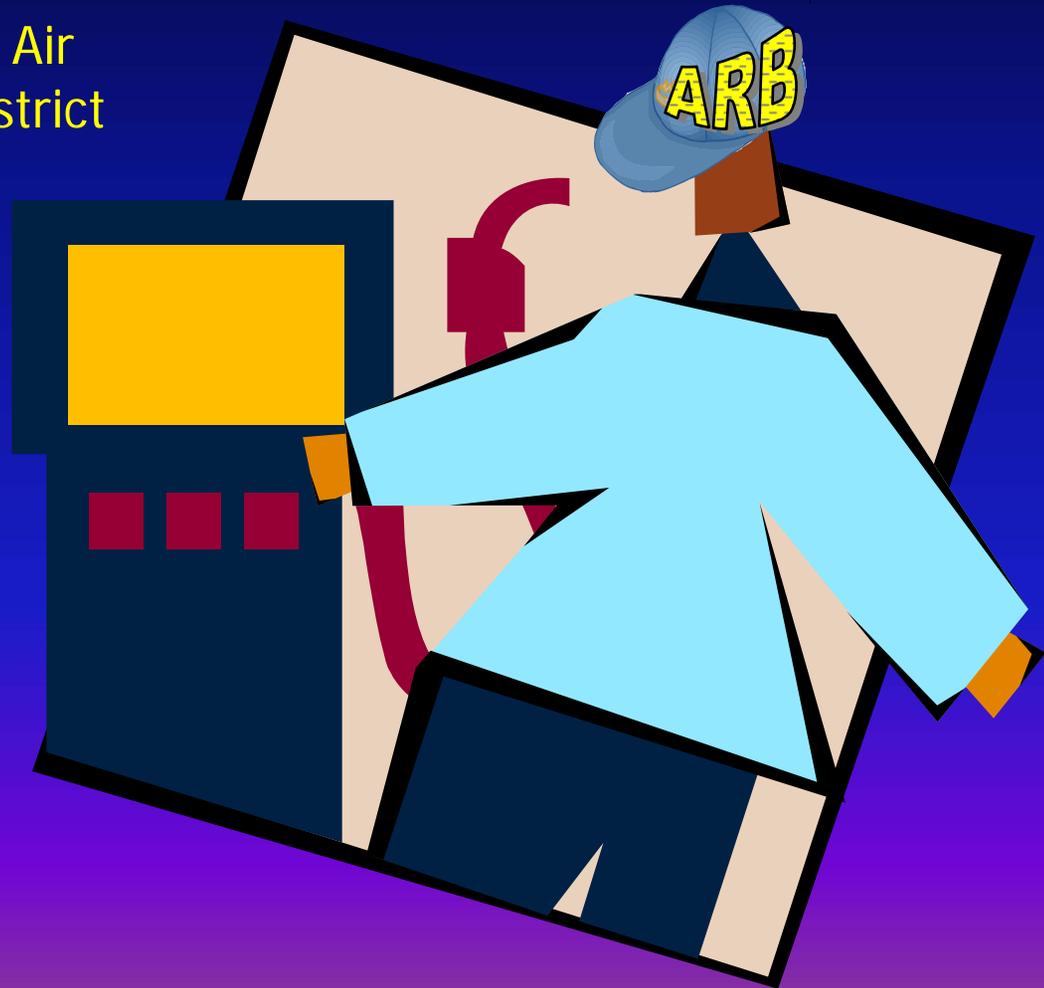
Enhanced Vapor Recovery

Hosted by the Bay Area Air
Quality Management District

(BAAQMD)

September 25, 2007

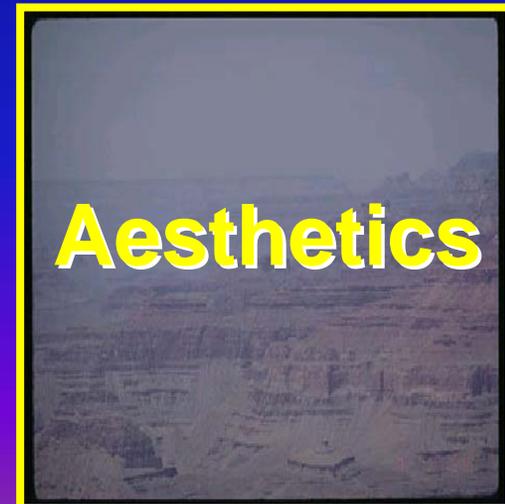
Cindy Castronovo
Air Resources Board
Cal-EPA



Outline

- Background & Benefits of Vapor Recovery
- 2009 EVR Phase II Deadline & Outreach
- Franklin/Healy EVR Phase II System
- Veeder-Root In-Station Diagnostics
- VST EVR Phase II System

Air Pollution Impacts...

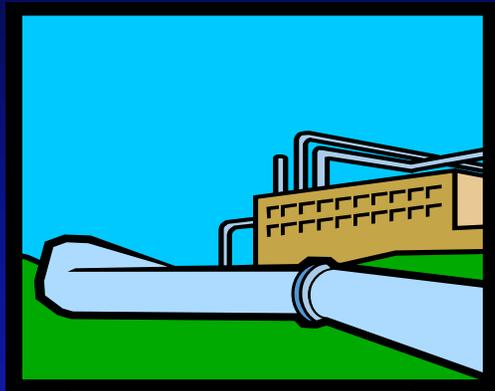


Health Effects of Air Pollution



- Asthma, bronchitis, permanent lung damage
- Headaches, brain damage
- Sore throat, Stinging eyes
- Reduced immunity, anemia
- Cancer, reproductive problems birth defects
- Premature death

Gasoline Pathways



Pipeline



Refinery

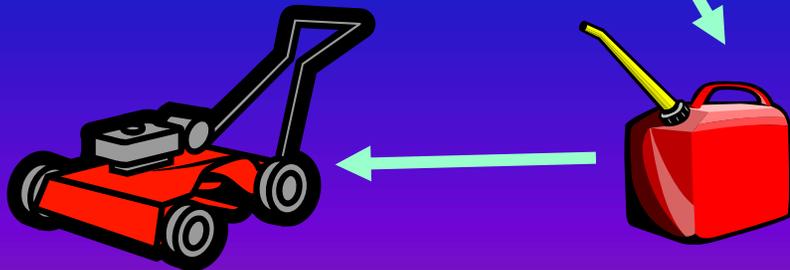
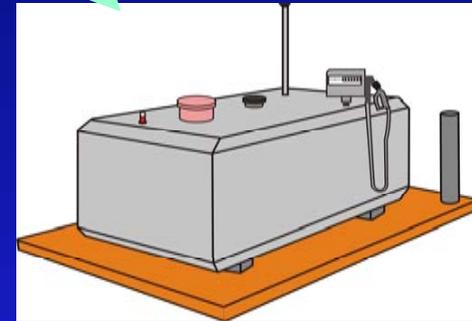
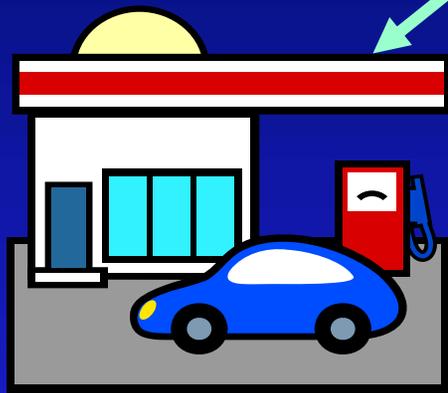


Marine loading

Terminal



Gasoline Pathways

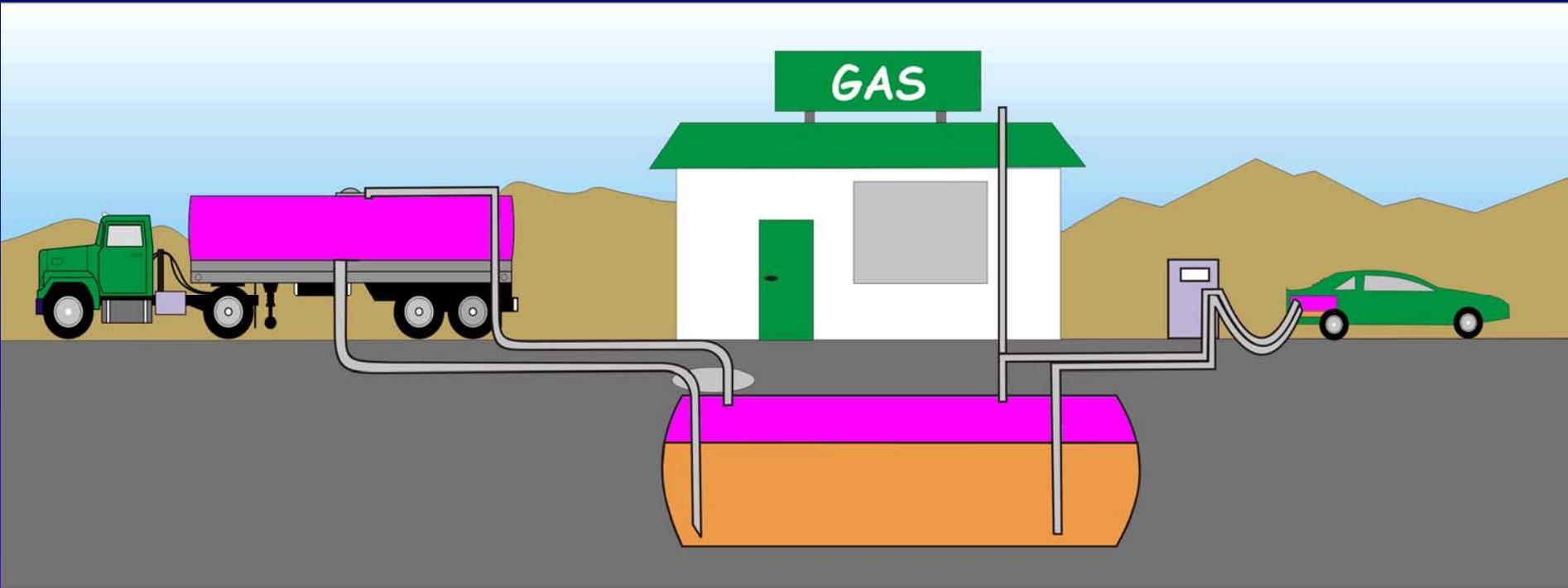


GDF Vapor Recovery Benefits

- **16 billion gallons/year CA gasoline sales**
- **Uncontrolled emissions of 8.4 lbs of gasoline vapor for each 1000 gallons gasoline transferred**
- **347 tons/day vapor recovery emission reductions from pre-EVR systems**
- **25 tons/day from Enhanced Vapor Recovery**

**Total Benefit: 372 tons/day or
120,000 gallons liquid gas/day or
\$360,000 savings/day (\$3.00/gal)**

Vapor Recovery at Service Stations



Phase I

Phase II

EVR Improvements

- More stringent certification requirements
- “Dripless” nozzles – less spillage
- Control of fugitive emissions
- Better components – less system leaks
- Compatible with vapor recovery systems on newer vehicles (ORVR)
- Vapor recovery system monitor (ISD)

Phase II EVR 2009 Deadline

- **13,000 GDFs have 18 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



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

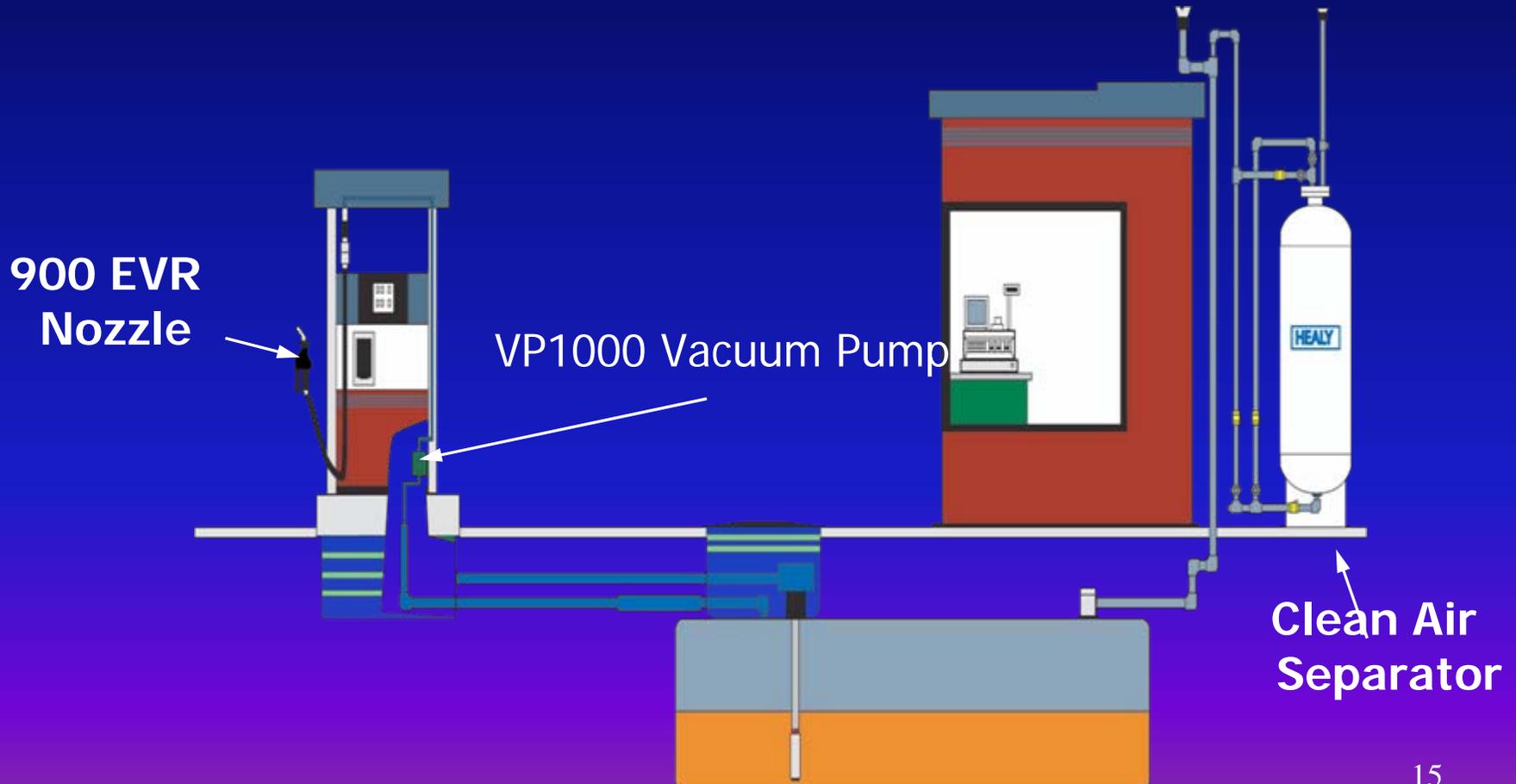
EVR Phase II Certified Systems

- One EVR Phase II system certified:
 - Healy EVR Phase II System
 - not Including ISD: VR-201
 - Including ISD: VR-202
- Next EVR Phase II System to be certified:
 - Oct. 07 EVR balance with processor w/o ISD
 - Jan. 08 EVR balance with processor with ISD
- Other systems currently in cert process
- Takes about 1 year to complete certification

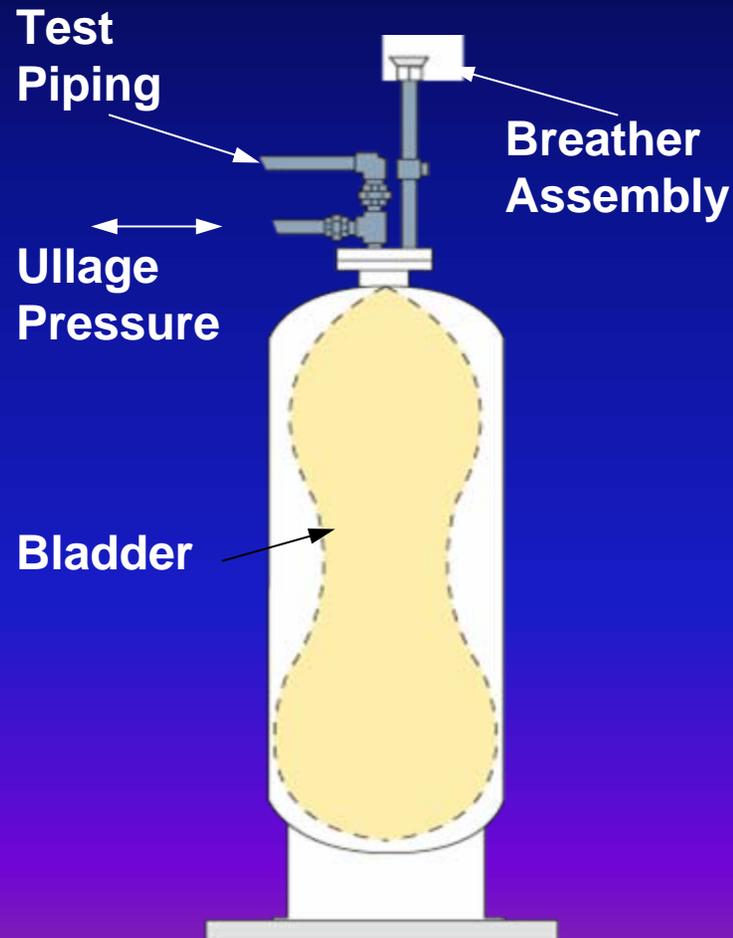
Certification Agencies

- **California Air Resources Board**
- **Department of Food and Agriculture
Division of Measurement Standards**
- **Department of Forestry and Fire
Protection
Office of the State Fire Marshal**
- **Department of Industrial Relations
Division of Occupational Safety and
Health**
- **State Water Resources Control Board
Division of Water Quality
Underground Storage Tank Program**

Healy EVR Phase II System



Healy Clean Air Separator (CAS)



Healy Clean Air Separator



ARCO
Northgate Blvd & Del Paso
Road, Sacramento

Healy Clean Air Separator



ARCO

**29th & J St.,
Sacramento**

Expected Soon!
Horizontal CAS



VST EVR Phase II System



VST EVR Phase II System



VST EVR Phase II System



In-Station Diagnostics (ISD)

- Identifies failures automatically
- Notifies station operator
- Reduces emissions by early detection and prompt repair
- Supplements district inspections
- Concept similar to OBD for vehicles
- Tie-in to existing UST leak monitors

How ISD Works

Monitors Two Primary VRS Functions:

1. Collection of Vapors during Fueling
 - ISD flow monitor
2. Containment of Vapors in UST system
 - ISD pressure monitor
 - ISD leak test

ISD Sensors

← Flow Meter
Pressure Sensor



Veeder-Root TLS-350

Tanknology

Tanknology *Amw*
Contractors State License
#743160
Date: *6-1-2006*

VEEDER-ROOT 

OCT 4, 2006 8:27:42 AM
VP EMISSIONS WARN

ALARM 

WARNING 

POWER 



TLS-350

UST Monitoring System

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

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?

