

Enhanced Vapor Recovery (EVR) For Gasoline Dispensing Facilities



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San Diego County APCD

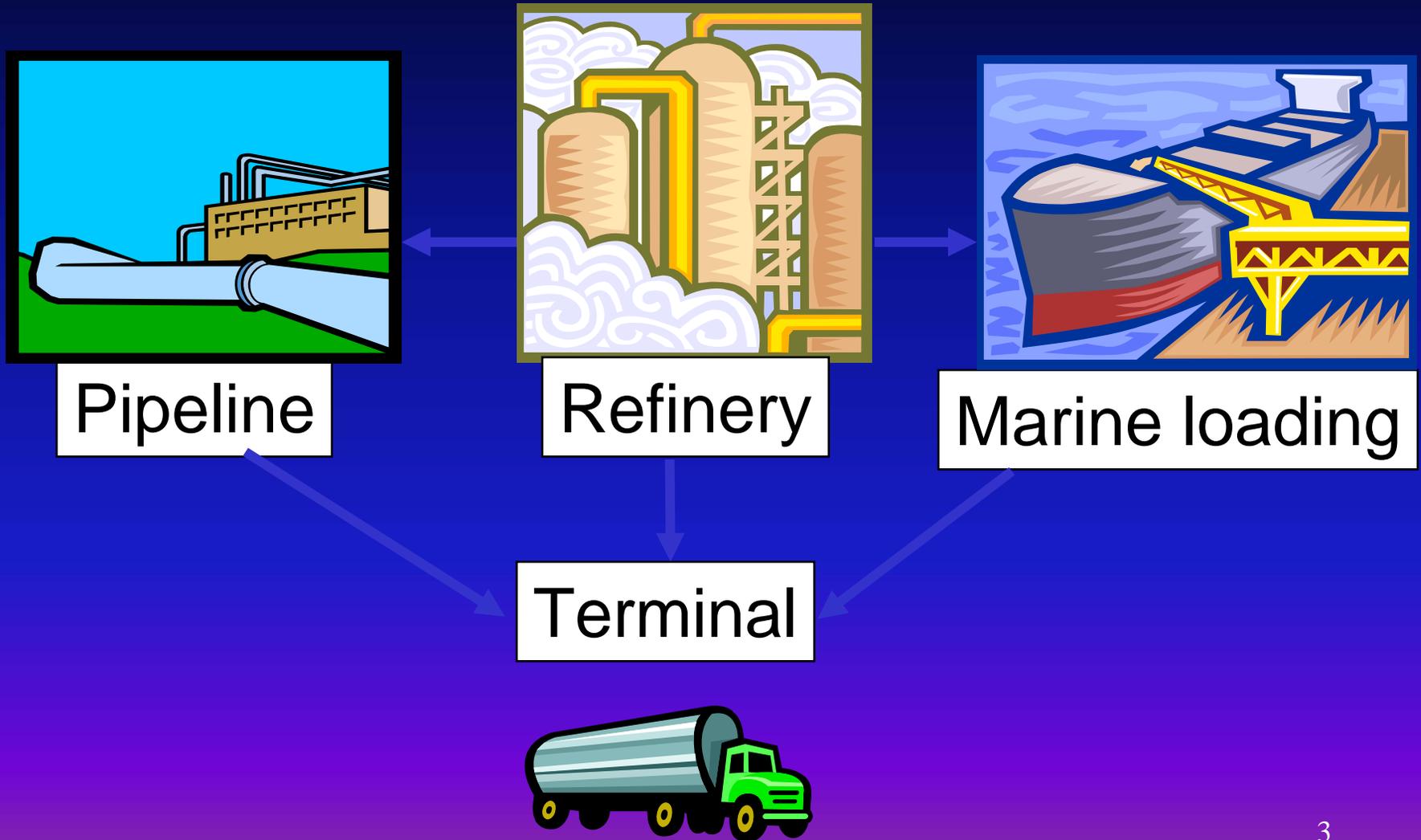
www.sdapcd.org

October 2, 2008

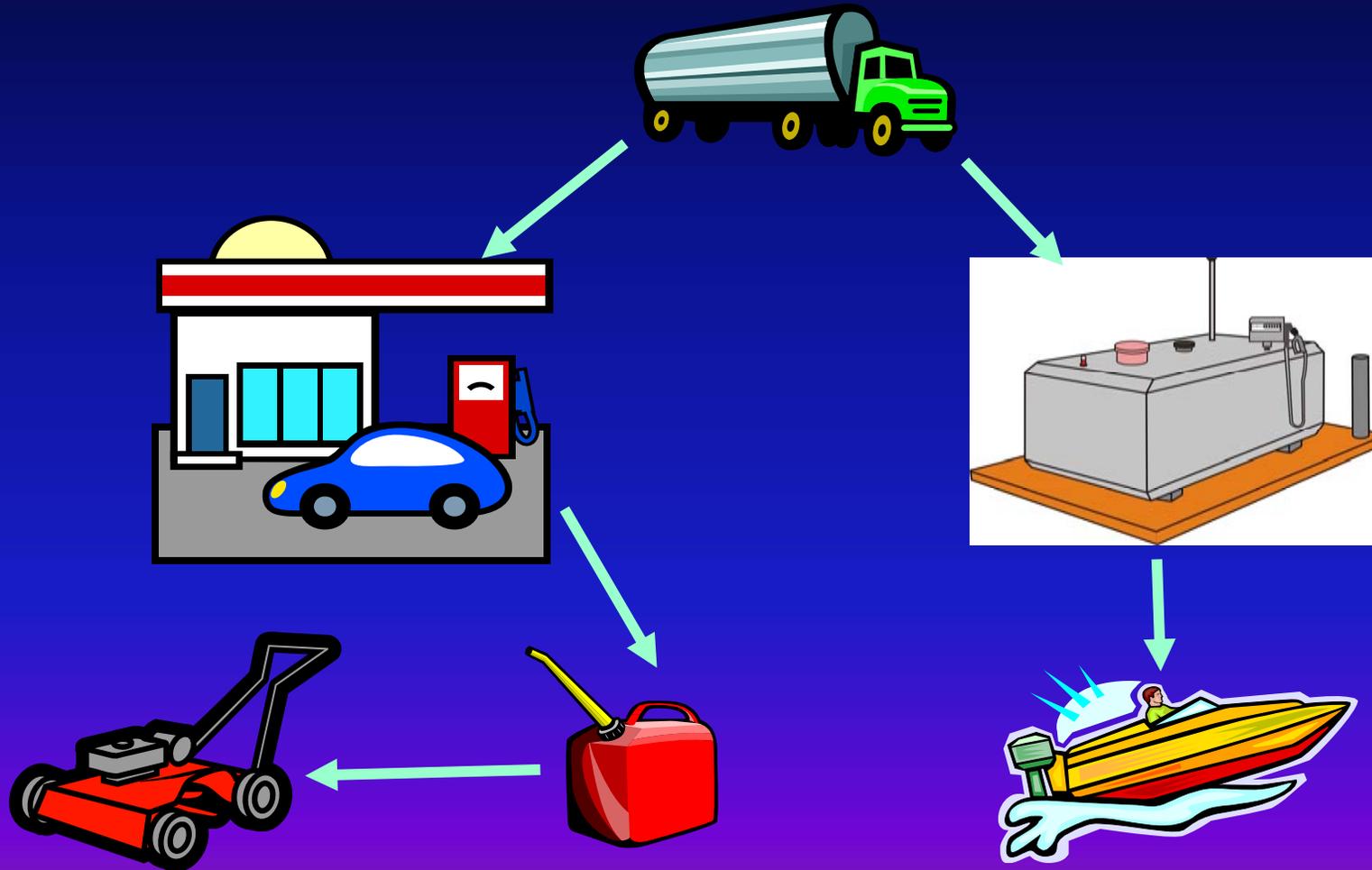
PLEASE NOTE !!!

- The following comments apply only to the Phase II vapor recovery system of gasoline dispensing facilities (GDF).
- They **do not apply to diesel** dispensing facilities.
- They only apply to underground gasoline storage tanks (UST) at this time.
- At some point in the future there will also be EVR requirements for above ground storage tanks (AST). Please watch for future APCD advisories on this issue.

Gasoline Distribution Network



Gasoline Distribution Network



History Of Vapor Recovery

1972 & 73

1974

1987

1990

1998

2000

BAAQMD and SDCAPCD adopt regulations requiring vapor recovery systems

Health and Safety Code 41954 adopted to establish CA vapor recovery equipment certification program

Benzene Air Toxic Control Measure is adopted which requires vapor recovery at any CA station that pumps greater than 480,000 gallons/year

The FCAA requires the installation of gasoline vapor recovery systems at stations with a throughput greater than 100,000 gals/month in ozone non-attainment areas across the United States AND ORVR

First ORVR cars sold

CARB approves EVR

Government Regulatory Roles

California Air Resources Board (CARB)

- Adopts vapor recovery system standards
- Certifies Phase I and Phase II vapor recovery systems

State Fire Marshal

- Approval part of vapor recovery certification

Water Resources Control Board

- USTs, Overfill Prevention, Secondary Containment

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Local Air Pollution Control Districts (APCD)

- Permit GDFs and enforce vapor recovery rules

Local Fire Agencies

- Enforce fire codes and approve upgrades

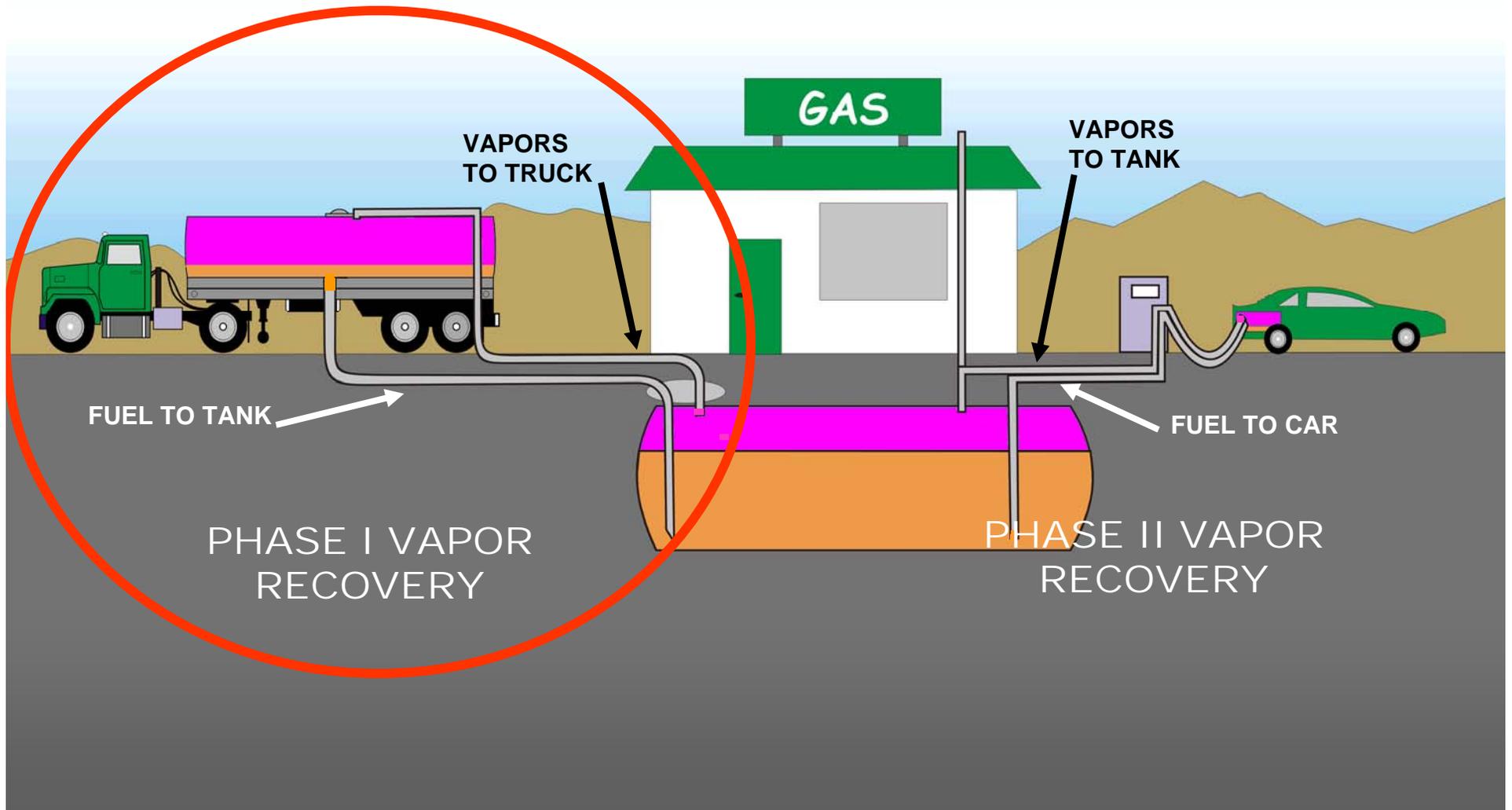
Certified Unified Program Agencies (CUPAs)

- permit GDFs and enforce UST program rules

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VAPOR RECOVERY PROGRAM

PHASE I AND PHASE II VAPOR RECOVERY SYSTEMS



San Diego APCD Rules For GDFs

- These rules are available at www.sdapcd.org
- Rule 61.3 Phase I System
- Rule 61.3.1 Phase I EVR System
- Rule 61.4 Phase II System
- Rule 61.4.1 Phase II EVR System

GDF Vapor Recovery Benefits

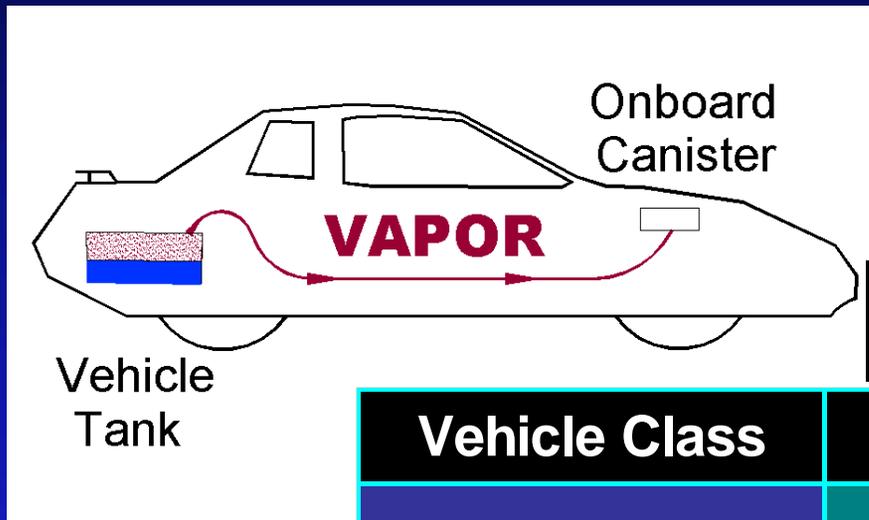
- **16 billion gallons/year CA gasoline sales**
- **Uncontrolled emissions of 8.4 lbs of gasoline vapor for each 1000 gallons gasoline transferred**
- **347 tons/day** vapor recovery emission reductions from pre-EVR Phase I and Phase II systems
- **25 additional tons/day** from Enhanced Vapor Recovery systems
- **372 tons/day of VOC emissions prevented statewide once EVR is fully implemented**

“Why Enhanced Vapor Recovery?”

- Vapor Recovery Equipment in field not working as efficiently as originally certified by CARB
- SIP Settlement Agreement Emission Reductions
- Incompatibility of Onboard Refueling Vapor Recovery (ORVR) With Existing Vapor Recovery Systems

EVR addresses all of these areas!

Onboard Refueling Vapor Recovery or "ORVR"



ORVR Phase-In

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

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

- **GDFs now have 6 months to upgrade to EVR Phase II systems!**
 - Obtain permits
 - Purchase equipment
 - Install using certified contractor
- Potential contractor shortage if wait until last minute



Permitting EVR Upgrades

- EVR Phase II upgrades involve more permitting agencies than previous EVR upgrades.
- Local Planning Department is concerned about processor appearance
- CUPAs concerned that ISD upgrade could affect UST monitoring system

GDF Fueling Operations That Don't Need Phase II EVR

- Diesel Fueling Operations
- Aircraft & Boat Fueling Operations
- Non-Retail Gasoline Fueling Operations Where Less Than 2,000 Gallons Are Dispensed Every Calendar Month
- E85 Fueling Operations
- Non-Retail Gasoline Fueling Operations Where 95% or more of vehicles fueled are equipped with ORVR

Important APCD Phase II EVR Deadlines

- October 1, 2008: An application and fees for the Phase II EVR equipment upgrades, or an application for an exemption from EVR upgrades must be submitted to the San Diego APCD.
- April 1, 2009: The Phase II EVR equipment upgrades must be installed.

Other APCD EVR Deadlines For GDFs That Dispense More Than 1,800,000 Gallons Per Year

- March 1, 2009: An application and fees should be submitted to the San Diego APCD for the installation of a CARB certified In-Station Diagnostic (ISD) system.
- September 1, 2009: The ISD system must be installed at these stations

Other APCD EVR Deadlines For GDFs That Dispense Between 600,000 and 1,800,000 Gallons Per Year

- March 1, 2010: An application and fees should be submitted to the San Diego APCD for the installation of a CARB certified ISD system.
- September 1, 2010: The ISD system must be installed at these stations

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

Summary of ISD Implementation Deadlines

**> 1.8 million
gallons/yr**

**600,000 – 1.8 million
gallons/yr**

**\leq 600,000
gallons/yr**

**September
2009**

**September
2010**

**Exempt
From ISD**

EVR Phase II Certified Systems

- Two EVR Phase II systems certified to date:

Healy EVR Phase II System (Assist)

Not including ISD: Executive Order (E.O.) VR-201

Including ISD: E. O. VR-202

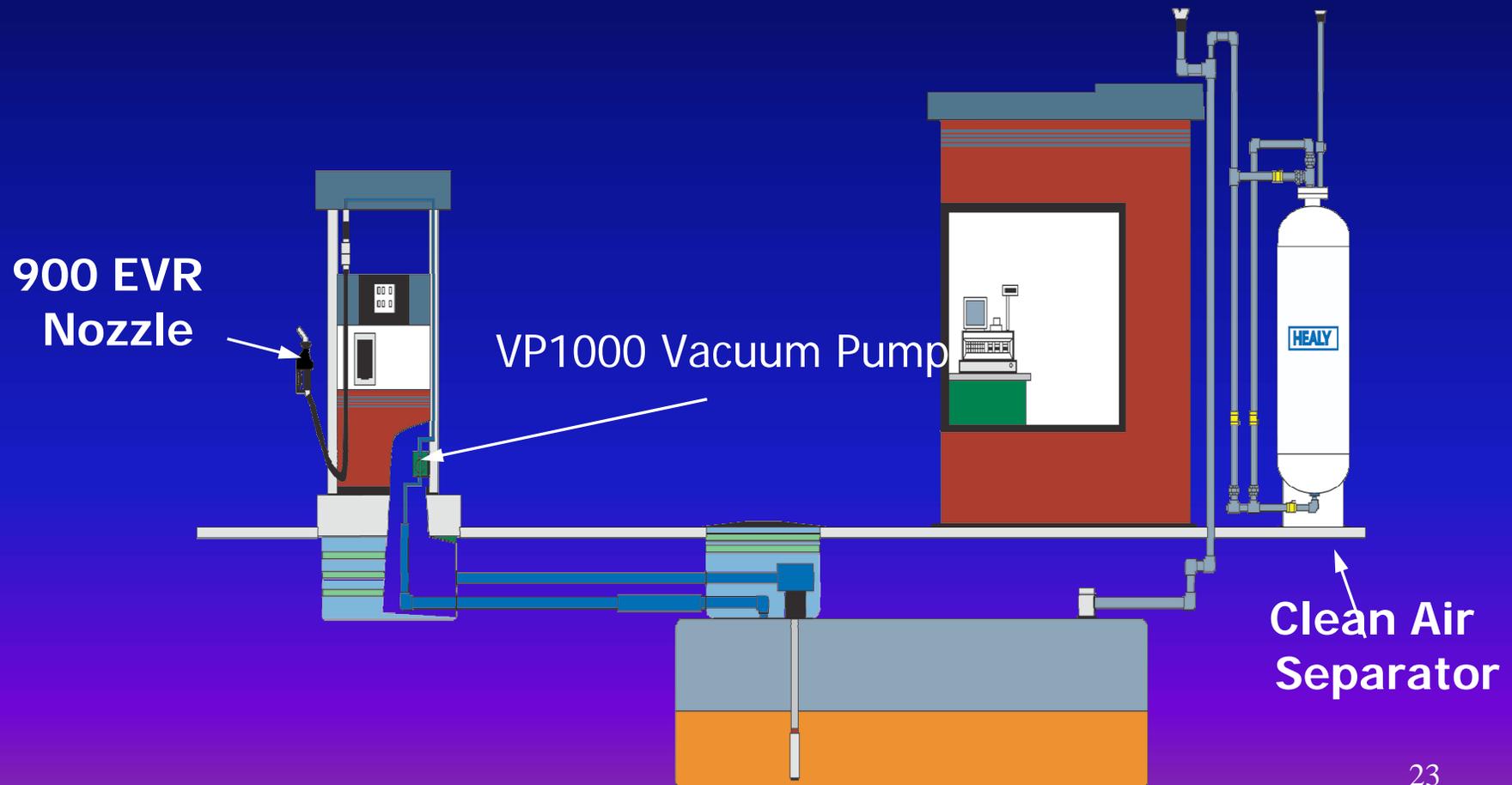
VST EVR Phase II System (Balance)

Not including ISD: E.O. VR-203

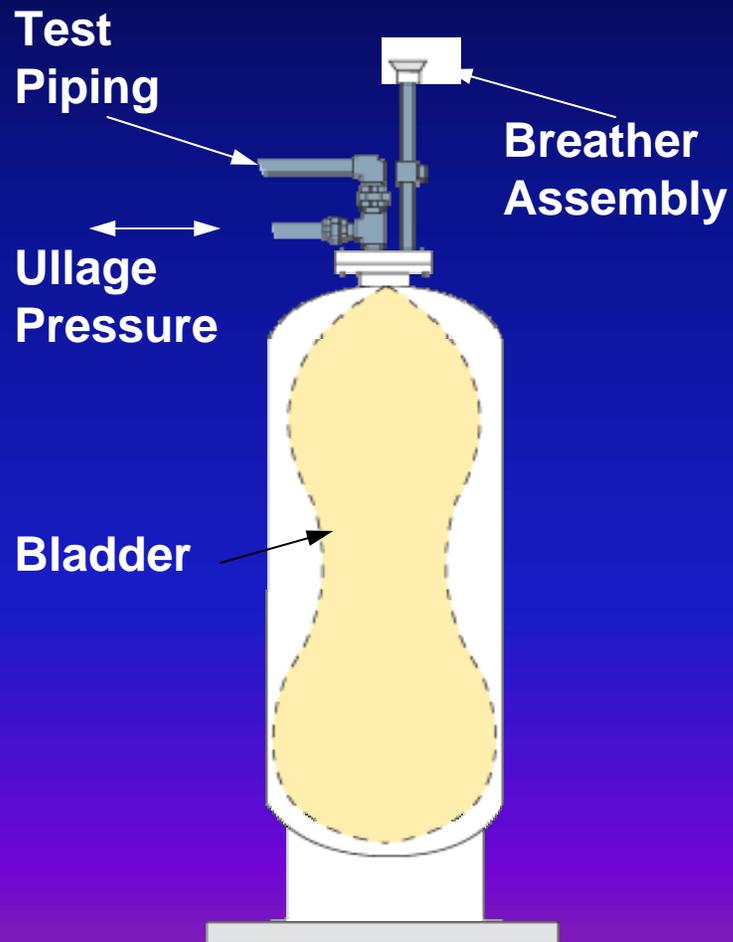
Including ISD: E.O. VR-204

- Other systems currently in cert process
- Takes about 1 year to complete certification¹²

Healy EVR Phase II System



Healy Clean Air Separator (CAS)



Healy Clean Air Separator



Healy Clean Air Separator



Healy Clean Air Separator



CAS Enclosures



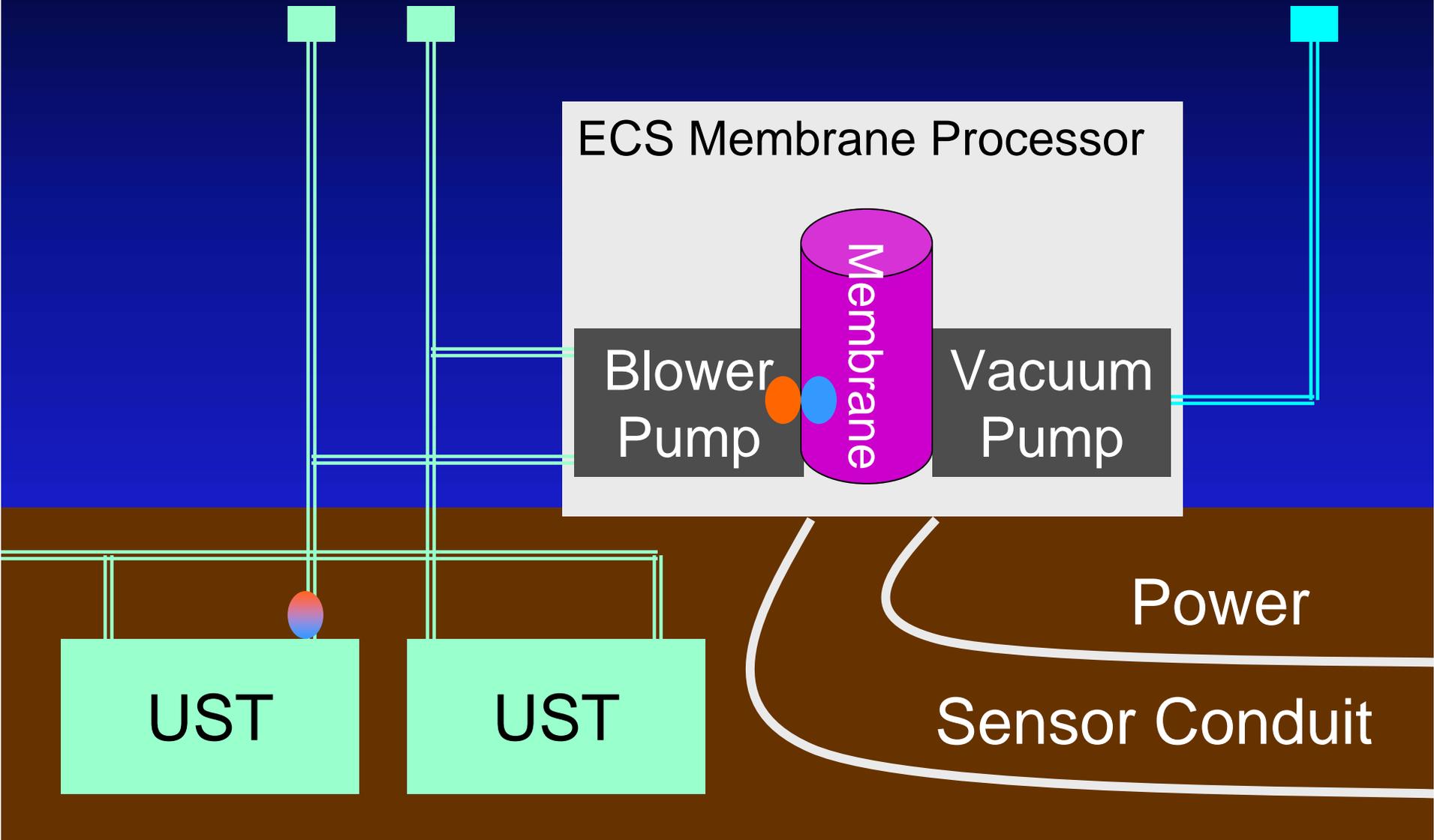
Another Option: Horizontal CAS



VST EVR Phase II System



VST Processor Operation



VST EVR Phase II System



Processor Site Requirements

- NFPA 30A, Chapter 10
 - Located outside of buildings
 - 10 ft from adjacent property lines that can be built upon
 - 20 ft from dispensing devices
 - When required distances cannot be achieved, then other means may be used to protect against fire exposure

Total Estimated Cost for EVR Phase II and ISD (CARB)

	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

Money Available For Phase II EVR Upgrades; "RUST" program

- Limited funding remaining for FY 08-09
- Fund 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/water_issues/programs/ustcf/rust.shtml

"evrhome" Website

- www.evrhome.org
- Information resource for GDF operators, contractors, and local agencies
- Will populate with identified EVR contacts for each agency
- Still under construction...
- All aspects of vapor recovery can be found at:
www.arb.ca.gov/vapor/vapor.htm

San Diego APCD Contacts/Info

- **Permits** – Mahiany Luther
 - Mahiany.Luther@sdcounty.ca.gov
 - (858) 586-2725
- **Enforcement** - Randy Smith
 - Randy.Smith@sdcounty.ca.gov
 - (858) 586-2677

www.sdapcd.org/comply/compliance.html

Want To Learn More?

- CARB will be teaching a 3 day course (Course #340) on Phase I & Phase II vapor recovery systems (including EVR) in San Diego November 4-6, 2008.
- To register, contact Nancy Thompson at 916-322-2227, or at arbtrain@arb.ca.gov
- You can also register using the form on-line at http://www.arb.ca.gov/training/Reg_form.pdf

Questions?

